U.S. Department of Homeland Security
U.S. Citizenship and Immigration Services
Immigrant Investor Program
Washington, DC 20529

U.S. Citizenship and Immigration Services

May 6, 2015
George Xu
Century New York City Regional Center
35-06 Leavitt Street, Unit CFA
Flushing, New York 11354

Application:	Form I-924, Application for Regional Center under the Immigrant Investor Pilot Program
Applicant(s):	Century New York City Regional Center
Re:	Initial Regional Center Designation Century New York City Regional Center RCW1420251818/ID1420251818

This notice is in reference to the Form I-924, Application for Regional Center Under the Immigrant Investor Pilot Program that was filed by the applicant with the U.S. Citizenship and Immigration Services ("USCIS") on July 21, 2014. The Form I-924 application was filed to request approval of initial regional center designation under the Immigrant Investor Program. The Immigrant Investor Program was established under § 610 of the Department of Commerce, Justice and State, the Judiciary, and Related Agencies Appropriations Act of 1993 (Pub. L. 102-395, Oct. 6, 1992, 106 Stat. 1874).

I. Executive Summary of Adjudication

Effective the date of this notice, USCIS approves the Form I-924 request to designate Century New York City Regional Center as a qualifying participant in the Immigrant Investor Program.

II. Regional Center Designation

USCIS approves the applicant's request to focus, promote economic growth, and offer capital investment opportunities in the following geographic area and industry categories:

A. Geographic Area

State	Counties/Cities
New York	Queens, New York, Bronx County, Richmond County, Westchester County, and Nassau County

Note: Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment request is not required if investment opportunities arise outside the geographic area referenced above. USCIS will evaluate eligibility upon the filing of an initial Form I-526 related to that new investment opportunity.

B. Industry Categories

Industry Category	NAICS code
Nonresidential Building Construction	2362
Furniture and Home Furnishing Merchant Wholesalers	4232
Hotel and Motel (including Casino)	72251
Restaurants and Other Eating Places	72251
Lessors of Nonresidential Buildings (Except Miniwarehouses)	53112
Architectural, Engineering and Related Services	5413
Insurance Carriers	5241
Accounting Tax Preparation, Bookkeeping Services	5412
Legal Services	5411
Monetary Authorities and Depository Credit Intermediation	5222
Other miscellaneous professional and technical services	5419

Note: Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment request is not required if investment opportunities arise outside the industry categories referenced above. USCIS will evaluate eligibility upon the filing of an initial Form I-526 related to that new investment opportunity.

III. Job Creation

USCIS approves the geographic area and industry categories noted above based on the economic impact analysis presented and reviewed in conjunction with the adjudication of this regional center proposal.

This hypothetical project does not have the factual details necessary to be in compliance with the requirements described in Matter of Ho, 22 I&N Dec. 206 (Assoc. Comm'r 1998), and therefore, USCIS's approval of the hypothetical job creation estimates presented in the Form I-924 will not be accorded deference and may not be relied upon by an individual investor when filing the Form I-526. The business plan and job creation estimates will receive a de novo review by USCIS when an individual investor files Form I-526. Once an actual project is adjudicated upon the filing of the initial Form I-526, USCIS will give deference to subsequent Forms I-526 when the critical assumptions remain materially unchanged from the initially-approved Form I-526.

When filing Form I-526, it will be the responsibility of the individual investor to submit a comprehensive, detailed and credible business plan, showing by a preponderance of the evidence that his or her investment in the new commercial enterprise will create not fewer than 10 full-time positions. If prior to filing a form I-829, the job creation estimated in the business plan submitted by the individual investor materially changes or will not be realized, then it will be the responsibility of the EB-5 investor to notify USCIS of an agreed upon methodology to allocate job creation among eligible investors.

IV. Guidelines for Filing Form I-526 Petitions

Each individual petition, in order to demonstrate that it is affiliated with the Century New York City Regional Center in conjunction with addressing all the requirements for an individual immigrant investor petition, shall also contain the following:

1. A copy of this regional center approval notice and designation letter including all subsequent amendment approval letters (if applicable).

2. An economic impact analysis which reflects a job creation methodology required at 8 CFR § 204.6 (j)(4)(iii) and shows how the capital investment by an individual immigrant investor will create not fewer than ten (10) indirect jobs for each immigrant investor.

3. A comprehensive, detailed and credible business plan for an actual project that contains the factual details necessary to be in compliance with the requirements described in Matter of Ho, 22 I&N Dec. 206 (Assoc. Comm'r 1998).

4. Legally executed organizational documents of the commercial enterprise.

Note: The project reviewed with this Form I-924 application is a hypothetical project. Organizational and transactional documents associated with the new commercial enterprise (NCE) submitted with this Form I-924 have not been reviewed to determine compliance with program requirements since these documents will receive de novo review in subsequent filings (e.g., an amended Form I-924 application with a Form I-526 exemplar or the first Form I-526 petition filed by an investor under the regional center project).

V. Designee's Responsibilities in the Operations of the Regional Center

As provided in 8 CFR § 204.6 (m)(6), to ensure that the regional center continues to meet the requirements of section 610(a) of the Appropriations Act, a regional center must provide USCIS with updated information to demonstrate the regional center is continuing to promote economic growth, improved regional productivity, job creation, and increased domestic capital investment in the approved geographic area. Such information must be submitted to USCIS on an annual basis or as otherwise requested by USCIS. The applicant must monitor all investment activities under the sponsorship of the regional center and to maintain records in order to provide the information required on the Form I-924A Supplement to Form I-924. Form I-924A, Supplement to Form I-924 Application is available in the "Forms" section on the USCIS website at www.uscis.gov.

Regional centers that remain designated for participation in the Immigrant Investor Program as of September 30th of a calendar year are required to file Form I-924A Supplement in that year. The Form I-924A Supplement with the required supporting documentation must be filed on or before December 29th of the same calendar year.

The failure to timely file a Form I-924A Supplement for each fiscal year in which the regional center has been designated for participation in the Immigrant Investor Program will result in the issuance of an intent to terminate the participation of the regional center in the Immigrant Investor Program, which may ultimately result in the termination of the designation of the regional center.

The regional center designation is non-transferable.

VI. Legal Notice

This approval and designation of a Regional Center under the Immigrant Investor Program does not constitute or imply an endorsement or recommendation by USCIS, the United States Government or any instrumentality thereof, of the investment opportunities, projects or other business activities related to or undertaken by such Regional Center. Except as expressly set forth in this approval and designation, USCIS has not reviewed any information provided in connection with or otherwise related to the Regional Center for compliance with relevant securities laws or any other laws unrelated to eligibility for designation as a Regional Center. Accordingly USCIS makes no determination or representation whatsoever regarding the compliance of either the Regional Center or associated New Commercial Enterprises with such laws.

Each Regional Center designated by USCIS must monitor and oversee all investment offerings and activities associated with, through or under the sponsorship of the Regional Center. The failure of an associated New Commercial Enterprise to comply with all laws and regulations related to such investment offerings and activities may result in the issuance by USCIS of a notice of intent to terminate the Regional Center designation.

If the applicant has any questions concerning the regional center designation under the Immigrant Investor Program, please contact the USCIS by email at USCIS.ImmigrantInvestorProgram@uscis.dhs.gov.

Sincerely,

Nicholas Colucci
Chief, Immigrant Investor Program

cc: Mehreen Shah, Esq.
299 Broadway, Suite 1005
New York, NY 10007

U.S. Department of Homeland Security
U.S. Citizenship and Immigration Services **Notice of Action**

A#		Application/Petition I-924
Receipt # RCW1420251818		Applicant/Petitioner PETITIONER
Notice Date March 19, 2015	Page 1 of 4	Beneficiary

PETITIONER
George Xu
c/o Mona Shah and Associates
299 Broadway, Suite 1005
New York, NY 10007

Request for Evidence

Based upon a review of your petition and supporting documentation, U.S. Citizenship and Immigration Services (USCIS) has found that you have not established that you are eligible for the benefit you are seeking. In order to determine whether you are eligible for the benefit, USCIS requests that you submit additional evidence. The deficiencies in your petition and the evidence that USCIS is requesting are explained in the attached document.

(SEE ATTACHED)

If you reside within the United States, you must submit the requested evidence no later than 87 days from the date of this notice. If you reside outside of the United States, you must submit the requested evidence no later than 98 days from the date of this notice. USCIS is unable to grant additional time for responding to this request for evidence. *See* 8 C.F.R. § 103.2(b)(8)(iv).

You must submit all of the requested materials at one time. Submission of only some of the requested evidence will be considered a request for a decision on the record. *See* 8 CFR § 103.2(b)(11). If you do not respond by the deadline, USCIS may deny your petition as abandoned, may deny your petition based on the record, or may deny your petition for both reasons. *See* 8 CFR § 103.2(b)(13)(i).

If you reside inside the United States, your deadline for submitting a response is: Monday, June 15, 2015.

IMPORTANT: RETURN THIS ORIGINAL NOTICE ON TOP OF THE REQUESTED INFORMATION AND/OR EVIDENCE LISTED ON THE ATTACHED SHEET(S).

Keep a photocopy of this notice for your records. If you otherwise write to us about your case, please provide a copy of this notice.

You will be notified separately about any other applications or petitions you have filed.

ACTION COMPLETED
APPROVED FOR FILING
Initials: Date: 4-22-15
FCO/Unit IPO

RECEIVED
APR 21 2015
HQIPO

Send your response to this address

U.S. Citizenship and Immigration Services
Immigrant Investor Program Office
131 M Street, NE
Mailstop 2235
Washington, DC 20529

A copy of this notice was sent to

Mehreen Shah
299 Broadway, Suite 1005
New York, NY 20007

Form I-924, Application for Regional Center Under the Immigrant Investor Pilot Program; Request for Evidence

A request for initial designation as a Regional Center under the Immigrant Investor Program ("Investor Program") or an amendment to an existing Regional Center designation, may involve:

1. A request for review of an exemplar Form I-526, Immigrant Petition by Alien Entrepreneur, prior to the filing of Form I-526 Petitions by individual alien entrepreneurs with USCIS and/or;
2. In the case of a Regional Center amendment request, a review of a new specific capital investment project where the Regional Center designation involved a review of an exemplar capital investment project.

It appears that you are requesting initial designation as a Regional Center under the Investor Program.

I. Procedural History and Regional Center Background

The proposed Regional Center entity, Century New York City Regional Center, ("CNYCRC"), was established on March 25, 2014 in New York, and is structured as an LLC. CNYCRC is requesting jurisdiction over the following geographic area:

State of	Counties
New York	Queens, New York, Bronx County, Richmond County, Westchester County, and Nassau County

CNYCRC plans to offer EB-5 capital investment opportunities in affiliated new commercial enterprises, organized as corporations, LLCs, LPs, etc., focusing on projects in the following industry categories:

Industry Category	NAICS Code
Commercial and Institutional Building Construction	236223
Furniture and Home Furnishing Merchant Wholesalers	4232
Restaurants and Other Eating Places	72251
Construction (Building & Site)	2362/23622
Food Services and drinking places	72251
Real Estate	53112/5313
Other government enterprises	921

Architectural, engineering and related services	5413
Insurance	5241
Accounting tax preparation, bookkeeping services	5412
Legal Services	5411
Monetary authorities and depository credit intermediation	5222

The capital investment projects will involve to job creating enterprises located within the proposed bounds of the Regional Center.

Based upon a review of the initial record of evidence, United States Citizenship and Immigration Services (USCIS) cannot conclude that the applicant has established eligibility for regional center designation. To assist the applicant in focusing on the deficiencies in the existing record, USCIS serves this Request for Evidence. The deficiencies of the current record are outlined below.

II. Evidentiary Requirements for Regional Center Proposals

8 CFR 204.6 (m)(3) describes the evidence that must be submitted in support of a Regional Center proposal. After review of your proposal, the following information, evidence and/or clarification is required. Note that in response to this notice, that it is helpful to provide a cover letter that acts as an executive summary, followed by a table of contents with sections that are tabbed at the bottom of the page.

1. Regional Center's Operational Plan (8 CFR 204.6(m)(3)(iii) and 8 CFR 204.6(m)(6)):

A Regional Center proposal should have at least two business plans. One for the Regional Center's Operational Plan and an actual or exemplar business plan for a project in each of the defined target industries in the proposal.

The business plan for the Regional Center contains language that is ambiguous and may not comply with the elgibility requirements of the EB-5 program. Specifically, page 6 states, "EB-5 investors will earn not earn any percentage of the interest income from lent through the Regional Center proportionate to their capital contribution." In addition, page 28 of the Confidential Private Offering memorandum, third paragraph, under the heading "Offering Proceeds," it is stated that the loan "will bear no interest.

Per 8 CFR 204.6(j)(2): *To show that the petitioner has invested or is actively in the process of investing the required amount of capital, the petition must be accompanied by evidence that the petitioner has placed the required amount of capital at risk for the purpose of generating a return on the capital placed at risk.*

Furthermore, The USCIS Administrative Appeals Office ("AAO") held that for the capital to be "at risk" there must be a risk of loss and a chance for gain. See *Matter of Izummi*, 22 I&N Dec. 169 (Assoc. Comm., 1998).

Based on the issues identified above, it appears that your proposed plan may prevent an investor from having their required capital considered "at risk". Please explain how the RC plans to rectify future proposals in order to address the deviation from policy described above.

Translations:

Any document containing a foreign language submitted to USCIS shall be accompanied by a full English translation that the translator has certified as complete and accurate, and by the translator's certification that he or she is competent to translate from the foreign language into English.

Copies:

Unless specifically required that an original document be filed with an application or petition, an ordinary legible photocopy may be submitted. Original documents submitted when not required will remain part of the record, even if the submission was not required.

III. Conclusion

USCIS has determined that the record submitted does not establish eligibility for the benefit sought. Accordingly, USCIS has requested evidence which addresses the issues outlined above. As required by regulation, the applicant must prove, by a preponderance of the evidence (that it is more likely than not), that the applicant is fully qualified for the benefit sought. Please note that USCIS will make a final decision based on the initial evidence submitted upon filing and after consideration of all additional evidence submitted in response to this request.

NOTES:
Any document submitted to the USCIS containing a foreign language, must be accompanied by a full English language translation that has been certified by the translator as complete and accurate, and that the translator is competent to translate from the foreign language into English. Submit clear and legible copies of all requested evidence. If clear and legible copies are not possible, submit the original documents. These originals will be returned, if requested.

Please provide an index of any submitted evidence and include corresponding tabs for each section of evidence.

MONA SHAH & ASSOCIATES
—ATTORNEYS AT LAW—

299 Broadway, Suite 1005
New York, NY 10007

Tel: 212-233-7473
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Email: info@mshahlaw.com
Web: www.mshahlaw.com

April 17, 2015

VIA Fed-Ex Delivery

USCIS – Immigration Investor Program Office
Attn: EB-5 RC Processing Unit
131 M Street, NE
Mailstop 2235
Washingon, DC 20529

RE: I-924 Regional Center Designation
Petitioner: Century New York City Regional Center, LLC

Dear Adjudicating Officer,

Please be advised that we represent Century New York City Regional Center, LLC in connection with the annexed I-924 (RFE) submission for regional center designation. Please find enclosed:

1. RFE Front blue sheet
2. RFE Response
3. Exhibit List (1-2)

Should you require any additional document or clarification, please do not hesitate to contact us, we will be delighted to oblige.

Sincerely,
Mona Shah & Associates

Mehreen Shah, Esq.

MS/hm
Enclosures

UNITED STATES DEPARTMENT OF STATE
US CITIZENSHIP AND IMMIGRATION SERVICE

In the Matter of: }
Century New York City Regional Center } *Classification under* EB-5 Sec.
} 203 (b) (5)
}
}

RESPONSE TO THE REQUEST FOR EVIDENCE

The Petitioner, Century New York City Regional Center, LLC hereby, through counsel, responds to this Service Center's Request for Evidence ("RFE") (Notice Date: March 19, 2015; due date: June 15, 2015) as follows:

PRELIMINARY:

The petitioner is an application for the I-924 Application for Regional Center under the Immigrant Investor Pilot Program. The initial I-924 petition was submitted on July 15, 2014. The petitioner hereby seeks regional center designation with Four Points Flushing Hotel & Condominium Project as a "hypothetical" project. The petitioner hereby responds to this RFE notice:

On Page 3 of the RFE, it states that:

"The business plan for the Regional Center contains language that is ambiguous and may not comply with the eligibility requirements of the EB-5 program. Specifically, Page 6

states, "EB-5 investors will earn not earn any percentage of the interest income from lent through the Regional Center proportionate to their capital contribution." In addition, Page 28 of the Confidential Private Offering Memorandum, third paragraph, under the heading "Offering Proceeds," it is stated that the loan "will bear no interests."

Per 8 CFR 204.6(j)(2): To show that the petitioner has invested or is actively in the process of investing the required amount of capital, the petition must be accompanied by evidence that the petitioner has placed the required amount of capital at risk for the purpose of generating a return on the capital placed at risk.

Furthermore, the USCIS Administrative Appeals Office ("AAO") held that for the capital to be "at risk" there must be a risk of loss and a chance for gain. See *Matter of Izummi*, 22 I&N Dec. 169 (Assoc. Comm., 1998).

Based on the issues identified above, it appears that your proposed plan may prevent an investor from having their required capital considered "at risk". Please explain how the RC plans to rectify future proposals in order to address the deviation from policy described above."

Please be advised, the zero interest clause in the business plan and the Confidential Private Offering Memorandum was a clerical oversight. In the actual project, the petitioner intends to propose that EB-5 investors will earn [redacted] interest per annum on their investment.

(b)(4)

Corrections made: Page 6 of the business plan for the Regional Center, therefore, has been corrected to state that: *"EB-5 investors will earn the interest income <u>one percent (1%)/per annum</u> from capiotal lent through the Regional Center proportionate to their capital contribution."* On the third paragraph of Page 28 of the Confidential Private Offering memorandum, under "Offering Proceeds", it has been corrected to state that the

(b)(4)

loan "will bear [redacted] interest per annum." Please see the business plan for the Regional Center and the Confidential Private Offering Memorandum attached for your reference.

THE ADDITIONAL INFORMATION IS NOT A MATERIAL CHANGE

The petitioner shall be afforded an opportunity to cure "the deficiencies" at the RFE stage. The additional language and information is a mere correction of the clerical oversight and shall not be deemed a "material change" to the existing project.

The term "material change" means a "change in the meaning or language of a legal document, such as a contract, deed, lease, or commercial paper, that is made by one party to the document without the consent of the other after it has been signed or completed." *http://legalictionary.thefreedictionary.com/ Material + Changes.* It is the alteration of an instrument in such a way that materially changes it so that it no longer reflects the terms that the parties originally intended to serve as the basis of their legal obligation to each other. *Id.*

To be material, the change must affect an important part of the instrument and the rights of the parties to it. What constitutes a material change often varies according to context.[1] *See also* K.A. Adams, Fordham Journal of Corporate & Financial Law, Vol. 10, Issue 1 2004 Article 2, *A Legal Usage Analysis of "Material Adverse Change" Provisions.* According to Black's Law Dictionary, material can mean "of such a nature that knowledge

[1] According to 6 CFR 37.3 (Title 6 - Homeland Security; Chapter I - Department Of Homeland Security, Office Of The Secretary; Part 37 -Real Id Driver's Licenses And Identification Cards; Subpart A – General), Material change means "any change to the personally identifiable information of an individual as defined under this part. Notwithstanding the definition of personally identifiable information below, a change of address of principal residence does not constitute a material change."

of the item would affect a person's decision-making process." Another meaning of material is "significant," in other words "important enough to merit attention." The additional information and data sourcing has not changed the business plan or any rights of the parties.

Although the principle that a petition must be approvable when filed precludes a petitioner from making "material changes to a petition that has already been filed" to correct a fatal defect, it does not preclude correction or modifications that substantiate the essence of an original submission that was approvable as filed and supplemented in response to an RFE. Notably, *Matter of Izummi* recognized that certain amendments to a partnership agreement do not necessarily doom a petition or constitute a "material change" made "in an effort to make an apparently deficient petition conform to Service requirements." *Supra.* at 175-176. Indeed, amendments that conform the loan agreement to other sections of the agreement prepared and filed at the inception of the petition are permissible. *Id.*

To add the clarifying language and the sourcing data is a *de minimis* change, this by its nature does not alter the basic nature of the business plan. The correction does not relate to any fundamental operation of the business plan thus, it doesn't go to the heart of the agreement.

BURDEN OF PROOF

As stated earlier, the burden of proof in visa petition proceedings is the "preponderance of the evidence,"[2] unless there is a higher burden of proof standard in the statute, which

[2] *Matter of Soo Hoo, 11 I &N Dec. 151 (BIA 1965); Matter of Patel, 19* I&N Dec.774 (BIA 1988)
Matter of Martinez, 21 I&N Dec. 1035 (1997)

is not the case here. "Preponderance of the evidence" means "probably true"' or "more likely than not"[3].

The Board of Immigration Appeals (BIA) offered the following discussion of the definition of the term "preponderance of the evidence" (in reviewing the denial of an adjustment of status application under INA §245A)

> *The preponderance of the evidence standard may be best understood by contrasting it with other standards of proof.*
> *First, preponderance of the evidence is not evidence that must establish beyond a doubt that the applicant is eligible under section 245A of the Act. In other words, the director can still have doubts but, nevertheless, the applicant can establish eligibility. Second, preponderance of the evidence is not the clear, unequivocal, and convincing evidence applicable in deportation proceedings. See Woodby v. INS, (Service must prove by clear, unequivocal, and convincing evidence that the facts alleged as grounds for deportation are true). An alien does not have to prove by clear, unequivocal, and convincing evidence that he has established eligibility under section 245A of the Act. Preponderance of the evidence requires a lesser showing than these two standards. (Footnote omitted.)*

How much of a showing is sufficient to establish eligibility by a preponderance of the evidence turns upon the factual circumstances of each case. Nonetheless, when we consider that the purpose of evidence is to ascertain the truth, then we can make certain generalizations. For example, when something has to be proved beyond a reasonable doubt, the proof must demonstrate that something must be almost certainly true. And when something has to be proved by clear and convincing evidence, the proof must

[3] *See Woodby v. INS, 385 U.S. 276 (1966)*

demonstrate that it is highly probably true. However, when something is to be established by a preponderance of the evidence it is sufficient that the proof only establish that it is probably true.[4]

In Conclusion:

Considering the totality of all the evidences submitted, the petitioner US Access Florida Regional Center, LLC with Rapid Security Solutions Project as a "hypothetical" project is pursuant to 8 C.F.R. §204.6(m)(3) and EB-5 Adjudication Policy Memorandum, dated May 30, 2013, PM-602-0083 and shall be approved.

Dated: April 17, 2015
New York, New York

Respectfully Submitted by
Mona Shah & Associates

Mehreen Shah, Esq.

[4] E. Cleary, McCormick's Handbook of the Law of Evidence §339 (2d ed. 1972).

U.S. DEPARTMENT OF HOMELAND SECURITY
U.S. CITIZENSHIP AND IMMIGRATION SERVICES
CALIFORNIA SERVICE CENTER

In the Matter of:

I-924 (RFE) Petition:
For Century New York City Regional Center

Under 8 CFR 204.6, Immigrant Investor Pilot Program

Hypothetical Project: Four Points Flushing Hotel & Condominium

I-924 EB-5 Petition

SUPPORTING DOCUMENTS

No.	Description
1.	**Regional Center Documentation:** • **Century New York City Regional Center Business Plan**
2.	**Legal Documents to demonstrate the business structure among the NCE, RC and JCE:** • Private Placement Memorandum

E

Regional C

- Century N

  Center Bu

Century New York City Regional Center, LLC

[redacted]

Business Plan for Regional Center Application

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Part I: Regional Center Business Plan

1.0 Executive Summary

Century New York City Regional Center, LLC ("CNYCRC") is a newly formed venture that is applying for approval as a Regional Center with a Hypothetical project with the UCSIS. The Regional Center, will serve as a lending entity that specializes in funding for development of various profitable projects within Targeted Employment Area (TEA). Loans disbursed by the Regional Center will be funded through EB-5 Investment and will result in sufficient direct and indirect employment to meet the requirements of the USCIS.

Century New York City Regional Center's initial project is Four Points Flushing Hotel ("Project") in New York City. The Project entails a new construction of a 210-roomed upscale, select-service hotel in Flushing Queens, one of the five boroughs of New York City. Four Points is a mid-scale hotel brand by Sheraton Hotels & Resorts offering a full-service hotel experience at a reasonable price.

Century New York City Regional Center's geographic boundaries include the following counties:

- Queens County
- Nassau County
- The Bronx County
- New York County
- Westchester County
- Kings County
- Richmond County

(b)(4)

The Regional Center's first project, Four Points Flushing Hotel, will be developed by Farrington Realty, LLC in Flushing, New York. The Flushing Hotel will create [redacted] jobs, including [redacted] jobs from direct construction employment and [redacted] jobs from indirect construction employment, [redacted] direct jobs from operation, [redacted] indirect jobs from operation.

(b)(4)

The Regional Center will actively market to foreign investors worldwide, with an emphasis on China, Southeast Asia, the Middle East, India and South America.

CNYCRC will be led by Mr. George Xu. He is the founder and the principle of the CNYCRC. Mr. Xu is also the founder and President of Century Development Group, a real estate development company. With over 16 years of real estate holding and development experience, he has worked on over a million of square feet of real estate developments; mixed-use developments including residential,

From: (212) 233-7473
Mona Shah
MONA SHAH & ASSOCIATES
299 BROADWAY
SUITE 1005
NEW YORK, NY 10007

Origin ID: PCTA

FedEx Express

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CAD: 2731502/INET3610

Delivery Address Bar Code

SHIP TO: (212) 233-7473 BILL SENDER

Immigrant Investor Program Office
USCIS
131 M Street, NE
Mailstop 2235
WASHINGTON, DC 20529

Ref # RFE I-924 George Xu
Invoice #
PO #
Dept #

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hospitality, office, retail, and in all phases of assembly, acquisition, finance, design, construction, marketing and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters. Mr. Xu provides marketing oversight and policy guidance for the Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and a Master of Science degree in Computer Science from Polytechnic University, New York.

The Regional Center will raise a total of (b)(4) through the EB-5 program to fund Four Points Flushing Hotel, enabling the construction and operation of a Four Points hotel in Flushing New York City. A total (b)(4) of investors with an investment of $500,000 each plus costs and expenses will be solicited to finance these projects. Century New York City Regional Center will provide (b)(4) in financing to Four Points Flushing Hotel over a five (5) year period.

2.0 EB5 Program Details

2.1 Regional Center Contacts

Principals	George Xu georgexu88@yahoo.com 718.939.1060

Immigration Counsel	Mona Shah, Esq. Mona Shah & Associates 299 Broadway, Suite 1005 New York, N10007 212.233.7473 mona@mshahlaw.com

Econometrics/ Modeling	Bleakly Advisory Group Jr. Gary Mongeon 6000 Laske Forrest Drive, Suite 108 Atlanta, GA 30328 404.845.3500 gary@blagroup.com

2.2 Qualification for Regional Center Designation

Century New York City Regional Center has been developed with the following USCIS requirements in mind:

- Investors will be required to make an investment of at least $500,000 (or $1 million if the enterprise is not located in a designated TEA), plus [redacted] in administrative costs and fees that are used to pay marketing agents. (b)(4)
- Each investor's contribution to the capital expansion funds of the project will generate at least 10 direct and indirect jobs in the area
- Investors must be able to demonstrate the lawful source of their investment funds
- The investment must be received from the person seeking the visa from clearly identifiable funds
- Borrowed investment funds qualify as long as they are not secured by the assets of the target U.S. investment

2.3 Project Selection Strategy

All current and potential projects are based on direct and indirect job creation in the Regional Center focus area. Each project is required to provide a detailed job creation forecast based on a business plan specifying its employment needs, which are carefully reviewed and evaluated by EB-5 Management and a Board of Advisors prior to recommending the project to investors.

Throughout the life of the project, these direct jobs will be monitored by EB-5 Management, using the Regional Center's own tracking procedures and supplemented by the project's employment records. Indirect job creation is based on these new, direct jobs.

2.4 Organizational Structure

Century New York City Regional Center will be structured as a Limited Liability Company of which the Principal will serve as managing members. The Regional Center will form a new LLC to act as the investment and lending entity for each project. Each sponsored enterprise will be formed as a separate entity, which the Regional Center will act as the managing member.

2.5 Active vs. Passive Investment

The EB-5 regulations require involvement in management or policy making. The regulations deem a Member in an LLC that conforms to the Uniform Limited Liability Act as sufficiently engaged in the EB-5 enterprise in the form of "policy formulation". In addition, the Regional Center's structure grants the members the right, as a group, to oust the general partner for "cause" and to suggest or recommend issues of overall policy.

2.6 Company Privacy Policy

It is the Company policy of Century New York City Regional Center, LLC to protect the privacy of its investors. Therefore, the Company will not disclose the names of investors to those outside of the Limited Liability Company, unless required to do so by law. However, each investor has the legal right of access to names, contact information, and percentage of ownership of the other investors within the Regional Center.

2.7 Investment Returns and Investor Exit

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EB-5 investors will earn the interest income [redacted] per annum from capital lent through the Regional Center proportionate to their capital contribution. The primary exit strategy for this particular project LLC would be the repayment of the loan either through the operation and/or the refinancing of the project, with funds disbursed to the investing members in proportion to their capital contributions.

2.8 Application Process Steps

To become an immigrant investor in the EB-5 Regional Center Program, a potential investor will take the following steps:

Step 1:	Investors will be directed to Century New York City Regional Center, LLC through immigration consulting firms or through direct contact with Regional Center Principals at international conferences. Potential investors will be directed to Century New York City Regional Center, LLC and immigration counsel to discuss the required commitment of funds and required documentation to prove the investment and tracing of funds.
Step 2:	Once it has been determined that the Investor is an accredited investor, a full prospectus will be sent to interested investors, who can then investigate the financial viability of the investment. The investor will be required at this point to make the initial refundable deposit for a place on the investor list and to complete the initial application documents and escrow agreement. Deposits will be returned in the event of oversubscription or at the request of an investor pursuant to the Investor escrow agreement within 15 days of receipt.
Step 3:	The Regional Center will perform due diligence to verify sources of funds

	and investor qualification.
Step 4	The investor may retain independent legal counsel to act on his/her behalf. Documents to be filed with the USCIS and relevant documentation and application process will be filed by Century New York City Regional Center, LLC's counsel. The investor will then will receive copies of offering memorandum and LLC agreement.
Step 5: (b)(4)	The investor will pay balances of investment funds and administration fee [redacted] in fees and $500,000 Capital Investment). The investor will be receive interest payment [redacted] per annum on their investment funds.
Step 6:	The investor will sign all necessary application documents for USCIS submission.
Step 7:	Counsel will file I-526 Petition for Alien Entrepreneur with the USCIS. This petition requests USCIS to certify the applicant and the investment as eligible for EB-5 status.
Step 8:	Upon approval of the Petition, (a) if the investor is in the United States, he/she may apply for Adjustment of Status to Conditional Resident status. (b) If abroad, the investor must wait for notification from the National Visa center to prepare documents for the Immigrant Visa interview at the U.S. Consulate or Embassy in his/her home country. The purpose of the Adjustment of Status or Immigrant Visa interview is to ensure that the investor is not subject to grounds of exclusion, such as a criminal past, infectious diseases, or other grounds for exclusion by law.
Step 9:	Once issued conditional permanent resident status, the investor needs to wait 21 months to reconfirm that the full investment has been made and that 10 jobs were or are in the process of being created.
Step 10:	The investor will be able to file an application to remove the conditional resident status (Form I-829) between 21 to 24 months after Conditional Resident status is approved.

3.0 Initial Job Creating Enterprise: Summary

Century New York City Regional Center will begin by funding Four Points Flushing Hotel. Farrington Realty, LLC will be the job creating enterprise, conducting the development of the Four Points Flushing Hotel.

Farrington Realty, LLC proposed to construct a 210-roomed upscale, select-service hotel and condominium in Flushing Queens, one of the five boroughs of New York City. Four Points is a mid-scale hotel brand by Sheraton Hotels & Resorts offering a full-service hotel experience at a reasonable price. The construction and operation of the regional base of invested capital, the creation of new jobs, and the associated economic growth effects will be put into effect with the capital raised from immigrant investors through the EB-5 Program.

Under the leadership of Mr. George Xu, the company will develop proficiency in the every aspect of real estate development and will be dedicated to services in order to create a positive property management/owner/tenant relationship.

Based on the analysis of Empire State Development and New York State Department of Labor, the project is located at census tract 889.02 in Queens County, New York and qualified as a "Targeted Employment Area" (TEA).

4.0 Regional Center Industry and Geographic Scope

The Four Points Flushing Hotel under the Century New York City Regional Center, LLC will encompass the following industries:

Construction Hard Costs

- Construction (Building & Site) – 2362/23622
- Wholesale Trade (FF&E) – 42/4232
- Real Estate – 53112/5313

Financing & Soft Costs

- Other government enterprises – 921
- Architectural, engineering and related services – 5413
- Insurance - 5241
- Accounting tax preparation, bookkeeping services – 5412

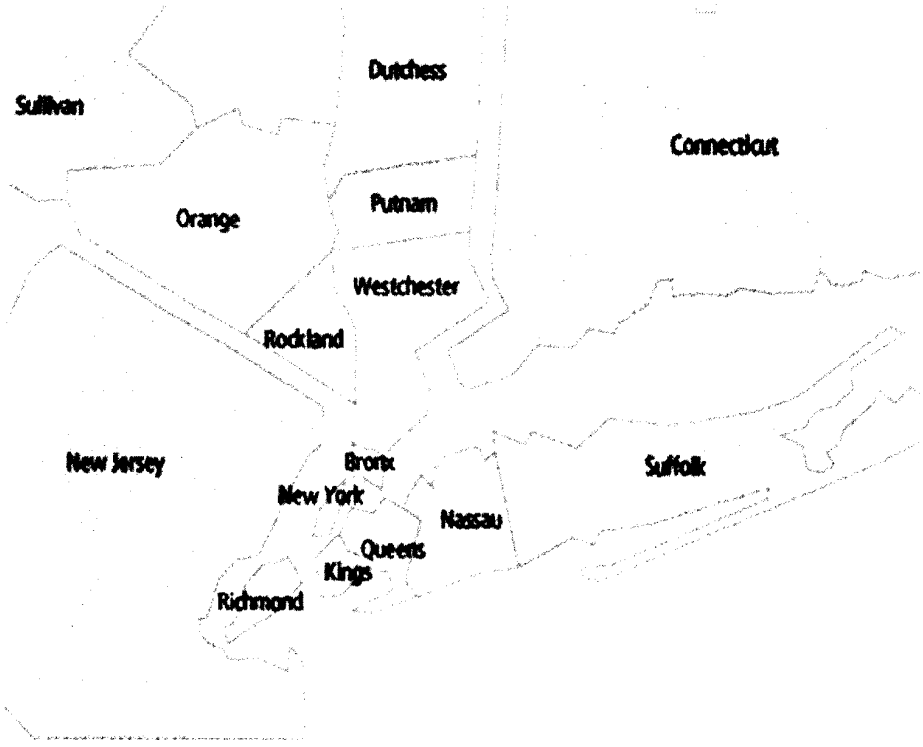
  Legal Services – 5411

  Monetary authorities and depository credit intermediation – 5222

  ther miscellaneous professional and technical services - 5419

- O
- Please note that the NAICS codes start at 2 digits. Industries with 4-digit codes are subsets of the larger 2-digit industry sector, 6 digit codes are subsets of the 4-digit codes. The Economic Impact Analysis ed RIMS II multipliers following the same system. So there are fewer RIMS codes than system, and the descriptors may be slightly different but generally matching the NAICIS er most circumstances, the first 4 digits of the RIMS II and NAICS industries are the same.

The Regional Center will serve the following counties in the State of New York:



The following table reflects the population of these counties, as reported by the U.S. Census Bureau.[1]

Borough & County	Population	
Manhattan	2000	1,537,195
	Growth	5.20%
	2012	1,617,090
The Bronx	2000	1,332,650
	Growth	5.69%
	2012	1,408,473
Brooklyn	2000	2,465,326
	Growth	4.07%
	2012	2,565,635
Queens	2000	2,229,379
	Growth	1.95%
	2012	2,272,771
	2000	443,728

[1] U.S. Census Bureau. Obtained at: http://www.census.gov/

Staten Island	Growth	6.08%
	2012	470,728
Nassau County	2000	1,334,544
	Growth	0.74%
	2011	1,344,436

5.0 Regional Center Marketing Strategy

Under 8 CFR 204.6(m)(3)(iii), Century New York City Regional Center understands that USCIS interprets the words "promotional efforts" to mean an advertising or marketing program planned by the sponsors of the Regional Center that is designated to attract immigrant investors to the Regional Center.

This Regional Center proposal contains a full description of the past, current and future promotional activities for the Regional Center. To date, there are no current activities and there have been no previous activities. Below is a budget for this activity as well as the statement of Tim Whitfield as to the source of those funds used to accomplish this necessary task.

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Total marketing costs are estimated to be about [redacted] per year. (Please see below):

ITEM	PLAN	COST
Website	Construction and maintenance—includes video overview for home page and ability to translate into various languages	[redacted]
Seminars	5 Seminars abroad	
Trade Shows	Attendance and booth at domestic and international trade shows	
Press Conference	Kick- off event with ethnic media	
Outreach to Referral community	Outreach to network of professionals to assist in referring investors.	
TOTAL		

(b)(4)

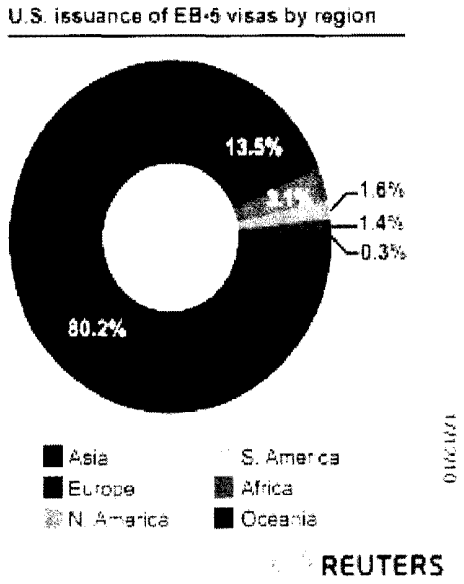
The Regional Center's role is to market each potential project to foreign investors and secure that investor's participation in the program over other potential investment possibilities, such as investment in other countries, investing in other entities in the US outside of the EB-5 structure, and

investing in other regional centers in the U.S. market. Century New York City Regional Center will develop a marketing message that addresses each of these potential investment opportunities, and the advantages the Regional Center has over each (see *5.2 Investment Advantages*). To reach potential investors, the Regional Center will deploy a dual marketing strategy that includes working with immigration consultants and registered brokers as well as creating a widespread campaign that includes attendance at conference, web-exposure, and other traditional advertising channels (see *5.3 Marketing Strategy*).

5.1 Market Focus

Century New York City Regional Center will target foreign investors in China and Southeast Asia, the Middle East, India, South America, and Europe. In the past several years, the popularity of the program with investors -- particularly investors from mainland China --has grown exponentially. In 2011, Chinese investors received the highest number of EB-5 visas. Two thousand four hundred and eight Chinese citizens received EB-5 visas in 2011.[2] By the end of September, 2012, mainland China accounted for 80% of EB-5 visa issued in the first three quarters of Fiscal Year 2012.[3] Investors from China, South Korea, Taiwan, Venezuela and Iran, these top five countries have accounted for 90% of the visas issued.

In the past several years, approximately 13.5% of investors come from Europe.[4] The following chart illustrates the number of EB-5 visas issued by region and the updated data from IIUSA by the end of September, 2012.



[2] Report of the Visa Office 2011published by U.S. Department of State. Source from IIUSA: http://iiusablog.org/wp-content/uploads/2012/10/IIUSA-FY2012-EB5-VISA-STATS-Source-DOS.pdf

[3] Report of the Visa Office 2011published by U.S. Department of State. Source from IIUSA: http://iiusablog.org/wp-content/uploads/2012/10/IIUSA-FY2012-EB5-VISA-STATS-Source-DOS.pdf

[4] "Overselling the American Dream." Thomson Reuters. December 2010. Obtained at: http://graphics.thomsonreuters.com/F/12/EB-5.pdf

FY 2012*	C5	T5	I5	R5	Total
China - Mainland born	90	108	5,923	3	6,124
South Korea	9	13	425	0	447
China - Taiwan born	3	4	141	0	148
Venezuela	0	7	102	0	109
Iran	2	2	77	0	81
Total All Countries	**159**	**164**	**7,312**	**6**	**7,641**
*October - September					

According to the initial results, in 2012 only the EB-5 industry supported 42,000+ American jobs, added $3.39+ billion in GDP and generated $712+ million in federal/state/local tax revenue (up from 33,000+ jobs, $2.6 billion in GDP, and $564+ million over the previous TWO years combined).

The statistics for I-526, I-829 and I-924 petitions are as follows:

Form	Receipts	Approvals	Denials	Approval Rate	Growth in Receipts from 2012
I-526	6,517	3,677	781	82.5%	7.9%
I-829	1,217	844	44	95.0%	70.9%
I-924	436	220	29	88.4%	81.7%

There are more than 1.3 million individuals residing in China with a combined wealth of $4.3 billion USD.[5] While a small segment of the country's overall population, the number of Chinese high-net-worth individuals surpasses that of France and the United Kingdom.[6] Impressively, the number of high net-worth individuals in the Asia-Pacific region wealth gained 12% in 2010 to $10.8 trillion.[7] Additionally, more than 13 million households make up China's upper middle class, who have incomes of between 100,000 and 200,000 RMB ($15,000 to $30,000).

After the United States, Japan and Germany retain the highest number of high net-worth individuals overall. Overall, Europe has the second-largest number of high net-worth individuals, whose combined wealth reaches $10.2 trillion. The following chart reflects the number of high net-worth individual by country.[8]

[5] PR Newswire. "China – The Future of HNWIs to 2015" January 4, 2012. Obtained at: http://www.prnewswire.com/news-releases/china---the-future-of-hnwis-to-2015-opportunities-for-wealth-managers-and-private-banks-136646713.html

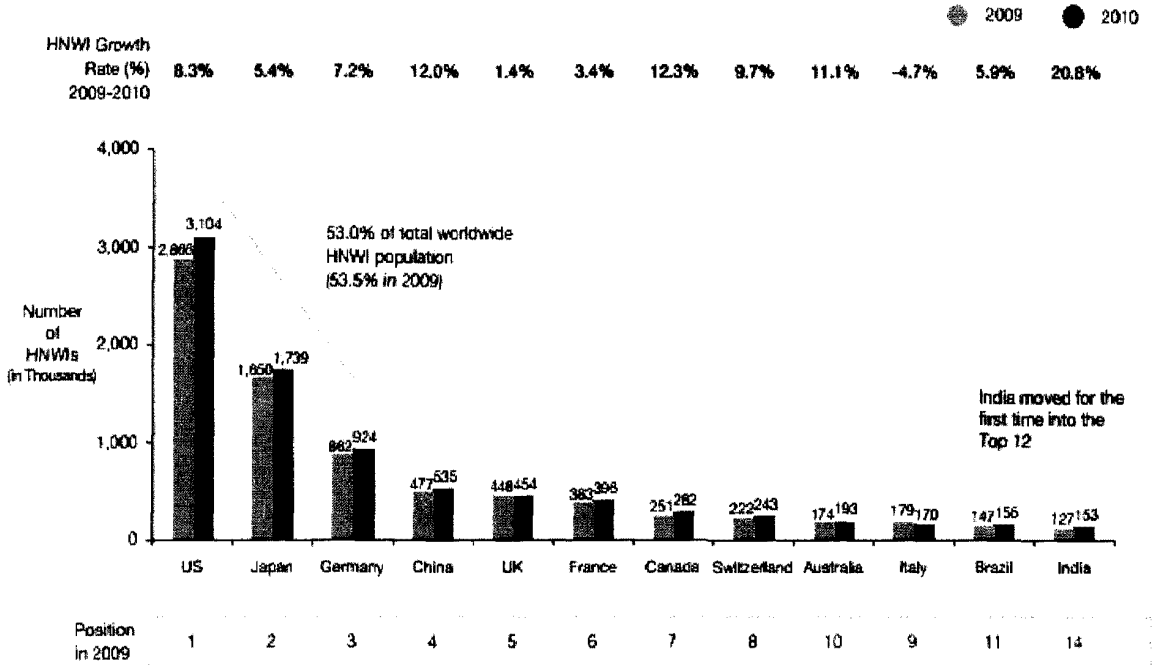
[6] Chang, Bao. "Luxury Goods Demand May Peak in 2015." January 1, 2010. Obtained at: http://www.chinadaily.com.cn/business/2010-01/22/content_9360040.htm

[7] Merrill Lynch/CapGemini. "World Wealth Report: World's Population of HNWIs and Their Wealth Continued to Expand in 2010." Obtained at: http://www.ml.com/media/114235.pdf

[8] Ibid.

HNWI Population by Country, 2010

(in Thousands)



5.2 Investment Advantages

Century New York City Regional Center's marketing messages will be developed to address each of the key points listed below:

- The U.S. market has a number of benefits to the investor; marketing materials will be developed to highlight why the United States is a good choice, even (or especially) during a market downturn.
- The advantages of the EB-5 platform are clear; marketing materials will ensure that the investor is aware of these benefits over the typical business investor visas available on an independent basis.
- Informational materials will designed to focus on the benefits of this particular Regional Center (over other potential regional centers) and its focus on investing in projects that address the demands of high growth markets

Each of these points is explored in further detail below:

US Market and Industry Advantages

For many immigrants, pursuing the "American Dream" inspires people to believe that hard work leads to prosperity and social mobility in the United States. Many of these people grew up under the influence of US popular culture and, as such, aspire to the lifestyle. It is still considered to be the land of opportunity with an abundance of land and resources, where there is enough land and a vibrant economy to accommodate all its residents. An extremely important factor for immigrants is the

ability for their children to obtain a good education through the school systems and, in particular, to study at its well-known universities. The potential to work at market leading companies for higher salaries is also a significant factor.

EB-5 Advantages

There are currently 218 approved Regional Centers.[9] As illustrated on the following chart, a total of 3,706 EB-5 Visas were issued were issued in 2011.[10]

EB-5 Visa Statistics

	Total EB-5 Visas Issued
FY11 Q1 – Q3	3,706*
FY10	1,885
FY09	4,218
FY08	1,360
FY07	806
FY06	744

Between 2007 and 2011, the number of EB-5 visas issued nearly tripled. In this same time period, the number of regional centers operating in the United States grew from 11 to 218.

A potential immigrant investor seeking an EB-5 investor visa has certain advantages by applying through a regional center such as Century New York City Regional Center.

- The Regional Center program pools multiple investors together in one project, which means the project itself will be larger and financially more stable than one individual investing in a project alone.
- During the lifetime of the investment, the Regional Center remains in communication with each immigrant investor. All investors in the Regional Center receive periodic reports regarding the status of the investment, job creation data based on reports from Regional Center, the economy, and other relevant project information.
- One of the most important advantages for immigrant investors applying for an EB-5 investor visa through a regional center is that they may satisfy the program's job creation requirements by counting not only direct jobs created as a result of their investments, but also indirect jobs created in related industries as a result of the investment. Regional centers are able to calculate indirect job creation through the use of approved input-output

[9] U.S. Citizenship and Immigration Services. "Immigrant Investor Regional Centers." Obtained at: http://www.uscis.gov/portal/site/uscis/menuitem.5af9bb95919f35e66f614176543f6d1a/?vgnextoid=d765ee0f4c014210VgnVCM100000082ca60aRCRD&vgnextchannel=facb83453d4a3210VgnVCM100000b92ca60aRCRD

[10] U.S. Citizenship and Immigration Services. " EB-5 Immigrant Investor Program Stakeholder Meeting." September 15, 2011. Obtained at: http://blog.lucidtext.com/category/eb-5-statistics/

employment modeling systems.

Century New York City Regional Center, LLC Advantages

Century New York City Regional Center, LLC offers the following attractive qualities for investors, specifically with regard to its initial project, the Four Points Flushing Hotel project and advantages include:

- Close proximity to Manhattan, New York
- Proximity to Flushing Main Street, major commercial and residential areas with high concentrations of Chinese and Korean population
- Proximity to two major airports in New York City
- Four Points by Sheraton, a mid-scale hotel brand offering a full-service hotel experience at a sensible price
- Century Construction Group is an established developer is Flushing, NY
- 210-rooms restaurant and lounge with an indoor pool, a fitness center, a banquet hall, Large meeting space
- 17,000-square-foot community facility space
- Lobby workstation, guest laundry facilities, and a gift shop

5.3 Marketing Strategy

Once the regional center application is approved, CNYCRC will start its efforts to attract qualifying investors. Since investments in Century New York City Regional Center will likely constitute securities; CNYCRC will first analyze any proposed investor or advisor outreach to determine required compliance measures under U.S. Securities and Exchange Commission ("SEC") laws and regulations, as well as applicable foreign or state securities laws.

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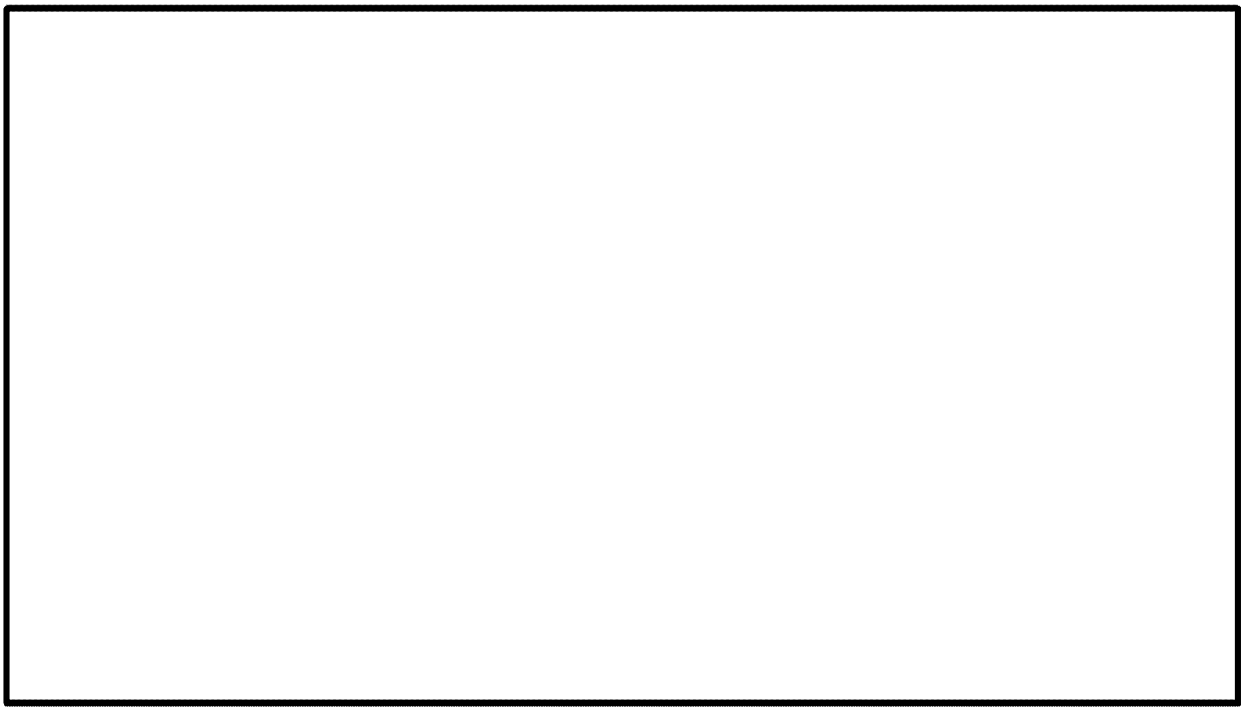

6.0 Regional Center's Operational Plan- Recruitment and Due Diligence:

As per 8 CFR 204.6(m) and 8 CFR 204.6, CNYCRC will identify, assess and evaluate proposed investor projects and activities and enterprises.

6.1 Amount and Source of the Regional Center's Operating Capital:

Attached is a detailed statement from George Xu relating to the amount and the source of the capital that has been committed to the Regional Center. It is understood that USCIS has interpreted the words "amount and source of capital that has been committed to the Regional Center" to mean the capital sufficient to sustain the Regional Center distinct from immigrant investors' required capital investment in a new commercial enterprise with the Regional Center.

The detailed statement by George Xu on behalf of Century New York City Regional Center, LLC meets the regulatory requirement relating to the amount and source of the capital committed to the Regional Center as it includes:

- The exact amount of the funds that have been dedicated to the Regional Center to accomplish the goals of the Immigrant Investor Pilot Program;
- The source of funds; and
- Whether the amount is sufficient to sustain the Regional Center.

None of the capital sustaining the Regional Center will come from the immigrant investors' required threshold capital investment (as distinct from the new commercial enterprises' revenues). It is understood that this separation of funds is necessary to enable the alien entrepreneur to qualify for the EB-5 immigrant investor classification.

Century New York City Regional Center, LLC will offer quarterly reports and investor relations, which will be completed by the Principal. George Xu will be responsible for managing marketing relationships with the Regional Center's chosen immigration consulting firms as well as attending conferences on behalf of the Regional Center directly. Certain business processes, such as accounting and website maintenance will be outsourced to other service providers, who will be selected once Century New York City Regional Center receives Regional Center approval. The Regional Center will contract with companies like either World Check (A Thomson Reuters Company), Accuity, or another similar company, to screen potential investors, verify sources of funds, and ensure that funds are lawfully obtained. Details regarding the Regional Center's due diligence practices to ensure investors meet specified requirements as part of the EB5 program are detailed in the sections that follow.

6.2 Regional Center's Operation Plan – Recruitment and Due Diligence

Century New York City RC understands that, for any individual alien investor who will be solicited by a Regional Center to invest in requisite capital into a Regional Center commercial activity, it will be incumbent on the Regional Center to engage in a due diligence process to establish that all sources of capital can be fully explained and clearly shown to have been lawfully obtained.

Potential investors must meet the following criteria to be prequalified as accredited investors:

- Must have a valid passport
- Can be any nationality (except for U.S.)
- Have a net worth greater than $1Million
- Has no criminal record
- Availability of funds within 60 days
- Can identify legal source of funds
- Has maintain income greater than $200,000 in the last two years (or $300,000 for a couple)

The Regional Center has developed an "Investor Suitability Questionnaire" (see *Appendix*) that will be used to pre-screen prospective investors. The Regional Center will comply with the latest laws and regulations and will take the reasonable steps to verify the "accredited investor" status.

6.3 Investor Information Requirements

Potential investors will be required to provide the following (applicable) documents, as required by U.S. Immigration agencies:

- Complete passport for primary applicant and family members
- U.S. visa stamps and I-94 cards for all applicants
- Copy of marriage certificate
- Copies of birth certificates
- Resume/curriculum vitae
- Proof of lawful source of funds including but not limited to:
  - Bank/account statements
  - Employer letters
  - Foreign business registration records
  - Property deeds
  - Closing documents
  - Corporate and/or personal income tax records for the last five years
- Proof of net worth

- Wire transfer record and bank account statement showing transfer of funds to escrow account
- Business registration and incorporation documents for all entities owned

6.4 Sources of Funds

Under USCIS regulations, the investor must demonstrate that their assets were gained in a lawful manner. This requires the investor to prove their investment funds were obtained through lawful business, salary, investments, property sales, inheritance, gift, loan, or other lawful means.

Investors will be required to complete a series of forms providing extensive detail and evidence of verifiable and legal sources of funds for the EB-5 investment. Types of investment sources include:

- Bank Accounts (including Financial Institution Name, Account Number, and Balance).
- Earnings from Business Operations.
- Net Proceeds from the Sale of a Business.
- Net Proceeds from the Sale of Real Estate. Net proceeds from the Sale of Investments or Other Assets.
- Employment Earnings.
- Income or other Tax Refunds.
- Loans.
- Gifts. For gifts, in addition to providing the giver's information and type of entity, the investor must also provide the giver's source of the funds, again to establish the legitimacy of the gift's original source.
- Inheritance. For proceeds from inheritances, the investor must provide full information on the decedent, and indicate any contingencies associated with the inheritance, netting down to the amount to be used to fund the EB-5 investment. Again, the primary source of the decedent's funds must be identified, in order to establish the legitimacy of the original source of funds.
- Retirement Funds. If using retirement funds for the EB-5 investment, the investor is required to provide full information about the company/entity paying the retirement, including date hired, date terminated, and date retirement benefits began, including details of lump sum and periodic payments, and net amount used to fund the EB-5 investment.
- Support from a Parent/Relative/Guardian or Other Person. In addition to full information regarding the person providing the support, the dates/frequency and amounts of support payments, and term of the support agreement, the investor must provide information regarding any repayment obligation related to these support payments.
- Designee's Responsibilities Inherent in Conduct of Regional Center- Administrative Oversight: The regulations at 8 CFR 204.6(m)(6), require that an approved Regional Center in order to maintain the validity of its approval designation, must continue to meet the statutory requirements of the Immigrant Investor Pilot Program by serving the purpose of promoting economic growth, including increased export sales (where

applicable), improved regional productivity, job creation, and increased domestic capital investment.

CNYCRC will monitor all investment activities under the sponsorship of this Regional Center; CNYCRC will maintain records, data and information on a quarterly basis in order to report to USCIS upon request the following year to date information for each Federal Fiscal Year.

Century New York City Regional Center, LLC's role will be to monitor all investment activities under the sponsorship of the program, and to maintain records, data and information on a quarterly basis in order to report to USCIS upon request year-to-date for each Federal Fiscal Year, commencing with the current year as follows:

1. The principal official and point of contact of the Regional Center responsible for the normal operation, management and administration of the regional center.
2. How the Regional Center is administering its regional center and is actively engaged in supporting a due diligence screening of its alien investors' lawful source of capital and the alien investor's ability to fully invest the requisite amount of capital.
3. How the Regional Center is actively engaged in the evaluation, oversight and follow-up on any proposed commercial activities that will be utilized by alien investors in order to create direct and/or indirect jobs through qualifying EB-5 capital investments into commercial enterprises within the regional center.

6.5 Information Tracking

The Regional Center will maintain a tracking and reporting system in order to provide the following information on a quarterly basis to USCIS:

1. The name, date of birth, and alien registration number of each alien investor who makes an investment and files an EB-5 I-526 petition with USCIS, specifying whether the petition was approved, denied, or withdrawn by the petitioner.
2. The country of nationality of each alien investor who makes an investment and files an EB-5 petition with USCIS.
3. The US city and state of residence of each alien investor who makes an investment and files an EB-5 I-526 petition with USCIS.
4. The categories of business activity within the geographic boundaries of the regional center that have received the alien investors' capital, and in what amount.
5. The names and locations of each of the job creating commercial enterprises located within the geographical boundaries if the regional center has received alien investor capital.
6. The amounts of alien investor capital and the amounts of other domestic capital that has been invested together in each job creating commercial enterprise specified in item 8 above, distinguishing the separate totals for each.

7. The total aggregate number of approved EB-5 alien investor I-526 petitions per Federal Fiscal Year to date made through the regional center.
8. The total aggregate number of approved EB-5 alien investor I-829 petitions per Federal Fiscal Year to date through the regional center.
9. The total aggregate of EB-5 alien capital invested through the regional center for each Federal Fiscal Year to date since the approval and designation.
10. The combined total aggregate of "new" direct and/or indirect jobs created by EB-5 investors through the regional center for each Federal Fiscal Year to date since the approval and designation.
11. If applicable, the total aggregate of "preserved" jobs by EB-5 alien investors into troubled businesses through the regional center for each Federal Fiscal Year to date since the approval and designation.
12. If for any given Federal Fiscal Year the regional center does not have investors to report, then provide an explanation for the inactivity along with a specific plan which details timelines and steps to actively promote the regional center program, and recruit legitimate and viable alien investors.
13. Notification to USIS within 30 days of the occurrence any material change in the structure, operation, administration, focus, or activities relating to the regional center's basis for its most recent designation and/or reaffirmation by USCIS.
14. The total aggregate of EB-5 alien capital invested through the regional center for each Federal Fiscal Year.

6.6 Management Team

George Xu

George Xu is the founder and the principle of the CNYCRC. Mr. Xu is also the founder and President of Century Development Group, a real estate development company. With over 16 years of real estate holding and development experience, he has worked on over a million of square feet of real estate developments; mixed-use developments including residential, hospitality, office, retail, and in all phases of assembly, acquisition, finance, design, construction, marketing and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters. Mr. Xu provides marketing oversight and policy guidance for the Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and a Master of Science degree in Computer Science from Polytechnic University, New York.

Qili Li

Qili Li, MD, FACOG, Principle of CNYCRC. In private practice for more than 14 years specializing in the field of Obstetrics and Gynecology in downtown Flushing, Queens County, New York City. Dr. Li attended the Sophie Davis School of Biomedical Education. She graduated with Magna Cum Laude

honor. She received her Medical Doctor degree from New York Medical College. She completed her internship and residency training in Obstetrics/Gynecology at North Shore University Hospital at Manhasset, New York. She is board certified in the specialty of Obstetrics/Gynecology. She is a fellow of the American College of Obstetrics/Gyneoclogy (ACOG). In recent years, like many of her colleagues, Dr. Li has expanded her interest/investment in real estate. She is currently involved in several real estate development projects ranging from high end condominium to hotel construction.

James Ho

James Ho, Vice President of CNYCRC, graduated from Polytechnic University majoring in Electrical Engineering and Computer Science. Mr. Ho has seven years of experience in computer programming and twelve years in securities trading and security related business. Currently he is involved in real estate development of three projects in New York City area. Mr. Ho's role in the CNYCRC is to provide oversight of operations, maintain cohesion between a project's developer, general contractor, law and accounting firms, and to ensure overall compliance.

Robert Chen

Robert Chen works for CNYCRC as the Vice President, who oversees the overall operations of the Regional Center. He's also in charge of due diligence and evaluating potential projects and determines business feasibilities. Prior to join CNYCRC, Mr. Chen has over 10 years' experience in senior manager position with FedEx. He has owned, managed, and operated companies in computer wholesale and repair business. Mr. Chen received his Bachelor of Science degree in Environmental Health Science from City University of New York.

David Pan

David Pan, Vice President of CNYCRC, has over 15 years of experience in fixed-income securities trading and risk management, having worked in various roles at Credit Suisse, Citigroup, Deutsche Bank and the hedge fund industry. Formerly a Director at Credit Suisse in the Strategic Risk Management division covering Residential Mortgage Backed Security (RMBS) business where he was instrumental in developing models and methodologies in assessing the firm's risk exposure to the mortgage security market. Prior to his Wall Street career, Mr. Pan spent 10 years as a senior software engineer responsible for the development of the state-of-the-art fixed-income security trading and analytics software systems. He graduated with a Bachelor's degree in Computer Science from Queens College, City University of New York.

Anthea Quan

Anthea Quan serves as the director of accounting controller for CNYCRC. She is responsible for the accounting, financial reporting, and audit functions. Also performs management of operating cash flow, financial analysis, obtaining financial for development projects and investor distribution. She is passionate about accounting and has experience working with a variety of small business. Ms. Quan

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Tracy Law is the director of project management of CNYCRC. Ms. Law is responsible for a full spectrum on operations to ensure that projects are done on time and on budget. Her constant communication with contractors and architects provides a strong network of relationships in the field. She is responsible for supervising and coordinating OS&E and FF&E. She is integral in bringing new hotels to opening. Ms. Law graduated with a Bachelor of Science degree in Accounting from Queens College, City College of New York.

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Lynn Wei is the CNYCRC's director of marketing and business development. Ms. Wei is responsible for a full spectrum of business development initiatives including creating and overseeing international marketing strategies for all CNYCRC project offerings. She is also involved in managing client relations. Ms. Wei is also a senior business development associate at the Century Development Group. In this capacity, she focused on creating Request for Proposals and general marketing materials, as well as developing a customer analytical database, and implementing strategic marketing and communication initiatives. Ms. Wei graduated with a Master of Science degree in Economics from Brooklyn College, City University of New York, and a Bachelor of Administrative Degree in Marketing from Shanghai Finance University.

7.0 Legal Risk and Planning

7.1 LLC Creation

Century New York City Regional Center has been formed as a Limited Liability Company. A limited liability company (LLC) is a relatively new form of business organization that offers the best features of a corporation and a partnership. It provides the owners protection from personal liability for business debts in the same way a corporation does, but the IRS treats an LLC as a partnership for tax purposes. Income is taxed only once, as in a partnership, and an LLC has great flexibility in how it passes income and deductions to its members.

7.2 Document Review and Verification Policy

The Regional Center will hire an outside firm to screen potential investors and perform due diligence regarding sources of funds. The Regional Center is currently considering two firms, World Check (a Thomson Reuters Company) and Accuity.

7.3 Process Documentation and Legal Agreements

Forms and legal agreements can be found as an appendix to this document.

8.0 Regional Center Marketing and Operational Budget

Century New York City Regional Center has sufficient startup capital to cover operational expenses. As stated in the attached detailed statement from George Xu, $135,000 is budgeted for the administration and marketing of the Regional Center over 5 years, per the table on page 10 of this plan, is budgeted to market projects to immigrant investors.

Part II: Appendix

Century New York City Regional Center
Investor Suitability Questionnaire

Basic Investor Information

1. Name: _____
2. Passport Number
   (Note: Investor and each family member must attach a true copy of passport or government identification card) _____
3. Foreign Address _____
4. U.S. Address (if currently in the United States _____
5. Telephone Number _____
6. Email Address _____
7. Date of Birth _____
8. City, State, and Country of Birth _____
9. Country of Citizenship _____
10. Spouse's Name _____
11. Date of Marriage _____
12. Spouse's Date of Birth _____
13. Spouse's Country of Citizenship _____
14. Spouse's Passport Number _____
15. Children's Information

Name	Passport number	Date of Birth	Place of Birth (City, State, Country)	Nationality	Applying with you? (Must be under 21)
					☐
					☐
					☐
					☐
					☐

					☐
					☐
					☐

Immigration Information

16. Are you currently in the United States? If so, please provide information on your current status.

○ Yes ○ No

Current nonimmigrant status: ____
Date of arrival: ____
Expiration date of status: ____
I-94 Number: ____

Employment and Financial Information

17. Please summarize your investment experience in the following areas:

Marketable securities	○ Extensive	○ Limited
	○ None	
Real estate	○ Extensive	○ Limited
	○ None	
Mutual funds	◉ Extensive	○ Limited
	○ None	
LLCs/Partnerships	○ Extensive	○ Limited
	○ None	

18. Please provide a brief summary of your experience in business management and financial investment:

_____

19. Have you or your spouse previously filed for bankruptcy?

○ Yes ○ No

If so, please provide details:

_____

20. Is your individual net worth, or joint net worth with that of your spouse, currently in excess of $1,000,000?

○ Yes ○ No

_____

21. Is your individual net worth, or joint net worth with that of your

○ Yes ○ No

_____

spouse, currently in excess of $5,000,000?

22. Do you have a current annual individual income in excess of $200,000 or a joint income with your spouse in excess of $300,000 and a reasonable expectation of maintaining this income? ○ Yes ○ No

23. Please provide a brief explanation of how you obtained the funds that you intend to invest in this enterprise (i.e. gift, inheritance, salary, sale of business or real estate, investment gains, etc.)

Additional Suitability Questions

24. Please describe any preexisting business or personal relationships you have with Greentech Automotive Corp., its managers, or any of its affiliates.

I certify that the information contained herein is true and accurate to the best of my knowledge. I understand that providing false or inaccurate information may impact my ability to invest in the Century New York City Regional Center and obtain immigrant status in the United States.

Print Name of Investor **Date**

Signature of Investor

Document Checklist

Please submit the **two of the following** forms of identification, which will be used to verify your eligibility as an investor:

☐ Valid passport
☐ Valid government-issued driver's license with photograph
☐ National identity card with photograph

In addition, please submit the following:

☐ Completed Net Worth Worksheet (Appendix A)

Appendix A

Net Worth Information

Location of Assets

○ United States ○ Outside United States ○ Both

If outside of the United States, please list all countries where assets are located: ____

Assets		Will Serve as Source of Investment Funds
Checking Account	$____	☐
Savings	$____	☐
Investments (stocks, bonds, mutual funds)	$____	☐
Business income	$____	☐
Real estate	$____	☐
Inheritance	$____	☐
Gift	$____	☐
Other Explain: ____	$____	☐
Liabilities		
Mortgage	$____	
Other Explain: ____	$____	
Total Net Worth:	$____	

Legal
the

- Priva

GDated: _____ __, 2014 Name: _____

No.: ____ of ____

CONFIDENTIAL PRIVATE OFFERING MEMORANDUM

(b)(4) LIMITED LIABILITY COMPANY INTERESTS

OF

FARRINGTON EB-5 CAPITAL, LLC

A New York Limited Company LLC

Up to [redacted] (b)(4)

of

Member Interests

$500,000.00 per Interest

Minimum Investment of 1 Interest ($500,000.00)

Farrinton EB-5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
718 .939.1060
Attn: George Xu
centurygroup88@yahoo.com

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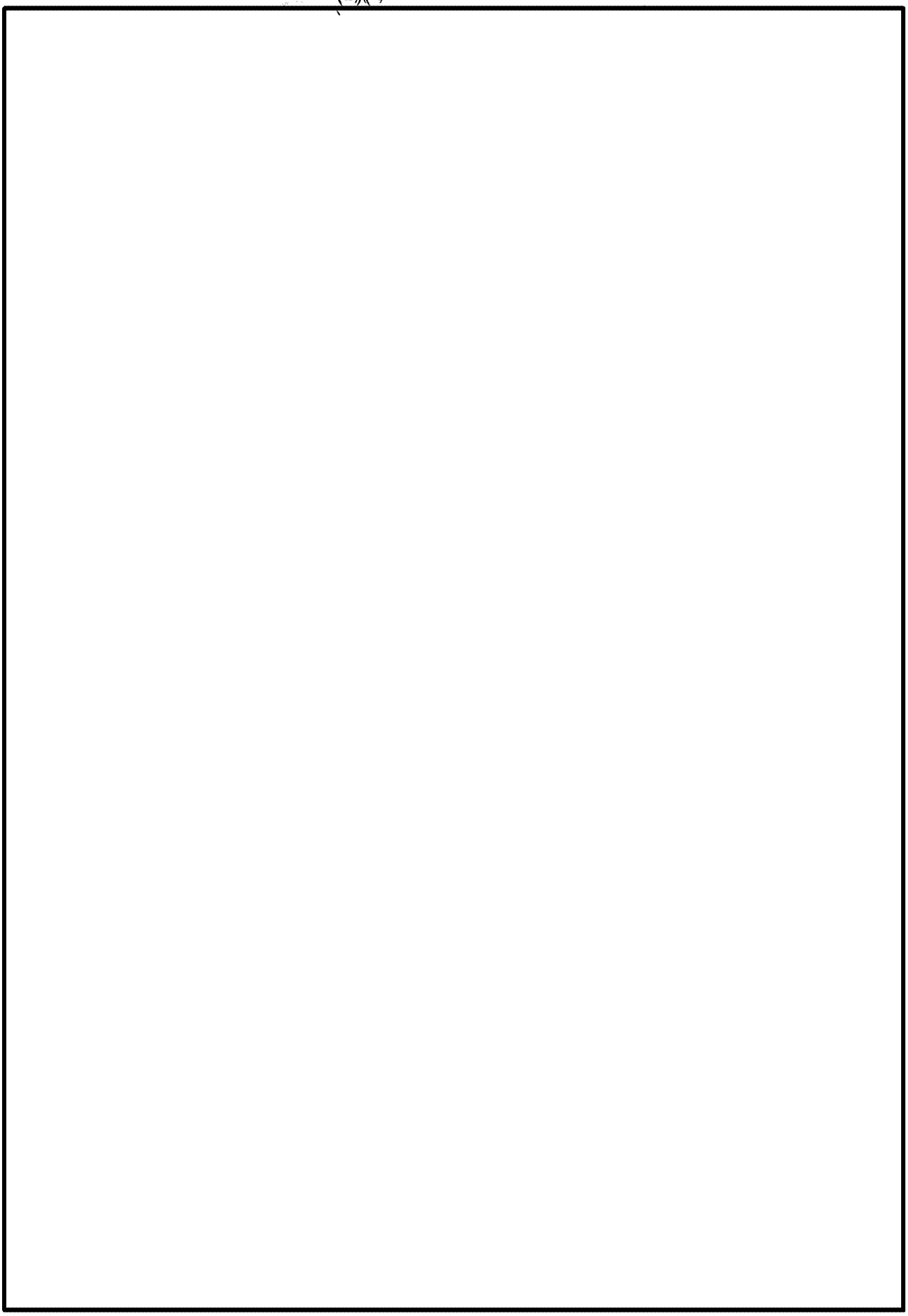

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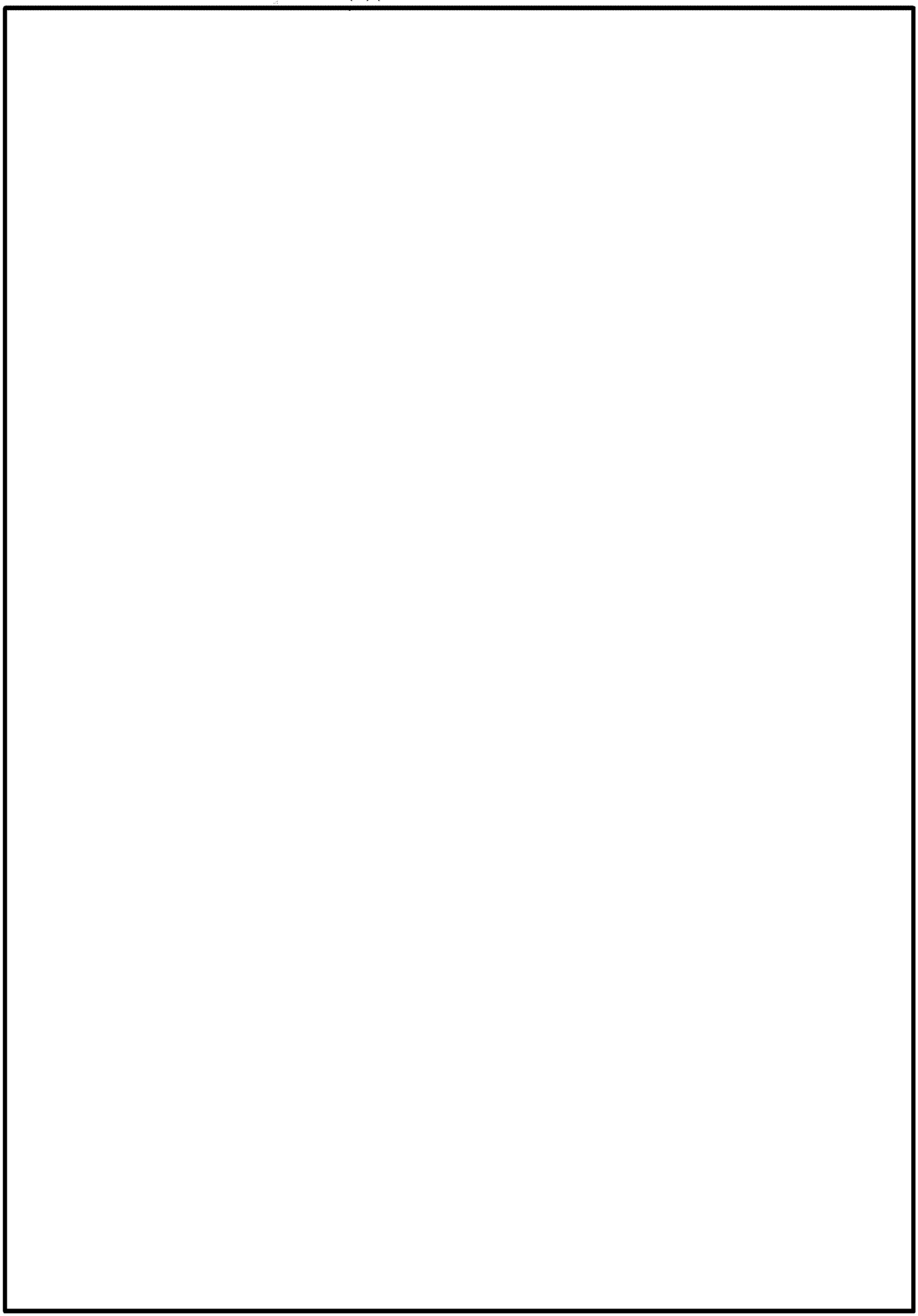

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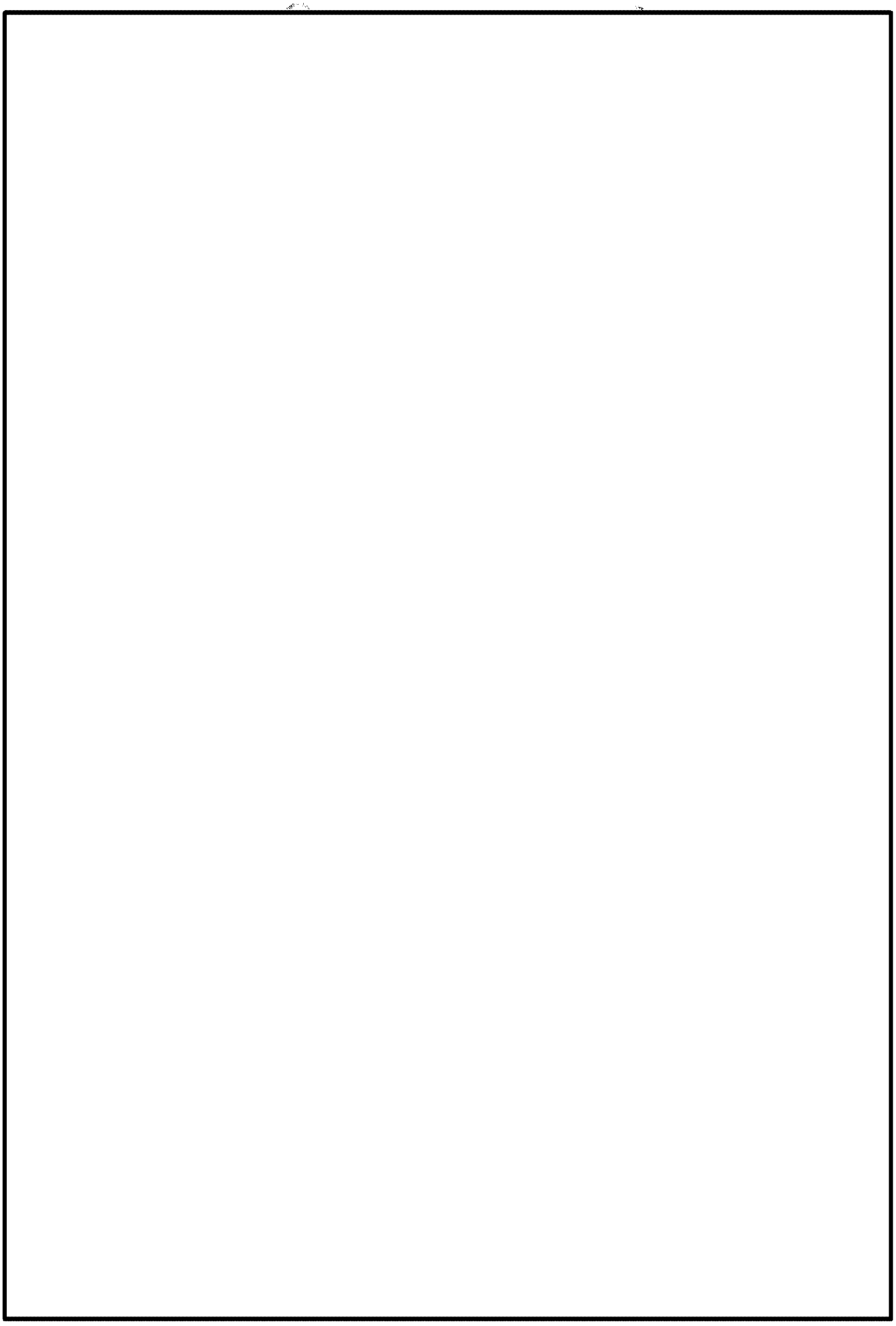

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Circular 230 Disclosure

Pursuant to U.S. Internal Revenue Service Circular 230, the statements set forth herein with respect to Federal Tax Issues, as defined below, were not intended nor written to be used, and such statements cannot be used by any taxpayer for the purpose of avoiding any penalties that may be imposed on the taxpayer under the U.S. Internal Revenue Code. Such statements were written to support the marketing of the LLC or matters addressed herein. It is possible that additional issues may exist that would affect the federal tax treatment of an investment in the LLC and the statements contained herein do not consider or provide any conclusions with respect to such additional issues. Each taxpayer should seek advice based on the taxpayer's particular circumstances from an independent tax advisor. A "Federal Tax Issue" is a question concerning the federal tax treatment of any item of income, gain, loss, deduction or credit, the existence or absence of a taxable transfer of property, or the value of property for purposes of any tax imposed by or pursuant to the U.S. Internal Revenue Code.

* * * * *

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Exhibit A – Operating Agreement
Exhibit B – Subscription Agreement
Exhibit C – Investor Eligibility Questionnaire
Exhibit D – Escrow Agreement
Exhibit E – Comprehensive EB-5 Business Plan and Targeted Employment Area status

SUMMARY OF OFFERING TERMS

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The following is only a summary of certain of the information contained in this Memorandum, and is qualified in its entirety by reference to the more detailed discussions contained in this Memorandum below, as well as to the Exhibits hereto (all of which are incorporated fully herein by this reference). In the case of any conflict between the summary, below, and the more detailed discussion in the body of the Memorandum, the latter shall control. Similarly, this Memorandum, its exhibits, and certain other documents related thereto have been initially written in the English language; in the event of any conflict between the original English versions and any translations into other languages, the former shall control.

The proposed plan is to construct and develop a Four Points Flushing Hotel & Condominium (the "Project") in New York City.

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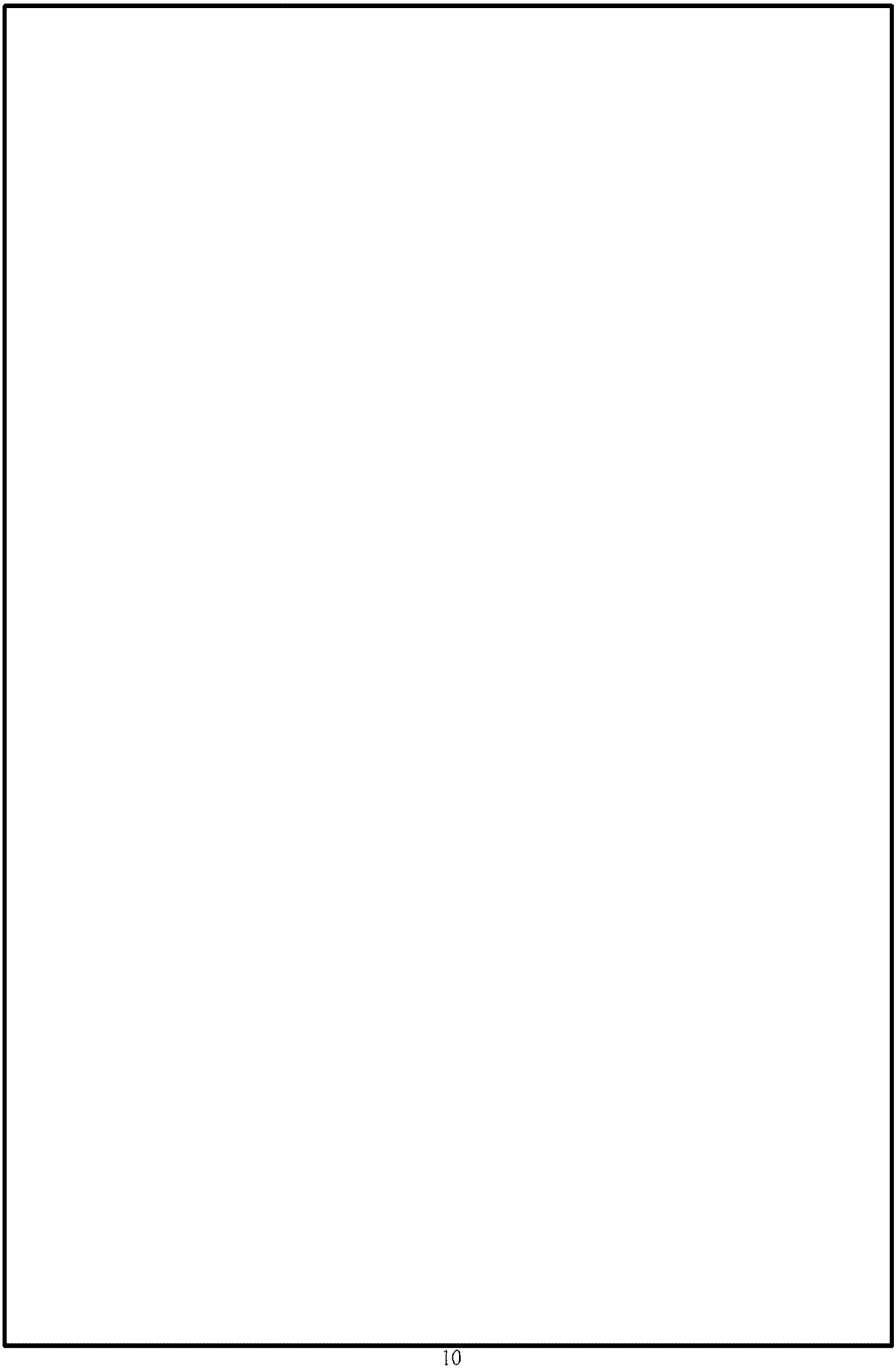

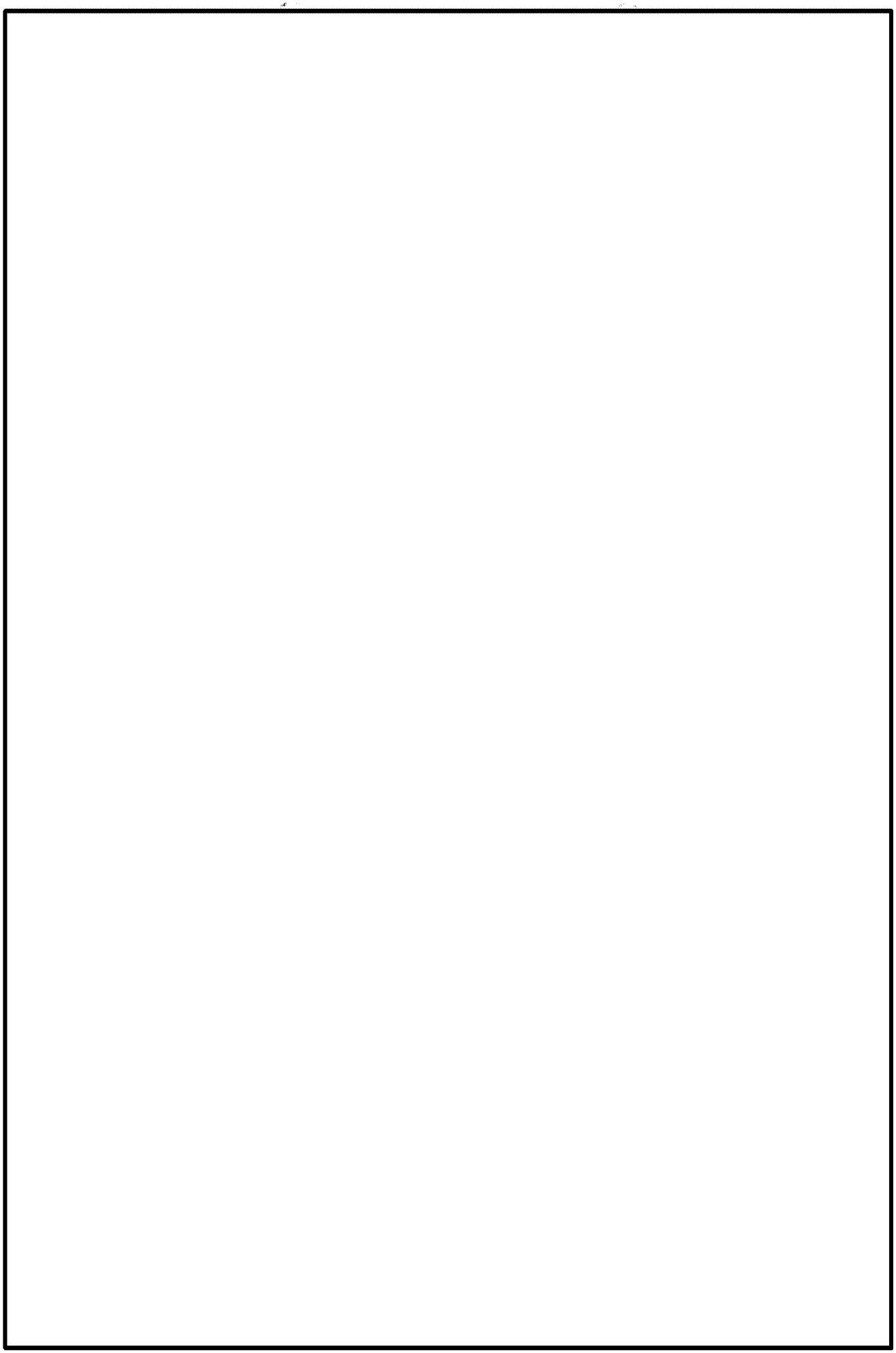

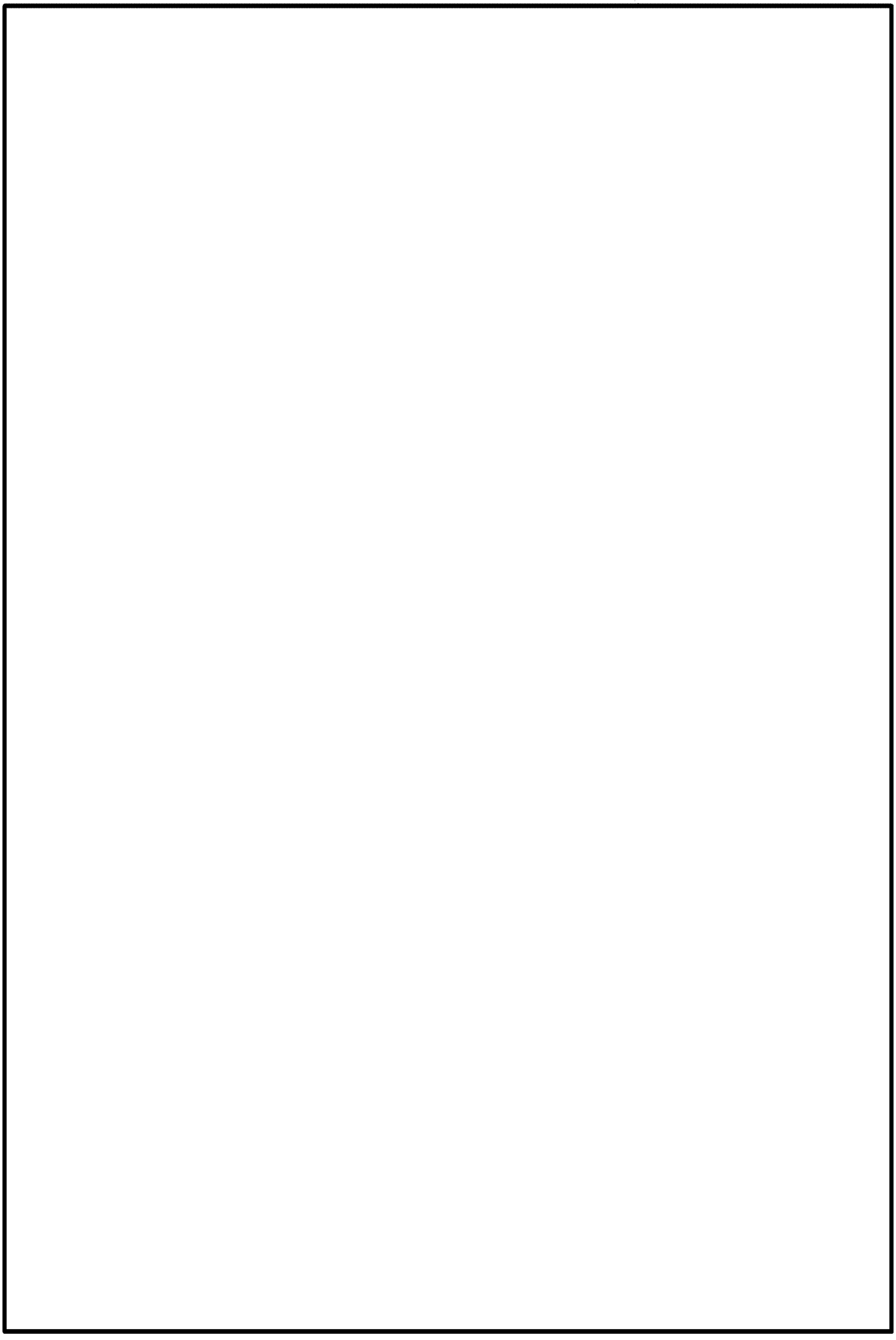

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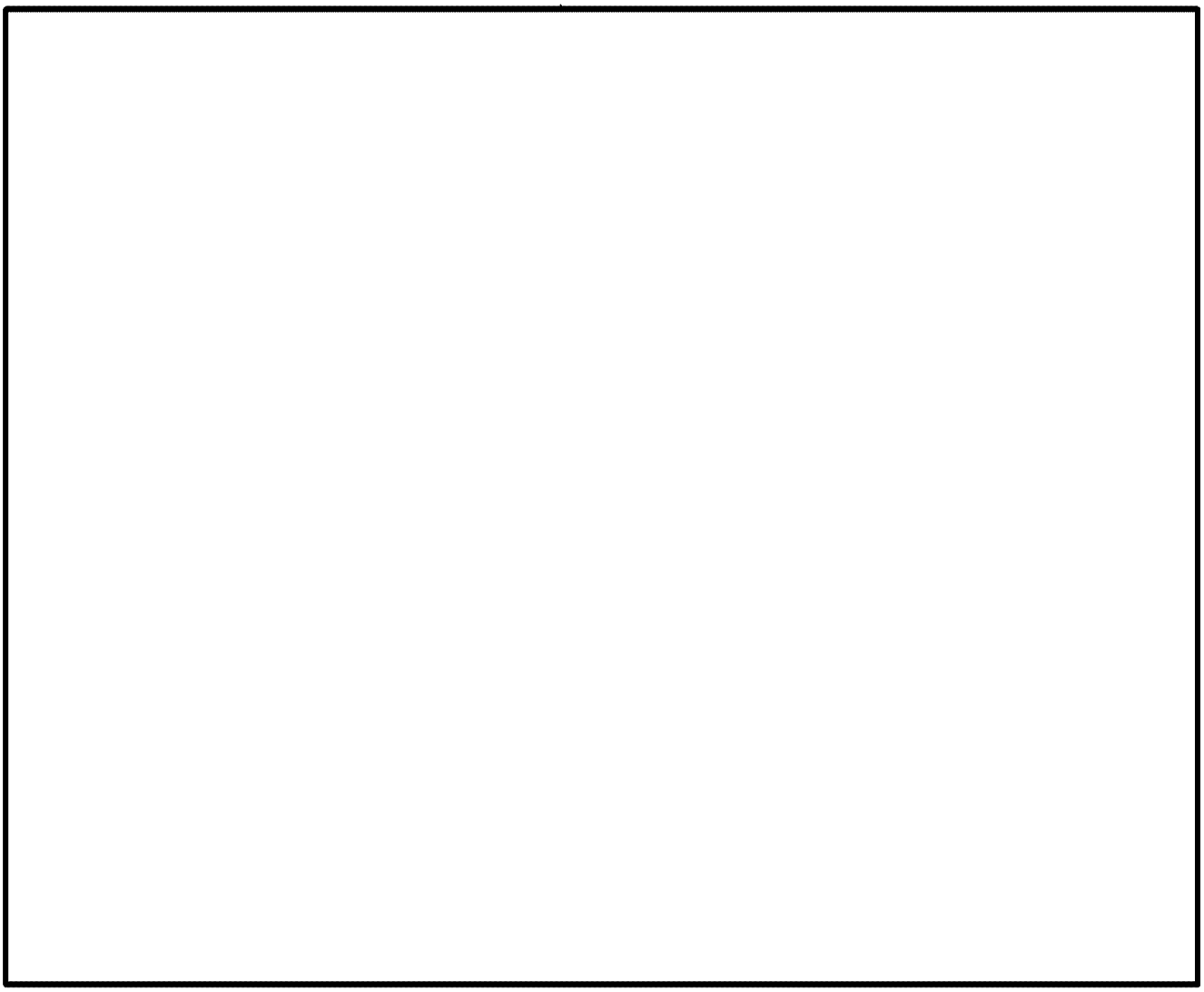

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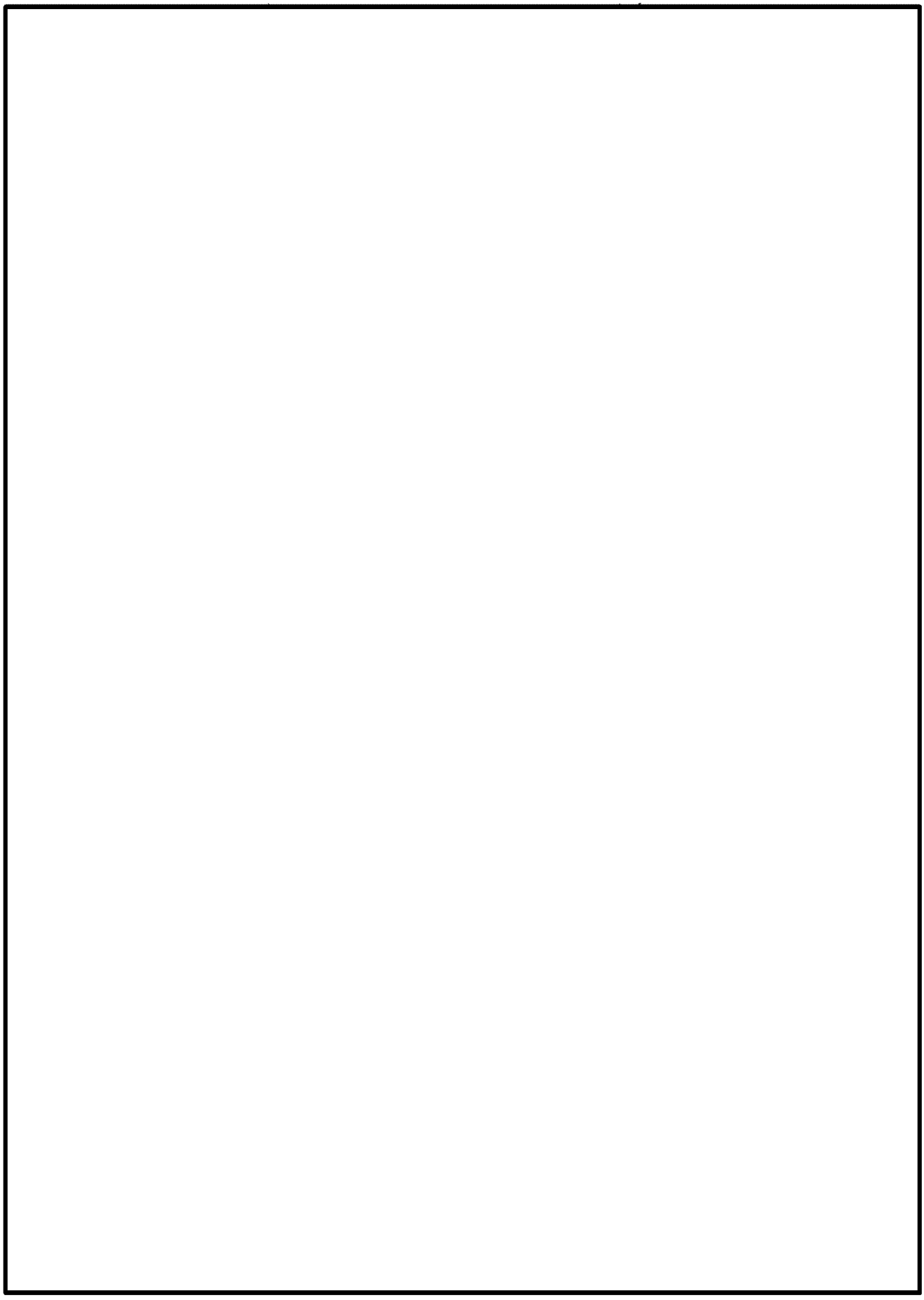

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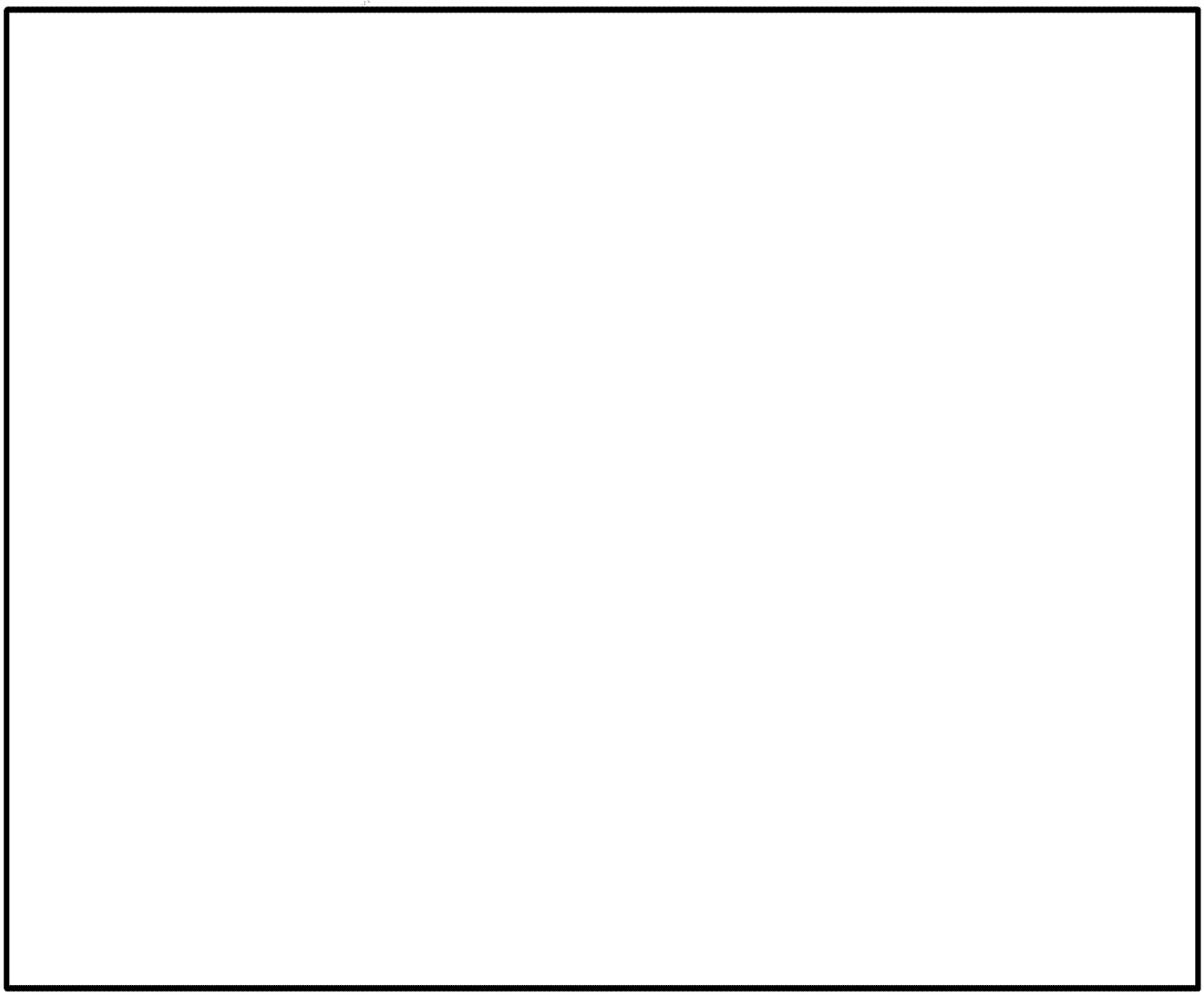

Table 4: Annual Operating Income & Expense (b)(4)

Four Points Flushing Hotel, Flushing, NY

Year	1	2	Stabilized 3	4	5	6	7	8	9	10

Sources: HVS Consulting & Valuation Services Division of Hotel Appraisals, LLC

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Table 1: Estimated Total Development Budget
Four Points Sheraton/Luxury Condo Development, Flushing, NY

Line Item	Total Cost	Cost/SF SF	Cost/SF Room	% of Total

Sources: Farrington Realty, LLC; HVS Consulting & Valuation Services Division of Hotel Appraisals, LLC and Bleakly Advisory Group, Inc.

COMPETITION

The following residential and mixed use developments have been identified in the Flushing, NY area similar to Sheraton Four Points at Flushing's proposed plan. This section focus on their strength and weakness compared to the Sheraton Four Points at Flushing project.

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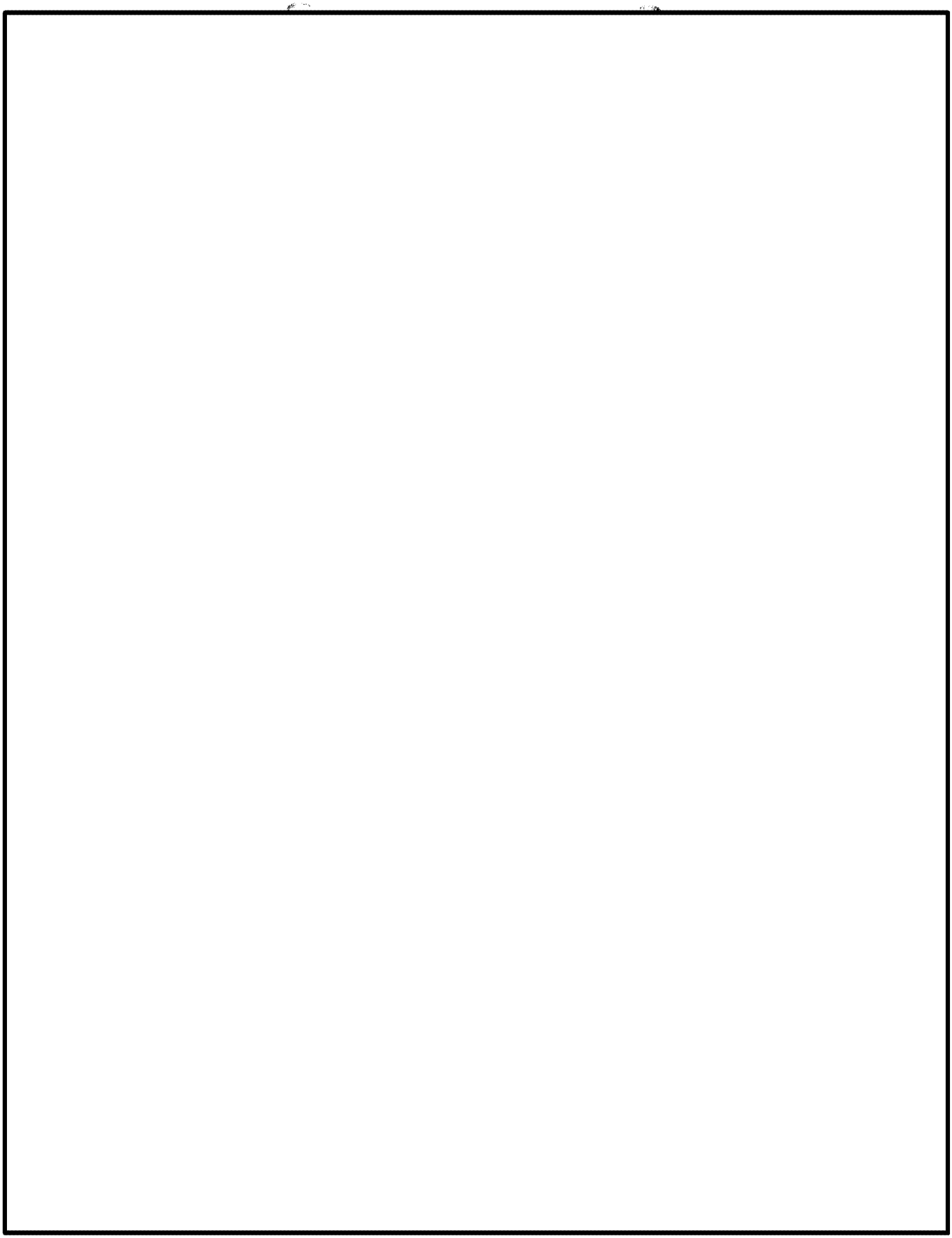

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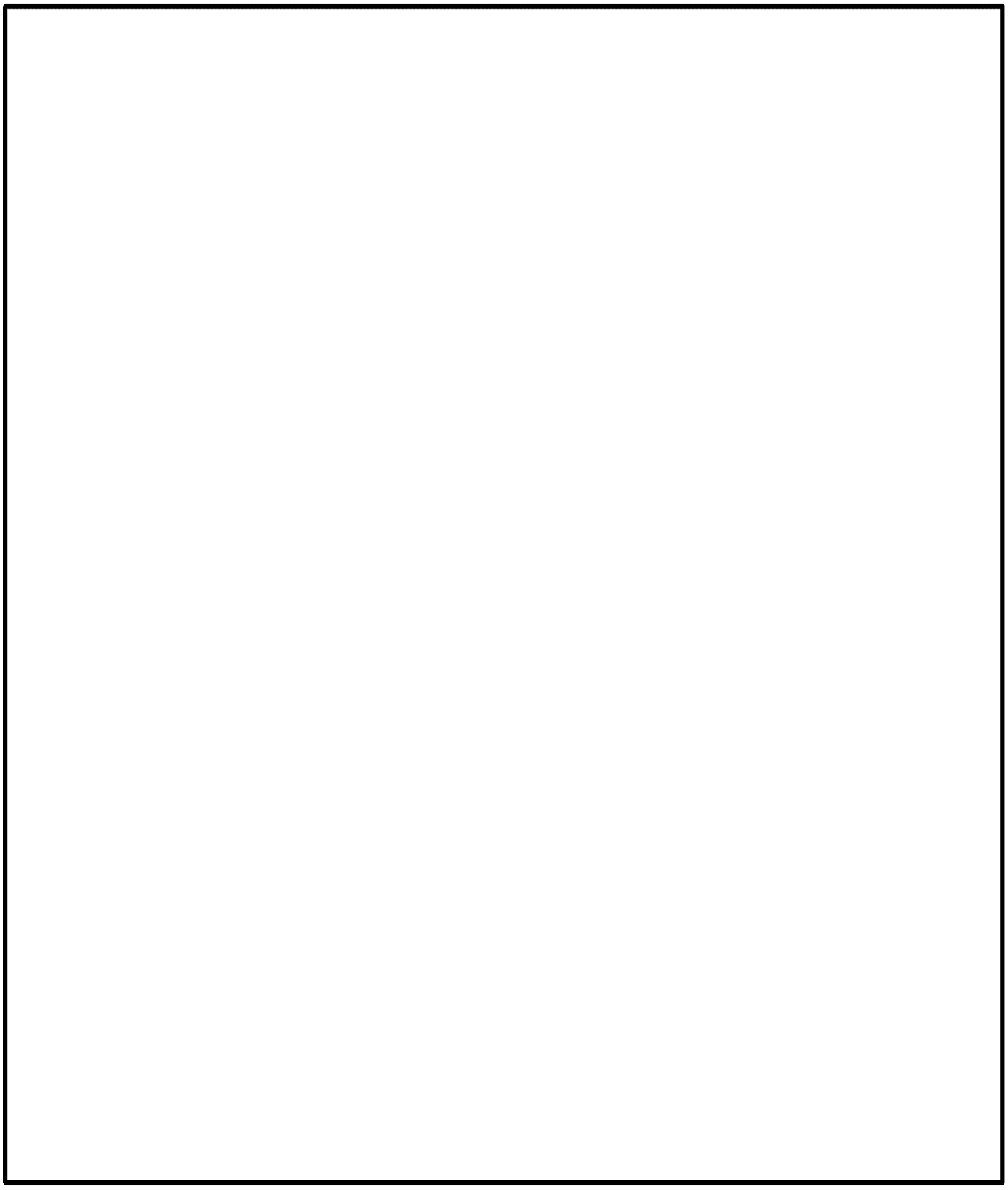

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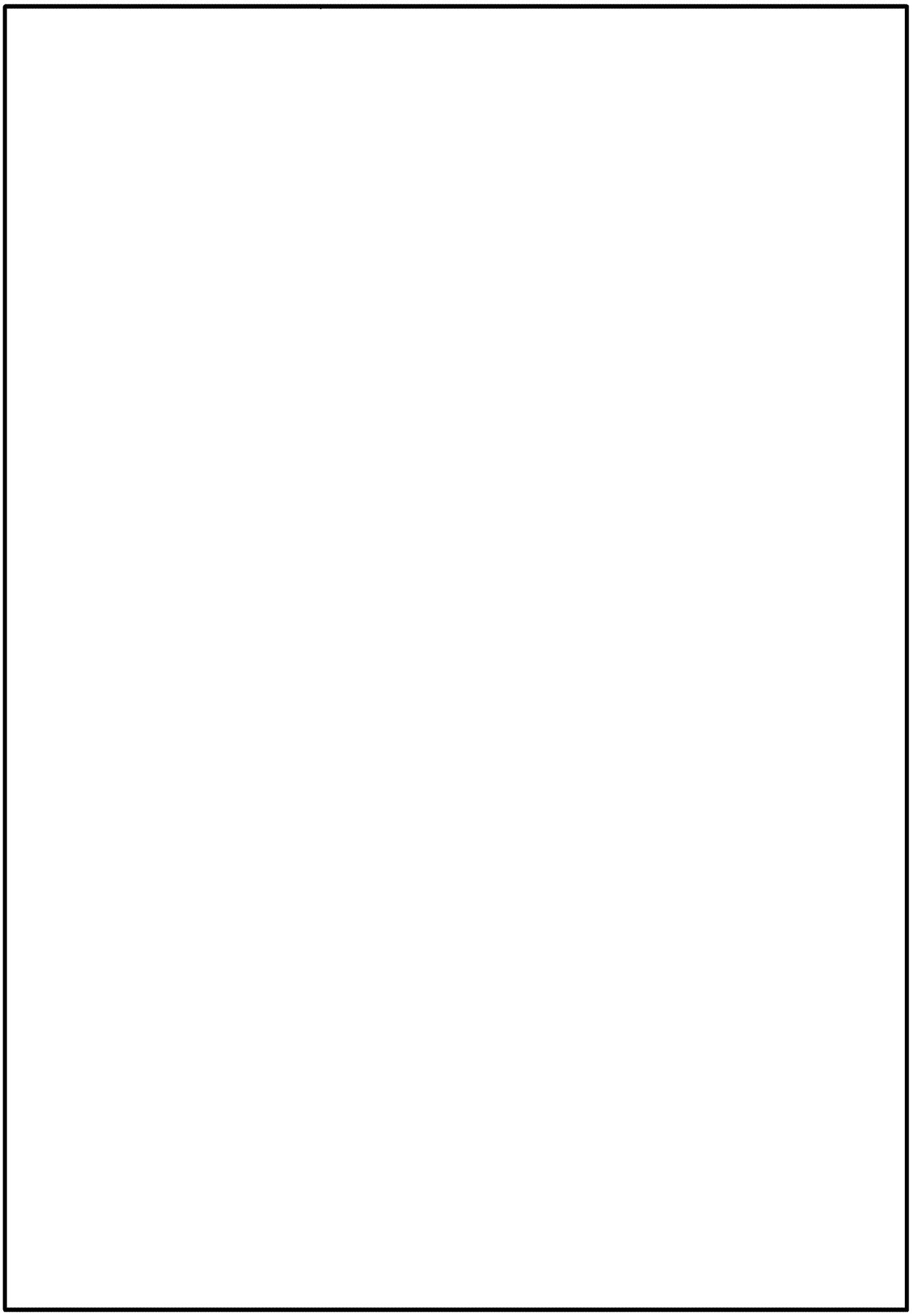

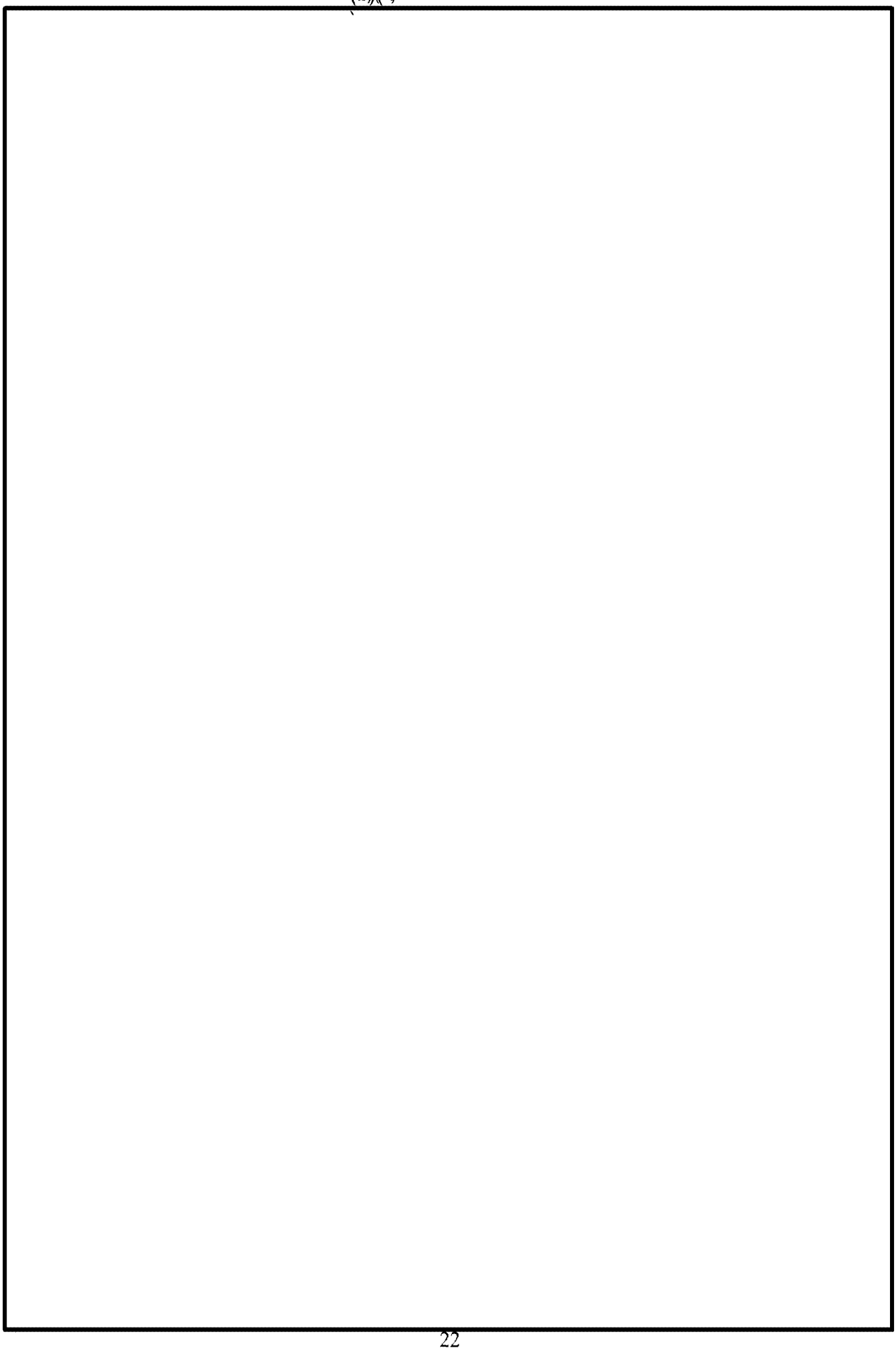

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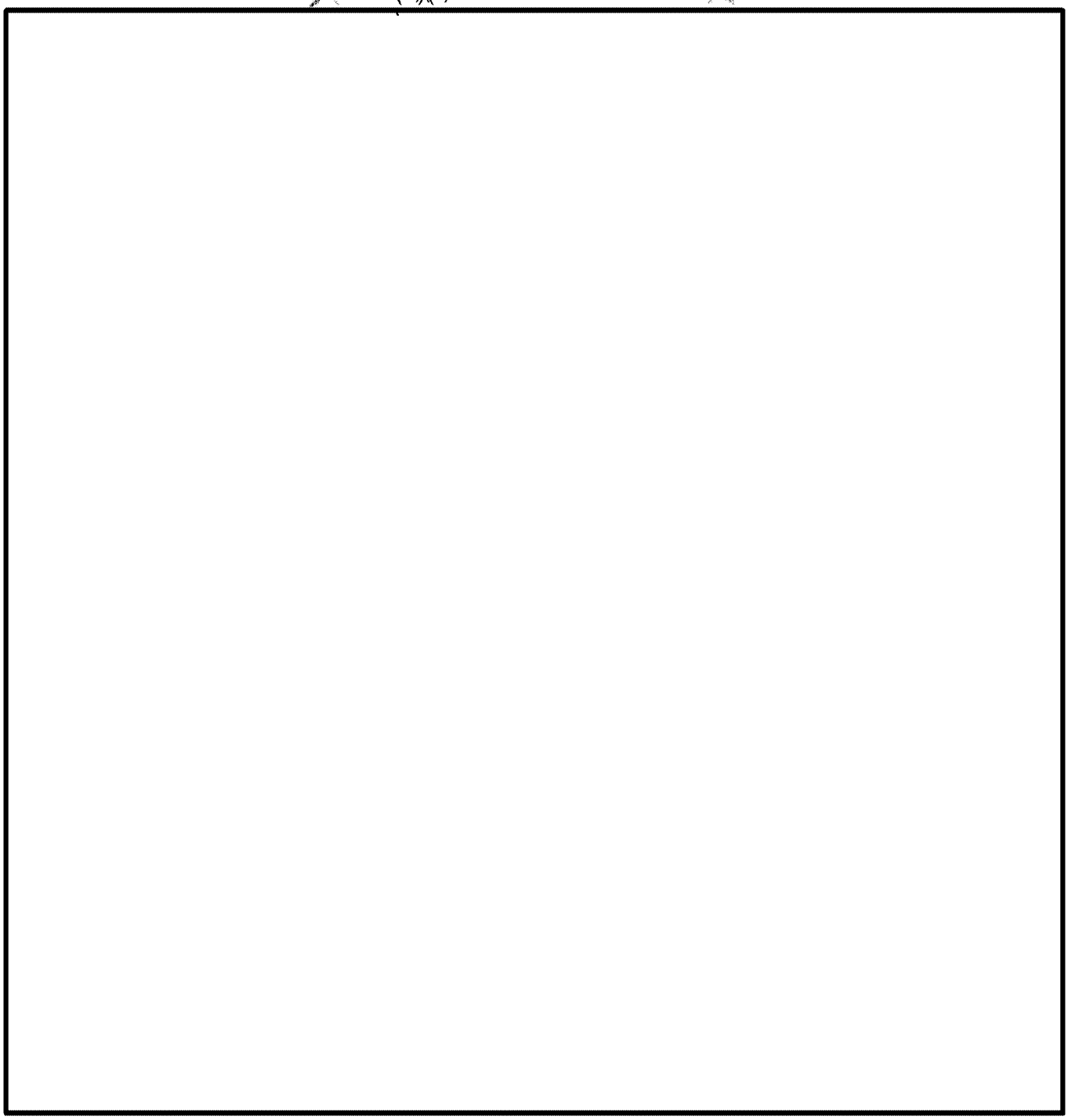
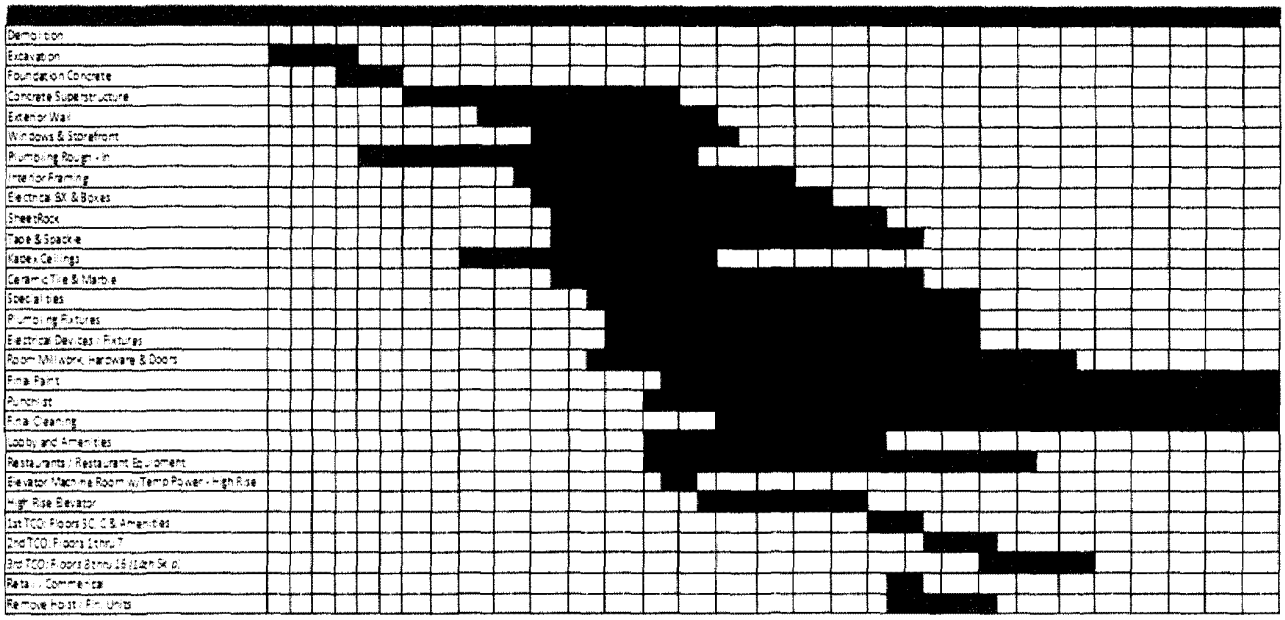


CONSTRUCTION OF THE PROJECT

The construction of the Four Points Flushing Hotel & Condominium project will take approximately 30 months to complete. The developer already has obtained the architectural designs, fabrications, excavations, and procurement and will apply for all necessary permit and licenses in place. The actual construction is expected to be completed in the near future. The timeline at provides the particulars of the various phases of the construction over a period of project months from the commencement of the construction. For example, the early months will consist of the excavation and necessary foundation work.

The construction of the Four Points Flushing Hotel project will take approximately 30-months to complete starting with excavation. The project location is currently demolished and is ready to do construction. The construction timeline is attached below.



The developer is scheduled to obtained all necessary permit and licenses in construction and development of the project. The actual construction is expected to start at the end of 2014, and it is anticipated to be completed by mid-2017. The timeline at provides the particulars of the various phases of the construction over a period of project months from the commencement of the construction. For example, the early months will consist of the excavation and necessary foundation work. The Shoring of Excavation is expected to take 4 months, the construction timeline describes that concrete will be poured into concrete slabs for the individual floors. At this time, the construction of the hotel has made considerable headway. The construction timeline above provides the particulars of multiple phases of the construction over a period of 30 months from the commencement of the construction.

CONSTRUCTION PERMITS AND LICENSES

In New York City the construction is "as of-right" development which complies with all applicable zoning regulations and does not require any discretionary action (special permit or variance) by the City Planning Commission or Board of Standards and Appeals for approval. Assuming that the project complies with all other Code and Zoning regulations, the NYC Department of Buildings Plan Examiner Plan Examiner will approve the Plans, further to the architect's construction detailed blueprints and renditions.

It is not necessary for the project to seek the additional approvals of the City Planning Commission, or of the Local Community Board, or of any other outside party of interest. If the project complies with the applicable Zoning Laws currently in force, the developer is entitled to build. Therefore building permits are only valid for a limited amount of time and the project will apply for the relevant permits prior to the commencement of the construction activities.

* * * * *

MANAGEMENT BIOGRAPHIES AND INTERRELATIONS

The following paragraphs set forth the Managing Member and Officers of the job creating entity Farrington Realty, LLC.

The amounts and percentage of Units beneficially owned are reported on the basis of regulations of the SEC governing the determination of beneficial ownership of securities. Under the rules of the SEC, a person is deemed to be a "beneficial owner" of a security if that person has or shares "voting power," which includes the power to vote or to direct the voting of such security, or "investment power," which includes the power to dispose of or to direct the disposition of such security. A person is also deemed to be a beneficial owner of any securities of which that person has a right to acquire beneficial ownership within 60 days. Under these rules, more than one person may be deemed a beneficial owner of the same securities and a person may be deemed a beneficial owner of securities as to which he has no economic interest.

MANAGEMENT BIOGRAPHIES

Mr. George Xu, CEO/Regional Center Principal

Mr. George Xu is the founder and the principal of the Century New York City Regional Center ("CNYCRC"). Mr. Xu is also the founder and President of Century Development Group, a real estate development company. With over 16 years of real estate holding and development experience, he has worked on over a million of square feet of real estate developments; mixed-use developments including residential, hospitality, office, retail, and in all phases of assembly, acquisition, finance, design, construction, marketing and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters. Mr. Xu provides marketing oversight and policy guidance for the Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and a Master of Science degree in Computer Science from Polytechnic University, New York.

Qili Li, MD, Regional Center Principal

In private practice for more than 14 years specializing in the field of Obstetrics and Gynecology in downtown Flushing, Queens County, New York City. Dr. Li attended the Sophie Davis School of Biomedical Education were She graduated with Magna Cum Laude with honors. She received her Medical Doctor degree from New York Medical College. She completed her internship and residency training in Obstetrics/Gynecology at North Shore University Hospital at Manhasset, New York. She is board certified in the specialty of Obstetrics/Gynecology. She is a fellow of the American College of Obstetrics/Gyneoclogy (ACOG). In recent years, like many of her colleagues, Dr. Li has expanded her interest/investment in real estate. She is currently involved in several real estate development projects ranging from high end condominium to hotel construction.

James Ho, Vice President

Mr. James Ho graduated from Polytechnic University majoring in Electrical Engineering and Computer Science. Mr. Ho has seven years of experience in computer programming and twelve years in securities trading and security related business. Currently he is involved in real estate development of three projects in New York City area. Mr. Ho's role in the CNYCRC is to provide oversight of operations, maintain cohesion between a project's developer, general contractor, law and accounting firms, and to ensure overall compliance.

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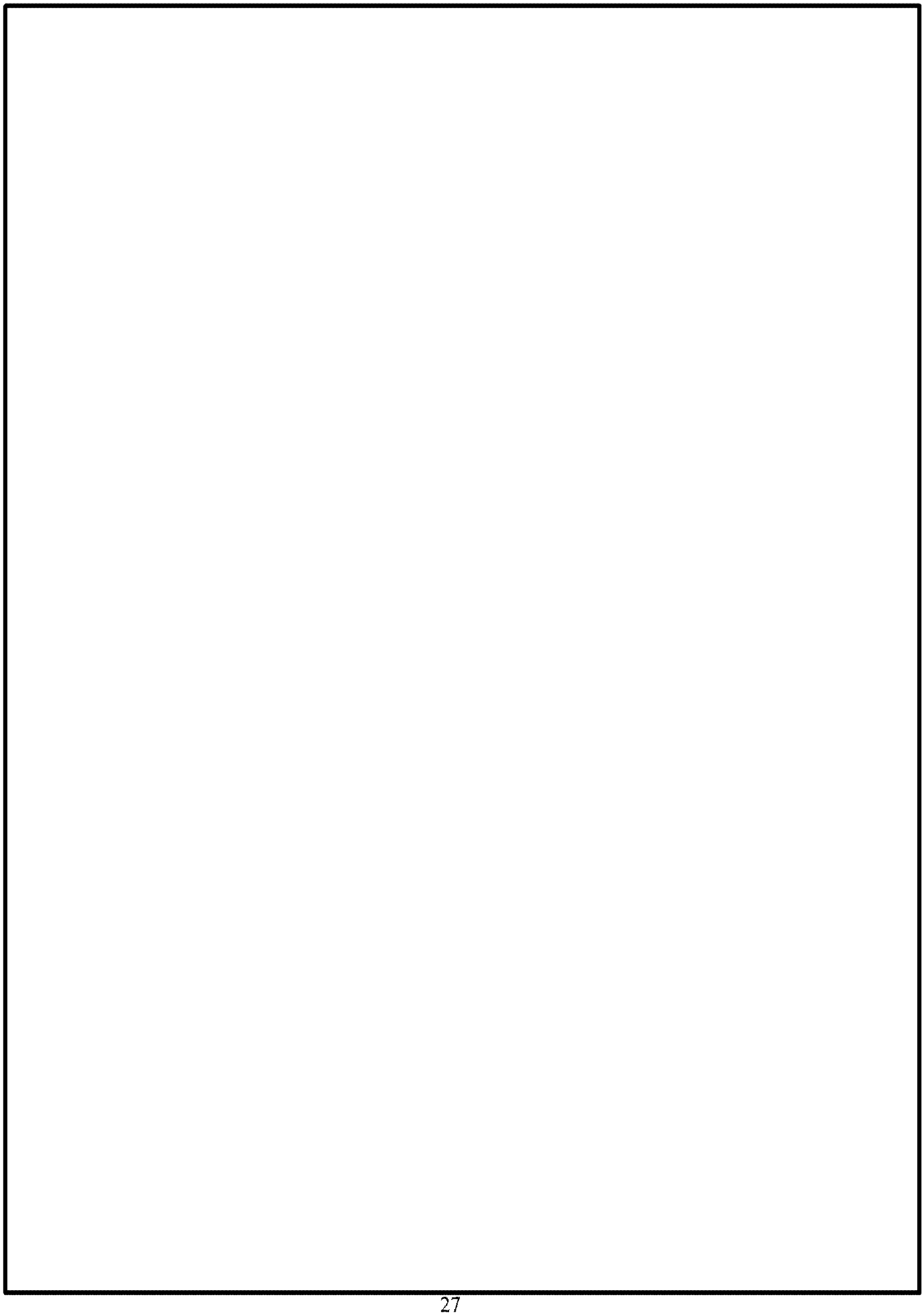
CONFLICTS OF INTEREST



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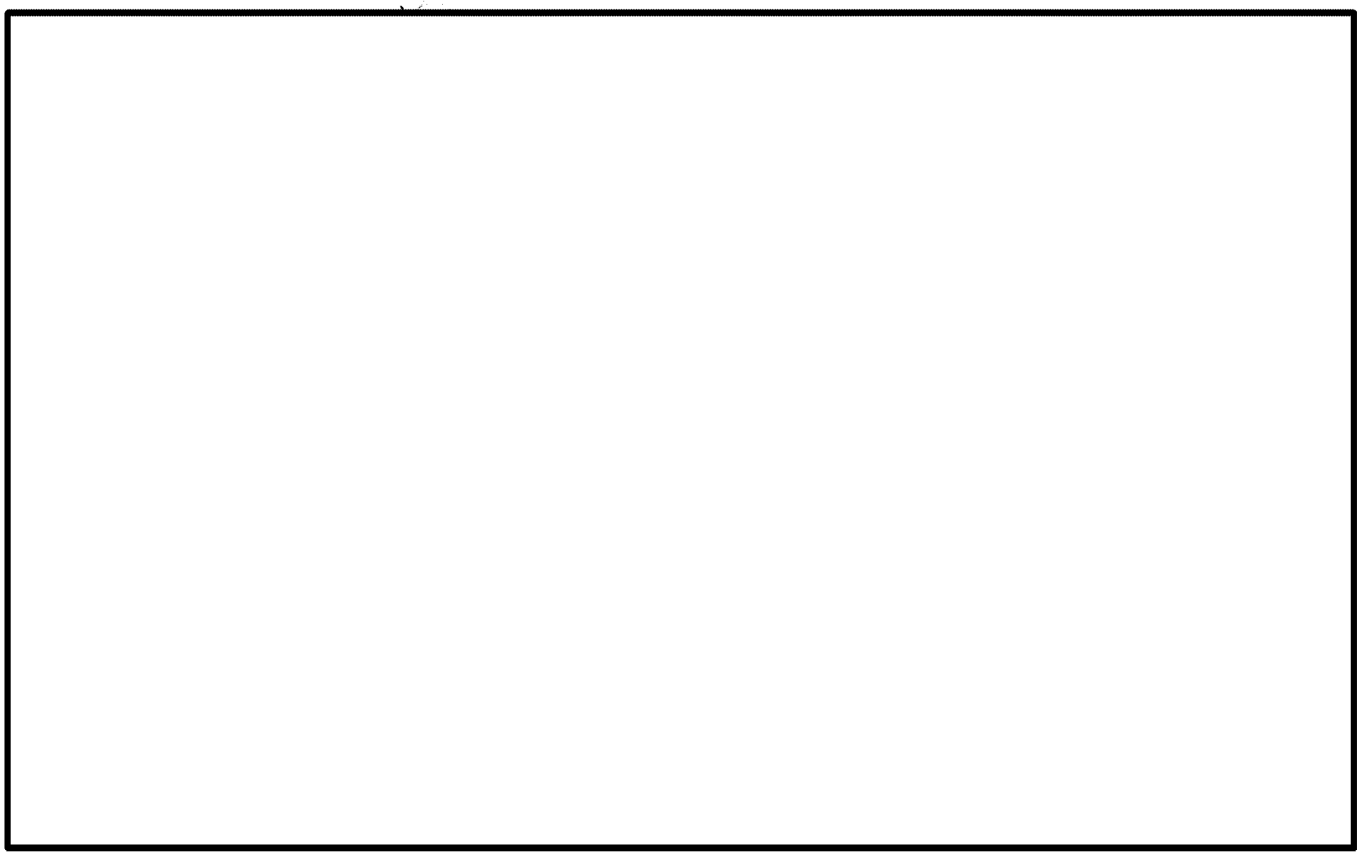

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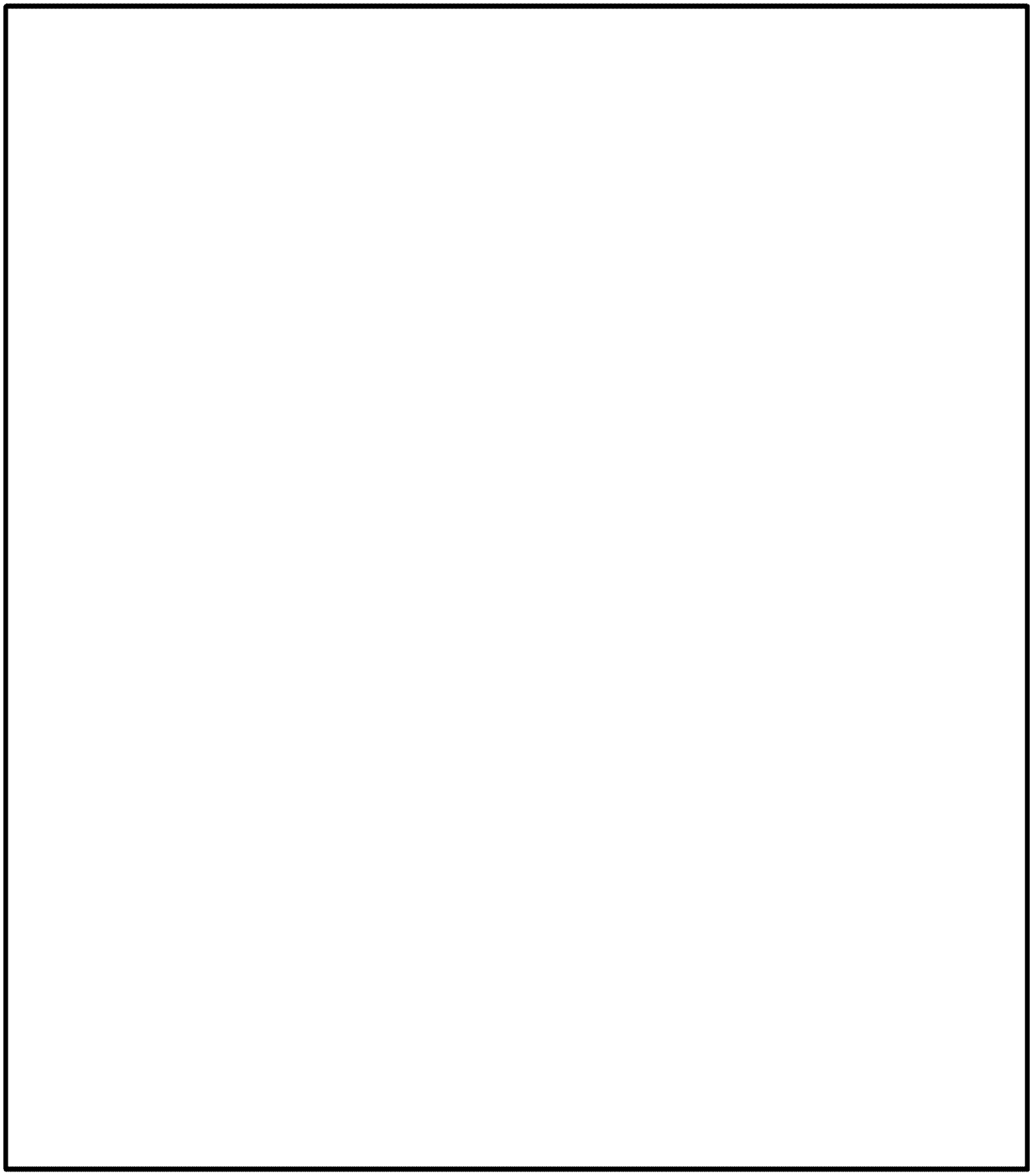
FINANCIAL CONSIDERATIONS



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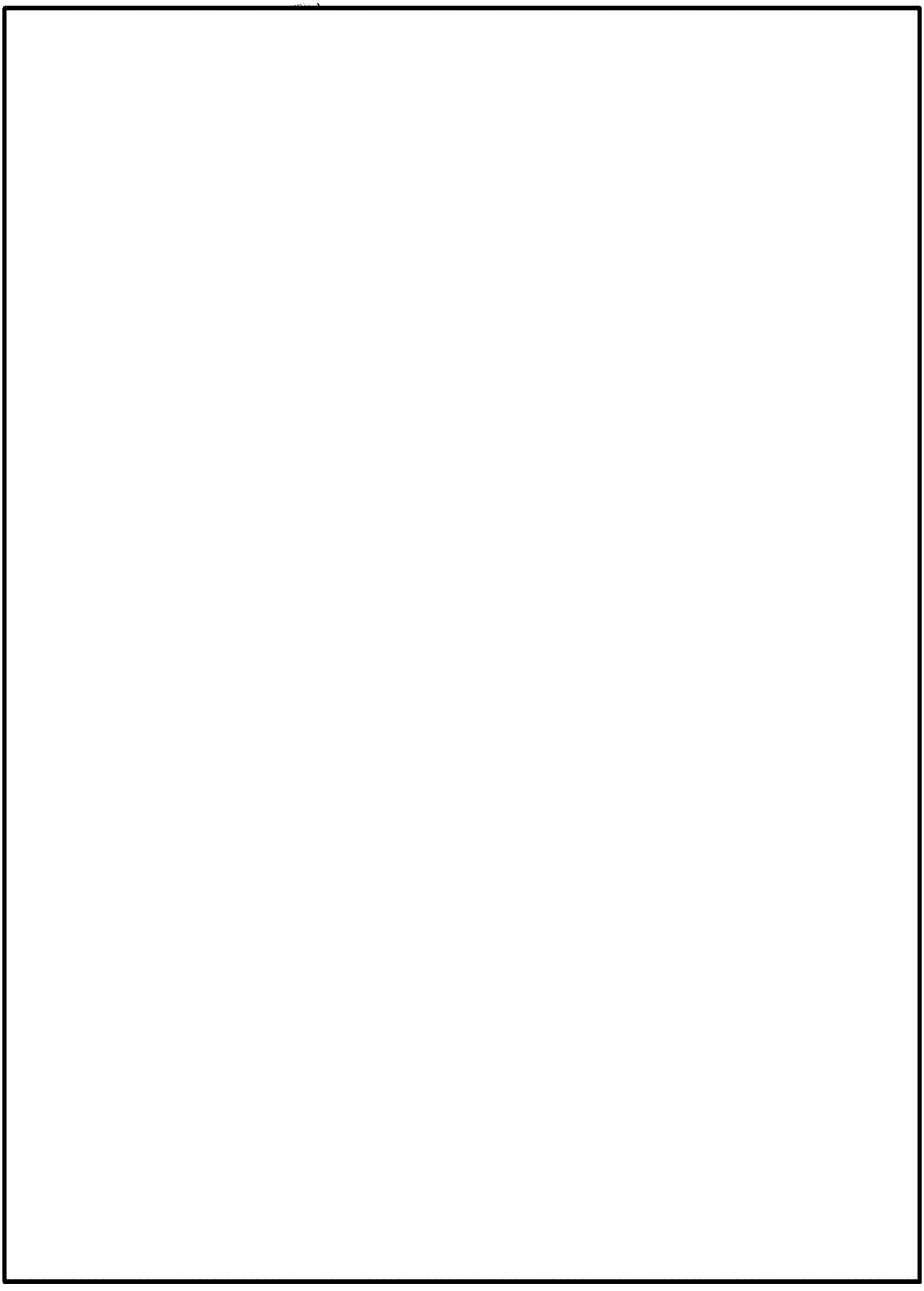

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EB-5 IMMIGRATION DISCLOSURES AND RISK FACTORS

The U.S. Congress created the employment-based fifth preference ("**EB-5**") immigrant visa category in 1990 for immigrants who invest in and manage U.S. commercial enterprises that benefit the U.S. economy through what is labeled the "EB-5 Program." Each investment needs to create or save at least 10 full-time jobs for U.S. workers.

The minimum amount required to invest is $500,000, although that amount is reduced to $500,000 if the investment is made into a new commercial enterprise principally doing business in a high unemployment area or qualifying Targeted Employment Area (collectively defined as a "**Targeted Employment Area**" or "**TEA**"). This project is located in a Targeted Employment Area, thus the minimum capital investment remains $500,000.

A description of the requirements and processes of the EB-5 Program is based on information obtained by the LLC from third parties whom the LLC believes are reliable. However, there can be no assurance that such information is accurate or current, or that it includes all of the risks relating to U.S. immigration laws or to the EB-5 Program. See "Risk Factors," below.

Investors in this Offering who have subscribed for Interests with the intention of applying for U.S. permanent residence on account of investment in the LLC should be aware of certain risk factors relating to immigration to the United States generally, and to the EB-5 Program and its administration specifically. An Investor who is interested in purchasing Interests with the intention of obtaining first conditional, and thereafter permanent, residence is encouraged, along with his or her advisors, to make his or her own independent review of the EB-5 Program and the various immigration risk factors relating to the process in obtaining a conditional and permanent residency status to determine if an investment in the Interests is a suitable approach for him or her.

THE LLC MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND CONCERNING WHETHER AN INVESTMENT IN THE LLC WILL MEET THE REQUIREMENTS OF THE EB-5 PROGRAM OR OTHER U.S. IMMIGRATION REQUIREMENTS. NO ASSURANCES CAN BE GIVEN THAT AN INVESTMENT IN THE LLC WILL RESULT IN AN IMMIGRANT INVESTOR RECEIVING AN EB-5 VISA OR CONDITIONAL OR PERMANENT RESIDENT STATUS.

General Immigration Risks. Congress and/or USCIS may change the law, regulations, or interpretations of the law, including the EB-5 Program, without notice and in a manner that may be detrimental to an Investor and/or the LLC. Investors who obtain conditional or permanent resident status must intend to make the United States their primary residence. The EB-5 Policy Memorandum was issued on May 30, 2013, which changes a significant amount of key definitions and criteria. Permanent residents who continue to live abroad risk revocation of their conditional or permanent residence status. The process of obtaining conditional and permanent resident status involves numerous factors and circumstances which are not within the control of the LLC, or the scope of this Memorandum. These include, but are not limited to, an immigrant Investor's particular personal history and characteristics, and quotas established by the United States government limiting the number of immigrant visas available to qualified individuals seeking conditional or permanent resident status under the EB-5 Program.

EB-5 Program Expiration. The expiration date for the EB-5 Program, is currently September 30, 2015. It is believed that the U.S. Congress will extend the EB-5 Program after that date; however, there can be no assurance that the EB-5 Program's term will be extended, or that applications submitted before the EB-5 Program's expiration will be adjudicated by the USCIS.

Use of Immigration Attorney and Processing Time. The filing of an I-526 Petition by an Investor with USCIS should be done by a qualified U.S. immigration attorney. As of the date of this document, the Manager has been advised that the USCIS is taking approximately eleven (11) months to approve (or deny) an I-526 Petition. It is impossible to predict USCIS processing times. Once approved, the case will either be forwarded to the U.S. State Department's National Visa Center and then to a U.S. Consulate selected by the Investor for processing, or, if the Investor is already in the U.S., the Investor may adjust his or her status to that of conditional permanent resident. Depending on which option the Investor chooses, it may take an additional six (6) months or longer for a U.S. Consulate to process the immigrant visa application, or for the USCIS to adjust an Investor's status, and issue a

conditional green card. Investors should not physically move to the United States until their immigrant visa has been issued.

Administrative Risk due to Changes in USCIS Policies. Processing times and USCIS' consideration and eventual approval of Investors' I-526 petitions could be negatively impacted by changes to USCIS' procedures or to its interpretation and implementation of current or future laws and regulations.

Mezzanine Lending Risk: Farrington EB-5 Capital, LLC provides mezzanine debt capital to Four Points Flushing Hotel & Condominium project. Mezzanine debt capital generally refers to that layer of financing between a company's senior debt and equity, filling the gap between the said capital. The EB-5 financing subordinates in priority of payment to senior debt, in this case, Northern Bank & Trust loan but senior in rank to owner's equity.

Jobs. USCIS requires proof that each investor's investment resulted in creating ten (10) jobs as part of the removal of conditions required for obtaining permanent residency status. The structure of the Offering is such that all jobs counted for purposes of Investors' immigration petitions must be created directly by the LLC. Based upon the Manager's estimates, the Manager believes that an investment in the Interests should satisfy the job creation requirement for the number of investors sought, specifically four hundred and two (402) jobs. See "Risk Factors", below.

The Manager estimates that the Project will create a maximum total of approximately four hundred and two (402) qualifying U.S. jobs, which is forty (40) per investor or ten percent (10%) more than the amount required. Each Investor in the LLC who will petition for permanent residency in the U.S. under the EB-5 Program based on an investment in this Offering must demonstrate that the Project created at least ten (10) U.S. jobs on account of that Investor's investment in order to qualify for permanent residency status under the EB-5 Program. The qualifying jobs created by the LLC's Investment of the Offering proceeds shall be allocated to the Investors on a first-in, first-out basis tied to the later date on which the following shall have occurred: (a) the LLC has accepted an Investor's subscription, or (b) the LLC has received in the project or in escrow such Investor's Capital Contribution and Administrative Fee. Accordingly, the first ten qualifying jobs that are created by the Project will be attributed to the first Investor who satisfies the requirements of clauses (a) and (b) of this paragraph, the second ten qualifying jobs that are created by the Project will be attributed to the second Investor who satisfies the requirements of clauses (a) and (b) of this paragraph, and so on until all qualifying jobs that are created by the Project have been allocated on a first-in, first-out basis to each Investor who satisfies the requirements of clauses (a) and (b) of this paragraph.

The Manager's job creation estimates are based upon the LLC's proposed activity and other circumstances of this Project. As stated above, the Manager's analysis estimates that the Project will create a likely maximum total of approximately seven hundred and thirty (730) U.S. jobs. However, there can be no assurance that this estimate, or the assumptions upon which it is based, is or are accurate, or that the actual number of direct employees will be close to the number predicted in such analysis. Depending upon any disparity actually realized, there may be insufficient employment to remove conditional visa status, resulting in a delay, or denial, of permanent residency for one or more Investors. Because the qualifying jobs created by the Investment shall be allocated to the Investors on a first-in, first-out basis tied to the date of Investors' subscriptions, as detailed in the paragraph immediately above, while the LLC believes that a sufficient number of qualifying jobs will be created by the Project for all Investors, if less than the number of direct, jobs estimated are actually created by the Project, the first-in, first-out method of allocating jobs will provide greater security for earlier subscribing Investors than for later subscribing Investors with respect to the removal of conditions required for obtaining permanent residency status.

Proving Lawful Source of Funds. As part of the I-526 Petition, an Investor must present to USCIS clear documentary evidence of the source of the funds invested, and that the funds belong to the Investor. Generally, the Investor can satisfy the source of funds requirement by submitting documents showing that he or she has a level of income from legal sources that would yield sufficient funds for the investment. USCIS generally requires copies of income tax returns to satisfy the source of funds requirement. For Investors who do not have such records, there may be other records that can be provided to USCIS by an Investor to demonstrate that the investment funds came from legal sources. USCIS may require proof of a more specific path of funds earned in individual cases. All such matters regarding the Investor's I-526 Petition should be discussed with his or her

immigration counsel. An Investor may be unable to present evidence that USCIS considers sufficient to carry the Investor's burden to show the legitimate source of the investment funds.

Policy Formulation. The EB-5 Program requires an Investor to participate in policy formulation or management position within the LLC. The LLC believes, but cannot guarantee, that as a Member in the LLC, each Investor is provided with the powers and duties under the Operating Agreement sufficient to meet the USCIS requirement that an Immigrant Investor is actively participating in policymaking or management of a new commercial enterprise.

At-Risk Investment. An Investor's investment must be and remain "at risk" to qualify for the EB-5 Program. As part of the green card application, an Investor must show evidence that he or she has placed the required amount of capital at risk for the purpose of generating a return on the capital placed at risk. The LLC believes that an investment in the Interests will place an Investor's investment in the LLC at risk, because as described herein there is no assurance that the business of the LLC will be able to return any Investor's investment in the Interests at any time, if ever. However, purchase of Interests does not guarantee conditional or permanent residency in the United States. Furthermore, Project conditions could arise under which transactions removing Investors' capital from active "at risk" use in the LLC could become commercially necessary. No assurance can be given that conditions to residency under the EB-5 Program will be removed.

EB-5 Visa Retrogression. Section 203(b)(5) of the Immigration and Nationality Act ("**INA**") allocates 10,000 immigrant visas per fiscal year to qualified individuals seeking lawful permanent resident status in the United States on the basis of their capital investment in a commercial enterprise qualifying under the EB-5 Program. To date, USCIS has issued less than 10,000 EB-5 visas per year for each year that it has issued EB-5 visas; however, recent trends have demonstrated that the number of EB-5 visas issued each year is on the rise. If all 10,000 EB-5 visas are issued in a single year, no further visas shall be issued until the commencement of the next fiscal year. Given the sharp increase in current visa issuance trends, especially investors from mainland China, there can be no assurance that the ceiling of 10,000 EB-5 visas per year will not be reached, and accordingly, no assurance that a visa shall be available for all Investors at the time of adjudication of their individual I-526 petitions. The investors' children close to 21-years-old may "age out" and application may be delayed when the investors wait for the priority date to become current.

Ceiling on EB-5 Visas, By Country. As stated above, there are approximately 10,000 U.S. visas reserved each year to the EB-5 immigrant visa category. Furthermore, within the overall EB-5 category, sub-categories exist as to the portion of the total number of visas allowable to immigrant investors from each foreign country, meaning that there is a ceiling on EB-5 visas for each country. The per country quota is 7% in each immigrant visa category. The U.S. Department of State ("**DOS**") has never yet issued the total 10,000 EB-5 visas in any year since the EB-5 category's creation in 1990. However, both the overall EB-5 Program and the Regional Center Program have experienced the significant increase in usage in recent months referred to above, that shows signs of accelerating rather than diminishing, and it is anticipated that the 10,000 number shall be fully used if not this year, then the next. If 10,000 visas are issued in any one or more years, or if more EB-5 investors qualify from a given country than is allowable under the annual per-country cap for that country, this could create a backlog in the EB-5 category. This means an investor from such country who otherwise qualifies for an EB-5 visa would not receive his/her conditional green card until additional visas become available in the following year. When the EB-5 applicants reach the ceiling of 10,000 visas, country limit may apply. EB-5 visa retrogression may occur. This could delay an investor's entry to the U.S. if he/she is engaged in consular processing or the filing of his /her adjustment of status application if he/she is already in the U.S. If visa backlogs delay an investor's receipt of a conditional green card, this could also delay the filing of his/her I-829 Petition, which in turn could negatively affect his/her ability to prove requisite job creation within the prescribed time frame and remove the conditions to permanent residency.

No Guarantee of Positive Adjudication of I-526, I-829, or I-485. Adjudication of all I-526 and I-829 petitions, along with all I-485 "Application to Register Permanent Residence or Adjust Status" ("**I-485**"), is within the sole and exclusive purview of USCIS. Although the Issuer's management believes that an investment in the Interests offered hereby should enable an Investor to qualify for a positive determination of his or her I-526 and I-485, and that a successful conclusion to said investment in full satisfaction of all requirements of the EB-5 Program ought

to qualify Investors for I-829 approval, there can be no guarantee that any Investor shall ultimately receive a positive adjudication of each, or any, of these petitions or applications.

Project Delays May Negatively Impact Immigration Process. Various delays caused by circumstances both within and without the control of the LLC, and/or their respective contract partners in the conduct and closing of this Offering and the execution of the Project thereafter may result in a delay in the commencement of the Project or in delays in the construction, sale, and operation of the Project as contemplated hereby. One or more of said delays, if incurred, could result in unavoidable delays in the creation, and proving, of necessary jobs. Such delays may impact the adjudication of Investor I-526s, I-485s, and I-829s in materially adverse ways.

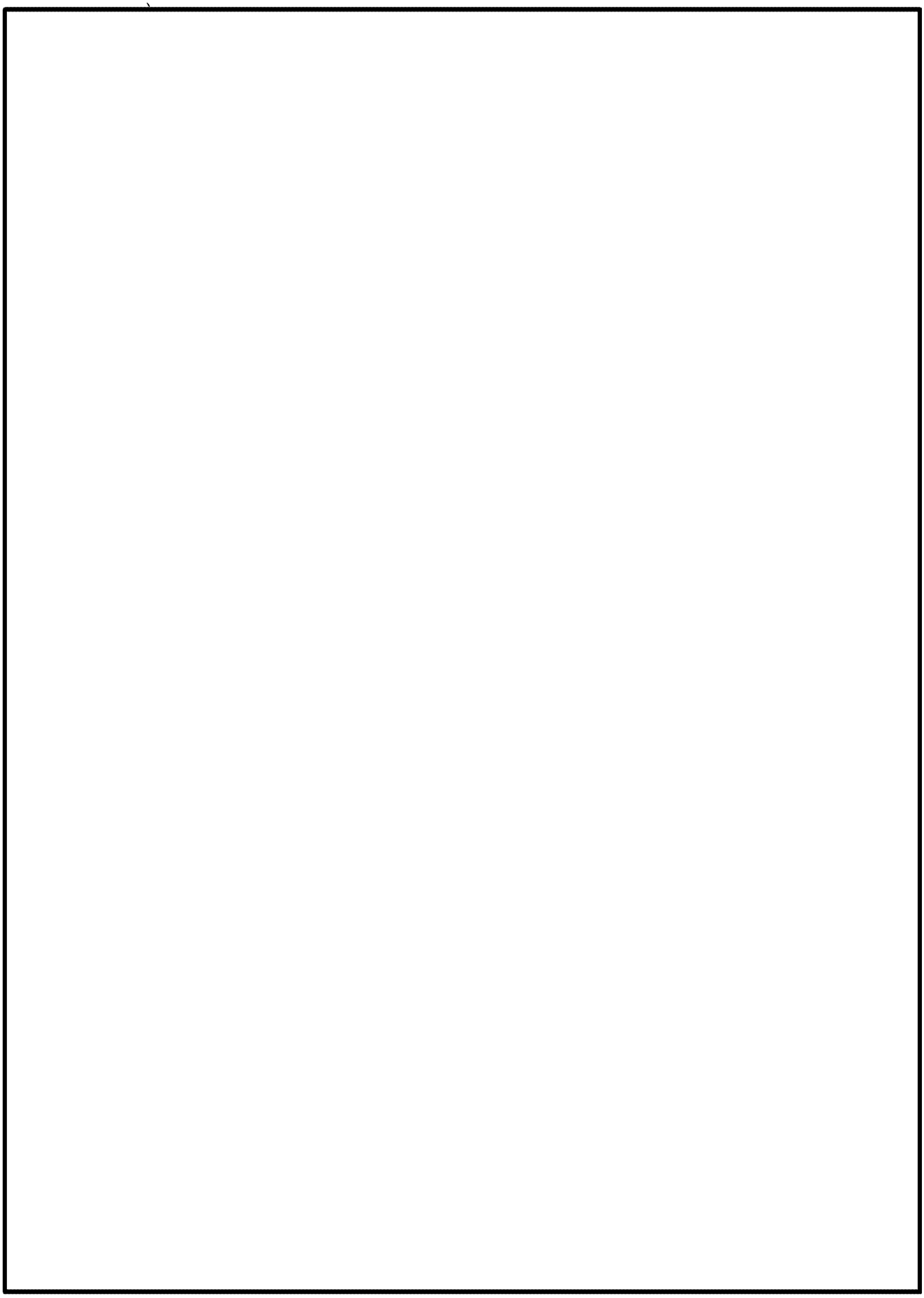
Targeted Employment Area and Targeted Employment Area Designation. Demographic shifts could cause the loss of the "high unemployment area" designation affording Targeted Employment Area (TEA) status to the area where the Project is located. Although EB-5 Investors who subscribed in the Project when it was located in a Targeted Employment Area needed only invest $500,000 in the Project, if the Project's Targeted Employment Area status is lost during the course of the Offering, Investors who subscribe thereafter would need to invest $500,000 to qualify for the EB-5 Program. This project is located in Flushing, Queens County in the State of New York. The project location is qualified as Targeted Employment Area under the EB-5 Program.

* * * * *

Admissible to the U.S.: Foreign persons applying for a U.S. Green Card must demonstrate that they are admissible to the U.S. Section 212 of the Immigration and Nationality Act sets forth various grounds of inadmissibility, which may prevent an otherwise eligible applicant from receiving a green card or entering the U.S. Foreign individuals who are ineligible to receive a Green Card or to be admitted to the U.S. include, but are not limited to, an individual who (1) is determined to have a communicable disease of public health significance, which shall include infection with the etiologic agent for acquired immune deficiency syndrome; (2) is determined to have a physical or mental disorder and behavior associated with the disorder that may pose, or has posed, a threat to the property, safety, or welfare of the individual or others; (3) is determined to have had a physical or mental disorder and a history of behavior associated with the disorder, which behavior has posed a threat to the property, safety, or welfare of the individual or others, and which behavior is likely to recur or to lead to other harmful behavior; (4) is determined to be a drug abuser or addict; (5) has been convicted of committing, or who admits having committed, acts which constitute the essential elements of a crime involving moral turpitude (other than a purely political offense), or a violation of (or a conspiracy or attempt to violate) any law or regulation of a State, the United States, or a foreign country relating to a controlled substance; (6) has been convicted of 2 or more offenses (other than purely political offenses), regardless of whether the conviction was in a single trial or whether the offenses arose from a single scheme of misconduct and regardless of whether the offenses involved moral turpitude, for which the aggregate sentences to confinement were 5 years or more; (7) is or has been an illicit trafficker in any controlled substance or in any listed chemical (as defined in section 102 of the Controlled Substances Act (21 U.S.C. § 802), or is or has been a knowing aider, abettor, assister, conspirator, or colluder with others in the illicit trafficking in any such controlled or listed substance or chemical, or endeavored to do so; (8) is the spouse, son, or daughter of an alien inadmissible under clause (7) and has, within the previous 5 years, obtained any financial or other benefit from the illicit activity of that alien, and knew or reasonably should have known that the financial or other benefit was the product of such illicit activity; (9) is coming to the U.S. solely, principally, or incidentally to engage in prostitution, or has engaged in prostitution within 10 years of the date of application for a visa, admission, or adjustment of status; (10) directly or indirectly procures or attempts to procure, or (within 10 years of the date of application for a visa, admission, or adjustment of status) procured or attempted to procure or to import, prostitutes or persons for the purpose of prostitution, or receives or (within such 10 year period) received, in whole or in part, the proceeds of prostitution; (11) is coming to the United States to engage in any other unlawful commercialized vice, whether or not related to prostitution; (12) has committed in the U.S. a serious criminal offense, regardless of whether such offense was prosecuted as a result of diplomatic immunity; (13) is excludable from the U.S. on grounds relating to national security, related grounds, or terrorist activities; (14) is excludable from the U.S. on grounds relating to foreign policy; (15) is or has been a member of or affiliated with the Communist or any other totalitarian party or who has participated in Nazi prosecutions or genocide; (16) is likely to become a public charge at any time after entry; (17) by fraud or willfully misrepresenting a material fact, seeks to procure (or has sought to procure or has procured) a visa, other documentation, or admission into the U.S.; (18) illegally entered into the U.S.; or (19) has at any time knowingly encouraged, induced, assisted, abetted, or aided any other alien to enter or to try to enter the U.S. in violation of law.

* * * * *

RISK FACTORS



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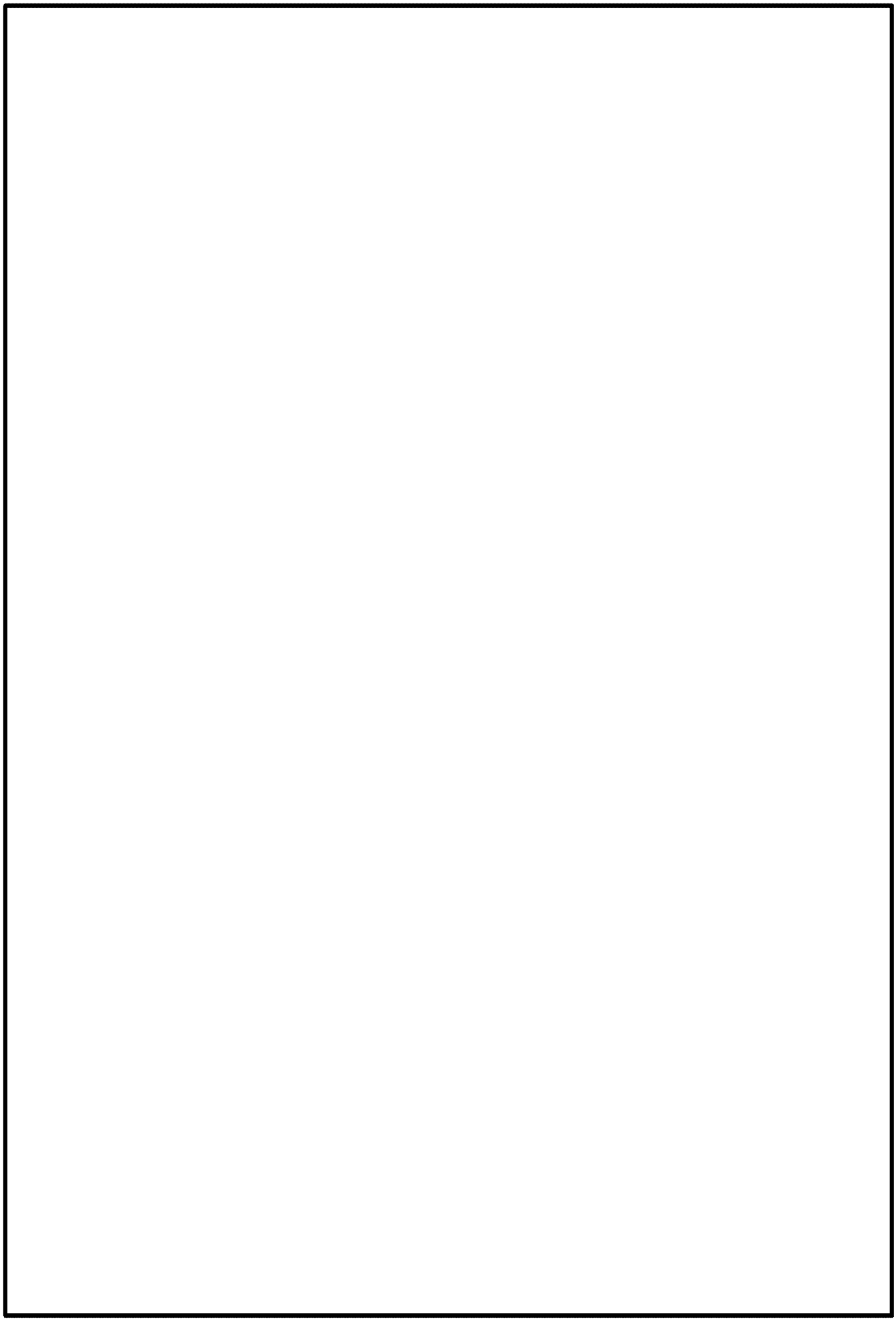

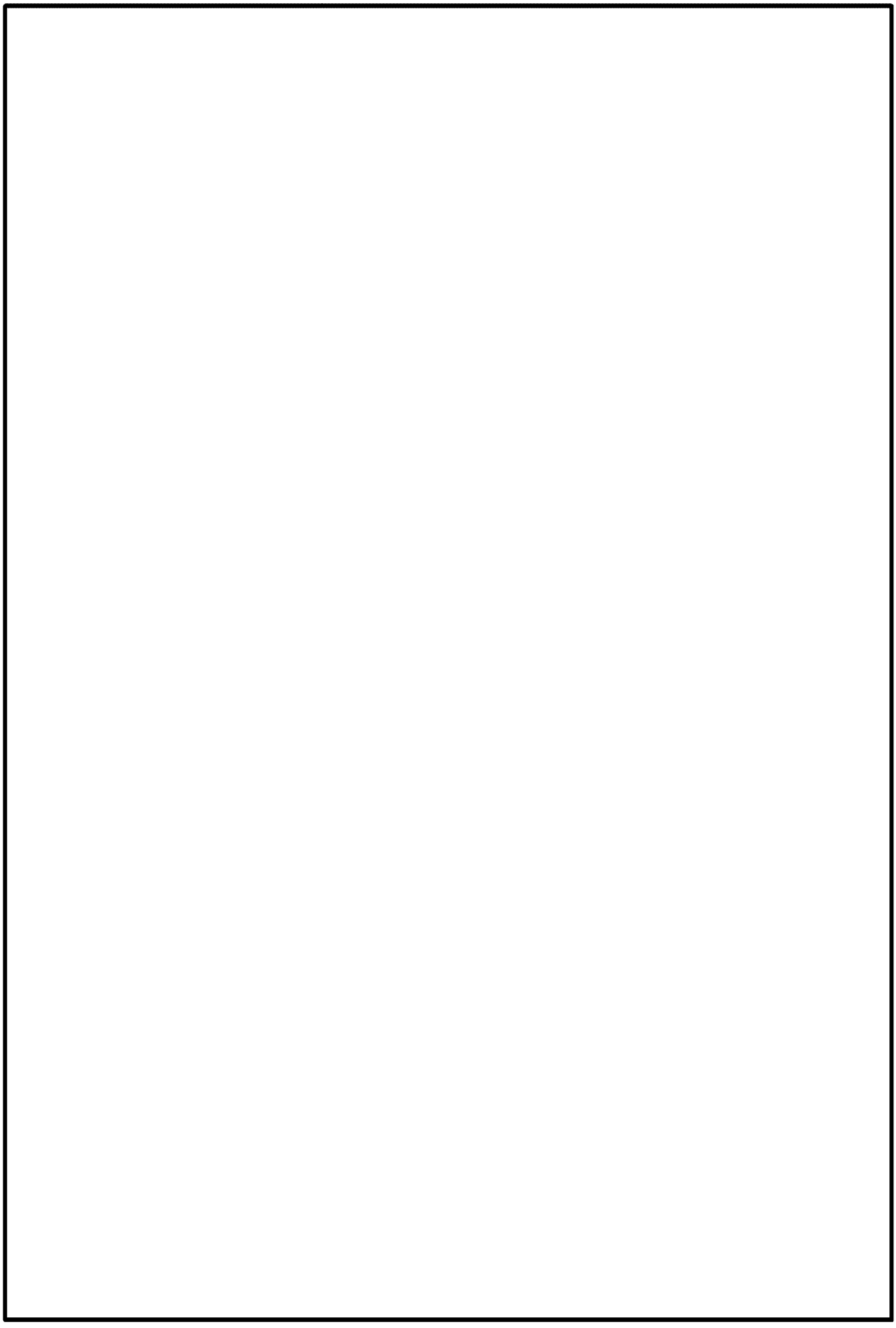

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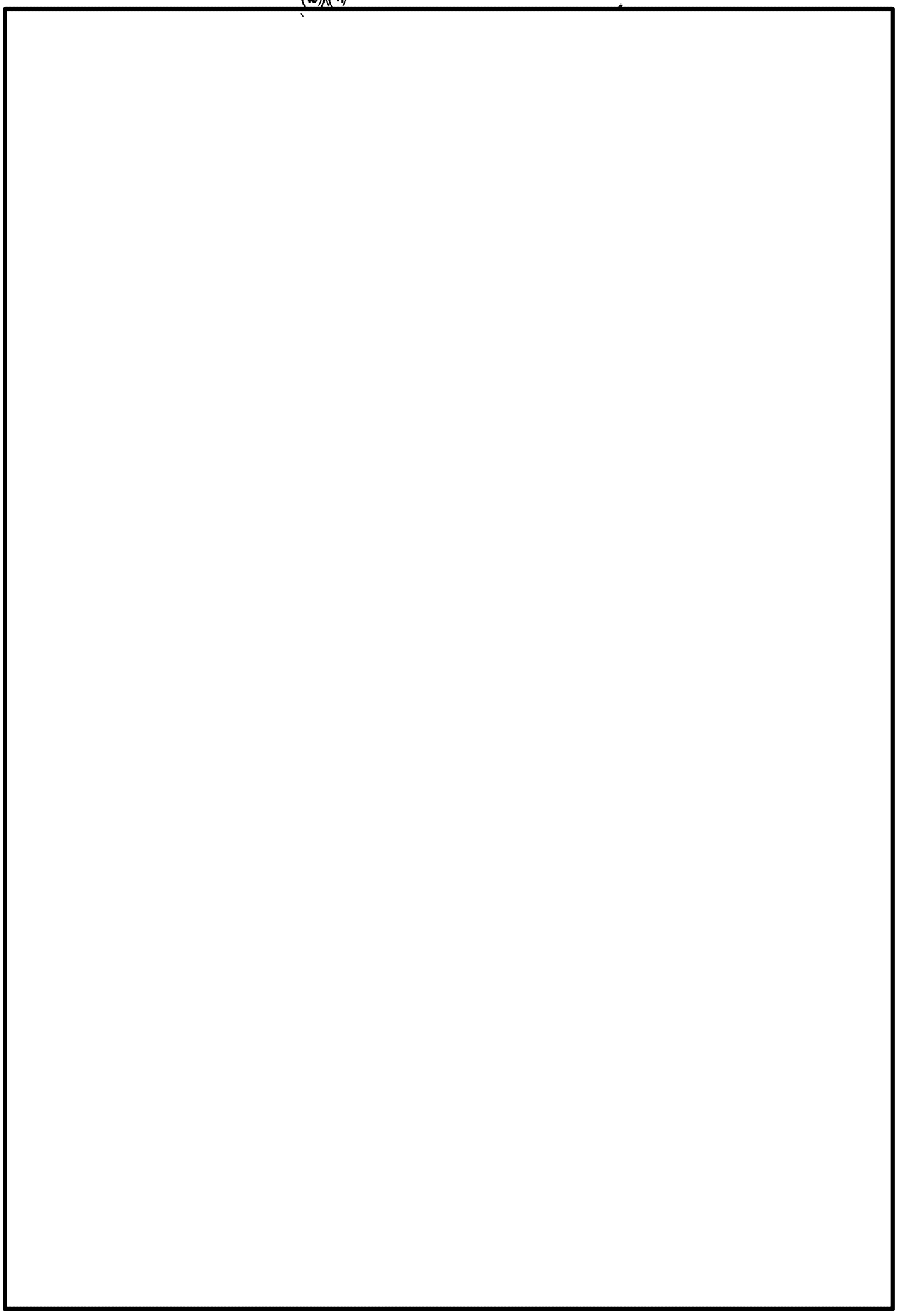

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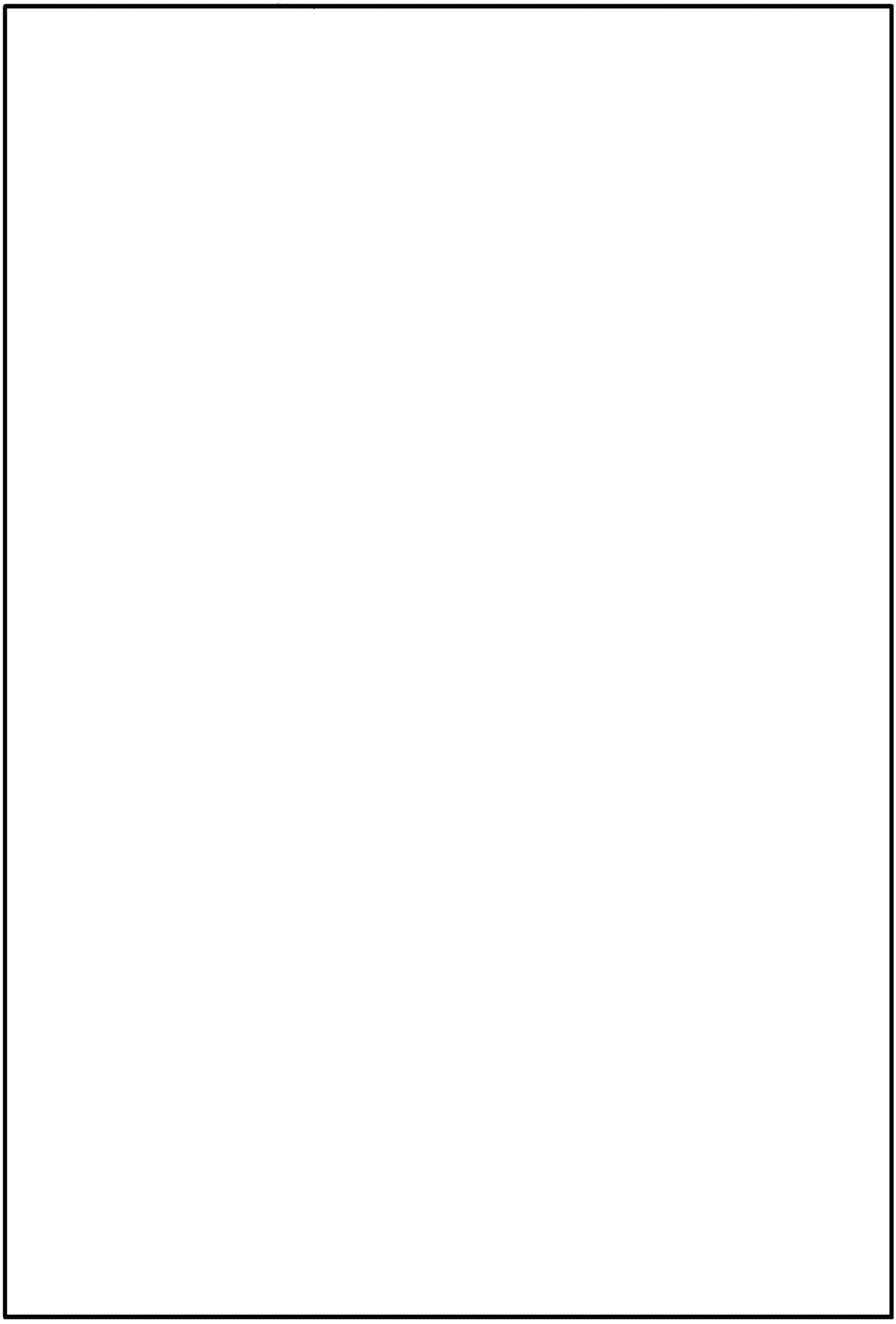

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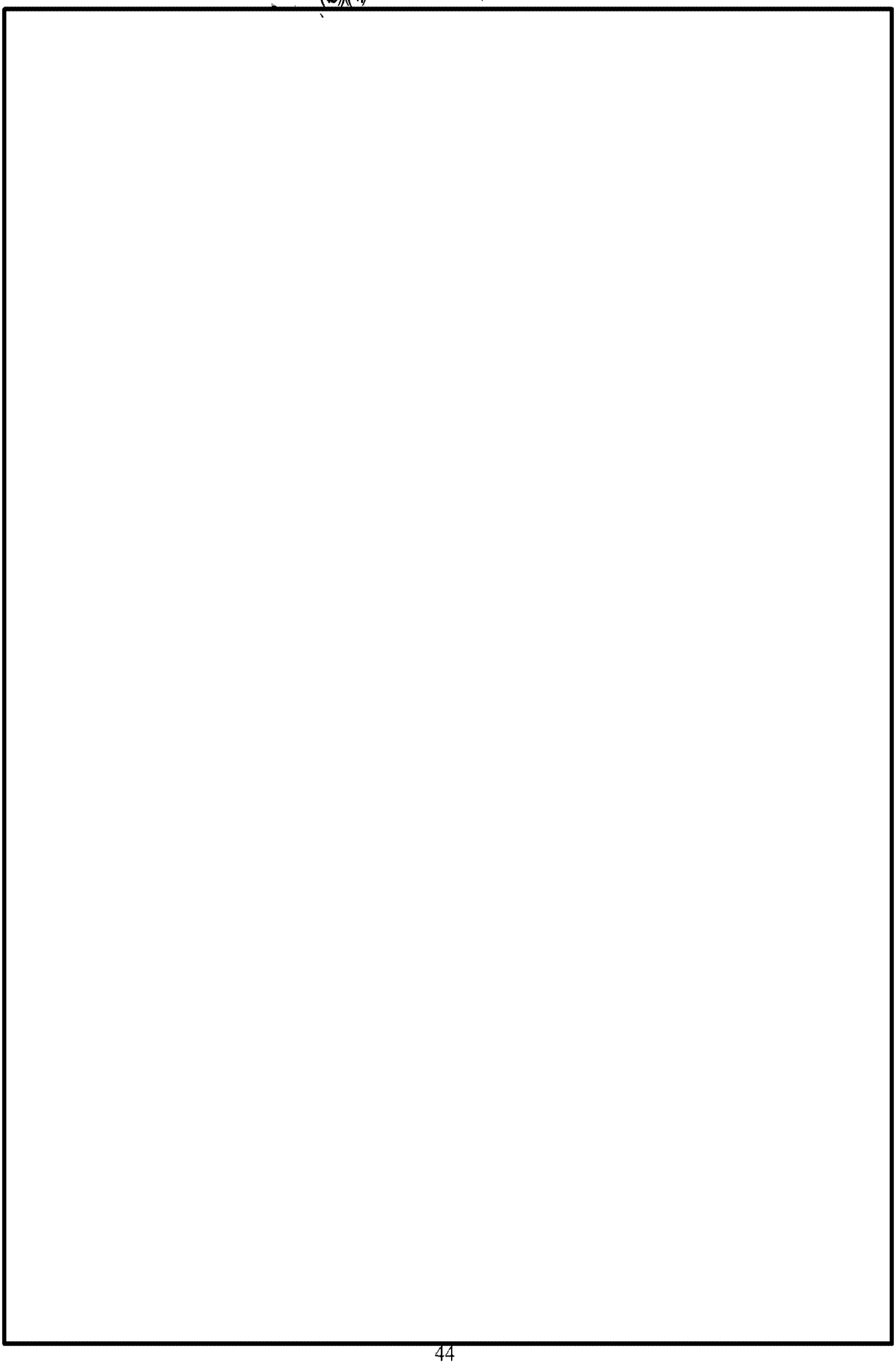

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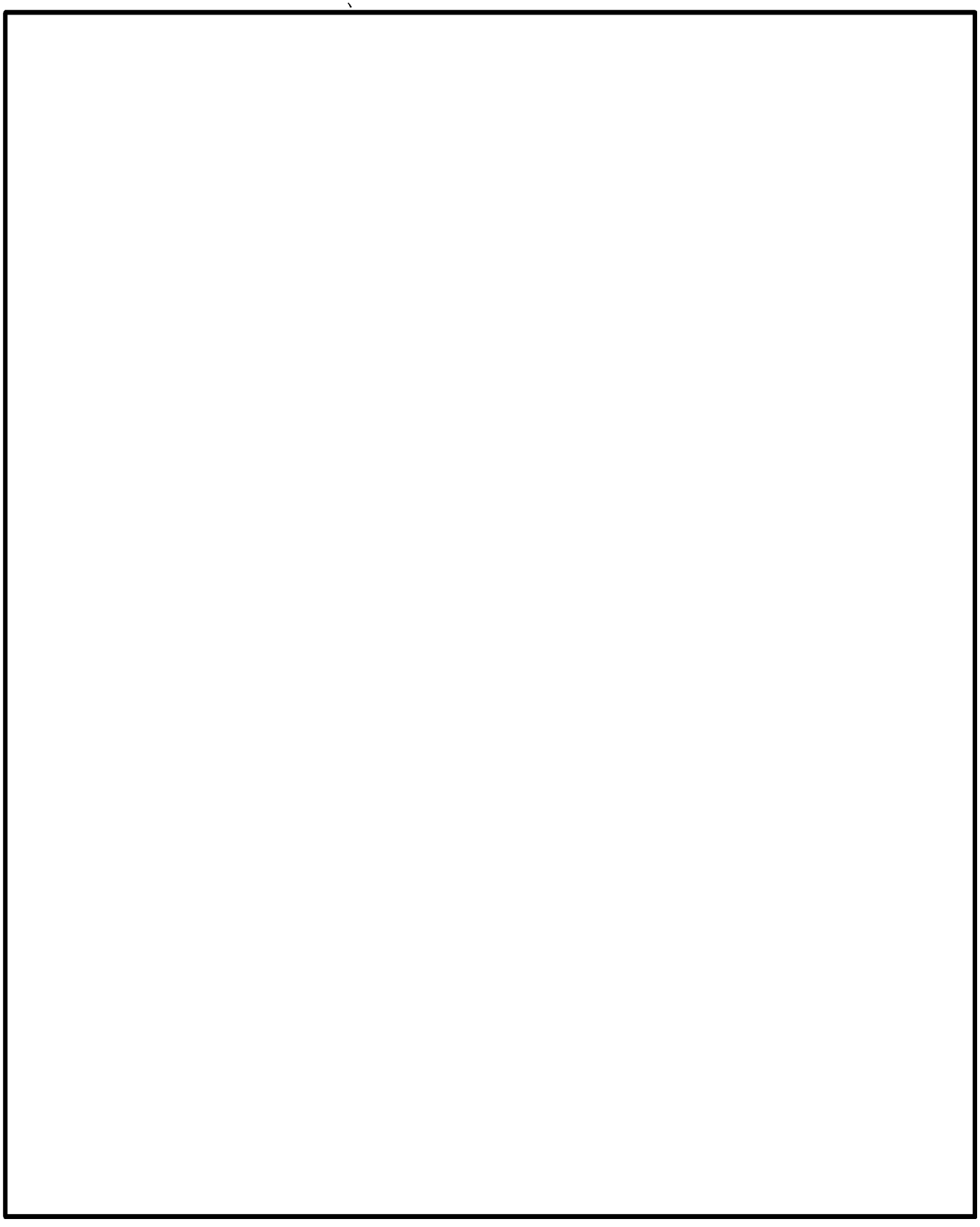

SUBSCRIPTION PROCEDURES

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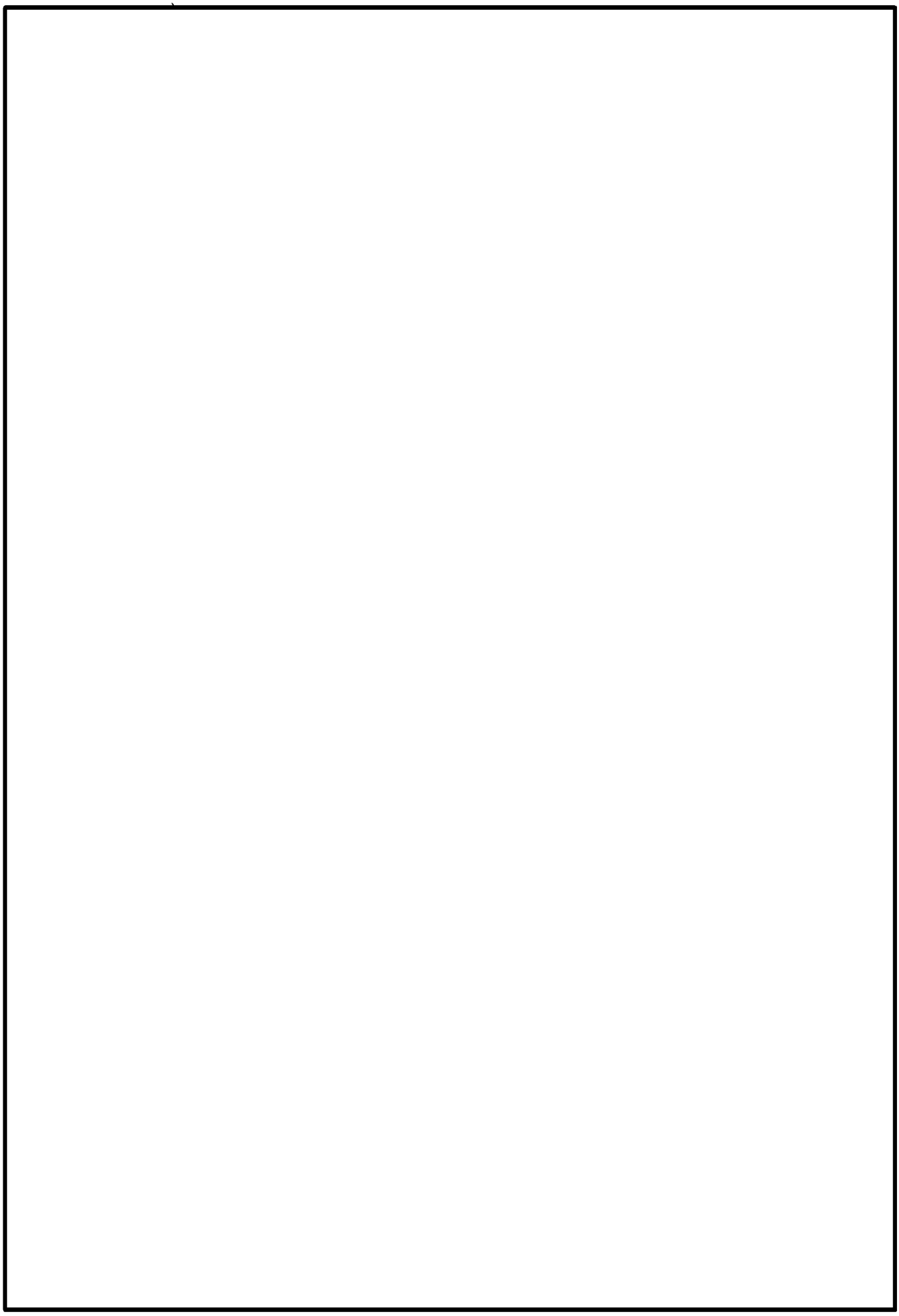

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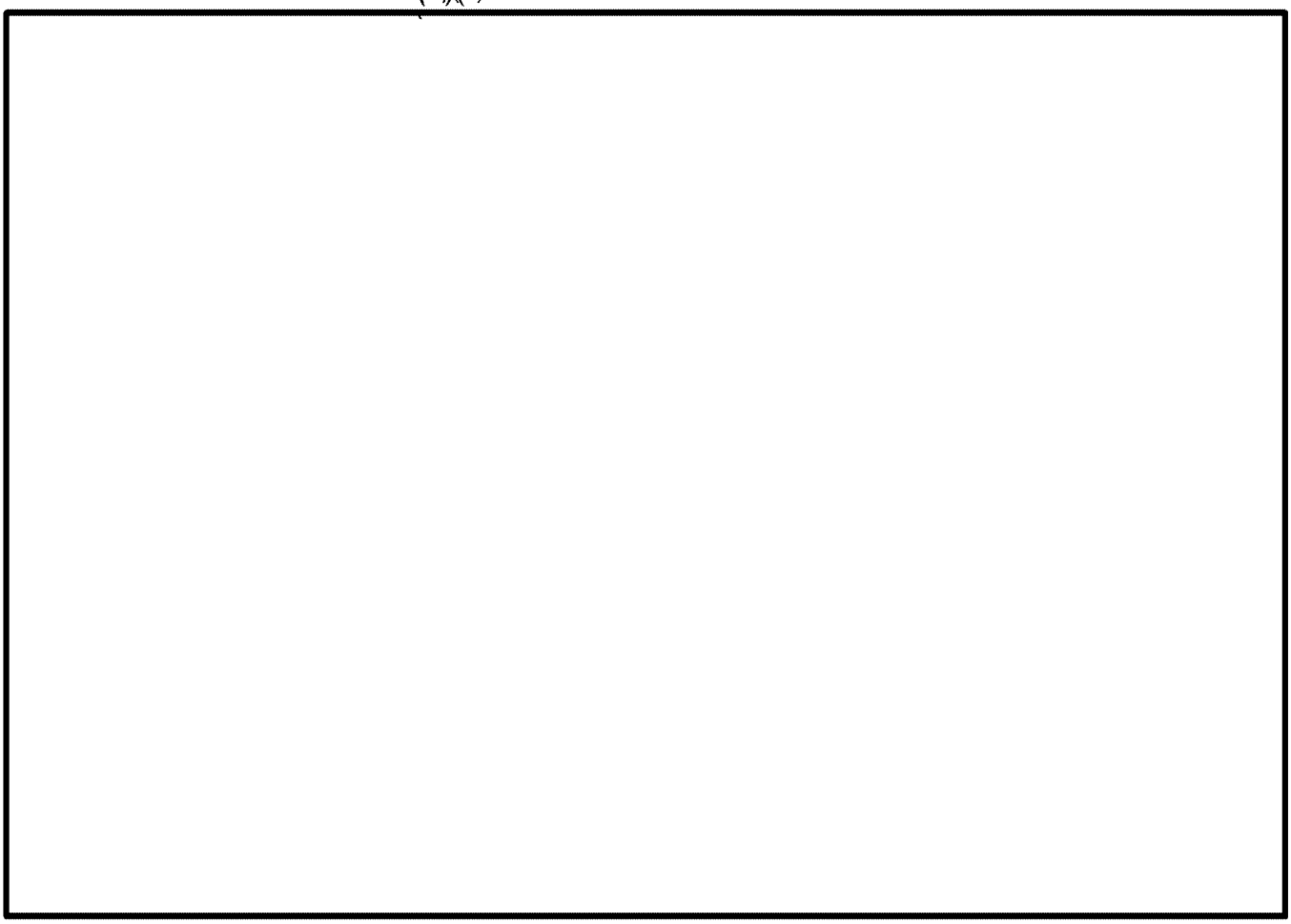

INDEX OF EXHIBITS

[INSERT]

EXHIBIT A
OPERATING AGREEMENT

EXHIBIT B
SUBSCRIPTION AGREEMENT

EXHIBIT C
INVESTOR ELIGIBILITY QUESTIONNAIRE

EXHIBIT D
ESCROW AGREEMENT

EXHIBIT E
COMPREHENSIVE EB-5 BUSINESS PLAN AND TARGETED EMPLOYMENT AREA STATUS

All Exhibits are available for review upon request. Requests should be directed to our Managing Member, George Xu, at Farrinton EB-5 Capital, LLC, 35-06 Keavutt St, Suite CF-A, Flushing, NY 11354. Our Managing Member's telephone number is 718.939.1060. Copies of all exhibits will be delivered before execution of the subscription agreement.

Notice of Entry of Appearance as Attorney or Accredited Representative

Department of Homeland Security

DHS
Form G-28
OMB No. 1615-0105
Expires 02/29/2016

Part 1. Information About Attorney or Accredited Representative

Name and Address of Attorney or Accredited Representative

1.a. Family Name *(Last Name)*: SHAH

1.b. Given Name *(First Name)*: Mehreen

1.c. Middle Name: N/A

2. Name of Law Firm or Recognized Organization: Mona Shah and Associates PLLC

3. Name of Law Student or Law Graduate: N/A

4. State Bar Number: MS1058

5.a. Street Number: 299

5.b. Street Name: Broadway

5.c. Apt. ☐ Ste. ☒ Flr. ☐ 1005

5.d. City or Town: New York

5.e. State: NY **5.f.** Zip Code: 10007

5.g. Postal Code:

5.h. Province:

5.i. Country: USA

6. Daytime Phone Number (2 1 2) 2 3 3 - 7 4 7 3

7. E-Mail Address of Attorney or Accredited Representative: mona@mshahlaw.com

Part 2. Eligibility Information For Attorney or Accredited Representative

(Check applicable items(s) below)

1. ☒ I am an attorney eligible to practice law in, and a member in good standing of, the bar of the highest court(s) of the following State(s), possession(s), territory(ies), commonwealth(s), or the District of Columbia.

1.a. New York Court of Appeals

1.b. I *(choose one)* ☒ ***am not*** ☐ ***am*** subject to any order of any court or administrative agency disbarring, suspending, enjoining, restraining, or otherwise restricting me in the practice of law. (If you are subject to any order(s), explain fully in the space below.)

1.b.1.

2. ☐ I am an accredited representative of the following qualified nonprofit religious, charitable, social service, or similar organization established in the United States, so recognized by the Department of Justice, Board of Immigration Appeals pursuant to 8 CFR 292.2. Provide the name of the organization and the expiration date of accreditation.

2.a. Name of Recognized Organization

2.b. Date Accreditation expires *(mm/dd/yyyy)* ▶

3. ☐ I am associated with

3.a.

the attorney or accredited representative of record who previously filed Form G-28 in this case, and my appearance as an attorney or accredited representative is at his or her request. If you check this item, also complete **number 1 (1.a. - 1.b.1.) or number 2 (2.a. - 2.b.)** in **Part 2** *(whichever is appropriate).*

4. ☐ I am a law student or law graduate working under the direct supervision of the attorney or accredited representative of record on this form in accordance with the requirements in 8 CFR 292.1(a)(2)(iv).

Part 3. Notice of Appearance as Attorney or Accredited Representative

This appearance relates to immigration matters before (select one):

1. ☒ USCIS - List the form number(s)

1.a. I-924

2. ☐ ICE - List the specific matter in which appearance is entered

2.a.

3. ☐ CBP - List the specific matter in which appearance is entered

3.a.

I hereby enter my appearance as attorney or accredited representative at the request of:

4. **Select only one:** ☐ Applicant ☒ Petitioner ☐ Respondent (ICE, CBP)

Name of Applicant, Petitioner, or Respondent

5.a. Family Name *(Last Name)* XU

5.b. Given Name *(First Name)* George

5.c. Middle Name

5.d. Name of Company or Organization, if applicable

NOTE: Provide the mailing address of Petitioner, Applicant,or Respondent and not the address of the attorney or accredited representative, **except when a safe mailing address is permitted** on an application or petition filed with Form G-28.

6.a. Street Number and Name

6.b. Apt. ☐ Ste. ☐ Flr. ☐

6.c. City or Town

6.d. State 6.e. Zip Code

7. Provide A-Number and/or Receipt Number

Pursuant to the Privacy Act of 1974 and DHS policy, I hereby consent to the disclosure to the named Attorney or Accredited Representative of any record pertaining to me that appears in any system of records of USCIS, ICE, or CBP.

8.a. Signature of Applicant, Petitioner, or Respondent

8.b. Date *(mm/dd/yyyy)* ▶ 7/2/2014

Part 4. Signature of Attorney or Accredited Representative

I have read and understand the regulations and conditions contained in 8 CFR 103.2 and 292 governing appearances and representation before the Department of Homeland Security. I declare under penalty of perjury under the laws of the United States that the information I have provided on this form is true and correct.

1. Signature of Attorney or Accredited Representative

2. Signature of Law Student or Law Graduate

3. Date *(mm/dd/yyyy)* ▶ 7-16-14

Part 5. Additional Information

1.

OMB No. 1615-0061; Expires 01/31/2015

Department of Homeland Security
U.S. Citizenship and Immigration Services

Form I-924, Application for Regional Center Under the Immigrant Investor Pilot Program

Do Not Write in This Block - for USCIS Use Only (except G-28 block below)

Action Block

U.S. Department of Homeland Security
APPROVED
MAY 06 2015
Carl A Johnston
7944
U.S. Citizenship and Immigration Services

RCW1420251818
egarcia2 1924 07/21/2014

[X] G-28 attached

Attorney's State License No.
MS1058

C30056

Part 1. Information About Principal of the Regional Center

Name: Last	First	Middle
XU	George	

C/O: Mona Shah and Associates

Street Address/P.O. Box: 299 Broadway, Suite 1005

City: New York (b)(6)	State: NY	Zip Code: 10007

Date of Birth (mm/dd/yyyy): [redacted]	Fax Number (include area code): (212) 233-4877	Telephone Number (include area code): (212) 233-7473

Web site address: www.centurygroupdevelopment.com

Part 2. Application Type (Check one)

[X] a. Initial Application for Designation as a Regional Center

[ ] b. Amendment to an approved Regional Center application. Note the previous application receipt number, if any (also attach the Regional Center's previous approval notice): _____

Part 3. Information About the Regional Center

(Use a continuation sheet, if needed, to provide information for additional management companies/agencies, Regional Center principals, agents, individuals or entities who are or will be involved in the management, oversight, and administration of the regional center.)

A. Name of Regional Center: Century New York City Regional Center

Street Address/P.O. Box: 35-06 Leavitt St, Suite CF-A

City: Flushing	State: NY	Zip Code: 11354

Web site address: www.centurygroupdevelopment.com	Fax Number (include area code): (212) 233-4877	Telephone Number (include area code): (212) 233-7473

Part 3. Information About the Regional Center *(Continued)*

B. Name of Managing Company/Agency: N/A

Street Address/P.O. Box: N/A		
City: N/A	State:	Zip Code: N/A
Web site address:	Fax Number (include area code):	Telephone Number (include area code):

C. Name of Other Agent: Mona Shah & Associates

Street Address/P.O. Box: 299 Broadway, Suite 1005		
City: New York	State: NY	Zip Code: 10007
Web site address: www.mshahlaw.com	Fax Number (include area code): (212) 233-4877	Telephone Number (include area code): (212) 233-7473

D. Continuation, if needed, to provide information for additional management companies/agencies, regional center principals, agents, individuals or entities who are or will be involved in the management, oversight, and administration of the regional center.)

Please see attached counsel's project cover letter

Part 3. Information About the Regional Center *(Continued)*

Note: If extra space is needed to complete any item, attach a continuation sheet, indicate the item number, and provide the response.

1a. Describe the structure, ownership and control of the regional center entity.

The Regional Center is owned by Mr. George Xu. Please see the counsel's project cover letter and organizational chart and operating agreement

b. Date the Regional Center was established(mm/dd/yyyy): 03/25/2014

c. Organization Structure for the Regional Center:

- ☐ **1.** Agency of a U.S. State or Territory (identify) _____
- ☐ **2.** Corporation
- ☐ **3.** Partnership (including Limited Partnership)
- ☒ **4.** Limited Liability Company (LLC)
- ☐ **5.** Other (Explain) _____

2. Has this regional center's designation ever been formally terminated by USCIS, or has the regional center ever filed a Form I-924 or regional center proposal or amendment that was denied?

☒ No ☐ Yes - Attach a copy of the adverse decision, with an explanation, the date of decision, and case number, if any.

3. Describe the geographic area of the regional center. **Note:** This area must be contiguous. Provide a map of the geographic area.

Queens County, New York County, Bronx County, Richmond County, Westchester County and Nassau County

The map of the geographic area is attached in the Business Plan

4. Describe the regional center's administration, oversight, and management functions that are or will be in place to monitor all EB-5 capital investment activities and the allocation of the resulting jobs created or maintained under the sponsorship of the regional center.

Please see the counsel's cover letter and administrative exhibits

Part 3. Information About the Regional Center *(Continued)*

5. Describe the past, current, and future promotional activities for the regional center. Include a description of the budget for this activity, along with evidence of the funds committed to the regional center for promotional activities. Submit a plan of operation for the regional center that addresses how EB-5 investors will be recruited, the method(s) by which the capital investment opportunities will be offered to the investors, and how they will subscribe or commit to the investment interest.

Century New York City Regional Center has a comprehensive marketing plan in operation. Please see attached project cover letter and attachments for details.

6. Describe whether and how the regional center is engaged in supporting a due diligence screening of its alien investor's lawful source of capital and the alien investor's ability to fully invest the requisite amount of capital. Also, describe the regional center's prospective plans in this regard if they differ from past practice.

Century New York City Regional Center will support due diligence screening of its alien investors' lawful source of capital by requiring all aliens to fill out the Regional Center's Suitability Evaluation Form and to provide certified and notarized documentary evidence, containing official seal or consular legalization, of any loan or mortgage agreements, promissory notes, security agreements, foreign business registration records, corporate, partnership and personal tax returns.

7. Identify each industry that has or will be the focus of EB-5 capital investments sponsored through the regional center.

Industry Category Title: Construction NAICS Code for the Industry Category: 2 3 6 2 2 3	Is the Form I-924 application supported by an economic analysis and underlying business plan for the determination of prospective EB-5 job creation through EB-5 investments in this industry category? ☐ No - Attach an explanation ☒ Yes
Industry Category Title: Wholesale Trade NAICS Code for the Industry Category: 4 2 4 2 3 2	Is the Form I-924 application supported by an economic analysis and underlying business plan for the determination of prospective EB-5 job creation through EB-5 investments in this industry category? ☐ No - Attach an explanation ☒ Yes
Industry Category Title: Hotel and Motel NAICS Code for the Industry Category: 7 2 2 5 1	Is the Form I-924 application supported by an economic analysis and underlying business plan for the determination of prospective EB-5 job creation through EB-5 investments in this industry category? ☐ No - Attach an explanation ☒ Yes

Part 3. Information About the Regional Center *(Continued)*

8a. Describe and document the current and/or prospective structure of ownership and control of the commercial entity(s) in which the EB-5 alien investors have or will make their capital investments.

Please see Operating Agreement attached in the Exhibit

b. Date commercial enterprise established, if any (mm/dd/yyyy): 03/31/2014

c. Organization Structure for commercial enterprise:

- ☐ **1.** Corporation
- ☐ **2.** Partnership (including Limited Partnership)
- ☒ **3.** Limited Liability Company (LLC)
- ☐ **4.** Other (Explain) _____

d. Has or will the Regional Center or any of its principals or agents have an equity stake in the commercial enterprise?

☒ No ☐ Yes - Attach an explanation and documentation that outlines when and under what circumstances these remittances will be paid.

e. Has or will the Regional Center or any of its principals or agents receive fees, profits, surcharges, or other like remittances through EB-5 capital investment activities from this commercial enterprise, beyond the minimum capital investment threshold required of the EB-5 alien entrepreneurs?

☐ No ☒ Yes - Attach an explanation and documentation that outlines when and under what circumstances these remittances will be paid.

Part 4. Applicant Signature *Read the information on penalties in the instructions before completing this section. If someone helped you prepare this petition, he or she must compete* ***Part 5.***

I certify, under penalty of perjury under the laws of the United States of America, that this form and the evidence submitted with it are all true and correct. I authorize the release of any information from my records that U.S. Citizenship and Immigration Services needs to determine eligibility for the benefit being sought. I also certify that I have authority to act on behalf of the Regional Center.

Signature of Applicant	**Daytime Phone Number** *(Area/Country Codes)*	**Date** *(mm/dd/yyyy)*
	(718) 939-1060	07/02/2014
Printed Name of Applicant George Xu	**E-Mail Address** centurygroup88@yahoo.com	
Relationship to the Regional Center Entity (Managing Member, President, CEO, etc.) Owner of the Regional Center		

Part 5. Signature of Person Preparing This Form, If Other Than Above *(Sign Below)*

I declare that I prepared this application using information provided by someone with authority to act on behalf of the Regional Center, and the answers and information provided by the Regional Center.

Attorney or Representative: In the event of a Request for Evidence (RFE), may the USCIS contact you by Fax or E-mail? ☐ No ☒ Yes

Signature of Preparer	**Printed Name of Preparer**	**Date** *(mm/dd/yyyy)*
	Mehreen Shah, Esq.	7-16-14

Firm Name and Address
Mona Shah & Associates
299 Broadway, Suite 1005
New York, NY 10007

Daytime Phone Number *(Area/Country Codes)*	**Fax Number** *(Area/ Country Codes)*	**E-Mail Address**
(212) 233-7473	(212) 233-4877	mona@mshahlaw.com

NEW YORK EB-5 REGIONAL CENTER	Date Submitted July 15, 2014
U.S. DEPARTMENT OF HOMELAND SECURITY U.S. CITIZENSHIP AND IMMIGRATION SERVICES CALIFORNIA SERVICE CENTER In the Matter of: **I-924 Petition:** **For Century New York City Regional Center** **Under 8 CFR 204.6, Immigrant Investor Pilot Program**	**Hypothetical Project: Four Points Flushing Hotel & Condominium** **I-924 EB-5 Petition** **SUPPORTING DOCUMENTS**

No.	Description
1.	• **Attorney memorandum/cover letter delineating the submission;** • **Letter of Authorization from the RC Principal**
2.	**Regional Center Documentation:** • **Century New York City Regional Center Business Plan,** including resumes of the principals, Administrative and Due Diligence Documents, Marketing Plan and Budget and Operation Plan • **Statement from George Xu**, RC Principal (in accordance with 8 CRF 204.6) regarding the amount and source of capital which has been committed to the regional center. • **Company Formation Document:** Century New York City Regional Center as the regional center LLC was formed on March 25, 2014
3.	**Project Documentation: Farrington EB-5 Capital, LLC.** • **Comprehensive Business Plan** • Company Formation Docs: New Commercial Enterprise – Farrington EB-5 Capital, LLC was formed on March 31, 2014. • Construction Verification Letter and Timeline

4.	**INVESTMENT ANALYSIS AND REAL ESTATE APPRAISAL Showing the Business Plan is Viable and the data is derived from verifiable details** • **Complete Summary of Appraisal Report** from Rolland de Milleret, real estate appraiser of HVS Consulting and Valuation Services.
5.	**ECONOMIC ANALYSIS -- 8 CFR: 204.6 (F) (2) Showing the Job Creation of the Project** • **Econometric Report** dated July 09, 2014 prepared by Dr. Gary Mongeon of Bleakly Advisory Group • **Resume of Dr. Gary Mongeon and a List of Relevant Projects** including Bleakly Advisory Group's qualification, past experiences and economic analysis studies previously performed
6.	**Legal Documents to demonstrate the business structure among the NCE, RC and JCE:** • Private Placement Memorandum • Operating Agreement • Subscription Agreement • Escrow Agreement
7.	**TARGETED EMPLOYMENT AREA (TEA) CONFIRMATION LETTERS (8CFR 204.6 (F)(2)** **Issued by the Empire State Development** **Project Location:** • Four Points Flushing Hotel is located at 134-37 35th Avenue. Flushing, New York 11354 • The area is composed of census tract 889.02 in Queens County and is certified as a Targeted Employment Area (TEA)

MONA SHAH & ASSOCIATES
——ATTORNEYS AT LAW——

299 Broadway, Suite 1005
New York, NY 10007

Tel: 212-233-7473
Fax: 212-233-4877
E Fax: 917-210-3711

Email: info@mshahlaw.com
Web: www.mshahlaw.com

July 15, 2014

VIA Fed-Ex Delivery

USCIS – California Service Center
Attn: EB-5 RC Processing Unit
24000 Avila Road, 2nd Floor
Laguna Niguel, CA 92677

RE: I-924 Regional Center Designation
Petitioner: Century New York City Regional Center, LLC

Dear Adjudicating Officer,

Please be advised that we represent Century New York City Regional Center, LLC in connection with the annexed I-924 submission for regional center designation. Please find enclosed:

1. Form G-28 and Check in the amount of $6,230 (check no. 1050)
2. Form I-924
3. Supporting documents duly tabbed and indexed

Should you require any additional document or clarification, please do not hesitate to contact us, we will be delighted to oblige.

Sincerely,

Mona Shah & Associates

Mehreen Shah, Esq.

MS/mm
Enclosures

Exhibit 1

ttorney memorandum/cover
tter delineating the submission;

etter of Authorization from the
C Principal

MONA SHAH & ASSOCIATES
—ATTORNEYS AT LAW—
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Submitted by:

Mona Shah & Associates

Attorneys for the Petitioner,
Century New York City Regional Center, LLC
299 Broadway, Suite 1005
New York, NY 10007
Tel: (212)-233 7473

July 15, 2014

UNITED STATES DEPARTMENT OF STATE
US CITIZENSHIP AND IMMIGRATION SERVICE

In the Matter of: }
}
Petitioner: Century New York City Regional Center }
Regional Center Designation }
Under 8 CFR 204.6 }
}

REQUEST FOR REGIONAL CENTER DESIGNATION
ATTORNEY MEMORANDUM

The purpose of this memorandum is to assist the Service in navigating the annexed documents and exhibits that constitute the instant request for regional center designation with a hypothetical project.

Attached is a detailed exhibit list covering all the supporting documents; the exhibits have been tabbed for your reference.

I. Preliminary:

The petitioning regional center is named *Century New York City Regional Center*. The company was incorporated on March 25, 2014. Please see company formation documents, exhibited at **Exhibit 2.**

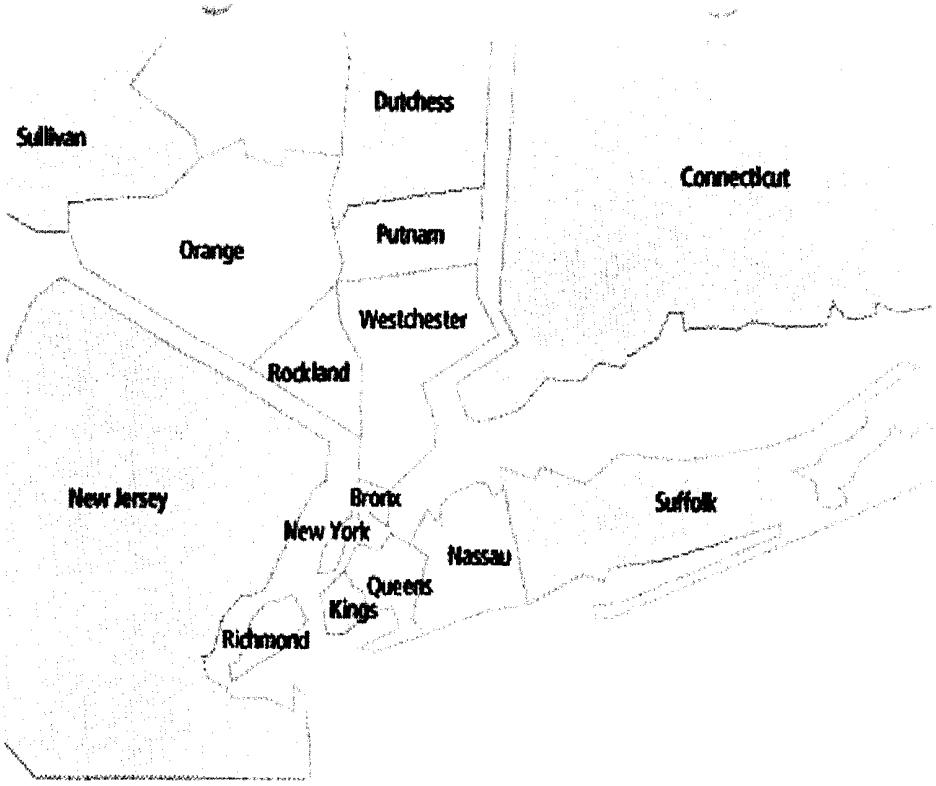
This request for RC designation is accompanied by a hypothetical project – a mix-use building which consists of 210-room hotel, 101 residential condominium units, retail spaces, community facilities and parking space hereinafter "Project". The RC petitioner seeks a preliminary determination of EB-5 compliance for the hypothetical project for use by the regional center, upon USCIS designation, for EB-5 capital investments.

II. Regional Center Geographical Region and TEA Designation

Attached at **Exhibit 2** is a business plan pertaining to the Regional Center. The business plan clearly describes how the regional center focuses on a geographical region of the United States.

The Project is located at 134-37 35th Avenue. Flushing, New York 11354. This is a designated targeted employment area (TEA), as per 8CFR 204.6 and thus qualified to accept an investment of $500,000.00. Please see attached **Exhibit 7**, TEA confirmation letters Issued by the Empire State Development.

The Project is located in Queens County of the State of New York. The RC requests the following seven (7) counties to be included in the RC's the geographic boundaries: Queens County, New York County, Bronx County, Richmond County, Westchester County, and Nassau County. Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment require is not required if investment opportunities arise outside the geographic area referenced.
Please see the map below for the geographic boundaries of the Regional Center.



III. Industry Sectors Requested

The petitioner is requesting the following industry sectors. Please see the North American Industry Classification System (NAICS) code listed below:

Farrington Realty, LLC developments will encompass the following industries:

North American Industry Classification System (NAICS) codes are listed as follows:

Construction Hard Costs

- Construction (Building & Site) – 2362/23622
- Wholesale Trade (FF&E) – 42/4232
- Real Estate – 53112/5313

Financing & Soft Costs

- Other government enterprises – 921
- Architectural, engineering and related services – 5413
- Insurance - 5241
- Accounting tax preparation, bookkeeping services – 5412
- Legal Services – 5411
- Monetary authorities and depository credit intermediation – 5222
- Other miscellaneous professional and technical services - 5419

IV. Brief Project Description

The Project, Century New York City Regional Center, LLC was established on March 31, 2014 and is based in Queens, New York. The Project will provide funding to construct and operate a mix-use building which consists of 210-room hotel, 101 residential condominium units, retail spaces, community facilities and parking space. The Project is (b)(4) looking to raise US[redacted] from [redacted] investors through EB5 investment.

Attached at **Exhibit 3** is a comprehensive business plan, compliant with *Matter of Ho*. The petitioner is seeking designation as a Regional Center with a hypothetical project. The business plan clearly describes how the project will promote economic growth through improved regional productivity, job creation, and increased domestic capital investment.

V. Promotion of Economic Growth

The New Commercial Enterprise (NCE) Farrington EB-5 Capital, LLC is seeking to raise (b)(4) US$[redacted] in investors' capital from [redacted] investors through the EB-5 Immigrant Investor Program for the expansion plan into the seven counties in the state of New York.

Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment require is not required if investment opportunities arise outside the geographic area referenced.

Under 8 CFR 204.6(g), the establishment of a new commercial enterprise may be used as the basis of a petition for classification as an alien entrepreneur by more than one investor, provided each petitioning investor has invested or is actively in the process of investing the required amount for the area in which the new commercial enterprise is principally doing business, and provided each individual investment results in the creation of at least ten (10) full-time positions for qualifying employees. The establishment of a new commercial enterprise may be used as the basis of a petition for classification as an alien entrepreneur even though there are several owners of the enterprise, including persons who are not seeking classification under Section 203(b)(5) of the Act and non-natural persons, both foreign and domestic, provided that the

source(s) of all capital invested is identified and all invested capital has been derived by lawful means.

(b)(4)

VI. Job Creation

Exhibited hereto at **Exhibit 5** is a *full* economic analysis by Dr. Gary Mongeon of Bleakly Advisory Group, LLC., dated July 09, 2014. According to the Economic Impact Report, the Flushing Hotel will create [redacted] jobs, including [redacted] jobs from direct construction employment and [redacted] jobs from indirect construction employment, [redacted] direct jobs from operation, [redacted] indirect jobs from operation.

(b)(4)

Century New York City Regional Center take note of recent USCIS guidance which states: that the full-time employment requirement excludes jobs that are intermittent, temporary, seasonal or transient in nature [1] seen as intermittent, temporary, seasonal and transient rather than permanent.

The Project has developed a five year strategic business plan to increase sales and market share. The method of obtaining the funding would be through EB-5 program. The alternative financing plan is to obtain a bridge loan. The financial banking criteria and federally defined underwriting guidelines will be applied in determining the rate of the mortgage loan.

The JCE plans to grow its business in multiple TEA markets in the State of New York. In addition, the company will augment its organic growth through a carefully designed program in the real estate development. The JCE will review each hotel project under the RC that is seeking funding focusing on job creation, development potential, financial stability and exit plan. The Four Points Hotel project meets the JCE's assessment standards after conducting full due diligence studies.

VII. Source of Capital

Amount and Source of the Regional Center's Operating Capital: Regional Center's Operational Plan (8 CFR 204.6(m) and 8 CFR 204.6):

[1] Spencer Enterprises v. U.S., 229 F.Supp.2d 1025 (E.D. Cal. 2001)

Please see attached **at Exhibit 2** Statement from the regional center owner Mr. George Xu relating to the Source of Funds. The promoters and members of Century New York City Regional Center have proven financial credentials, they have capitalized the Company. Century New York City Regional Center does not rely on the capital to be infused by the foreign investors to sustain the business activities of the Regional Center. None of the 'threshold foreign capital' will be used in the running of the Regional Center. The foreign capital to be brought by the foreign investor will be solely invested in the 'new commercial enterprise' only. The promoters/ members of Century New York City Regional Center have invested their capital in the regional center. They have the resources to invest as much capital into Century New York City Regional Center as needed to successfully meet all the financial obligations including marketing, advertising, traveling, administration among others. The members of Century New York City Regional Center have pledged not to use the threshold foreign investment to sustain the Regional Center.

EB-5 investors will only place their capital contribution at risk; they are not liable for the general affairs of the Project. EB-5 investors will not be required to make additional capital contributions to satisfy operating losses or capital shortfalls.

VIII. Investment Terms

Each EB-5 investor must execute the Private Placement Memorandum, the Operating Agreement, and the Subscription Agreement, all attached at **Exhibit 6.**

If the I-526 petition is denied or if the I-526 petition is approved but the EB-5 investor is denied at the consulate interview, Century New York City Regional Center will return the investor's capital contribution $500,000 and [redacted] administrative fee without interest. In addition, EB-5 Investors must pay an administrative fee of [redacted] which will be used to pay for a thorough review of the investor's personal questionnaire, background documents, commissions, finder's fees, to offset advertising costs and other administrative expenses. (b)(4)

The Subscription Agreement requires the investor to affirm that he or she is an accredited investor pursuant to Rule 506 of Regulation D under the Securities Act of

1933. By signing the Subscription Agreement, the EB-5 investor agrees to become a member pursuant to the particular LLC Operating Agreement and Subscription Agreement **Exhibit 6**. Immigrant investors may not file their I-526 petition until their cash investments are fully invested in the particular project. The investor deposits his investment capital directly to the account of the Project managing the particular project. EB-5 regulations and USCIS rulings require that the investment be at risk for at least five (5) years. However, the Project may, at its sole discretion, make distributions of profits and income during this time period.

IX. Regional Center's Operational Plan - Recruitment and Due Diligence:

Attached **at Exhibit 2** is the RC Business plan, containing the **proposed Administration & Due Diligence plan**, addressing how investors will be recruited and how the regional center will conduct its due diligence ensuring that all immigrant investor funds are lawfully obtained. The document shows that the Regional Center will require all investors to complete a confidential 'Investor Suitability Questionnaire' form, also attached **Exhibit 2** and if appropriate, satisfy the accredited investor rules, before being accepted into the EB-5 project. The document descriptively seeks information about the alien investor's personal information, education, employment history, financial history including bankruptcy, criminal or civil history, savings, loans, inheritance, gifts, business capital, net worth and other disclosures of admittance as mandated by USCIS.

Administrative Oversight:

Attached at **Exhibit 2** is a description of how Century New York City Regional Center will administer, oversee and manage the proposed regional center; identify qualified individual petitioners for specific investment opportunities; manage the flow of information to investors and their attorneys for the submission of I-526 and I-829 petitions filed through the regional center. Century New York City Regional Center takes the issue of due diligence screening of its alien investor's lawful source of capital very seriously.

The regional center will require the alien investor to prove that the funds come from a lawful source. The regional center will obtain documentary evidence of the source of

funds, such as any loan or mortgage agreement for which the petitioner is personally and primarily liable. Likewise, the regional center will scrutinize any foreign capital brought into the US through his business in his home country.

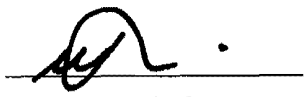
Additionally, the regional center will obtain evidence identifying any other source(s) of capital. The regional center will strictly follow the guidelines to obtain certified copies of any judgments or evidence of all pending governmental civil or criminal actions, governmental administrative proceedings, and any private civil actions (pending or otherwise) involving monetary judgments against the petitioner from any court in or outside the United States within the past fifteen years.

In Conclusion:

The documentary evidence submitted complies with the regulatory requirements for RC designation. Thank you for your consideration in this matter.

Respectfully Submitted:

Dated: July 15, 2014
New York, NY

By: 

Mehreen Shah, Esq.
Mona Shah & Associates
Attorneys for *New York EB-5 Regional Center, LLC*

July 1, 2014

U.S. Citizenship and Immigration Services
California Service Center
Attn: EB-5 Processing Unit
24000, Avila Road, 2nd Floor,
Laguna Niguel, CA 92677

Re: Request for Designation as EB-5 Regional Center
Applicant: New York EB-5 Regional Center, LLC

Dear USCIS officer:

Please be advised that I am the president of Century New York City Regional Center, LLC. We are seeking regional center designation with a hypothetical project - construction of Four Points Flushing Hotel & Condominium in Flushing, New York. I am also the principal of the new commercial enterprise Farrington EB-5 Capital, LLC listed on the petition.

My contact details are as follows:

Office address:
Century New York City Regional Center, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
Tel: 718-939-1060
Email: centurygroup88@yahoo.com
Website: www.centurygroupdevelopment.com

The petition for hypothetical designation as a regional center was submitted by Mona Shah & Associates, the representing attorneys for Century New York City Regional Center.

For any further information please do not hesitate to contact our office at any time.

Sincerely,

George Xu

Exhibit 2

gional Center Documentation:

entury New York City Regional

enter Business Plan

tatement from George Xu

ompany Formation Document

Century New York City Regional Center, LLC

[redacted]

Business Plan for Regional Center Application

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Part I: Regional Center Business Plan

1.0 Executive Summary

Century New York City Regional Center, LLC ("CNYCRC") is a newly formed venture that is applying for approval as a Regional Center with a Hypothetical project with the UCSIS. The Regional Center, will serve as a lending entity that specializes in funding for development of various profitable projects within Targeted Employment Area (TEA). Loans disbursed by the Regional Center will be funded through EB-5 Investment and will result in sufficient direct and indirect employment to meet the requirements of the USCIS.

Century New York City Regional Center's initial project is Four Points Flushing Hotel ("Project") in New York City. The Project entails a new construction of a 210-roomed upscale, select-service hotel in Flushing Queens, one of the five boroughs of New York City. Four Points is a mid-scale hotel brand by Sheraton Hotels & Resorts offering a full-service hotel experience at a reasonable price.

Century New York City Regional Center's geographic boundaries include the following counties:

- Queens County
- Nassau County
- The Bronx County
- New York County
- Westchester County
- Kings County
- Richmond County

(b)(4)

The Regional Center's first project, Four Points Flushing Hotel, will be developed by Farrington Realty, LLC in Flushing, New York. The Flushing Hotel will create [redacted] jobs, including [redacted] jobs from direct construction employment and [redacted] jobs from indirect construction employment, [redacted] direct jobs from operation, [redacted] indirect jobs from operation.

(b)(4)

The Regional Center will actively market to foreign investors worldwide, with an emphasis on China, Southeast Asia, the Middle East, India and South America.

CNYCRC will be led by Mr. George Xu. He is the founder and the principle of the CNYCRC. Mr. Xu is also the founder and President of Century Development Group, a real estate development company. With over 16 years of real estate holding and development experience, he has worked on over a million of square feet of real estate developments; mixed-use developments including residential,

hospitality, office, retail, and in all phases of assembly, acquisition, finance, design, construction, marketing and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters. Mr. Xu provides marketing oversight and policy guidance for the Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and a Master of Science degree in Computer Science from Polytechnic University, New York.

The Regional Center will raise a total o[(b)(4)] through the EB-5 program to fund Four Points Flushing Hotel, enabling the construction and operation of a Four Points hotel in Flushing New York City. A total [(b)(4)] of investors with an investment of $500,000 each plus costs and expenses will be solicited to finance these projects. Century New York City Regional Center will provide [(b)(4)] in financing to Four Points Flushing Hotel over a five (5) year period.

2.0 EB5 Program Details

2.1 Regional Center Contacts

Principals	George Xu georgexu88@yahoo.com 718.939.1060
Immigration Counsel	Mona Shah, Esq. Mona Shah & Associates 299 Broadway, Suite 1005 New York, N10007 212.233.7473 mona@mshahlaw.com
Econometrics/ Modeling	Bleakly Advisory Group Jr. Gary Mongeon 6000 Laske Forrest Drive, Suite 108 Atlanta, GA 30328 404.845.3500 gary@blagroup.com

2.2 Qualification for Regional Center Designation

Century New York City Regional Center has been developed with the following USCIS requirements in mind:

- Investors will be required to make an investment of at least $500,000 (or $1 million if the enterprise is not located in a designated TEA), plus [redacted] n administrative costs and fees that are used to pay marketing agents. (b)(4)
- Each investor's contribution to the capital expansion funds of the project will generate at least 10 direct and indirect jobs in the area
- Investors must be able to demonstrate the lawful source of their investment funds
- The investment must be received from the person seeking the visa from clearly identifiable funds
- Borrowed investment funds qualify as long as they are not secured by the assets of the target U.S. investment

2.3 Project Selection Strategy

All current and potential projects are based on direct and indirect job creation in the Regional Center focus area. Each project is required to provide a detailed job creation forecast based on a business plan specifying its employment needs, which are carefully reviewed and evaluated by EB-5 Management and a Board of Advisors prior to recommending the project to investors.

Throughout the life of the project, these direct jobs will be monitored by EB-5 Management, using the Regional Center's own tracking procedures and supplemented by the project's employment records. Indirect job creation is based on these new, direct jobs.

2.4 Organizational Structure

Century New York City Regional Center will be structured as a Limited Liability Company of which the Principal will serve as managing members. The Regional Center will form a new LLC to act as the investment and lending entity for each project. Each sponsored enterprise will be formed as a separate entity, which the Regional Center will act as the managing member.

2.5 Active vs. Passive Investment

The EB-5 regulations require involvement in management or policy making. The regulations deem a Member in an LLC that conforms to the Uniform Limited Liability Act as sufficiently engaged in the EB-5 enterprise in the form of "policy formulation". In addition, the Regional Center's structure grants the members the right, as a group, to oust the general partner for "cause" and to suggest or recommend issues of overall policy.

2.6 Company Privacy Policy

It is the Company policy of Century New York City Regional Center, LLC to protect the privacy of its investors. Therefore, the Company will not disclose the names of investors to those outside of the Limited Liability Company, unless required to do so by law. However, each investor has the legal right of access to names, contact information, and percentage of ownership of the other investors within the Regional Center.

2.7 Investment Returns and Investor Exit

EB-5 investors will earn not earn any percentage of the interest income from lent through the Regional Center proportionate to their capital contribution. The primary exit strategy for this particular project LLC would be the repayment of the loan either through the operation and/or the refinancing of the project, with funds disbursed to the investing members in proportion to their capital contributions.

2.8 Application Process Steps

To become an immigrant investor in the EB-5 Regional Center Program, a potential investor will take the following steps:

Step 1:	Investors will be directed to Century New York City Regional Center, LLC through immigration consulting firms or through direct contact with Regional Center Principals at international conferences. Potential investors will be directed to Century New York City Regional Center, LLC and immigration counsel to discuss the required commitment of funds and required documentation to prove the investment and tracing of funds.
Step 2:	Once it has been determined that the Investor is an accredited investor, a full prospectus will be sent to interested investors, who can then investigate the financial viability of the investment. The investor will be required at this point to make the initial refundable deposit for a place on the investor list and to complete the initial application documents and escrow agreement. Deposits will be returned in the event of oversubscription or at the request of an investor pursuant to the Investor escrow agreement within 15 days of receipt.
Step 3:	The Regional Center will perform due diligence to verify sources of funds and investor qualification.
Step 4	The investor may retain independent legal counsel to act on his/her behalf. Documents to be filed with the USCIS and relevant documentation and application process will be filed by Century New York City Regional Center, LLC's counsel. The investor will then will receive copies of offering memorandum and LLC agreement.
Step 5:	The investor will pay balances of investment funds and administration fee [redacted] n fees and $500,000 Capital Investment).
(b)(4) Step 6:	The investor will sign all necessary application documents for USCIS

	submission.
Step 7:	Counsel will file I-526 Petition for Alien Entrepreneur with the USCIS. This petition requests USCIS to certify the applicant and the investment as eligible for EB-5 status.
Step 8:	Upon approval of the Petition, (a) if the investor is in the United States, he/she may apply for Adjustment of Status to Conditional Resident status. (b) If abroad, the investor must wait for notification from the National Visa center to prepare documents for the Immigrant Visa interview at the U.S. Consulate or Embassy in his/her home country. The purpose of the Adjustment of Status or Immigrant Visa interview is to ensure that the investor is not subject to grounds of exclusion, such as a criminal past, infectious diseases, or other grounds for exclusion by law.
Step 9:	Once issued conditional permanent resident status, the investor needs to wait 21 months to reconfirm that the full investment has been made and that 10 jobs were or are in the process of being created.
Step 10.	The investor will be able to file an application to remove the conditional resident status (Form I -829) between 21 to 24 months after Conditional Resident status is approved.

3.0 Initial Job Creating Enterprise: Summary

Century New York City Regional Center will begin by funding Four Points Flushing Hotel. Farrington Realty, LLC will be the job creating enterprise, conducting the development of the Four Points Flushing Hotel.

Farrington Realty, LLC proposed to construct a 210-roomed upscale, select-service hotel and condominium in Flushing Queens, one of the five boroughs of New York City. Four Points is a mid-scale hotel brand by Sheraton Hotels & Resorts offering a full-service hotel experience at a reasonable price. The construction and operation of the regional base of invested capital, the creation of new jobs, and the associated economic growth effects will be put into effect with the capital raised from immigrant investors through the EB-5 Program.

Under the leadership of Mr. George Xu, the company will develop proficiency in the every aspect of real estate development and will be dedicated to services in order to create a positive property management/owner/tenant relationship.

Based on the analysis of Empire State Development and New York State Department of Labor, the project is located at census tract 889.02 in Queens County, New York and qualified as a "Targeted Employment Area" (TEA).

4.0 Regional Center Industry and Geographic Scope

The Four Points Flushing Hotel under the Century New York City Regional Center, LLC will encompass the following industries:

Construction Hard Costs

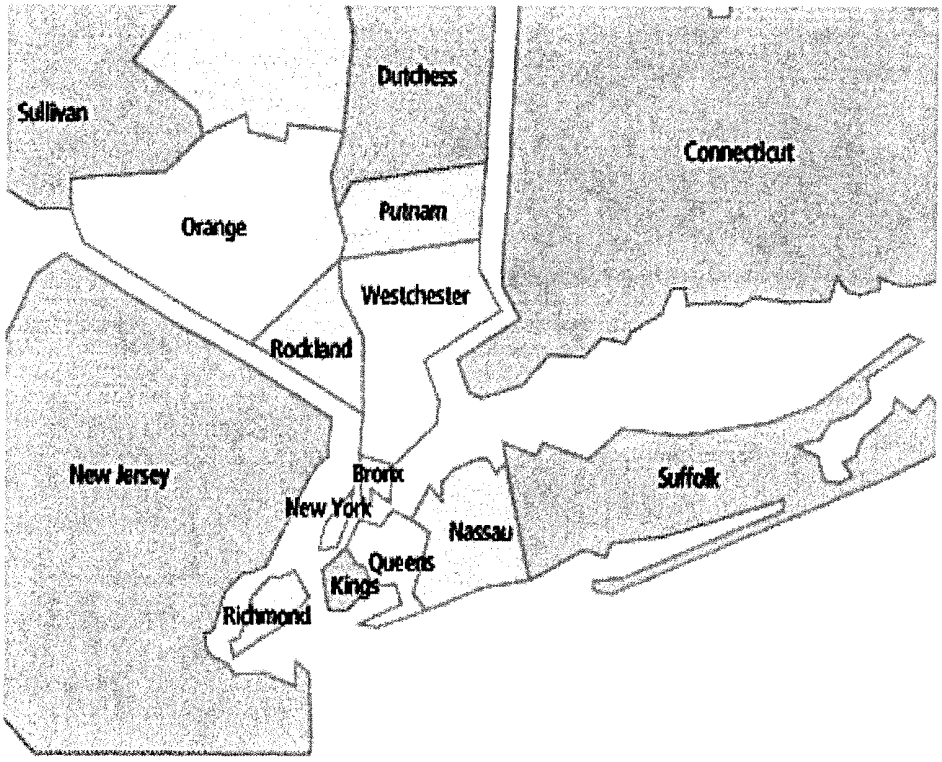
- Construction (Building & Site) – 2362/23622
- Wholesale Trade (FF&E) – 42/4232
- Real Estate – 53112/5313

Financing & Soft Costs

- Other government enterprises – 921
- Architectural, engineering and related services – 5413
- Insurance - 5241
- Accounting tax preparation, bookkeeping services – 5412
- Legal Services – 5411
- Monetary authorities and depository credit intermediation – 5222
- Other miscellaneous professional and technical services - 5419

Please note that the NAICS codes start at 2 digits. Industries with 4-digit codes are subsets of the larger 2-digit industry sector, 6 digit codes are subsets of the 4-digit codes. The Economic Impact Analysis used RIMS II multipliers following the same system. So there are fewer RIMS codes than the NAICS system, and the descriptors may be slightly different but generally matching the NAICIS titles. Under most circumstances, the first 4 digits of the RIMS II and NAICS industries are the same.

The Regional Center will serve the following counties in the State of New York:



The following table reflects the population of these counties, as reported by the U.S. Census Bureau.[1]

Borough & County	Population	
Manhattan	2000	1,537,195
	Growth	5.20%
	2012	1,617,090
The Bronx	2000	1,332,650
	Growth	5.69%
	2012	1,408,473
Brooklyn	2000	2,465,326
	Growth	4.07%
	2012	2,565,635
Queens	2000	2,229,379
	Growth	1.95%
	2012	2,272,771
Staten Island	2000	443,728

[1] U.S. Census Bureau. Obtained at: http://www.census.gov/

	Growth	6.08%
	2012	470,728
Nassau County	2000	1,334,544
	Growth	0.74%
	2011	1,344,436

5.0 Regional Center Marketing Strategy

Under 8 CFR 204.6(m)(3)(iii), Century New York City Regional Center understands that USCIS interprets the words "promotional efforts" to mean an advertising or marketing program planned by the sponsors of the Regional Center that is designated to attract immigrant investors to the Regional Center.

This Regional Center proposal contains a full description of the past, current and future promotional activities for the Regional Center. To date, there are no current activities and there have been no previous activities. Below is a budget for this activity as well as the statement of Tim Whitfield as to the source of those funds used to accomplish this necessary task.

(b)(4)

Total marketing costs are estimated to be about [redacted] per year. (Please see below):

ITEM	PLAN	COST
Website	Construction and maintenance—includes video overview for home page and ability to translate into various languages	
Seminars	5 Seminars abroad	
Trade Shows	Attendance and booth at domestic and international trade shows	
Press Conference	Kick- off event with ethnic media	
Outreach to Referral community	Outreach to network of professionals to assist in referring investors.	
TOTAL		

(b)(4)

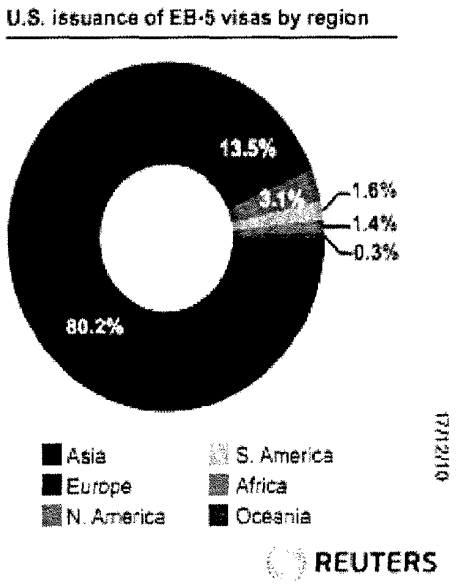
The Regional Center's role is to market each potential project to foreign investors and secure that investor's participation in the program over other potential investment possibilities, such as investment in other countries, investing in other entities in the US outside of the EB-5 structure,

and investing in other regional centers in the U.S. market. Century New York City Regional Center will develop a marketing message that addresses each of these potential investment opportunities, and the advantages the Regional Center has over each (see *5.2 Investment Advantages*). To reach potential investors, the Regional Center will deploy a dual marketing strategy that includes working with immigration consultants and registered brokers as well as creating a widespread campaign that includes attendance at conference, web-exposure, and other traditional advertising channels (see *5.3 Marketing Strategy*).

5.1 Market Focus

Century New York City Regional Center will target foreign investors in China and Southeast Asia, the Middle East, India, South America, and Europe. In the past several years, the popularity of the program with investors -- particularly investors from mainland China --has grown exponentially. In 2011, Chinese investors received the highest number of EB-5 visas. Two thousand four hundred and eight Chinese citizens received EB-5 visas in 2011.[2] By the end of September, 2012, mainland China accounted for 80% of EB-5 visa issued in the first three quarters of Fiscal Year 2012.[3] Investors from China, South Korea, Taiwan, Venezuela and Iran, these top five countries have accounted for 90% of the visas issued.

In the past several years, approximately 13.5% of investors come from Europe.[4] The following chart illustrates the number of EB-5 visas issued by region and the updated data from IIUSA by the end of September, 2012.



[2] Report of the Visa Office 2011published by U.S. Department of State. Source from IIUSA: http://iiusablog.org/wp-content/uploads/2012/10/IIUSA-FY2012-EB5-VISA-STATS-Source-DOS.pdf

[3] Report of the Visa Office 2011published by U.S. Department of State. Source from IIUSA: http://iiusablog.org/wp-content/uploads/2012/10/IIUSA-FY2012-EB5-VISA-STATS-Source-DOS.pdf

[4] "Overselling the American Dream." Thomson Reuters. December 2010. Obtained at: http://graphics.thomsonreuters.com/F/12/EB-5.pdf

FY 2012*	C5	T5	I5	R5	Total
China - Mainland born	90	108	5,923	3	6,124
South Korea	9	13	425	0	447
China - Taiwan born	3	4	141	0	148
Venezuela	0	7	102	0	109
Iran	2	2	77	0	81
Total All Countries	**159**	**164**	**7,312**	**6**	**7,641**
*October - September					

According to the initial results, in 2012 only the EB-5 industry supported 42,000+ American jobs, added $3.39+ billion in GDP and generated $712+ million in federal/state/local tax revenue (up from 33,000+ jobs, $2.6 billion in GDP, and $564+ million over the previous TWO years combined).

The statistics for I-526, I-829 and I-924 petitions are as follows:

Form	Receipts	Approvals	Denials	Approval Rate	Growth in Receipts from 2012
I-526	6,517	3,677	781	82.5%	7.9%
I-829	1,217	844	44	95.0%	70.9%
I-924	436	220	29	88.4%	81.7%

There are more than 1.3 million individuals residing in China with a combined wealth of $4.3 billion USD.[5] While a small segment of the country's overall population, the number of Chinese high-net-worth individuals surpasses that of France and the United Kingdom.[6] Impressively, the number of high net-worth individuals in the Asia-Pacific region wealth gained 12% in 2010 to $10.8 trillion.[7] Additionally, more than 13 million households make up China's upper middle class, who have incomes of between 100,000 and 200,000 RMB ($15,000 to $30,000).

After the United States, Japan and Germany retain the highest number of high net-worth individuals overall. Overall, Europe has the second-largest number of high net-worth individuals, whose combined wealth reaches $10.2 trillion. The following chart reflects the number of high net-worth individual by country.[8]

[5] PR Newswire. "China - The Future of HNWIs to 2015" January 4, 2012. Obtained at: http://www.prnewswire.com/news-releases/china---the-future-of-hnwis-to-2015-opportunities-for-wealth-managers-and-private-banks-136646713.html

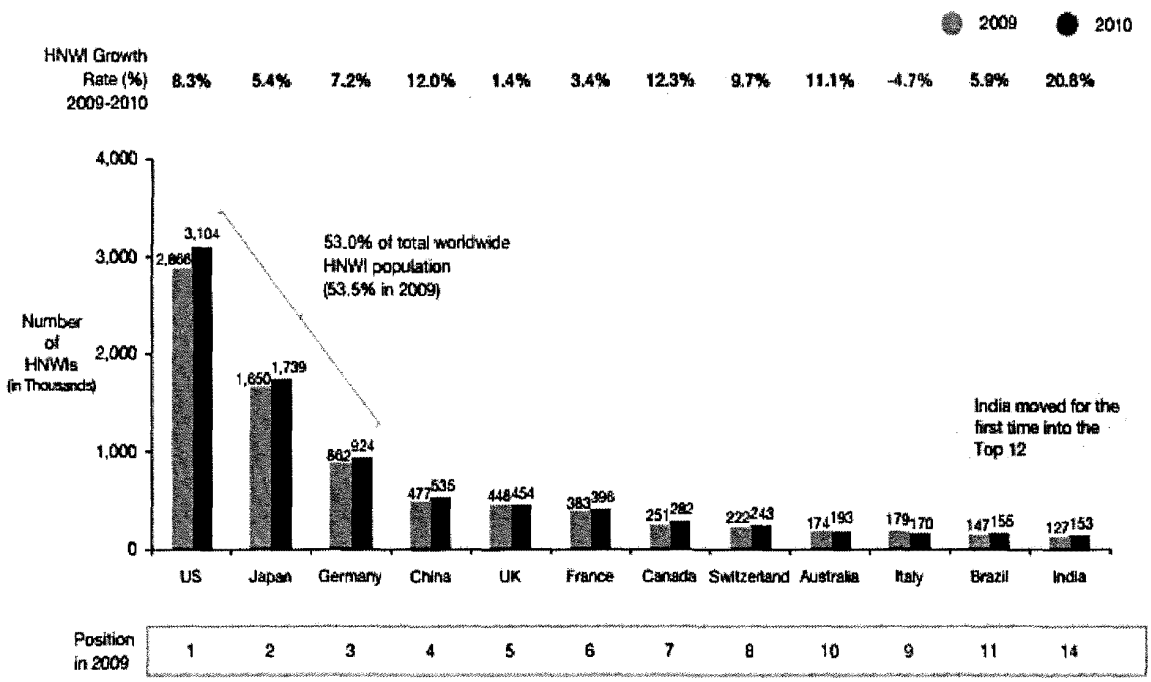
[6] Chang, Bao. "Luxury Goods Demand May Peak in 2015." January 1, 2010. Obtained at: http://www.chinadaily.com.cn/business/2010-01/22/content_9360040.htm

[7] Merrill Lynch/CapGemini. "World Wealth Report: World's Population of HNWIs and Their Wealth Continued to Expand in 2010." Obtained at: http://www.ml.com/media/114235.pdf

[8] Ibid.

HNWI Population by Country, 2010

(in Thousands)



5.2 Investment Advantages

Century New York City Regional Center's marketing messages will be developed to address each of the key points listed below:

- The U.S. market has a number of benefits to the investor; marketing materials will be developed to highlight why the United States is a good choice, even (or especially) during a market downturn.
- The advantages of the EB-5 platform are clear; marketing materials will ensure that the investor is aware of these benefits over the typical business investor visas available on an independent basis.
- Informational materials will designed to focus on the benefits of this particular Regional Center (over other potential regional centers) and its focus on investing in projects that address the demands of high growth markets

Each of these points is explored in further detail below:

US Market and Industry Advantages

For many immigrants, pursuing the "American Dream" inspires people to believe that hard work leads to prosperity and social mobility in the United States. Many of these people grew up under the influence of US popular culture and, as such, aspire to the lifestyle. It is still considered to be the

land of opportunity with an abundance of land and resources, where there is enough land and a vibrant economy to accommodate all its residents. An extremely important factor for immigrants is the ability for their children to obtain a good education through the school systems and, in particular, to study at its well-known universities. The potential to work at market leading companies for higher salaries is also a significant factor.

EB-5 Advantages

There are currently 218 approved Regional Centers.[9] As illustrated on the following chart, a total of 3,706 EB-5 Visas were issued were issued in 2011.[10]

EB-5 Visa Statistics

	Total EB-5 Visas Issued
FY11 Q1 – Q3	3,706*
FY10	1,885
FY09	4,218
FY08	1,360
FY07	806
FY06	744

Between 2007 and 2011, the number of EB-5 visas issued nearly tripled. In this same time period, the number of regional centers operating in the United States grew from 11 to 218.

A potential immigrant investor seeking an EB-5 investor visa has certain advantages by applying through a regional center such as Century New York City Regional Center.

- The Regional Center program pools multiple investors together in one project, which means the project itself will be larger and financially more stable than one individual investing in a project alone.
- During the lifetime of the investment, the Regional Center remains in communication with each immigrant investor. All investors in the Regional Center receive periodic reports regarding the status of the investment, job creation data based on reports from Regional Center, the economy, and other relevant project information.
- One of the most important advantages for immigrant investors applying for an EB-5 investor visa through a regional center is that they may satisfy the program's job creation requirements by counting not only direct jobs created as a result of their investments, but

[9] U.S. Citizenship and Immigration Services. "Immigrant Investor Regional Centers." Obtained at: http://www.uscis.gov/portal/site/uscis/menuitem.5af9bb95919f35e66f614176543f6d1a/?vgnextoid=d765ee0f4c014210VgnVCM100000082ca60aRCRD&vgnextchannel=facb83453d4a3210VgnVCM100000b92ca60aRCRD

[10] U.S. Citizenship and Immigration Services. " EB-5 Immigrant Investor Program Stakeholder Meeting." September 15, 2011. Obtained at: http://blog.lucidtext.com/category/eb-5-statistics/

also indirect jobs created in related industries as a result of the investment. Regional centers are able to calculate indirect job creation through the use of approved input-output employment modeling systems.

Century New York City Regional Center, LLC Advantages

Century New York City Regional Center, LLC offers the following attractive qualities for investors, specifically with regard to its initial project, the Four Points Flushing Hotel project and advantages include:

- Close proximity to Manhattan, New York
- Proximity to Flushing Main Street, major commercial and residential areas with high concentrations of Chinese and Korean population
- Proximity to two major airports in New York City
- Four Points by Sheraton, a mid-scale hotel brand offering a full-service hotel experience at a sensible price
- Century Construction Group is an established developer is Flushing, NY
- 210-rooms restaurant and lounge with an indoor pool, a fitness center, a banquet hall, Large meeting space
- 17,000-square-foot community facility space
- Lobby workstation, guest laundry facilities, and a gift shop

5.3 Marketing Strategy

Once the regional center application is approved, CNYCRC will start its efforts to attract qualifying investors. Since investments in Century New York City Regional Center will likely constitute securities; CNYCRC will first analyze any proposed investor or advisor outreach to determine required compliance measures under U.S. Securities and Exchange Commission ("SEC") laws and regulations, as well as applicable foreign or state securities laws.

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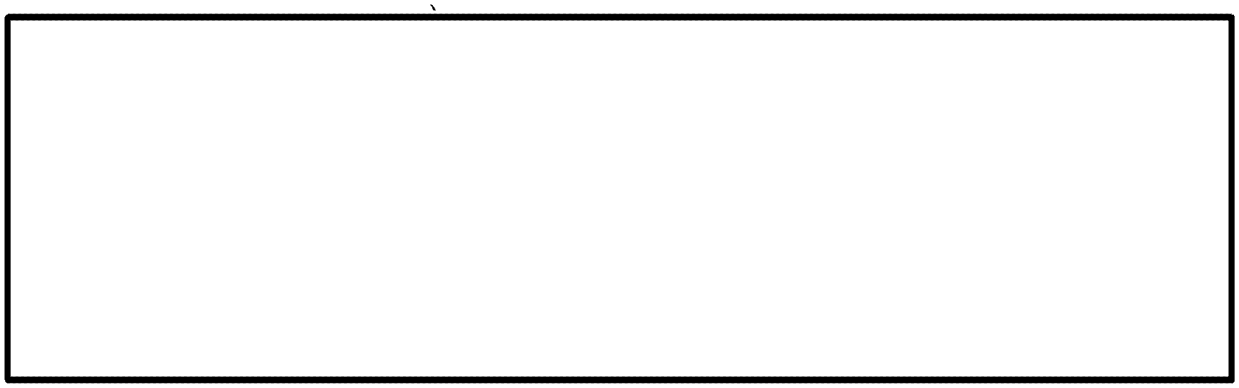

6.0 Regional Center's Operational Plan- Recruitment and Due Diligence:

As per 8 CFR 204.6(m) and 8 CFR 204.6, CNYCRC will identify, assess and evaluate proposed investor projects and activities and enterprises.

6.1 Amount and Source of the Regional Center's Operating Capital:

Attached is a detailed statement from George Xu relating to the amount and the source of the capital that has been committed to the Regional Center. It is understood that USCIS has interpreted the words "amount and source of capital that has been committed to the Regional Center" to mean the capital sufficient to sustain the Regional Center distinct from immigrant investors' required capital investment in a new commercial enterprise with the Regional Center.

The detailed statement by George Xu on behalf of Century New York City Regional Center, LLC meets the regulatory requirement relating to the amount and source of the capital committed to the Regional Center as it includes:

- The exact amount of the funds that have been dedicated to the Regional Center to accomplish the goals of the Immigrant Investor Pilot Program;
- The source of funds; and
- Whether the amount is sufficient to sustain the Regional Center.

None of the capital sustaining the Regional Center will come from the immigrant investors' required threshold capital investment (as distinct from the new commercial enterprises' revenues). It is understood that this separation of funds is necessary to enable the alien entrepreneur to qualify for the EB-5 immigrant investor classification.

Century New York City Regional Center, LLC will offer quarterly reports and investor relations, which will be completed by the Principal. George Xu will be responsible for managing marketing relationships with the Regional Center's chosen immigration consulting firms as well as attending conferences on behalf of the Regional Center directly. Certain business processes, such as accounting and website maintenance will be outsourced to other service providers, who will be selected once Century New York City Regional Center receives Regional Center approval. The Regional Center will contract with companies like either World Check (A Thomson Reuters Company), Accuity, or another similar company, to screen potential investors, verify sources of

funds, and ensure that funds are lawfully obtained. Details regarding the Regional Center's due diligence practices to ensure investors meet specified requirements as part of the EB5 program are detailed in the sections that follow.

6.2 Regional Center's Operation Plan – Recruitment and Due Diligence

Century New York City RC understands that, for any individual alien investor who will be solicited by a Regional Center to invest in requisite capital into a Regional Center commercial activity, it will be incumbent on the Regional Center to engage in a due diligence process to establish that all sources of capital can be fully explained and clearly shown to have been lawfully obtained.

Potential investors must meet the following criteria to be prequalified as accredited investors:

- Must have a valid passport
- Can be any nationality (except for U.S.)
- Have a net worth greater than $1Million
- Has no criminal record
- Availability of funds within 60 days
- Can identify legal source of funds
- Has maintain income greater than $200,000 in the last two years (or $300,000 for a couple)

The Regional Center has developed an "Investor Suitability Questionnaire" (see *Appendix*) that will be used to pre-screen prospective investors. The Regional Center will comply with the latest laws and regulations and will take the reasonable steps to verify the "accredited investor" status.

6.3 Investor Information Requirements

Potential investors will be required to provide the following (applicable) documents, as required by U.S. Immigration agencies:

- Complete passport for primary applicant and family members
- U.S. visa stamps and I-94 cards for all applicants
- Copy of marriage certificate
- Copies of birth certificates
- Resume/curriculum vitae
- Proof of lawful source of funds including but not limited to:
  - Bank/account statements
  - Employer letters
  - Foreign business registration records

- Property deeds
- Closing documents
- Corporate and/or personal income tax records for the last five years

- Proof of net worth
- Wire transfer record and bank account statement showing transfer of funds to escrow account
- Business registration and incorporation documents for all entities owned

6.4 Sources of Funds

Under USCIS regulations, the investor must demonstrate that their assets were gained in a lawful manner. This requires the investor to prove their investment funds were obtained through lawful business, salary, investments, property sales, inheritance, gift, loan, or other lawful means.

Investors will be required to complete a series of forms providing extensive detail and evidence of verifiable and legal sources of funds for the EB-5 investment. Types of investment sources include:

- Bank Accounts (including Financial Institution Name, Account Number, and Balance).
- Earnings from Business Operations.
- Net Proceeds from the Sale of a Business.
- Net Proceeds from the Sale of Real Estate. Net proceeds from the Sale of Investments or Other Assets.
- Employment Earnings.
- Income or other Tax Refunds.
- Loans.
- Gifts. For gifts, in addition to providing the giver's information and type of entity, the investor must also provide the giver's source of the funds, again to establish the legitimacy of the gift's original source.
- Inheritance. For proceeds from inheritances, the investor must provide full information on the decedent, and indicate any contingencies associated with the inheritance, netting down to the amount to be used to fund the EB-5 investment. Again, the primary source of the decedent's funds must be identified, in order to establish the legitimacy of the original source of funds.
- Retirement Funds. If using retirement funds for the EB-5 investment, the investor is required to provide full information about the company/entity paying the retirement, including date hired, date terminated, and date retirement benefits began, including details of lump sum and periodic payments, and net amount used to fund the EB-5 investment.
- Support from a Parent/Relative/Guardian or Other Person. In addition to full information regarding the person providing the support, the dates/frequency and amounts of support payments, and term of the support agreement, the investor must provide information regarding any repayment obligation related to these support payments.

- Designee's Responsibilities Inherent in Conduct of Regional Center- Administrative Oversight: The regulations at 8 CFR 204.6(m)(6), require that an approved Regional Center in order to maintain the validity of its approval designation, must continue to meet the statutory requirements of the Immigrant Investor Pilot Program by serving the purpose of promoting economic growth, including increased export sales (where applicable), improved regional productivity, job creation, and increased domestic capital investment.

CNYCRC will monitor all investment activities under the sponsorship of this Regional Center; CNYCRC will maintain records, data and information on a quarterly basis in order to report to USCIS upon request the following year to date information for each Federal Fiscal Year.

Century New York City Regional Center, LLC's role will be to monitor all investment activities under the sponsorship of the program, and to maintain records, data and information on a quarterly basis in order to report to USCIS upon request year-to-date for each Federal Fiscal Year, commencing with the current year as follows:

1. The principal official and point of contact of the Regional Center responsible for the normal operation, management and administration of the regional center.
2. How the Regional Center is administering its regional center and is actively engaged in supporting a due diligence screening of its alien investors' lawful source of capital and the alien investor's ability to fully invest the requisite amount of capital.
3. How the Regional Center is actively engaged in the evaluation, oversight and follow-up on any proposed commercial activities that will be utilized by alien investors in order to create direct and/or indirect jobs through qualifying EB-5 capital investments into commercial enterprises within the regional center.

6.5 Information Tracking

The Regional Center will maintain a tracking and reporting system in order to provide the following information on a quarterly basis to USCIS:

1. The name, date of birth, and alien registration number of each alien investor who makes an investment and files an EB-5 I-526 petition with USCIS, specifying whether the petition was approved, denied, or withdrawn by the petitioner.
2. The country of nationality of each alien investor who makes an investment and files an EB-5 petition with USCIS.
3. The US city and state of residence of each alien investor who makes an investment and files an EB-5 I-526 petition with USCIS.
4. The categories of business activity within the geographic boundaries of the regional center that have received the alien investors' capital, and in what amount.

5. The names and locations of each of the job creating commercial enterprises located within the geographical boundaries if the regional center has received alien investor capital.
6. The amounts of alien investor capital and the amounts of other domestic capital that has been invested together in each job creating commercial enterprise specified in item 8 above, distinguishing the separate totals for each.
7. The total aggregate number of approved EB-5 alien investor I-526 petitions per Federal Fiscal Year to date made through the regional center.
8. The total aggregate number of approved EB-5 alien investor I-829 petitions per Federal Fiscal Year to date through the regional center.
9. The total aggregate of EB-5 alien capital invested through the regional center for each Federal Fiscal Year to date since the approval and designation.
10. The combined total aggregate of "new" direct and/or indirect jobs created by EB-5 investors through the regional center for each Federal Fiscal Year to date since the approval and designation.
11. If applicable, the total aggregate of "preserved" jobs by EB-5 alien investors into troubled businesses through the regional center for each Federal Fiscal Year to date since the approval and designation.
12. If for any given Federal Fiscal Year the regional center does not have investors to report, then provide an explanation for the inactivity along with a specific plan which details timelines and steps to actively promote the regional center program, and recruit legitimate and viable alien investors.
13. Notification to USIS within 30 days of the occurrence any material change in the structure, operation, administration, focus, or activities relating to the regional center's basis for its most recent designation and/or reaffirmation by USCIS.
14. The total aggregate of EB-5 alien capital invested through the regional center for each Federal Fiscal Year.

6.6 Management Team

George Xu

George Xu is the founder and the principle of the CNYCRC. Mr. Xu is also the founder and President of Century Development Group, a real estate development company. With over 16 years of real estate holding and development experience, he has worked on over a million of square feet of real estate developments; mixed-use developments including residential, hospitality, office, retail, and in all phases of assembly, acquisition, finance, design, construction, marketing and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters. Mr. Xu provides marketing oversight and policy guidance for the Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and a Master of Science degree in Computer Science from Polytechnic University, New York.

Qili Li

Qili Li, MD, FACOG, Principle of CNYCRC. In private practice for more than 14 years specializing in the field of Obstetrics and Gynecology in downtown Flushing, Queens County, New York City. Dr. Li attended the Sophie Davis School of Biomedical Education. She graduated with Magna Cum Laude honor. She received her Medical Doctor degree from New York Medical College. She completed her internship and residency training in Obstetrics/Gynecology at North Shore University Hospital at Manhasset, New York. She is board certified in the specialty of Obstetrics/Gynecology. She is a fellow of the American College of Obstetrics/Gyneoclogy (ACOG). In recent years, like many of her colleagues, Dr. Li has expanded her interest/investment in real estate. She is currently involved in several real estate development projects ranging from high end condominium to hotel construction.

James Ho

James Ho, Vice President of CNYCRC, graduated from Polytechnic University majoring in Electrical Engineering and Computer Science. Mr. Ho has seven years of experience in computer programming and twelve years in securities trading and security related business. Currently he is involved in real estate development of three projects in New York City area. Mr. Ho's role in the CNYCRC is to provide oversight of operations, maintain cohesion between a project's developer, general contractor, law and accounting firms, and to ensure overall compliance.

Robert Chen

Robert Chen works for CNYCRC as the Vice President, who oversees the overall operations of the Regional Center. He's also in charge of due diligence and evaluating potential projects and determines business feasibilities. Prior to join CNYCRC, Mr. Chen has over 10 years' experience in senior manager position with FedEx. He has owned, managed, and operated companies in computer wholesale and repair business. Mr. Chen received his Bachelor of Science degree in Environmental Health Science from City University of New York.

David Pan

David Pan, Vice President of CNYCRC, has over 15 years of experience in fixed-income securities trading and risk management, having worked in various roles at Credit Suisse, Citigroup, Deutsche Bank and the hedge fund industry. Formerly a Director at Credit Suisse in the Strategic Risk Management division covering Residential Mortgage Backed Security (RMBS) business where he was instrumental in developing models and methodologies in assessing the firm's risk exposure to the mortgage security market. Prior to his Wall Street career, Mr. Pan spent 10 years as a senior software engineer responsible for the development of the state-of-the-art fixed-income security trading and analytics software systems. He graduated with a Bachelor's degree in Computer Science from Queens College, City University of New York.

Anthea Quan

Anthea Quan serves as the director of accounting controller for CNYCRC. She is responsible for the accounting, financial reporting, and audit functions. Also performs management of operating cash flow, financial analysis, obtaining financial for development projects and investor distribution. She is passionate about accounting and has experience working with a variety of small business. Ms. Quan graduated from Yanbian University in China with a bachelor of mathematics. She is fluent in Chinese, English and Korean, resides in New York with her husband.

Tracy Law

Tracy Law is the director of project management of CNYCRC. Ms. Law is responsible for a full spectrum on operations to ensure that projects are done on time and on budget. Her constant communication with contractors and architects provides a strong network of relationships in the field. She is responsible for supervising and coordinating OS&E and FF&E. She is integral in bringing new hotels to opening. Ms. Law graduated with a Bachelor of Science degree in Accounting from Queens College, City College of New York.

Lynn Wei

Lynn Wei is the CNYCRC's director of marketing and business development. Ms. Wei is responsible for a full spectrum of business development initiatives including creating and overseeing international marketing strategies for all CNYCRC project offerings. She is also involved in managing client relations. Ms. Wei is also a senior business development associate at the Century Development Group. In this capacity, she focused on creating Request for Proposals and general marketing materials, as well as developing a customer analytical database, and implementing strategic marketing and communication initiatives. Ms. Wei graduated with a Master of Science degree in Economics from Brooklyn College, City University of New York, and a Bachelor of Administrative Degree in Marketing from Shanghai Finance University.

7.0 Legal Risk and Planning

7.1 LLC Creation

Century New York City Regional Center has been formed as a Limited Liability Company. A limited liability company (LLC) is a relatively new form of business organization that offers the best features of a corporation and a partnership. It provides the owners protection from personal liability for business debts in the same way a corporation does, but the IRS treats an LLC as a partnership for tax purposes. Income is taxed only once, as in a partnership, and an LLC has great flexibility in how it passes income and deductions to its members.

7.2 Document Review and Verification Policy

The Regional Center will hire an outside firm to screen potential investors and perform due diligence regarding sources of funds. The Regional Center is currently considering two firms, World Check (a Thomson Reuters Company) and Accuity.

7.3 Process Documentation and Legal Agreements

Forms and legal agreements can be found as an appendix to this document.

8.0 Regional Center Marketing and Operational Budget

Century New York City Regional Center has sufficient startup capital to cover operational expenses. As stated in the attached detailed statement from George Xu, $135,000 is budgeted for the administration and marketing of the Regional Center over 5 years, per the table on page 10 of this plan, is budgeted to market projects to immigrant investors.

Part II: Appendix

Century New York City Regional Center
Investor Suitability Questionnaire

Basic Investor Information

1. Name: _____
2. Passport Number
   (Note: Investor and each family member must attach a true copy of passport or government identification card) _____
3. Foreign Address _____
4. U.S. Address (if currently in the United States _____
5. Telephone Number _____
6. Email Address _____
7. Date of Birth _____
8. City, State, and Country of Birth _____
9. Country of Citizenship _____
10. Spouse's Name _____
11. Date of Marriage _____
12. Spouse's Date of Birth _____
13. Spouse's Country of Citizenship _____
14. Spouse's Passport Number _____
15. Children's Information

Name	Passport number	Date of Birth	Place of Birth (City, State, Country)	Nationality	Applying with you? (Must be under 21)
					☐
					☐
					☐
					☐
					☐

					☐
					☐
					☐

Immigration Information

16. Are you currently in the United States? If so, please provide information on your current status.

○ Yes ○ No

Current nonimmigrant status: ____
Date of arrival: ____
Expiration date of status: ____
I-94 Number: ____

Employment and Financial Information

17. Please summarize your investment experience in the following areas:

Marketable securities	○ Extensive	○ Limited
	○ None	
Real estate	○ Extensive	○ Limited
	○ None	
Mutual funds	◉ Extensive	○ Limited
	○ None	
LLCs/Partnerships	○ Extensive	○ Limited
	○ None	

18. Please provide a brief summary of your experience in business management and financial investment:

_____

19. Have you or your spouse previously filed for bankruptcy?

○ Yes ○ No

If so, please provide details:

_____

20. Is your individual net worth, or joint net worth with that of your spouse, currently in excess of $1,000,000?

○ Yes ○ No

_____

21. Is your individual net worth, or joint net worth with that of your spouse, currently in excess of

○ Yes ○ No

_____

$5,000,000?

22. Do you have a current annual individual income in excess of $200,000 or a joint income with your spouse in excess of $300,000 and a reasonable expectation of maintaining this income? ○ Yes ○ No

23. Please provide a brief explanation of how you obtained the funds that you intend to invest in this enterprise (i.e. gift, inheritance, salary, sale of business or real estate, investment gains, etc.)

Additional Suitability Questions

24. Please describe any preexisting business or personal relationships you have with Greentech Automotive Corp., its managers, or any of its affiliates.

I certify that the information contained herein is true and accurate to the best of my knowledge. I understand that providing false or inaccurate information may impact my ability to invest in the Century New York City Regional Center and obtain immigrant status in the United States.

Print Name of Investor **Date**

Signature of Investor

Document Checklist

Please submit the **two of the following** forms of identification, which will be used to verify your eligibility as an investor:

☐ Valid passport
☐ Valid government-issued driver's license with photograph
☐ National identity card with photograph

In addition, please submit the following:

☐ Completed Net Worth Worksheet (Appendix A)

Appendix A

Net Worth Information

Location of Assets

○ United States ○ Outside United States ○ Both

If outside of the United States, please list all countries where assets are located: ____

Assets		Will Serve as Source of Investment Funds
Checking Account	$____	☐
Savings	$____	☐
Investments (stocks, bonds, mutual funds)	$____	☐
Business income	$____	☐
Real estate	$____	☐
Inheritance	$____	☐
Gift	$____	☐
Other Explain: ____	$____	☐

Liabilities

Mortgage	$____
Other Explain: ____	$____

Total Net Worth: $____

To: U.S. Citizenship and Immigration Services
California Service Center
Attn: EB-5 Processing Unit
24000, Avila Road, 2nd Floor,
Laguna Niguel, CA 92677

July 1, 2014

To Whom It May Concern:

Re: Statement of Regional Center Funding Commitment

Century New York City Regional Center is the incorporated company in the state of New York. The source of capital contributed to the Century New York City Regional Center is from the managing member's equity contribution. The Regional Center has not/ does not earn fees from immigrant investors' investment capital. The company's operating capital derives from the managing members' equity contribution. (b)(4)

The amount of capital I will contribute to the Regional Center is estimated to be [redacted] This is considered sufficient capital to sustain the Regional Center operation and marketing expenses and is distinct from the immigrant investors' required capital investment in a new commercial enterprise. None of the capital sustaining the Regional Center comes from immigrant investors' required threshold capital investment as distinct from the new commercial enterprises' revenues.

Sincerely,

George Xu

35-06 Leavitt St., Suite CF-A
Flushing, NY 11354
Tel: (718) 939-1060
Fax: (718) 939-1036
www.centurygroupdevelopment.com

ADMINISTRATION & DUE DILLIGENCE OF:

THE Century New York City Regional Center, LLC

Below is an overview of Century New York City Regional Center LLC's (the "Regional Center") plans to administer, oversee, and manage all its investment activities, primarily to engage and support due diligence screening of its alien investor's lawful source of capital and the ability of the alien investor to fully invest the requisite amount of capital for EB5 purposes.

Lawful Source of Funds:

The Regional Center will require the alien investor to prove that the funds come from a lawful source. To show that the petitioner has invested, or is actively in the process of investing, capital obtained through lawful means, the Regional center will obtain documentary evidence of any loan or mortgage agreement, promissory note, security agreement, or other evidence of borrowing which is secured by assets of the petitioner, other than those of the new commercial enterprise, and for which the petitioner is personally and primarily liable.

If the alien investor is bringing the foreign capital through his business in home country, the Regional Center will seek:

i) Foreign business registration records;

(ii) Corporate, partnership (or any other entity in any form which has filed in any country or subdivision thereof any return described in this subpart), and personal tax returns including income, franchise, property (whether real, personal, or intangible), or any other tax returns of any kind filed within five years, with any taxing jurisdiction in or outside the United States by or on behalf of the petitioner;

Additionally, the Regional Center will obtain evidence identifying any other source(s) of capital. The Regional center will strictly follow the guidelines to obtain certified copies of any judgments or evidence of all pending governmental civil or criminal actions, governmental administrative proceedings, and any private civil actions (pending or otherwise) involving monetary judgments against the petitioner from any court in or outside the United States within the past fifteen years.

In its endeavor to conduct back ground checks and due-diligence on the source of funds of the alien investor:

(a) - The Regional Center has prepared a confidential '*Suitability Evaluation*' form, attached with this document. Every prospective investor will be required to submit the suitability form to the Regional Center before being accepted in the EB5 project. The document descriptively seeks information about the alien investor's personal information, education, employment history, financial history including bankruptcy, criminal or civil history, savings, loans, inheritance, gifts, business capital, net worth and other disclosures of admittance as mandated by USCIS. The Regional Center will ensure total compliance of its policies by obtaining evidentiary documents translated in English, if required, and notarized by the authorities in alien's home country.

(b) - The Regional Center may have its representatives in foreign countries for marketing the EB5 projects. These representatives will randomly verify the credentials of the alien investor by visiting the alien's employer or bank. These representatives and/or the staff at the Regional Center will establish the chain of legal source of funds in every single event.

(c) - Before accepting potential investors them into the Regional Center. The Regional Center will retain an internationally recognized investigative firm such as Kroll (http://www.kroll.com/services.ifai/) or Abraxas (http://www.abraxascorp.com/) to

provide a background check on all potential investors. The investigative firm will provide an assessment of the potential investor. This additional diligence will add to the success of the Regional Center. The following illustrate some of the actions that the investigative firm may take in providing their assessment, depending on what they advise:

- They examine the documents provided by applicants in an effort to identify any obvious or suspected forgeries, conflicting or dubious information.
- They may check and verify applicant identity, ID data and passport data with local police and registration authorities. This may include verifying kin relationships and working with local lawyers accredited law firms to obtain information.
- They may conduct searches of local corporate registries and contact regulatory bodies to check and verify business licenses and status of companies claimed by applicant. Copies of record discovered may be obtained.
- They may make discreet inquiries with local police, judicial and regulatory bodies concerning any criminal record of applicants.
- They may check ownership records of main assets claimed, such as real estate records.
- They may conduct telephone inquiries with named employers to check claimed of employment record.
- They may make inquiries with schools to check educational record and validity of diplomas.
- They may make inquiries with references, including bankers, legal counsel, accountants, auditors, where these are provided.

Such a background check, consisting of some or all of the foregoing measures or other prudent investigative techniques, will provide reasonable assurance that the investors are reputable and that they have a legitimate source of funds for their investment.

CENTURY NEW YORK CITY RC WILL MAINTAIN RECORDS FOR THE FOLLOWING:

1. The name, date of birth, and alien registration number of each alien investor who makes an investment and files an EB-5 Petition with USCIS, specifying whether the petition was approved, denied, or withdrawn by the petitioner. The Regional Center will also provide the country of nationality of each alien investor as well as the U.S. city and state of residence of each alien investor who makes an investment and files an EB-5 I-526 petition with USCIS. The Regional Center will require alien investors to provide copies of passports, employment and business documents, family certificates (birth / marriage), police certificates, and photographs.

2. How the Regional Center is actively engaged in the evaluation, oversight, and follow-up on any proposed commercial activities that will be utilized by alien investors in order to create direct and/or indirect jobs through qualifying EB-5 capital investments into commercial enterprises with the Regional Center;

3. The categories of business activity with the geographic boundaries of the Regional Center that have received the alien investors' capital and in what amount;

4. The names and locations of each job creating commercial enterprise located within the geographic boundaries of the Regional Center that has received alien investor capital;

5. The amounts of alien investor capital and the amounts of other domestic capital that has been invested together in each job creating commercial enterprise specified above, distinguishing the separate totals of each;

6. The total aggregate number of approved EB-5 alien investor I-526 petitions per federal fiscal year to date made through the Regional Center;

7. The total aggregate number of approved EB-5 alien investor I-829 petitions per federal fiscal year to date through the Regional Center;

8. The total aggregate of EB-5 alien capital invested through the Regional Center for each federal fiscal year to date since approval and designation of the Regional Center;

9. The combined total aggregate of "new" direct and/or indirect jobs created by EB-5 investors through the Regional Center for each federal fiscal year to date since approval and designation of the Regional Center;

10. If applicable, the total aggregate of "preserved" jobs by EB-5 alien investors into troubled businesses through the Regional Center for each federal fiscal year to date since approval and designation of the Regional Center;

11. If, for any given federal fiscal year, the Regional Center does not have investors to report, the Regional Center will then provide an explanation for the inactivity along with a specific plan which details timelines and steps to actively promote the Regional Center program, and recruit legitimate and viable alien investors;

12. The Regional Center will notify USCIS within 30 days of the occurrence of any material change in the structure, operation, administration, focus, or activities relating to the Regional Center's basis for its most recent designation and/or reaffirmation by USCIS;

13. The total aggregate of EB-5 alien capital invested through your regional center for each federal fiscal year.

Century New York City Regional Center, LLC
(REGIONAL CENTER)
MARKETING PLAN AND BUDGET FOR YEAR 1

Century New York City Regional Center, LLC ("RC") applies for regional center designation as a hypothetical project before the USCIS. The RC will start its efforts to attract qualifying investors once the designation is granted. Since investments in RC will likely constitute securities; the RC will first analyze any proposed investor or advisor outreach to determine required compliance measures under U.S. Securities and Exchange Commission (SEC) laws and regulations, as well as applicable foreign or state securities laws.

Where appropriate and legal, RC or its representatives will attend immigration trade shows in foreign countries and the United States, provide seminars or write articles to educate immigration lawyers and others about RC, and engage the services of qualified individuals to assist in outreach to investors and advisors.

RC will create an English-language website; the site will also be translated into various other languages.

Since the business of RC may involve the sale of securities, and since RC will sell securities in reliance upon the private placement exemption of federal securities laws and comparable exemptions contained in state and foreign laws, portions of the website will be password-protected and available only to potential purchasers or their advisors who meet certain legal qualifications. The public part of the website will focus on general information such as RC general investment activities and strategy and the background of the RC principals. The password-protected portions of the RC web site will likely contain a link to the current RC private placement memorandum, as well as additional sales materials and a subscription agreement. Total marketing costs are estimated to be about $135,000 per year. (Please see below):

ITEM	PLAN	COST (b)(4)
Website	Construction and maintenance—includes video overview for home page and ability to translate into various languages	
Seminars	5 Seminars abroad	
Trade Shows	Attendance and booth at domestic and international trade shows	
Press Conference	Kick- off event with ethnic media	
Outreach to Referral community	Outreach to network of professionals to assist in referring investors.	

CENTURY NEW YORK CITY REGIONAL CENTER, LLC
(REGIONAL CENTER)
OPERATION PLAN

Proposed Operation's Plan

Below is an overview of Century New York City Regional Center, LLC's (the "Regional Center") plans to administer, oversee, and manage all its investment activities, primarily to engage and support due diligence screening of its alien investor's lawful source of capital and the ability of the alien investor to fully invest the requisite amount of capital for EB5 purposes.

The Regional Center will require the alien investor to **prove that the funds come from a lawful source.** To show that the petitioner has invested, or is actively in the process of investing, capital obtained through lawful means, the Regional center will obtain documentary evidence of any loan or mortgage agreement, promissory note, security agreement, or other evidence of borrowing which is secured by assets of the petitioner, other than those of the new commercial enterprise, and for which the petitioner is personally and primarily liable. If the alien investor is bringing the foreign capital through his business in home country, the Regional center will seek:

i) Foreign business registration records;

(ii) Corporate, partnership (or any other entity in any form which has filed in any country or subdivision thereof any return described in this subpart), and personal tax returns including income, franchise, property (whether real, personal, or intangible), or any other tax returns of any kind filed within five years, with any taxing jurisdiction in or outside the United States by or on behalf of the petitioner;

Additionally, the Regional Center will obtain evidence identifying any other source(s) of capital. The Regional center will strictly follow the guidelines to obtain Certified copies of any judgments or evidence of all pending governmental civil or criminal actions, governmental administrative proceedings, and any private civil actions (pending or otherwise) involving monetary judgments against the petitioner from any court in or outside the United States within the past fifteen years.

In its endeavor to conduct back ground checks and due-diligence on the source of funds of the alien investor, the Regional Center has prepared a confidential 'Suitability Evaluation' form, attached with this letter. Every prospective investor will be required to submit the suitability form to the Regional Center before being accepted in our EB5 project. The document descriptively seeks information about the alien investor's personal information, education, employment history, financial history including bankruptcy, criminal or civil history, savings, loans, inheritance, gifts, business capital, net worth and other disclosures of admittance as mandated by USCIS. The Regional Center will ensure total compliance of its policies by obtaining evidentiary documents translated in English, if required, and notarized by the authorities in alien's home country.

The Regional Center may have its representatives in foreign countries for marketing the EB5 projects. These representatives will randomly verify the credentials of the alien investor by visiting the alien's employer or bank. These representatives and/or the staff at the Regional Center will establish the chain of legal source of funds in every single event.

The Regional Center also **plans to conduct a background check** of potential immigrant investors before accepting them into the Regional Center. The Regional Center will retain an internationally recognized investigative firm such as Kroll (http://www.kroll.com/services.ifai/) or Abraxas (http://www.abraxascorp.com/) to provide a background check on all potential investors. The investigative firm will provide an assessment of the potential investor. This additional diligence will add to the success of the Regional Center. The following illustrate some of the actions that the investigative firm may take in providing their assessment, depending on what they advise:

- They examine the documents provided by applicants in an effort to identify any obvious or suspected forgeries, conflicting or dubious information.
- They may check and verify applicant identity, ID data and passport data with local police and registration authorities. This may include verifying kin relationships and working with local lawyers accredited law firms to obtain information.
- They may conduct searches of local corporate registries and contact regulatory bodies to check and verify business licenses and status of companies claimed by applicant. Copies of record discovered may be obtained.

- They may make discreet inquiries with local police, judicial and regulatory bodies concerning any criminal record of applicants.
- They may check ownership records of main assets claimed, such as real estate records.
- They may conduct telephone inquiries with named employers to check claimed of employment record.
- They may make inquiries with schools to check educational record and validity of diplomas.
- They may make inquiries with references, including bankers, legal counsel, accountants, auditors, where these are provided.

Such a background check, consisting of some or all of the foregoing measures or other prudent investigative techniques, will provide reasonable assurance that the investors are reputable and that they have a legitimate source of funds for their investment.

CENTURY NEW YORK CITY REGIONAL CENTER, LLC
REGIONAL CENTER

EB-5 INVESTOR SUITABILITY EVALUATION
SOURCE OF FUNDS
PERSONAL & CONFIDENTIAL

PRIMARY APPLICANT INFORMATION:			
APPLICANT / INVESTOR NAME:			
FULL NAME IN NATIVE ALPHABET:			
GENDER: _____ MALE _____ FEMALE	MARITAL STATUS: _____ SINGLE _____ MARRIED _____ DIVORCED _____ WIDOWED		
DATE OF BIRTH (month/day/year)	PLACE OF BIRTH (city/country)	COUNTRY OF CITIZENSHIP	
HOME PHONE NUMBER_____ (Country Code) (Area Code) (Number)			
MOBILE PHONE NUMBER_____ (Country Code) (Area Code) (Number)			
FAX NUMBER_____ (Country Code) (Area Code) (Number)			
EMAIL ADDRESS_____			
PASSPORT ISSUED BY (Country)	PASSPORT NUMBER	PASSPORT ISSUED (Date)	PASSPORT EXPIRY

PRESENT RESIDENCE AND ADDRESS:			
STREET ADDRESS			
CITY	STATE/PROVINCE	COUNTRY	POSTAL/ZIP CODE

INFORMATION ABOUT YOUR SPOUSE:		
FULL LEGAL NAME		
FULL NAME IN NATIVE ALPHABET		
GENDER: _____ MALE _____ FEMALE	MAIDEN NAME (if applicable)	
DATE OF BIRTH (month/day/year)	PLACE OF BIRTH (city/country)	COUNTRY OF CITIZENSHIP

INFORMATION ABOUT YOUR CHILDREN (UNDER 21 YEARS OF AGE): Please use separate page if needed.		
FULL LEGAL NAME:		
FULL NAME IN NATIVE ALPHABET:		
RELATIONSHIP: _____ SON _____ DAUGHTER		
DATE OF BIRTH (month/day/year)	PLACE OF BIRTH (city/country)	COUNTRY OF CITIZENSHIP

CURRENT EMPLOYMENT			
EMPLOYER (Name of business)		BUSINESS ADDRESS	
CITY	STATE/PROVINCE	COUNTRY	POSTAL/ZIP CODE
TITLE/JOB DUTIES		START DATE	
ANNUAL SALARY		OTHER COMPENSATION	

PREVIOUS EMPLOYMENT (If any, add more pages if needed)			
EMPLOYER (Name of business)		BUSINESS ADDRESS	
CITY	STATE/PROVINCE	COUNTRY	POSTAL/ZIP CODE
TITLE/JOB DUTIES		START DATE	END DATE
ANNUAL SALARY		OTHER COMPENSATION	

EDUCATION			
NAME / ADDRESS OF INSTITUTION		**NAME / ADDRESS OF INSTITUTION**	
START DATE	END DATE	START DATE	END DATE
TYPE OF DEGREE/CERTIFICATE		**TYPE OF DEGREE/CERTIFICATE**	

GENERAL INFORMATION:
HAVE YOU OR YOUR SPOUSE EVER FILED FOR BANKRUPTCY? ____ Yes ____ No If yes, please use separate page to explain
HAVE YOU OR YOUR SPOUSE EVER BEEN CONVICTED OF A CRIME? ____ Yes ____ No If yes, please use separate page to explain
HOW WELL DO YOU SPEAK ENGLISH? ____ NEED TRANSLATION ____ CONVERSATIONAL ____ FLUENT
ANTICIPATED DATE OF YOUR I-526 PETITION SUBMISSION: _____ Month / Day / Year

APPLICANTS LIVING IN THE UNITED STATES:			
US ADDRESS (Street # and Name) APARTMENT #			
CITY /TOWN	STATE/PROVINCE	COUNTRY	POSTAL/ZIP CODE
DATE OF ARRIVAL: _____ Month / Day / Year		I-94 # : _____ (Arrival and Departure Record #)	
I-94 ISSUANCE DATE (attach copy):		I-94 EXPIRY DATE:	
CURRENT NON-IMMIGRANT STATUS: _____		EXPIRES ON: _____ Month / Day / Year	
DATE OF LAST ENTRY INTO US		PLACE OF LAST ENTRY INTO US	
SOCIAL SECURITY NUMBER (IF ANY)		A# (IF ANY)	

GENERAL IMMIGRATION QUESTIONS:

ARE YOU CURRENTLY A GREEN CARD HOLDER? _____ Yes _____ No

If YES, when does it expire?

_____

HAVE YOU PREVIOUSLY OBTAINED A U.S. VISA BEFORE
_____ Yes _____ No

If YES, what type of Visa?

_____

If YES, when was your last Date of Entry?

_____

HAVE YOU EVER STAYED IN THE U.S. BEYOND AUTHORIZATION?

_____ Yes _____ No

IF YES, please explain the circumstances. _____

_____

HAVE YOU PREVIOUSLY APPLIED FOR A U.S. IMMIGRATION OR NON- IMMIGRATION VISA AND BEEN DENIED? _____ Yes _____ No

If YES, please provide details why application was denied? _____

_____

ARE THERE ANY CHILDREN LISTED ON THE PRELIMINARY QUESTIONNAIRE THAT WILL TURN 21 YEARS OF AGE WITHIN THE NEXT YEAR? _____ Yes _____ No

If YES, please provide Name and Date of Birth of Child _____

IS THERE OTHER RELEVANT INFORMATION REGARDING YOUR CURRENT IMMIGRATION THAT WE SHOULD BE AWARE OF FOR YOU OR ANY MEMBER OF YOUR FAMILY?

_____

_____

US ADMISSIBILITY VERIFICATION	YES	NO
United States laws governing the issuance of visas require each applicant to state whether or not be or she is a member of any class of individuals excluded from admission into the United States. The excludable classes are described below in general terms. You should read carefully the following list and answer YES or NO to each category. The answers you give will assist the consular officer to reach a decision on your eligibility to receive a visa. **EXCEPT AS OTHERWISE PROVDIED BY LAW, ALIENS WITHIN THE FOLLOWING CLASSIFICATIONS ARE INELIGIBLE TO RECEIVE A VISA.** **DO ANY OF THE FOLLOWING CLASSES APPLY TO YOU? (CHECK THE YES/NO BOX THAT APPLIES TO YOU FOR EACH QUESTION)**		
An alien who has a communicable disease of public health significance; who has failed to present documentation of having received vaccinations in accordance with U.S. law; who has or has had a physical or mental disorder that poses or is likely to pose a threat to the safety or welfare of the alien or others; or who is a drug abuser or addict.		
An alien convicted of, or who admits having committed, a crime involving moral turpitude or violation of an law relating to a controlled substance or who is the spouse, son or daughter or such a traffickers who knowingly has benefited from the trafficking activities in the past five years; who has been convicted of 2 or more offenses for which the aggregate sentences were 5 years or more; who is coming to the United States to engage in prostitution or commercialized vice or controlled substance; who has committed a serious criminal offense in the United States and who has asserted immunity from prosecution; who, while serving as a foreign government official and within the previous 24-month period, was responsible for or directly carried out particularly severe violations of religious freedom; or whom the President has identified as a person who plays a significant role in sever form of trafficking in persons, who otherwise has knowingly aided, abetted, assisted or colluded with such a trafficker in severe forms of trafficking in persons, or who is the spouse, son or daughter of such a trafficker who knowingly has benefited from the trafficking activities within the past five years.		
An alien who seeks to enter the United States to engage in espionage, sabotage, export control violations, terrorist activities, the overthrow of the Government of the United States or other unlawful activity; who is a member of or affiliated with the Communist or other totalitarian party; who participated in Nazi		

persecutions or genocide; who has engaged in genocide; or who is a member or representative or a terrorist organization as currently designated by the U.S. Secretary of State.		
An alien who is likely to become a public charge.		
An alien who seeks to enter for the purpose of performing skilled or unskilled labor who has not been certified by the Secretary of Labor; who is a graduate of a foreign medical school seeking to perform medical services who has not passed the NBME exam or its equivalent; or who is a health care worker seeking to perform such work without a certificate from the CGFNS or from an equivalent approved independent credentialing organization.		
An alien who failed to attend a hearing on deportation or inadmissibility within the last 5 years; who seeks or has sought a visa, entry into the United States, or any immigration benefit by fraud or misrepresentation; who knowingly assisted any other alien to enter or try to enter the United States in violation of law; who, after November 30, 1996, attended in student (F) visa status a U.S. public elementary school or who attended a U.S. public secondary school without reimbursing the school; or who is subject to a civil penalty under INA 274C.		
An alien who is permanently ineligible for U.S. citizenship; or who departed the United States to evade military service in time or war.		
An alien who was previously ordered removed within the last 5 years or ordered removed a second within the last 20 years; who was previously unlawfully present and ordered removed within the last 10 years or ordered removed a second time within the last 20 years; who was convicted of an aggravated felony and ordered removed; who was previously unlawfully present in the United States for more than 180 days but less than one year who voluntarily departed within the last 3 years; or who was unlawfully present for more than one year or an aggregate of one year within the last 10 years.		
An alien who is coming to the United States to practice polygamy; who withholds custody of a U.S. citizen child outside the United States from a person granted legal custody by a U.S. court or intentionally assists another person to do so; who has voted in the United States in violation of any law or regulation; or who renounced U.S. citizenship to avoid taxation.		
An alien who is former exchange visitor who has not fulfilled the 2-year foreign residence requirement.		
An alien determined by the Attorney General to have knowingly made a frivolous application for asylum.		

An alien who has ordered, carried out or materially assisted in extrajudicial and political killings and other acts of violence against the Haitian people; who has directly or indirectly assisted or supported any of the groups in Colombia known as FARC, ELN, or AUC; who through abuse of a governmental or political position has converted for personal gain, confiscated or expropriated property in Cuba, a claim to which is owned by a national of the United States, has trafficked in such property or has been complicit in such conversion, has committed similar acts in another country, or is the spouse, minor child or agent of an alien who has committed such acts; who has been directly involved in the establishment or enforcement of population controls forcing a woman to undergo an abortion against her free choice or a man or a woman to undergo sterilization against his or her free choice; or who has disclosed or trafficked in confidential U.S. business information obtained in connection with U.S. participation in the Chemical Weapons Convention or is the spouse, minor child or agent or such a person.		
Have you ever been convicted of any offense or crime? (If yes, please explain in space provided below)		
Have you ever been refused admission to the United States at a port-of-entry? (If yes, please explain in space provided below)		
Have you ever applied for a Social Security Number (SSN)? (If yes, please provide the number in the space provided below)		
Do you want the Social Security Administration to assign you an SSN (and issue a card) or issue you a new card (if you have an SSN)?		
CONSENT TO DISCLOSURE: I authorize disclosure of information from this form to the Department of Homeland Security (DHS), the Social Security Administration (SSA), such other U.S. government agencies as may be required for the purpose of assigning me an SSN and issuing me a Social Security card, and I authorize the SSA to share my SSN with USCIS. The applicant's response does not limit or restrict the Government's ability to obtain his or her SSN, or other information on this form, for enforcement or other purposes as authorized by law. You must answer YES to this question in order to receive an SSN and/or card.		

ADDITIONAL INFORMATION REQUESTED:

HOW DID YOU HEAR ABOUT THE NEW YORK CITY IMMIGRATION FUND, REGIONAL CENTER AND OUR PROJECTS?

WERE YOU REFERRED TO US BY SOMEONE? _____ Yes _____ No

If YES, please provide Name and contact information for our files _____

PRIMARY APPLICANT'S NET WORTH:

Please complete all sections below to the best of your ability so that we can evaluate the best funds to be used for immigration purposes. Also please note where the funds originated from under source of funds, i.e. checking account $500,000 from sale of house; savings account $200,000 income from business.

Qualifying investors in the US on a non-immigrant visa need to be accredited investors. An accredited investor is a term defined by various security laws that describes investors permitted to invest in certain types of higher risk investments, limited partnerships, hedge funds and angel investor networks. In the US an individual is considered to be an accredited investor if he or she has a net worth of at least US$1 million or has made at least US$200,000 each year for the last two years (US$300,000 with spouse if married) and has the expectation to make the same amount in the current year.

PLEASE PROVIDE INFORMATION FOR ASSETS TOTALING US $1 MILLION MORE:

LOCATION OR ASSETS: _____ UNITED STATES _____ ABROAD _____ BOTH
If Abroad, which Country (ies)? _____

ASSETS:	**AMOUNT:**	**SOURCE OF FUNDS:**
CHECKING ACCOUNT	$	
SAVINGS ACCOUNT	$	
INVESTMENTS (Stocks, Bonds & Mutual Funds)	$	
BUSINESS INCOME	$	
REAL ESTATE	$	
INHERITANCE	$	

GIFT*	$	
LOAN	$	
OTHER (explain on separate sheet)	$	

TOTAL: **$** _____

* Please note, if an asset is a Gift, source of funds for the gift needs to be explained i.e. gift from parents of $250,000, source of funds sale of parent's real estate.

LIABILITIES:	
MORTGAGE	
OTHER LOANS (Explain on separate sheet)	

TOTAL: **$** _____

TOTAL NET WORTH **$** _____

SOURCE OF FUNDS FOR INVESTMENT:
* Please use an additional sheet if needed.

PLEASE BE AS SPECIFIC AS POSSIBLE WHEN COMPLETING THE INFORAMTION BELOW.

OF THE ABOVE ASSESTS, WHICH WILL CONTRIBUTE TO THE INVESTMENT?

ASSETS:	**AMOUNT:**	**SOURCE OF FUND:**
	$	
	$	
	$	
	$	

TOTAL INVESTMENT $ _____

VERIFICATION:
Please supply copies, send via fax or email of the following for the Applicant / Investor and Spouse / Children (if any): 1. Valid government issued driver's license including photograph 2. Valid passport (copy of picture page) 3. National Identity card if available 4. Copy of current US visa (if inside the United States) 5. Copy of I-94 (if inside the United States) 6. Birth certificates for investor and all non-U.S. dependents (long form, naming both parents 7. Marriage certificates (if any)

The information above is accurate and has been completed to the best of my ability.

_____

SIGNATURE OF APPLICANT DATE (MM/DD/YY)

Century New York City Regional Center, LLC was formed to act as and perform all of the operations and functions of the regional center in accordance with the rules, regulations and guidelines promulgated from time to time by USCIS ("Regional Center"). As a Regional Center, Century New York City Regional Center perform the following duties: (1) It will seek appropriate investment opportunities, whether in the form of loans or ownership of equity, to be financed through the Program, (2) will seek financing for each investment in a Project, whether through the Program or otherwise, (3) in conjunction with each Project, will assist potential investors in making an investment in such Project, including submitting all required reports and information in order for investors to obtain an Investment Green Card (as such term is used by USCIS), and (4) will act as the manager or managing member of each Project.

The Company's Manager will make qualified investments in accordance with specific due diligence guidelines below:

- Investments that will procure jobs in the TEA Regional Center Areas pursuant to the USCIS EB5 program.
- Investments that will provide positive cash flow that can be recapitalized to facilitate an exit strategy for the Company to return their Initial Investment.
- Investments that shall pay interest to the Company throughout the duration of the Project through cash flows or through interest escrows.
- Investments that are securitized by equity or credit agreements.

Century New York City Regional Center (RC) plans to administer, oversee and manage all its investment activities, primarily to engage and support due diligence screening of its alien investor's lawful source of capital and the ability of the alien investor to fully invest the requisite amount of capital for EB-5 purposes.

N.Y.S. DEPARTMENT OF STATE
DIVISION OF CORPORATIONS AND STATE RECORDS **ALBANY, NY 12231-0001**

ONLINE FILING RECEIPT

ENTITY NAME: CENTURY NEW YORK CITY REGIONAL CENTER, LLC

DOCUMENT TYPE: ARTICLES OF ORGANIZATION (DOM. LLC) COUNTY: QUEE

FILED:03/25/2014 DURATION:********** CASH#:140325010322 FILE#:140325010322
DOS ID:4550615

FILER:

SERVICO INC.
283 WASHINGTON AVE.
ALBANY, NY 12206

EXIST DATE
03/25/2014

ADDRESS FOR PROCESS:

THE LIMITED LIABILITY COMPANY
35-06 LEAVITT STREET
SUITE CF-A
FLUSHING, NY 11354

REGISTERED AGENT:

The limited liability company is required to file a Biennial Statement with the Department of State every two years pursuant to Limited Liability Company Law Section 301. Notification that the Biennial Statement is due will only be made via email. Please go to www.email.ebiennial.dos.ny.gov to provide an email address to receive an email notification when the Biennial Statement is due.

SERVICE COMPANY: SERVICO, INC.-35
SERVICE CODE: 35

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53195

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ACKNOWLEDGEMENT COPY

ARTICLES OF ORGANIZATION
OF
CENTURY NEW YORK CITY REGIONAL CENTER, LLC

Under Section 203 of the Limited Liability Company Law

THE UNDERSIGNED, being a natural person of at least eighteen (18) years of age, and acting as the organizer of the limited liability company hereby being formed under Section 203 of the Limited Liability Company Law of the State of New York certifies that:

FIRST: The name of the limited liability company is:

CENTURY NEW YORK CITY REGIONAL CENTER, LLC

SECOND: To engage in any lawful act or activity within the purposes for which limited liability companies may be organized pursuant to Limited Liability Company Law provided that the limited liability company is not formed to engage in any act or activity requiring the consent or approval of any state official, department, board, agency, or other body without such consent or approval first being obtained.

THIRD: The county, within this state, in which the office of the limited liability company is to be located is QUEENS.

FOURTH: The Secretary of State is designated as agent of the limited liability company upon whom process against it may be served. The address within or without this state to which the Secretary of State shall mail a copy of any process against the limited liability company served upon him or her is:

THE LIMITED LIABILITY COMPANY
35-06 LEAVITT STREET
SUITE CF-A
FLUSHING, NY 11354

FIFTH: The limited liability company is to be managed by: ONE OR MORE MEMBERS.

SIXTH: The limited liability company shall defend, indemnify and hold harmless all members, managers, and former members and managers of the limited liability company against expenses (including attorney's fees, judgments, fines, and amounts paid in settlement) incurred in connection with any claims, causes of action, demands, damages, liabilities of the limited liability company, and any pending or threatened action, suit, or proceeding. Such indemnification shall be made to the fullest extent permitted by the laws of the State of New York, provided that such acts or omissions which gives rise to the cause of action or proceedings occurred while the Member or Manager was in performance of his or her duties for the limited liability company and was not as a result of his or her fraud, gross negligence, willful misconduct or a wrongful taking. The indemnification provided herein shall inure to the benefit of successors, assigns, heirs, executors, and the administrators of any such person.

I certify that I have read the above statements, I am authorized to sign these Articles of Organization, that the above statements are true and correct to the best of my knowledge and belief and that my signature typed below constitutes my signature.

SCOTT J SCHUSTER, ORGANIZER (signature)

SCOTT J SCHUSTER, ORGANIZER
283 WASHINGTON AVE.
ALBANY, NY 12206

Filed by:
SERVICO INC.
283 WASHINGTON AVE.
ALBANY, NY 12206

SERVICO, INC. (35)
DRAWDOWN
CUSTOMER REF# 53195

ACKNOWLEDGEMENT COPY

WAIVER OF NOTICE OF ORGANIZATION MEETING

OF

CENTURY NEW YORK CITY REGIONAL CENTER, LLC

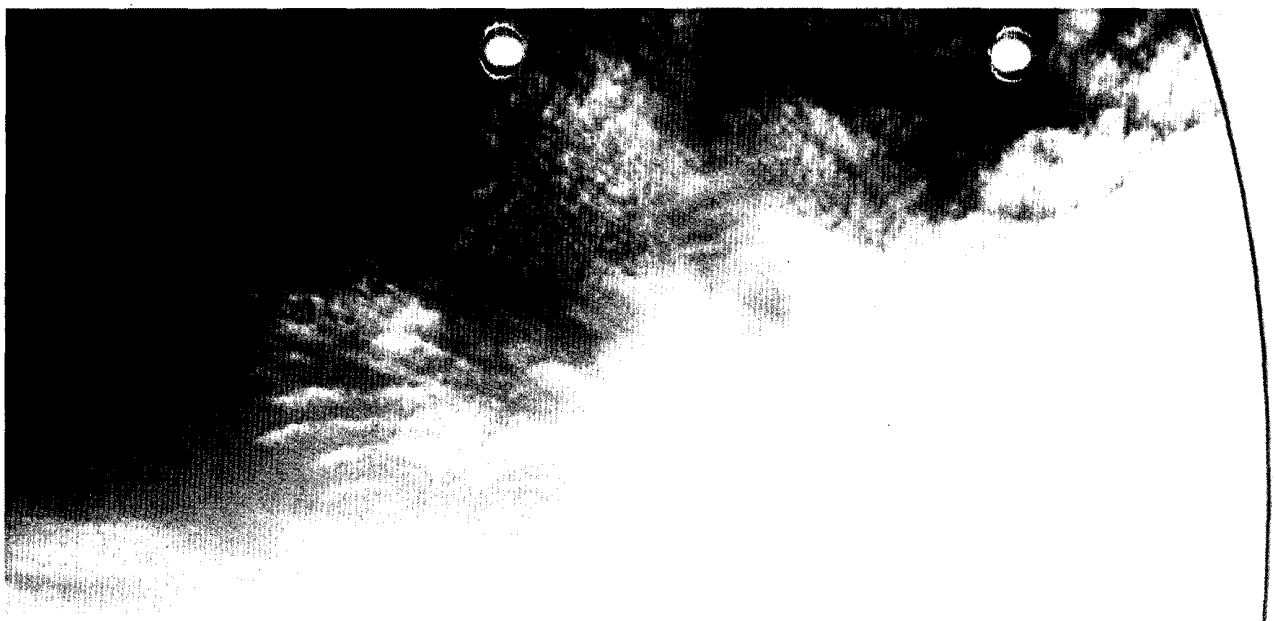
I, The undersigned, being the Sole Organizer named in the Articles of Organization of the above limited liability company hereby agree and consent that the organization meeting thereof be held on the date and at the time and place stated below and hereby waive all notice of such meeting and of any adjournment thereof.

Place of Meeting

Date of Meeting

Time of Meeting

Sole Organizer
Scott J. Schuster



EB-5 BUSINESS PLAN

Four Points Flushing Hotel & Condominium

Farrington EB-5 Capital, LLC

13-37 35th Avenue Flushing, New York 11354

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EXECUTIVE SUMMARY

The proposed Four Points Flushing Hotel & Condominium is seeking regional center designation as a hypothetical project. The plan is to construct and develop a mix-use buidling which consists of 210-room hotel, 101 residential condominium units, retail spaces, community facilities and parking spaces (the "Project") in Flushing, Queens, one of the five boroughs of New York City. The project is located at 134-37 35th Avenue in Flushing, New York, NY 11354. This area encompasses some of the most commercially active portions of downtown Flushing, including the majority of Chinese and Korean businesses. It is also a popular destination for Asian tourists.

Farrington EB-5 Capital, LLC will be the new commercial enterprise, (hereinafter the "NCE") a newly formed entity for the purpose of raising EB-5 investment capital. Farrington Realty, LLC is the job creating entity (hereinafter "JCE") owns and operates the project. The NCE will be managed by Mr. George Xu, the developer and owner of the Project. The business entity structure is outlined in the table below.

New Commercial Enterprise (NCE)	**Farrington EB-5 Capital, LLC**
Regional Center (RC)	**Century New York City Regional Center, LLC**
Job Creating Entity (JCE)	Farrington Realty, LLC

The Proposed Four Points Flushing EB-5 Project entails a new construction of a mixed-use building which consists of a 210-room hotel, 101 residential condominium units, retail spaces, community facilities and parking spaces in Flushing, Queens, one of the five boroughs of New York City. Four Points by Sheraton is a mid-scale hotel brand by Starwood Hotels & Resorts offering a full-service hotel experience at a reasonable price. The construction and operation of the regional base of invested capital, the creation of new jobs, and the associated economic growth effects will be put into effect with the capital raised from immigrant investors through the EB-5 Program.

The NCE is seeking to raise a maximum of [redacted] in investor capital from [redacted] EB-5 investors for the EB-5 Immigrant Investor Program (hereinafter "EB-5") for the Four Points Flushing Hotel & Condominium. According to the Economic Impact Report, the project will create [redacted] jobs, including [redacted] jobs from direct and indirect from construction employment, [redacted] direct jobs from operation, and [redacted] indirect jobs from operation.

LOCATION – TARGETED EMPLOYMENT AREA

The EB-5 investment within a targeted employment area is calculated at a ratio of $500,000 for every 10 jobs created. The maximum credited foreign investment the [redacted] jobs can support under the EB-5 Program is [redacted] capital raise. The Project is only seeking to raise [redacted] from the EB-5 Program.

The project is located at 134-37 35th Avenue in Flushing, New York, NY 11354. The location is in census tract 889.02 in Queens County, a designated Targeted Employment Area ("TEA") confirmed by the Empire State Development and New York State Department of Labor. Please see the TEA letters attached at **Exhibit 7.**

Thus the project is located in a TEA and shall have a minimum investment requirement by each member of $500,000 USD. Membership units for the EB-5 investors shall be sold at [redacted] USD, of which $500,000 USD shall be utilized towards the construction of the project and [redacted] USD shall go towards an Administrative Fee.

DEVELOPMENT COSTS:

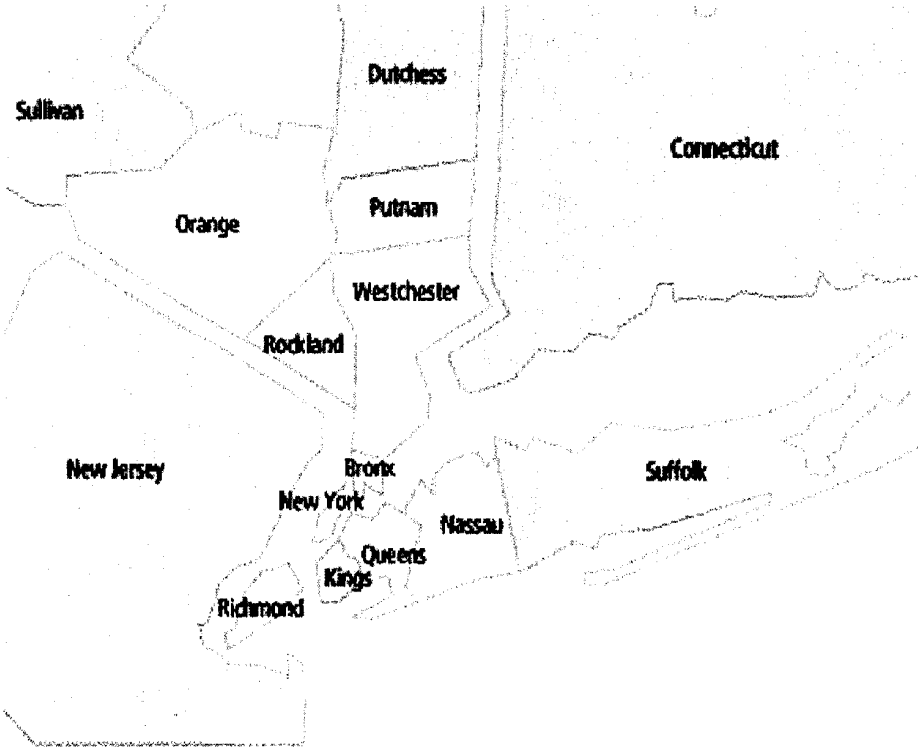
The total development cost is estimated at [redacted] consisting of hard construction costs approximately [redacted] soft costs [redacted] and other costs. The owner's equity is approximately [redacted] of the development costs. The maximum raise of EB-5 investment funds would be [redacted] The project developers are actively seeking traditional bank financing and other bridge financing as an alternative to EB-5 financing.

REGIONAL CENTER:

Farrington EB-5 Capital, LLC ("NCE") is managed by Century New York City Regional Center, LLC. The NCE was organized as a New York Limited Liability Company on March 31, 2014 with the primary business objective to raise EB-5 capital to fund real estate development projects such as the Four Points Flushing located at 134-37 35th Avenue in Flushing, New York, NY 11354. The project is owned by the project developer Farrington Realty, LLC where Mr. George Xu is the principal.

GEOGRAPHIC SCOPE:

The Four Points Flushing is located in Queens County. The RC requests the following seven (7) counties to be included in the RC's geographic boundaries: Queens County, New York County, Kings County, Bronx County, Richmond County, Westchester County and Nassau County. Please see the County map below.



Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment requirement is not required if investment opportunities arise outside the geographic area referenced above.

NAICS CODES:

The RC development project requests designation in the following industries based on the North America Industry Classification System **("NAICS")** Code:

Construction Hard Costs

- Construction (Building & Site) – 2362/23622
- Wholesale Trade (FF&E) – 42/4232
- Hotel and Motel (including Casino) – 72251
- Food Services and drinking places – 72251
- Real Estate – 53112/5313

Financing & Soft Costs

- Other government enterprises – 921
- Architectural, engineering and related services – 5413
- Insurance - 5241
- Accounting tax preparation, bookkeeping services – 5412
- Legal Services – 5411
- Monetary authorities and depository credit intermediation – 5222
- Other miscellaneous professional and technical services - 5419

SECTION I: THE BUSINESS:

OVERVIEW OF THE EB-5 PROJECT
DESCRIPTION OF THE BUSINESS; SERVICES & OBJECTIVES

FOUR POINTS FLUSHING HOTEL & CONDOMINIUM

The Proposed Four Points Flushing EB-5 Project entails a new construction of a mixed-use buidling which consists of a 210-room hotel, 101 residential condominium units, retail spaces, community facilities and parking spaces in Flushing, Queens, one of the five boroughs of New York City. Four Points by Sheraton is a mid-scale hotel brand by Starwood Hotels & Resorts offering a full-service hotel experience at a reasonable price.

The Four Points Hotel is located in the Flushing, Queens in New York City. The project site is located in the northwestern quadrant formed by the intersection of Farrington Street and 35th Avenue at 134-37 35th Avenue, Flushing, New York, 11354. The location is a targeted employment area ("TEA"). The proposed Four Points Hotel will feature 210 rooms, a restaurant and lounge, an indoor pool, a fitness center, a banquet hall, two meeting rooms, a ±17,000-square-foot community facility space, a lobby workstation, guest laundry facilities, and a gift shop. The community facility space is expected to be used by the community for recreation, sports, and/or cultural purposes and as additional meeting space for the hotel.

The Four Points Hotel will be further strengthened by the co-development condo units and retail spaces. The hotel will be operated by a prestigious management company—The Real Hospitality Group. The 15-story joint tower will feature 210 rooms dedicated to the Four Points on the second to seventh floor and 101 condo units on the eighth to fifteenth floor. The indoor pool will be shared between the hotel and the condos. Specific entities, such as the lobby, food and beverage outlets, meeting space, business center/lobby workstation and gift shop/market pantry will remain separate.

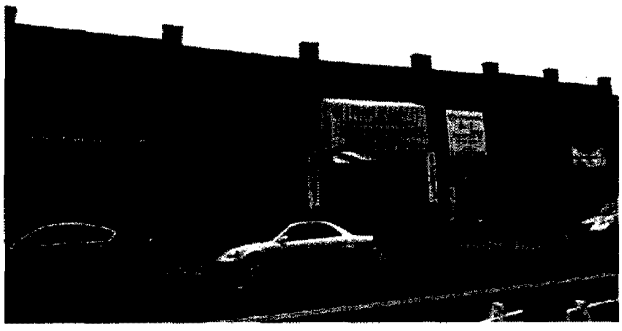
The joint tower is a part of a mixed-use development that will include ±10,000 square feet of commercial and retail space along 35th Avenue at the ground level. The commercial and retail spaces will be operated as separate entities.

PROJECT LOCATION AND TARGET EMPLOYMENT AREA

The project is located at 134-37 35th Avenue in Flushing, New York, NY 11354. The location is in census tract 889.02 in Queens County, a designated Targeted Employment Area ("TEA") confirmed by the Empire State Development and New York State Department of Labor. Please see the TEA letters attached at **Exhibit 7.**

Thus, the project is located in a TEA and shall have a minimum investment requirement by each member of $500,000 USD. Membership units for the EB-5 investors shall be sold at [redacted] USD, of which $500,000 USD shall be utilized towards the construction of the project and [redacted] USD shall go towards an Administrative Fee. (b)(4) (b)(4)

Image shows View of Project Site



Parcel Map and Four Direct Views of the Project Site:

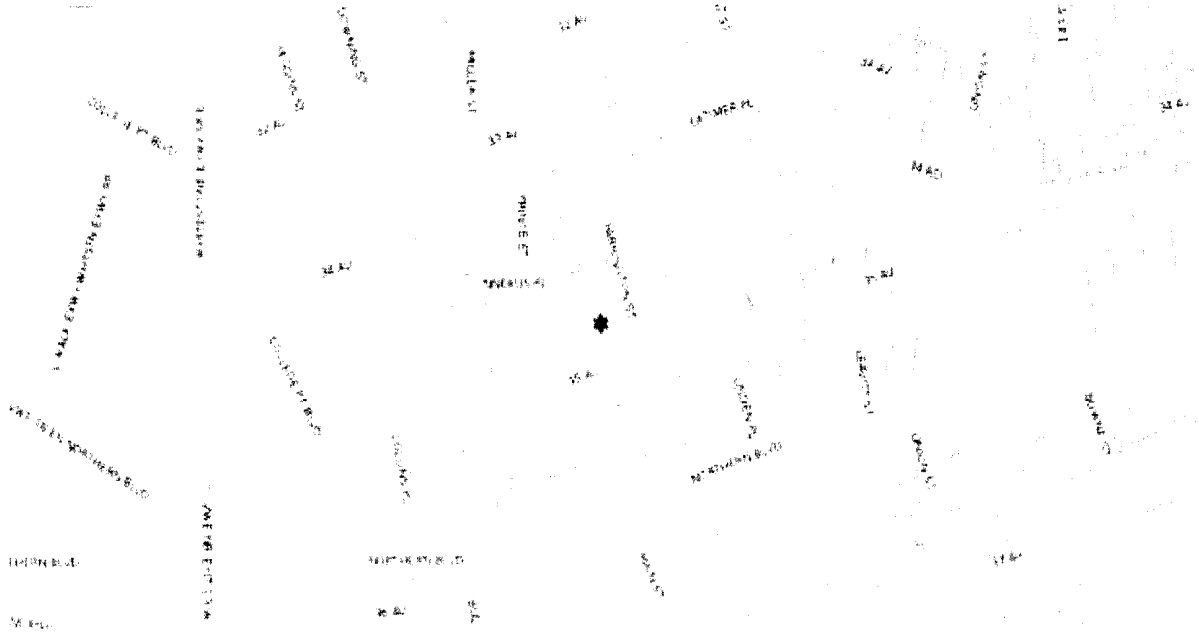
VIEW FROM SITE TO THE NORTH

VIEW FROM SITE TO THE SOUTH

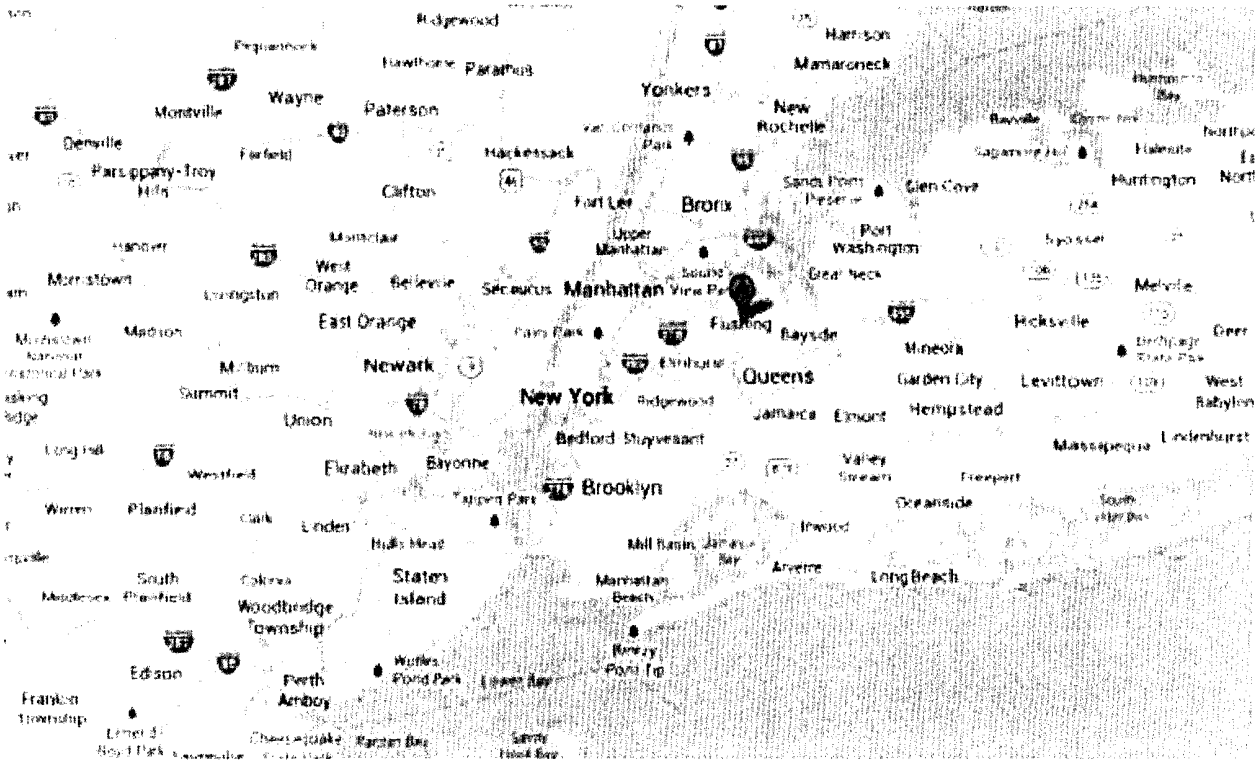
VIEW FROM SITE TO THE EAST

VIEW FROM SITE TO THE WEST

PARCEL MAP



The Project Location



The Flushing, Queens neighborhood surrounding the proposed property is characterized by a densely developed mixture of retail and commercial space that is proximate to an excellent public transportation and roadway network and two major airports, La Guardia Airport and New York JFK Airport. This area encompasses some of the most commercially active portions of downtown Flushing, including the majority of Chinese and Korean businesses located in Flushing.

The project is located one block from Main Street, in an area known as "Chinese Flushing." The majority of the area's banking institutions, department stores, and office spaces are located on or near Main Street. A majority of the buildings and businesses are owned and patronized by the Chinese residents of the area; therefore, the neighborhood presents a fairly homogenous Asian image. This area is a popular destination for Asian tourists who appreciate these somewhat familiar surroundings.

The following Images show Flushing Main Street:

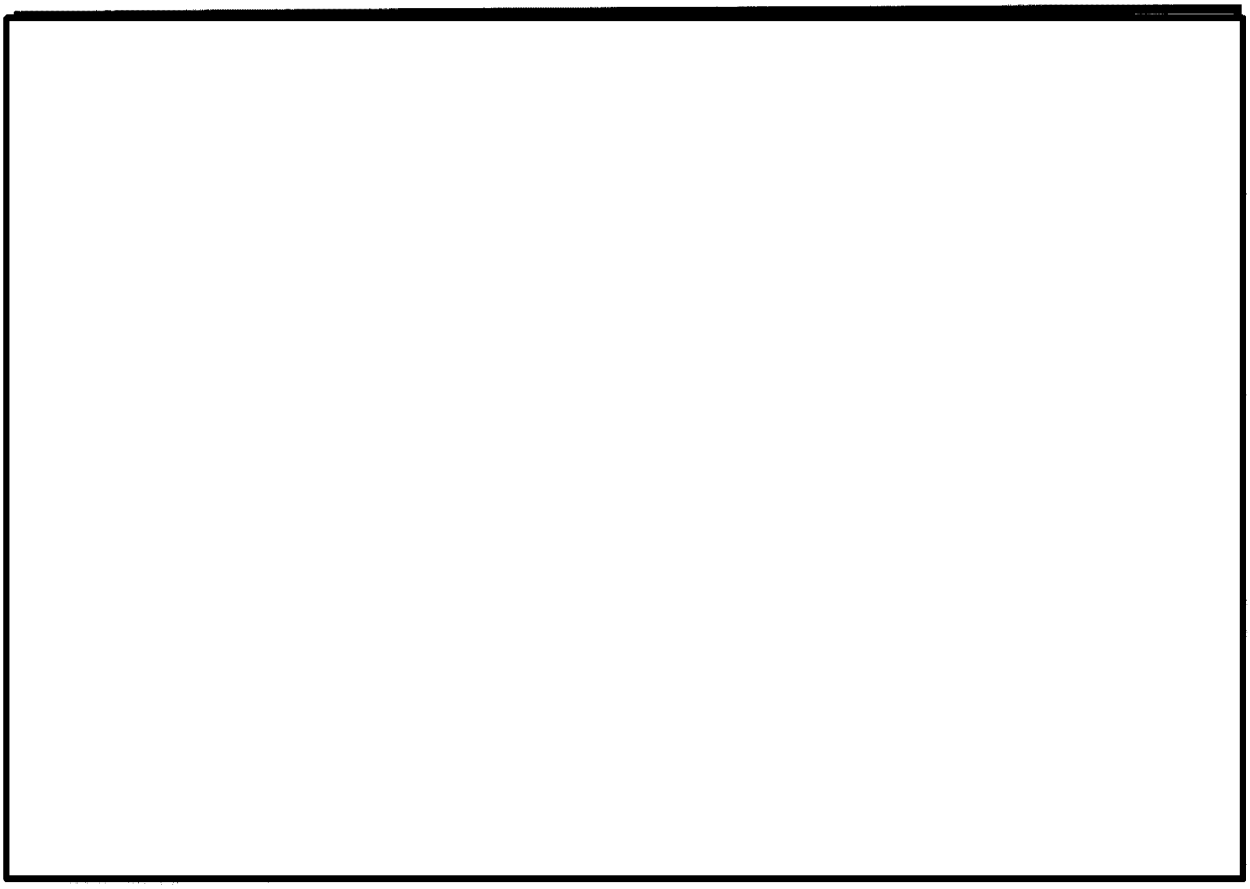
Below are architectural rendering and floor plans of the Project:

Architectural Rendering of Four Points Flushing Hotel & Condominium

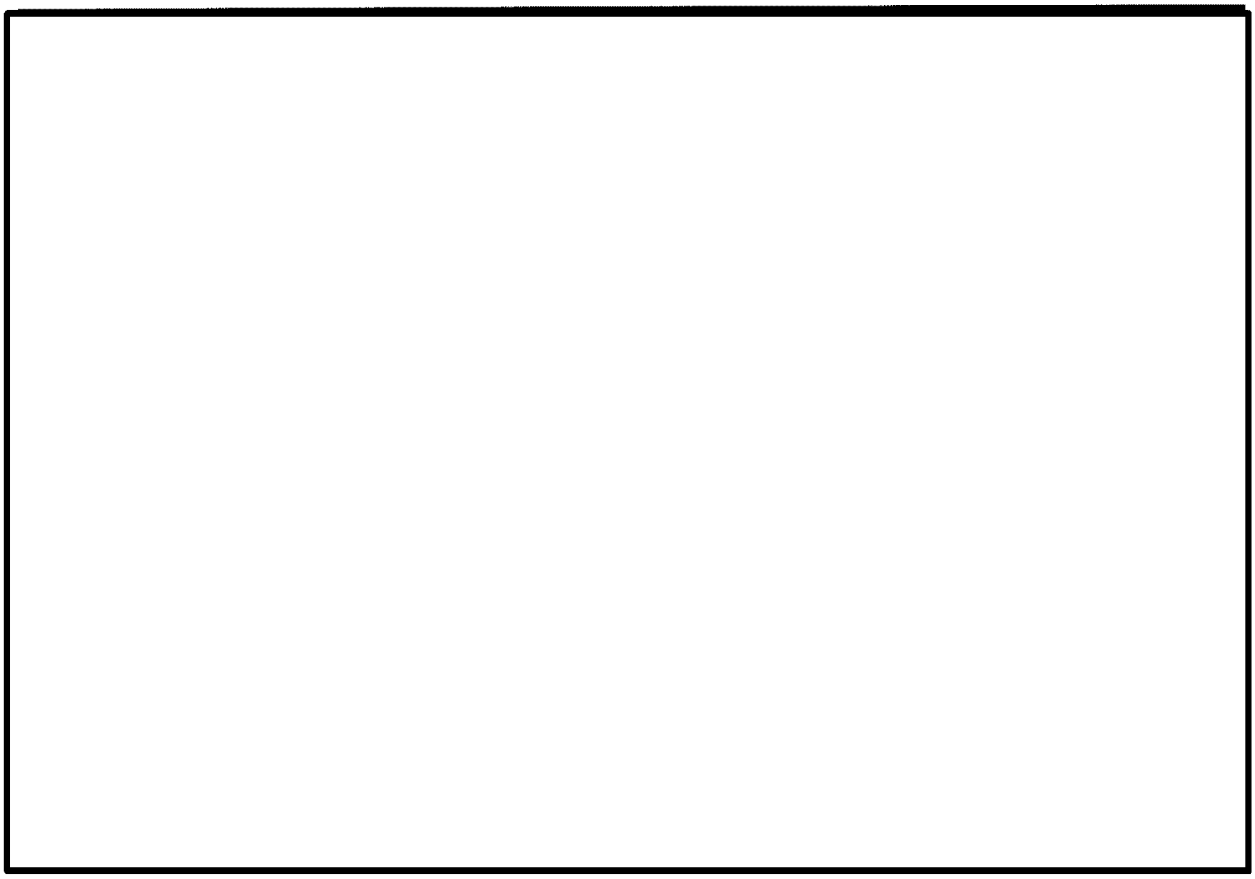
FLOOR PLAN-SUB-CELLAR 1

(b)(4)

FLOOR PLAN –CELLAR LEVEL

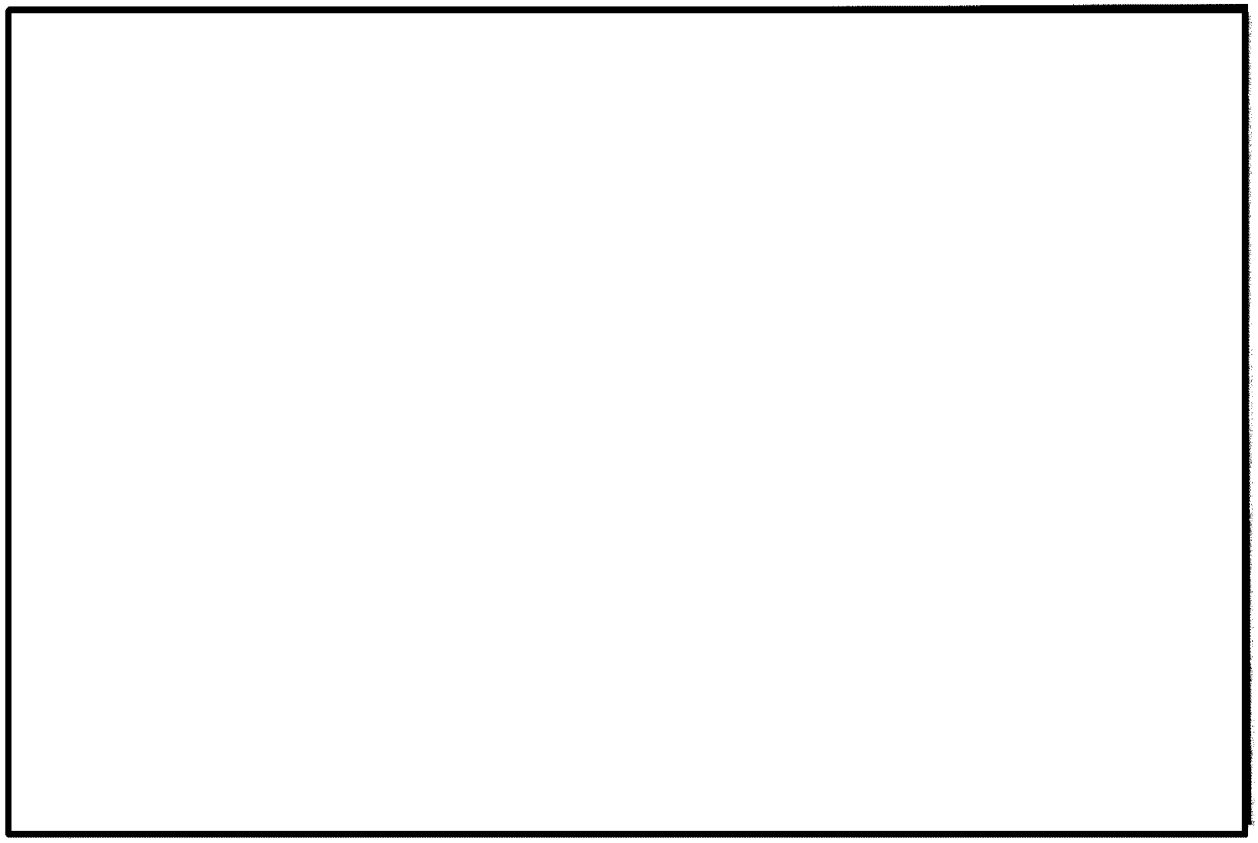


FLOOR PLAN-2ND FLOOR PLAN



(b)(4)

FLOOR PLAN-GUESTROOM FLOOR PLAN (FLOORS 3-7)



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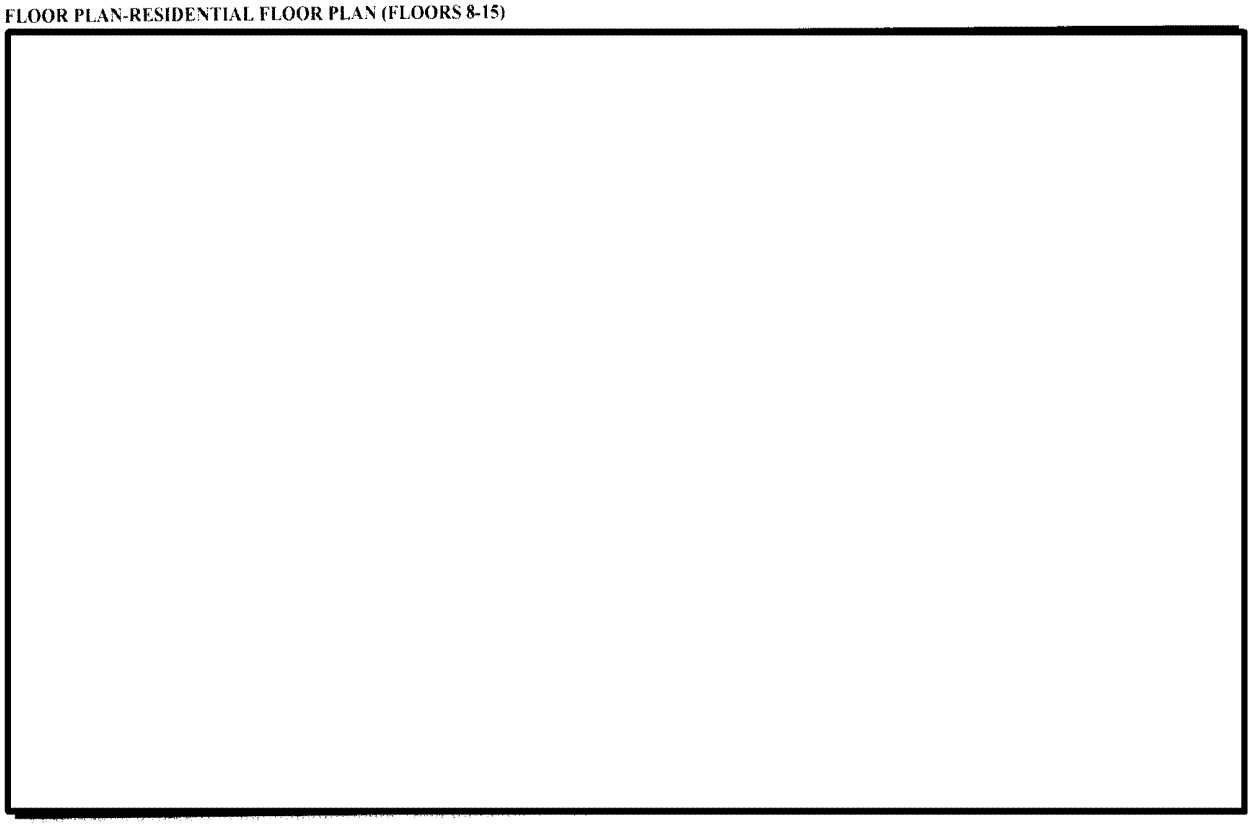
FLOOR PLAN-RESIDENTIAL FLOOR PLAN (FLOORS 8-15)



SECTION II: MARKET ANALYSIS

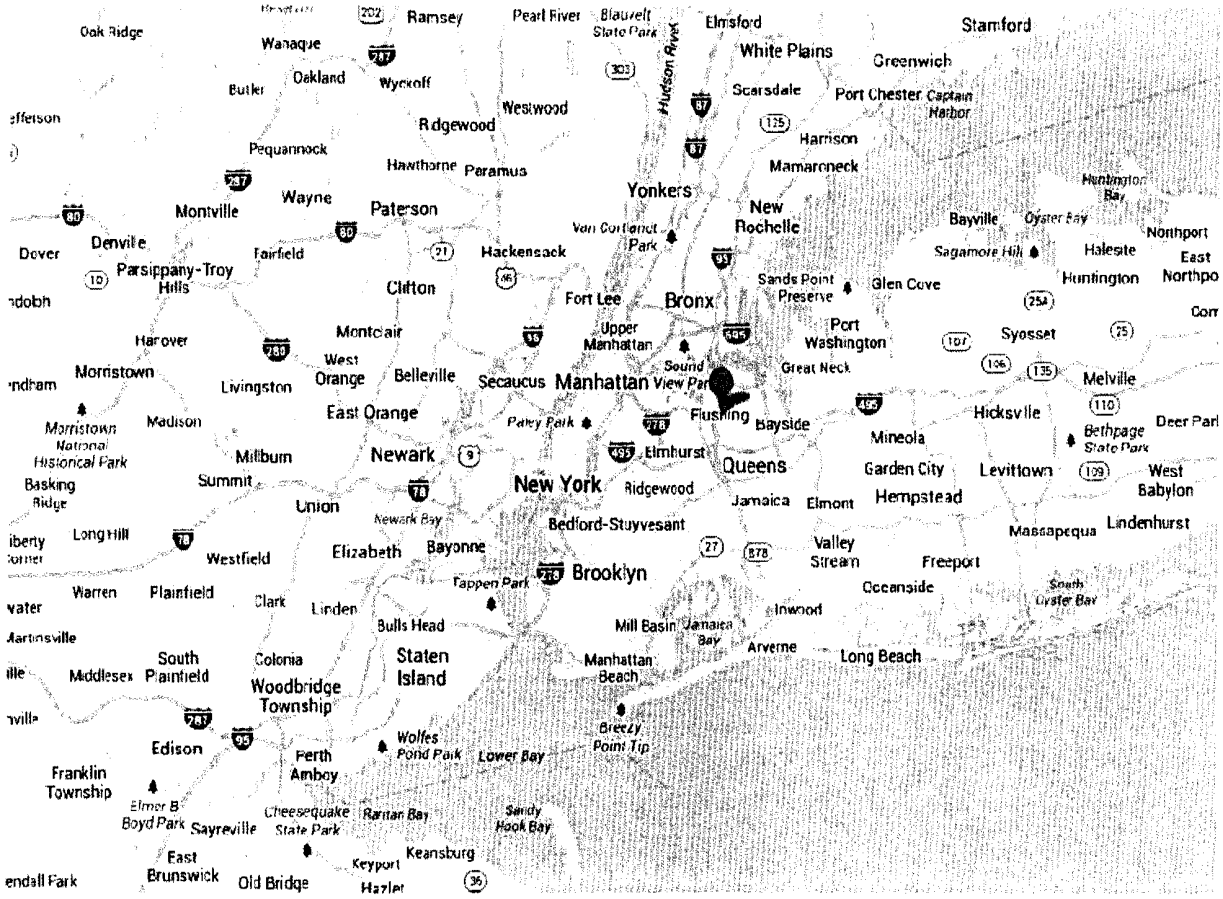
This section includes the analysis of the target market, perspective customers, market demand and analysis method, and the project's competitive advantages and highlights.

Source of the data: The market analysis is provided by HVS Consulting and Valuation Services ("HVS"). HVS is the world's premier hotel consulting and valuation firm, known for their impeccable worldwide reputation for credibility, excellence, and thoroughness. They provide full services and solutions on consulting and valuation; executive search; investment banking; asset management and strategic advisory; hotel management; convention, sports, and entertainment facilities consulting; design; shared ownership; parking; gaming; golf; sustainability; risk management; and property tax. HVS is the industry's primary source of hotel sales data, research, market studies, and educational information relating to the hospitality industry.

HVS was established in 1980 by Chairman and Founder Steve Rushmore, MAI, FRICS, CHA, and now directed by President and CEO Stephen Rushmore, Jr., MAI. HVS are members of:
MAI: Member of the Appraisal Institute
CHA: Certified Hotel Administrator
FRICS: Fellows of Royal Institution of Chartered Surveyors

LOCATION

The Project, Four Points Flushing Hotel & Condominium, is located in Flushing, New York. Located in the Flushing district of New York City's Queens Borough, the site is readily accessible to a variety of local, county, state, and interstate highways. Major interstates, such as Interstates 278, 495, and 95, connect Flushing to other major cities – New Haven, Connecticut; Philadelphia, Pennsylvania; and not mention its close proximity to Manhattan, New York. Manhattan, the commercial center of New York City, may be easily accomplished via the Long Island Expressway, the Grand Central Parkway, the New York City Subway, and the Long Island Rail Road. Guests will have access to the hotel through Farrington Street and 35th Avenue. The project's location is in a commercially active area in Flushing.



Map of Regional Access Routes

Aerial View of the Proposed Area

Renowned for its cultural attractions, entertainment, restaurants, and retail outlets, New York City is one of the most popular tourist destinations in the country. The city is recognized as an international commercial and cultural center. It is home to the United Nations, the Statue of Liberty, and the Empire State Building. The theaters in the Broadway district attract international attention. Lincoln Center (the home of the Metropolitan Opera, the New York Philharmonic, the New York City Ballet and Opera, and the Juilliard School) is among the world's most important centers for the performing arts. The Metropolitan Museum of Art, the Museum of Modern Art, the American Museum of Natural History, and a number of the city's other museums and galleries are internationally respected.

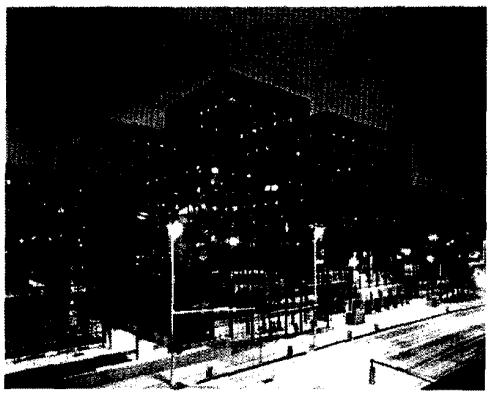
In the borough of Queens lies the Flushing Tennis Center, home of the U.S. Open; CitiField, home of the New York Mets baseball team; and Flushing Main Street, a vibrant, bustling district for shopping and restaurants. Brooklyn is also home to some of New York's most famous attractions including Coney Island, the Barclays Center, and the Brooklyn Academy of Music, as well as numerous shops and restaurants in the Williamsburg neighborhood. Directly to the north of midtown Manhattan lays Harlem, home to the world-famous Apollo Theatre as well as numerous renowned educational institutions including Columbia University and City College. Further north is the borough of the Bronx, home to Yankee Stadium, the venue for the New York Yankees baseball team, and numerous concerts and events; and the immensely popular Bronx Zoo.

Major Destinations & Attractions

New York City is one of the most popular and frequently visited destinations in the United States. A few of the major attractions include:

Times Square: a major intersection at the junction of Broadway and Seventh Avenue and stretching from West 42nd to West 47th Streets. It boasts attractions such as ABC's Times Square Studios, where Good Morning America is broadcast live, elaborate Toys "R" Us, Virgin Records, and Hershey's stores, as well as restaurants such as Ruby Foo's, the Bubba Gump

Shrimp Company, Planet Hollywood Restaurant and Bar and Carmine's along with a number of multiplex movie theaters. It has also attracted a number of large financial, publishing, and media firms to set up their headquarters in the area including Ernst and Young, Reuters, New York Times, Barclays, Morgan Stanley, among many others.

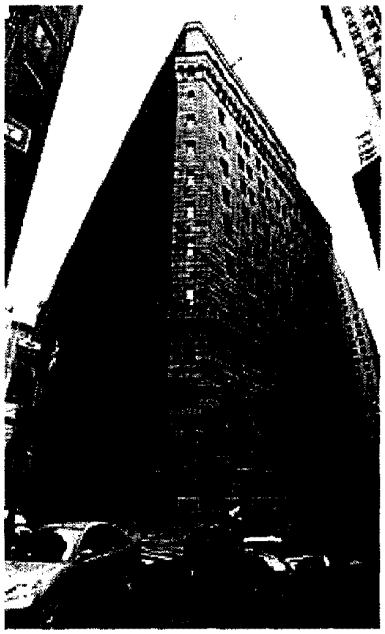


Jacob K. Javits Convention Center is a large convention center at Eleventh Avenue on the west side of Manhattan. The exhibit space is over 675,000 square feet. On October 16, 2006, a groundbreaking ceremony was held to start construction of an expansion.

New York Cruise Piers is a world-class ship port situated on West 52nd Street, and offers ideal facilities for cruise arrivals and departures. New York Cruise brings the most spectacular—often the fastest, biggest, and most luxurious—passenger ships to the West Side of Manhattan.

Lower (Downtown) Manhattan

The Financial District contains an assortment of businesses, ranging from small retail shops to chain-affiliated department stores to financial houses and educational buildings. The area is primarily commercial in character and is home to the New York and American Stock Exchanges, the WTC Site, and the World Financial Center.



In addition, several large corporations have their headquarters in the area, such as Goldman Sachs, The Bank of New York, Deutsche Bank, the Federal Reserve Bank of New York, and many more. The close proximity of high-grade office space and associated services makes the area an attractive location for lodging facilities.

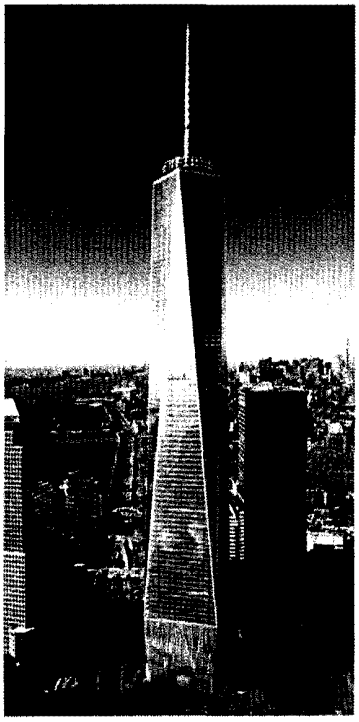
While modern-day business is the focus of Lower Manhattan, the market's historic representation makes the area unique. Among the historic attractions are Manhattan's oldest church, Trinity Church/St. Paul's Chapel, a national landmark built in 1766; Fraunces Tavern, which was built in 1719 and is the place where George Washington bade farewell to his officers; and the Federal Hall Memorial, the site where George Washington took the oath as America's first president.

Other points of interest in the Downtown area include the South Street Seaport, Battery Park, and the Federal Reserve Bank, to name a few. Access to the Statue of Liberty and Ellis Island is also provided from Battery Park, and represents some of the most important tourist attractions in New York City.

Lower Manhattan is expected to go through somewhat of a renaissance, fuelled by the redevelopment of the World Trade Center (WTC) site and the construction of a new transit station that will serve the transportation needs of Lower Manhattan.

World Trade Center Redevelopment

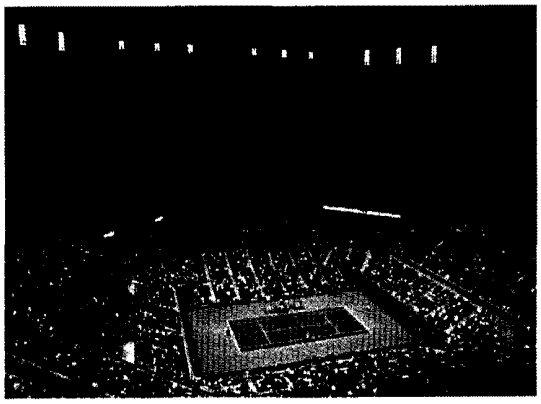
The WTC site now includes Tower 7, which was completed in May 2006 and developed by Silverstein Properties. Additional plans for the World Trade Center include the following. Please note that all data presented in relation to the WTC redevelopment has been sourced through the Lower Manhattan Development Corporation (LMDC).

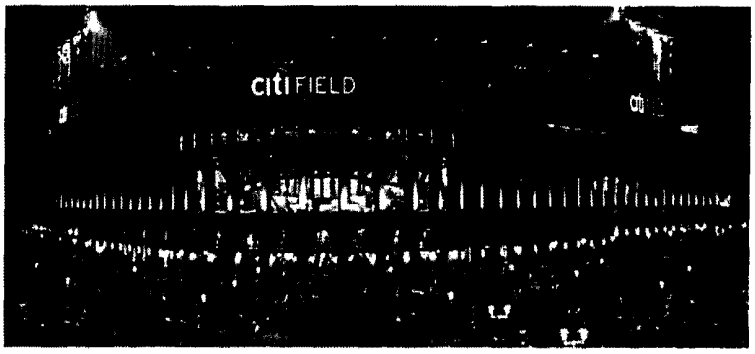


- Four new skyscrapers (1 WTC, Freedom Tower; Towers 2, 3, and 4)
- National September 11 Memorial & Museum at the World Trade Center
- World Trade Center Transportation Hub
- Retail Complex
- Performing Arts Center

<u>Attractions in Flushing, Queens</u>

In addition to the Flushing Tennis Center and CitiField, Queens also hosts Queens Zoo, Aqueduct Racetrack, Flushing Town Hall-Concert Hall, Queens Botanical Garden, Louis Armstrong House & Archives, and others.





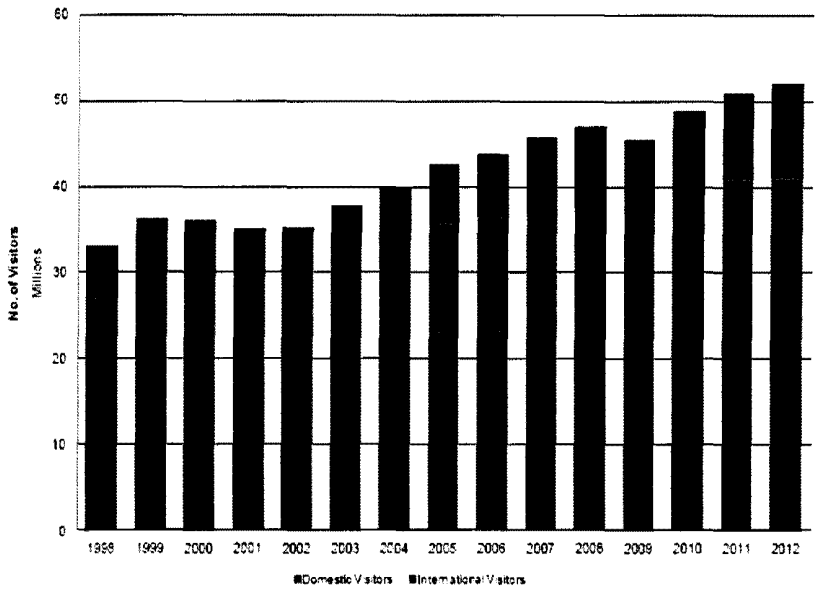
Queens is one of the most ethnically diverse communities in the U.S. The Borough of Queens is home to more than 34,500 businesses, ranging from small retail outlets to large manufacturing plants. The project area encompasses some of the most commercially active portions of downtown Flushing, including the majority of Chinese and Korean businesses located in Flushing. Located one block from Main Street, the major thoroughfare in Flushing, the hotel is in an area known as "Chinese Flushing." The majority of the area's banking institutions, department stores, and office spaces are located on or near Main Street. A majority of the buildings and businesses are owned and patronized by the Chinese residents of the area; therefore, the neighborhood presents a fairly homogenous Asian image. Consequently, this area is a popular destination for Asian tourists who appreciate these somewhat familiar surroundings.

MARKET DEMANDS AND ANALYSIS METHOD

In 2012, New York City estimated to have accommodated roughly 52 million visitors – a record level. New York City maintains its ranking as the number one U.S. destination for overseas travelers, hailing roughly 11 million from international markets.

According to most market observers, such record levels could not been realized without the expanded availability of hotel rooms in New York City. As illustrated in the graph below, the three highest tourism levels have all been recorded over the past three years – the period of highest availability.

FIGURE 5-4 NEW YORK CITY – HISTORICAL TOURISM LEVELS (NYC & COMPANY)



Source : NYC & Company

After a period of economic contraction, the market area has entered into a period of expansion and recovery following the Great Recession. HVS' market interviews and research revealed that although the area was affected by slowing business levels, a depressed housing market, and reduced levels of discretionary spending during the downturn, the market benefits from a well-established and diversified economy, which has aided in the recovery. The LaGuardia Airport and the close proximity to Manhattan has remained the cornerstones of this market, generating consistent demand throughout the year. Based on their market research, HVS are expecting market condition to continue improving in the near future.

Manhattan Lodging Market

Over the last 25 years, the Manhattan lodging market experienced minimal growth in supply, as a result of strong barriers to entry prevailing in that market. From 2004 through 2006, supply actually decreased due to the conversion of several hotels to condominiums. Since early-2009, the market has consistently registered strong increases in supply each month. From January 2009 to March 2013, supply increased by 19.8 percent.

As a result of the supply and demand dynamics, the market has been historically undersupplied. Over the last 25 years, average annual demand growth, at 2.1 percent, has outpaced corresponding growth in supply, at 1.7 percent. The Manhattan lodging market represents one of only five major markets among the top 25 in the U.S. to have maintained such a positive differential between supply and demand over the same period.

Periods of economic recovery and expansion are characterized by strong ADR growth. The Manhattan market experienced 27 consecutive months of double-digit increases in ADR from January 1997 to March 1999, and 46 consecutive months from November 2004 to August 2008. The market experienced the strongest ADR growth during the expansion period following the 2001 recession, which coincided with decreases in supply. As of March 2013 the market had experienced only one month of double-digit increase in ADR, in March 2011, at 10.1 percent. The significant amount of new supply that had entered the market since early 2009 did not have any effect on occupancy levels; however, the additional inventory limited the ability for hotel operators to push the average rate. Double-digit increases in ADR through 2015 are unlikely with a further anticipated increase in supply of approximately 15.0 percent over the same period.

Since 1987, RevPAR has increased at a healthy average annual rate of 4.2 percent. Periods of economic recovery and expansion are characterized by strong RevPAR growth. The Manhattan market experienced 57 consecutive months of double-digit increases in RevPAR from June 1994 to February 1999, and 53 consecutive months from May 2004 to September 2008. RevPAR percent change peaked in February 2005 at 22.2 percent. Percent change in RevPAR bottomed out at -27.3 percent in October 2009 as opposed to -24.4 percent in July 2002. However, RevPAR rebounded faster and stronger following the most recent recession than after the previous two contractions, primarily fueled by ADR gains.

As of March 2013 the market had experienced only 6 months of double-digit increase in RevPAR, from November 2010 to April 2011. Double-digit increases in RevPAR through 2015 are unlikely as occupancy is forecast to remain relatively stable, in the mid-80's, and ADR is anticipated to experience single-digit growth over the same period. As such, more moderate RevPAR growth is expected during these recovery and expansion periods than after the previous two economic recessions. A total of 89 new hotels opened in Manhattan between March 2008 and April 2013, adding 15,799 rooms to the market and representing growth of 23.7 percent over the February 2008 level. Approximately 75.0 percent of the new supply entered the market from March 2008 to December 2010. This addition is the largest increase in supply over the last 25 years.

The timing of the opening of the new supply coincided with the latest recession and the start of the recovery. Nevertheless, this large influx of new hotels had a minimal effect on the occupancy of the existing properties. As the economic recovery continues, HVS anticipates that the additional new supply will be absorbed into the market. Consequently, the Manhattan lodging

market is expected to remain undersupplied. Market-wide occupancy is expected to remain close to maximum-level capacity, in the mid-80 percent range, through 2015. New supply is expected to increase by approximately 15.0 percent by 2015. As a result, HVS forecasts moderate average rate growth over the next three years. From 2013 to 2015, HVS forecasts relatively modest increases in RevPAR, primarily driven by ADR growth. Overall, RevPAR is forecast to appropriately recover and surpass its pre-recession (2008) in 2014. Increases in supply are expected to be readily absorbed and thus are not anticipated to significantly affect the recovery. Reflective of such trends, the Manhattan lodging market seemingly remains poised for a strong recovery, irrespective of any forthcoming increases in supply.

Queens Lodging Market

Queens is one of the most ethnically diverse communities in the U.S. It has served as a bedroom community for Manhattan, but has also developed its own employment base. The two major airports, JFK International and LaGuardia, have played an important role in shaping the area's economy. The Borough of Queens is home to more than 34,500 businesses, ranging from small retail outlets to large manufacturing plants. No single company or industry is dominant, although health care, air transportation, and services are major sectors. Some of Queens' largest employers include Steinway & Sons, British Airways, St. John's University, and Citibank.
More than 59% of Queens's residents commute to Manhattan for work. Of the 41% of workers who remain in Queens for employment, 32% work in the services industry, 21% in retail, 15% in public utilities, 11% in manufacturing, 8% in government, 7% in construction, and 6% in FIRE (finance, insurance, and real estate).

Although Queens has never been a major center for office development, the retail sector has benefited from the area's concentration of residential developments. Downtown Jamaica, which is located north of the subject property, in central Queens, is one of the largest concentrations of retail space in New York City, attracting visitors from throughout the region, owing to the appealing prices offered by the local merchants. However, Queens still exports a disproportionate share of its retail spending to neighboring Manhattan and Nassau County.
While not as rich in tourist attractions as Manhattan, the Borough of Queens offers its own array of leisure-oriented sites.

The following table lists selected visitor attractions located in Queens.

FIGURE 5-1 SELECTED QUEENS VISITOR ATTRACTIONS

Attraction	Type	Location	Notes
Queens Botanical Garden	Garden	Flushing	Acres of plantlife including a Japanese Garden
Queens County Farm Museum	Museum	Floral Park	47 acres, including a historic farmhouse, as well as livestock and planting fields
New York Hall of Science	Museum	Queens	225-exhibit, hands-on science center
Louis Armstrong House & Archives	Museum	Flushing	Music, photos, films, instruments, awards
New York City Hall of Fame	Museum	Flushing	Recognizes those that contributed to NYC
The Queens Museum of Art	Museum	Queens	Art exhibits dating from 1850s to present
Isamu Noguchi Foundation, Inc	Museum	Sunnyside	Comprehensive collection of artwork by Isamu Noguchi
King Manor Museum	Museum	Flushing	Historic home in 11-acre park
Alley Pond Environmental Center, Inc	Nature	Douglaston	635 acres of woodlands, meadows, and fresh and salt water marshes
Flushing Town Hall-Concert Hall	Performing Arts	Flushing	340-seat concert hall
Queens Theater in the Park	Performing Arts	Flushing	476-seat theater, 99-seat experimental theater
Black Spectrum Theater	Performing Arts	Jamaica	Theater and films examining issues of concern to African-American youth
Colden Center for the Performing Arts	Performing Arts	Flushing	Auditorium with seating capacity of 2,127, and 489-seat concert hall
Thalia Spanish Theater	Performing Arts	Sunnyside	Produces Spanish zarzuela (operetta)
Shea Stadium	Sports	Flushing	Major League Baseball - home of New York Mets
Equestria, Aqueduct Racetrack	Sports	Queens	Horse race track with 1,600-seat restaurant
USTA National Tennis Center	Sports	Flushing	Home of U.S. Open
Jamaica Center for Arts and Learning, Inc	Visual Arts	Jamaica	Exhibits of local and national artists, workshops
Queens Zoo	Zoo	Flushing	11-acre zoo with North American wildlife

Source: NYC & Company

The hotels included in the historical supply and demand trends in Figure 7-4 below are existing hotels located in Queens County New York City.

FIGURE 7-4 HISTORICAL SUPPLY AND DEMAND TRENDS

Year	Average Daily Room Count	Available Room Nights	Change	Occupied Room Nights	Change	Occupancy	Change	Average Rate	Change	RevPAR	Change
2006	1,934	705,893	—	565,492	—	80.1 %	—	$154.97	—	$124.15	—
2007	1,981	723,065	2.4 %	574,886	1.7 %	79.5	(0.8) %	163.47	5.5 %	129.97	4.7 %
2008	1,983	723,675	0.1	570,040	(0.8)	78.8	(0.9)	162.59	(0.5)	128.07	(1.5)
2009	2,065	753,555	4.1	556,018	(2.5)	73.8	(6.3)	134.56	(17.2)	99.29	(22.5)
2010	2,211	807,015	7.1	621,810	11.8	77.1	4.4	140.32	4.3	108.12	8.9
2011	2,211	807,015	0.0	613,984	(1.3)	76.1	(1.3)	142.73	1.7	108.59	0.4
2012	2,227	812,684	0.7	660,273	7.5	81.2	6.8	147.98	3.7	120.23	10.7
Average Annual Compounded Change:											
2006-2012			2.4 %		2.6 %				(0.8) %		(0.5) %
Year-to-Date Through May											
2012	2,211	333,861	—	239,133	—	71.6 %	—	$133.09	—	$95.32	—
2013	2,387	360,437	8.0 %	288,544	20.7 %	80.1	11.8 %	155.42	16.8 %	124.42	30.5 %

Hotels Included in Sample	Number of Rooms	Year Affiliated	Year Opened	Comments
Courtyard New York La Guardia Airport	288	Nov 1996	Jun 1963	
La Guardia Airport Hotel	229	Apr 2008	Jun 1981	Formerly a Wyndham Garden in 2/98.
Marriott New York La Guardia	438	Nov 1981	Nov 1981	
Holiday Inn Express La Guardia Airport	82	Nov 2008	Jun 1983	11/08 added 10 rooms; 07/12 added 1 room.
La Guardia Plaza Hotel	353	Jan 2011	Sep 1989	Opened as a Crowne Plaza.
Sheraton Hotel La Guardia East	173	Jan 1992	Jan 1992	
Holiday Inn La Guardia Airport	214	Dec 2006	Jul 2001	Opened as a Ramada.
Comfort Inn Flushing	48	Sep 2002	Sep 2002	
Fairfield Inn New York La Guardia Airport Flushing	88	Nov 2005	Nov 2005	Added 2 rooms in 11/12.
Lexington Marco LaGuardia Hotel	81	Jun 2009	Aug 2006	Opened as a Wingate.
Hampton Inn New York La Guardia	220	Sep 2009	Sep 2009	
Springhill Suites New York La Guardia Airport	173	Dec 2012	Dec 2012	
	Total	**2,387**		

Source: STR Global

The Lodging Industry

In the lodging industry, price varies directly, but not proportionately, with demand and inversely, but not proportionately, with supply. Supply is measured by the number of guestrooms available, and demand is measured by the number of rooms occupied; the net effect of supply and demand toward equilibrium results in a prevailing price, or average rate. Smith Travel Research (STR) is an independent research firm that compiles and publishes data on the lodging industry, and this information is routinely used by typical hotel buyers. The 210-room Proposed Four Points Flushing will be located in Flushing, New York. The greater market surrounding the subject property offers a variety of lodging facilities. Of this larger supply set, the subject property competes with a smaller set of hotels based on various factors. These factors may include location, price point, product quality, length of stay (such as an extended-stay focus vs. non-extended-stay focus), room type (all-suite vs. standard), hotel age, or brand, among other factors.

HVS has reviewed these pertinent attributes and established a competitive set based upon this review. STR has compiled historical supply and demand data for a group of hotels considered applicable to this analysis for the proposed subject property. This information is presented in the following table, along with the market-wide occupancy, average rate, and rooms revenue per available room (RevPAR). RevPAR is calculated by multiplying occupancy by average rate and provides an indication of how well rooms revenue is being maximized. A review of the trends in occupancy, average rate, and RevPAR per day of the week over the past three fiscal years provides some insight into the impact that the current economic conditions have had on the competitive lodging market. Considering the subject market's historical performance and potential supply growth, HVS has stabilized the market-wide occupancy at approximately 76% in 2019, when all the proposed new supply is appropriately absorbed into the market.

FOUR POINTS FLUSHING HOTEL'S COMPETITIVE ADVANTAGES AND HIGHLIGHTS

Branding:

In April of 1995, Sheraton Hotels & Resorts introduced Four Points, a mid-scale hotel brand offering a full-service hotel experience at a sensible price. Four Points delivers the amenities and services that today's business and leisure travelers are seeking, with 112 locations (with 17,740 rooms) in North America as of December 31, 2012. The brand provides a comfortable, well-appointed room with a two-line telephone, a large desk for working or in-room dining, and comfortable seating. Four Points locations include a restaurant serving three meals a day, room

service, a fitness center, a swimming pool, meeting space, and on-site catering. In 2012, the Four Points brand in North America achieved an average occupancy level of 70.7%, an average rate of $111.48, and an average RevPAR of $78.76.

FIGURE 4-1 PROPOSED FACILITIES SUMMARY

Guestroom Configuration	Number of Units
King	110
Double/Double	89
ADA King	6
ADA Double/Double	5
Total	210

Food & Beverage Facilities	Seating Capacity
Restaurant, Bar & Lounge	176

Indoor Meeting & Banquet Facilities	Square Footage
Community Facility	17,000
Banquet Hall	2,800
Meeting Room	590
Boardroom	430
Total	20,820

Amenities & Services	
Indoor Swimming Pool	Fitness Room
Guest Laundry Facility	Lobby Workstation
Vending Areas	Gift Shop

Infrastructure	
Parking Spaces	215
Elevators	2 Guest
Life-Safety Systems	Sprinklers, Smoke Detectors

PROJECT HIGHLIGHTS:

- **Close proximity to Manhattan, New York**
- **Proximity to Flushing Main Street, major commercial and residential areas with high concentrations of Chinese and Korean population**
- **Proximity to two major airports in New York City**
- **Four Points by Sheraton, a mid-scale hotel brand offering a full-service hotel experience at a sensible price**
- **Century Construction Group is an established developer is Flushing, NY**
- **210-rooms restaurant and lounge with an indoor pool, a fitness center, a banquet hall, large meeting space**
- **17,000-square-foot community facility space**
- **Lobby workstation, guest laundry facilities, and a gift shop**

COMPETITORS : THEIR STRENGTH AND WEAKNESS

The following residential developments have been identified in the Flushing, NY area similar to Sheraton Four Points at Flushing's proposed plan. This section focus on their strength and weakness compared to the Sheraton Four Points at Flushing project.

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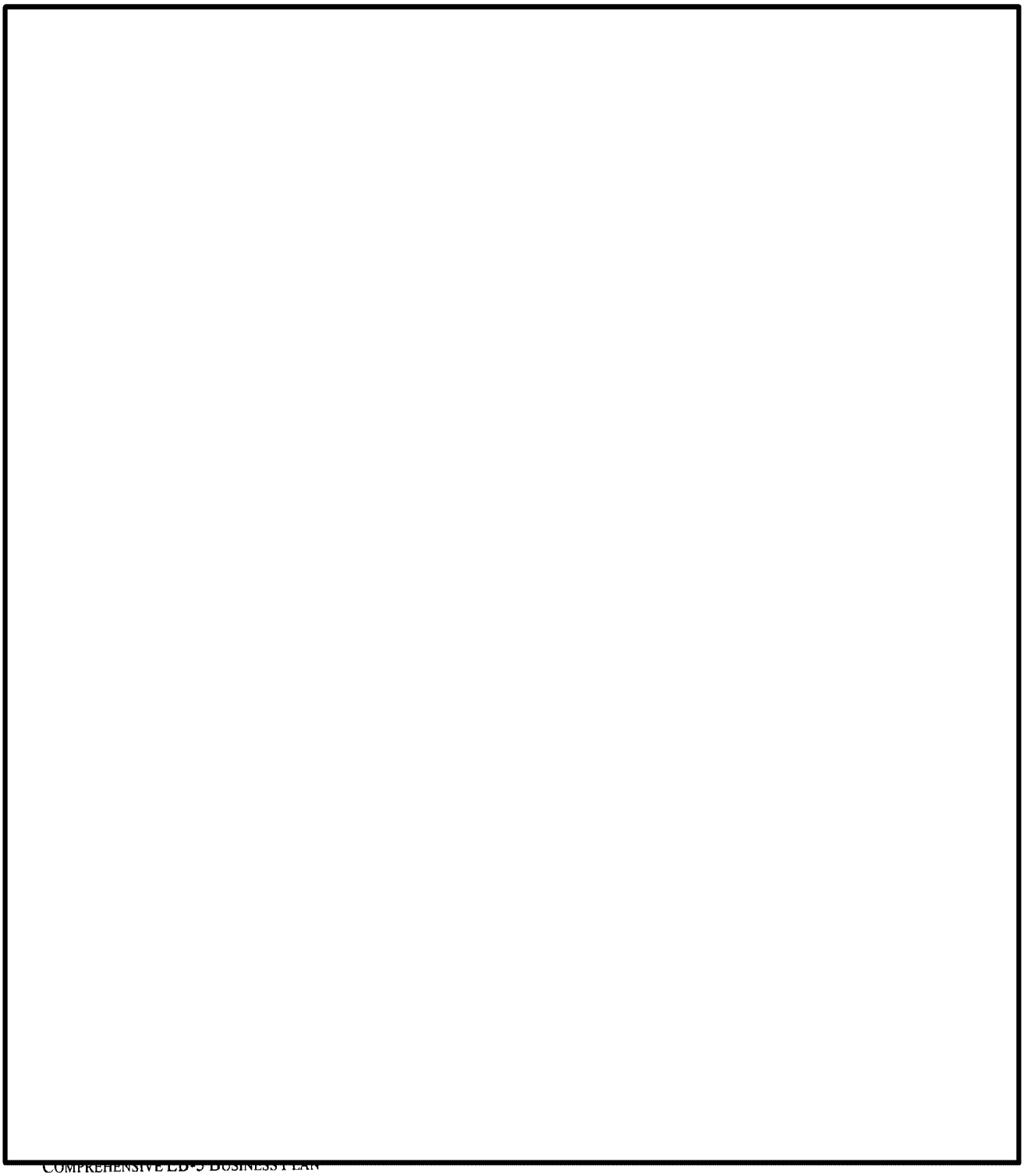

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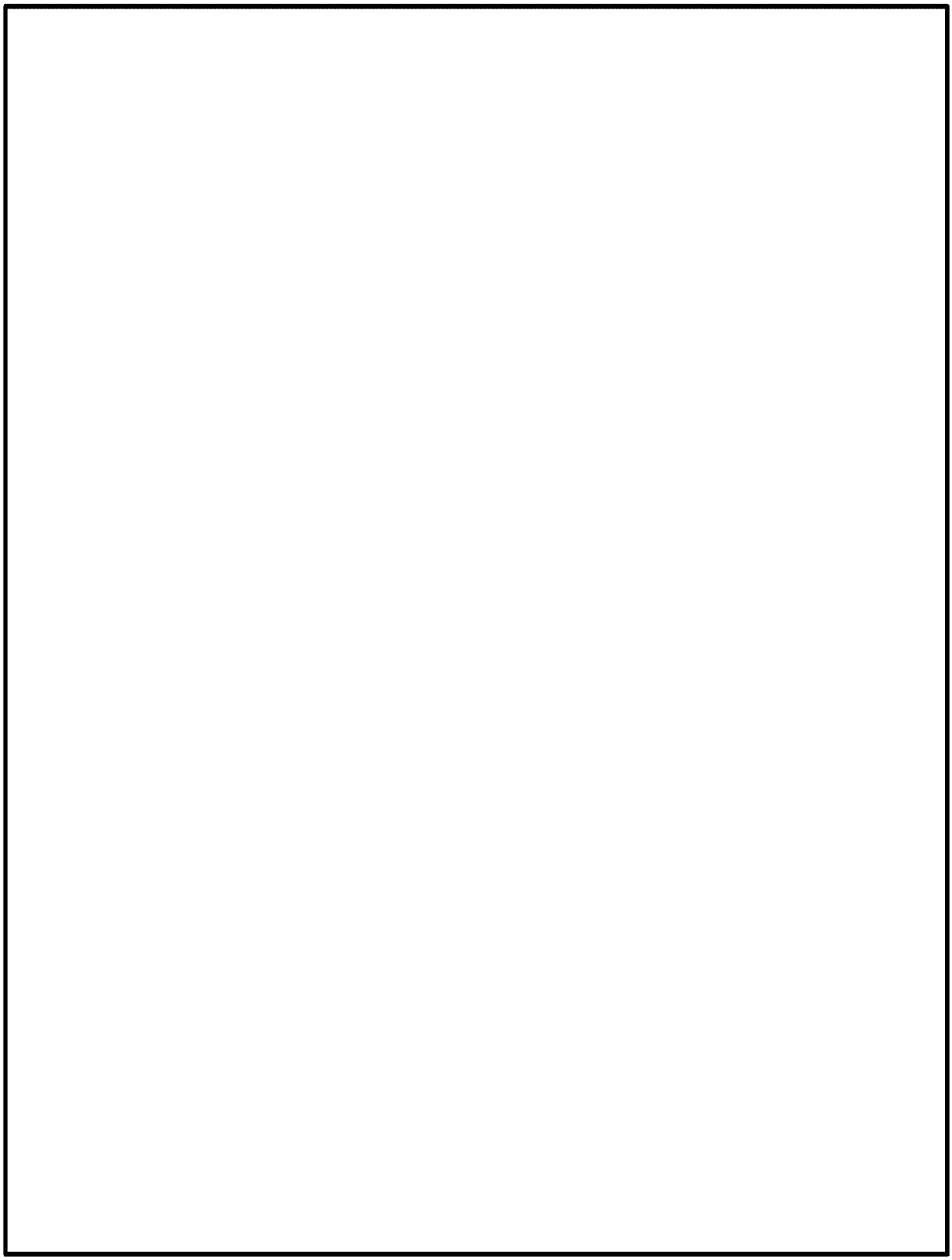

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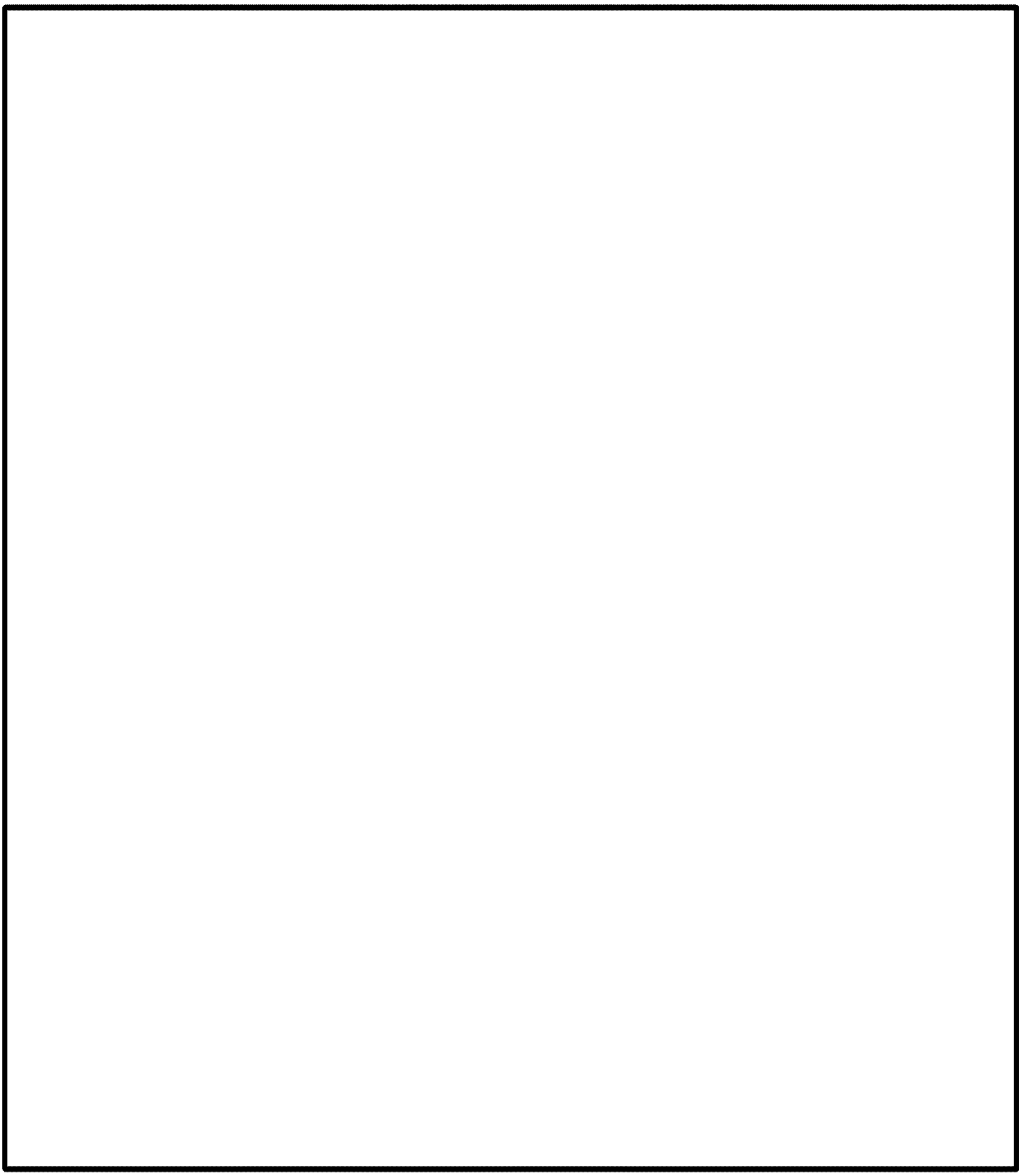

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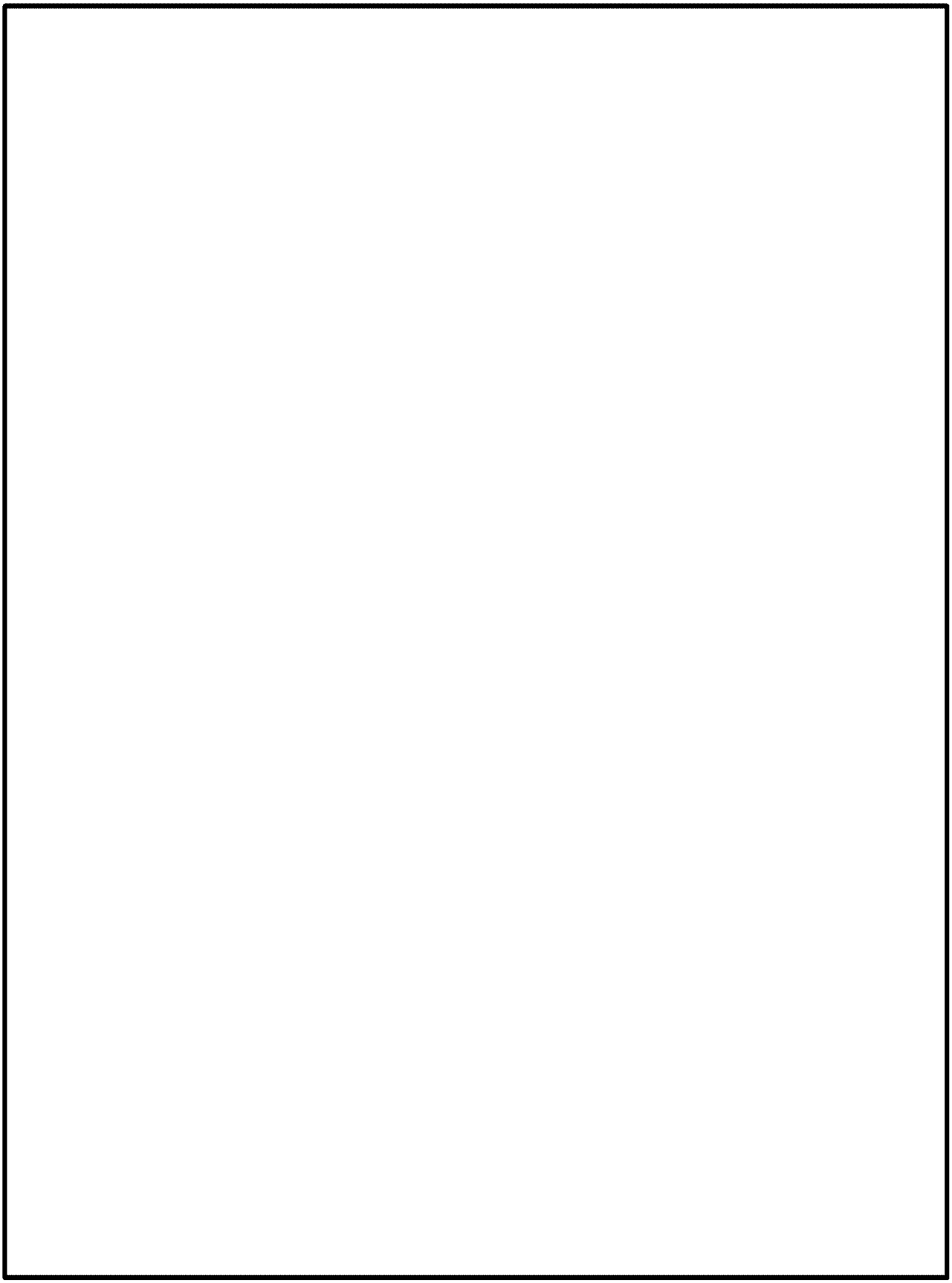

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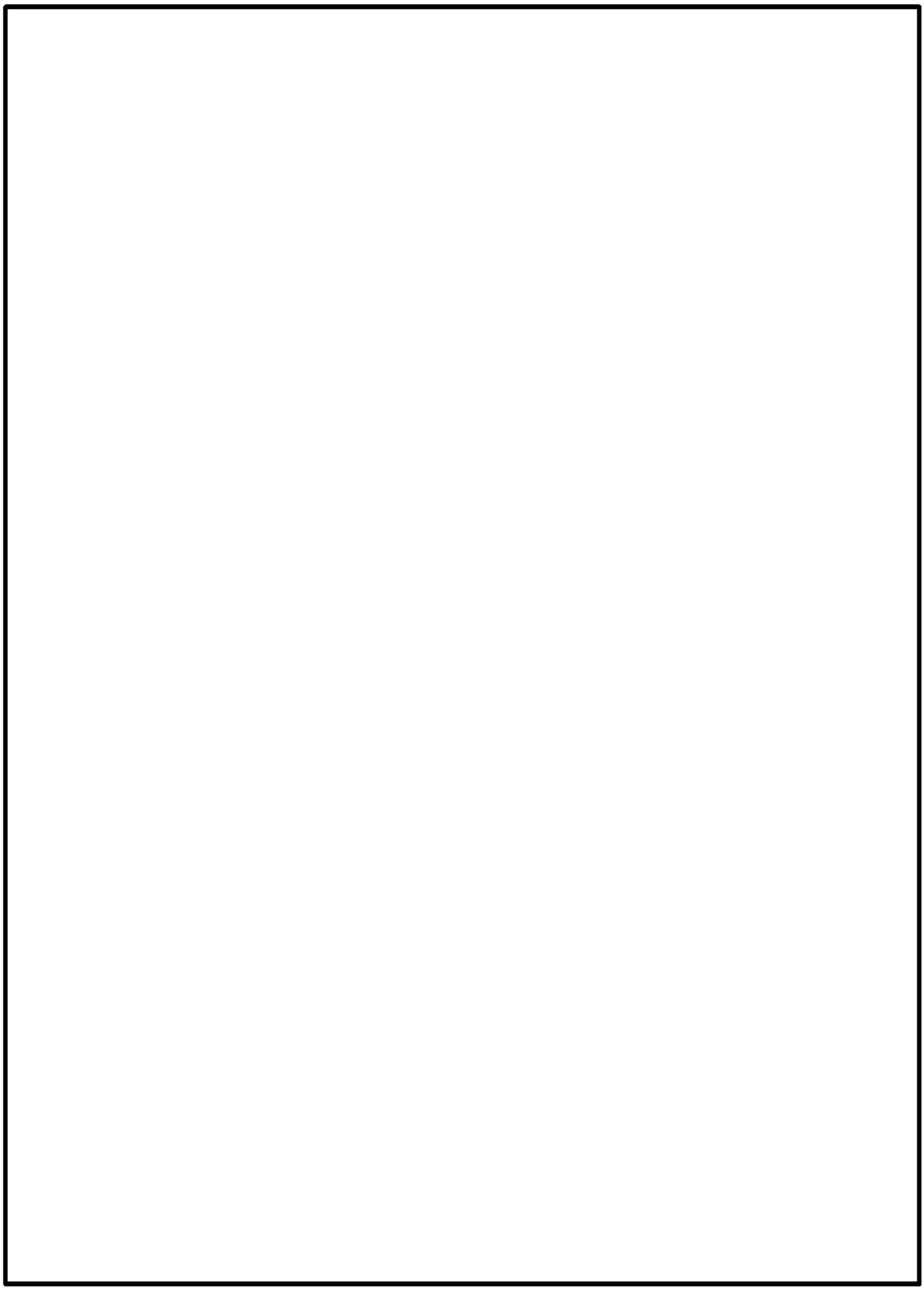

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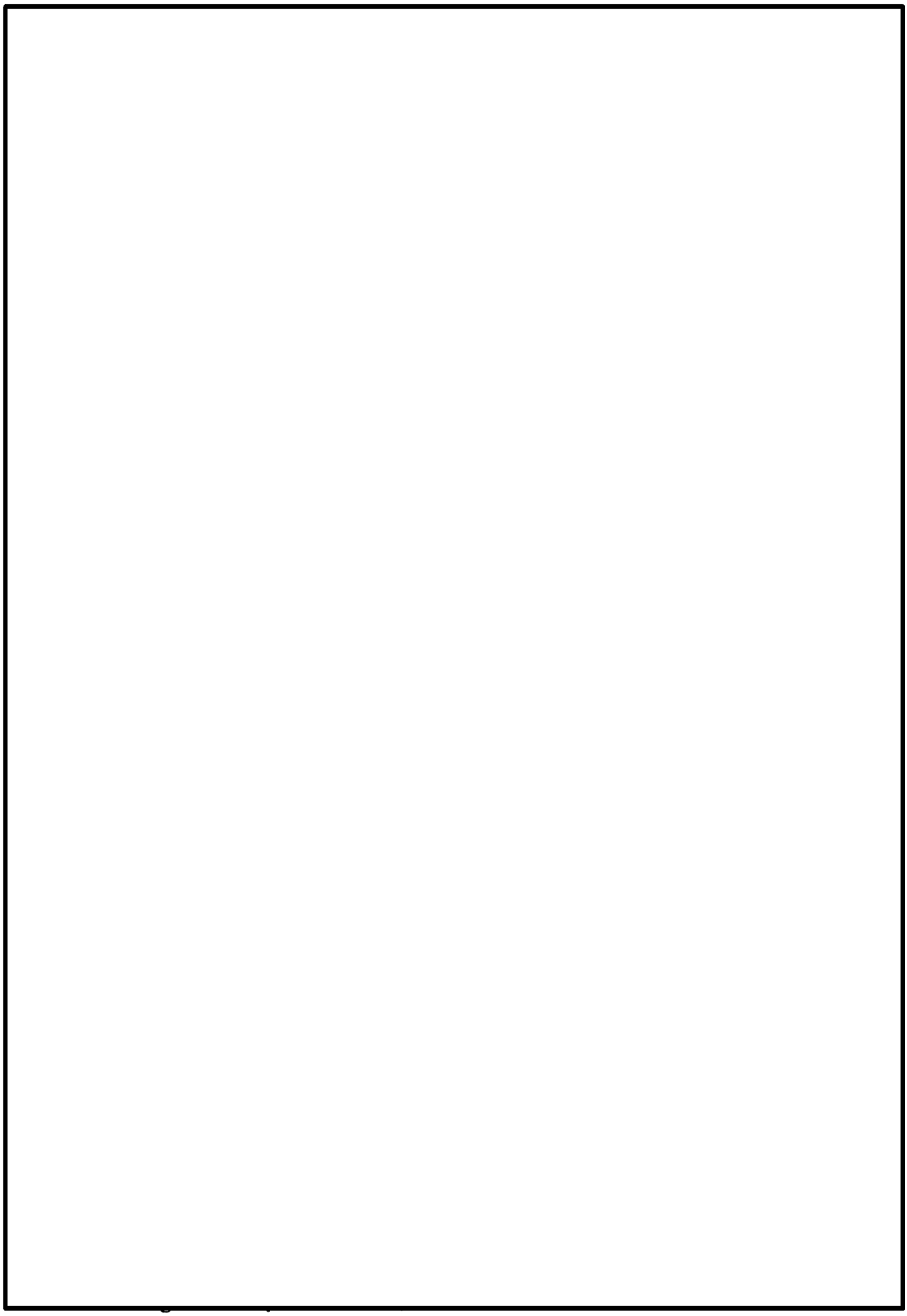

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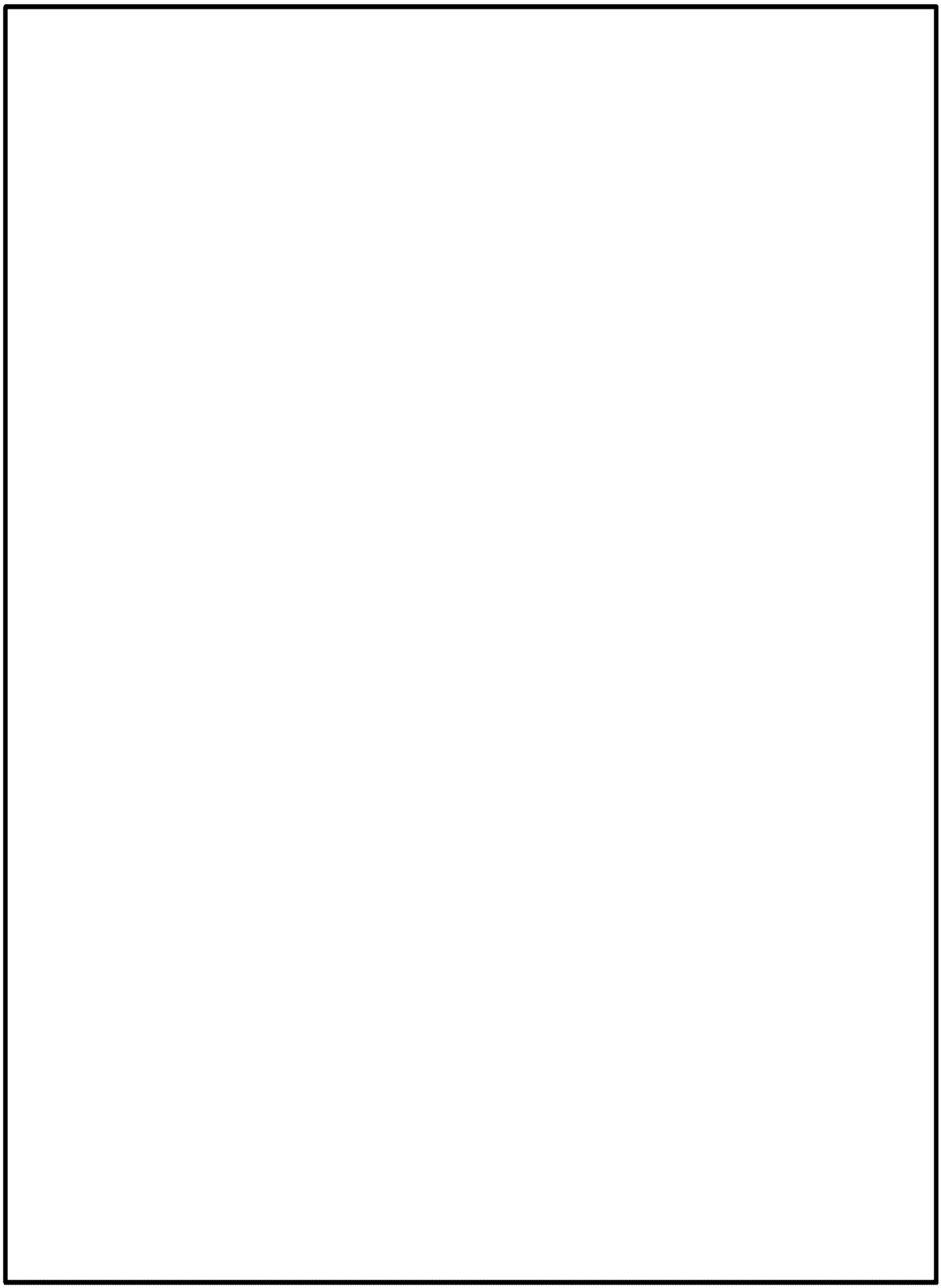

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MARKETING STRATEGY

The Four Point Flushing Hotel & Condominium will offer a well-designed, functional layout of support areas and guestrooms and target at the midmarket. All typical and market-appropriate features and amenities appear to be included in the hotel's design. The building will be fully open and operational on the assumed opening date and will meet all local building codes and brand standards. The hotel staff will be adequately trained to allow for a successful opening and that pre-marketing efforts will have introduced the product to major local accounts at least six months in advance of the opening date.

The project principals own Century Construction Group, an established brand in Flushing, New York. It has successfully completed and marketed similar projects such as Marriot Fairfield Inn., Leavitt Manor Condominium, Farrington Estate, all located in Flushing. The project principals plan to expand its existing midmarket to reach more audience through the Four Points Flushing Hotel project.

The project plans to raise [redacted] from [redacted] EB-5 investors. The hypothetical regional center is expected to be approved within the next 6 months. Meanwhile, the project plans to conduct pre-marketing trips overseas in China and Asia.

(b)(4)

SECTION III: FINANCIAL

VIABILITY OF THE PROJECT; PROJECT FUNDING & CAPITALIZATION EXIT PLAN; INCOME PROJECTIONS & REASONABLE ANALYSIS METHODOLOGY

EXIT PLAN & PROJECT VIABILITY

The loan from Farrington EB-5 Capital, LLC will be paid off in full either through the residential condominium sales, refinancing of hotel, retails and community facility upon stabilization. The project will not be refinanced or sold prior to the adjudication of the I-829 petitions.

The project principal has extensive experience and is confident that the proceeds from either strategy should be more than sufficient to pay off the EB-5 investors in full. However, in the event the above strategy is insufficient to pay off the loan in full, the borrower shall cover the shortfall from its own operating cash flow, or risk foreclosure and loss of its ownership of the Project to the Partnership. This is not a redemption clause. The EB-5 capital is placed "at risk". The developer will make the best efforts that are economically feasible to repay the EB-5 investors.

USE OF CAPITAL

(b)(4)

The Four Point Flushing Hotel's development cost is estimated at [redacted] consisting of hard construction costs approximately [redacted] and [redacted] soft costs. For analysis purposes this equates to a total development budget of [redacted] for 354,000 SF of gross building area including parking decks. This budget includes hard costs, contingencies, financing, pre-opening and other soft costs, but excludes site acquisition.

The JCE Company intends to raise capital to cover the costs using both conventional financing and through business loans by means of a private placement offering to EB-5 investors.

Specifically, the NCE will raise a maximum of [redacted] in EB-5 capital, which will be loaned to the JCE. The Company plans to sell EB5 Membership Units, at $500,000 per unit, to qualified foreign investors seeking to obtain permanent residence in the United States through the EB-5 Visa Program. No additional capital contributions are required.

Contingency Plan:

As necessary, the Farrington Realty, LLC(JCE) may also provide a temporary short-term bridge financing or traditional bank financing through lenders in order to commence construction and create jobs in advance of EB-5 funding.

Sales, Cost, Income, and Investment Projections

Attached below is the five-year pro forma of the proposed Four Point Flushing Hotel.

(b)(4)

Table 4: Annual Operating Income & Expense
Four Points Flushing Hotel, Flushing, NY

				Stabilized						
Year	1	2	3	4	5	6	7	8	9	10
Year Ending	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
No. Of Rooms										
Rooms Sold										
Occupancy										
ADR										
ADR % Change										
RevPAR										
RevPAR % Change										
Revenue										
Rooms										
Food and Beverage										
Other Departments										
Rentals and Other Income										
Total Revenue										
Departmental Expenses										
Rooms										
Food and Beverage										
Other Operating Departments										
Total Expenses										
Departmental Profit										
Undistributed Operating Ex										
G&A										
Marketing										
Franchise Fees										
Repairs & Maintenance										
Utilities										
Total Expenses										
House Profit										
Fixed Expenses										
Management Fee										
Property and Other Taxes										
Insurance										
Other										
Total Fixed Expenses										
EBITDA before FF&E										
FF&E Reserve										
EBITDA after FFE Reserves										
EBITDA Margin										

Sources: HVS Consulting & Valuation Services Division of Hotel Appraisers, LLC

The figures are derived from the revenue estimates, which are based on a careful assessment of market conditions and likely achievable hotel rates and occupancy. Operating costs are based on industry norms. These costs and projections are supported by the independent HVS Market Analysis Report,

The HVS market analysis report for the competitive set in the project's market is provided at **Exhibit 4.**

Attached below is the Forecasted Occupancy Rate of the Four Point Flushing Hotel:

FORECAST OF SUBJECT PROPERTY'S OCCUPANCY

Market Segment	2017	2018	2019	2020
Commercial				
Demand				
Market Share				
Capture				
Penetration				
Group				
Demand				
Market Share				
Capture				
Penetration				
Leisure				
Demand				
Market Share				
Capture				
Penetration				
Total Room Nights Captured				
Available Room Nights				
Subject Occupancy				
Marketwide Available Room Nights				
Fair Share				
Marketwide Occupied Room Nights				
Market Share				
Marketwide Occupancy				
Total Penetration				

(b)(4)

It is to be noted that the first year of operations does not reflect anticipated long-term performance of the hotel project. It only reflects the initial operations from the time the hotel first opens with little business, as it builds to full staffing complement, begins to work "the kinks" out of operations, gets marketing efforts underway and allows time for them to get traction, and builds the market image and place for the hotel. Based on operating history and market performance (with inflation adjustment), it is conservatively estimated that stabilization will occur in year 3 by 2017 with an annual occupancy of 72%. The term "stabilization" properly reflects the industry experience over most of the past century that after this initial ramp up, the hotel reaches a stabilized level that will be maintained during its 20 to 30 year economic lifespan.

FINANCIAL PROJECTIONS AND ANALYSIS METHODOLOGY

The financial projection data of the project is provided by independent studies HVS Group. In order to examine the job creation based on the projections, the following analysis methodologies

are considered: (1) reviewing Four Point Flushing's projected operational pro forma; (2) estimating the portion of that budget which would represent labor costs; (3) verifying the estimate for reasonableness by against the corresponding direct effects employment creation multipliers.

The Four Point Flushing's forecasted market share and occupancy levels are based upon its anticipated competitive position within the market, as quantified by its penetration rate. The penetration rate is the ratio of a property's market share to its fair share.

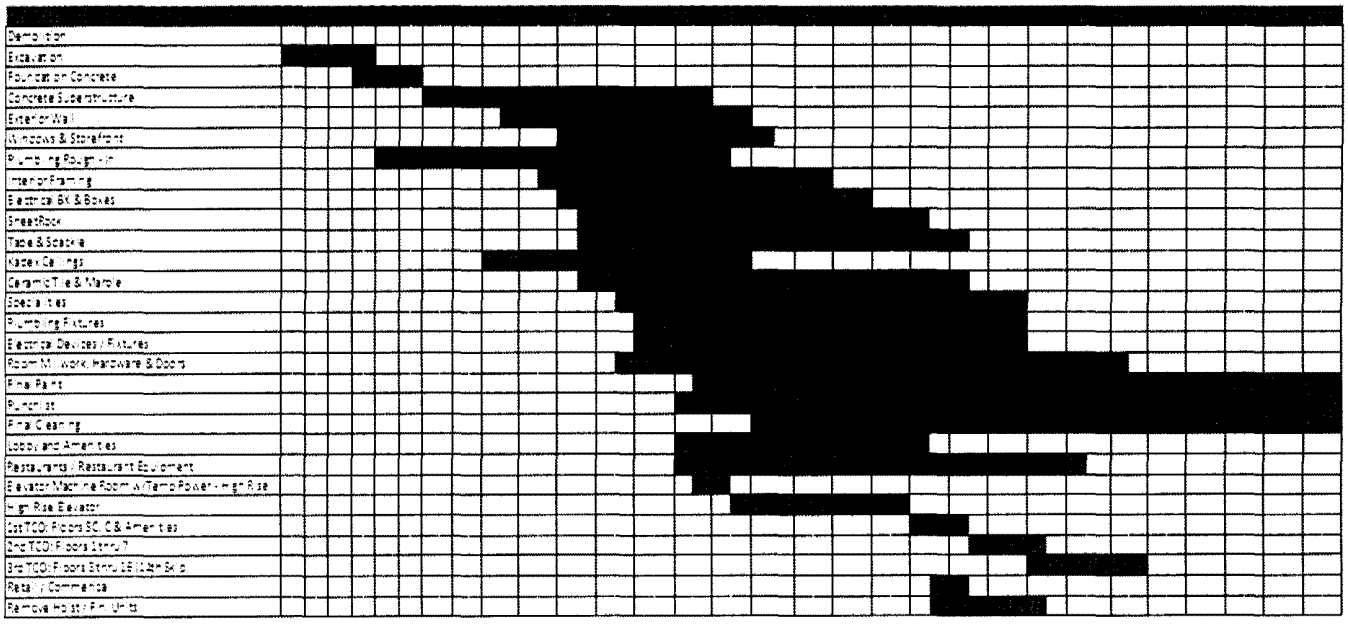
The projections, demand capture, and occupancy performance for the Four Point Flushing Hotel for these types of adjustments to market share within the defined competitive market. Consequently, the actual penetration factors applicable to the project and its competitors for each market segment in each projection year may vary from the penetration factors set out by the industry standards.

SECTION IV: CONSTRUCTION / PERMITS AND LICENSES

A. PARTICULARS OF THE CONSTRUCTION PHASES

Please refer to the timeline for the construction attached at **Exhibit 3.**
(Snap shot below)

This detailed construction timeline was produced by **Century Construction Group,** the General Contractors for the construction. The General Construction Verification Letter dated May 16, 2014 can be found at **Exhibit 3.**



Snapshot of the Construction Timeline

The construction of the Four Points Flushing Hotel & Condominium project will take approximately 30-months to complete. The submitted schedule at **Exhibit 3.** The project location is demolished in early 2014. The building is currently scheduled to start excavation soon.

The developer obtained all necessary permit and licenses in demolition, and is scheduled to obtain the permit and licenses for construction and development of the project. The actual

construction is expected to start at the end of 2014, and it is anticipated to be completed by mid-2017.

The timeline provides the particulars of the various phases of the construction over a period of project months from the commencement of the construction. For example, the early months will consist of the excavation and necessary foundation work. The Shoring of Excavation is expected to take 4 months, the construction timeline describes that concrete will be poured into concrete slabs for the individual floors. At this time, the construction of the hotel has made considerable headway. The construction timeline above provides the particulars of multiple phases of the construction over a period of 30 months from the commencement of the construction.

THE CONSTRUCTION BUDGET & TIMELINE

Table 1: Estimated Total Development Budget
Four Points Sheraton/Luxury Condo Development, Flushing, NY

Line Item	Total Cost	Cost/SF SF	Cost/SF Room	% of Total
Site Acquisition				
Hard Costs				
Carpentry				
Metals				
Masonry				
Concrete				
Site Work				
Weatherproofing				
Doors & Windows				
Elevators				
Mechanical, Electrical & HVAC				
Finishes				
Specialties				
General Conditions				
FF&E				
Subtotal: Hard Costs				
Financing & Soft Costs				
Building Permits, Taxes, Connection & Impact Fees				
Property Taxes During Construction				
Architectural, Engineering & Environmental				
Insurance				
Market Study/Appraisal				
Recording Fees				
Accounting				
Legal/Title				
Financing/Lenders Fees/Construction Bonds				
Construction Interest Reserve				
Brokerage Commissions				
Contingency				
Subtotal: Financing & Soft Costs				
Total Development Budget				

(b)(4)

Sources: Farrington Realty, LLC; HVS Consulting & Valuation Services Division of Hotel Appraisals, LLC and Bleakly Advisory Group, Inc.

(b)(4)

The Four Points Flushing Hotel hard construction costs prepared by ***Century Construction Group*** have been estimated to be [redacted] and the estimated time to complete the construction will be within **30 months**.

(i) **Analysis Method of the Construction Timeline and Costs**

The construction timeline is estimated to be 30 months excluding the time to demolish the existing structure. The construction budget for the project is estimated at [redacted] The hotel (b)(4)
will include 210 guest rooms/suites, offering a restaurant, bar and lounge, an indoor pool, fitness center, conference rooms, and a 1,025 SF retail/gift shop space located in the lobby area. The construction of the Project will take approximately 30-months to complete. The construction budget was estimated by **Century Construction Group** This was based on their previous experience of projects similar in size and nature and scope. [1]

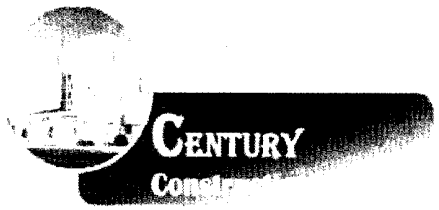
Century Construction Group has worked in the construction industry for twenty (20) years and have supervised, managed and/or constructed similar projects to Four Point Flushing Hotel & Condomium. Century's experience includes hospitality, commercial interior and residential projects, such as Marriot Fairfield Inn, Leavitt Manor Condominium, Whitestone Tower Condominium all located in Flushing.

(ii) **Mr. George Xu is an Expert in the Field.**

Mr. George Xu is also the owner of the Four Point Flushing Hotel & Condominium project and the owner of the proposed Century New York City Regional Center. He is the founder and President of Century Development Group, a real estate development company. With over 20 years of real estate holding and development experience, he has worked on over a million of square feet of real estate developments; mixed-use developments including residential, hospitality, office, retail, and in all phases of assembly, acquisition, finance, design, construction, marketing and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters. Mr. Xu provides marketing oversight and policy guidance for the Century New York City Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and a Master of Science degree in Computer Science from Polytechnic University, New York.

[1] Please see Exhibit 3 – Verification Letter and supporting documents.

Please see the snapshot of the verification letter below.



May 16, 2014

Attention: EB 5 Unit
U.S. Citizenship and Immigration Services
California Service Center
Department of Homeland Security
24000, Avila Road, Room 2312
Laguna Niguel, CA 92677

Re: Four Points Sheraton / Luxury Condo Development
134-37 35th Avenue, Flushing NY 11354

Dear CSC EB-5 Unit Officer:

Century Construction Group was hired by Farrington Realty LLC as the general contractor on the above-referenced Project. I am the president of Century Construction Group and have worked in the construction industry for twenty years and have supervised, managed and/or constructed. My experience includes hospitality, commercial interior and residential projects. I have constructed similar projects to the proposed Four Points Sheraton in term of size, budgets and timeline. Such as Marriot Fairfield Inn, Leavitt Manor Condominium, Farrington Estate all located in Flushing. I have been asked by Farrington Realty, LLC to provide you with some information concerning the Project in connection with certain funding obtained by EB-5

(b)(4)

Century Construction Group has advised that construction estimate cost would be [redacted] The construction timeline is 30 months. This mixed used building consists of luxury condominium, hotel, commercial retail, community facility/medical offices, and parking garage. The Four Points Sheraton will provide 210 keys and 101 Luxury Condo. The project is scheduled to start in beginning of August 2014. I attest that the construction budgets and timeline are estimated based on established industry standards

Very Truly Yours,

George Xu
President

35-06 Leavitt St., Suite CF-A Flushing, NY 11354
Tel: (718) 939-1060 Fax: (718) 939-1036

(iii) **Satisfactory Compliance with *Matter of Ho*:**

Mr. George Xu has the appropriate qualifications that validate his position as an expert in the field, he is therefore in a position to be an authority on the construction budget and timeline.

In addition, George Xu's statement satisfactorily complies with the *Matter of Ho* in terms of comparison studies of the business described. On page 9 of the *Matter of Ho*, the submitted documents shall contain *"a comparison of competition's products."* And *"set forth the business' organizational structure and its personnel's experience*". The letter and professional profile includes Mr. George Xu's previous experience and construction timeline and the attached documentation for Century Construction Group verifies their ability to accurately assess the construction budget based on the comparison studies of similar projects in similar locations.

PERMITS AND LICENSES

In New York City the construction is "as of-right" development which complies with all applicable zoning regulations and does not require any discretionary action (special permit or variance) by the City Planning Commission or Board of Standards and Appeals for approval. Assuming that the project complies with all other Code and Zoning regulations, the NYC Department of Buildings Plan Examiner Plan Examiner will approve the Plans, further to the architect's construction detailed blueprints and renditions.

It is not necessary for the project to seek the additional approvals of the City Planning Commission, or of the Local Community Board, or of any other outside party of interest. If the project complies with the applicable Zoning Laws currently in force, the developer is entitled to build. Therefore building permits are only valid for a limited amount of time and the project will apply for the relevant permits prior to the commencement of the construction activities.

Below are **Sample Permits for Century Construction Group's Previous Projects.**

6/27/14 Work Permit Data

NYC Buildings

CLICK HERE TO SIGN UP FOR BUILDINGS NEWS

NYC Department of Buildings

Work Permit Data

Premises: 137-08 31 ROAD QUEENS **Filed At: 137-08 31 ROAD QUEENS**

BIN: 4537661 Block: 4410 Lot: 7503 **Job Type: NB - NEW BUILDING**

View Permit History

Job No:	402279823			**Fee:**	STANDARD
Permit No:	402279823-01-NB	**Issued:**	09/04/2008	**Expires:**	09/02/2009
Seq. No.:	04	**Filing Date:**	09/04/2008 RENEWAL	**Status:**	ISSUED
Work:		**Proposed Job Start:**	02/21/2006	**Work Approved:**	01/26/2006

NEW BUILDING -

Related fence job no.: 402279823

Use: J-2 - RESIDENTIAL APT HOUSE **Landmark:** NO **Stories:** 7

Site Fill: ON-SITE

Review is requested under Building Code: 1968

Issued to: JIASHU XU **GC SAFETY REGISTRATION:** 0027315-GC

Business: C & G CONSTR GROUP CORP CORP. **Phone:** 718-321-8652
134-03 35TH AVE FLUSHING NY 11354

Filing Representative: HUIJIANG LUO

Business: MICHAEL KANG ARCHITECT, PLLC **Phone:** 718-353-2929
37-01 MAIN STREET, SUITE 3A FLUSHING NY 11354

Superintendent of Construction: JEFF LIU **Registration No:** 0022982

Business: UNITED CONSTRUCTION & DEV **Phone:** 718-321-8652
134-03 35TH AVENUE FLUSHING NY 11354

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

NYC Buildings

CLICK HERE TO SIGN UP FOR BUILDINGS NEWS

NYC Department of Buildings

Work Permit Data

Premises: 137-08 31 ROAD QUEENS
BIN: 4537661 **Block:** 4410 **Lot:** 7503

Filed At: 137-08 31 ROAD QUEENS
Job Type: NB - NEW BUILDING

View Permit History

Job No:	402279823			**Fee:**	STANDARD
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Seq. No.:	04	**Filing Date:**	09/04/2008 RENEWAL	**Status:**	ISSUED
Work:		**Proposed Job Start:**	02/21/2006	**Work Approved:**	01/26/2006

NEW BUILDING -

Related fence job no.: 402279823
Use: J-2 - RESIDENTIAL APT HOUSE **Landmark:** NO **Stories:** 7
Site Fill: ON-SITE
Review is requested under Building Code: 1968

Issued to: JIASHU XU
GC SAFETY REGISTRATION: 0027315-GC

Business: C & G CONSTR GROUP CORP CORP
134-03 35TH AVE FLUSHING NY 11354 **Phone:** 718-321-8652

Filing Represntative: HUIJIANG LUO
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If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

NYC Buildings

CLICK HERE TO SIGN UP FOR BUILDINGS NEWS

NYC Department of Buildings

Work Permit Data

Premises: 28-66 COLLEGE POINT BOULEVARD QUEENS **Filed At:** 28-66 COLLEGE POINT BOULEVARD QUEENS

BIN: 4570029 **Block:** 4322 **Lot:** 1 **Job Type:** NB - NEW BUILDING

View Permit History

Job No:	401600754			**Fee:**	STANDARD
Permit No:	401600754-01-NB	**Issued:**	08/25/2004	**Expires:**	09/02/2005
Seq. No.:	03	**Filing Date:**	08/25/2004 RENEWAL	**Status:**	ISSUED
Work:		**Proposed Job Start:**	04/29/2003	**Work Approved:**	03/24/2003

NEW BUILDING -

Use: J-1 - RESIDENTIAL (HOTELS) **Landmark:** NO **Stories:** 0

Site Fill: OFF-SITE

Review is requested under Building Code: 1968

Issued to: JIASHU XU

GC SAFETY REGISTRATION: 0027315-GC

Business: C&G CONSTRUCTION GROUP CORP
134-03 35TH ST FLUSHING NY 11354 **Phone:** 718-321-8652

Filing Represntative: GWEN SMITH
Business: GWEN SMITH EXPEDITING **Phone:** 646-773-1790
118-09 197TH ST ST ALBANS NY 11412

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

SECTION V: EMPLOYMENT AND JOB CREATION

(b)(4)

Based on the EB-5 Economic Impact Studies conducted by Bleakly Advisory Group, the Four Point Flushing Hotel will create [redacted] jobs, including [redacted] jobs from direct and indirect from construction employment, [redacted] direct jobs from operation, and [redacted] indirect jobs from operation. The project intends to raise [redacted] from [redacted] EB-5 investors.

The project is a mixed-use development. It is complex in terms of estimating its job creation effects. From permanent operations, impacts to final demand include the hotel, a real estate management entity that will lease commercial space, manage the condominium association and parking garage, plus the business operations of retail tenants. The issue of how the community center/space will be operated and whether income projections from that facility will be sufficient to support permanent employment are discussed in the Economic Impact Studies. In addition, the tenant-created employment is not included in the total calculation of the EB-5 capital raise.

The operational direct jobs are listed as follows:

Direct Employees from Hotel Operation			
	Position	Employees Needed	Weeks to Open
	Management		
1	General Manager		
2	Assistant General Manager		
3	Controller		
4	Assistant Controller		
5	Guest Service Manager		
6	Guest Service Supervisor		
7	Executive Housekeeper		
8	Housekeeping Supervisor		
9	Chief Engineer		
10	Director of Sales		
11	Sales Coordnator		
	Total		
	Position	Employees Needed	Days Paid Till Open
	Line Level		
1	Guest Service Agent		
2	Night Auditor		
3	Breakfast Attendant		
4	Room Attendant		
5	Houseman		
6	Maintencance Tech		
7	Parking Valets		
8	Food Service		
	Total		

(b)(4)

CONSTRUCTION AND OPERATION IMPACTS

Construction Impacts

Revised construction costs as provided by the Client are itemized. Please see the Economic Studies for details. Approximately 88% of the project's development budget can be claimed as having an economic impact to the Region. The adjustment was made by excluding debt service reserves, property taxes during construction and a portion of the estimated financing costs.

Annual Operations Impacts (b)(4)

Projected Year 3 operating revenues total [redacted] and represent an impact to final demand. It can be assumed that in the range of [redacted] of these annual operating costs for the hotel represent personnel/labor costs.

After adjusting for inflation (back to 2010), the resulting stabilized year impact to final demand totals [redacted] For purposes of using RIMS II, the studies separated food service operations from the hotel. Approximately [redacted] of this direct output was allocated to the "Hotels and Motels, including casino hotels" industry sector and the balance of [redacted] was allocated to food services and drinking places. In addition the project will generate income as a real estate investment from rents, operations of the proposed "community space" and management of the parking garage. We initially estimate that potential lease income at [redacted] when discounted to 2010$. As shown in the following table, inflation-adjusted stabilized year revenues support [redacted] jobs including direct, indirect and induced effects. This estimate is higher than previously estimated from the hotel alone.

To sum up, the Four Point Flushing Hotel will create [redacted] jobs, including [redacted] jobs from direct and indirect from construction employment, [redacted] direct jobs from operation, [redacted] indirect jobs from operation. The project intends to raise [redacted] from [redacted] EB-5 investors.

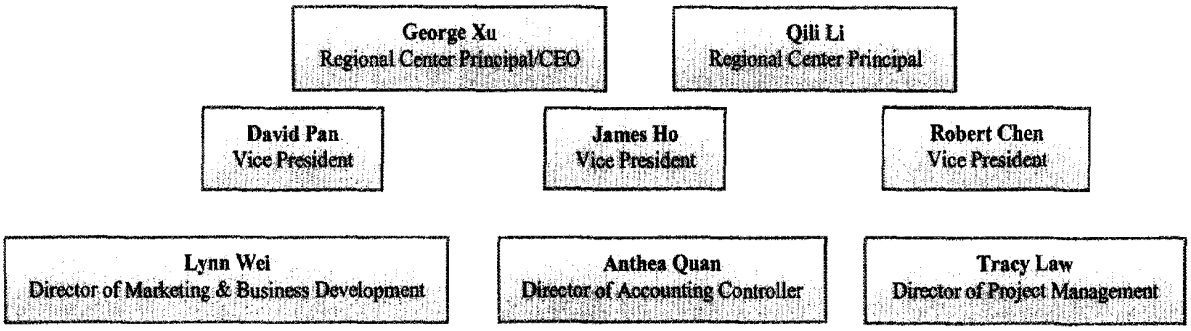
EB-5 Summary		
Direct Construction Employment	[redacted]	Construction period > 2 years allows direct jobs for construction hard costs
Indirect Construction Employment		Indirect effects across all industry sectors during the construction period
Direct Permanent (Net gain)		Direct FTE jobs from annual hotel operations at stabilized occupancy
Indirect Permanent (Net gain)		Indirect jobs supported by annual operations
Total		EB-5 credited jobs created (indirect construction + direct FTE + indirect employment + tenants)
Ratio of 10 Jobs		Units
pe		nvested (Assumes project is located in a Targeted Employment Area)
		Total Potential EB-5 Equity Capital

(b)(4)

SECTION VI: MANAGEMENT AND CORPORATE STRUCTURE

The business organizational structure and personnel experiences are as follows:

Business' organizational structure and its personnel's experience



George Xu, CEO/Regional Center Principal

Mr. George Xu is the founder and the principle of the Century New York City Regional Center ("CNYCRC"). Mr. Xu is also the founder and President of Century Development Group, a real estate development company. With over 16 years of real estate holding and development experience, he has worked on over a million of square feet of real estate developments; mixed-use developments including residential, hospitality, office, retail, and in all phases of assembly, acquisition, finance, design, construction, marketing and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters. Mr. Xu provides marketing oversight and policy guidance for the Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and a Master of Science degree in Computer Science from Polytechnic University, New York.

Qili Li, MD, Regional Center Principal

In private practice for more than 14 years specializing in the field of Obstetrics and Gynecology in downtown Flushing, Queens County, New York City. Dr. Li attended the Sophie Davis School of Biomedical Education were She graduated with Magna Cum Laude with honors. She received her Medical Doctor degree from New York Medical College. She completed her internship and residency training in Obstetrics/Gynecology at North Shore University Hospital at Manhasset, New York. She is board certified in the specialty of Obstetrics/Gynecology. She is a fellow of the American College of Obstetrics/Gyneoclogy (ACOG). In recent years, like many of her colleagues, Dr. Li has expanded her interest/investment in real estate. She is currently involved in several real estate development projects ranging from high end condominium to hotel construction.

James Ho, Vice President

Mr. James Ho graduated from Polytechnic University majoring in Electrical Engineering and Computer Science. Mr. Ho has seven years of experience in computer programming and twelve years in securities trading and security related business. Currently he is involved in real estate development of three projects in New York City area. Mr. Ho's role in the CNYCRC is to provide oversight of operations, maintain cohesion between a project's developer, general contractor, law and accounting firms, and to ensure overall compliance.

Robert Chen, Vice President

Mr. Robert Chen oversees the overall operations of the Regional Center. He's also in charge of due diligence and evaluating potential projects and determines business feasibilities. Prior to join CNYCRC, Mr. Chen has over 10 years' experience in senior manager position with FedEx. He has owned, managed and operated companies in computer wholesale and repair business. Mr. Chen received his Bachelor of Science degree in Environmental Health Science from City University of New York.

David Pan, Vice President

Mr. David Pan has over 15 years of experience in fixed-income securities trading and risk management, having worked in various roles at Credit Suisse, Citigroup, Deutsche Bank and the hedge fund industry. Formerly a Director at Credit Suisse in the Strategic Risk Management division covering Residential Mortgage Backed Security (RMBS) business where he was instrumental in developing models and methodologies in assessing the firm's risk exposure to the mortgage security market. Prior to his Wall Street career, Mr. Pan spent 10 years as a senior software engineer responsible for the development of the state-of-the-art fixed-income security trading and analytics software systems. He graduated with a Bachelor's degree in Computer Science from Queens College, City University of New York.

Anthea Quan, Accounting Controller

She is responsible for the accounting, financial reporting and audit functions. Also performs management of operating cash flow, financial analysis, obtaining financial for development projects and investor distribution. She is passionate about accounting and has experience working with a variety of small business. Ms. Quan graduated from Yanbian University in China with a bachelor of mathematics. She is fluent in Chinese, English and Korean, resides in New York with her husband.

Tracy Law, Director of Project Management

Ms. Tracy Law is responsible for a full spectrum on operations to ensure that projects are done on time and on budget. Her constant communication with contractors and architects provides a strong network of relationships in the field. She is responsible for supervising and coordinating OS&E and FF&E. She is integral in bringing new hotels to opening. Ms. Law graduated with a Bachelor of Science degree in Accounting from Queens College, City College of New York.

Lynn Wei, Director of Marketing and Business Development

Ms. Lynn Wei is responsible for a full spectrum of business development initiatives including creating and overseeing international marketing strategies for all CNYCRC project offerings. She is also involved in managing client relations. Ms. Wei is also a senior business development associate at the Century Development Group. In this capacity, she focused on creating Request

for Proposals and general marketing materials, as well as developing a customer analytical database, and implementing strategic marketing and communication initiatives. Ms. Wei graduated with a Master of Science degree in Economics from Brooklyn College, City University of New York and a Bachelor of Administrative Degree in Marketing from Shanghai Finance University.

N.Y.S. DEPARTMENT OF STATE
DIVISION OF CORPORATIONS AND STATE RECORDS ALBANY, NY 12231-0001

ONLINE FILING RECEIPT

ENTITY NAME: FARRINGTON EB-5 CAPITAL, LLC

DOCUMENT TYPE: ARTICLES OF ORGANIZATION (DOM. LLC) COUNTY: QUEE

FILED:03/31/2014 DURATION:********** CASH#:140331010091 FILE#:140331010091
DOS ID:4553429

FILER:	EXIST DATE
SERVICO INC. 283 WASHINGTON AVE. ALBANY, NY 12206	03/31/2014

ADDRESS FOR PROCESS:
THE LIMITED LIABILITY COMPANY
35-06 LEAVITT STREET
SUITE CF-A
FLUSHING, NY 11354

REGISTERED AGENT:

The limited liability company is required to file a Biennial Statement with the Department of State every two years pursuant to Limited Liability Company Law Section 301. Notification that the Biennial Statement is due will only be made via email. Please go to www.email.ebiennial.dos.ny.gov to provide an email address to receive an email notification when the Biennial Statement is due.

SERVICE COMPANY: SERVICO, INC.-35
SERVICE CODE: 35

FEE:	200.00	PAYMENTS	200.00
FILING:	200.00	CHARGE	0.00
TAX:	0.00	DRAWDOWN	200.00
PLAIN COPY:	0.00		
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DOS-1025 (04/2007)

Authentication Number: 1403310095 To verify the authenticity of this document you may access the Division of Corporation's Document Authentication Website at http://ecorp.dos.ny.gov

ACKNOWLEDGEMENT COPY

ARTICLES OF ORGANIZATION
OF
FARRINGTON EB-5 CAPITAL, LLC

Under Section 203 of the Limited Liability Company Law

THE UNDERSIGNED, being a natural person of at least eighteen (18) years of age, and acting as the organizer of the limited liability company hereby being formed under Section 203 of the Limited Liability Company Law of the State of New York certifies that:

FIRST: The name of the limited liability company is:

FARRINGTON EB-5 CAPITAL, LLC

SECOND: To engage in any lawful act or activity within the purposes for which limited liability companies may be organized pursuant to Limited Liability Company Law provided that the limited liability company is not formed to engage in any act or activity requiring the consent or approval of any state official, department, board, agency, or other body without such consent or approval first being obtained.

THIRD: The county, within this state, in which the office of the limited liability company is to be located is QUEENS.

FOURTH: The Secretary of State is designated as agent of the limited liability company upon whom process against it may be served. The address within or without this state to which the Secretary of State shall mail a copy of any process against the limited liability company served upon him or her is:

THE LIMITED LIABILITY COMPANY
35-06 LEAVITT STREET
SUITE CF-A
FLUSHING, NY 11354

FIFTH: The limited liability company is to be managed by: ONE OR MORE MEMBERS.

SIXTH: The limited liability company shall defend, indemnify and hold harmless all members, managers, and former members and managers of the limited liability company against expenses (including attorney's fees, judgments, fines, and amounts paid in settlement) incurred in connection with any claims, causes of action, demands, damages, liabilities of the limited liability company, and any pending or threatened action, suit, or proceeding. Such indemnification shall be made to the fullest extent permitted by the laws of the State of New York, provided that such acts or omissions which gives rise to the cause of action or proceedings occurred while the Member or Manager was in performance of his or her duties for the limited liability company and was not as a result of his or her fraud, gross negligence, willful misconduct or a wrongful taking. The indemnification provided herein shall inure to the benefit of successors, assigns, heirs, executors, and the administrators of any such person.

I certify that I have read the above statements, I am authorized to sign these Articles of Organization, that the above statements are true and correct to the best of my knowledge and belief and that my signature typed below constitutes my signature.

SCOTT J SCHUSTER, ORGANIZER (signature)

SCOTT J SCHUSTER , ORGANIZER
283 WASHINGTON AVE.
ALBANY, NY 12206

Filed by:
SERVICO INC.
283 WASHINGTON AVE.
ALBANY, NY 12206

SERVICO, INC. (35)
DRAWDOWN
CUSTOMER REF# 53262

ACKNOWLEDGEMENT COPY

WAIVER OF NOTICE OF ORGANIZATION MEETING

OF

FARRINGTON EB-5 CAPITAL, LLC

I, The undersigned, being the Sole Organizer named in the Articles of Organization of the above limited liability company hereby agree and consent that the organization meeting thereof be held on the date and at the time and place stated below and hereby waive all notice of such meeting and of any adjournment thereof.

Place of Meeting

Date of Meeting

Time of Meeting

Sole Organizer
Scott J. Schuster

May 16, 2014

Attention: EB-5 Unit
U.S. Citizenship and Immigration Services
California Service Center
Department of Homeland Security
24000, Avila Road, Room 2312
Laguna Niguel, CA 92677

Re: Four Points Sheraton / Luxury Condo Development
134-37 35th Avenue, Flushing NY 11354

Dear CSC EB-5 Unit Officer:

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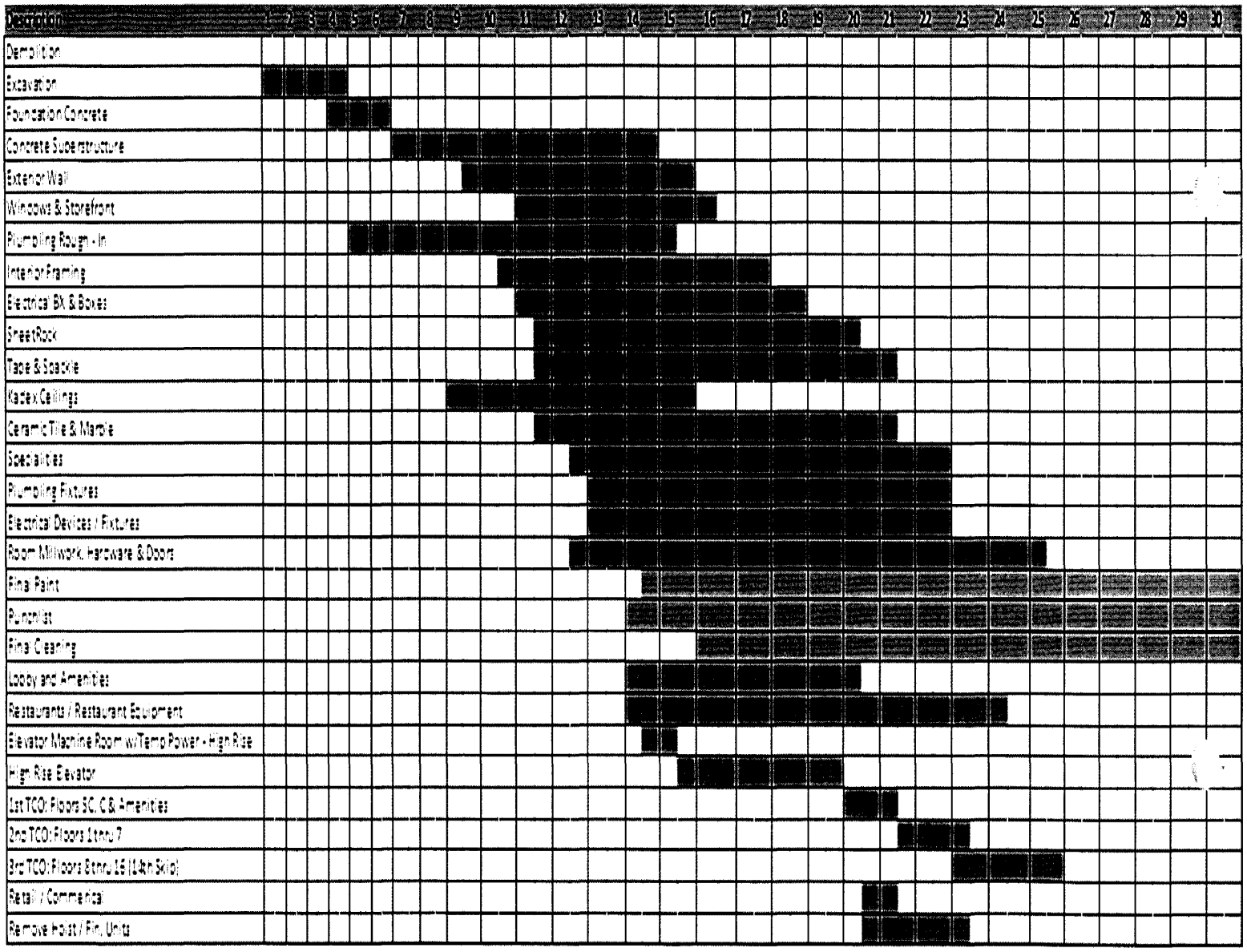
Century Construction Group has advised that construction estimate cost would be [redacted] (b)(4) The construction timeline is 30 months. This mixed used building consists of luxury condominium, hotel, commercial retail, community facility/medical offices, and parking garage. The Four Points Sheraton will provide 210 keys and 101 Luxury Condo. The project is scheduled to start in beginning of August 2014. I attest that the construction budgets and timeline are estimated based on established industry standards

Very Truly Yours,

George Xu
President

35-06 Leavitt St., Suite CF-A Flushing, NY 11354
Tel: (718) 939-1060 Fax: (718) 939-1036
www.centurygroupdevelopment.com


Description
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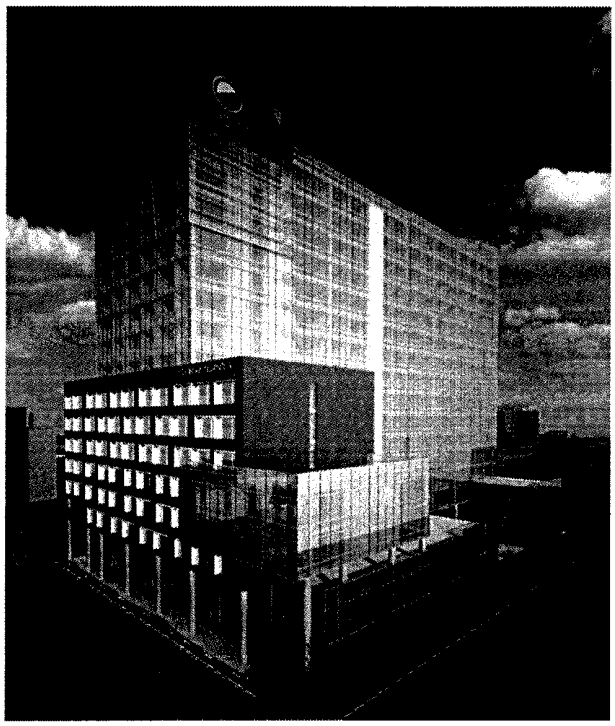
Demolition
Excavation
Foundation Concrete
Concrete Superstructure
Exterior Wall
Windows & Storefront
Plumbing Rough - In
Interior Framing
Electrical BX & Boxes
SheetRock
Tape & Spackle
Kadex Ceilings
Ceramic Tile & Marble
Specialties
Plumbing Fixtures
Electrical Devices / Fixtures
Room Millwork, Hardware & Doors
Final Paint
Punchlist
Final Cleaning
Lobby and Amenities
Restaurants / Restaurant Equipment
Elevator Machine Room w/Temp Power - High Rise
High Rise Elevator
1st TCO: Floors SC, C & Amenities
2nd TCO: Floors 1 thru 7
3rd TCO: Floors 8 thru 15 (14th Skip)
Retail / Commercial
Remove Hoist / Fin. Units

100% Recycled
30% PCW

SELF-CONTAINED APPRAISAL REPORT

Proposed Four Points Flushing

134-37 35TH AVENUE
FLUSHING, NEW YORK



SUBMITTED TO:

Mr. George Xu
Farrington Realty, LLC
35-06 Leavitt Street, Unit CFA
Flushing, New York 11354

+1 (718) 939-1060
+1 (718) 939-1036 FAX
georgexu88@yahoo.com

PREPARED BY:

HVS Consulting and Valuation Services
Division of Hotel Appraisals, LLC
369 Willis Avenue
Mineola, New York 11501

+1 (516) 248-8828
+1 (516) 742-3059 FAX

HVS NEW YORK
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Singapore

Specialists in Hotel Consulting and Appraisal Worldwide

July 26, 2013

Mr. George Xu
Farrington Realty, LLC
35-06 Leavitt Street, Unit CFA
Flushing, New York 11354

Re: Proposed Four Points Flushing
Flushing, New York
HVS Reference: 2013010447

Dear Mr. Xu:

Pursuant to your request, we herewith submit our self-contained appraisal report pertaining to the above-captioned proposed hotel. We have inspected the real estate and analyzed the market conditions in the Flushing, New York area. We have also reviewed the proposed improvements for this site. Our report was prepared in accordance with, and is subject to, the requirements of the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) and the Uniform Standards of Professional Appraisal Practice (USPAP), as provided by the Appraisal Foundation.

Based on our analysis, it is our opinion that the "as is" market value of the fee simple interest in the Proposed Four Points Flushing, as of June 14, 2013, is:

[redacted] (b)(4)

Based on our analysis, it is our opinion that the "when complete" prospective market value of the fee simple interest in the real and personal property of the Proposed Four Points Flushing, as of March 1, 2016, will be:

[redacted] (b)(4)

This value estimate equates to [redacted] per room.

We have also estimated the prospective market value of the subject property as of its projected date of stabilization. Based on our analysis, it is our opinion that the "when stabilized" prospective market value of the fee simple interest in the real and personal property of the Proposed Four Points Flushing, as of March 1, 2018, will be:

[redacted] (b)(4)

We have made no assumptions of hypothetical conditions in our report. The analysis is based on the extraordinary assumption that the described improvements have been completed as of the prospective "when complete" date of value. The reader should understand that the completed subject property does not yet, in fact, exist as of the date of appraisal. Our appraisal does not address unforeseeable events that could alter the proposed project and/or the market conditions reflected in the analyses; we assume that no significant changes, other than those anticipated and explained in this report, will take place between the date of inspection and date of prospective value. We have made no other extraordinary assumptions specific to this appraisal. However, several important general assumptions have been made that apply to this appraisal and our valuations of proposed hotels in general. These aspects are set forth in the Assumptions and Limiting Conditions chapter of this report.

We hereby certify that we have no undisclosed interest in the property, and our employment and compensation are not contingent upon our findings. This study is subject to the comments made throughout this report and to all assumptions and limiting conditions set forth herein.

Sincerely,
Hotel Appraisals, LLC

Rebecca Lee, Vice President
rlee@hvs.com, +1 (516) 248-8828 ext. 205

Roland de Milleret, MAI, Managing Director
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RL: RdM

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Qualifications

1. Summary of Salient Data and Conclusions

Project:	Proposed Four Points Flushing
Location:	134-37 35th Avenue Flushing, New York 11354
Interest Appraised:	Fee Simple
Highest and Best Use (as if vacant):	Transient lodging facility

LAND DESCRIPTION

Area:	±0.89 acres, or ±38,775 square feet
Zoning:	C2-2 IN R6 - Commercial District
Assessor's Parcel Number:	Block 4949, Lot 31
FEMA Flood Zone:	X

PROPOSED IMPROVEMENTS DESCRIPTION

Expected Opening Date:	March 1, 2016
Property Type:	Upscale, select-service lodging facility
Building Area:	±350,000 square feet (proposed Four Points and Element combined)
Guestrooms:	210
Number of Stories:	15 (Floors 3-7: Four Points; floors 8-15: element)
Food and Beverage Facilities:	A restaurant, bar and lounge
Meeting Space:	±3,820 square feet (1 banquet, 2 meeting rooms) and a ±17,000-square-foot community facility space
Additional Facilities:	An indoor pool, a fitness center, a lobby workstation, a gift shop, and a guest laundry room
Parking Spaces:	215-space parking garage

SUMMARY OF VALUE PARAMETERS

Number of Years to Stabilize:	Three (after opening)
Stabilized Year:	2018/19

(b)(4)

VALUE OPINIONS AS OF JUNE 14, 2013

Land Value:	
"As Is" Market Value:	

VALUE OPINIONS AS OF MARCH 1, 2016

Income Capitalization Approach:	
Sales Comparison Approach:	Not Applicable
Cost Approach:	
"When Complete" Prospective Market Value:	
Real and Personal Property:	The real and personal property value conclusions exclude any value attributable to intangibles. All value attributable to the intangible property has been removed with the assumed expense of a management fee and a franchise fee (if applicable) in the valuation process. As a result, our value conclusion pertains to the real and personal property components only.

VALUE OPINION AS OF MARCH 1, 2018

"When Stabilized" Prospective Market Value:	
Real and Personal Property:	The value conclusion pertains to the real and personal property components only.

ASSIGNMENT CONDITIONS

(b)(4)

Extraordinary Assumptions:	The analysis is based on the extraordinary assumption that the described improvements have been completed as of the prospective "when complete" date of value. The reader should understand that the completed subject property does not yet, in fact, exist as of the date of

	appraisal. Our appraisal does not address unforeseeable events that could alter the proposed project and/or the market conditions reflected in the analyses; we assume that no significant changes, other than those anticipated and explained in this report, will take place between the date of inspection and date of prospective value. We have made no other extraordinary assumptions specific to this appraisal. However, several important general assumptions have been made that apply to this appraisal and our valuations of proposed hotels in general. These aspects are set forth in the Assumptions and Limiting Conditions chapter of this report.
Hypothetical Conditions:	We have made no assumptions of hypothetical conditions in our report.

2. Nature of the Assignment

Subject of the Appraisal

The subject of the appraisal is the fee simple interest in a ±38,775-square-foot (±0.89-acre) parcel to be improved with an upscale, select-service lodging facility; the hotel will be associated with the Four Points by Sheraton brand, which is affiliated with Starwood Hotels & Resorts. The subject site is currently improved with a two-story commercial building that was previously used as a night club and a nail supply store. The building is currently vacant and is scheduled be demolished by the end of 2013.

The proposed Four Points is expected to open in March 2016 and will feature 210 rooms, a restaurant, bar, and lounge, an indoor pool, a fitness center, a banquet hall, two meeting rooms, a ±17,000-square-foot community facility space, a lobby workstation, guest laundry facilities, and a gift shop. The community facility space is expected to be used by the community for recreation, sports, or cultural purposes and as additional meeting space for the hotel.

The 210-room Four Points will be developed in conjunction with a 148-room element by Westin, as part of a dual-branded development. They will be operated by the same management company. The 15-story joint tower will feature 210 rooms dedicated to the Four Points on the third to seventh floor and 148 rooms dedicated to the element on the eighth to fifteenth floor. Some common spaces, such as the indoor pool, fitness center, community facility space and guest laundry facilities will be shared between the two properties. Specific entities, such as the lobby, food and beverage outlets, meeting space, business center/lobby workstation and gift shop/market pantry will remain separate.

The joint tower is a part of a mixed-use development that will include ±10,000 square feet of commercial and retail space along 35th Avenue at the ground level. According to the developer, the commercial and retail spaces will be operated as separate entities; therefore, these components have been excluded from this appraisal.

The proposed subject hotel will also feature all necessary back-of-the-house space. The civic address of the proposed Four Points is 134-37 35th Ave, Flushing, New York 11354.

Property Rights Appraised

The property rights appraised are the fee simple ownership of the land and improvements, including the furniture, fixtures, and equipment. The fee simple estate is defined as "absolute ownership unencumbered by any other interest or

estate, subject only to the limitations imposed by the governmental powers of taxation, eminent domain, police power, and escheat."[1]

The Proposed Four Points Flushing is appraised as an open and operating facility.

Pertinent Dates

The effective date of the "when complete" prospective market value opinion is March 1, 2016. The effective date of the "when stabilized" prospective market value conclusion is March 1, 2018. All projections are expressed in inflated dollars. The subject site was inspected by Rebecca Lee on June 14, 2013. The "as is" date of value is June 14, 2013. Roland de Milleret, MAI participated in the analysis and reviewed the findings, but did not personally inspect the property for the purposes of this appraisal; however, Roland de Milleret, MAI has inspected the property for a previous HVS assignment. (b)(4)

Ownership, Franchise, and Management Assumptions

The developer of the proposed subject property is Farrington Realty, LLC; the parent company of this owning partnership is Century Construction Group Corp, which is based in Flushing, New York. The subject site was last sold in June 2003; Farrington Realty, LLC has owned the site since 2003 and purchased it at this time from Smarkel, LLC for a reported price of [redacted] No other transfers of the property have reportedly occurred since 2003.

We assume that the proposed hotel will be operated by a third-party professional management company that is experienced in the operation of upscale, select-service hotels in this region. The management team has not been selected as of the date of this appraisal. We have assumed a market-appropriate total management fee o[redacted]f total revenues in our study.

The proposed subject property will reportedly operate under a franchise agreement with Four Points by Sheraton, which is affiliated with Starwood Hotels & Resorts; the terms of the franchise agreement has yet to be finalized. We have assumed that the owner will secure a license agreement that would reflect the terms as published in the company's Uniform Franchise Offering Circular (UFOC). As such, the Four Points by Sheraton franchise is reflected in our forecasts with a royalty fee of [redacted] of rooms revenue, and a marketing assessment of [redacted] of rooms revenue. Reservations fees are also due, and are included in the rooms expense line item of our forecast.

(b)(4)

Objective of the Appraisal

The objective of the appraisal is to develop an opinion of the subject property's "as is" market value, "when complete" prospective market value, and "when stabilized" prospective market value. The following definition of market value has

[1] Appraisal Institute, The Dictionary of Real Estate Appraisal, 5th ed. (Chicago Appraisal Institute, 2010).

been agreed upon by the agencies that regulate federal financial institutions in the United States:

> The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition are the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:
>
> 1. buyer and seller are typically motivated;
> 2. both parties are well informed or well advised, and acting in what they consider their own best interests;
> 3. a reasonable time is allowed for exposure in the open market;
> 4. payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and
> 5. the price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.[2]

"As is" market value is defined by the Appraisal Institute as follows:

> The estimate of the market value of real property in its current physical condition, use, and zoning as of the appraisal date.[3]

Prospective market value is defined by the Appraisal Institute as follows:

> A value opinion effective as of a specified future date.[4]

The prospective value opinion upon stabilization estimates the market value of a property upon reaching a stabilized level of operation. Operations are stabilized at that point in time when abnormalities in supply and demand or any additional transitory conditions cease to exist and the existing conditions are those expected to continue over the economic life of the property.

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[2] *Federal Register*, Vol. 55, No. 165, August 24, 1990: 34696.

[3] Appraisal Institute, The Dictionary of Real Estate Appraisal, 5th ed. (Chicago: Appraisal Institute, 2010).

[4] Appraisal Institute, The Dictionary of Real Estate Appraisal, 5th ed. (Chicago: Appraisal Institute, 2010).

Intended Use of the Appraisal

This self-contained report is being prepared for use in the asset evaluation of the proposed subject property.

Identification of the Client and Intended User(s)

The client for this engagement is Farrington Realty, LLC. This report is intended for the addressee firm, and may not be distributed to or relied upon by other persons or entities.

Assignment Conditions

"Extraordinary Assumption" is defined in USPAP as follows:

> An assumption, directly related to a specific assignment, which, if found to be false, could alter the appraiser's opinions or conclusions. Comment: Extraordinary assumptions presume as fact otherwise uncertain information about physical, legal, or economic characteristics of the subject property; or about conclusions external to the property, such as market conditions or trends; or about the integrity of the data used in an analysis.[5]

The analysis is based on the extraordinary assumption that the described improvements have been completed as of the prospective "when complete" date of value. The reader should understand that the completed subject property does not yet, in fact, exist as of the date of appraisal. Our appraisal does not address unforeseeable events that could alter the proposed project and/or the market conditions reflected in the analyses; we assume that no significant changes, other than those anticipated and explained in this report, will take place between the date of inspection and date of prospective value. We have made no other extraordinary assumptions specific to this appraisal. However, several important general assumptions have been made that apply to this appraisal and our valuations of proposed hotels in general. These aspects are set forth in the Assumptions and Limiting Conditions chapter of this report.

"Hypothetical Condition" is defined in USPAP as follows:

> That which is contrary to what exists but is supposed for the purpose of analysis. Comment: Hypothetical conditions assume conditions contrary to known facts about physical, legal, or economic characteristics of the subject property; or about conditions external to the property, such as market conditions or trends; or about the integrity of data used in an analysis.[6]

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[5] Appraisal Institute, Uniform Standards of Professional Appraisal Practice, 2012 – 2013 ed.

[6] Appraisal Institute, Uniform Standards of Professional Appraisal Practice, 2012 – 2013 ed.

We have made no assumptions of hypothetical conditions in our report.

We have not made any jurisdictional exceptions to the Uniform Standards of Professional Appraisal Practice in our analysis or report.

Marketing and Exposure Periods

The concepts of marketing period and exposure period are similar and simply reflect different perspectives in time. Exposure period is defined as the estimated length of time that the property interest being appraised would have been offered on the market prior to the hypothetical consummation of a sale at its market value, as of the date of value. The exposure period reflects a retrospective opinion based on an analysis of past events and assumes a competitive and open market. Marketing period refers to the amount of time necessary to market the hotel subsequent to our date of value for it to sell for the appraised value, and thus is a prospective opinion.

Our opinion is that the exposure period for the proposed subject property, prior to our date of value, is estimated to be less than or equal to seven months, while the marketing period for the proposed subject property, subsequent to our date of value, is less than or equal to seven months. The marketing and sales process for hotels is extremely efficient. Brokers specializing in hotel transactions actively solicit potential buyers on an ongoing basis and maintain databases on hotel investor criteria. According to the brokers interviewed, the current period from when a property is listed to when the sale closes is typically six to nine months. Brokers are able to electronically produce marketing materials, elicit interest, schedule property tours, accept offers, and select a buyer in approximately 90 to 120 days. Following the execution of a purchase and sale agreement, the due diligence and closing period is typically 90 days.

Hotel properties are being actively sought after by investors. Since the economic downturn, funds have been established to pursue hotel acquisitions. Quality assets often solicit numerous bids, and for willing buyers and sellers, the marketing process has resulted in the timely closing of transactions. We are also aware that some potential sellers are not actively marketing their hotels at this time. Although these sellers may bring their assets to market during a more robust financing period, their current lack of participation in the process does not influence our opinion concerning the exposure period.

Published surveys report marketing time, not the exposure period. Marketing time is an opinion of the amount of time it might take to sell a property at the concluded market value level during the period immediately after the effective date of an appraisal. Currently, marketing time for luxury/upper-upscale properties, full-service hotels, and select-service hotels is averaging 8.0, 9.1, and 6.9 months, respectively, according to the PWC Real Estate Investor Survey - First Quarter

2013, published by PricewaterhouseCoopers. Overall marketing time is averaging 5.6 months for hotels, as reported by the Real Estate Research Corporation's Spring 2013 Real Estate Survey. The following table illustrates marketing periods reported in recent PWC Real Estate Investor Surveys.

FIGURE 2-1 MARKETING PERIODS (MONTHS)

Property Type	1st Quarter '13	3rd Quarter '12	Year Ago
Luxury/Upper-Upscale	2.0 to 20.0	2.0 to 20.0	2.0 to 20.0
Average	*8.00*	*7.80*	*8.00*
Full-Service	3.0 to 24.0	3.0 to 24.0	3.0 to 24.0
Average	*9.10*	*9.90*	*10.70*
Select-Service	2.0 to 12.0	2.0 to 12.0	2.0 to 12.0
Average	*6.90*	*6.80*	*7.10*
Limited-Service	2.0 to 12.0	2.0 to 12.0	2.0 to 12.0
Average	*7.70*	*7.60*	*8.30*

Source: PWC Real Estate Investor Survey - First Quarter 2013

Competency

Our qualifications are included as an addendum to this report. These qualifications reflect that we have the competence required to complete this engagement, in accordance with the competency provision of the Uniform Standards of Professional Appraisal Practice. Our knowledge and experience is appropriate for the complexity of this assignment.

Scope of Work

The methodology used to develop this appraisal is based on the market research and valuation techniques set forth in the textbooks authored by Hospitality Valuation Services for the American Institute of Real Estate Appraisers and the Appraisal Institute, entitled *The Valuation of Hotels and Motels,*[7] *Hotels, Motels and Restaurants: Valuations and Market Studies,*[8] *The Computerized Income Approach to Hotel/Motel Market Studies and Valuations,*[9] *Hotels and Motels: A Guide to*

[7] Stephen Rushmore, *The Valuation of Hotels and Motels.* (Chicago: American Institute of Real Estate Appraisers, 1978).

[8] Stephen Rushmore, *Hotels, Motels and Restaurants: Valuations and Market Studies.* (Chicago: American Institute of Real Estate Appraisers, 1983).

[9] Stephen Rushmore, *The Computerized Income Approach to Hotel/Motel Market Studies and Valuations.* (Chicago: American Institute of Real Estate Appraisers, 1990).

Market Analysis, Investment Analysis, and Valuations,[10] and *Hotels and Motels – Valuations and Market Studies.*[11]

1. All information was collected and analyzed by the staff of Hotel Appraisals, LLC. Information was supplied by the client and/or the property's development team.
2. The subject site has been evaluated from the viewpoint of its physical utility for the future operation of a hotel, as well as access, visibility, and other relevant factors.
3. The subject property's proposed improvements have been reviewed for their expected quality of construction, design, and layout efficiency.
4. The surrounding economic environment, on both an area and neighborhood level, has been reviewed to identify specific hostelry-related economic and demographic trends that may have an impact on future demand for hotels.
5. Dividing the market for hotel accommodations into individual segments defines specific market characteristics for the types of travelers expected to utilize the area's hotels. The factors investigated include purpose of visit, average length of stay, facilities and amenities required, seasonality, daily demand fluctuations, and price sensitivity.
6. An analysis of existing and proposed competition provides an indication of the current accommodated demand, along with market penetration and the degree of competitiveness. Unless noted otherwise, we have inspected the competitive lodging facilities summarized in this report.
7. Documentation for an occupancy and average rate projection is derived utilizing the build-up approach based on an analysis of lodging activity.
8. A detailed projection of income and expense made in accordance with the Uniform System of Accounts for the Lodging Industry sets forth the anticipated economic benefits of the subject property.

[10] Stephen Rushmore, Hotels and Motels: A Guide to Market Analysis, Investment Analysis, and Valuations (Chicago: Appraisal Institute, 1992).
[11] Stephen Rushmore and Erich Baum, *Hotels and Motels – Valuations and Market Studies.* (Chicago: Appraisal Institute, 2001).

9. The appraisal considers the following three approaches to value: cost, sales comparison, and income capitalization. We have investigated numerous improved sales in the market area and have spoken with buyers, sellers, brokers, property developers, and public officials. Because lodging facilities are income-producing properties that are normally bought and sold on the basis of capitalization of their anticipated stabilized earning power, the greatest weight is given to the value indicated by the income capitalization approach. We find that most hotel investors employ a similar procedure in formulating their purchase decisions, and thus the income capitalization approach most closely reflects the rationale of typical buyers.

The value conclusion of the appraisal is based on this investigation and analysis and is conveyed in this self-contained report. The analyses, opinions, and conclusions were developed based on, and this report has been prepared in conformance with, our interpretation of the guidelines and recommendations set forth in USPAP.

3. Description of the Site and Neighborhood

The suitability of the land for the operation of a lodging facility is an important consideration affecting the economic viability of a property and its overall value. Factors such as size, topography, access, visibility, and the availability of utilities have a direct impact on the desirability of a particular site.

The subject site is located in the Flushing district of New York City's Queens Borough. Municipal jurisdictions governing the property include Queens County, and the City and State of New York. The subject site is located in the northwestern quadrant formed by the intersection of Farrington Street and 35th Avenue. The civic address of the proposed hotel is 134-37 35th Avenue, Flushing, New York, 11354.

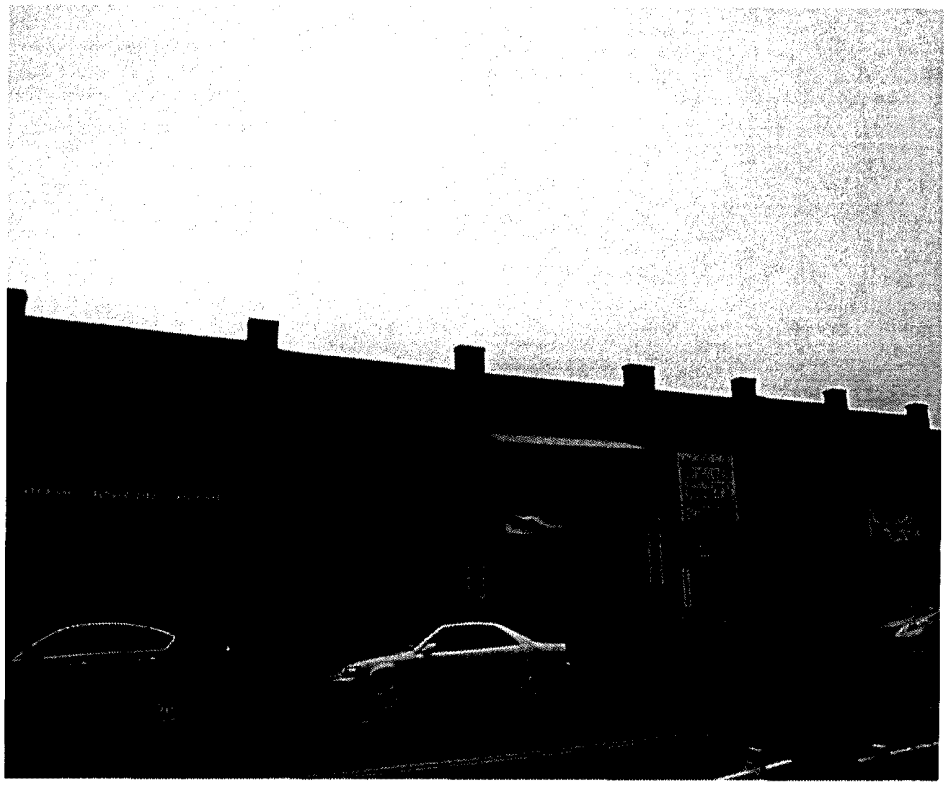
Physical Characteristics

The subject site measures ±0.89 acres, or ±38,775 square feet. The parcel's adjacent uses are set forth in the following table.

FIGURE 3-1 SUBJECT PARCEL'S ADJACENT USES

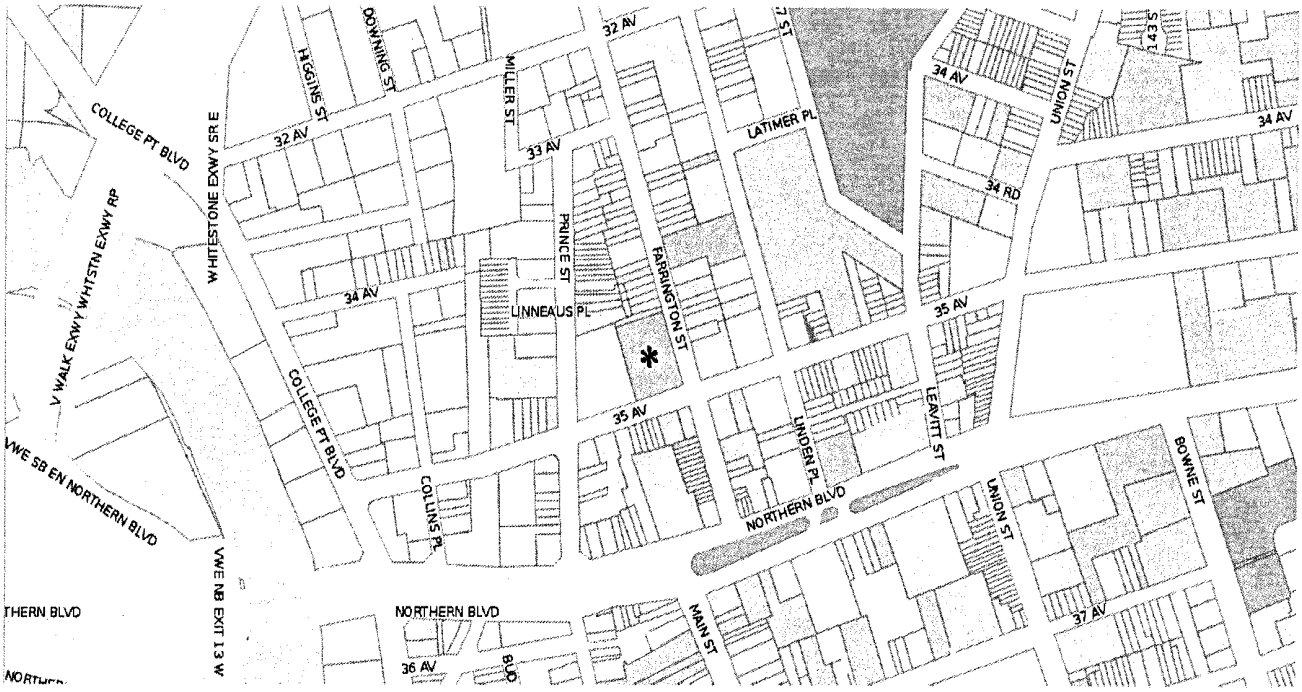
Direction	Adjacent Use
North	Farrington Street & 33rd Avenue
South	Farrington Street & Northern Boulevard
East	35th Avenue and Linden Place
West	35th Avenue and Prince Street

VIEW OF SUBJECT SITE



AERIAL PHOTOGRAPH

PARCEL MAP



VIEW FROM SITE TO THE NORTH

VIEW FROM SITE TO THE SOUTH

VIEW FROM SITE TO THE EAST

VIEW FROM SITE TO THE WEST

Primary vehicular access to the proposed subject property will be provided by Farrington Street and 35th Avenue. The topography of the parcel is generally flat, and the site's shape is rectangular.

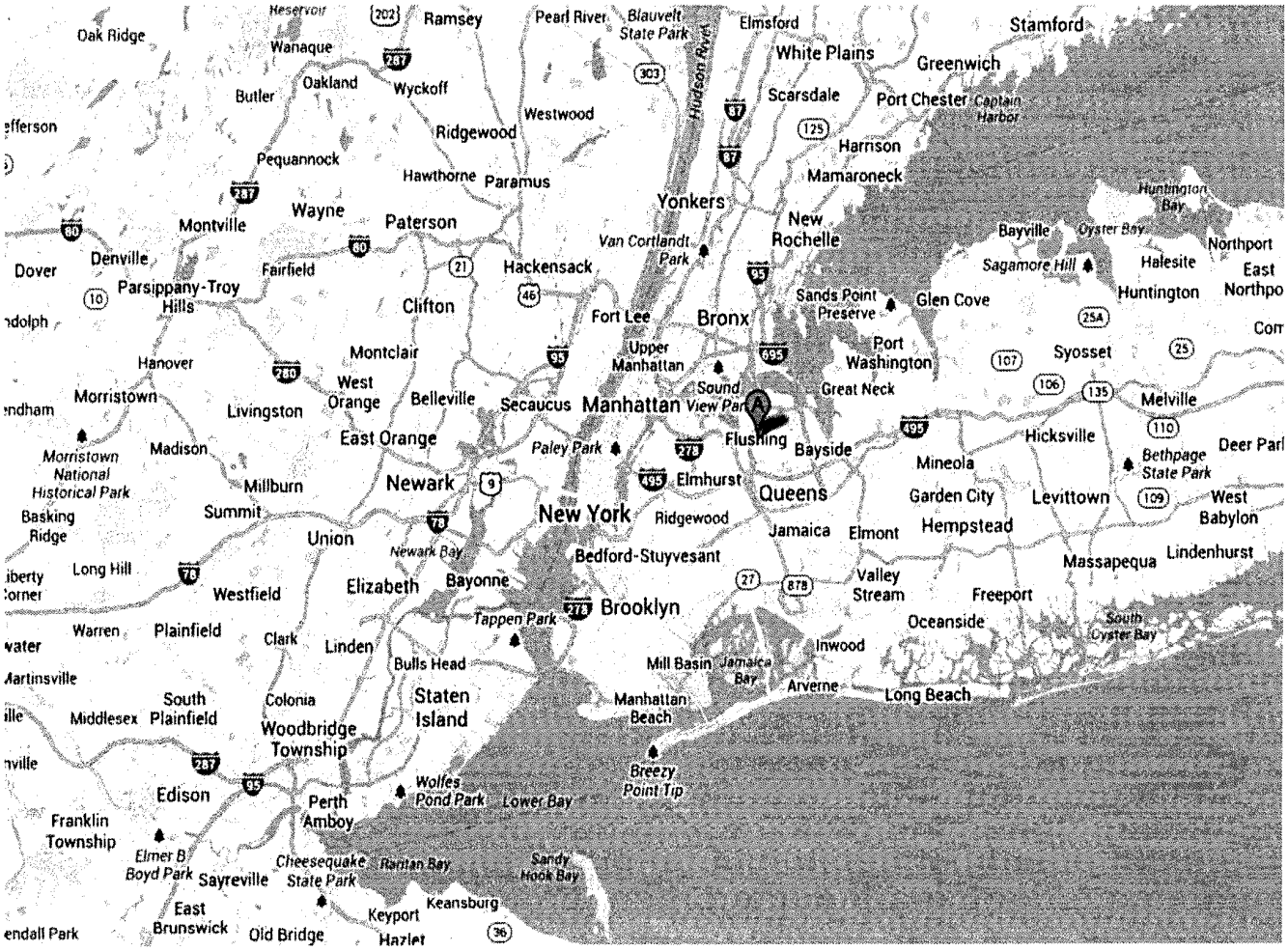
Site Utility

Upon completion of construction, the subject site will not contain any significant portion of undeveloped land that could be sold, entitled, and developed for alternate use. The site is expected to be fully developed with site or building improvements, which will contribute to the overall profitability of the hotel.

Access and Visibility

It is important to analyze the site in regard to ease of access with respect to regional and local transportation routes and demand generators. The subject site is readily accessible to a variety of local, county, state, and interstate highways.

MAP OF REGIONAL ACCESS ROUTES



Primary regional access through the area is provided by east/west Interstate 278, which begins just south of Elizabeth, New Jersey and crosses the five boroughs of New York. Interstate 495, the Belt Parkway/Southern State Parkway, and the Grand Central Parkway/Northern Parkway are other east/west thoroughfares extending from Manhattan east into Long Island. North/south Interstate 95, a major interstate highway, provides access to such cities as New Haven, Connecticut to the north and Philadelphia, Pennsylvania to the south. The subject market is served by a variety of additional local highways, which are illustrated on the map.

The subject site is readily accessible from Interstates 495 (the Long Island Expressway [LIE]), 678, and 295, Grand Central Parkway, and the State Route 25A (Northern Boulevard). The area's extensive network of local streets and highways, its location in a commercially active area of Flushing, and its proximity to LaGuardia Airport enhances the proposed subject property's ability to capture market demand.

Airport Access

Access to and from LaGuardia Airport is gained by Northern Boulevard, which intersects Grand Central Parkway approximately three miles west of the subject site. Travel time from LaGuardia Airport to the subject site is approximately ten minutes, depending on traffic conditions.

Neighborhood

The neighborhood surrounding a lodging facility often has an impact on a hotel's status, image, class, style of operation, and sometimes its ability to attract and properly serve a particular market segment. This section of the report investigates the subject neighborhood and evaluates any pertinent location factors that could affect its future occupancy, average rate, and overall profitability.

The neighborhood surrounding the proposed subject property is characterized by a densely developed mixture of retail and commercial space that is proximate to an excellent public transportation and roadway network and a major airport. The subject property's neighborhood is generally defined by 32nd Avenue to the north, College Point Boulevard to the west, Sanford Avenue to the south, and Parsons Boulevard to the east. This area encompasses some of the most commercially active portions of downtown Flushing, including the majority of Chinese and Korean businesses located in Flushing.

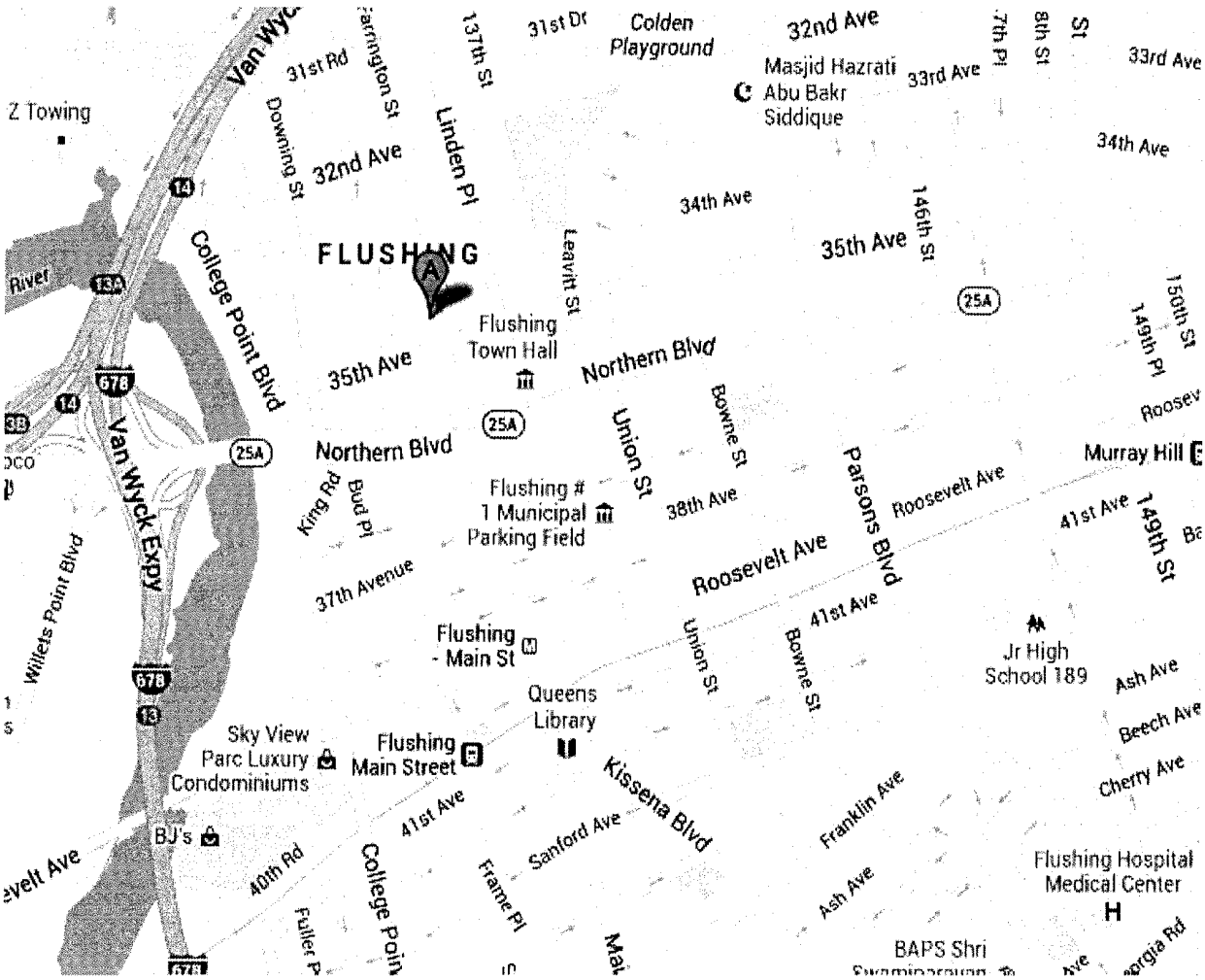
The subject property is located one block from Main Street, the major thoroughfare in Flushing, in an area known as "Chinese Flushing." The majority of the area's banking institutions, department stores, and office spaces are located on or near Main Street. A majority of the buildings and businesses are owned and patronized by the Chinese residents of the area; therefore, the neighborhood presents a fairly homogenous Asian image. Consequently, this area is a popular destination for Asian tourists who appreciate these somewhat familiar surroundings.

From the subject site, access to Manhattan, the commercial center of New York City, may be easily accomplished via the LIE and Grand Central Parkway. Alternatively, motorists may access Manhattan by traveling one block south from the site to westbound Northern Boulevard for roundly six miles and crossing the Queensboro Bridge (also known as the 59th Street Bridge). The proposed subject property benefits significantly from its proximity to the LIE and Grand Central Parkway.

The subject site is also surrounded by other accessible transportation offerings, including the New York City's subway system and the Long Island Rail Road, which are located on Main Street. The 7 Flushing Local and 7 Flushing Express are rapid transit services of the New York City Subway, providing local and express services along the full length of the IRT (Interboro Rapid Transit) Flushing Line. Moreover, Flushing Main Street is a station on the Port Washington Branch of the Long Island Rail Road, serving the neighborhood of Flushing, Queens. The station is located at Main Street and 41st Avenue, off Kissena Boulevard and is 9.5 miles (15.3 km) from Penn Station in Midtown Manhattan.

Overall, access to the subject site is considered to be very good. The proposed subject property's locational attributes are also considered good. The proposed hotel benefits from its proximity to the heavily trafficked Northern Boulevard and Main Street. Moreover, it benefits from relatively easy access to the 7 subway station, LIRR, LIE, and Grand Central Parkway. Considering its anticipated fifteen-story structure, the proposed subject property is also expected to benefit from good visibility attributes within its neighborhood.

MAP OF NEIGHBORHOOD



Overall, the supportive nature of the development in the immediate area is considered appropriate for and conducive to the operation of a hotel.

Utilities

The subject site will reportedly be served by all necessary utilities. We assume that these will be acquired from the most cost-effective providers within the local market.

Soil and Subsoil Conditions

Geological and soil reports were not provided to us or made available for our review during the preparation of this report. We are not qualified to evaluate soil conditions other than by a visual inspection of the surface; no extraordinary conditions were apparent.

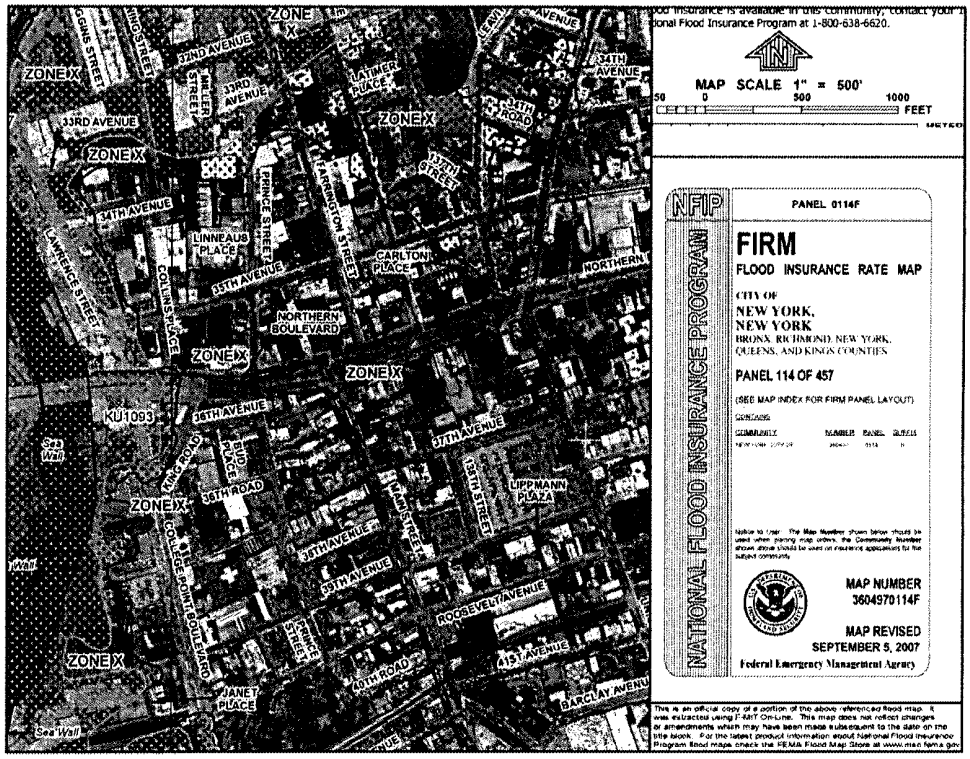
Nuisances and Hazards

We were not informed of any site-specific nuisances or hazards, and there were no visible signs of toxic ground contaminants at the time of our inspection. Because we are not experts in this field, we do not warrant the absence of hazardous waste and urge the reader to obtain an independent analysis of these factors.

Flood Zone

According to the Federal Emergency Management Agency map illustrated below, the subject site is located in flood zone X.

COPY OF FLOOD MAP AND COVER



The flood zone definition for the X designation is as follows: areas outside the 500-year flood plain; areas of the 500-year flood; areas of the 100-year flood with average depths of less than one foot or with drainage areas less than one square mile and areas protected by levees from the 100-year flood.

Zoning

According to the local planning office, the subject property is zoned as follows: ***C2-2 IN R6 - Commercial District.*** This zoning designation allows for most commercial uses, including hotels, offices, and retail. We assume that all necessary permits and approvals will be secured (including the appropriate liquor license if applicable) and that the subject property will be constructed in accordance with

local zoning ordinances, building codes, and all other applicable regulations. Our zoning analysis should be verified before any physical changes are made to the site.

Easements and Encroachments

We are not aware of any easements attached to the property that would significantly affect the utility of the site or marketability of this project.

Conclusion

We have analyzed the issues of size, topography, access, visibility, and the availability of utilities. Advantages of the site include its central location within the Downtown Flushing area, as well as its proximity to LaGuardia International Airport, John F. Kennedy International Airport and Manhattan. No significant disadvantages were noted. As such, the site is considered to be appropriate for hotel use.

4. Description of the Proposed Project

The quality of a lodging facility's physical improvements has a direct influence on marketability, attainable occupancy, and average room rate. The design and functionality of the structure can also affect operating efficiency and overall profitability. This section investigates the subject property's proposed physical improvements and personal property in an effort to determine how they are expected to contribute to attainable cash flows.

Project Overview

The Proposed Four Points Flushing will be an upscale, select-service lodging facility containing 210 rentable units. The subject site is currently improved with a two-story commercial building that was previously used as a night club and a nail supply store. The building is currently vacant and is scheduled be demolished by the end of 2013.

The proposed Four Points is expected to open in March 2016 and will feature 210 rooms, a restaurant and lounge, an indoor pool, a fitness center, a banquet hall, two meeting rooms, a ±17,000-square-foot community facility space, a lobby workstation, guest laundry facilities, and a gift shop. The community facility space is expected to be used by the community for recreation, sports, or cultural purposes and as additional meeting space for the hotel.

The 210-room Four Points will be developed in conjunction with a 148-room element by Westin, as part of a dual-branded development. They will be operated by the same management company. The 15-story joint tower will feature 210 rooms dedicated to the Four Points on the third to seventh floor and 130 rooms dedicated to the element on the eighth to fifteenth floor. Some common spaces, such as the indoor pool, fitness center, ±17,000-square-foot community facility space and guest laundry facilities will be shared between the two properties. Specific entities, such as the lobby, food and beverage outlets, meeting space, business center/lobby workstation and gift shop/market pantry will remain separate.

The joint tower is a part of a mixed-use development that will include ±10,000 square feet of commercial and retail space along 35th Avenue at the ground level. According to the developer, the commercial and retail spaces will be operated as separate entities; therefore, these components have been excluded from this appraisal.

Brand Overview

In April of 1995, Sheraton Hotels & Resorts introduced Four Points, a mid-scale hotel brand offering a full-service hotel experience at a sensible price. Four Points delivers the amenities and services that today's business and leisure travelers are seeking, with 112 locations (with 17,740 rooms) in North America as of December 31, 2012. The brand provides a comfortable, well-appointed room with a two-line telephone, a large desk for working or in-room dining, and comfortable seating. Four Points locations include a restaurant serving three meals a day, room service, a fitness center, a swimming pool, meeting space, and on-site catering. In 2012, the Four Points brand in North America achieved an average occupancy level of 70.7%, an average rate of $111.48, and an average RevPAR of $78.76.

RENDERING OF PROPOSED HOTEL

Summary of the Facilities

Based on information provided by the proposed subject property's development representatives, the following table summarizes the facilities that will be available at the proposed subject property.

FIGURE 4-1 PROPOSED FACILITIES SUMMARY

Guestroom Configuration	Number of Units
King	110
Double/Double	89
ADA King	6
ADA Double/Double	5
Total	210

Food & Beverage Facilities	Seating Capacity
Restaurant, Bar & Lounge	176

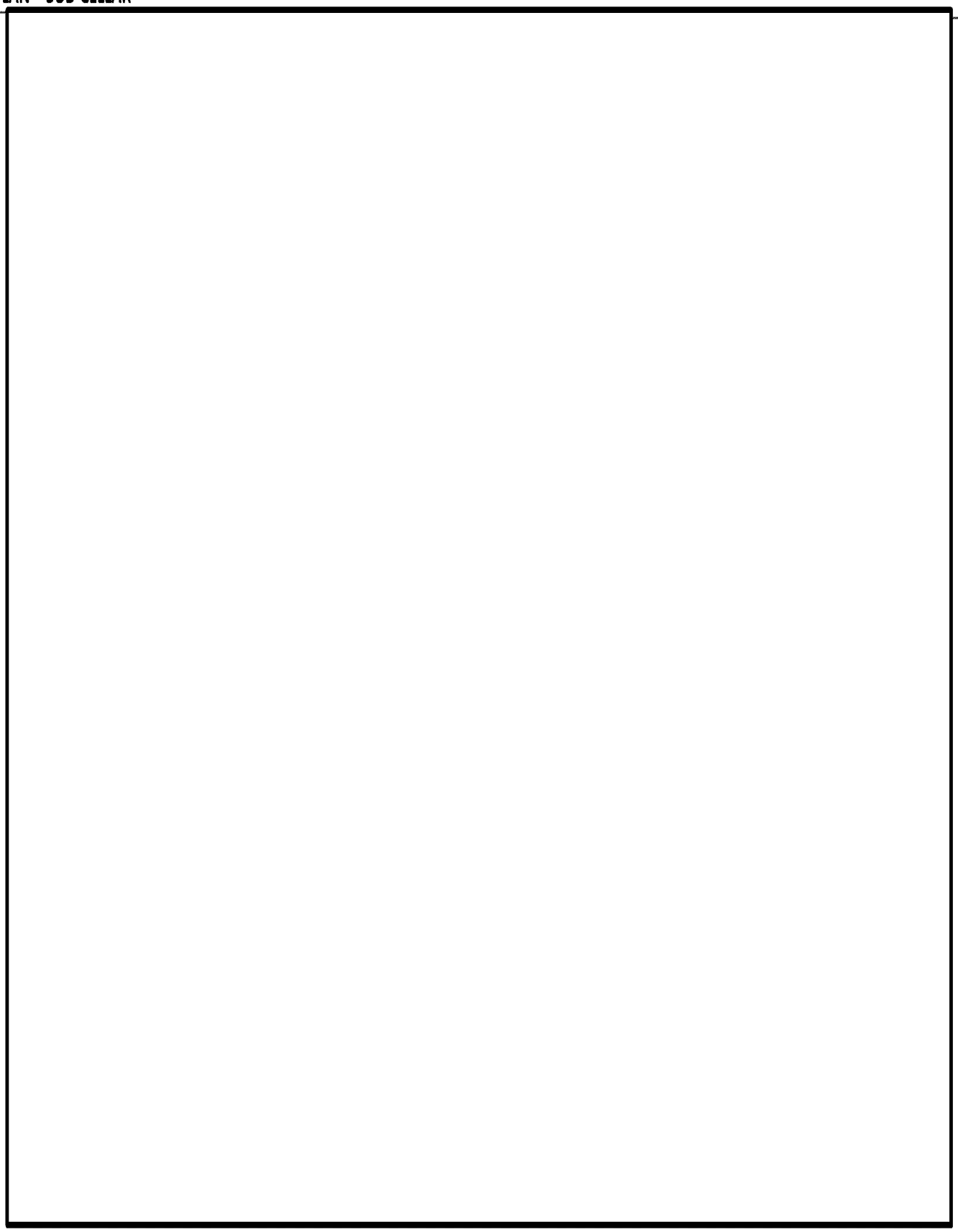
Indoor Meeting & Banquet Facilities	Square Footage
Community Facility	17,000
Banquet Hall	2,800
Meeting Room	590
Boardroom	430
Total	20,820

Amenities & Services	
Indoor Swimming Pool	Fitness Room
Guest Laundry Facility	Lobby Workstation
Vending Areas	Gift Shop

Infrastructure	
Parking Spaces	215
Elevators	2 Guest
Life-Safety Systems	Sprinklers, Smoke Detectors

(b)(4)

FLOOR PLAN – SUB-CELLAR



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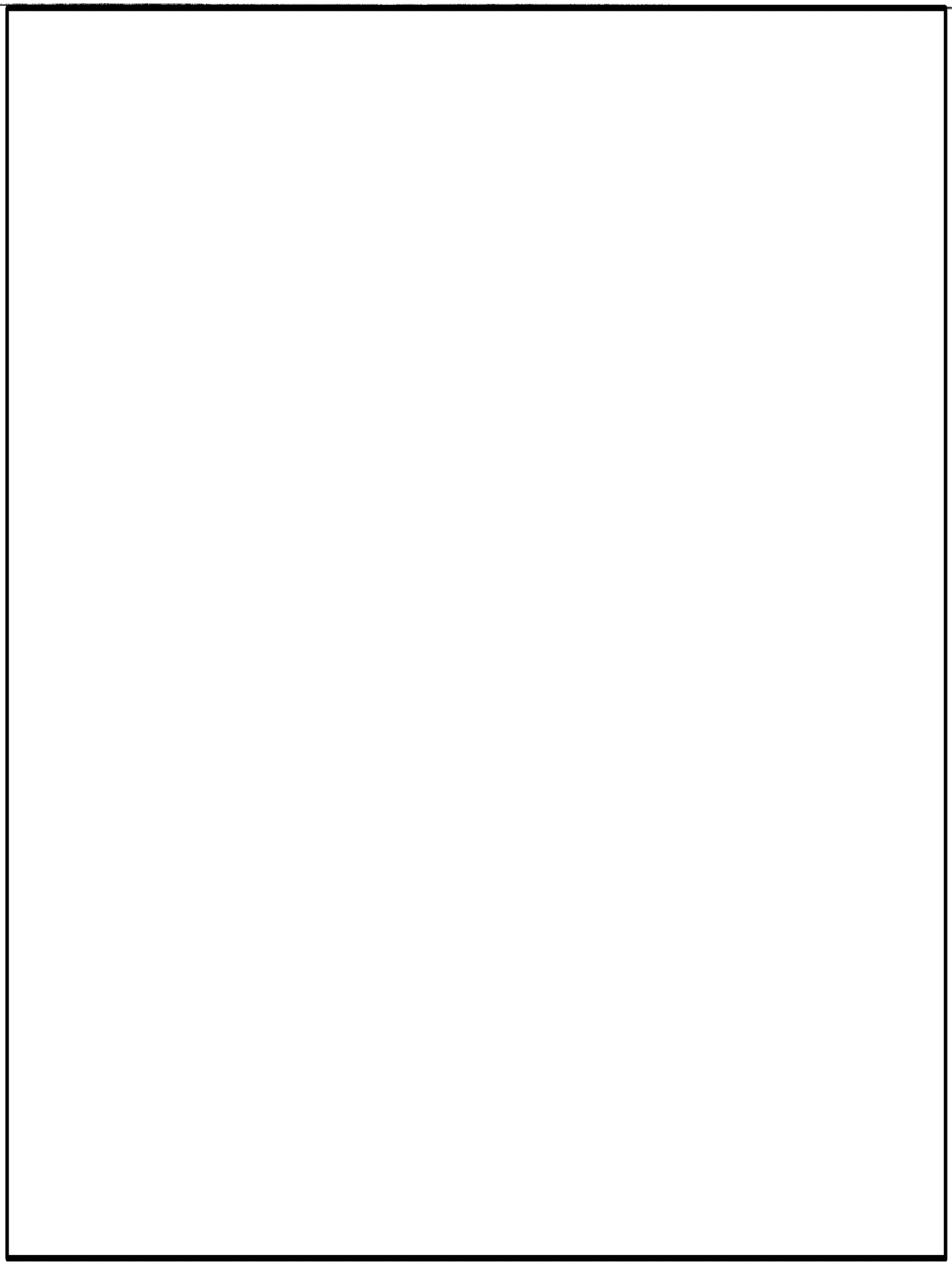
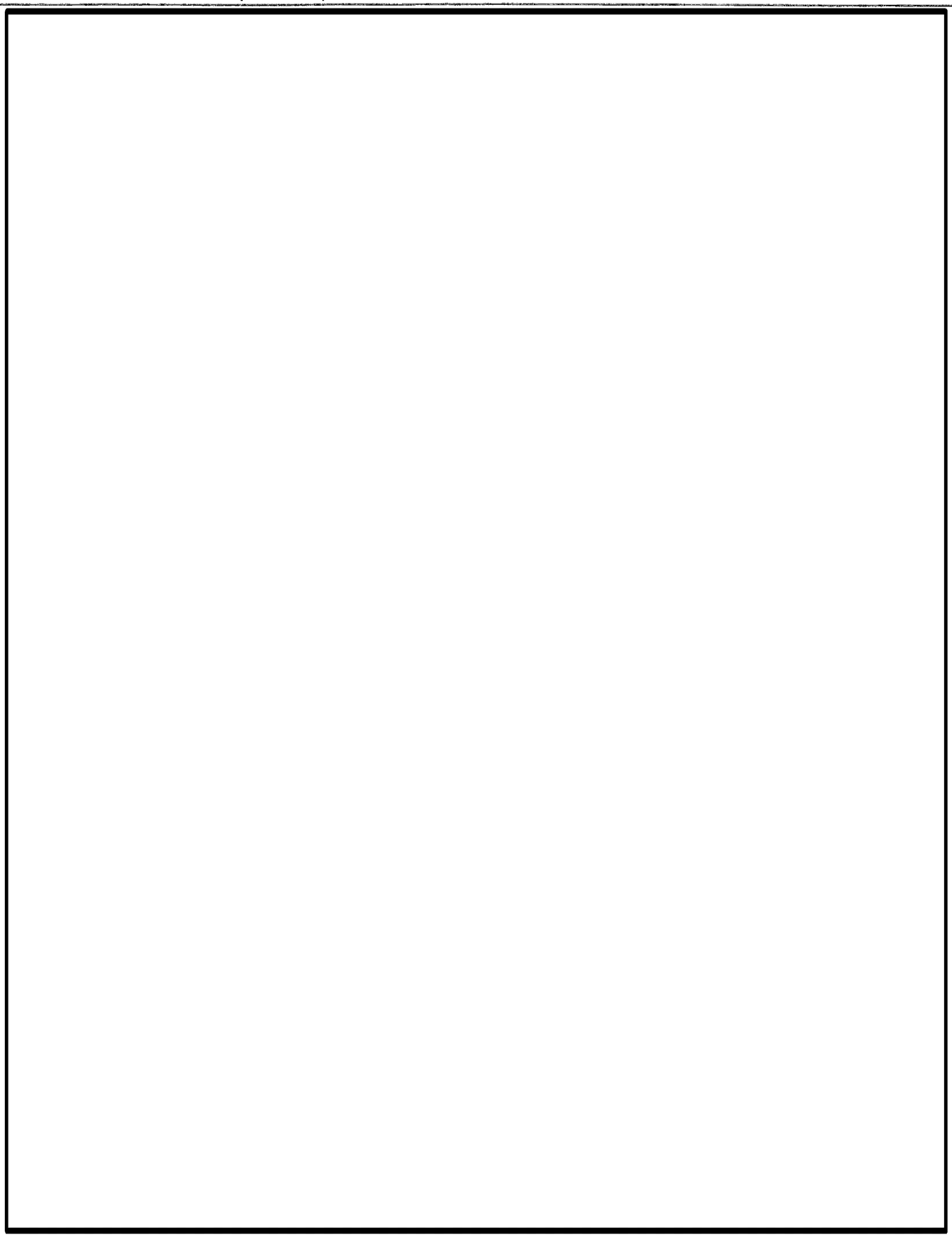
FLOOR PLAN – CELLAR LEVEL



FLOOR PLAN – GUESTROOM FLOOR PLAN (FLOORS 3-7)



Conclusion

Overall, the subject property should offer a well-designed, functional layout of support areas and guestrooms. All typical and market-appropriate features and amenities appear to be included in the hotel's design. We assume that the building will be fully open and operational on the assumed opening date and will meet all local building codes and brand standards. Furthermore, we assume that the hotel staff will be adequately trained to allow for a successful opening and that pre-marketing efforts will have introduced the product to major local accounts at least six months in advance of the opening date.

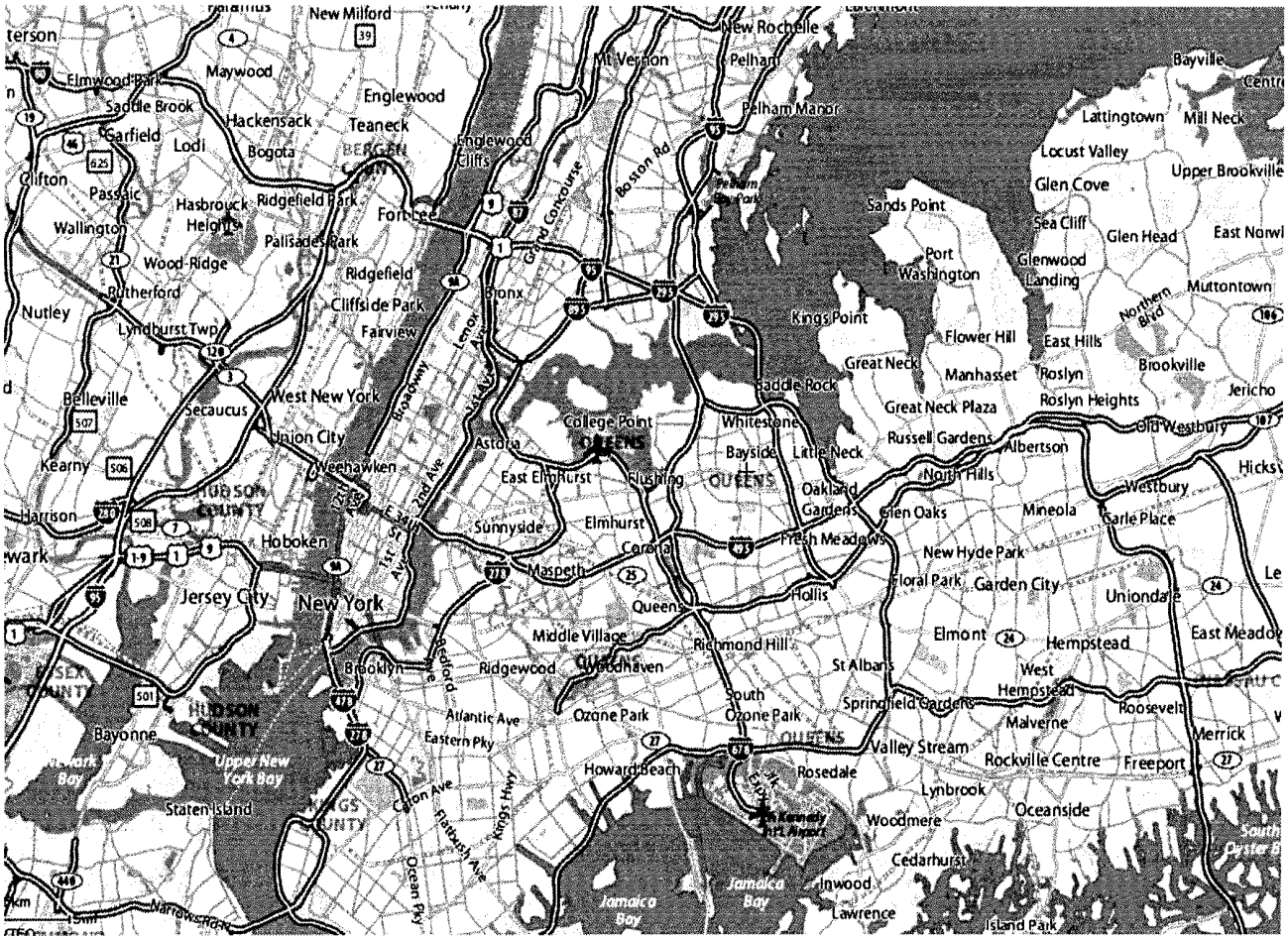
5. Market Area Analysis

The economic vitality of the market area and neighborhood surrounding the subject site is an important consideration in forecasting lodging demand and future income potential. Economic and demographic trends that reflect the amount of visitation provide a basis from which to project lodging demand. The purpose of the market area analysis is to review available economic and demographic data to determine whether the local market will undergo economic growth, stabilize, or decline. In addition to predicting the direction of the economy, the rate of change must be quantified. These trends are then correlated based on their propensity to reflect variations in lodging demand, with the objective of forecasting the amount of growth or decline in visitation by individual market segment (e.g., commercial, meeting and group, and leisure).

Market Area Definition

The market area for a lodging facility is the geographical region where the sources of transient visitation (demand) and the competitive supply are located. The subject property's primary market area is the Borough of Queens, and in a wider sense, New York City as a whole. For statistical purposes, the subject property's market area can be defined by its Metropolitan Statistical Area (MSA): New York-Northern New Jersey-Long Island, NY-NJ-PA MSA. The MSA is the most standard definition used in comparative studies of metropolitan areas. The federal government defines an MSA as a large population nucleus, which together with adjacent counties, has a higher degree of social integration. The subject property's MSA includes 17 counties whose economies are inextricably interconnected: the five boroughs of New York City; Nassau and Suffolk Counties on Long Island; Rockland and Westchester Counties in New York State; and the New Jersey Counties of Bergen, Passaic, Essex, Hudson, Middlesex, Morris, Somerset, and Union. The five counties (or boroughs) within New York City are Bronx County, Kings County (Brooklyn), Queens County, Richmond County (Staten Island), and New York County (Manhattan). Manhattan is also divided into various unofficial communities and areas. The following exhibit illustrates the market area.

MAP OF MARKET AREA



New York City Overview

New York City is recognized as an international commercial and cultural center, and with more than eight million residents, it is one of the most populous cities in the nation and one of the largest in the world.

Renowned for its cultural attractions, entertainment, restaurants, and retail outlets, New York City is one of the most popular tourist destinations in the country. It is home to the United Nations, the Statue of Liberty, and the Empire State Building. The theaters in the Broadway district attract international attention. Lincoln Center (the home of the Metropolitan Opera, the New York Philharmonic, the New York City Ballet and Opera, and the Juilliard School) is among the world's most important centers for the performing arts. The Metropolitan Museum of Art, the Museum of Modern Art, the American Museum of

Natural History, and a number of the City's other museums and galleries are internationally respected.

As the site of Wall Street, New York is the nation's financial and business capital. Manhattan's central business district contains the greatest concentration of commercial activity in the United States. New York is the home of the NASDAQ, American, and New York Stock Exchanges (NYSE), as well as a majority of the nation's investment bankers and brokers and many of the largest commercial banking institutions. In addition to financial institutions, New York City is a major center for a variety of industries, such as fashion, textiles and garments, advertising, publishing and communications, jewelry, design, and technology.

New York City is a major national and international center of commerce and culture, employing an estimated four million. It remains the financial capital of the United States, and the city's economy still relies heavily on the health of the financial sector.

The Borough of Manhattan forms the central political, financial, and cultural core of New York City and is the economic growth engine of the region. As noted previously, the City's other four boroughs are the Bronx, Brooklyn, Queens, and Staten Island. All five boroughs are well connected with one another and the region thanks to an extensive mass transit system and infrastructure network.

New York City Economic Profile

New York City is an international center for business and commerce, and workers commute from points as far as 100 miles from Manhattan. The city boasts a diverse economic base, which helps minimizing the impact of cyclical economic downturns engendered from any one particular sector.

New York City houses the headquarters of several of the nation's major commercial and investment banks. Additionally, numerous foreign banks and their subsidiaries, international advertising firms, communications and entertainment giants and publishing conglomerates have a major presence in the city. Prominent domestic firms such as Goldman Sachs, Morgan Stanley, Citigroup, and Credit Suisse are headquartered in the city, and almost every major foreign financial institution, including UBS, HSBC, Barclays, Nomura Securities, and Deutsche Bank, maintain a significant Manhattan presence. New York City is also a hub for the insurance industry, housing five of the country's ten largest insurance companies. Three of the "Big Four" accounting firms, as well as six of the top ten U.S. law firms, are headquartered in Manhattan.

New York City is home to Broadway, Lincoln Center, Carnegie Hall, Radio City Music Hall, and a variety of live performance theaters. All major TV networks – ABC, NBC, FOX, and CBS – are headquartered in the city, as well as global

entertainment giants such as Viacom, Sony, and Bertelsmann. Three of the "Big Five" music recording companies are headquartered in New York. Other media/entertainment companies in the city include Time Warner, HMV, and Virgin Records. The city is also home to numerous publishing companies. Several book, magazine, and newspaper publishing companies are headquartered in New York City, including Random House, Knopf, Simon & Schuster, Condé Nast, Hachette Filipacchi, Dow Jones, and The New York Times Company.

New York agencies and branch offices of firms such as Young & Rubicam and Burson Marsteller dominate the list of the world's ten largest advertising and public relations agencies.

New York City's economy benefits greatly from the breadth of its corporate headquarters and related services industry. The city has acted as the nation's foremost commercial center due to the synergy created by the large concentration of corporations and service firms, which complement primary goods producers.

Overview of the Borough of Queens

The 210-room proposed Four Points will be located in Flushing, within New York City's Queens Borough. The Borough of Queens (Queens County) is bounded to the north and northwest by the East River, to the east by Long Island's Nassau County, to the south by the Atlantic Ocean, and to the southwest by Brooklyn. Queens County encompasses ±71,780 acres of land, representing 34.9% of the total area of New York City.

Queens is one of the most ethnically diverse communities in the U.S. It has served as a bedroom community for Manhattan, but has also developed its own employment base. The two major airports, JFK International and LaGuardia, have played an important role in shaping the area's economy. The Borough of Queens is home to more than 34,500 businesses, ranging from small retail outlets to large manufacturing plants. No single company or industry is dominant, although health care, air transportation, and services are major sectors. Some of Queens' largest employers include Steinway & Sons, British Airways, St. John's University, and Citibank.

More than 59% of Queens's residents commute to Manhattan for work. Of the 41% of workers who remain in Queens for employment, 32% work in the services industry, 21% in retail, 15% in public utilities, 11% in manufacturing, 8% in government, 7% in construction, and 6% in FIRE (finance, insurance, and real estate).

Although Queens has never been a major center for office development, the retail sector has benefited from the area's concentration of residential developments. Downtown Jamaica, which is located north of the subject property, in central

Queens, is one of the largest concentrations of retail space in New York City, attracting visitors from throughout the region, owing to the appealing prices offered by the local merchants. However, Queens still exports a disproportionate share of its retail spending to neighboring Manhattan and Nassau County.

While not as rich in tourist attractions as Manhattan, the Borough of Queens offers its own array of leisure-oriented sites. The following table lists selected visitor attractions located in Queens.

FIGURE 5-1 SELECTED QUEENS VISITOR ATTRACTIONS

Attraction	Type	Location	Notes
Queens Botanical Garden	Garden	Flushing	Acres of plantlife, including a Japanese Garden
Queens County Farm Museum	Museum	Floral Park	47 acres, including a historic farmhouse, as well as livestock and planting fields
New York Hall of Science	Museum	Queens	225-exhibit, hands-on science center
Louis Armstrong House & Archives	Museum	Flushing	Music, photos, films, instruments, awards
New York City Hall of Fame	Museum	Flushing	Recognizes those that contributed to NYC
The Queens Museum of Art	Museum	Queens	Art exhibits dating from 1880s to present
Isamu Noguchi Foundation, Inc.	Museum	Sunnyside	Comprehensive collection of artwork by Isamu Noguchi
King Manor Museum	Museum	Flushing	Historic home in 11-acre park
Alley Pond Environmental Center, Inc.	Nature	Douglaston	635 acres of woodlands, meadows, and fresh and salt water marshes
Flushing Town Hall-Concert Hall	Performing Arts	Flushing	340-seat concert hall
Queens Theater in the Park	Performing Arts	Flushing	476-seat theater, 99-seat experimental theater
Black Spectrum Theater	Performing Arts	Jamaica	Theater and films examining issues of concern to African-American youth
Colden Center for the Performing Arts	Performing Arts	Flushing	Auditorium with seating capacity of 2,127, and 489-seat concert hall
Thalia Spanish Theater	Performing Arts	Sunnyside	Produces Spanish zarzuela (operetta)
Shea Stadium	Sports	Flushing	Major League Baseball - home of New York Mets
Equestris, Aqueduct Racetrack	Sports	Queens	Horse race track with 1,500-seat restaurant
USTA National Tennis Center	Sports	Flushing	Home of U.S. Open
Jamaica Center for Arts and Learning, Inc.	Visual Arts	Jamaica	Exhibits of local and national artists, workshops
Queens Zoo	Zoo	Flushing	11-acre zoo with North American wildlife

Source: NYC & Company

Unemployment Statistics

The following table presents historical unemployment rates for the subject property's market area.

FIGURE 5-2 UNEMPLOYMENT STATISTICS

Year	County	NY-NJ-CT-PA MSA	State	U.S.
2003	7.4 %	6.6 %	6.4 %	6.0 %
2004	6.3	5.7	5.8	5.5
2005	5.2	4.9	5.0	5.1
2006	4.5	4.6	4.6	4.6
2007	4.4	4.4	4.6	4.6
2008	4.9	5.3	5.4	5.8
2009	8.3	8.6	8.4	9.3
2010	8.7	9.0	8.6	9.6
2011	8.1	8.6	8.3	8.9
2012	8.3	8.8	8.5	8.1
Recent Month - Mar				
2012	8.5 %	8.8 %	8.7 %	8.2 %
2013	7.7	8.1	8.1	7.6

* Letters shown next to data points (if any) reflect revised population controls and/or model re-estimation implemented by the BLS.

Source: U.S. Bureau of Labor Statistics

The unemployment rate for the U.S. fluctuated within the narrow range of 4.6% to 6.0% in the period spanning from 2003 to 2007. The recession and financial crisis in 2007 and 2008 resulted in heightened unemployment rates from 2008 through 2010. Job growth resumed in 2010, generating a decline in the unemployment rate from 2011 through early 2013. In March of 2013, the national unemployment rate declined to 7.6%, the lowest level recorded since December of 2008, a positive trend that reflects steady progress by the U.S. economy.

Locally, the unemployment rate was 8.3% in 2012; for this same area in 2013, the most recent month's unemployment rate was registered at 7.7%, versus 8.5% for the same month in 2012. Since 2003, the unemployment rate in the local MSA market has been declining year-over-year recording a record low in 2007 with 4.4%. In 2008, as the nationwide recession impacted the local market, unemployment rate increased to 5.3% in 2008, 8.6% in 2009 and a record high of 9.0% in 2010. As the national and local economy stabilized, the unemployed rate decreased to 8.6% in 2011. The recent year-to-data show a decrease in unemployment rate compared to the same period in 2012. We expect the local market to continue to strengthen in the near term as the city continues its

revitalization efforts. More than 59% of Queens's residents commute to Manhattan for work, where local employment has been strong. Our interviews with economic development officials reflect a promising outlook for the area.

Office Space Statistics

Trends in occupied office space are typically among the most reliable indicators of lodging demand, as firms that occupy office space often exhibit a strong propensity to attract commercial visitors. Thus, trends that cause changes in vacancy rates or in the amount of occupied office space may have a proportional impact on commercial lodging demand and a less direct effect on meeting demand. The following table details office space statistics for the pertinent market area.

FIGURE 5-3 OFFICE SPACE STATISTICS

	Queens Office Market						
Year	Available Office Space	% Chg	Occupied Office Space	% Chg	Vacancy Rate	Asking Lease Rate	% Chg
2007	11,278,000		10,274,258		8.9	26.79	
2008	11,278,000	0.0 %	10,443,428	1.6 %	7.4	26.70	-0.3 %
2009	11,278,000	0.0	10,274,258	-1.6	8.9	26.34	-1.3
2010	11,278,000	0.0	10,420,872	1.4	7.6	26.25	-0.3
2011	11,278,000	0.0	10,477,262	0.5	7.1	26.59	1.3
2012	11,278,000	0.0	10,432,150	-0.4	7.5	27.26	2.5

Source: REIS Office Market Performance Monitor, 4Q 2012

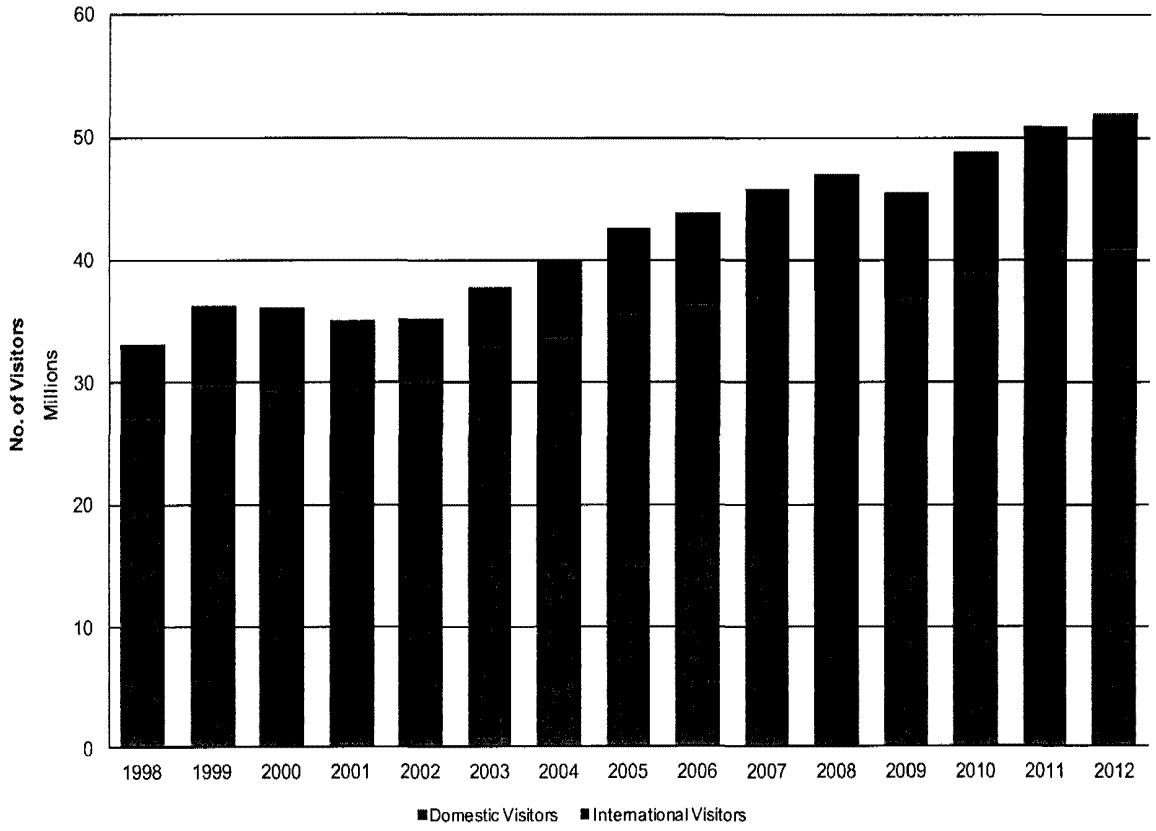
The office market in Queens remained relatively stable over the period 2007 to 2012, with approximately 11.3 million square feet of inventory and vacancy rates remaining below 10%. The impact of the recession on this market was minimal, as is evident in the average asking lease rate, which decreased by $0.54 from 2007 to 2010, and has since increased by just over $1.00. Most of the office space in Queens comprises older, smaller buildings. Approximately 85% of the inventory was built before 1990, and 57% was built before 1970. The average building size is 148,000 square feet, but the median is only 50,000.

Tourism

New York City is one of the most popular and frequently visited destinations in the United States. In 2012, New York City is estimated to have accommodated roughly 52 million visitors – a record level. Of the overall visitation figure, roughly 11 million hailed from international markets, maintaining the City's rank as the number one U.S. destination for overseas travelers. The City also maintained its status as the number one destination in tourism spending in the U.S. with approximately $36.90 billion spent. Given such performance, Mayor Bloomberg has now set sights on 55 million by 2015.

According to most market observers, such record levels could not been realized without the expanded availability of hotel rooms in New York City. In fact, as illustrated by the tourism data in the following, the three highest tourism levels have all been recorded over the past three years – the period of highest availability of inventory in the market.

FIGURE 5-4 NEW YORK CITY – HISTORICAL TOURISM LEVELS (NYC & COMPANY)



Source : NYC & Company

Airports

The New York City area is served by three major airports: John F. Kennedy (JFK) International, LaGuardia (LGA), and Newark Liberty International (EWR). The following table presents a summary of historical passenger activity at these facilities.

FIGURE 5-5 PASSENGER STATISTICS – REGION'S THREE MAJOR AIRPORTS

	LaGuardia Airport		JFK Intl. Airport		Newark Liberty Intl. Airport		All Three Airports	
Year	Total Passengers	Percentage Change	Total Passengers	Percentage Change	Total Passengers	Percentage Change	Total Passengers	Percentage Change
1998	22,849,071	–	31,043,726	–	32,520,692	–	86,413,489	–
1999	23,926,923	4.7 %	31,708,431	2.1 %	33,622,686	3.4 %	89,258,040	3.3 %
2000	25,374,866	6.1	32,856,220	3.6	34,188,468	1.7	92,419,554	3.5
2001	21,900,000	(13.7)	29,400,000	(10.5)	30,500,000	(10.8)	81,800,000	(11.5)
2002	21,986,679	0.4	29,947,152	1.9	29,202,654	(4.3)	81,136,485	(0.8)
2003	22,482,770	2.3	31,732,446	6.0	29,431,061	0.8	83,646,277	3.1
2004	24,435,619	8.7	37,517,496	18.2	31,908,556	8.4	93,861,671	12.2
2005	25,878,601	5.9	40,884,350	9.0	33,037,754	3.5	99,800,705	6.3
2006	25,810,452	(0.3)	42,629,470	4.3	35,691,887	8.0	104,131,809	4.3
2007	24,985,264	(3.2)	47,716,941	11.9	36,367,240	1.9	109,069,445	4.7
2008	23,076,903	(7.6)	47,807,475	0.2	35,366,359	(2.8)	106,250,737	(2.6)
2009	22,142,336	(4.0)	45,915,069	(4.0)	33,424,110	(5.5)	101,481,515	(4.5)
2010	23,983,082	8.3	46,514,154	1.3	33,107,041	(0.9)	103,604,277	2.1
2011	24,122,478	0.6	47,683,529	2.5	33,711,372	1.8	105,517,379	1.8
2012	25,707,784	6.6	49,292,733	3.4	34,014,027	0.9	109,014,544	3.3
Year-to-Date through February :								
2012	3,426,450	–	6,762,682	–	4,802,783	–	14,991,915	–
2013	3,707,618	8.2 %	6,908,542	2.2 %	4,828,371	0.5 %	15,444,531	3.0 %

Source: Port Authority of New York and New Jersey

As detailed, after incurring overall passenger activity declines in 2008 and 2009 due to the impact of the latest recession, statistics have improved since 2010. Overall passenger count rebounded by roughly 2% in each - 2010 and 2011. In 2012, overall passenger count for the area increased at a stronger rate of 3.3%.

JFK Expansion

JFK airport is currently under expansion. In 2010, the Port Authority approved a plan to demolish Terminal 3 and construct a new state-of-the-art terminal to replace aging Terminal 4. The $1.2-billion project commenced in 2011 and the first phase of this project was completed in May 2013. Terminal 4 is occupied by Delta Air Lines and the opening of the first phase includes an expanded security area with 16 lanes, improved check-in areas, a centralized security checkpoint, a new 24,000 square-foot Sky Club, an improved baggage handling system, as well as improved Customs and Border Protection baggage claim and re-check facilities. Phase two of the Terminal 4 redevelopment plan will include an additional 11 gates on Terminal 4's Concourse B and is expected to be completed in summer 2015. Currently Terminal 4 hosts 30 international and domestic airlines with an

annual passenger volume of nearly 11 million. By 2014, passenger volume is expected to increase to 15 million.

Woods & Poole Economic and Demographic Review

In addition to the data outlined earlier in this section, we have provided a summary of economic and demographic statistics compiled by Woods & Poole Economics, Inc., a well-regarded forecasting service based in Washington, DC. In addition to information for the Borough of Manhattan (New York County), statistics are also provided for the New York-Northern New Jersey-Long Island, NY-NJ-PA Metropolitan Statistical Area (MSA). The MSA consists of New York City's five boroughs and the New York Counties of Nassau, Putnam, Rockland, Suffolk and Westchester; the New Jersey Counties of Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, and Union; and Pike County, Pennsylvania. Data for the State of New York and the nation as a whole are also provided.

These figures are set forth in the following table. All dollar amounts have been adjusted for inflation by Woods & Poole, and thus they reflect real change. We note that the percent changes indicated in the following table are based on unrounded figures; consequently, they may not calculate exactly. Historical and projected employment for the MSA is summarized in the second table.

FIGURE 5-6 ECONOMIC AND DEMOGRAPHIC DATA FOR THE SUBJECT PROPERTY'S MARKET AREA

	2000	2010	2012	2020	Average Annual Compounded Change 2000-10	2010-12	2012-20
Resident Population (Thousands)							
Queens County	2,230.5	2,233.9	2,253.1	2,305.4	0.0 %	0.4 %	0.3 %
New York-Northern New Jersey-Long Island, NY-NJ-PA MSA	18,356.2	18,919.6	19,089.7	19,765.1	0.3	0.4	0.4
New York-Newark-Bridgeport, NY-NJ-CT-PA CSA	21,401.2	22,110.9	22,297.8	23,066.7	0.3	0.4	0.4
State of New York	19,001.8	19,395.2	19,526.8	20,106.9	0.2	0.3	0.4
United States	282,162.4	309,330.2	314,659.2	340,554.3	0.9	0.9	1.0
Per-Capita Personal Income*							
Queens County	$31,057	$36,264	$36,610	$40,528	1.6	0.5	1.3
New York-Northern New Jersey-Long Island, NY-NJ-PA MSA	44,300	48,939	49,449	54,188	1.0	0.5	1.2
New York-Newark-Bridgeport, NY-NJ-CT-PA CSA	44,514	48,766	49,291	53,996	0.9	0.5	1.1
State of New York	38,548	43,746	44,174	48,612	1.3	0.5	1.2
United States	33,756	35,951	36,741	40,245	0.6	1.1	1.1
W&P Wealth Index							
Queens County	87.8	95.3	94.0	94.9	0.8	(0.7)	0.1
New York-Northern New Jersey-Long Island, NY-NJ-PA MSA	124.5	129.9	128.5	128.5	0.4	(0.5)	(0.0)
New York-Newark-Bridgeport, NY-NJ-CT-PA CSA	125.4	129.9	128.6	128.5	0.4	(0.5)	(0.0)
State of New York	109.4	116.7	115.3	115.7	0.7	(0.6)	0.0
United States	100.0	100.0	100.0	100.0	0.0	0.0	0.0
Food and Beverage Sales (Millions)*							
Queens County	$1,655	$1,780	$1,943	$2,124	0.7	4.5	1.1
New York-Northern New Jersey-Long Island, NY-NJ-PA MSA	22,444	27,411	29,712	32,287	2.0	4.1	1.0
New York-Newark-Bridgeport, NY-NJ-CT-PA CSA	25,947	31,600	34,220	37,208	2.0	4.1	1.1
State of New York	22,098	26,582	28,777	31,299	1.9	4.0	1.1
United States	341,369	408,974	445,844	512,773	1.8	4.4	1.8
Total Retail Sales (Millions)*							
Queens County	$13,724	$14,411	$15,592	$17,151	0.5	4.0	1.2
New York-Northern New Jersey-Long Island, NY-NJ-PA MSA	216,936	230,870	249,627	275,678	0.6	4.0	1.2
New York-Newark-Bridgeport, NY-NJ-CT-PA CSA	261,388	274,893	297,098	328,064	0.5	4.0	1.2
State of New York	210,667	223,446	241,219	265,860	0.6	3.9	1.2
United States	3,612,260	3,796,423	4,141,888	4,803,190	0.5	4.5	1.9

* Inflation Adjusted

Source: Woods & Poole Economics, Inc.

FIGURE 5-7 HISTORICAL AND PROJECTED EMPLOYMENT – MSA (+000)

Industry	2000	Percent of Total	2010	Percent of Total	2012	Percent of Total	2020	Percent of Total	Average Annual Compounded Change 2000-2010	2010-2012	2012-2020
Farm	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0 %	0.0 %	0.0 %
Forestry, Fishing, Related Activities And Other	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	1.3	1.5	0.5
Mining	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	5.2	(1.8)	(0.4)
Utilities	2.3	0.4	3.0	0.4	2.9	0.4	3.4	0.4	2.6	(1.6)	1.8
Construction	51.2	7.9	58.4	7.8	56.7	7.5	61.0	7.6	1.3	(1.5)	0.9
Manufacturing	47.4	7.3	25.0	3.3	22.9	3.0	20.0	2.5	(6.2)	(4.2)	(1.7)
Total Trade	90.0	13.8	98.1	13.1	100.9	13.4	99.9	12.4	0.9	1.4	(0.1)
Wholesale Trade	29.1	4.5	27.1	3.6	27.1	3.6	25.2	3.1	(0.7)	(0.0)	(0.9)
Retail Trade	60.9	9.4	71.0	9.5	73.8	9.8	74.7	9.3	1.6	1.9	0.2
Transportation And Warehousing	84.4	13.0	85.2	11.4	84.8	11.3	83.7	10.4	0.1	(0.2)	(0.2)
Information	13.5	2.1	11.7	1.6	11.5	1.5	11.6	1.4	(1.5)	(0.9)	0.2
Finance And Insurance	20.4	3.1	32.4	4.3	31.5	4.2	35.4	4.4	4.8	(1.5)	1.5
Real Estate And Rental And Lease	29.2	4.5	43.0	5.7	41.2	5.5	43.6	5.4	3.9	(2.1)	0.7
Total Services	273.4	42.1	348.5	46.6	359.1	47.7	403.4	50.0	2.5	1.5	1.5
Professional And Technical Services	26.5	4.1	31.0	4.1	32.7	4.3	35.9	4.5	1.6	2.7	1.2
Management Of Companies And Enterprises	2.0	0.3	2.8	0.4	2.5	0.3	2.6	0.3	3.4	(4.4)	0.3
Administrative And Waste Services	35.3	5.4	42.3	5.7	48.3	6.4	58.8	7.3	1.8	6.9	2.5
Educational Services	16.2	2.5	22.6	3.0	23.8	3.2	26.0	3.2	3.4	2.6	1.1
Health Care And Social Assistance	98.6	15.2	129.2	17.3	125.8	16.7	141.7	17.6	2.7	(1.3)	1.5
Arts, Entertainment, And Recreation	12.5	1.9	17.4	2.3	17.8	2.4	18.9	2.3	3.3	1.1	0.8
Accommodation And Food Services	31.6	4.9	42.8	5.7	45.3	6.0	49.8	6.2	3.1	2.9	1.2
Other Services, Except Public Administration	50.8	7.8	60.5	8.1	62.9	8.4	69.8	8.7	1.8	2.0	1.3
Total Government	38.1	5.9	42.0	5.6	41.5	5.5	43.9	5.5	1.0	(0.6)	0.7
Federal Civilian Government	13.7	2.1	15.6	2.1	15.0	2.0	16.6	2.1	1.3	(2.0)	1.3
Federal Military	4.3	0.7	3.6	0.5	3.4	0.5	3.5	0.4	(1.7)	(2.5)	0.1
State And Local Government	20.2	3.1	22.8	3.1	23.1	3.1	23.9	3.0	1.2	0.6	0.4
TOTAL	650.1	100.0 %	747.6	100.0 %	753.2	100.0 %	806.1	100.0 %	1.4 %	0.4 %	0.9 %
MSA	10,099.3	–	10,849.6	–	10,874.2	–	11,765.8	–	0.7 %	0.1 %	1.0 %
U.S.	165,370.9	–	173,767.3	–	177,066.2	–	197,077.4	–	0.6	0.9	1.3

Source: Woods & Poole Economics, Inc.

Market Area Conclusion

This section discussed a wide variety of economic indicators for the pertinent market area. After a period of economic contraction, the market area has entered into a period of expansion and recovery following the Great Recession. Our market interviews and research revealed that although the area was affected by slowing business levels, a depressed housing market, and reduced levels of discretionary spending during the downturn, the market benefits from a well-established and diversified economy, which has aided in the recovery. The LaGuardia Airport and the close proximity to Manhattan has remained the cornerstones of this market; generating consistent demand throughout the year. Based on our market research, we are expecting market condition continue to improve in the near future.

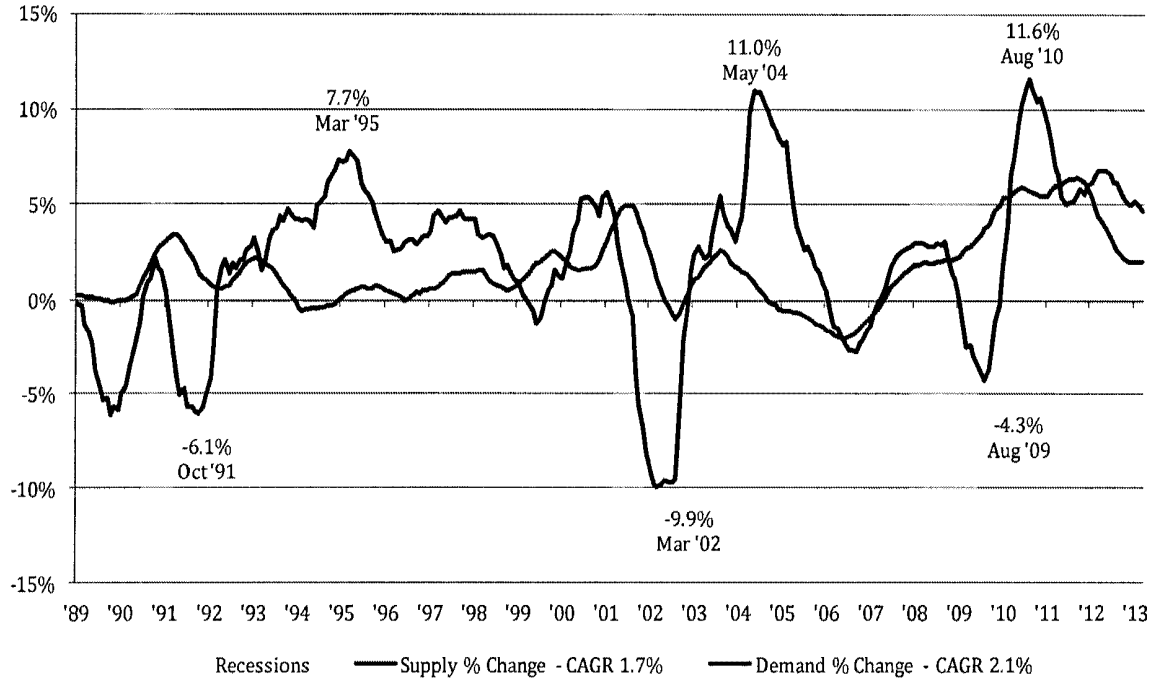
6. Overview of Manhattan Lodging Market

Historical Trends

This section provides an analysis of long-term historical performance for the Manhattan lodging market, from January 1987 to March 2013, and illustrates how the Manhattan lodging market has fluctuated with business cycles. This period covers the last three recessions. The contractions in the early 1990's and the one in 2001 each lasted eight months. The latest recession lasted 18 months, which makes it the longest of any recession since World War II.

The following graph provides the dynamics between supply and demand in Manhattan from January 1989 to March 2013. The graph illustrates percent changes in supply and demand (12-month moving average). Periods of recessions are indicated in yellow.

FIGURE 6-1 LONG-TERM SUPPLY AND DEMAND PERCENT CHANGES – 12-MONTH MOVING AVERAGE



Source: HVS, STR Global, and National Bureau of Economic Research

Demand decreased essentially during times of recessions. The minor decline in demand in 2006 was primarily due to the fact that in the winter of 2005, an art exhibit in central park known as "The Gates", attracted an additional 1.0 to 1.5 million additional tourists to Manhattan during a period considered to be the low season. As no comparable event was held during the winter of 2006, demand returned to normal levels. In addition, the conversion of several hotels to condominiums during this period further contributed to the decline in demand. Decreases in demand are typically short-lived (between 12 to 16 months) and followed by steep increases.

It is interesting to note that during the most recent recession, which was the longest recession since World War II, demand did not decrease as much as during the previous two recessions in spite of a large influx of new supply during this period. Percent change in demand bottomed out at -4.3 percent in August 2009 compared to -9.9 percent in March 2002 and -6.1 percent in October 1991. Following the latest recession, demand experienced the strongest rebound. In August of 2010, the Manhattan market registered the strongest year-over-year growth in demand over the last 25 years, at 11.6 percent.

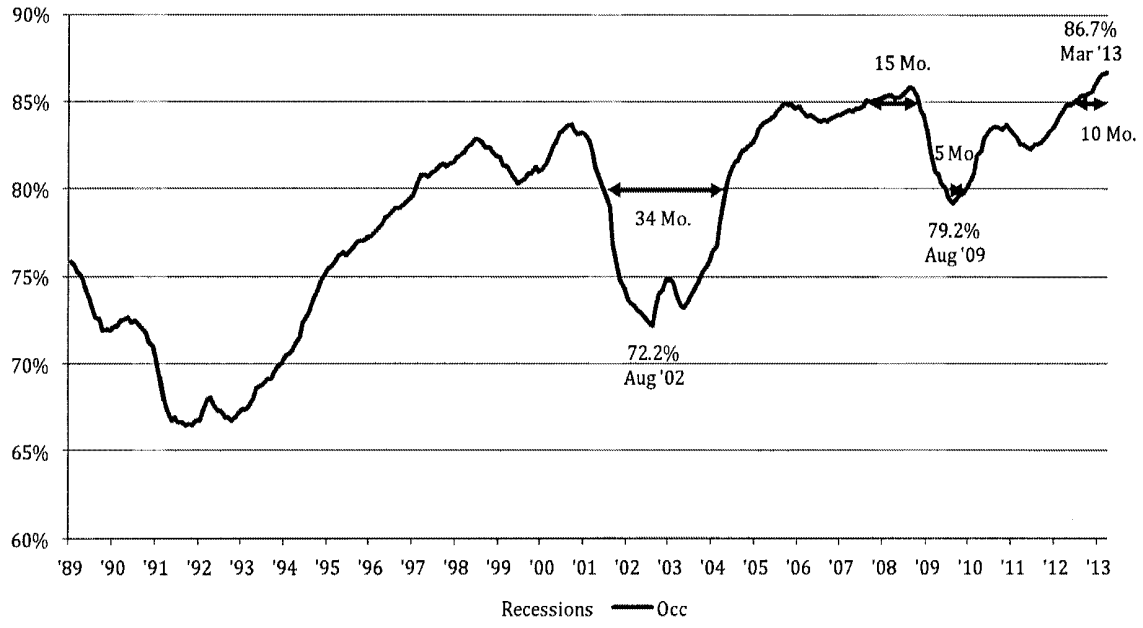
Manhattan boasts of a diverse and expansive economic base, in that, the area not only benefits from its standing as the world's financial capital, but also remains a prominent leisure destination. Such attributes translate into very strong lodging demand fundamentals for the area.

Over the last 25 years, the Manhattan lodging market experienced minimal growth in supply, as a result of strong barriers to entry prevailing in that market. From 2004 through 2006, supply actually decreased due to the conversion of several hotels to condominiums. Since early-2009, the market has consistently registered strong increases in supply each month. From January 2009 to March 2013, supply increased by 19.8 percent.

As a result of the supply and demand dynamics, the market has been historically undersupplied. Over the last 25 years, average annual demand growth, at 2.1 percent, has outpaced corresponding growth in supply, at 1.7 percent. The Manhattan lodging market represents one of only five major markets among the top 25 in the U.S. to have maintained such a positive differential between supply and demand over the same period.

The preceding supply and demand dynamics have translated into strong historical occupancy levels, as indicated by the long-term trend shown in the following graph.

FIGURE 6-2 LONG-TERM OCCUPANCY LEVELS – 12-MONTH MOVING AVERAGE

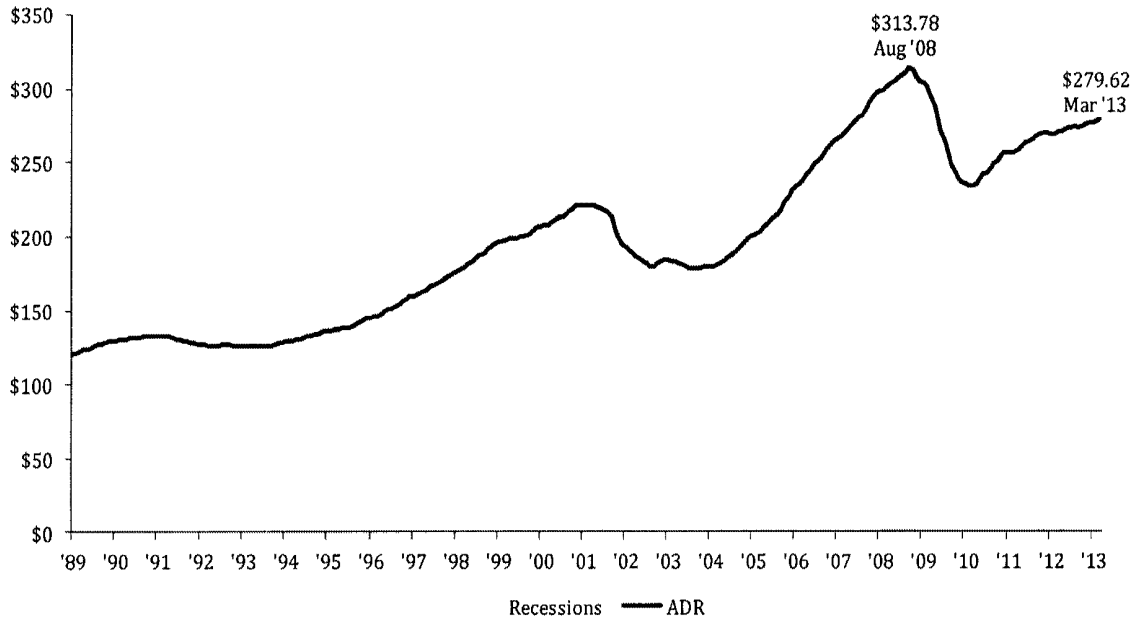


Source: HVS, STR Global, and National Bureau of Economic Research

The preceding graph illustrates the volatility in occupancy, particularly during the first two recession periods. Occupancy remained in the mid-80's from 2005 through 2008 (close to maximum-level capacity). Following the latest recession, occupancy levels remained healthy compared to those achieved after the 2001 recession, despite the largest increase in supply to date. Occupancy dipped below the 80-percent threshold for only five consecutive months in 2009, while occupancy remained in the low- to mid-70's levels from July 2001 to April 2004 (34 months). During the expansion period following the 2001 recession, occupancy remained above 85.0 percent for 15 consecutive months. As of March 2013, the occupancy had remained above 85.0 percent for 10 consecutive months, culminating at an all-time-high of 86.7 percent.

The supply and demand dynamics have also translated into strong historical ADR and RevPAR levels, as indicated by the following two graphs.

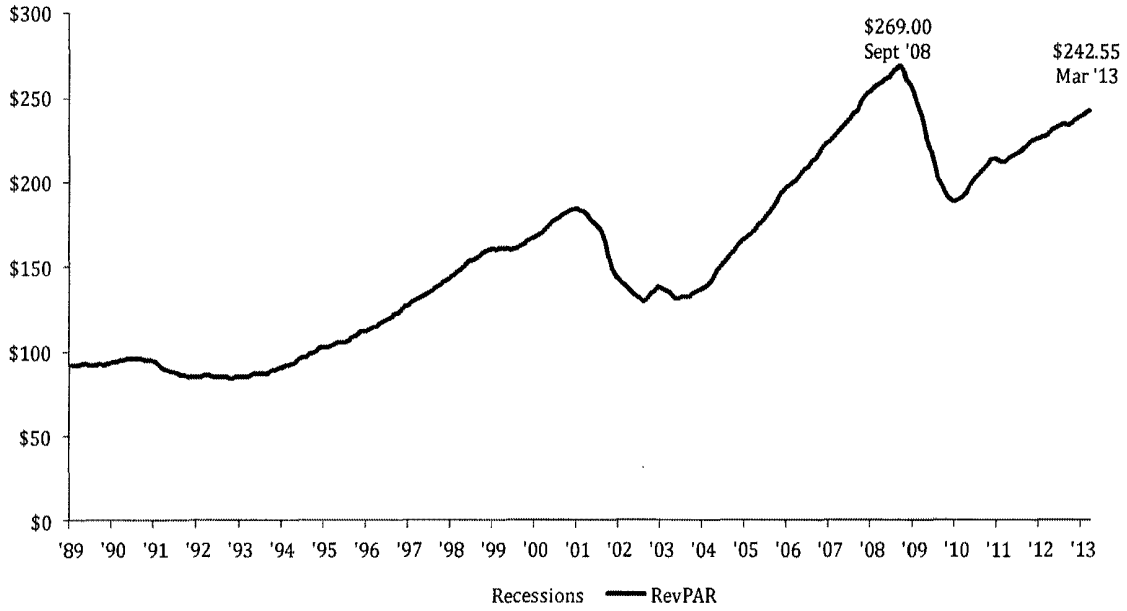
FIGURE 6-3 LONG-TERM ADR LEVELS – 12-MONTH MOVING AVERAGE



Source: HVS, STR Global, and National Bureau of Economic Research

As of March 2013, average rate was approximately 11.0 percent below August 2008 peak level.

FIGURE 6-4 LONG-TERM REVPAR LEVELS – 12-MONTH MOVING AVERAGE

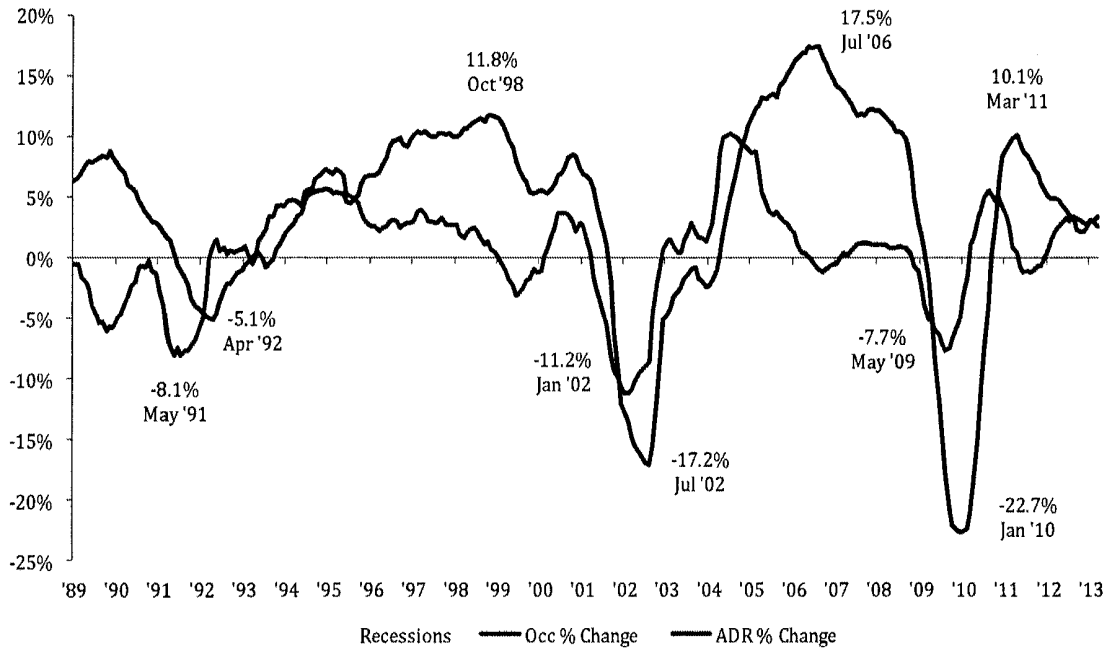


Source: HVS, STR Global, and National Bureau of Economic Research

As of March 2013, RevPAR was roughly 10.0 percent below September 2008 peak level. ADR and RevPAR have increased significantly since 1989, particularly during the expansion period following the 2001 recession. Each trough is at a higher level than that of the previous recession; the same applies to each peak.

The following graph illustrates percent changes in occupancy and ADR (12-month moving average) from January 1989 to March 2013.

FIGURE 6-5 LONG-TERM OCCUPANCY AND ADR PERCENT CHANGES – 12-MONTH MOVING AVERAGE



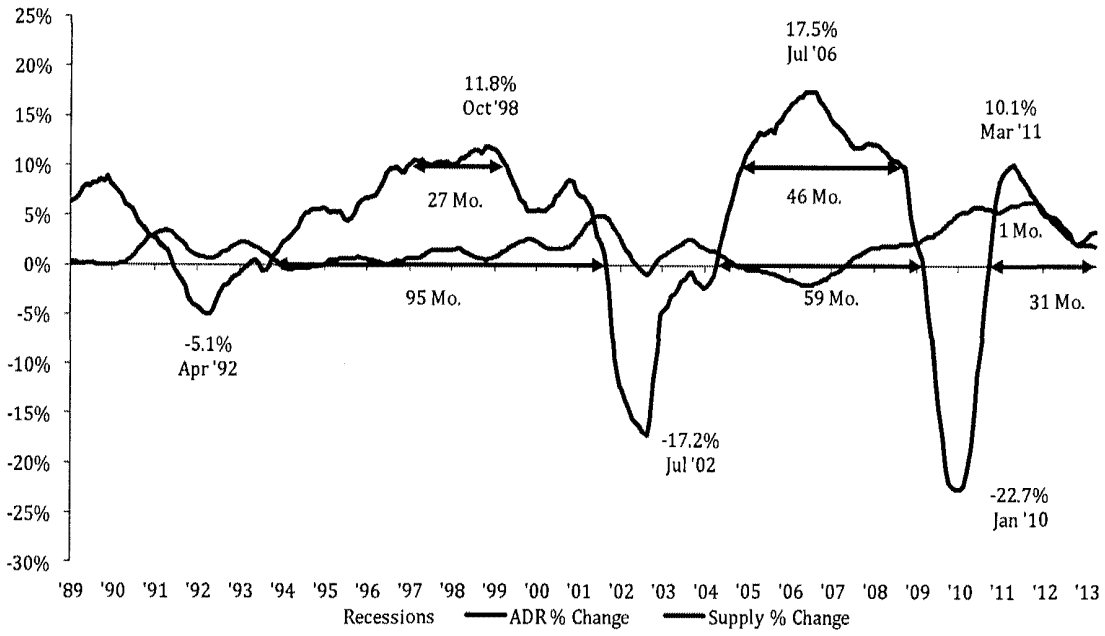
Source: HVS, STR Global, and National Bureau of Economic Research

The preceding graph highlights the high volatility of the Manhattan lodging market, particularly that of the ADR. It is interesting to note that ADR volatility has increased greatly over time, which can most likely by the growing use of services offered by STR Global or third-party websites such as Expedia. The timely availability of lodging data has created a higher level of transparency in the market. Local operators can react faster to shifts in ADR strategies utilized by their competitors and adjust their rates accordingly. In June of 2002, the market experienced a dramatic drop in ADR of 17.2 percent; however, four years later, ADR surged by a comparable magnitude, at 17.5 percent.

Strong occupancy levels during and following the last recession were largely accomplished at the expense of sizeable decreases in ADR. Percent change in ADR bottomed out at -22.7 percent in January 2010 as opposed to -17.2 percent in August 2002. However, ADR rebounded faster and stronger following the most recent recession than after the previous two contractions.

The following graph illustrates percent changes in supply and ADR (12-month moving average) from January 1989 to March 2013.

FIGURE 6-6 LONG-TERM SUPPLY AND ADR PERCENT CHANGES – 12-MONTH MOVING AVERAGE

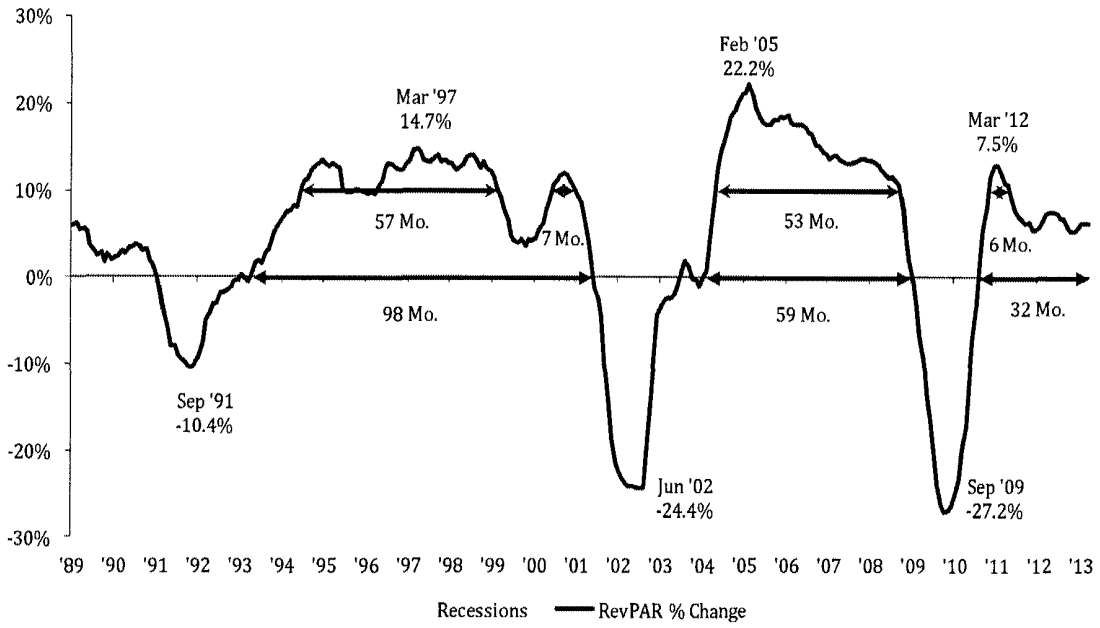


Source: HVS, STR Global, and National Bureau of Economic Research

Periods of economic recovery and expansion are characterized by strong ADR growth. The Manhattan market experienced 27 consecutive months of double-digit increases in ADR from January 1997 to March 1999, and 46 consecutive months from November 2004 to August 2008. The market experienced the strongest ADR growth during the expansion period following the 2001 recession, which coincided with decreases in supply. As of March 2013 the market had experienced only one month of double-digit increase in ADR, in March 2011, at 10.1 percent. The significant amount of new supply that had entered the market since early 2009 did not have any effect on occupancy levels; however, the additional inventory limited the ability for hotel operators to push the average rate. Double-digit increases in ADR through 2015 are unlikely with a further anticipated increase in supply of approximately 15.0 percent over the same period.

The following graph illustrates long-term RevPAR percent changes from January 1989 to March 2013 (12-month moving average).

FIGURE 6-7 LONG-TERM REVPAR PERCEN CHANGES – 12-MONTH MOVING AVERAGE



Source: HVS, STR Global, and National Bureau of Economic Research

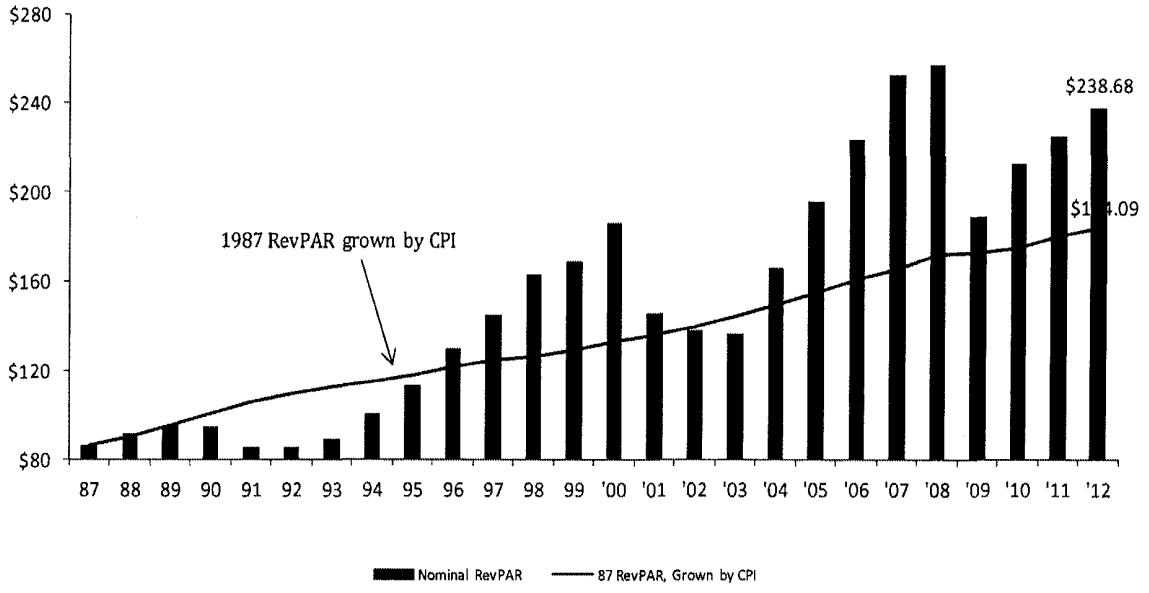
The preceding graph highlights the high RevPAR volatility of the Manhattan lodging market. However, since 1987, RevPAR has increased at a healthy average annual rate of 4.2 percent. Periods of economic recovery and expansion are characterized by strong RevPAR growth. The Manhattan market experienced 57 consecutive months of double-digit increases in RevPAR from June 1994 to February 1999, and 53 consecutive months from May 2004 to September 2008. RevPAR percent change peaked in February 2005 at 22.2 percent. Percent change in RevPAR bottomed out at -27.3 percent in October 2009 as opposed to -24.4 percent in July 2002. However, RevPAR rebounded faster and stronger following the most recent recession than after the previous two contractions, primarily fueled by ADR gains.

As of March 2013 the market had experienced only 6 months of double-digit increase in RevPAR, from November 2010 to April 2011. Double-digit increases in RevPAR through 2015 are unlikely as occupancy is forecast to remain relatively stable, in the mid-80's, and ADR is anticipated to experience single-digit growth over the same period. As such, more moderate RevPAR growth is expected during these recovery and expansion periods than after the previous two economic recessions.

The following table illustrates the effect of the latest recession and the start of the expansion on the Manhattan lodging market on a monthly basis (year over year).

The following table compares the 1987 RevPAR, grown by CPI annually, to the nominal RevPAR.

FIGURE 6-8 1987 REVPAR INCREASED BY CPI ANNUALLY



Source: HVS, STR Global

During the recession of the early 1990s, nominal RevPAR collapsed below the CPI-adjusted 1987 RevPAR for six consecutive years. Thereafter, nominal RevPAR registered strong growth until the 2001 recession arrived. Nominal RevPAR was consistent with CPI-adjusted 1987 RevPAR in 2002, and fell below it in 2003. During the recovery and expansion periods that followed, nominal RevPAR experienced much more robust growth than that witnessed during the previous cycle. Thus, nominal RevPAR remained well above CPI-adjusted 1987 RevPAR for five consecutive years before peaking at a level 50.0 percent above that of the CPI-adjusted 1987 RevPAR in 2008. Despite the effect of the latest recession and a hefty influx of new supply, nominal RevPAR remained at a level 10.0 percent above that of the CPI-adjusted 1987 RevPAR in 2009, highlighting the inherent strength of the Manhattan lodging market. In 2010, nominal RevPAR increased strongly, as the economic recovery was under way. Nominal RevPAR further increased in 2011

(b)(4)

PRIMARY COMPETITOR #3

(b)(4)

PRIMARY COMPETITOR #4 -

(b)(4)

PRIMARY COMPETITOR #5 -

(b)(4)

PRIMARY COMPETITOR #6 -

PRIMARY COMPETITOR #7 -

Secondary Competitors

We have also reviewed other area lodging facilities to determine whether any may compete with the proposed subject property on a secondary basis. The room count of each secondary competitor has been weighted based on its assumed degree of competitiveness the future with the proposed subject property. By assigning degrees of competitiveness, we can assess how the proposed subject property and its future competitors may react to various changes in the market, including new supply, changes to demand generators, and renovations or franchise changes of existing supply. The following table sets forth the pertinent operating characteristics of the secondary competitors.

FIGURE 7-15 SECONDARY COMPETITORS – OPERATING PERFORMANCE

Property	(b)(4)	Number of Rooms	Est. Segmentation				Total Competitive Level	Estimated 2010				Estimated 2011				Estimated 2012			
			Commercial	Group	Leisure	Contract		Weighted Annual Room Count	Occ.	Average Rate	RevPAR	Weighted Annual Room Count	Occ.	Average Rate	RevPAR	Weighted Annual Room Count	Occ.	Average Rate	RevPAR

(b)(4)

We have identified five hotels that are expected to compete with the proposed subject property on a secondary level. [redacted]

Supply Changes

It is important to consider any new hotels that may have an impact on the proposed subject property's operating performance. Based upon our research and inspection, new supply considered in our analysis is presented in the following table.

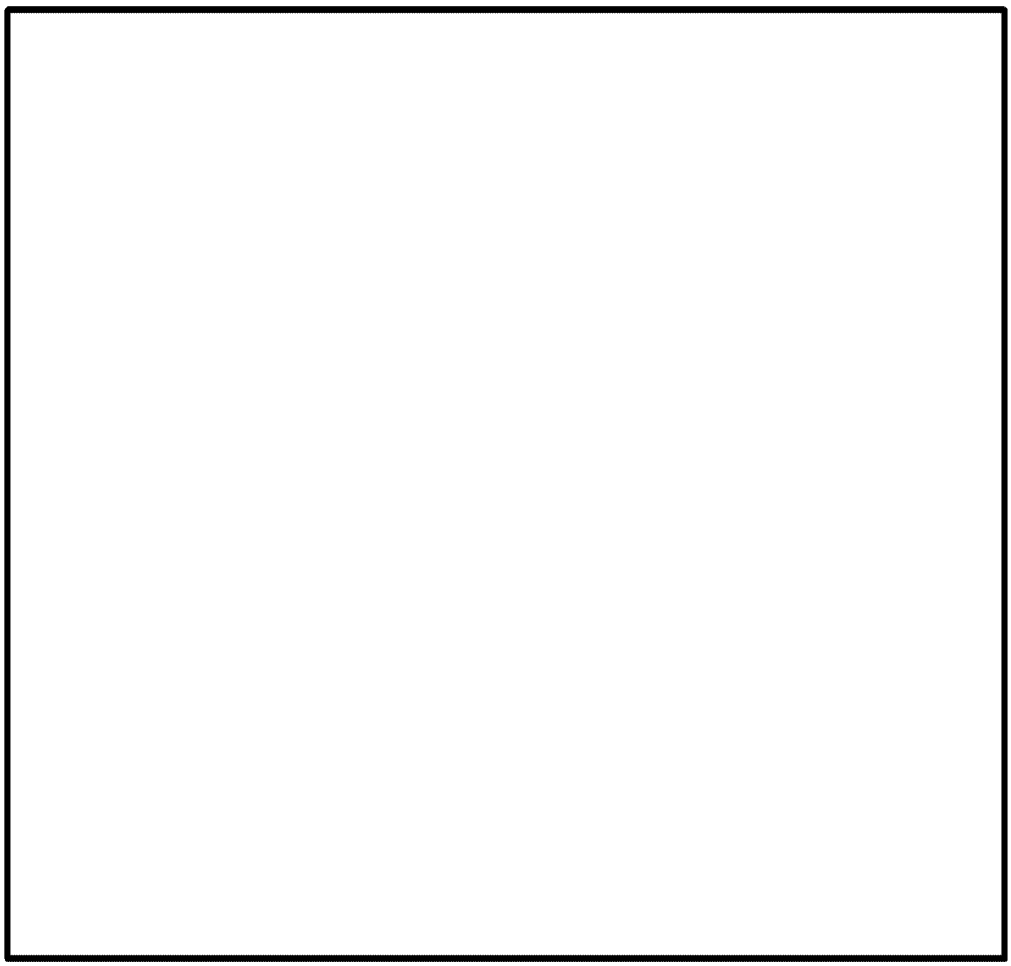
FIGURE 7-16 NEW SUPPLY

Proposed Property	Number of Rooms	Total Competitive Level	Estimated Opening Date	Development Stage	Address
[redacted]					
Totals/Averages	1,144				

Expanding Property	Room Count Change	Total Competitive Level	Estimated Completion Date	Development Stage	Address
[redacted]					

[redacted]

(b)(4)



Supply Conclusion

We have identified various properties that are expected to be competitive to some degree with the proposed subject property. We have also investigated potential increases in competitive supply in this Flushing submarket. The Proposed Four Points Flushing should enter a dynamic market of varying product types and price points. Next, we will present our forecast for demand change, using the historical supply data presented as a starting point.

DEMAND

The following table presents the most recent trends for the subject hotel market as tracked by HVS. These data pertain to the competitors discussed previously in this section; performance results are estimated, rounded for the competition, and in some cases weighted if there are secondary competitors present. In this respect, the information in the table differs from the previously presented STR data and is consistent with the supply and demand analysis developed for this report.

FIGURE 7-17 HISTORICAL MARKET TRENDS

Year	Accommodated Room Nights	% Change	Room Nights Available	% Change	Market Occupancy	Market ADR	% Change	Market RevPAR	% Change
Est. 2010	621,708	—	807,015	—	77.0 %	$140.35	—	$108.12	—
Est. 2011	614,094	(1.2) %	807,015	0.0 %	76.1	142.76	1.7 %	108.64	0.5 %
Est. 2012	660,170	7.5	812,682	0.7	81.2	148.01	3.7	120.23	10.7
Avg. Annual Compounded Chg., Est. 2010-Est. 2012:		3.0 %		0.4 %			2.7 %		5.5 %

Demand Analysis Using Market Segmentation

For the purpose of demand analysis, the overall market is divided into individual segments based on the nature of travel. Based on our fieldwork, area analysis, and knowledge of the local lodging market, we estimate the 2012 distribution of accommodated-room-night demand as follows.

FIGURE 7-18 ACCOMMODATED ROOM NIGHT DEMAND

Market Segment	Marketwide Accommodated Demand	Marketwide Percentage of Total
Commercial	286,982	51 %
Group	77,993	14
Leisure	194,225	35
Total	**559,199**	**100 %**

The market's demand mix comprises commercial demand, with this segment representing roughly 51% of the accommodated room nights in this Flushing submarket. The Group comprises 14% of the total, with Leisure at 35%.

Using the distribution of accommodated hotel demand as a starting point, we will analyze the characteristics of each market segment in an effort to determine future trends in room-night demand.

Commercial Segment

Commercial demand consists mainly of individual businesspeople passing through the subject market or visiting area businesses, in addition to high-volume corporate accounts generated by local firms. Brand loyalty (particularly frequent-traveler programs), as well as location and convenience with respect to businesses and amenities, influence lodging choices in this segment. Companies typically

designate hotels as "preferred" accommodations in return for more favorable rates, which are discounted in proportion to the number of room nights produced by a commercial client. Commercial demand is strongest Monday through Thursday nights, declines significantly on Friday and Saturday, and increases somewhat on Sunday night. It is relatively constant throughout the year, with marginal declines in late December and during other holiday periods. Commercial demand in the anticipated subject market is generated by a wide variety of businesses located in Manhattan and Queens, as well as a number of local businesses in the Flushing area.

Group Segment

In the limited-service sector, group demand is most commonly generated by groups that require ten or more room nights, but need little to no meeting space within the hotel. Examples of these groups include family reunions, sports teams, and bus tours. In some markets, limited-service hotels may also accommodate demand from groups or individuals attending events at the local convention center or at one of the larger convention hotels in the area.

Leisure Segment

Leisure demand consists of individuals and families spending time in an area or passing through en route to other destinations. Travel purposes include sightseeing, recreation, or visiting friends and relatives. Leisure demand also includes room nights booked through Internet sites such as Expedia, hotels.com, and Priceline; however, leisure may not be the purpose of the stay. This demand may also include business travelers and group and convention attendees who use these channels to take advantage of any discounts that may be available on these sites. Leisure demand is strongest Friday and Saturday nights and all week during holiday periods and the summer months. These peak periods represent the inverse of commercial visitation trends, underscoring the stabilizing effect of capturing weekend and summer tourist travel. Future leisure demand is related to the overall economic health of the region and the nation. Trends showing changes in state and regional unemployment and disposable personal income correlate strongly with leisure travel levels. Leisure demand in the subject property's market is generated by the sites and attractions described earlier in this report, including the USTA National Tennis Center at Flushing Meadows where the U.S. Open tennis tournament is held annually; and Citi Field, home to the New York Mets baseball team. During the week of the U.S. Open in early September, significant leisure demand is brought to the region.

Conclusion

The purpose of segmenting the lodging market is to define each major type of demand, identify customer characteristics, and estimate future growth trends. Starting with an analysis of the local area, three segments were defined as representing the subject property's lodging market. Various types of economic and demographic data were then evaluated to determine their propensity to reflect

changes in hotel demand. Based on this procedure, we forecast the following average annual compounded market-segment growth rates.

FIGURE 7-19 AVERAGE ANNUAL COMPOUNDED MARKET SEGMENT GROWTH RATES

	Annual Growth Rate						
Market Segment	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Commercial	11.0 %	1.0 %	10.0 %	15.0 %	10.0 %	2.0 %	0.5 %
Group	5.0	2.0	6.0	8.0	5.0	0.5	0.5
Leisure	7.0	3.0	8.0	14.0	9.0	1.0	0.5
Base Demand Growth	**8.8 %**	**1.8 %**	**8.8 %**	**13.7 %**	**9.0 %**	**1.5 %**	**0.5 %**

Accommodated Demand and Market-wide Occupancy

Based upon a review of the market dynamics in the subject property's competitive environment, we have forecast growth rates for each market segment. Using the calculated potential demand for the market, we have determined market-wide accommodated demand based on the inherent limitations of demand fluctuations and other factors in the market area.

The following table details our projection of lodging demand growth for the subject market, including the total number of occupied room nights and any residual unaccommodated demand in the market.

(b)(4)

FIGURE 7-20 FORECAST OF MARKET OCCUPANCY

		2012	2013	2014	2015	2016	2017	2018	2019
Commercial									
Base Demand									
Total Demand									
Growth Rate									
Group									
Base Demand									
Total Demand									
Growth Rate									
Leisure									
Base Demand									
Total Demand									
Growth Rate									
Totals									
Base Demand									
Total Demand									
Overall Demand Growth									
Market Mix									
Commercial									
Group									
Leisure									
Existing Hotel Supply									
Proposed Hotels									
Proposed Four Points Flushing	1								
Proposed element by Westin Flushing	2								
Proposed Hyatt Place Flushing	3								
Proposed Hotel Indigo Flushing	4								
Proposed Limited Service	5								
Proposed Hilton Garden Inn Flushing	6								
Proposed Homewood Suites Flushing	7								
Change to Existing Hotels									
Holiday Inn Express LaGuardia Airport Flushing	A								
Available Rooms per Night									
Nights per Year									
Total Supply									
Rooms Supply Growth									
Marketwide Occupancy									

Considering the subject market's historical performance and potential supply growth, we have stabilized the marketwide occupancy at approximately 76% in 2019, when all the proposed new supply is appropriately absorbed into the market.

8. Projection of Occupancy and Average Rate

Along with average rate results, the occupancy levels achieved by a hotel are the foundation of the property's financial performance and market value. Most of a lodging facility's other revenue sources (such as food, beverages, other operated departments, and rentals and other income) are driven by the number of guests, and many expense levels vary with occupancy. To a certain degree, occupancy attainment can be manipulated by management. For example, hotel operators may choose to lower rates in an effort to maximize occupancy. Our forecasts reflect an operating strategy that we believe would be implemented by a typical, professional hotel management team to achieve an optimal mix of occupancy and average rate.

Penetration Rate Analysis

The subject property's forecasted market share and occupancy levels are based upon its anticipated competitive position within the market, as quantified by its penetration rate. The penetration rate is the ratio of a property's market share to its fair share. A complete discussion of the concept of penetration is presented in the addenda.

Historical Penetration Rates by Market Segment

In the following table, the penetration rates attained by the primary competitors and the aggregate secondary competitors are set forth for each segment for the base year.

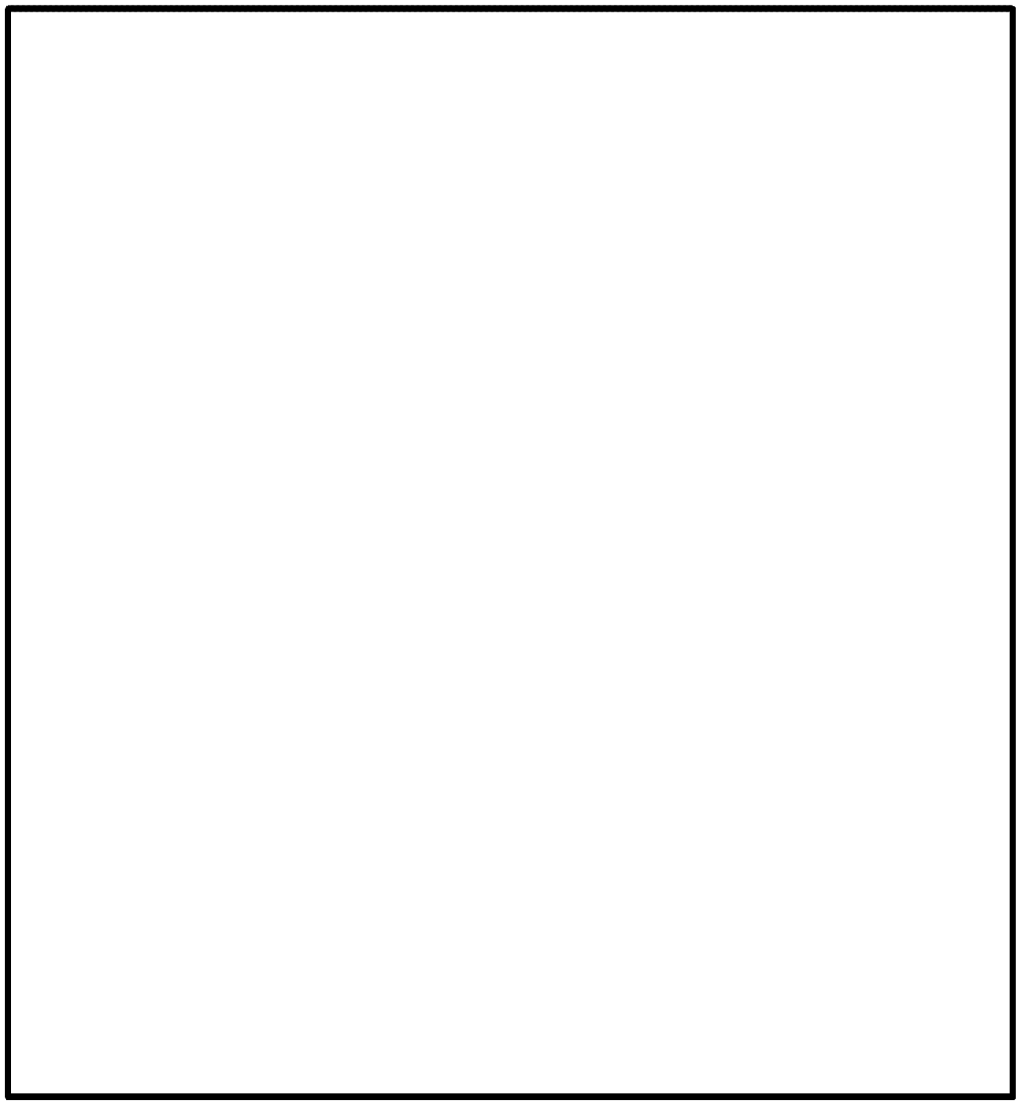
FIGURE 8-1 HISTORICAL PENETRATION RATES

Property	Commercial	Group	Leisure	Overall

(b)(4)

(b)(4)

Forecast of Subject Property's Occupancy



These positioned segment penetration rates result in the following market segmentation forecast.

FIGURE 8-2 MARKET SEGMENTATION FORECAST – SUBJECT PROPERTY

	2016	2017	2018	2019
Commercial				
Group				
Leisure				
Total				

The proposed subject property's occupancy forecast is set forth as follows, with the adjusted projected penetration rates used as a basis for calculating the amount of captured market demand.

FIGURE 8-3 FORECAST OF SUBJECT PROPERTY'S OCCUPANCY

Market Segment	2016	2017	2018	2019	(b)(4)
Commercial					
Demand					
Market Share					
Capture					
Penetration					
Group					
Demand					
Market Share					
Capture					
Penetration					
Leisure					
Demand					
Market Share					
Capture					
Penetration					
Total Room Nights Captured					
Available Room Nights					
Subject Occupancy					
Marketwide Available Room Nights					
Fair Share					
Marketwide Occupied Room Nights					
Market Share					
Marketwide Occupancy					
Total Penetration					

The proposed subject hotel is anticipated to feature an attractive, select-service product serving the downtown Flushing and LaGuardia Airport market. Based on our consideration of the proposed hotel's anticipated product quality and our review of the competitive hotels' historical performance, we have selected a stabilized occupancy level of 76% for the proposed subject property in the third projection year – 2018. The stabilized occupancy is intended to reflect the anticipated results of the property over its remaining economic life, given all changes in the life cycle of the hotel. Thus, the stabilized occupancy excludes from consideration any abnormal relationship between supply and demand, as well as

any nonrecurring conditions that may result in unusually high or low occupancies. Although the subject property may operate at occupancies above this stabilized level, we believe it equally possible for new competition and temporary economic downturns to force the occupancy below this selected point of stability.

Average Rate Analysis

One of the most important considerations in estimating the value of a lodging facility is a supportable forecast of its attainable average rate, which is more formally defined as the average rate per occupied room. Average rate can be calculated by dividing the total rooms revenue achieved during a specified period by the number of rooms sold during the same period. The projected average rate and the anticipated occupancy percentage are used to forecast rooms revenue, which in turn provides the basis for estimating most other income and expense categories.

Competitive Position

Although the average rate analysis presented here follows the occupancy projection, these two statistics are highly correlated; in reality, one cannot project occupancy without making specific assumptions regarding average rate. This relationship is best illustrated by revenue per available room (RevPAR), which reflects a property's ability to maximize rooms revenue. The following table summarizes the historical average rate and the RevPAR of the subject property's future primary competitors.

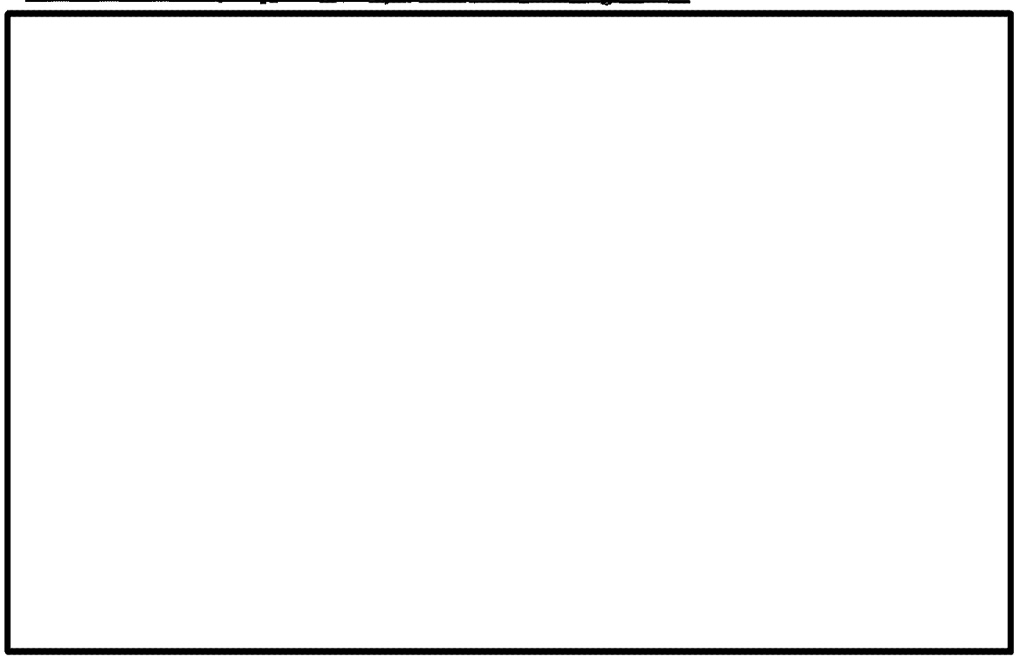
FIGURE 8-4 BASE-YEAR AVERAGE RATE AND REVPAR OF THE COMPETITORS

Property	Estimated 2012 Average Room Rate	Average Room Rate Penetration	Rooms Revenue Per Available Room (RevPAR)	RevPAR Penetration

(b)(4)

(b)(4)

Forecast of the Proposed Subject Hotel's Average Rate



The following table illustrates our forecast of the proposed subject hotel's future average rate levels.

FIGURE 8-5 MARKET AND SUBJECT PROPERTY AVERAGE RATE FORECAST

	Market (Calendar Year)		Subject Property (Calendar Year)		
Year	Average Rate Growth	Average Rate	Average Rate Growth	Average Rate	Average Rate Penetration
2008					
2009					
2010					
2011					
2012					
Forecast					
2013					
2014					
2015					
2016					
2017					

(b)(4)

The following occupancies and average rates will be used to project the subject property's rooms revenue; this forecast reflects years beginning on March 1, 2016, which correspond with our financial projections.

FIGURE 8-6 FORECAST OF OCCUPANCY, AVERAGE RATE, AND REVPAR

Year	Occupancy	Average Rate	RevPAR
2016/17			
2017/18			
Stabilized			

(b)(4)

9. Highest and Best Use

The concept of highest and best use is a fundamental element in the determination of value of real property, either as if vacant or as improved. Highest and best use is defined as follows:

> The reasonably probable and legal use of vacant land or an improved property that is physically possible, appropriately supported, financially feasible, and that results in the highest value. The four criteria the highest and best use must meet are legal permissibility, physical possibility, financial feasibility, and maximum productivity. Alternatively, the probable use of land or improved property—specific with respect to the user and timing of the use—that is adequately supported and results in the highest present value.[12]

The concept of highest and best use is the premise upon which value is based and is a product of competitive forces in the marketplace. The principle of balance holds that real property value is created and sustained when contrasting, opposing, or interacting elements are in a state of equilibrium. This principle applies to relationships among various property components as well as the relationship between the costs of production and the property's productivity. The point of economic balance is achieved when the combination of land and building is optimal (i.e., when no marginal benefit or utility is achieved by adding another unit of capital). The law of increasing returns holds that larger amounts of the agents of production produce greater net income up to a certain point, after which the law of diminishing returns is applied.

As Vacant

Land value is derived from potential use rather than actual use. The highest and best use is that which generates the greatest return to the land. An analysis as to the highest and best use of the land should be made first and may be influenced by many factors. In estimating highest and best use, there are four stages of analysis:

1. Legally permissible use. What uses are permitted by zoning, deed restrictions, lease encumbrances, or any other legally binding codes, restrictions, or interests?

[12] Appraisal Institute, The Dictionary of Real Estate Appraisal, 5th ed. (Chicago: Appraisal Institute, 2010).

As detailed in the zoning section of this report, the subject site is located in a commercially zoned district that allows for hotel, office, and retail uses, among other uses.

2. Physically possible use. What uses of the site are physically possible?

   The subject site is large enough to support most smaller-scale commercial developments, certainly a hotel, office, or strip retail development defined under legal uses permitted. The topography is appropriate and access is adequate for these types of developments.

3. Financially feasible use. Which possible and permissible uses will produce a net return to the owner of the site?

   Given the attributes of the site, uses that would be financially feasible include retail and hotel.

4. Maximally productive use. Among the feasible uses, which use will produce the highest net return or the highest present worth?

   Given the attributes of the site and the multi-story capability of hotel use, the maximally productive use would be for a hotel.

As Vacant Conclusion

In consideration of the foregoing factors influencing development in the immediate area, it is the appraisers' opinion that the highest and best use of the subject site, as vacant, is for the development of a transient lodging facility.

Ideal Improvement

The ideal improvement for the subject site is therefore as a transient lodging facility with the amenities appropriate to operate competitively in this market.

As Improved

After determining the highest and best use of the land and the ideal improvement, an analysis should be made regarding the differences between the current improvements and the ideal improvement. These differences then form the basis for estimating deterioration and obsolescence in this report.

It is our opinion that the subject improvements should be constructed as to allow the site to conform with its ideal improvement.

10. Approaches to Value

In appraising real estate for market value, three approaches to value are considered: income capitalization, cost, and sales comparison. Basic summaries of each approach are provided as follows; please refer to the introduction of each respective chapter for additional description.

Income Capitalization Approach

The income capitalization approach analyzes a property's ability to generate financial returns as an investment. The appraisal estimates a property's operating cash flow, and the result is utilized in a direct capitalization technique and a discounted-cash-flow analysis. The income capitalization approach is often selected as the preferred valuation method for operating properties because it most closely reflects the investment rationale of knowledgeable buyers.

Sales Comparison Approach

The sales comparison approach estimates the value of a property by comparing it to similar properties sold on the open market. To obtain a supportable estimate of value, the sales price of a comparable property must be adjusted to reflect any dissimilarity between it and the property being appraised. The sales comparison approach is most useful in the case of simple forms of real estate such as vacant land and single-family homes, where the properties are homogeneous and the adjustments are few and relatively simple to compute. In the case of complex investments such as hotels, where the adjustments are numerous and more difficult to quantify, the sales comparison approach loses much of its reliability.

Cost Approach

The cost approach estimates market value by computing the current cost of replacing the property and subtracting any depreciation resulting from deterioration and obsolescence. The value of the land is then added to the depreciated value.

The cost approach is most reliable for estimating the value of new properties; therefore, this approach is somewhat applicable for this project given its proposed nature.

Reconciliation

The final step in the valuation process is the reconciliation and correlation of the value indications. Factors that are considered in assessing the reliability of each approach include the purpose of the appraisal, the nature of the subject property, and the reliability of the data used. In the reconciliation, the applicability and supportability of each approach are considered and the range of value indications is examined. The most significant weight is given to the approach that produces the most reliable solution and most closely reflects the criteria used by typical

investors. Moreover, given the proposed nature of this project, the cost approach is also applicable to some extent.

11. Income Capitalization Approach

The income capitalization approach is based on the principle that the value of a property is indicated by its net return, or what is known as the present worth of future benefits. The future benefits of income-producing properties, such as hotels, are net income before debt service and depreciation (as estimated by a forecast of income and expense) and any anticipated reversionary proceeds from a sale. These future benefits can be converted into an indication of market value through a capitalization process and discounted cash flow analysis.

Methodology

Using the income capitalization approach, the proposed subject property has been valued by analyzing the local market for transient accommodations, examining future competition, and developing a forecast of income and expense that reflects anticipated income trends and cost components through a stabilized year of operation.

The forecast of income and expense is expressed in current dollars for each year. The stabilized year is intended to reflect the anticipated operating results of the property over its remaining economic life, given any or all applicable stages of build-up, plateau, and decline in the life cycle of the hotel. Thus, income and expense estimates from the stabilized year forward exclude from consideration any abnormal relationship between supply and demand, as well as any nonrecurring conditions that may result in unusual revenues or expenses. The stabilized year's net income is then extended into an eleven-year forecast of income and expense by applying the assumed underlying inflation rate to each revenue and expense item from the stabilized year forward, unless otherwise noted.

The eleven-year forecast of net income forms the basis of a mortgage-equity and discounted-cash-flow analysis, where ten years of net income and a reversion derived from the capitalized eleventh year's net income are discounted back to the date of value and summed to derive an estimate of market value. The ten-year period reflects the typical holding period of large real estate assets such as hotels. In addition, the ten-year period provides for the stabilization of income streams and comparison of yields with alternate types of real estate. The forecasted income streams reflect the future benefits of owning specific rights in income-producing real estate.

Because the value is unknown but the loan-to-value ratio and market rates of return can be estimated, the value is computed by way of a linear algebraic equation. The algebraic equation that solves for the total property value using a ten-year mortgage-equity technique was developed by Suzanne R. Mellen, CRE, MAI, FRICS, ISHC, Managing Director of the San Francisco office of HVS. A complete discussion of the technique is presented in her article entitled "Simultaneous Valuation: A New Technique."[13]

Comparable Operating Statements

In order to project future income and expense for the proposed subject property, we have included a sample of individual comparable operating statements from our database of hotel statistics. All financial data are presented according to the three most common measures of industry performance: ratio to sales (RTS), amounts per available room (PAR), and amounts per occupied room night (POR). These historical income and expense statements will be used as benchmarks in our forthcoming forecast of income and expense.

[13] Suzanne Mellen, "Simultaneous Valuation: A New Technique," *Appraisal Journal*. April (1983).

(b)(4)

FIGURE 11-1 COMPARABLE OPERATING STATEMENTS: RATIO TO SALES

	Comp 1	Comp 2	Comp 3	Comp 4	Subject Stabilized $
Number of Rooms:					
Occupied Rooms:					
Days Open:					
Occupancy:					
Average Rate:					
RevPAR:					
REVENUE					
Rooms					
Food & Beverage					
Other Operated Departments					
Total					
DEPARTMENTAL EXPENSES*					
Rooms					
Food & Beverage					
Other Operated Departments					
Total					
DEPARTMENTAL INCOME					
OPERATING EXPENSES					
Administrative & General					
Marketing					
Franchise Fee					
Property Operations & Maintenance					
Utilities					
Total					
HOUSE PROFIT					

FIGURE 11-2 COMPARABLE OPERATING STATEMENTS: AMOUNTS PER AVAILABLE ROOM

(b)(4)

	Comp 1	Comp 2	Comp 3	Comp 4	Subject Stabilized $
Number of Rooms:					
Occupied Rooms:					
Days Open:					
Occupancy:					
Average Rate:					
RevPAR:					
REVENUE					
Rooms					
Food & Beverage					
Other Operated Departments					
Total					
DEPARTMENTAL EXPENSES					
Rooms					
Food & Beverage					
Other Operated Departments					
Total					
DEPARTMENTAL INCOME					
OPERATING EXPENSES					
Administrative & General					
Marketing					
Franchise Fee					
Property Operations & Maintenance					
Utilities					
Total					
HOUSE PROFIT					

FIGURE 11-3 COMPARABLE OPERATING STATEMENTS: AMOUNTS PER OCCUPIED ROOM

(b)(4)

	Comp 1	Comp 2	Comp 3	Comp 4	Subject
Number of Rooms:					
Occupied Rooms:					
Days Open:					
Occupancy:					
Average Rate:					
RevPAR:					
REVENUE					
Rooms					
Food & Beverage					
Other Operated Departments					
Total					
DEPARTMENTAL EXPENSES					
Rooms					
Food & Beverage					
Other Operated Departments					
Total					
DEPARTMENTAL INCOME					
OPERATING EXPENSES					
Administrative & General					
Marketing					
Franchise Fee					
Property Operations & Maintenance					
Utilities					
Total					
HOUSE PROFIT					

Fixed and Variable Component Analysis

HVS uses a fixed and variable component model to project a lodging facility's revenue and expense levels. This model is based on the premise that hotel revenues and expenses have one component that is fixed and another that varies directly with occupancy and facility usage. A projection can be made by taking a known level of revenue or expense and calculating its fixed and variable components. The fixed component is then increased in tandem with the underlying rate of inflation, while the variable component is adjusted for a specific measure of volume such as total revenue.

The actual forecast is derived by adjusting each year's revenue and expense by the amount fixed (the fixed expense multiplied by the inflated base-year amount) plus the variable amount (the variable expense multiplied by the inflated base-year amount) multiplied by the ratio of the projection year's occupancy to the base-year occupancy (in the case of departmental revenue and expense) or the ratio of the projection year's revenue to the base year's revenue (in the case of undistributed operating expenses). Fixed expenses remain fixed, increasing only with inflation. Our discussion of the revenue and expense forecast in this report is based upon the output derived from the fixed and variable model. This forecast of revenue and expense is accomplished through a systematic approach, following the format of the *Uniform System of Accounts for the Lodging Industry*. Each category of revenue and expense is estimated separately and combined at the end in the final statement of income and expense.

Inflation Assumption

A general rate of inflation must be established that will be applied to most revenue and expense categories. The following table shows inflation estimates made by economists at some noted institutions and corporations.

FIGURE 11-4 INFLATION ESTIMATES

Name	Firm	Previous Projections for December 2012 in June 2012	Projected Increase in Consumer Price Index (Annualized Rate Versus 12 Months Earlier) December 2013	June 2014	December 2014	June 2015
Paul Ashworth	Capital Economics	1.5 %	1.8 %	2.0 %	2.0 %	2.0 %
Nariman Behravesh	IHS Global Insight	1.2	1.6	1.9	1.6	1.5
Richard Berner/ David Greenlaw	Morgan Stanley	—	1.3	1.5	1.6	—
Ram Bhagavatula	Combinatorics Capital	2.8	2.8	3.0	2.8	2.8
Jay Brinkmann	Mortgage Bankers Association	2.3	2.1	2.1	2.2	2.4
Michael Carey	Credit Agricole CIB	1.6	1.7	1.5	1.9	—
Joseph Carson	AllianceBernstein	2.5	2.5	2.7	3.0	3.0
Julia Coronado	BNP Paribas	2.0	2.1	2.1	2.3	2.2
Mike Cosgrove	Econoclast	2.0	2.3	2.5	2.5	2.5
Lou Crandall	Wrightson ICAP	2.1	2.3	2.1	2.2	2.3
J. Dewey Daane	Vanderbilt University	2.5	2.0	2.5	2.5	2.5
Douglas Duncan	Fannie Mae	1.7	1.5	1.9	2.0	2.0
Robert Dye	Comerica Bank	1.3	1.7	2.3	2.3	2.3
Maria Fiorini Ramirez/Joshua Shapiro	MFR, Inc.	1.5	1.6	1.6	1.8	—
Ethan Harris	Bank of America Securities- Merrill Lynch	1.4	1.8	1.9	1.5	—
Maury Harris	UBS	1.6	1.9	2.5	2.5	—
Jan Hatzius	Goldman, Sachs & Co.	1.8	2.0	1.6	1.8	2.0
Tracy Herrick	Avidbank	2.6	3.6	3.8	4.9	5.5
Stuart Hoffman	PNC Financial Services Group	1.9	2.4	2.5	2.5	2.4
Gene Huang	FedEx Corp.	1.8	2.2	2.3	2.3	2.4
William B. Hummer	Wintrust Wealth Management	2.0	2.0	1.9	2.1	2.1
Bruce Kasman	JP Morgan Chase & Co.	1.4	1.4	1.7	1.7	—
Joseph LaVorgna	Deutsche Bank Securities, Inc.	2.2	2.5	2.5	2.5	2.8
Edward Leamer/David Shulman	UCLA Anderson Forecast	1.7	1.5	2.0	2.4	—
Don Leavens/Tim Gill	NEMA Business Information Services	1.4	1.3	1.9	1.8	1.7
John Lonski	Moody's Investors Service	1.7	1.9	2.1	2.2	2.0
Dean Maki	Barclays Capital	2.0	2.6	2.5	2.5	—
Aneta Markowska	Societe Generale	1.4	1.8	1.8	1.9	2.0
Jim Meil/Arun Raha	Eaton Corp.	1.7	1.9	2.2	2.0	1.9
Michael P. Niemira	International Council of Shopping Centers	2.0	3.2	3.2	3.2	3.0
Jim O'Sullivan	High Frequency Economics	—	2.5	2.6	2.7	2.7
Nicholas S. Perna	Perna Associates	1.8	2.0	2.1	2.1	2.2
Dr. Joel Prakken/ Chris Varvares	Macroeconomic Advisers	2.0	1.5	1.8	1.8	—
John Ryding/Conrad DeQuadros	RDQ Economics	1.9	2.5	—	—	—
Ian Shepherdson	Pantheon Macroeconomic Advisors	2.4	2.2	2.5	2.5	2.5
John Silvia	Wells Fargo & Co.	1.6	2.0	2.1	2.2	2.4
Allen Sinai	Decision Economics, Inc.	2.2	2.6	2.5	2.8	3.0
James F. Smith	Parsec Financial Management	1.0	1.0	0.8	1.0	1.1
Sean M. Snaith	University of Central Florida	0.9	1.6	1.9	1.8	1.7
Sung Won Sohn	California State University	1.4	1.8	1.9	2.2	2.1
Neal Soss	CSFB	1.2	1.7	2.1	2.2	—
Stephen Stanley	Pierpont Securities	1.7	2.5	2.7	2.9	3.2
Susan M. Sterne	Economic Analysis Associates Inc.	3.0	2.7	2.5	2.4	2.6
Diane Swonk	Mesirow Financial	1.7	1.4	1.8	1.9	2.0
Carl Tannenbaum	The Northern Trust	—	1.7	1.8	1.8	—
Bart van Ark	The Conference Board	1.6	2.1	2.2	2.3	2.4
Brian S. Wesbury/ Robert Stein	First Trust Advisors, L.P.	2.5	2.8	3.0	3.3	3.5
William T. Wilson	Skolkovo Institute for Emerging Market Studies	1.2	1.5	1.8	2.0	2.0
Lawrence Yun	National Association of Realtors	—	2.9	3.6	4.1	3.3
Ellen Zentner	Nomura Securities International	1.4	1.6	1.6	1.6	—
		1.8 %	2.0 %	2.2 %	2.3 %	2.4 %
	Actual Inflation for 2012:	1.7 %				

Source: wsj.com, January 21, 2013

As the preceding table indicates, the financial analysts who were surveyed in January of 2013 anticipated inflation rates ranging from 1.0% to 3.6% (on an annualized basis) for December 2013; the average of these data points was 2.0%. The same group expects a slightly higher annualized 2.2% inflation rate for June 2014. These rates are lower than the inflation rate averages for December 2014 and June 2015, shown at 2.3% and 2.4%, respectively.

As a further check on these inflation projections, we have reviewed historical increases in the Consumer Price Index (CPI-U). Because the value of real estate is predicated on cash flows over a relatively long period, inflation should be considered from a long-term perspective.

FIGURE 11-5 NATIONAL CONSUMER PRICE INDEX (ALL URBAN CONSUMERS)

Year	National Consumer Price Index	Percent Change from Previous Year
2002	179.9	—
2003	184.0	2.3 %
2004	188.9	2.7
2005	195.3	3.4
2006	201.6	3.2
2007	207.3	2.8
2008	215.3	3.8
2009	214.5	-0.4
2010	218.1	1.6
2011	224.9	3.1
2012	229.6	2.1
Average Annual Compounded Change		
2002 - 2012:		2.5 %
2007 - 2012:		2.1

Source: Bureau of Labor Statistics

Between 2002 and 2012, the national CPI increased at an average annual compounded rate of 2.5%; from 2007 to 2012, the CPI rose by a slightly lower average annual compounded rate of 2.1%. In 2012, the CPI rose by 2.1%, a decrease from the level of 3.1% recorded in 2011.

In consideration of the most recent trends, the projections set forth previously, and our assessment of probable property appreciation levels, we have applied underlying inflation rates of 2.5%, 2.5%, and 3.0% thereafter for each respective year following the base year of 2012. This stabilized inflation rate takes into account normal, recurring inflation cycles. Inflation is likely to fluctuate above and

below this level during the projection period. Any exceptions to the application of the assumed underlying inflation rate are discussed in our write-up of individual income and expense items.

Summary of Projections

Based on an analysis that will be detailed throughout this section, we have formulated a forecast of income and expense. The following table presents a detailed forecast through the third projection year, including amounts per available room and per occupied room. The second table illustrates our ten-year forecast of income and expense, presented with a lesser degree of detail. The forecasts pertain to years that begin on March 1, 2016, expressed in inflated dollars for each year.

FIGURE 11-6 DETAILED FORECAST OF INCOME AND EXPENSE (b)(4)

Number of Rooms:	
Occupancy:	
Average Rate:	
RevPAR:	
Days Open:	
Occupied Rooms:	
REVENUE	
Rooms	
Food & Beverage	
Other Operated Departments	
Total Revenues	
DEPARTMENTAL EXPENSES *	
Rooms	
Food & Beverage	
Other Operated Departments	
Total	
DEPARTMENTAL INCOME	
UNDISTRIBUTED OPERATING EXPENS	
Administrative & General	
Marketing	
Franchise Fee	
Prop. Operations & Maint.	
Utilities	
Total	
HOUSE PROFIT	
Management Fee	
INCOME BEFORE FIXED CHARGES	
FIXED EXPENSES	
Property Taxes	
Insurance	
Reserve for Replacement	
Total	
NET INCOME	

*Departmental expenses are expressed as a percentage of departmental revenues.

(b)(4)

FIGURE 11-7 TEN-YEAR FORECAST OF INCOME AND EXPENSE

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
Number of Rooms:										
Occupied Rooms:										
Occupancy:										
Average Rate:										
RevPAR:										
REVENUE										
Rooms										
Food & Beverage										
Other Operated Departments										
Total										
DEPARTMENTAL EXPENSES*										
Rooms										
Food & Beverage										
Other Operated Departments										
Total										
DEPARTMENTAL INCOME										
UNDISTRIBUTED OPERATING EXPENSE										
Administrative & General										
Marketing										
Franchise Fee										
Prop. Operations & Maint.										
Utilities										
Total										
HOUSE PROFIT										
Management Fee										
INCOME BEFORE FIXED CHARGES										
FIXED EXPENSES										
Property Taxes										
Insurance										
Reserve for Replacement										
Total										
NET INCOME										

*Departmental expenses are expressed as a percentage of departmental revenues.

(b)(4)

Forecast of Income and Expense	
Rooms Revenue	
Food and Beverage Revenue	
Other Operated Departments Revenue	

(b)(4)

Rooms Expense	
Food and Beverage Expense	

(b)(4)

Other Operated Departments Expense	
Administrative and General Expense	
Marketing Expense	

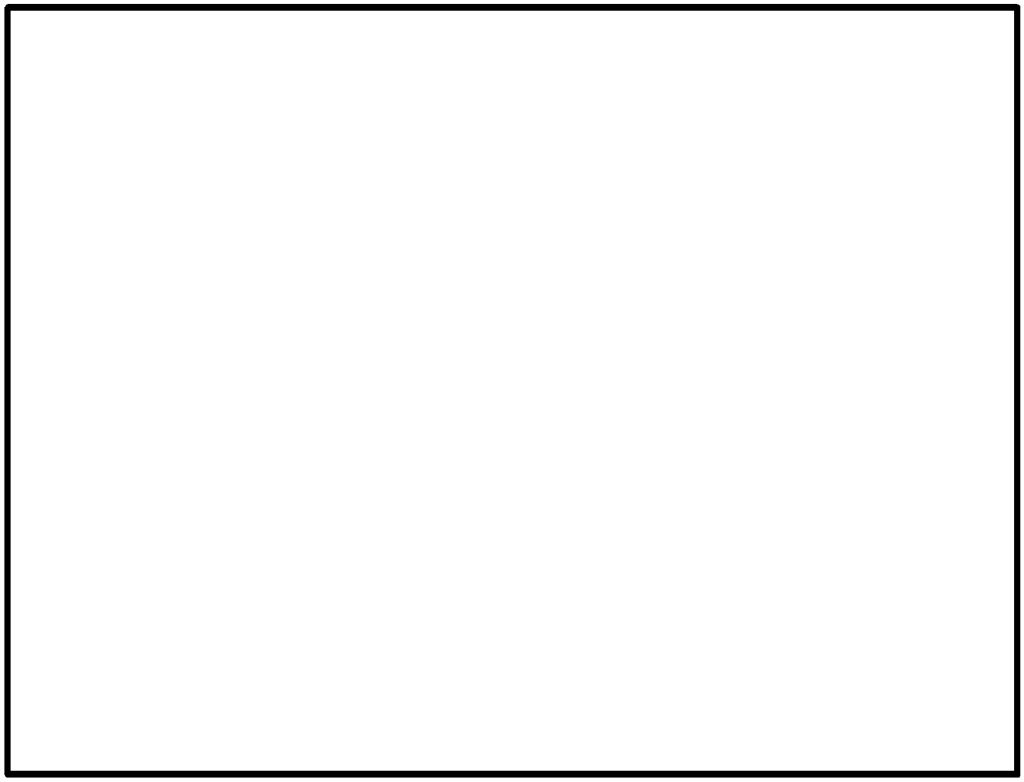
(b)(4)

Franchise Fee	
Property Operations and Maintenance	

(b)(4)

Utilities Expense	
Management Fee	
Property Taxes	

(b)(4)



The following table details the assessment history of the subject parcel.

FIGURE 11-8 SUBJECT SITE - ASSESSMENT HISTORY

Block 4949 - Lot 31

	Transitional Assessment			Target Assessment			
Tax Year	Land	Improvements	Total	Land	Improvements	Total	Change
2007/08							
2008/09							
2009/10							
2010/11							
2011/12							
2012/13							
2013/14							

(b)(4)

Source: New York Board of Real Estate

Tax Rates

Tax rates are based on the city and county budgets, which change annually. The following table shows changes in the tax rate per $100 of assessed value from 1996/97 through 2012/13.

FIGURE 11-9 PROPERTY TAX RATES

Year	Tax Rate per $100 of Assessment	Percent Change from Previous Year
1996/97	$10.252	—
1997/98	10.164	(0.9) %
1998/99	10.236	0.7
1999/00	9.989	(2.4)
2000/01	9.768	(2.2)
2001/02	9.712	(0.6)
2002/03	10.678	9.9
2003/04	11.431	7.1
2004/05	11.558	1.1
2005/06	11.306	(2.2)
2006/07	10.997	(2.7)
2007/08	10.059	(8.5)
2008/09	10.241	1.8
2009/10	10.426	1.8
2010/11	10.312	(1.1)
2011/12	10.152	(1.6)
2012/13	10.288	1.3
Average Annual Compounded Change,		
1996/97 - 2012/13:		0.0 %
2000/01 - 2012/13:		0.5

Source: New York City Department of Finance

For the purposes of our analysis, we have assumed that the tax rate will increase at an average annual compounded rate of 1.0% throughout the projection period.

Comparable Tax Assessments and Subject Property Positioning

Because the objective of assessed value is to maintain a specific value relationship among all properties in a taxing jurisdiction, assessments of comparable hotels should be evaluated to estimate the proposed subject property's future assessed

value. We have reviewed the historical assessment levels of several comparable hotels. This information is summarized in the following table.

FIGURE 11-10 ASSESSED VALUE OF COMPARABLE HOTELS

Hotel	Number of Rooms	Target Assessment	Assessment Per Room

(b)(4)

Source: Real Estate Board of New York

(b)(4)

Property Tax Forecast

Based on the preceding, the subject property's projected property tax expense levels are calculated as follows.

FIGURE 11-11 PROJECTED PROPERTY TAX EXPENSE

Year *	Growth Rate	Target Value	Taxable Value	Tax Rate	Tax Burden	Projection Years ** Tax Burden
2010/11						
2011/12						
2012/13						
2013/14						
2014/15						
2015/16						
2016/17						
2017/18						
2018/19						
2019/20						
2020/21						
2021/22						
2022/23						
2023/24						
2024/25						
2025/26						
2026/27						

(b)(4)

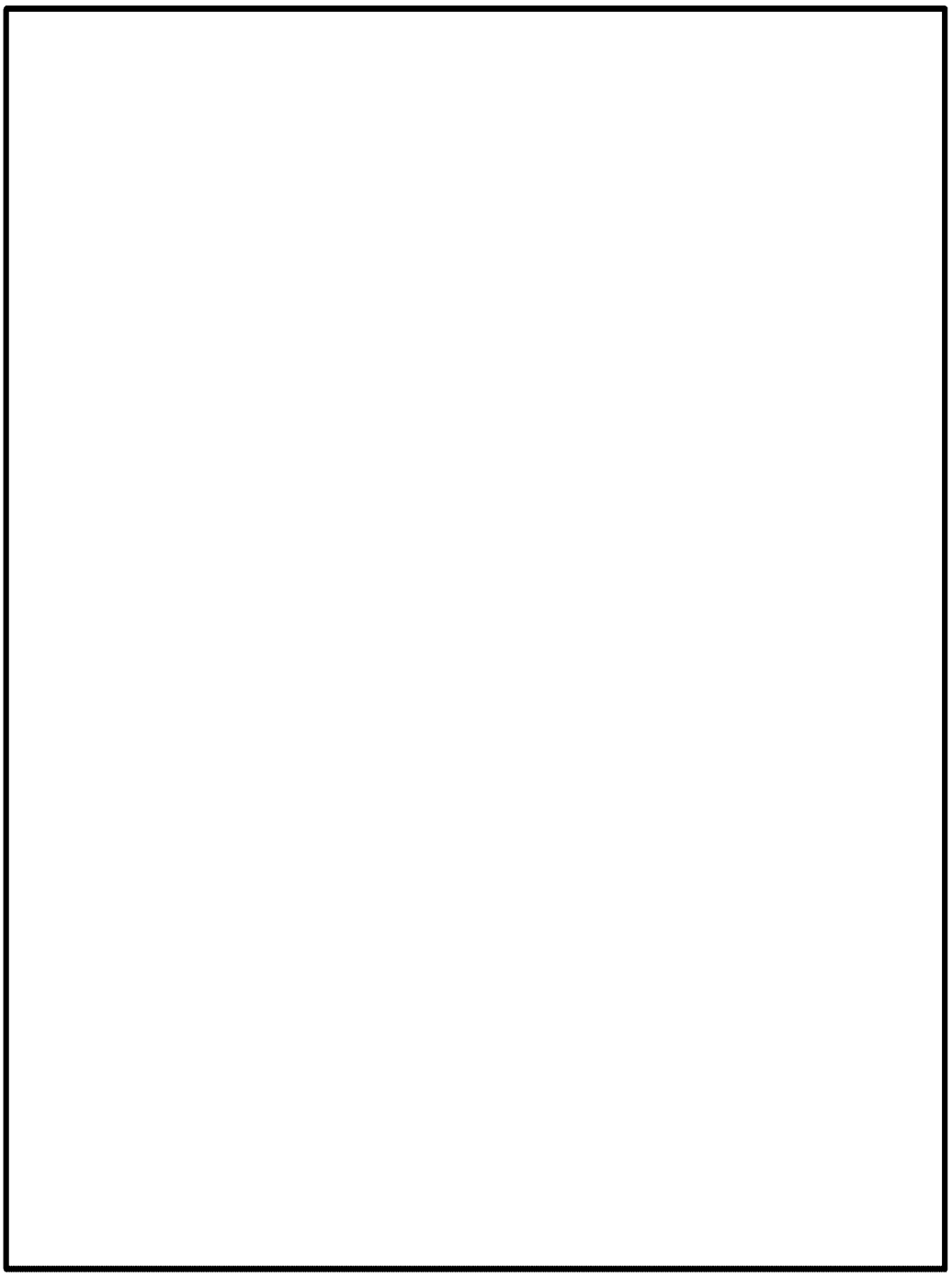
* Tax Years start July 1

** Projection Years start March 1

(b)(4)

Insurance Expense	
Reserve for Replacement	

(b)(4)



INCOME CAPITALIZATION

[14] The International Society of Hotel Consultants, *CapEx 2007, A Study of Capital Expenditure in the U.S. Hotel Industry.*

(b)(4)

Mortgage Component

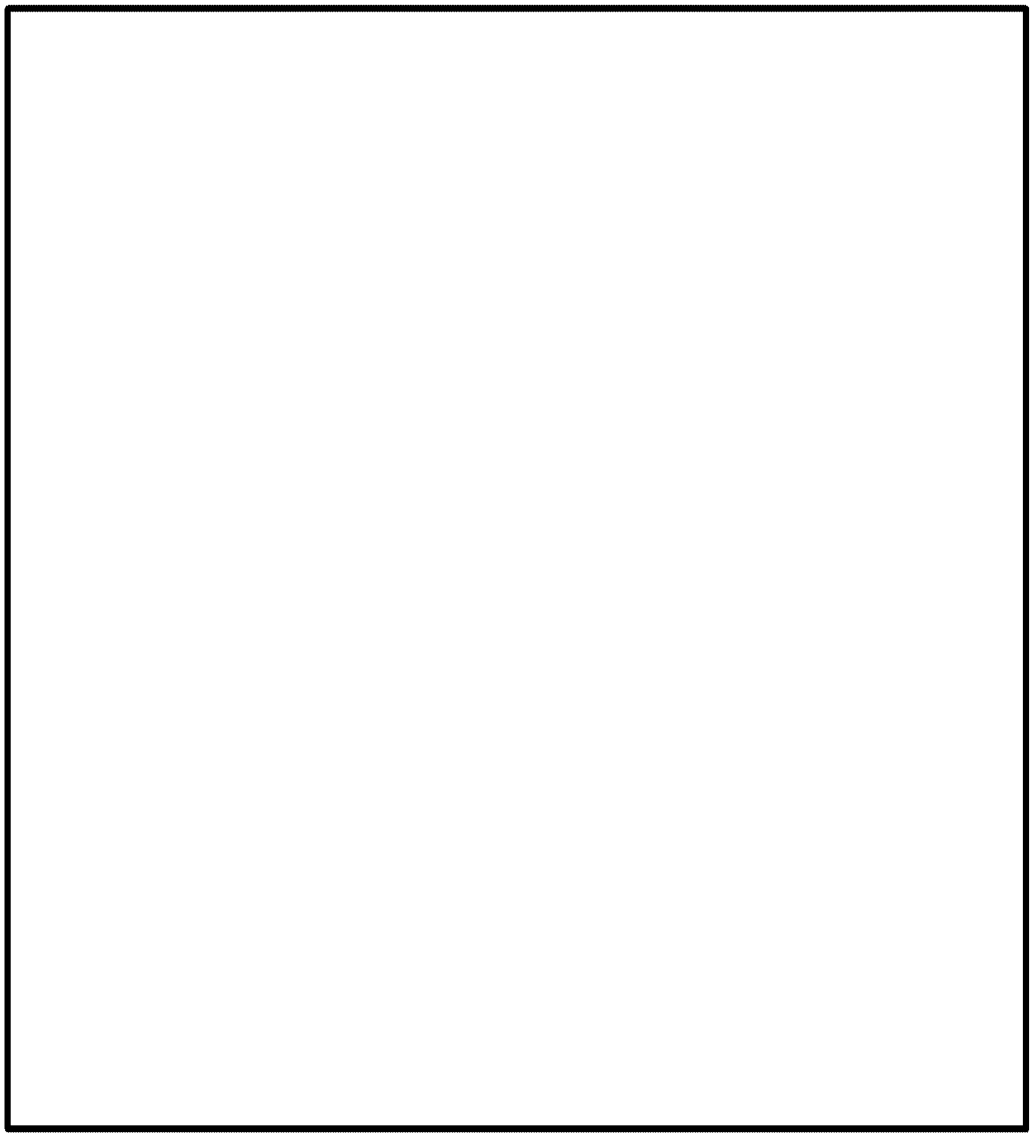
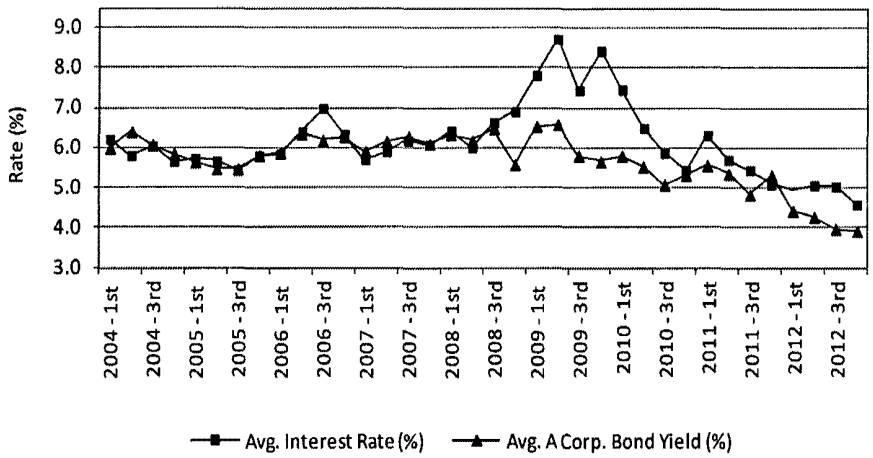


FIGURE 11-12 AVERAGE MORTGAGE INTEREST RATES AND AVERAGE-A CORPORATE BOND YIELDS



Sources: American Council of Life Insurance, Moody's Bond Record, HVS

The relationship between hotel interest rates and the yields from the average-A corporate bond can be detailed through a regression analysis, which is expressed as follows.

$$Y = 0.92403200\,X + 1.10402500$$

Where: Y = Estimated Hotel Mortgage Interest Rate
X = Current Average-A Corporate Bond Yield
(Coefficient of correlation is 93%)

The June 12, 2013, average yield on average-A corporate bonds, as reported by Moody's Investors Service, was 4.53%. When used in the previously presented equation, a factor of 4.53 produces an estimated hotel/motel interest rate of 5.29% (rounded).

Yields on U.S. treasuries and average-A corporate bonds remain at record low levels, providing a very favorable financing environment. Interest rates for single hotel assets are currently ranging from 4.0% to 6.5%, depending on the type of debt, loan-to-value ratio, and the quality of the asset and its market.

In addition to the mortgage interest rate estimate derived from this regression analysis, HVS constantly monitors the terms of hotel mortgage loans made by our institutional lending clients. Fixed-rate debt is being priced at roughly 200 to 500 basis points over the corresponding yield on treasury notes. As of June 12, 2013, the yield on the ten-year T-bill was 2.1%, indicating an interest rate range from 4.1% to 7.1%. Hotel mortgages are currently being offered at record low rates due to the low interest rate environment being maintained by the Federal Reserve. At present, we find that lenders who are active in the market are using loan-to-value ratios of 50% to 75% and amortization periods of 20 to 30 years.

Based on our analysis of the current lodging industry mortgage market and adjustments for specific factors, such as the proposed property's location and conditions in the Flushing hotel market, it is our opinion that a 5.50% interest, 25-year amortization mortgage with a 0.073690 constant is appropriate for the proposed subject property. In the mortgage-equity analysis, we have applied a loan-to-value ratio of 65%, which is reasonable to expect based on this interest rate and current parameters.

Equity Component

The remaining capital required for a hotel investment generally comes from the equity investor. The rate of return that an equity investor expects over a ten-year holding period is known as the equity yield. Unlike the equity dividend, which is a short-term rate of return, the equity yield specifically considers a long-term holding period (generally ten years), annual inflation- adjusted cash flows, property appreciation, mortgage amortization, and proceeds from a sale at the end of the holding period. To establish an appropriate equity yield rate, we have used two sources of data: past appraisals and investor interviews.

Hotel Sales – Each appraisal performed by HVS uses a mortgage-equity approach in which income is projected and then discounted to a current value at rates reflecting the cost of debt and equity capital. In the case of hotels that were sold near the date of our valuation, we were able to derive the equity yield rate and unlevered discount rate by inserting the ten-year projection, total investment (purchase price and estimated capital expenditure and/or PIP) and debt assumptions into a valuation model and solving for the equity yield. The overall capitalization rates for the historical income and projected first-year income are based on the sales price "as is." The following table shows a representative sample of hotels that were sold on or about the time that we appraised them, along with the derived equity return and discount rates based on the purchase price and our forecast.

FIGURE 11-13 SAMPLE OF HOTELS SOLD – FULL-SERVICE & LUXURY

Hotel	Location	Number of Rooms	Date of Sale	Total Property Yield	Equity Yield	Overall Rate Based on Sales Price: Historical Year	Overall Rate Based on Sales Price: Projected Year One
Savoy Suites	Washington, DC	154	Mar-13	11.0 %	17.5 %	5.6 %	6.6 %
Miami Beach Resort	Miami Beach, FL	424	Mar-13	9.4	15.0	—	12.5
Sheraton North Houston	Houston, TX	420	Mar-13	10.7	17.1	6.6	7.2
Intercontinental New Orleans	New Orleans, LA	479	Jan-13	10.4	16.6	5.3	6.8
Carlyle Suites	Washington, DC	173	Dec-12	11.9	19.2	6.8	7.5
Eastgate Tower	New York, NY	187	Nov-12	10.4	15.2	5.0	6.3
Westin Atlanta Perimeter	Atlanta, GA	372	Oct-12	11.0	17.3	6.1	8.2
Doubletree Cocoa Beach	Cocoa Beach, FL	148	Oct-12	11.4	19.0	7.6	8.1
Hyatt Regency Mission Bay	San Diego, CA	429	Sep-12	11.1	17.8	5.7	7.4
Anaheim Hilton	Anaheim, CA	1572	Aug-12	11.7	19.7	6.9	8.9
Marriott St. Louis Airport	St. Louis, MO	601	Jul-12	11.1	17.4	3.7	6.9
Hilton Hotel	Burlington, VT	258	Jul-12	10.6	17.3	7.8	8.5
Westin San Diego	San Diego, CA	436	Jul-12	10.2	16.1	5.7	6.1
Hilton Boston Financial District	Boston, MA	362	Jul-12	10.0	15.8	5.3	6.8
Doubletree Denver Southwest	Aurora, CO	248	Jul-12	12.2	17.8	7.4	7.7
Gaige House	Glen Ellen, CA	23	Jun-12	11.8	15.8	1.5	5.1
Colony Palms Hotel	Palm Springs, CA	57	Jun-12	12.3	19.1	11.7	10.7
Embassy Suites Valencia	Valencia, CA	156	May-12	10.8	16.4	6.5	7.9
Fairmont San Francisco	San Francisco, CA	591	Mar-12	10.8	15.7	4.1	6.4
Sonoma Mission Inn	Sonoma, CA	226	Mar-12	10.1	14.2	4.0	5.5
Hotel Palomar	San Francisco, CA	196	Jan-12	9.9	15.8	5.4	6.1
Hotel Abri	San Francisco, CA	91	Jan-12	9.2	13.4	6.2	8.2
Ritz-Carlton Cleveland	Cleveland, OH	205	Dec-11	11.0	16.6	—	7.0
Hilton Crystal City	Arlington, VA	386	Dec-11	10.4	15.9	6.6	6.0
Park Central Hotel	New York, NY	934	Nov-11	10.3	15.4	5.4	5.7
Fairmont Dallas	Fairmont, TX	545	Aug-11	11.9	21.1	6.3	7.3
Hotel Adagio	San Francisco, CA	171	Jul-11	10.0	14.1	4.7	6.2
Wyndham Princeton Forrestal	Plainsboro, NJ	364	Jun-11	13.7	18.8	7.5	—
Hilton Suites Lexington	Lexington, KY	174	May-11	10.9	17.9	10.0	8.0
Red Lion Fifth Avenue	Seattle, WA	297	May-11	9.0	12.0	6.0	5.6
Embassy Suites Phoenix	Tempe, AZ	224	May-11	11.8	18.7	6.3	8.8
Xona Suites	Scottsdale, AZ	431	Apr-11	13.2	17.4	—	3.6
Inn at Morro Bay	Morro Bay, CA	98	Apr-11	12.0	15.4	3.6	6.2
Sheraton Bay Keauhou Resort	Kailua-Kona, HI	521	Apr-11	12.2	14.9	—	—
Capitol Hill Suites	Washington, DC	152	Apr-11	10.7	15.2	5.9	6.4
Crowne Plaza Hotel	Romulus, MI	364	Mar-11	13.3	17.9	6.6	11.3
Hilton Mark Center	Alexandria, VA	496	Jan-11	12.1	18.0	4.9	6.2

Source: HVS

FIGURE 11-14 SAMPLE OF HOTELS SOLD – SELECT UPSCALE & UPPER MIDSCALE

Hotel	Location	Number of Rooms	Date of Sale	Total Property Yield	Equity Yield	Overall Rate Based on Sales Price: Historical Year	Overall Rate Based on Sales Price: Projected Year One
Holiday Inn Express	Tucson, AZ	98	Mar-13	11.5 %	18.7 %	4.4 %	8.5 %
Courtyard Shadyside	Pittsburg, PA	132	Mar-13	10.5	16.5	8.3	8.7
Courtyard Medical Center	Houston, TX	197	Feb-13	10.2	16.0	5.7	7.1
Courtyard	Santa Rosa, CA	138	Feb-13	12.9	22.5	10.2	9.5
Holiday Inn Express & Suites	San Francisco, CA	252	Feb-13	11.5	18.3	5.6	6.7
Holiday Inn Express South	Minot, SD	66	Feb-13	12.2	19.9	14.2	14.8
Hampton Inn & Suites	Ontario, CA	91	Feb-13	11.7	17.1	2.5	9.4
Hampton Inn	Portland, OR	122	Dec-12	10.0	17.1	9.6	10.1
Holiday Inn Southaven	Memphis, TN	121	Dec-12	13.0	20.6	11.7	12.6
Homewood Suites Conversion	New York, NY	241	Nov-13	9.5	13.8	–	11.9
Red Lion Denver Southeast	Aurora, CO	288	Oct-12	13.5	22.0	–	8.3
Hilton Garden Inn	Fort Worth, TX	96	Oct-12	10.7	17.1	6.9	9.3
Hilton Garden Inn	Clarksville, TN	111	Sep-12	11.1	18.4	9.5	10.0
Courtyard Ventura	Oxnard, CA	166	Aug-12	12.1	19.1	5.6	8.2
Hilton Garden Inn	Odessa, TX	100	Aug-12	14.1	24.1	9.6	10.9
Homewood Suites	Egg Harbor Twnshp, NJ	120	May-12	12.1	19.9	–	8.7
Hilton Garden Inn	Dowell, MD	100	May-12	11.2	18.4	8.4	8.7
Hampton Inn & Suites	Smyrna, TN	83	May-12	12.0	19.5	9.1	9.1
Residence Inn Dallas Arlington	Arlington, TX	96	May-12	10.1	16.5	7.9	7.3
Courtyard Dallas Arlington	Arlington, TX	103	May-12	10.8	17.1	6.5	7.1
Hilton Garden Inn	Smyrna, TN	112	May-12	11.2	17.9	7.4	8.5
Courtyard Upper East Side	New York, NY	226	May-12	10.3	14.3	4.4	5.7
Courtyard	Atlanta, GA	150	Mar-12	10.6	17.7	4.0	7.5
Springhill Suites	Boise, ID	119	Feb-12	12.4	19.4	6.3	8.3
Hilton Garden Inn Lakeshore	Birmingham, AL	95	Feb-12	11.2	17.4	9.0	8.2
Hilton Garden Inn SE Liberty	Birmingham, AL	130	Feb-12	12.1	19.3	7.4	8.7
Holiday Inn Express Burlingame	Burlingame, CA	146	Dec-11	12.5	19.1	8.7	8.5
Springhill Suites	Lincolnshire, IL	161	Nov-11	13.1	20.3	8.8	10.5
Hampton Inn	Orlando, FL	147	Nov-11	10.8	17.0	9.6	9.1
Holiday Inn Express	Temecula, CA	90	Aug-11	11.9	18.1	2.0	7.4
Residence Inn Midtown	Atlanta, GA	160	Jul-11	10.2	15.2	6.5	7.0
Four Points Times Square	New York, NY	244	Jun-11	10.5	15.5	6.3	6.4
Hilton Garden Inn Gwinnett	Duluth, GA	122	May-11	12.2	18.6	6.9	8.2
Homewood Suites	Ridgeland, MS	91	May-11	12.8	20.2	8.7	10.2
Marriott Courtyard Westside	Culver City, CA	260	Apr-11	10.6	13.0	6.5	6.7
Holiday Inn Atlanta Gwinnett Pl.	Duluth, GA	143	Apr-11	12.0	18.7	6.8	7.6
Holiday Inn Express San Diego	San Diego, CA	125	Apr-11	10.6	17.3	7.6	8.0

Source: HVS

Investor Interviews - During the course of our work, we continuously monitor investor equity-yield requirements through discussions with hotel investors and brokers. While equity still looks to yield high returns for the risk of hotel investment, the low yield environment, coupled with increased competition for quality assets, has placed downward pressure on equity yield returns. We find that

equity yield rates currently range from a low in the low to mid-teens for high-quality, institutional-grade assets in markets with high barriers to entry to the upper teens for quality assets in more typical markets; equity yield rates tend to near or exceed 20% for aging assets with functional obsolescence and/or other challenging property- or market-related issues. Equity return requirements also vary with an investment's level of leverage. Higher loan-to-value ratios are becoming more prevalent, allowing for increased equity returns.

The following table summarizes the range of equity yields indicated by hotel sales and investor interviews. We note that there tends to be a lag between the sales data and current market conditions, and thus, the full effect of the change in the economy and capital markets may not yet be reflected.

FIGURE 11-15 SUMMARY OF EQUITY YIELD OR INTERNAL RATE OF RETURN REQUIREMENTS

Source	Data Point Range	Average
HVS Hotel Sales - Full-Service & Luxury	12% - 21.1%	16.70%
HVS Hotel Sales - Select Upscale and Upper Midscale	13% - 24.1%	18.20%
HVS Hotel Sales - Budget/Economy	16.7% - 26.2%	20.72%
HVS Investor Interviews	12% - 22%	

Based on the assumed 65% loan-to-value ratio, the risk inherent in achieving the projected income stream, and the age, condition, and anticipated market position of the subject property, it is our opinion that an equity investor is likely to require an equity yield rate of 17.0%. The lack of attainable yields on alternate investments has continued to put downward pressure on equity yield rates, despite the desire of investors to yield higher returns. Competition for quality assets is increasing amongst all hotel asset types. These influences are keeping equity yields from increasing significantly. Equity return requirements remain elevated for the more challenged hotel assets.

Terminal Capitalization Rate

Inherent in this valuation process is the assumption of a sale at the end of the ten-year holding period. The estimated reversionary sale price as of that date is calculated by capitalizing the projected eleventh-year net income by an overall terminal capitalization rate. An allocation for the selling expenses is deducted from this sale price, and the net proceeds to the equity interest (also known as the equity residual) are calculated by deducting the outstanding mortgage balance from the reversion.

We have reviewed several recent investor surveys. The following chart summarizes the averages presented for terminal capitalization rates in various investor surveys during the past decade. Note that survey data lag the market and do not necessarily reflect the most current market conditions.

FIGURE 11-16 HISTORICAL TRENDS OF TERMINAL CAPITALIZATION RATES

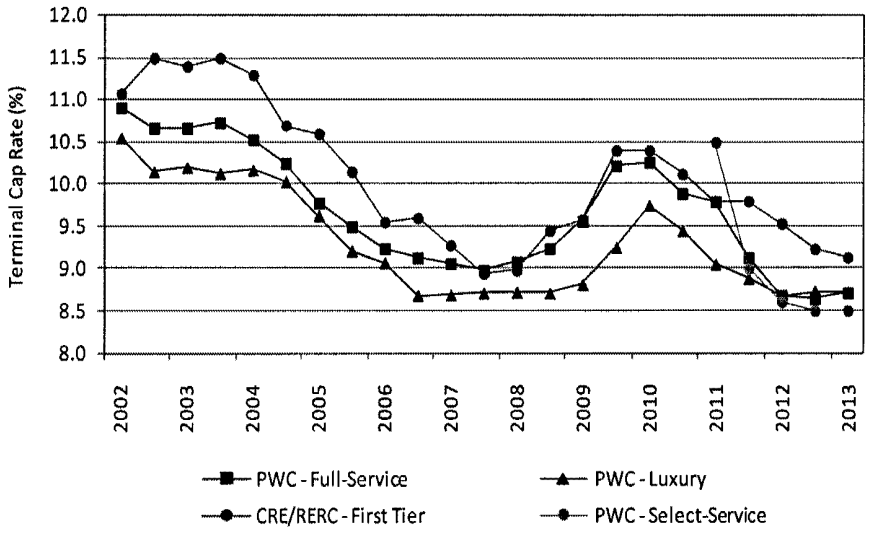


FIGURE 11-17 TERMINAL CAPITALIZATION RATES DERIVED FROM INVESTOR SURVEYS

Source	Data Point Range	Average
PWC Real Estate Investor Survey - 1st Quarter 2013		
Select-Service Hotels	5.0% - 12.0%	8.50%
Full-Service Hotels	6.0% - 12.0%	8.71%
Luxury Hotels	6.0% - 12.0%	8.72%
CRE/RERC Real Estate Report - Spring 2013		
First Tier Hotels	6.8% - 12.0%	9.15%

For purposes of this analysis, we have applied a terminal capitalization rate of 8.0%. Our final position for the terminal capitalization rate reflects the current market for hotel investments. In tandem with overall lower return expectations, terminal capitalization rates for quality hotel assets in markets with high barriers

to entry have returned to their 2005 to 2007 lows, while terminal capitalization rates for older assets or for those suffering from functional obsolescence and/or weak market conditions remain elevated, reflecting the market's recognition that certain assets have less opportunity for significant appreciation.

Mortgage-Equity Method – Value Opinion

The valuation of the mortgage and equity components is accomplished using an algebraic equation that calculates the exact amount of debt and equity that the hotel will be able to support based on the anticipated cash flow (as estimated by the forecast of income and expense) and the specific return requirements demanded by the mortgage lender (interest) and the equity investor (equity yield). Thus, the anticipated net income (before debt service and depreciation) is allocated to the mortgage and equity components based on market rates of return and loan-to-value ratios. The total of the mortgage component and the equity component equals the value of the property. Using this method of the income capitalization approach with the variables set forth, we estimate the value of the fee simple interest in the subject property, as of March 1, 2016, to be [redacted] (b)(4)

Mathematical Proof of Value

The value is mathematically proven by confirming that the market-derived yields are met for the lender and equity participant during the projection period. Using the assumed financial structure set forth in the previous calculations, market value can be allocated between the debt and equity as follows.

Mortgage Component (65%)	[redacted]	(b)(4)
Equity Component (35%)		
Total		

The annual debt service is calculated by multiplying the mortgage component by the mortgage constant.

Mortgage Component	[redacted]	(b)(4)
Mortgage Constant		
Annual Debt Service		

The eleven-year forecast of net income and ten-year forecast of net income to equity are presented in the following table.

FIGURE 11-18 ELEVEN-YEAR FORECAST OF NET INCOME AND TEN-YEAR FORECAST OF NET INCOME TO EQUITY

Year	Net Income Before Debt Service	Less: Debt Service	Net Income to Equity	Debt Coverage Ratio	Cash-on-Cash Return
2016/17					
2017/18					
2018/19					
2019/20					
2020/21					
2021/22					
2022/23					
2023/24					
2024/25					
2025/26					
2026/27					

(b)(4)

Our debt-coverage ratio falls within the range of 1.3 to 1.7, reflecting the debt-coverage ratios required in the current market. The net proceeds to equity upon sale of the property were determined by deducting sales expenses (brokerage and legal fees) and the outstanding mortgage balance.

The equity residual at the end of the tenth year is calculated by deducting brokerage and legal fees and the mortgage balance from the reversionary value. The reversionary value is calculated as the eleventh year's net income capitalized by the terminal capitalization rate. The calculation is shown as follows.

Reversionary Value		
Less:		
Brokerage and Legal Fees	(b)(4)	
Mortgage Balance		
Net Sale Proceeds to Equity		

(b)(4)

The discount rate (before debt service), the yield to the lender, and the yield to the equity position have been calculated by computer with the following results.

FIGURE 11-19 TOTAL PROPERTY VALUE AND INTERNAL RATES OF RETURN

Position	Value	Projected Yield (Internal Rate of Return) Over Holding Period
Total Property		
Mortgage		
Equity		

(b)(4)

Note: Whereas the mortgage constant and value are calculated on the basis of monthly mortgage payments, the mortgage yield in this proof assumes single annual payments. As a result, the proof's derived yield may be slightly less than that actually input.

The position of the total property yield or unlevered discount rate reflects the increasing availability and low cost of both debt and equity capital. During the 2008/09 downturn, equity yields increased, reflecting the elevated level of the perceived risk of the hospitality sector and the uncertainty concerning the length and depth of the recession; debt was expensive and difficult to obtain. However, toward the end of the first quarter of 2010, increased acquisition activity by lodging REITs and the selective return of lenders to the marketplace began to place downward pressure on overall rates of return. Unlevered discount rates continued to decline throughout 2010 as market activity increased and, as of the first quarter of 2011, had returned to the lows witnessed during the 2006 to early 2007 period. The activity by aggressive lodging REITs in 2010 and the first half of 2011 served to fuel the market. In the summer of 2011, the stock market decline resulting from the debt crisis in the U.S. and Europe caused most REITs to cease their acquisition activity, providing private equity firms an opportunity to enter the market at somewhat less aggressive rates. By mid-year 2012, REITs had returned to the market in both an acquisition and disposition mode. Yield-hungry investors are continuing to compete for quality assets, as many owners continue to hold back from putting their properties on the market in anticipation of continued improvement in asset performance. Offsetting these factors is the increasing amount of leverage being offered to borrowers, which is creating upward pressure on equity yield requirements. As of late spring 2013, lenders are very active, with capital available from numerous sources. We continue to interview hotel investors to assess the movement in yield rates and their impact on value.

The following tables demonstrate that the property receives its anticipated yields, proving that the value is correct based on the assumptions used in this approach.

FIGURE 11-20 VALUE OF THE MORTGAGE COMPONENT

Year	Total Annual Debt Service	Present Worth of $1 Factor at 5.4%	Discounted Cash Flow
2016/17			
2017/18			
2018/19			
2019/20			
2020/21			
2021/22			
2022/23			
2023/24			
2024/25			
2025/26			

(b)(4)

FIGURE 11-21 VALUE OF THE EQUITY COMPONENT

Year	Net Income to Equity	Present Worth of $1 Factor at 17.0%	Discounted Cash Flow
2016/17			
2017/18			
2018/19			
2019/20			
2020/21			
2021/22			
2022/23			
2023/24			
2024/25			
2025/26			

(b)(4)

Derived Capitalization Rates

The following chart summarizes the averages presented for overall capitalization rates in various investor surveys during the past decade.

FIGURE 11-22 HISTORICAL TRENDS OF OVERALL CAPITALIZATION RATES

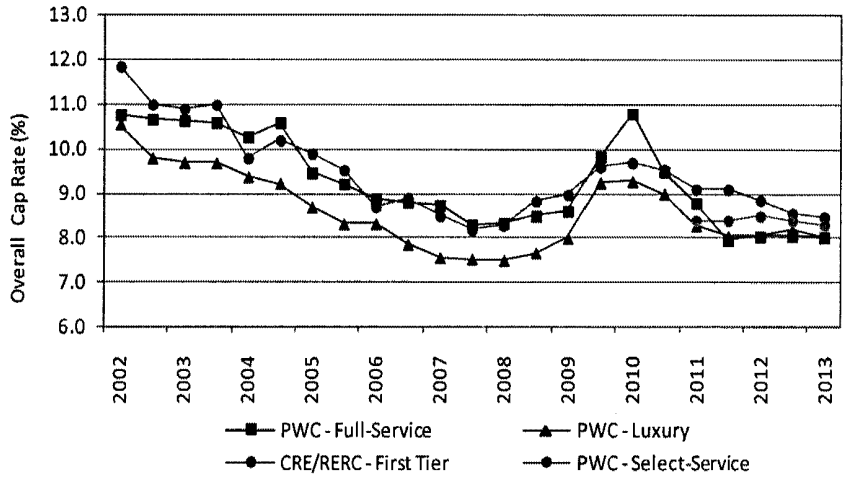


FIGURE 11-23 OVERALL CAPITALIZATION RATES DERIVED FROM SALES AND INVESTOR SURVEYS

Source	Data Point Range	Average
HVS Hotel Sales - Full-Service & Luxury	1.5% - 11.7%	6.00%
HVS Hotel Sales - Select Upscale and Upper Midscale	2% - 14.2%	7.40%
PWC Real Estate Investor Survey - 1st Quarter 2013		
Select-Service Hotels	5.0% - 12.0%	8.30%
Full-Service Hotels	6.0% - 10.0%	8.02%
Luxury Hotels	6.0% - 10.0%	8.03%
CRE/RERC Real Estate Report - Spring 2013		
First Tier Hotels	6.0% - 11.5%	8.45%

We note that the averages illustrated in the previous table are derived from wide arrays of data points, and a range of reasonableness extends both lower and higher than the indicated data points. The following table reflects the capitalization rates for the proposed subject property that have been derived based on our estimate of market value via the discounted-cash-flow analysis. Note that the stabilized year's net income has been deflated to first-year dollars.

FIGURE 11-24 DERIVED CAPITALIZATION RATES

Year	Net Operating Income	Derived Capitalization Rate
Forecast 2016/17	$3,724,000	7.9 %
Deflated Stabilized (2016/17) Dollars	3,785,000	8.0

The derived capitalization rates are considered appropriate for a proposed lodging facility such as the Proposed Four Points Flushing. The derived capitalization rates that are based on the forecasted net operating income fall in line with acceptable returns for a hotel of this caliber. We note that these capitalization rates reflect the expectation of continued improvement in profitability over the initial years of the forecast. Investors are acquiring assets at low "going-in" capitalization rates with the anticipation of a future upside as the economy continues to grow. As RevPAR and net income levels recover, direct capitalization rates can be expected to return to levels that are more typical.

Discounted Cash Flow Analysis – "When Complete"

The process of converting the projected income stream into an estimate of value via the discounted-cash-flow method is described as follows.

1. An appropriate discount rate is selected to apply to the projected net income before debt service. This rate reflects the "free and clear" internal rate of return to an all-cash purchaser or a blended rate of debt and equity return requirements. The discount rate takes into consideration the degree of perceived risk, anticipated inflation, market attitudes, and rates of return on other investment alternatives, as well as the availability and cost of financing. The discount rate is chosen by reviewing sales transactions and investor surveys and interviewing market participants.
2. A reversionary value reflecting the sales price of the property at the end of the ten-year holding period is calculated by capitalizing the eleventh-year net income by the terminal capitalization rate and deducting typical brokerage and legal fees.
3. Each year's forecasted net income before debt service and depreciation and the reversionary sales proceeds at the end of the ten-year holding period are converted to a present value by multiplying the cash flow by the chosen discount rate for that year in the forecast. The sum of the discounted cash flows equates to the value of the subject property.

The following chart summarizes the averages presented for discount rates in various investor surveys during the past decade.

FIGURE 11-25 HISTORICAL TRENDS OF DISCOUNT RATES

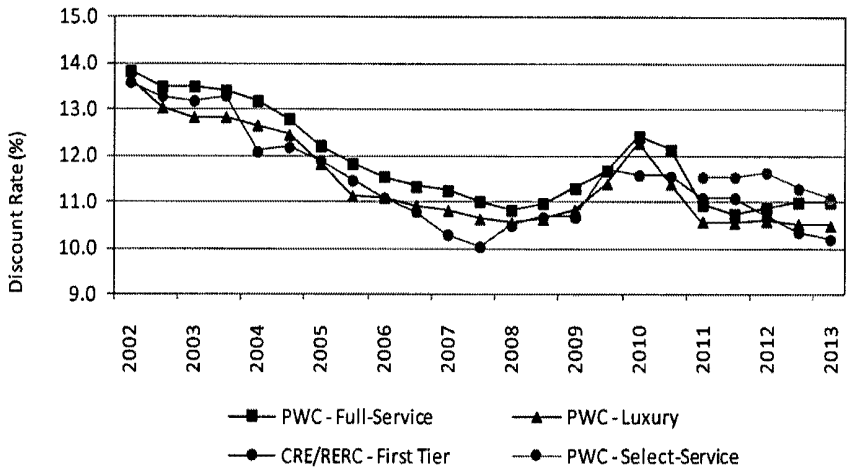


FIGURE 11-26 OVERALL DISCOUNT RATES DERIVED FROM SALES AND INVESTOR SURVEYS

Source	Data Point Range	Average
HVS Hotel Sales - Full-Service & Luxury	9% - 13.7%	11.10%
HVS Hotel Sales - Select Upscale and Upper Midscale	9.5% - 14.1%	11.50%
PWC Real Estate Investor Survey - 1st Quarter 2013		
Select-Service Hotels	9.0% - 15.0%	11.10%
Full-Service Hotels	9.5% - 13.0%	11.00%
Luxury Hotels	9.0% - 13.0%	10.50%
CRE/RERC Real Estate Report - Spring 2013		
First Tier Hotels	7.5% - 13.5%	10.33%

We note that the averages illustrated in the previous table are derived from wide arrays of data points, and a range of reasonableness extends both lower and higher than the indicated data points. Based on our review of these surveys, sales transactions (see total property yields shown in the table titled *Sample of Hotels Sold*), and interviewing market participants, we have selected a discount rate of 10.50% for our analysis. Similar to the developed total property yield, our selected discount rate considers the current market for hotel investments, as well as the characteristics of the property and market.

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Economic An

- Econometrics Repo
- Resume of Dr. Gary
  List of Relevant Proje

Economic Impact Analysis for the Proposed Four Points Sheraton/Farrington Luxury Condominium Development

Flushing, New York

Updated: July 2014

Prepared For

Farrington EB-5 Capital, LLC
134-37 35th Avenue
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Executive Summary

The subject of this economic impact analysis (EIA) is a proposed [redacted] select service hotel and mixed-use development to be located in Flushing, Queens in New York City (the Project). This analysis was prepared by Bleakly Advisory Group, Inc. (BAG) Farrington EB-5 Capital, LLC (the Client), under subcontract to Mona Shah & Associates, PLLC. Source data relied upon for this EIA was obtained from an "EB-5 Business Plan" for the Four Points Flushing Hotel & Condominium prepared on behalf of Farrington EB-5 Capital, LLC.

The Project's economic impacts were measured for the seven New York counties located within the New York-Northern New Jersey-Long Island, NY-NJ-PA Metropolitan Statistical Area (the Region) using RIMS II. The specific purpose of the report is to serve as a "job creation study" following guidelines established by the United States Citizenship and Immigration Services (USCIS) under the EB-5 Regional Center Program. Therefore, the analysis focuses on quantifying the EB-5-recognized/eligible job creation effects from both the Project's (temporary) construction and (permanent) annual operations.

The following points highlight the analysis findings and conclusions:

- Development of the proposed project will result in a [redacted] increase in net direct output to the region's economy from construction spending (inflation adjusted to 2010$). The duration of construction is expected to be 30 months.

- Resulting total output generated by the construction investment on the region's economy, including multiplier effects, approaches [redacted] That output would support [redacted] in total earnings across all industries, including direct effects, and support a total of [redacted] jobs. The investment is estimated to raise household earnings by an average of [redacted] per job. Because the construction period is more than 2 years, "direct" construction jobs associated with this Project are counted for EB-5 purposes. BAG estimates that investment in the project would support [redacted] direct construction jobs plus [redacted] indirect and induced jobs during the construction period.

- The hotel market study and financial analysis appearing in the Business Plan indicates that the proposed hotel will reach stabilized operations within the third year of start-up and generate [redacted] in annual gross sales. Combined with ancillary parking,

commercial leasing and management of the residential condominiums, stabilized year revenues from all project components totals [redacted]

- BAG estimated that roughly 90% of stabilized gross sales would be a net direct impact to the region's economy. These adjustments reduced the Project's effective (stabilized year) output to the region's economy to [redacted] when inflation adjusted to 2010$.

- The net change in final demand method generates a total regional gain in annual output of nearly [redacted] across all industries. The investment is projected to increase household earnings throughout the region by [redacted] including payrolls to employees of the facilities. The project supports a total of [redacted] jobs from permanent operations, including multiplier effects. Average earnings across all industries approach [redacted] per job in 2010$.

- BAG concluded that of the [redacted] total in-region jobs supported by stabilized operations, 110 provides a reasonable estimate of verifiable direct FTE employment while the balance of [redacted] jobs represents the Project's indirect and induced employment effects. This conclusion is consistent with hotel staffing and payroll projections contained in the Business Plan. Direct FTE job creation represents [redacted] of the Project's total estimated employment impact on the region's economy from annual operations.

- The Project is located within an area that qualifies as a State-designated "Targeted Employment Area" (TEA). As such, EB-5 supportable investment is calculated at a ratio of $500,000 for every 10 jobs created. The maximum credited foreign investment for this project under the EB-5 Program is based upon the sum of the calculated direct and indirect construction employment [redacted] jobs), direct permanent employment to be offered by the proposed facility, [redacted] FTE positions) plus the indirect permanent employment [redacted] indirect/ induced jobs) supported by those direct jobs.

Divided by the ratio of $500,000 per 10 jobs created, the resulting total of [redacted] jobs supports a maximum EB-5 investment o[redacted]

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Project Introduction

This report summarizes the estimated direct and indirect job creation effects associated with the construction and operation of a proposed mixed-use development to be located in Flushing, NY, which is part of the Borough of Queens and New York City. This proposed development will be anchored by an upscale select service hotel and accompanied by residential condominiums, retail units available for lease, a multi-purpose "community center" which may be operated as a corporate and/or special events facility, and a commercial parking garage (the Project). This analysis has been prepared by Bleakly Advisory Group, Inc. (BAG) on behalf of the Farrington EB-5 Capital, LLC, under subcontract to Monah Shah & Associates, PLLC (the Client).

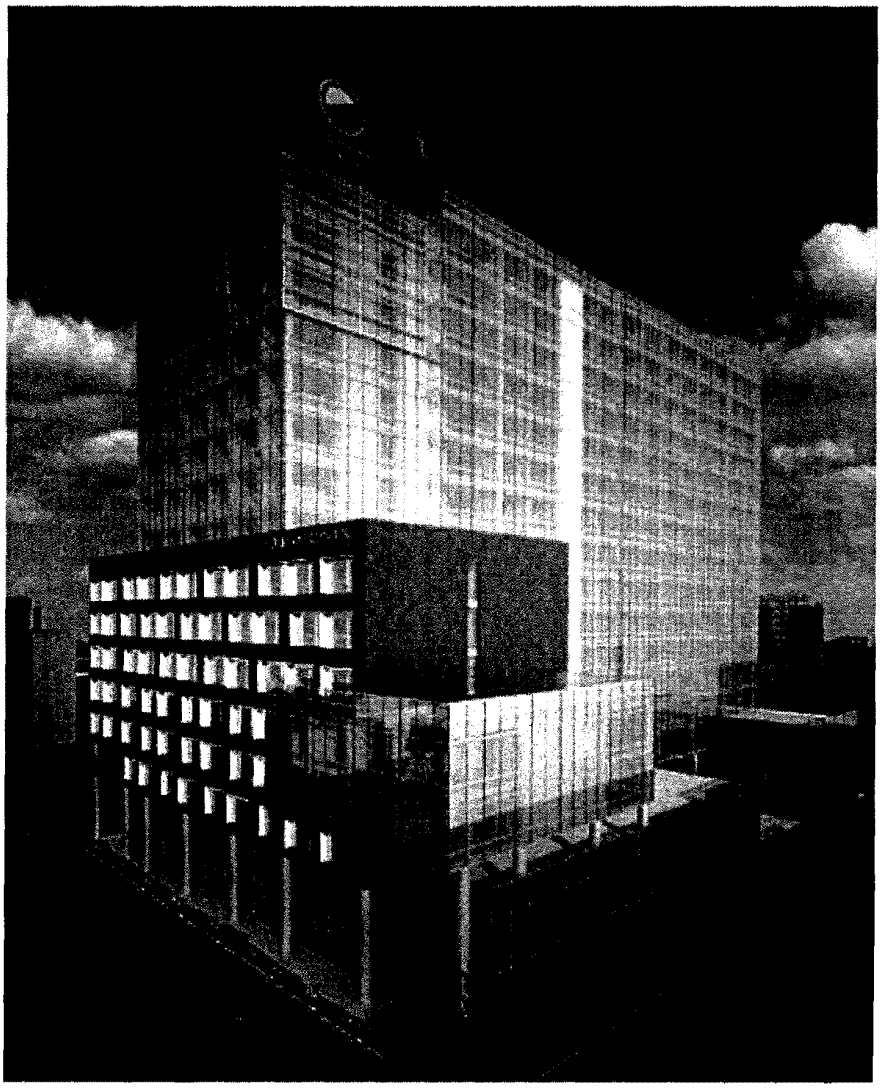

Figure 1: Project Rendering

The Project has been proposed for a 42,000 SF site located at the intersection of Farrington Street and 35th Avenue, with the address of 134-37 35th Avenue in Flushing, NY. This project site lies within a desirable commercial corridor in downtown Flushing, which is noted for its concentration of Chinese and Korean businesses and is a popular destination for Asian tourists. In addition to being located within a vibrant commercial location, the Project site is accessible to public transportation, the City's major airports, professional sports venues including CitiField and the site of the US Tennis Open, plus a number of other New York City tourism destinations and cultural attractions.

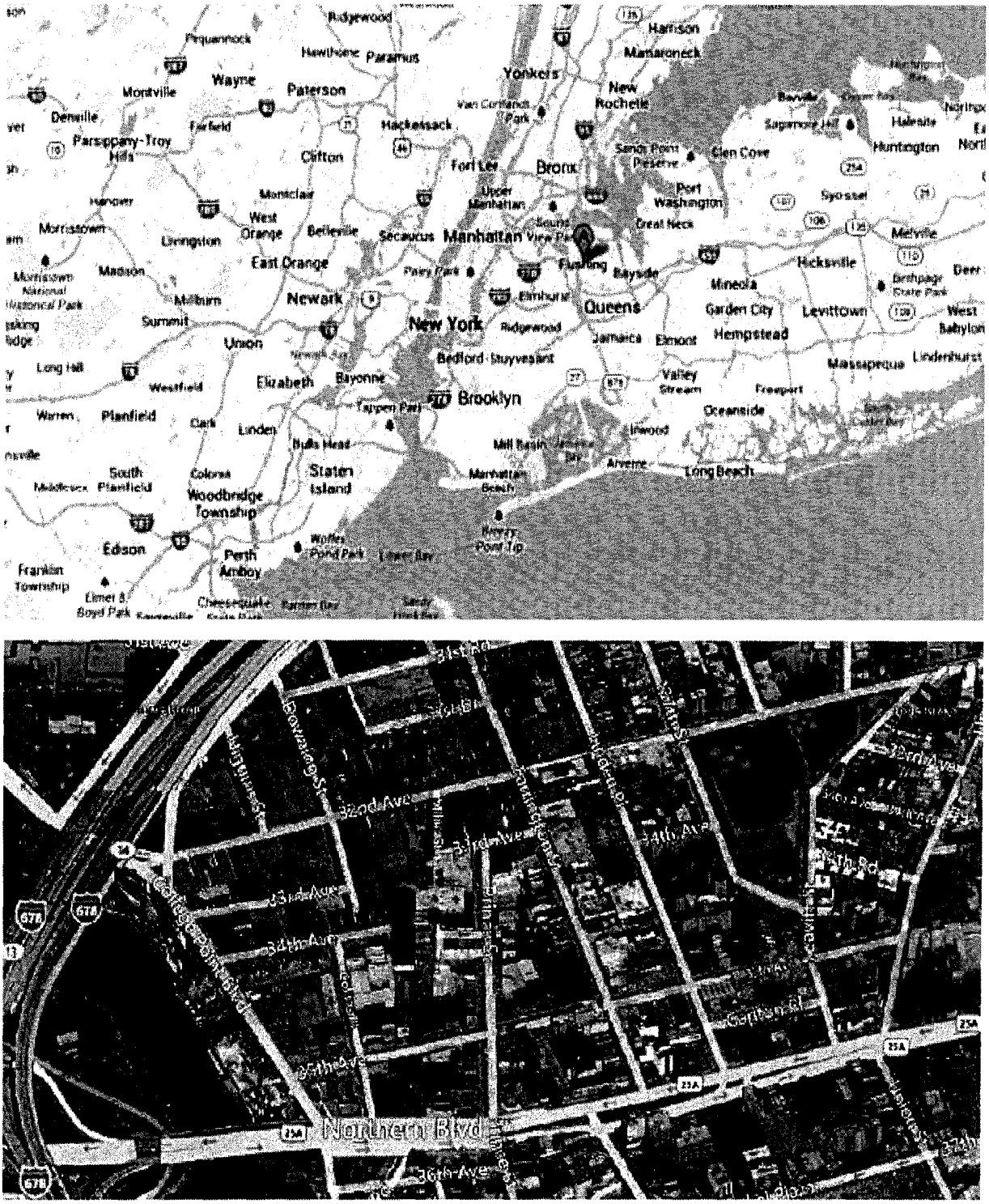

Figure 2: Project Location and Neighborhood Setting

The Project is planned to be 15 stories tall with 4 floors of parking below street level. The mixed-use complex is anticipated to take 30 months to construct at a cost $68.8 million and will consist of the following components:

- A 210-key hotel operated as a "Four Points" brand under the Sheraton Hotels & Resorts flag and designed to Sheraton's standards. The hotel will offer a restaurant, bar and lounge, an indoor pool, fitness center, conference rooms and a 1,025 SF retail/gift shop space located in the lobby area.

- The project will offer 9 additional commercial spaces available for lease at street level, offering approximately 9,920 SF of net leasable floor area for retail and restaurant tenants.

- Above the lobby the floor plans show three large community/meeting rooms totaling 14,300 SF plus circulation/support space and access to a large outdoor terrace above street level. The floor plan does not show any dedicated kitchen space to support these large meeting rooms/event space, so it is assumed that food services would be provided either by the hotel kitchen or by outside caterers.

- The plans show 101 residential condominiums above the hotel, consisting primarily of 2-bedroom units. Condominiums are supported by a rooftop terrace, a dedicated fitness room and a common area meeting room at ground level.

- The property will include a 279-space parking garage to support the residences, the hotel, commercial tenants and the general public. This garage will be centrally managed and operated as a profit center.

The Client commissioned a hotel market study and appraisal report which was prepared by HVS Consulting and Valuation Services ("HVS") to determine whether the local hotel market was sufficiently under-served and commanded sufficient room rates to support the Project.[1] At the time the market study was prepared, the Flushing hotel sub-market consisted of nearly 2,400 rooms with a collective occupancy rate approaching 80%. Market research findings are summarized in the Business Plan and conclude that demand growth in the market is sufficient to accommodate the proposed hotel, plus additional planned supply growth through 2017, while continuing to sustain a 76% market wide occupancy rate. At this time the Client has not conducted similar market studies for the proposed residential condominiums, the comparatively small retail component or the commercial parking garage. However, the attributes of the location and surrounding business district strongly indicate that the market can easily absorb the Project without negatively impacting existing residential pricing, existing businesses sales or vacancy rates in surrounding real estate. Economic impacts associated with the Project should therefore represent a net gain to the region as opposed to a transfer of economic activity from existing businesses.

[1] Self-Contained Appraisal Report - Proposed Four Points Flushing 134-37 35th Avenue, Flushing, NY; HVS Consulting and Valuation Services, Division of Hotel Appraisals, LLC, dated July 26, 2013.

Methodology

The purpose of this report is to calculate the Project's direct and indirect job creation effects in accordance with guidelines established under the Immigrant Investor Program, administered by U.S. Citizenship and Immigration Services (USCIS) office of the Department of Homeland Security. This USCIS program, also known as "EB-5," was created by Congress in 1990 to stimulate the U.S. economy through job creation and capital investment by foreign investors. USCIS has adopted certain rules for qualifying job creation under the EB-5 program, pertaining to the construction and operation of projects seeking foreign investment. The program requires submission of an economic impact analysis (EIA) to document qualifying EB-5 job creation and resulting supportable immigrant investment.

The developer of the proposed Four Points Flushing Hotel is seeking regional center designation as a hypothetical project, consisting of the components described above. Our understanding is that Farrington EB-5 Capital, LLC will become the new commercial enterprise (NCE) - a newly formed entity for the purpose of raising EB-5 investment capital. Farrington Realty, LLC will be the job creating entity (JCE) and function as the owner/operator of the Project. The JCE will "create" jobs through the operations of the hotel, the ongoing management of the residential condominiums, the management and leasing of commercial/retail space and the operation of the parking garage. While future commercial tenants can also be expected to create jobs through their own business operations, the nature of these tenant businesses is an unknown at this time. Therefore, this analysis does not attempt to estimate or claim tenant based employment for EB-5 job creation.

This EIA relies upon information supplied by the Client as part of the Project's "Four Points Flushing Hotel & Condominium Comprehensive EB-5 Business Plan," prepared by Farrington EB-5 Capital, LLC and dated July 2014 (the Business Plan). BAG also reviewed the hotel market study/appraisal and collected additional information by interviewing the Client. Estimates of the Project's direct effects, including construction costs and pro forma revenue/expense projections were also provided by the Client.[2] If there are any inconsistencies in descriptive information provided in this EIA in comparison to the Business Plan, those differences should be minor and are unintentional.

BAG has prepared economic impact estimates for the Project's construction and operation using the Regional Input Output Modeling System (RIMS II) developed by the U.S. Department of

[2] All documentation relied upon for this EIA is assumed to have been provided to USCIS under separate cover.

Commerce, Bureau of Economic Analysis. For both construction and operations, BAG selected the seven New York counties located within the New York-Northern New Jersey-Long Island, NY-NJ-PA Metropolitan Statistical Area as the primary economic impact area for the Project (the Region). By using RIMS II multipliers for these seven counties, our measurement of indirect employment effects is limited to jobs supported inside that metropolitan region. This methodology does not capture additional indirect employment which may be created elsewhere in New York, other nearby states or the U.S. as a whole. All multipliers used in the analysis were taken from "RIMS II Multipliers (2002/2010) Table 1.5 Total Multipliers for Output, Earnings, Employment and Value Added by Detailed Industry (Type II)."[3]

During the early phases of project planning, it can sometimes be difficult to make with a high degree of precision the types of calculations required of the RIMS II model. BAG has attempted to appropriately adjust for the specialized nature of this mixed-use project by isolating only the portion of the total investment which can be reasonably allocated as an impact to the Region's economy. These adjustments have been made within the limits of available information and are explained in the section of the EIA which addresses employment impacts from construction. While extensive third-party analysis has been conducted for the proposed hotel, significantly less background data has been generated for the other project components. For those components, BAG has constructed reasonable pro forma projections. These projections may or may not change as the Project proceeds to financing and construction.

In summary, BAG relied upon business plan information provided by the Client, supplemented by our general industry knowledge. We have chosen to be conservative wherever possible to avoid over-estimating job impacts and resulting supportable EB-5 investment. The methodology and calculations used to derive the construction and permanent employment estimates are presented in the following sections.

[3] A pdf copy of Table 1.5 can be provided upon request if needed to verify the RIMS II multipliers for specific industry sectors used in the analysis.

Economic Impacts from Construction

Overview

The treatment of construction-related job creation and the meaning of "full-time" or "permanent" positions (pertaining to both construction and annual operations) under the EB-5 Program have evolved over time and guidance related to the adjudication of this issue was released in a memorandum issued in December of 2009.[4] Our interpretation of that memorandum, based on the excerpts below, is that "construction jobs" associated with the development of the Project meet the definition of direct, permanent positions because the Project's construction will take 30 months and thus exceeds the minimum two-year threshold to be counted as direct, permanent jobs.

> "Historically, construction jobs have not been counted toward job creation because they are seen as intermittent, temporary, seasonal and transient rather than permanent. USCIS, however, now interprets that direct construction jobs may now count as permanent jobs if they:
> - Are created by the petitioner's investment; and
> - Are expected to last at least two years, inclusive of when the petitioner's Form I-829 is filed."

The following paragraph, which appears in that same section of the USCIS memorandum, goes on to distinguish between direct, full-time jobs and the calculation of indirect and induced jobs which result from a capital (construction) investment made by a commercial enterprise. BAG interprets this paragraph to mean that a substantial portion of a project's construction and start-up costs can be measured for indirect/induced effects using the RIMS II model and the resulting number of indirect/induced jobs associated with such an investment would also qualify for EB-5 purposes.

> "Economic input/output (I/O) models, such as RIMS II or IMPLAN, used to evaluate the calculation of the number of indirect jobs (including induced jobs) created through a commercial enterprise affiliated with a regional center do not distinguish between full-time and part-time jobs. In other words, the job creation results of the multipliers in the economic I/O models do not distinguish between the full-time and part-time nature of the positions. Therefore, the number of indirect jobs quantified through the I/O model analysis will be considered to be full-time and qualifying for EB-5

[4] Neufeld, Donald, "Adjudication of EB-5 Regional Center Proposals and Affiliated Form I-526 and Form I-829 Petitions; Adjudicators Field Manual (AFM) Update to Chapters 22.4 and 25.2 (AD09-38)," December 11, 2009, p 14.

> purposes. Accordingly, determinations regarding whether jobs qualify as "full-time" *are only relevant to the analysis of direct jobs created by a commercial enterprise claiming the creation of direct jobs* as a result of the EB-5 capital investment"
>
> (Sec.3.iii, page 14 - emphasis added)

Twice in the above paragraph, USCIS specifically ties the use of I/O models to calculating "indirect jobs." However, when RIMS II (or other I/O) multipliers are applied to a given capital investment, the resulting outputs also include direct jobs supported by that capital spending, along with the investment's indirect and induced effects. Also, the following statement which specifically justifies the use of I/O models to measure indirect construction impacts, i.e. *"I/O models do not distinguish between the full-time and part-time nature of the positions. Therefore, the number of indirect jobs quantified through the I/O model analysis will be considered to be full-time and qualifying for EB-5 purposes"* would apply to all jobs calculated by the I/O model, including direct jobs and not just the indirect and induced jobs. USCIS further states that *"determinations regarding whether jobs qualify as "full-time" are only relevant to the analysis of direct jobs created by a commercial enterprise claiming the creation of direct jobs" (Emphasis added).* BAG interprets this statement to mean that the calculation of jobs using an I/O model is not dependent on the duration or phasing of the investment and that resulting employment estimates can be assumed to be full-time and qualifying for EB-5 purposes. In other words, employment impacts quantified using RIMS II should be calculated based on the total dollar value of the investment and not be divided by the number of months or years the investment will occur. It is also not necessary to speculate on the nature of construction labor or the distribution of full-or part-time workers which may be employed by a project that is still several months away from executing a construction contract.

Based on the above, it is reasonable to interpret USCIS' definition of "construction jobs" (whether direct or indirect) to mean construction workers employed on site during a project's development phase. It is less clear whether the term "construction jobs" also applies to architects, engineers, planners, lenders, insurers, attorneys, manufacturers, wholesalers, equipment suppliers or other service providers whose jobs are supported by investments in commercial or residential construction. USCIS comments received in response to earlier EIAs suggests that for purposes of estimating indirect jobs, USCIS defines "construction jobs" to mean all jobs supported in all industries that may be positively impacted by an investment in new construction or rehabilitation as measured using an I/O model. For projects claiming direct construction jobs, the guidance is less clear.

BAG's interprets the above references to mean that for purposes of calculating indirect jobs resulting from a construction investment using RIMS II, eligible indirect effects or inputs can be broadly defined. In addition to site development and building construction, it is reasonable to include engineering and other soft costs, FF&E, permitting fees and other related investments necessary to make the resulting business operational. For construction projects with a duration of more than two years and eligible to claim direct jobs, spending used for purposes of calculating those direct jobs should probably be limited to on-site hard costs only.

Two methods can be used to estimate direct and indirect employment effects using RIMS II Multipliers, (1) "impacts based on changes in final demand" and (2) "impacts based on changes in (direct) employment and earnings." The first method drives employment estimates based on output, i.e. total construction spending and/or annual sales, while the second is based on initial changes in direct job creation and earnings (payrolls). These methods should theoretically produce the same answer using RIMS II, provided that the inputs are 100% accurate.

BAG concluded that estimating impacts based on changes in final demand is more accurate in this case because the Client has prepared development cost estimates for the facility. At this time, much less information is available with which to estimate the percentage of the development budget which will be spent on labor or the number of direct jobs or earnings (payrolls) that are included within the Project's total development budget. The lack of such information renders the employment and earnings method less accurate and more difficult to use. BAG has therefore relied on the "changes in final demand" method for estimating employment effects during the construction period.

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Calculation of Construction Employment Effects

Total development costs for the Project are itemized Table 1 on the next page. Direct development and construction costs are projected to total just over [redacted] and include land acquisition, site work, construction of buildings and parking structures, financing, permitting, contingencies and other soft costs. These costs were provided by the Client and are assumed to be in 2013/14 dollars. The project is expected to include approximately 353,100 SF (gross), including 287,650 SF of enclosed building space (hotel, residential, retail and common area/circulation) and a 279-space parking garage totaling 84,100 SF. The hotel component totals 88,900 SF and accounts for an estimated [redacted] of the Project's cost. The residential condominiums will occupy 100,900 SF and cost an estimated [redacted] to build. The 13,850 SF (gross) commercial components and 16,800 SF "community facility" are expected to cost [redacted] and the parking garage is projected to cost [redacted] Total Project costs,

(b)(4)

including structured parking, average roughly $239 per square foot of enclosed floor area and $195/gross SF including structured parking.

Table 1: Estimated Total Development Budget
Four Points Sheraton/Luxury Condo Development, Flushing, NY

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Line Item	Total Cost	Cost/SF SF	Cost/SF Room	% of Total
Site Acquisition				
Hard Costs				
Carpentry				
Metals				
Masonry				
Concrete				
Site Work				
Weatherproofing				
Doors & Windows				
Elevators				
Mechanical, Electrical & HVAC				
Finishes				
Specialties				
General Conditions				
FF&E				
Subtotal: Hard Costs:				
Financing & Soft Costs				
Building Permits, Taxes, Connection & Impact Fees				
Property Taxes During Construction				
Architectural, Engineering & Environmental				
Insurance				
Market Study/Appraisal				
Recording Fees				
Accounting				
Legal/Title				
Financing/Lenders Fees/Construction Bonds				
Construction Interest Reserve				
Brokerage Commissions				
Contingency				
Subtotal: Financing & Soft Costs:				
Total Development Budget				

Sources: Farrington Realty, LLC; HVS Consulting & Valuation Services and Bleakly Advisory Group, Inc.

In order to isolate and estimate the Project's indirect economic impact to the region during the construction phase, BAG first considered whether or not 100% of the development costs included in Table 1 could be reasonably claimed as having a direct effect on the Region's

economy. In its documentation of the RIMS II model, the BEA states that "RIMS II multipliers are based on the average relationships between the inputs and outputs produced in a local economy." Among the RIMS II Model's assumptions are (1) firms have no supply constraints, (2) industries can increase their demand for inputs and labor as needed to meet additional demand and (3) firms will purchase inputs from other firms in the region before using imports. Because averages do not always apply to a particular case study, the BEA acknowledges that "the employment multiplier for a region can vary when local information is used to improve the accuracy of the multipliers because the model's assumptions do not hold." The BEA therefore "encourages analysts to carefully evaluate how closely these assumptions apply to their projects and to consider collecting additional information specific to their project to adjust their results."[5]

An illustrative example used by the BEA to show the need for "local adjustments" cited construction of a medical facility that required "specialized inputs and workers not found in the local area." In that particular example "local firms cannot supply additional inputs and a percentage of the resulting construction-related jobs would be supplied from outside the region." In that case the BEA concluded that "the actual multiplier of resulting in-region jobs per $1 million of new construction investment would be less than indicated by RIMS II."

Rather than adjust the multipliers directly, the most straightforward method to adjust for "local information" is to deduct reasonable shares of a total construction costs which are not likely to be supplied from within the region being analyzed. In an urban environment like New York City it is unlikely that the market lacks "specialized inputs and workers" but it is possible that some of those specialized inputs and workers could be supplied by companies located in bordering states which are not located within the RIMS II region used for this analysis. The above BEA example therefore has some parallel to the proposed project and BAG determined that it is necessary to deduct a portion of the Project's development budget prior to calculating its employment effects

Based on a review costs appearing in Table 1, BAG proceeded to deduct portions of FF&E, property taxes, development fees, construction interest costs, working capital and budgeted contingencies to remove the share of total construction costs which are not likely to be supplied from within the region. These adjustments lowered that portion of the project's development budget that would impact the Region's economy by approximately [redacted] or 11.6%. The (b)(4) deductions were based primarily on judgment, given that greater accuracy could only be achieved by interviewing every potential supplier to determine the percentage of that supplier's

[5] www.bea.gov/regional/rims/rimsii/illustrative tables.aspx

product or service that was produced within the region – followed by independently verifying the suppliers' reported information. Given the fact that no contracts have been issued for the Project, that level of verification is not possible.

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The remaining expenditures totaling [redacted] were then used as the starting point for estimating indirect job creation effects from the Project's construction. (These costs appear in Table 2.) We also allocated roughly 25% of FF&E spending as an impact to the region's economy and distributed that spending to the wholesale trade sector. This percentage was considered reasonable and sufficient to capture in-region spending on distribution costs, wholesale mark-ups, installation costs or components that might be manufactured in-region. The remaining industry allocations can be imputed by comparing Tables 1 and 2. Resulting indirect industry earnings from the facility's development were modeled as a one-time/one year estimate.

The next step in the methodology involved allocating the [redacted] in development costs to the relevant industry sectors that can be measured using the RIMS II model. The resulting industry distribution of spending impacts is also shown in Table 2. In making these allocations, BAG distributed the used portion of the contingency cost line items proportionally among relevant industry sectors.

Table 2: Estimated Industry Distribution of Facility Construction Spending
Four Points Sheraton/Luxury Condo Development, Flushing, NY

Industry Allocation of Development Budget (Current Dollars)	RIMS II Industry Code	Assocuated NAICS Codes	Total Costs
Construction Hard Costs			
Construction (Buildings & Site)	230000	2362, 23622	
Wholesale Trade (FF&E)	420000	42, 4232	
Subtotal: Hard Costs:			
Financing & Soft Costs			
Other government enterprises	S00A00	921	
Real Estate	531000	531, 5313	
Architectural, engineering, and related services	541300	5413	
Insurance	524100	5241	
Accounting, tax preparation, bookkeeping services	523000	5412	
Legal Services	522A00	5411	
Monetary authorities and depository credit intermediation	51A000	5222	
Other miscellaneous professional and technical services	541700	5419	
Subtotal: Financing & Soft Costs:			
Total Indirect Construction Impacts [3]:			

Sources: Farrington Realty, LLC; HVS Consulting & Valuation Services and Bleakly Advisory Group, Inc.

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The costs appearing in Table 2 were then inflation adjusted (discounted) to 2010 levels before applying the RIMS II multipliers. This adjustment was based on the "New York CPI" (All Urban Consumers) and totaled -4.87%. This further reduced the impact from construction spending to [redacted] which is shown in the "Total Costs" column of Table 3.

Because the duration of construction is expected to exceed two years, it is not necessary to adjust the final demand employment multipliers to remove the effects of direct jobs which are embedded within the construction industry multiplier. To be conservative, for the remaining 9 industry sectors BAG adjusted the final demand employment multipliers to remove the effects of direct jobs that are embedded within those multipliers. To remove direct effects, USCIS has approved methodologies that adjust final demand employment multipliers by a ratio of indirect to direct jobs, calculated using the direct effects employment multiplier. These adjustments are reflected in the "Adjusted Employment Final Demand" column appearing in Table 3. The calculation used to make the adjustments is also described in footnote #3 of the table.

The total construction impacts of this investment are calculated in Table 3. Using the change in final demand method, BAG allocated the estimated [redacted] of "in- region" purchases (in 2010$) among the affected industry sectors and multiplied the direct effects by the respective industries' associated RIMS II multipliers for the region. Resulting total output generated by the investment, including multiplier effects, is estimated to be [redacted] According to RIMS II, that output would support [redacted] in total earnings across all industries, including direct effects.

Multiplying the estimated total regional output by the final demand employment multipliers supports a total of [redacted] jobs, including (both) direct and indirect jobs in the construction sector (top row) and indirect effects (only) in the remaining industry sectors. Our analysis of the multipliers indicates that roughly 40% of the Project's total employment effects in the construction industry sector would be indirect/induced [redacted] jobs) and the balance of [redacted] jobs would be directly supported by construction spending. Therefore, of the [redacted] total jobs calculated in Table 3, BAG estimates that 326 are direct and the remaining [redacted] are indirect.

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Table 3: Estimated Industry Distribution of Facility Construction Spending (CPI Adjusted)
Four Points Sheraton/Luxury Condo Development, Flushing, NY

Industry Allocation of Development Budget (Current Dollars)	RIMS II Industry Code	Assocuated NAICS Codes	Total Costs	Final Demand Multipliers [2]			Direct Effects Multipliers [3]		Adjusted [3]	Economic Impacts		
				Output ($)	Earnings ($)	Employment (Jobs)	Earnings ($)	Employment (Jobs)	Employment Final Demand	Output ($)	Earnings ($)	Employment (Jobs)
Construction Hard Costs												
Construction (Buildings & Site)	230000	2362, 2362										
Wholesale Trade (FF&E)	420000	42, 4232										
Subtotal: Hard Costs:												
Financing & Soft Costs												
Other government enterprises	S00A00	921										
Real Estate	531000	531, 5313										
Architectural, engineering, and related services	541300	5413										
Insurance	524100	5241										
Accounting, tax preparation, bookkeeping services	523000	5412										
Legal Services	522A00	5411										
Monetary authorities and depository credit intermediation	51A000	5222										
Other miscellaneous professional and technical services	541700	5419										
Subtotal: Financing & Soft Costs:												
Total Indirect Construction Impacts [3]:												

NOTES:

[1] BAG allocated development costs itemized in Table 1 to the most applicable detailed industry sectors recognized in the RIMS II model. Less than 100% of the development budget is used in estimating direct employment impacts from development of the proposed facility.

[2] Final Demand Multipliers are used for industries which are most closely associated with cost categories used in the development budget. Contingency budgets are spread proportionally to other line items.

[3] In order to isolate "indirect" construction impacts which are eligible for consideration under the EB-5 Program, the final demand employment multiplier is adjusted downward by the ratio of the indirect portion of the direct effects employment multiplier. For the construction industry the "adjusted" final demand employment multiplier was calculated as

Sources: Farrington Realty, LLC; HVS Consulting & Valuation Services and Bleakly Advisory Group, Inc.

(b)(4)

Although project spending is spread across 10 industry sectors shown in Table 3, it is important to note that (b)(4) jobs or 96% of those impacts are directly attributed to spending on construction hard costs. Among the jobs supported by spending on other costs, the largest beneficiaries are the real estate sector, the architectural and engineering industry, the wholesale trade sector which benefits from investment in hotel FF&E and governmental enterprises which benefit from the receipt of one-time permitting and impact fees. Employment impacts across all sectors other than construction are very modest.

It should also be emphasized that Table 3 applies an available RIMS II methodology to estimate the indirect economic impacts associated with a capital investment in a new commercial enterprise. The methodology used should not be interpreted to mean that the regional center is seeking "new industry categories" for all industries which may benefit from in-region purchases associated with investments made during the Project's construction.

Economic Impacts from Permanent Operations

Overview

The following calculations of permanent employment effects from the Project are influenced by USCIS' interpretation of what constitutes a "permanent" job for EB-5 purposes. The Project can be expected to create/impact permanent employment in three ways: (a) through the operations of the proposed hotel, (b) through the facility's management as a real estate investment, i.e. commercial leasing and operation of the parking garage; and (c) through employment supported by the residential condominium association budget.

As indicated below, the USCIS definition of eligible direct full-time permanent employment includes payroll employees only and does not extend to jobs created by independent contractors. In addition, USCIS only credits "full time" employment for EB-5 job creation purposes.

> "[The classification of full-time employment should meet] the regulatory definitions of employee and full-time employment at 8 CFR 204.6(e). Thus, direct jobs must still be filled by qualifying employees and not by independent contractors. Positions filled by independent contractors are not qualifying direct jobs and may only be credited for EB-5 job creation purposes in petitions involving commercial enterprises that are affiliated with a regional center. In addition, multiple part-time positions may not be

> combined to create one full-time position, unless those part-time jobs can be shown to be part of a job-sharing arrangement."
>
> (Sec.3.iii, page 15)

In this case, BAG interprets the meaning of "independent contractors" to mean purchased business services, such as landscapers, laundry services, etc. – which are more accurately measured as indirect effects using the RIMS II multipliers. At this still early phase of planning, it is difficult to determine the extent to which the hotel and property management company will hire internal staff versus contract for services or how payrolls will be distributed among full- and part-time positions. The Project's development team understands that full-time employment means 35 hours or more per week and the intent at this time is to fill the majority of staffing requirements with full-time positions. This will be validated at the time of I-829 approval. At this time, the use of full-time equivalent positions (FTE's) provides a realistic estimation of direct employment estimates for analysis purposes using RIMS II, given that the Project's intent is to use full-time staffing to the extent feasible. The following direct employment forecasts therefore represent FTE's.

BAG used the following steps to forecast economic impacts from annual operations: (1) reviewing the Client's operating pro forma; (2) estimating the portion of that budget which would reasonably represent labor costs; (3) reviewing the Client's staffing estimates and payroll spending and (4) checking the resulting outputs for reasonableness. These steps are explained in the following sections.

Forecasted Hotel Operations

Information contained in the Business Plan provided by the Client is presented in Table 4, which provides a five year operating pro forma for the hotel. Assuming a late 2014 or early 2015 groundbreaking and a 30-month construction schedule, the development could be expected to open in 2018.

Table 4: Annual Operating Income & Expense

Four Points Sheraton/Luxury Condo Development, Flushing, NY

	Stabilized									
Year	1	2	3	4	5	6	7	8	9	10
Year Ending	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
No. Of Rooms										
Rooms Sold										
Occupancy										
ADR										
ADR % Change										
RevPAR										
RevPAR % Change										
Revenue										
Rooms										
Food and Beverage										
Other Departments										
Rentals and Other Income										
Total Revenue										
Departmental Expenses										
Rooms										
Food and Beverage										
Other Operating Departments										
Total Expenses										
Departmental Profit										
Undistributed Operating Ex										
G&A										
Marketing										
Franchise Fees										
Repairs & Maintenance										
Utilities										
Total Expenses										
House Profit										
Fixed Expenses										
Management Fee										
Property and Other Taxes										
Insurance										
Other										
Total Fixed Expenses										
EBITDA before FF&E										
FF&E Reserve										
EBITDA after FFE Reserves										
EBITDA Margin										

(b)(4)

Sources: HVS Consulting & Valuation Services Division of Hotel Appraisals, LLC

New hotels typically require 2 years to reach stabilized occupancy, which can be seen from the anticipated revenue increases over the first three years of the operating pro forma. BAG therefore assumed Year 3 as the stabilized year. Table 4 shows effective gross stabilized year revenues of just under [redacted] total departmental and undistributed operating expenses of [redacted] other management expenses and fees of [redacted] and a remaining excess cash reserve of [redacted] which we assume would be used at least in part as a reserve fund for capital replacement. The remaining margin of nearly [redacted] would be used for debt service payments, taxes, payments to equity investors and additional depreciation/replacement reserves. Also indicated in the pro forma, roughly 92% or [redacted] of total forecasted hotel revenues are expected to be generated by rooms [redacted] from rentals and other hotel operations, leaving a balance of [redacted] generated by the food & beverage operations.

Forecasted Ancillary Operations

The Client has developed less third-party information regarding the other mixed-use project components and sources of job creation, but is very knowledgeable of the local market and confident in the basic underlying inputs for projecting revenues from parking, commercial rents and condominium association fees. BAG used these insights to construct estimates of parking, condominium association and retail leasing revenues/expenses when fully occupied. These are necessarily hypothetical but are realistic and consistent with the inputs provided. Each of these components is summarized below. All estimates are made in 2014$.

Parking

Estimated stabilized year parking revenues and expenses are presented in Table 5. The Client indicated that the parking garage should be expected to generate minimum monthly revenues of [redacted] space. To test this estimate, BAG constructed a simple pro forma using a template developed by AmerPark, a nationally recognized parking development and management company. Using very reasonable assumptions concerning utilization rates and fees, the facility could be expected to generate revenues of nearly [redacted] space/month by the stabilized year. Operating expenses are estimated at [redacted] of revenues or roughly [redacted] year, with [redacted] of costs dedicated to payroll.

(b)(4)

Table 5: Annual Operating Income & Expense
Estimated Parking Pro Forma: Four Points Sheraton/Luxury Condo Development, Flushing, NY

REVENUE FACTORS

PARKING SPACES	
TOTAL SPACES	279

HOTEL ASSUMPTIONS	
Number of Rooms	
Occupancy Rate (Year 1)	
Occupancy Rate (Year 2)	
Occupancy Rate (Year 3)	
Drive-Up Ratio	
Valet Capture Rate	
Sq. Ft. Meeting/Banquet	

Hotel Revenue

	SPACES	Turns	CARS / DAY	DAYS / YEAR	RATE / CAR	ANNUAL VEHICLES	YEAR 1 REVENUE	YEAR 2 REVENUE	YEAR 3 REVENUE
Overnight Self Park									
Overnight Valet									
Meeting/Banquet Space - Self Park									
Meeting/Banquet Space - Valet									

Other Revenue

	SPACES	Turns	CARS / DAY	DAYS / YEAR	RATE / CAR	ANNUAL VEHICLES	YEAR 1 REVENUE	YEAR 2 REVENUE	YEAR 3 REVENUE

Retail Leasing

A representative retail operating pro forma is presented in Table 6 on the next page. The Client indicated that prevailing retail and restaurant rents in downtown Flushing are in the range of $40/SF NNN and that the Project should be capable of equaling or exceeding those rents. Relying upon this estimate, BAG constructed a simple retail pro forma using typical operating pass through expenses. We also started rents at $38/SF to be conservative and reached $40 effective rents by the stabilized year. The pro forma also assumes that 9 of 10 planned commercial spaces totaling 9,918 SF will be leased. The remaining retail space shown in the project plans is assumed to be dedicated to the hotel and all resulting revenues/ expenses would be retained by and are already included in the hotel pro forma.

Table 6: Annual Operating Income & Expense

Estimated Retail Pro Forma: Four Points Sheraton/Luxury Condo Development, Flushing, NY

	Base-Year Calculations	Stabilized 1	2	3	4	5
Retail Proforma						
	Base Year	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**
Retail Leases Total Revenue						
"Community Facility" Total Revenue						
Retail Operating Expenses						
Retail EBITDA						
DETAILED PROFORMA						
Retail Leasable Area						
Average Rent PSF						
Pass-through %						
Occupancy Rate						
Community Facility Area						
Average Rent PSF						
Occupancy Rate						
Space A TI and Com (psf)						
Retail Space Rent Escalator						
Total Retail Space Rent Escalator						
Operating Cost Escalator						
Total Operating Escalator						
Retail Revenue						
Retail Rent						
Community Facility Area Rent						
Retail Pass-through						
Total Revenue before Loss						
Less Vacancy/Credit Loss						
Total Revenue						
Retail Operating Expenses						
Utilities						
Elec, Plumb, HVAC, Engineering						
Elevator						
Garage and Other						
Security and Landscape						
Insurance						
Property Tax						
CAM Expense						
Administrative Fee						
Incentive Management Fee						
Total Expenses						
Capital Reserve						
EBITDA						
EBITDA Margin						

(b)(4)

Source: Bleakly Advisory Group, Inc.

In addition it is assumed that the planned 16,800 SF community facility space would be rented for meetings, special events and other purposes to generate additional income. BAG included a

modest allowance under the assumption that the facility could attract 100 to 150 events per year. Including this event space, by year 3 the project is shown to generate [redacted] in total leasing income including CAM and other pass through charges. Assuming that the leasing operation is managed internally, staffing would be funded through a percentage of applicable pass through charges, plus EBIDTA that is not dedicated to debt service.

Residential Condominiums

Finally, a representative stabilized year condominium association operating budget is presented in Table 7. The Client indicated that the residential condominium fees of [redacted] per unit per month are reasonable for the location and the fact that the condominium is connected to the hotel and could access hotel services. Relying upon this estimate, BAG constructed a simple stabilized year operating statement for management of the condominium. The statement shows total revenues just over [redacted] with a modest [redacted] margin over expenses. Based on the range of services to be offered, it is estimated that roughly [redacted] of expenses would be payroll related.

Table 7: Annual Operating Income & Expense
Estimated Condominium Association Pro Forma: Four Points Sheraton/Luxury Condo Development, Flushing, NY

	Base Inputs	Stabilized Year Revenues/Expenses Total	Annual/Unit	/Unit/Month	Estimated % Labor	Estimated Payroll
REVENUES:						
Total Units						
Base Monthly Condominium Fee	$					
Laundry Services & Ancillary Income						
TOTAL REVENUES						
OPERATING EXPENSES:						
Concierge						
General Mangers						
Groundskeeping						
Guest Services/Front Desk						
Housekeeping						
Insurance						
Laundry Services						
Repairs and Maintenance						
Security						
Telephone and Internet						
Utilities						
Valet and Doormen						
TOTAL OPERATING EXPENSES						
OPERATING INCOME						
ADMINISTRATIVE EXPENSES						
Office Expenses						
Office Personnel						
Professional Fees						
TOTAL ADMINISTRATIVE EXPENSES						
TOTAL EXPENSES						
NOI						

Source: Bleakly Advisory Group, Inc.

Combined Operations

The combined operating revenues of these components approach [redacted] and are obviously sufficient to support a sizeable payroll and produce a significant direct impact to final demand. Total stabilized year revenues are summarized in Table 8. After considering different alternatives, BAG decided to isolate the hotel's food & beverage revenues/expenses and assign the resulting economic impacts to the "food service and drinking places" sector. The hotel's rooms and other revenues were attributed to the lodging industry sector. (Assigning 100% of impacts to the "hotels and motels" sector would have produced marginally different results.) The remaining activities were attributed to the real estate industry sector.

Table 8: Summary Stabilized Year Revenues
Four Points Sheraton/Luxury Condo Development, Flushing, NY

Stabilized Year Summary	Stabilized Year Revenues
Gross Rooms Revenues	[redacted]
Other Hotel Operations	
Restaurant/Food & Beverage	
Parking Garage	
Commercial Leasing	
Residential Condominium Management	
TOTAL OUTPUT:	

Sources: HVS Consulting & Valuation Services & Bleakly Advisory Group, Inc.

After considering these factors, BAG decided to deduct roughly [redacted] of the Project's stabilized year gross revenues as an "adjustment" to the final demand employment multiplier, under the assumption that a portion of the forecasted EBITDA is likely to be distributed to out-of-region and foreign sources/investors and therefore not benefit the region's economy. The resulting adjustments allocate the remaining gross revenues as a direct-effect impact to the region's economy. The adjustments discussed above reduced the Project's total stabilized year direct output to [redacted]

Based upon the strong market analysis findings, BAG found no reason to further adjust the Project's output to account for competitive impacts (i.e. removal of market share from existing in-region businesses), as those effects are assumed to be negligible. The resulting economic impact calculations appear in Table 9. The net change in final demand methodology was used, similar to the method used to estimate construction-related employment, except that there was no effort to remove the direct effects portion of any of the multipliers. Pro forma operating forecasts in Tables 4 through 7 represent 2014 constant dollar estimates. BAG therefore applied an inflation adjustment to convert stabilized year revenues back to 2010 dollars, similar to construction costs, which lowered the number to [redacted] The direct effects were assigned to the hotels and motels, including casino hotels; food services and drinking places and real estate sectors. The resulting calculations appear in Table 9.

Table 9: Estimated Direct and Indirect Permanent Employment Effects (CPI Adjusted)
Four Points Sheraton/Luxury Condo Development, Flushing, NY

Industry Sector	RIMS II Industry Code	Associated NAICS Codes	Direct	Final Demand Multipliers	Economic Impacts
				Employment	Employment
Hotels and motels, including casino hotels	7211A0	72251			
Food services and drinking places	722000	72251			
Real Estate	531000	53112, 531			
Total Impacts:					

Sources: HVS Consulting & Valuation Services Division of Hotel Appraisals, LLC and Bleakly Advisory Group, Inc.

Conclusion: Permanent Employment Effects

In summary, using the net change in final demand method BAG estimates that the mixed-use Project will directly add nearly [redacted] to the region's annual output (in 2010$), based on projected annual operations. The net change in final demand method generates a total regional gain in annual output across all industries of more than [redacted] The investment is also projected to increase household earnings throughout the region by [redacted] This method produces a total regional employment impact of [redacted] jobs from stabilized operations including direct, indirect and induced jobs. This equates to average earnings of roughly [redacted] per job in 2010$.

Estimate of Direct Jobs

The next step in the methodology involved estimating that portion of the total employment impact of [redacted] total jobs, which would represent full-time equivalent positions (FTE's) directly hired by the Project and subject to validation at the time of I-829 approval. Direct employment estimates for the hotel are addressed first, followed by the other project components.

Staffing estimates for the hotel appear in the business plan and were calculated by the hotel market consultant. These estimates are based upon comparable select service hotels of similar size and operating characteristics, located in major U.S. cities. Based on the experience of comparable hotels, the analyst estimated the need for 91 positions, as detailed in Table 10. BAG estimates that as EB-5 qualifying FTE jobs, 91 positions would require a payroll of nearly [redacted] (Direct salaries only - payroll expenses and fringe benefits are excluded.) A projected direct payroll of this size would represent roughly [redacted] of total stabilized year expenses as calculated in Table 4 and appears to be reasonable. A staffing level of 91 positions with a [redacted] payroll represents an average annual gross wage of [redacted] per position and also appears reasonable.

Table 10: Estimated Hotel Staffing
Four Points Sheraton/Luxury Condo Development, Flushing, NY

Direct Employees from Hotel Operation			
	Position	Employees Needed	Weeks to Open
	Management		
1	General Manager	1	26
2	Assistant General Manager	1	8
3	Controller	1	4
4	Assistant Controller	1	4
5	Guest Service Manager	1	6
6	Guest Service Supervisor	4	3
7	Executive Housekeeper	1	8
8	Housekeeping Supervisor	4	6
9	Chief Engineer	1	8
10	Director of Sales	1	26
11	Sales Coordnator	2	4
	Total	18	
	Position	Employees Needed	Days Paid Till Open
	Line Level		
1	Guest Service Agent	12	15
2	Night Auditor	4	15
3	Breakfast Attendant	6	15
4	Room Attendant	36	20
5	Houseman	10	20
6	Maintencance Tech	6	20
7	Parking Valets	3	15
8	Food Service	14	15
	Total	91	

To further verify this direct job estimate BAG examined the respective RIMS II direct effects employment multipliers for the hotel and motel (1.55) food services (1.30) sectors. Dividing the employment outputs in Table 8 (which (b)(4) were calculated using the final demand method) by these multipliers indicates that [redacted] of the [redacted] total jobs would be direct, very similar to the estimate of 91FTE employees presented in Table 10. This finding also suggests that the number of EB-5 eligible hotel positions is reasonably estimated. Based on this information, BAG concluded that 90 jobs provide a reasonable estimate of verifiable direct hotel/food service employment on an FTE basis.

Direct employment associated with the remaining components is expected to be modest by comparison. It is also more difficult to estimate because the future operating characteristics of these entities are still conceptual. The direct effects employment multiplier for real estate industry sector is 1.33. Applying this multiplier to the employment outputs in Table 9 means that [redacted] total jobs would be direct. Estimated combined stabilized revenues to the JCE from the operation of the parking, commercial leasing and condominium associations approaches [redacted] based on the calculations in Tables 5 through 7. Combined stabilized year expenses in those same tables are calculated at more than [redacted] including component labor costs of roughly [redacted] Divided by [redacted] positions this represents an average labor cost of [redacted] per job and appears reasonable.

BAG therefore concludes that the Project's operations would directly support from payroll, [redacted] full-time equivalent employees, including hotel administrative, food service and housekeeping; leasing management, property maintenance, condominium staff and parking personnel. ***For the purposes of this analysis, BAG assumes that all of these FTE positions would satisfy the USCIS criteria for qualifying direct jobs.*** Direct job creation represents [redacted] of the project's total estimated employment impacts on the regional economy from annual operations.

Excluded Employment Effects

In addition to the impacts estimated above, third parties can be expected to employ workers to staff the retail stores and restaurants that will occupy leased space. BAG conservatively estimates that programmed commercial space could directly house [redacted] workers on site using typical employment densities for urban retail and restaurant users in the market. Assuming that this space would attract a representative mix of industry tenants, those businesses could be expected to support [redacted] total jobs including direct, indirect and induced effects. USCIS has established stringent requirements for counting jobs created by tenant businesses and there is insufficient project information available at this time to identify specific tenant prospects, or to adequately document their employment effects. Therefore, the Client has decided not to seek credit for additional job creation effects from tenants and BAG has excluded the calculation of such impacts for EB-5 purposes.

(b)(4)

(b)(4)

Estimated EB-5 Supportable Investment

According to information provided in the Business Plan, the Project qualifies as being located within is a State-designated "Targeted Employment Area" (TEA). As such, EB-5 supportable investment is calculated at a ratio of $500,000 for every 10 jobs created. The maximum credited foreign investment for this project under the EB-5 Program in this case is based upon the sum of the calculated direct on site construction employment [redacted] jobs), the indirect employment in other industries supported by that construction investment [redacted] jobs), the direct permanent employment to be offered by the proposed hotel and ancillary mixed use components (110 FTE positions supported by stabilized operations), and the indirect permanent employment [redacted] indirect/induced jobs) supported by those direct jobs. That resulting total of 730 jobs is then divided by the ratio of $500,000 per 10 jobs created.

Therefore, based upon the preceding analysis BAG estimates that the Project would support a maximum EB-5 investment of [redacted] allocated as follows.

EB-5 Summary		
Direct Construction Employment	[redacted]	Construction period > 2 years allows direct jobs for construction hard costs
Indirect Construction Employment		Indirect effects across all industry sectors during the construction period
Direct Permanent (Net gain)		Direct FTE jobs from annual hotel operations at stabilized occupancy
Indirect Permanent (Net gain)		Indirect jobs supported by annual operations
T		EB-5 credited jobs created (indirect construction + direct FTE + indirect employment + tenants)
Ratio of 10 J		Units
		nvested (Assumes project is located in a Targeted Employment Area)
		Total Potential EB-5 Equity Capital

(b)(4)

Appendix: Explanation of RIMS II Multipliers

The following explanatory notes apply to the multipliers used in the above Tables.

1. Multipliers used to measure indirect economic impacts from the Regional Input-Output Modeling System (RIMS II), Regional Product Division, Bureau of Economic Analysis for the State of Georgia. Multipliers are based on the 1997 Benchmark IO Table for the Nation and 2008 regional data. Economic impacts to the remainder of the U.S. are excluded.

2. Final Demand Multiplier - Output: Represents the total dollar change in output that occurs in all industries for each additional dollar of direct output delivered to final demand by the project.

3. Final Demand Multiplier -Earnings: Represents the total dollar change in earnings of households employed by all industries in the region for each additional dollar of output delivered to final demand by the project.

4. Final Demand Multiplier – Employment: Represents the total change in number of jobs that occurs in all industries for each additional $1 million dollars of output delivered to final demand by the project. Because the employment multipliers are based on 2008 data, the output delivered to final demand is in 2008 dollars.

5. Direct Effect Multiplier – Earnings: Represents the total dollar change in earnings of households employed by all industries in the region for each additional dollar of earnings paid directly to households employed by the project.

6. Direct Effect Multiplier – Employment: Represents the total change in the number of jobs in all industries in the region for each additional job created directly by the project.

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Relevant Projects

Economic Impact Analysis

Evaluating the economic impacts of proposed development projects or potential investments is becoming an increasingly common practice. This is due to the increasing number of public private partnerships which often require significant public investment in parallel with private equity and debt financing for a project. Economic impact analysis allows the public sector to gauge the long range benefits to their community from a particular investment and provides a basis for seeking public support for the investment or project. Bleakly Advisory Group, Inc. is widely recognized for its expertise in analyzing economic impacts. Recent economic impact analyses we have prepared include:

- **EB-5 Economic Impact Analysis under the USCIS Foreign Immigrant Investor Program**— BAG has prepared several economic impact analyses on behalf of Regional Centers seeking foreign investment under the EB-5 program. BAG's analyses have involved a variety of proposed projects including hotels, retail and mixed-use developments, assisted living/memory care facilities, manufacturing enterprises, energy facilities and other proposals.

- **Bulloch County Business Park Master Plan at Interstate 16/GA 301**— BAG prepared an economic impact analysis of a proposed technology-oriented business park located along the I-16 Corridor in Bulloch County, Georgia.

- **Economic Impacts Associated with the Long-Term Implementation of a Development Company's U.S. Real Estate Portfolio**— BAG has been providing ongoing advisory services to a Canadian development company with significant real estate holdings in the States of Georgia, Texas, North Carolina and Maryland. A recent assignment involved estimating the long-term economic impacts resulting from the build-out of those holdings upon the host Metro-Area economies.

- **Economic Impact Analysis of Atlanta's proposed Multi-Modal Passenger Terminal and GreenLine Plan**— BAG prepared a detailed economic impact analysis of the proposed construction and operation of a multi-modal transit hub to be located in the Railroad Gulch Area of Downtown Atlanta. The scope of the economic analysis included real estate impacts from redevelopment within an area surrounding the proposed terminal; impacts of constructing the terminal and associated transit infrastructure; impacts from annual spending on operation of the transit network; and economic impacts of annual user benefits (time and travel cost savings) for transit system users, regional commuters and truck freight. The analysis was prepared for Central Atlanta Progress, Inc., and the Georgia Department of Transportation.

- **Analysis of the Economic Impacts of Lake Lanier on Georgia's Economy**— BAG assisted the 1071 Coalition, an association of property and business owners near Lake Lanier, in analyzing the economic impacts of a prolonged drought and a dramatic resulting drop in lake levels during 2007-2008. The analysis focused on lake-dependent businesses and the local economies of communities surrounding Lake Lanier, as well as economic impacts to State of Georgia. Local/state economic impacts resulting from falling water levels at Lake Lanier were also compared to benefits of water releases to downstream economies in Georgia, Alabama and Florida, located within the Apalachicola-Chattahoochee-Flint (ACF) Rivers Basin.

- **Foxhall Sporting Club and Resort Hotel, Exhibition Center and Convention Center Economic Impact Analysis**— BAG assisted the developers of the Foxhall Sporting Club and Resort in Douglas County, Georgia to evaluate the economic impacts of a proposed Westin Hotel and related conference/exhibition facilities on the economy of Douglas County.

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Relevant Projects

Economic Impact Analysis

- **Freshfields Hotel Economic Impacts on Charleston County, South Carolina**— BAG assisted the development team of a proposed hotel on Kiawah Island in assessing the economic and fiscal impacts of the hotel's construction and operation on Charleston County.

  Economic Impacts of NewTown Macon Programs on Macon, GA— BAG evaluated the resulting economic impacts from ten proposed program initiatives for NewTown Macon, Inc., on the City of Macon, GA. The analysis was used to help prioritize the organization's strategic plan for the City.

- **Economic and Fiscal Impacts of a Proposed Full Service Hotel on the City of College Park, GA**— BAG forecast the economic and fiscal impacts resulting from the development of a 400-room hotel that was proposed for a site located adjacent to the Georgia International Convention Center near the Hartsfield-Jackson International Airport. The purpose of the analysis was to support the developer's request from the local Development Authority to contribute a small portion of publicly owned land to the hotel site and to provide bond financing for the project. BAG calculated the resulting direct revenues to the Development Authority and the broader positive fiscal impacts on the City of College Park. BAG also compared the proposed hotel use to other likely development scenarios for the same property.

- **Analysis of the High Street Mixed Use Development on Dunwoody Georgia**— BAG quantified the economic impacts resulting from the creation of a major proposed mixed use development within the Perimeter Center area of Dunwoody, Georgia.

- **Economic Impact Analysis of Economic Development Strategies for Newton County, GA**— In the process of preparing an economic development strategy for Newton County, BAG quantified the likely economic impacts resulting from the successful implementation of several of the Plan's proposed projects/implementation tasks. Impacts were measured in terms of general economic (jobs) benefits and resulting fiscal impacts (changes in local tax revenues) to the County.

- **Analysis of the Regent Square Mixed Use Project, Houston Texas**— BAG assisted the developers of a large infill mixed use project in downtown Houston assess it economic impacts to Houston and Tarrant County.

- **Economic Impact Analysis of a Proposed Lifestyle Retail Center in Henry County, GA**— BAG assisted a developer in preparing an analysis of the economic impacts of a proposed lifestyle retail center on the economy of Henry County, Georgia.

- **Economic Impact Analysis of a Mixed Use Commercial Development, Franklin, Tennessee**— BAG assisted the developer of a major mixed use development assess the economic impacts of the project to the City of Franklin, Tennessee. Franklin is a suburb of Nashville. The project included over 1 million SF of office a 400,000 SF of retail space, 600 multifamily units and a major hotel.

- **Assessment of the Economic Impacts of a Resort Hotel in Charleston, S.C.**— we prepared an economic impact analysis for a 120 room resort hotel and surrounding retail uses on the coast in Charleston, S.C.

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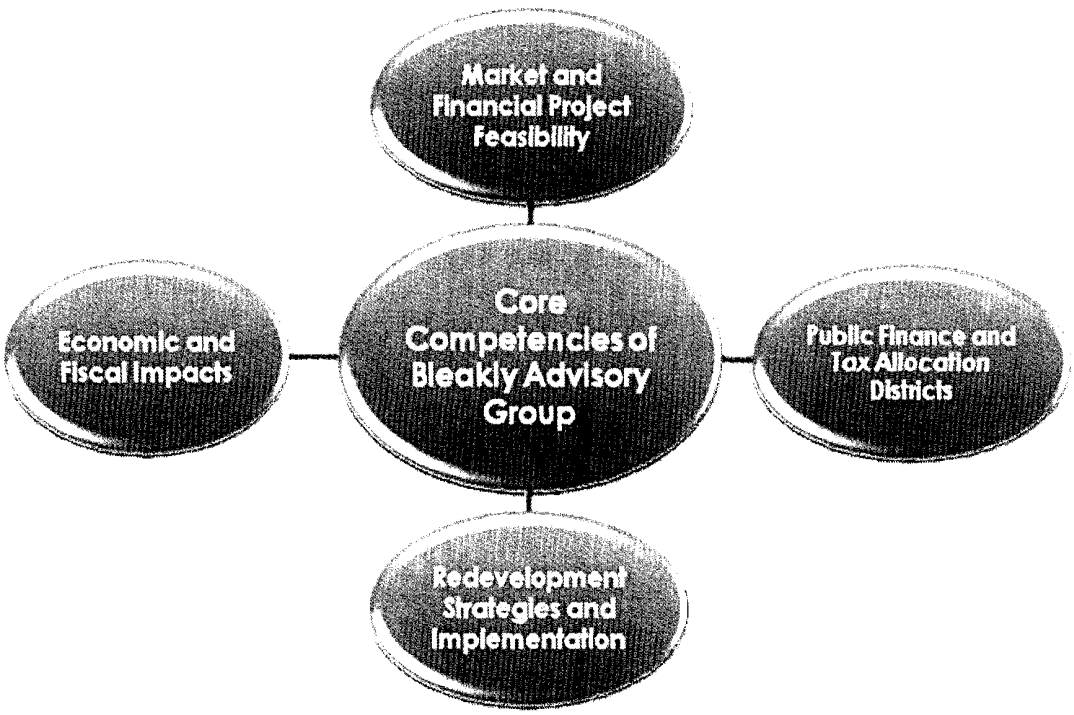
BLEAKLY ADVISORY GROUP
FIRM OVERVIEW

Bleakly Advisory Group is a specialized real estate and economic advisory firm based in Atlanta, Georgia. The firm provides advice to developers, governments and non-profit organizations in dealing with a wide range of real estate related issues. Our work is based on extensive experience not only in **conceptualizing** but **implementing** major development projects. Our approach, while innovative, is grounded in hands-on experience gained from actual public/private sector development.



In today's increasingly complex and competitive development environment, the need for specialized advice which can enhance project success has never been greater. **Bleakly Advisory Group** provides its clients with useful insights and fresh perspectives on real estate issues quickly, efficiently and discretely. Our goal is to help our clients maximize the benefits from their real estate related activities by providing the following advisory services:

PUBLIC FINANCING/TAX ALLOCATION DISTRICTS

As public private partnerships become increasingly common, we assist our clients in creating public financing plans and strategies to support complex projects. We have extensive experience in:

- Evaluating development feasibility and various public financing options to support a potential project
- Establishing Tax Allocation Districts for governments and developers seeking to use this powerful public incentive in Georgia
- Assisting developers with successful applications to obtain TAD funding from existing districts
- Helping development teams evaluate the potential impact of TAD and other public financing techniques on the financial feasibility of their projects.

REDEVELOPMENT: STRATEGIES AND IMPLEMENTATION

Moving a project from planning to development is far from an automatic process—particularly when either new land uses or large-scale development is involved. **Bleakly Advisory Group** is highly experienced in translating proposed projects into actual bricks and mortar by assisting our clients in completing the steps necessary to attract private investment to a project. In this critical portion of the development cycle we can assist you in a number of ways:

- Creating an innovative redevelopment strategy grounded in "real world" market conditions and the unique potential of a given community
- Developing an implementation workplan that provides the "roadmap" necessary to take the plan through to construction
- Structuring key intergovernmental agreements
- Securing needed incentives
- Organizing pre-development project management
- Negotiating site control
- Assisting in developer solicitation, selection and negotiation
- Providing on-going project monitoring to make certain redevelopment goals are being achieved

RESULTS

Bleakly Advisory Group's breadth of knowledge about real estate and the development process is grounded in the experience gained over hundreds of projects performed nationwide. Over the past six years the principals of **Bleakly Advisory Group** were responsible for acquiring over $20 million in land, securing more than $30 million in grants and financial support for over $600 million in new development projects. On behalf of our clients we have obtained more than $35 million in TAD assistance to support redevelopment projects in Georgia.

RECENT CLIENTS

Since our inception in late 2001, **Bleakly Advisory Group** has served a broad range of clients in the private and public sector as well as a number of special development entities. This breadth of experience gives our firm an unmatched understanding of our client's objectives from a real estate transaction. Presented below is a sample of the recent clients of our firm.

Private Sector
Gellerstedt Properties
Trammell Crow Residential
Integral Properties
Urban Realty Partners
The Bentley Group, Ltd.
Nichols Land & Investment, Co.
Actus-Lend Lease
Trammell Crow Commercial
H.J. Russell & Co.
SunTrust Bank
FedEx Ground
Colonial Properties Trust
Cousins Properties, Inc.
Pulte Homes
Jacoby Development, Inc.

Public Sector/Non-Profit
City of Atlanta
City of Augusta
Blueprint Brunswick
City of Suwanee
City of Marietta
Newtown Macon
Atlanta Development Authority
City of Roswell
Atlanta Housing Authority
Central Atlanta Progress
Livable Communities Coalition
Saint Simons Island Land Trust
Midtown Alliance
Urban Land Institute
Sandy Springs Revitalization, Inc.
Atlanta Regional Commission
Georgia Regional Transit Authority
Jekyll Island Authority
MARTA

For more information on the capabilities of **Bleakly Advisory Group**, please contact us at 404-845-3550.

KENNETH D. BLEAKLY, JR.

Kenneth D. Bleakly, Jr. has been involved in a diverse range of real estate and development activities for the past 25 years. He has performed market and financial analyses for projects on a nationwide basis. A major portion of his professional practice has involved helping governments, non-profit institutions and corporations conceptualize, plan and execute their real estate strategies. He has substantial experience in public financing techniques and methods, assisting clients secure over $35 million in TAD funding. He served as President of a non-profit developer. His professional experience includes:

(b)(6)

GARY L. MONGEON

Gary L. Mongeon has participated in the planning and execution of a diverse range of real estate developments over a 30-year career, both as a consultant and implementer. Prior to joining Bleakly Advisory Group, Mr. Mongeon worked for three years as the head of a local redevelopment corporation, where he successfully implemented redevelopment plans and secured tax increment financing for residential and commercial revitalization projects. He has also worked for nearly 20 years as a private development consultant, managing nearly 200 assignments in locations throughout the Eastern US. The scope of those assignments included real estate market research and development feasibility studies, fiscal and economic impact analyses, business planning and forecasting. His professional experience includes: (b)(6)

GARY L. MONGEON
REPRESENTATIVE PROJECT EXPERIENCE (b)(6)

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- Private Placement
- Operating Agreem
- Subscription Agre
- Escrow Agreemen

GDated: _____ __, 2014 Name: _____

No.: ____ of ____

CONFIDENTIAL PRIVATE OFFERING MEMORANDUM

(b)(4) [redacted] LIMITED LIABILITY COMPANY INTERESTS

OF

FARRINGTON EB-5 CAPITAL, LLC

A New York Limited Company LLC

Up to [redacted] (b)(4)

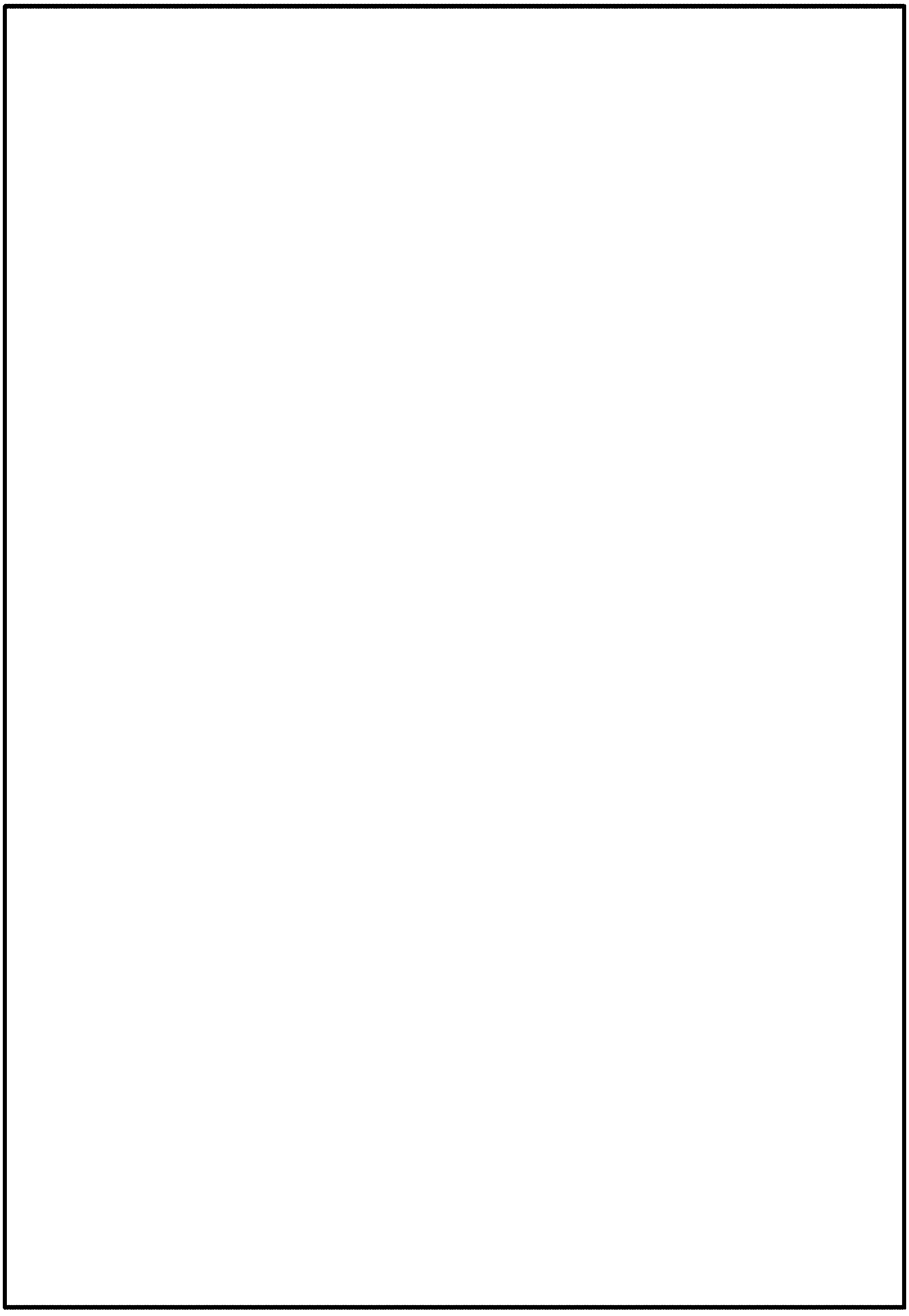
of

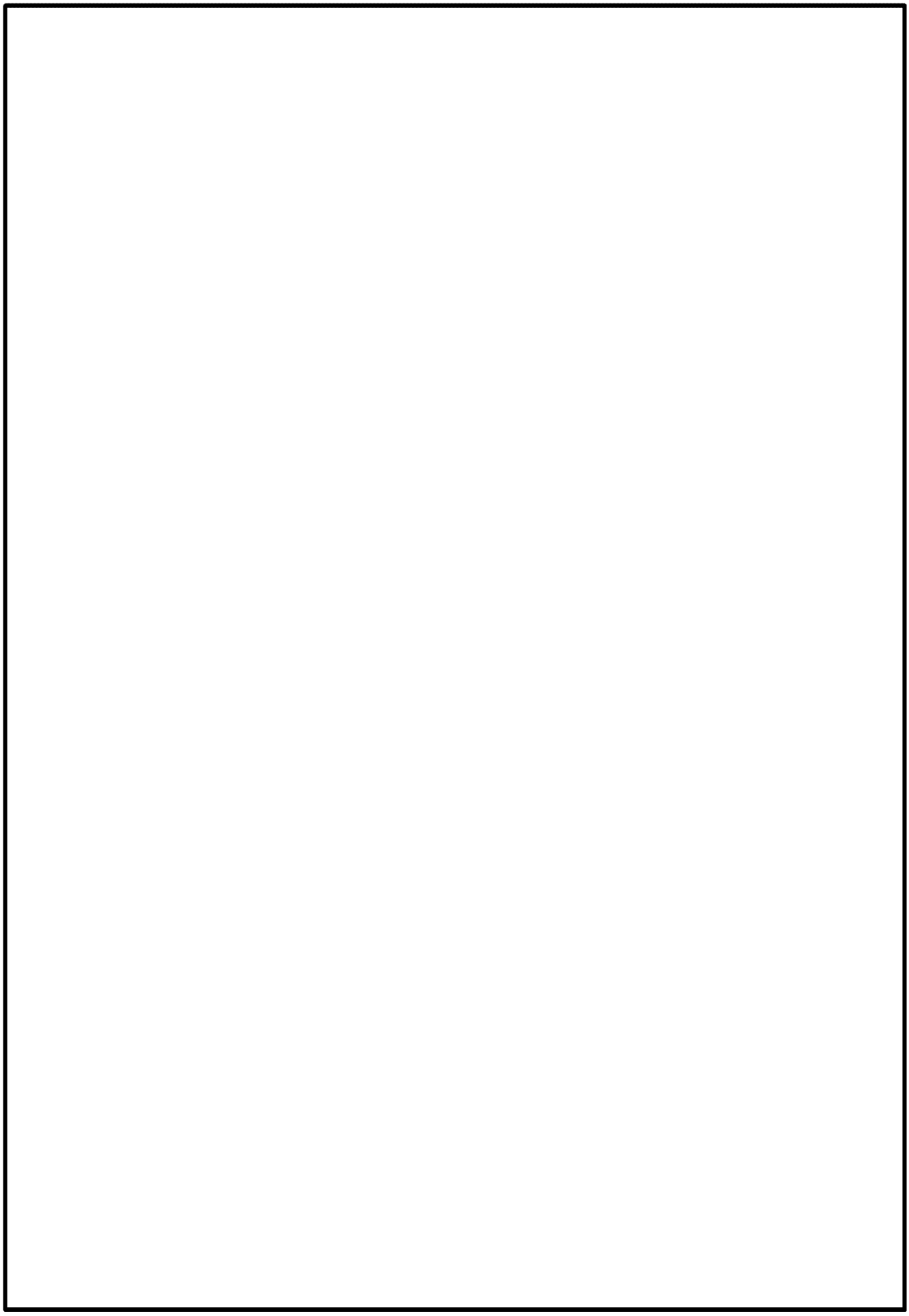
Member Interests

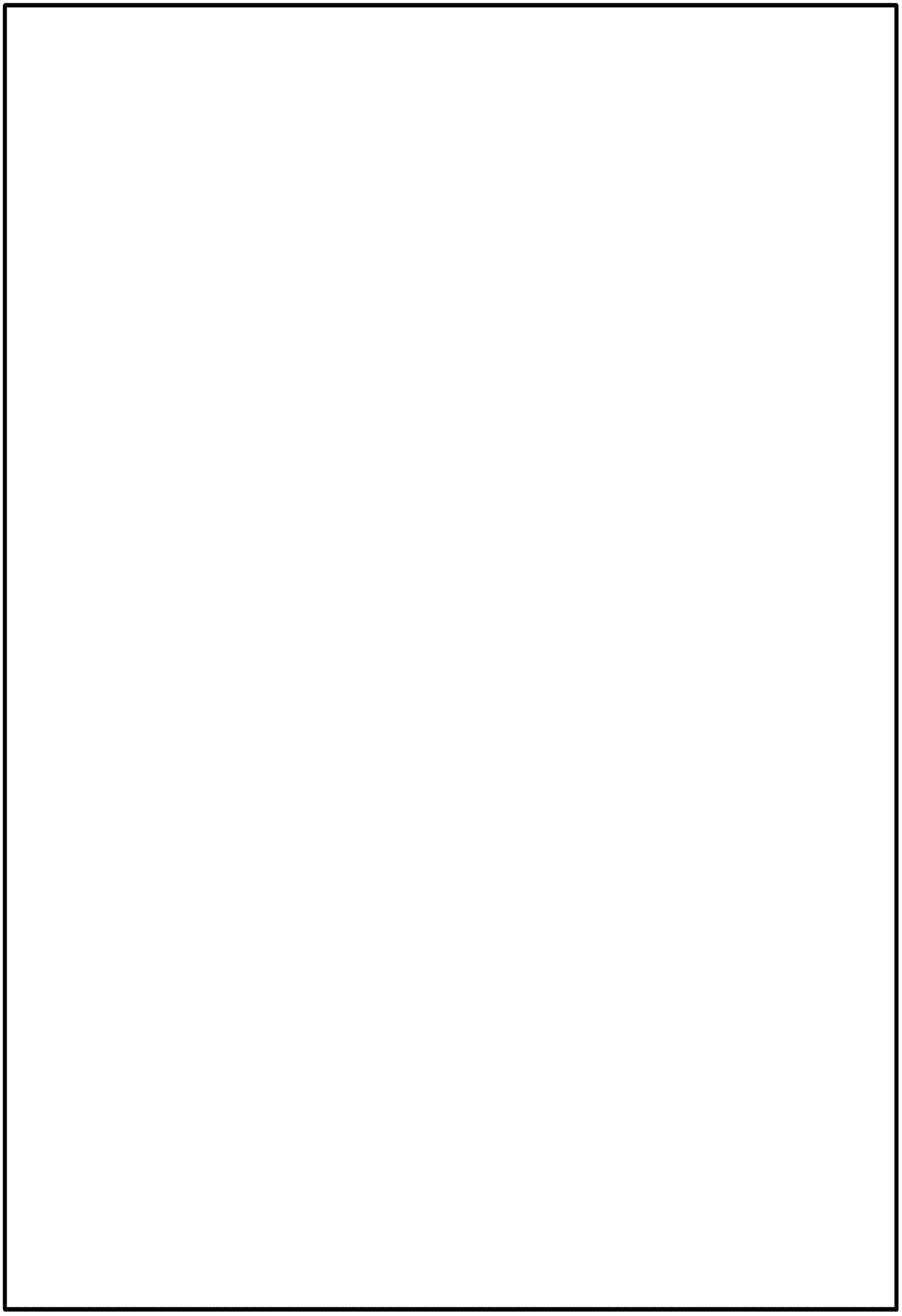
$500,000.00 per Interest

Minimum Investment of 1 Interest ($500,000.00)

Farrinton EB-5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
718 .939.1060
Attn: George Xu
centurygroup88@yahoo.com







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Circular 230 Disclosure

Pursuant to U.S. Internal Revenue Service Circular 230, the statements set forth herein with respect to Federal Tax Issues, as defined below, were not intended nor written to be used, and such statements cannot be used by any taxpayer for the purpose of avoiding any penalties that may be imposed on the taxpayer under the U.S. Internal Revenue Code. Such statements were written to support the marketing of the LLC or matters addressed herein. It is possible that additional issues may exist that would affect the federal tax treatment of an investment in the LLC and the statements contained herein do not consider or provide any conclusions with respect to such additional issues. Each taxpayer should seek advice based on the taxpayer's particular circumstances from an independent tax advisor. A "Federal Tax Issue" is a question concerning the federal tax treatment of any item of income, gain, loss, deduction or credit, the existence or absence of a taxable transfer of property, or the value of property for purposes of any tax imposed by or pursuant to the U.S. Internal Revenue Code.

* * * * *

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Exhibit A – Operating Agreement
Exhibit B – Subscription Agreement
Exhibit C – Investor Eligibility Questionnaire
Exhibit D – Escrow Agreement
Exhibit E – Comprehensive EB-5 Business Plan and Targeted Employment Area status

SUMMARY OF OFFERING TERMS

The following is only a summary of certain of the information contained in this Memorandum, and is qualified in its entirety by reference to the more detailed discussions contained in this Memorandum below, as well as to the Exhibits hereto (all of which are incorporated fully herein by this reference). In the case of any conflict between the summary, below, and the more detailed discussion in the body of the Memorandum, the latter shall control. Similarly, this Memorandum, its exhibits, and certain other documents related thereto have been initially written in the English language; in the event of any conflict between the original English versions and any translations into other languages, the former shall control.

The proposed plan is to construct and develop a Four Points Flushing Hotel & Condominium (the "Project") in New York City.

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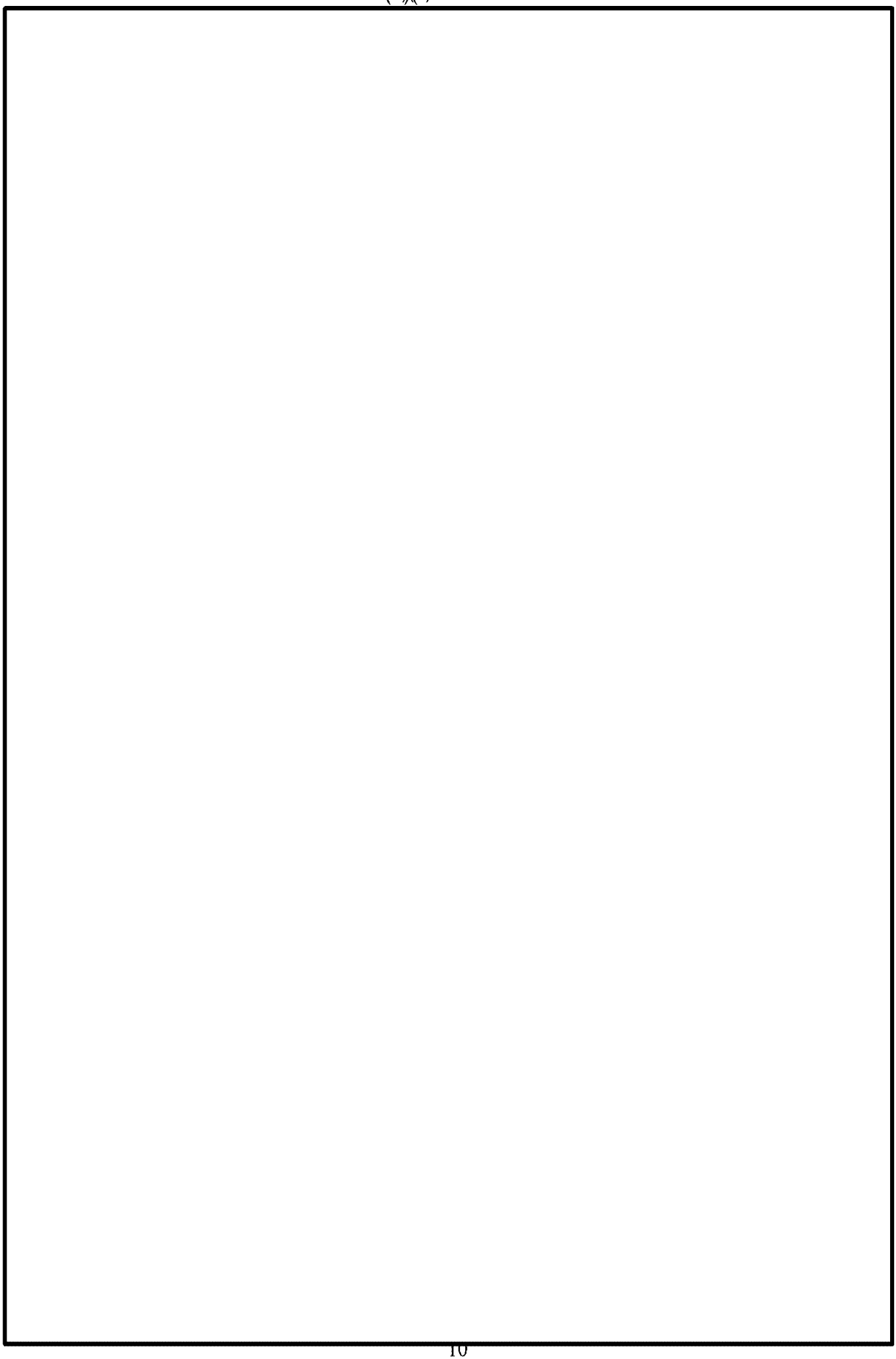

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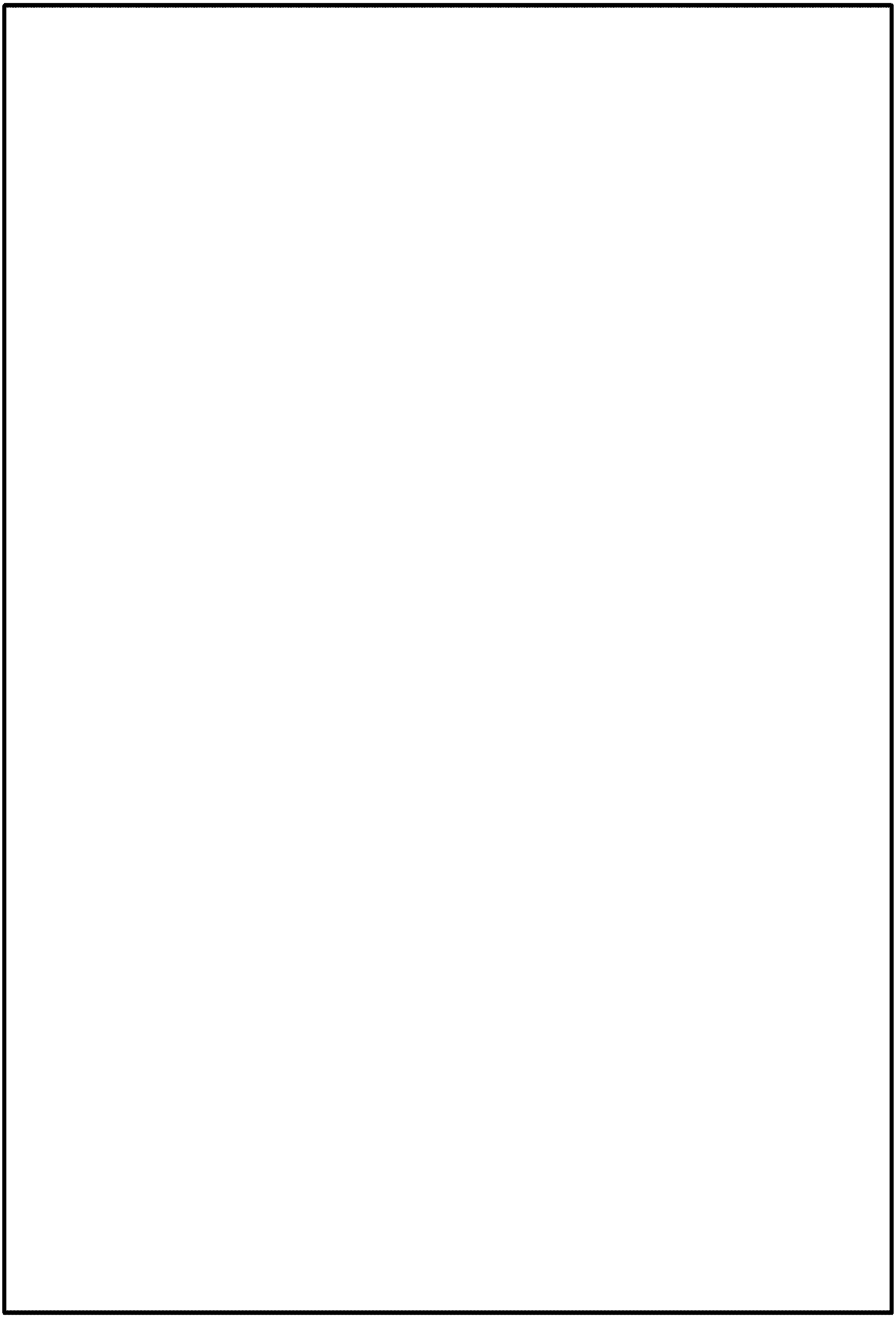

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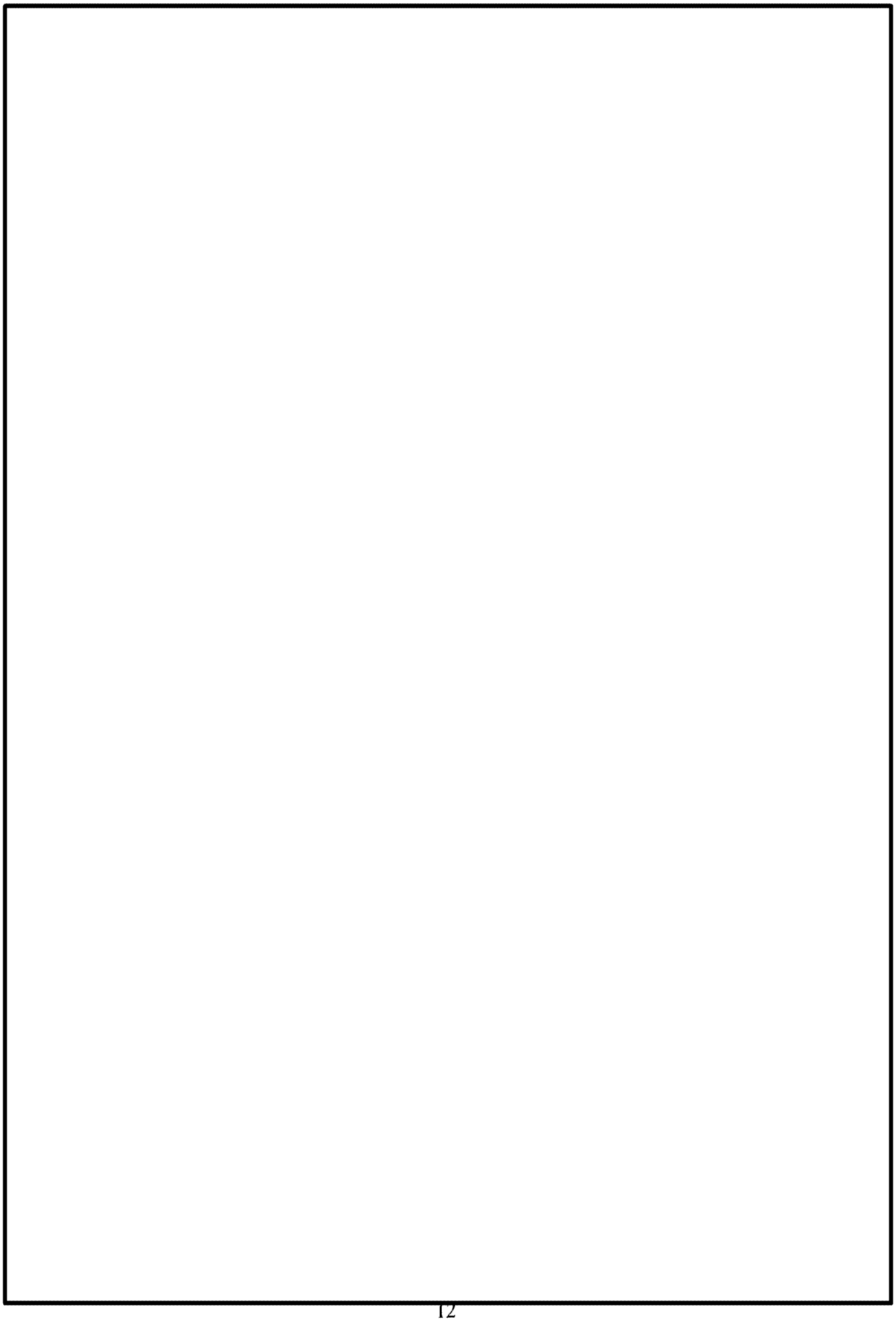

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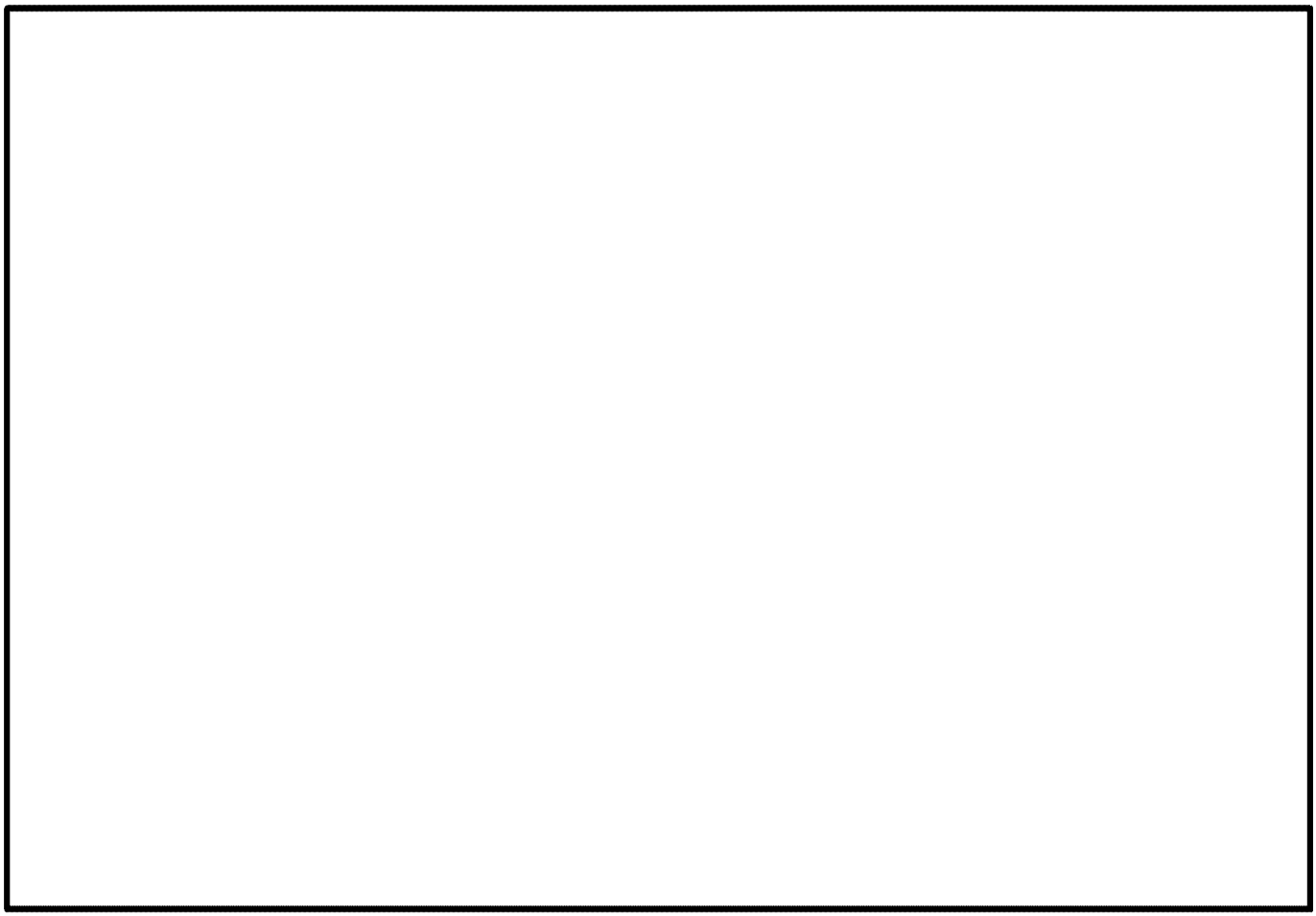

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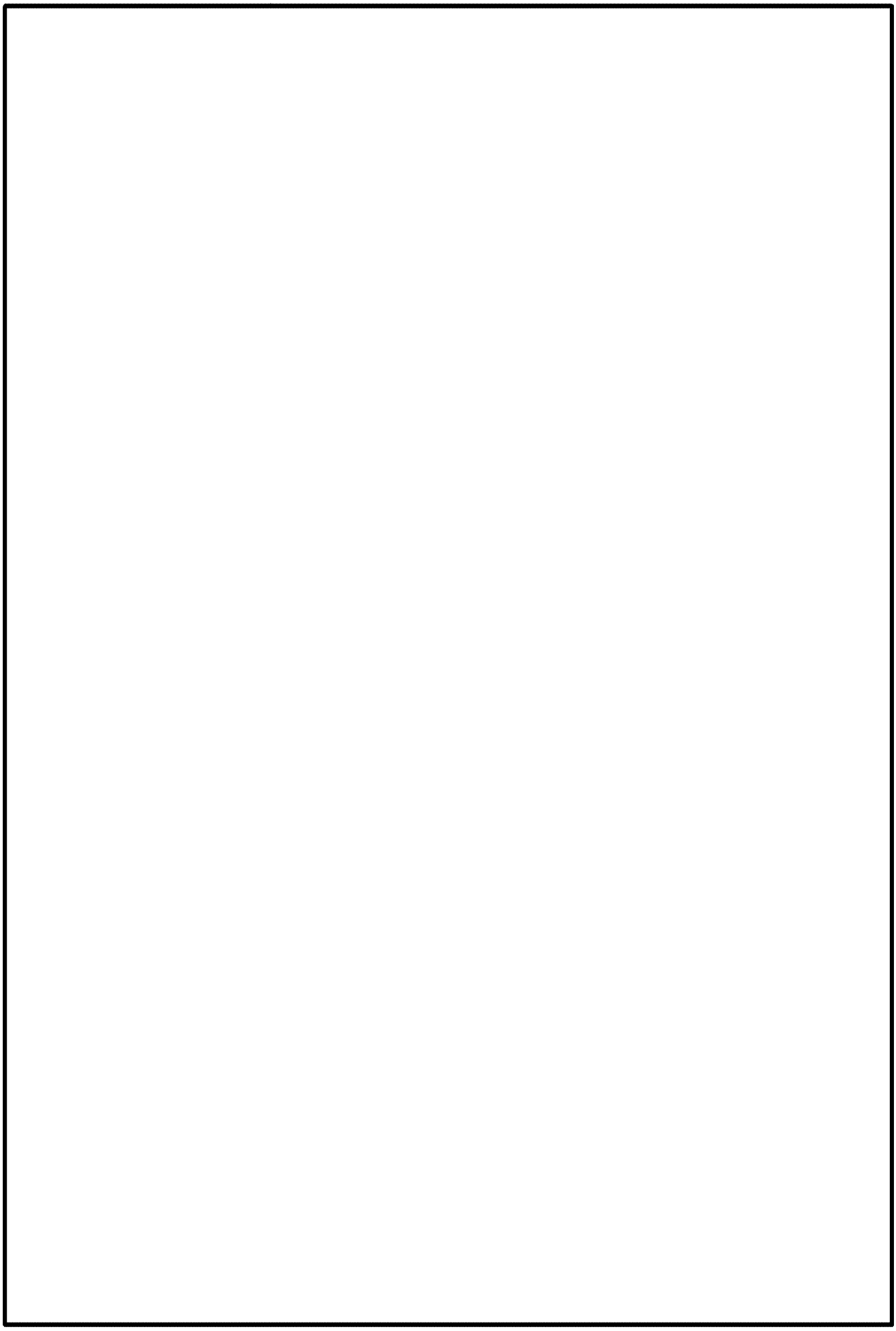
DESCRIPTION OF THE BUSINESS



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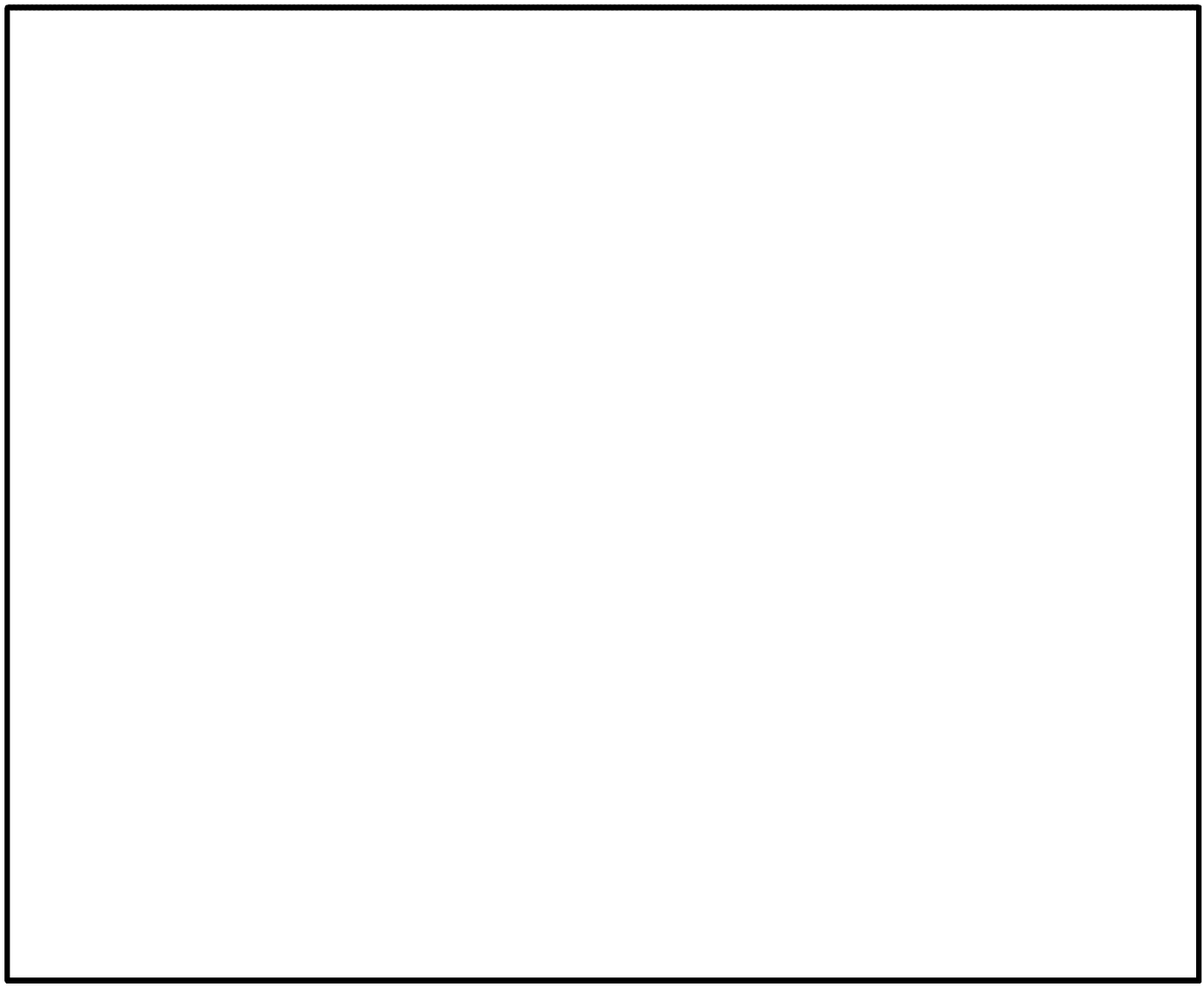

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Table 4: Annual Operating Income & Expense

Four Points Flushing Hotel, Flushing, NY

	Stabilized									
Year	1	2	3	4	5	6	7	8	9	10
Year Ending	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
No. Of Rooms										
Rooms Sold										
Occupancy										
ADR										
ADR % Change										
RevPAR										
RevPAR % Change										
Revenue										
Rooms										
Food and Beverage										
Other Departments										
Rentals and Other Income										
Total Revenue										
Departmental Expenses										
Rooms										
Food and Beverage										
Other Operating Departments										
Total Expenses										
Departmental Profit										
Undistributed Operating Ex										
G&A										
Marketing										
Franchise Fees										
Repairs & Maintenance										
Utilities										
Total Expenses										
House Profit										
Fixed Expenses										
Management Fee										
Property and Other Taxes										
Insurance										
Other										
Total Fixed Expenses										
EBITDA before FF&E										
FF&E Reserve										
EBITDA after FFE Reserves										
EBITDA Margin										

Sources: HVS Consulting & Valuati

Table 1: Estimated Total Development Budget

Four Points Sheraton/Luxury Condo Development, Flushing, NY

Line Item	Total Cost	Cost/SF SF	Cost/SF Room	% of Total
Site Acquisition				
Hard Costs				
Carpentry				
Metals				
Masonry				
Concrete				
Site Work				
Weatherproofing				
Doors & Windows				
Elevators				
Mechanical, Electrical & HVAC				
Finishes				
Specialties				
General Conditions				
FF&E				
Subtotal: Hard Costs:				
Financing & Soft Costs				
Building Permits, Taxes, Connection & Impact Fees				
Property Taxes During Construction				
Architectural, Engineering & Environmental				
Insurance				
Market Study/Appraisal				
Recording Fees				
Accounting				
Legal/Title				
Financing/Lenders Fees/Construction Bonds				
Construction Interest Reserve				
Brokerage Commissions				
Contingency				
Subtotal: Financing & Soft Costs:				
Total Development Budget				

Sources: Farrington Realty, LLC; HVS Consulting & Valuation Services Division of Hotel Appraisals, LLC and Bleakly Advisory Group, Inc.

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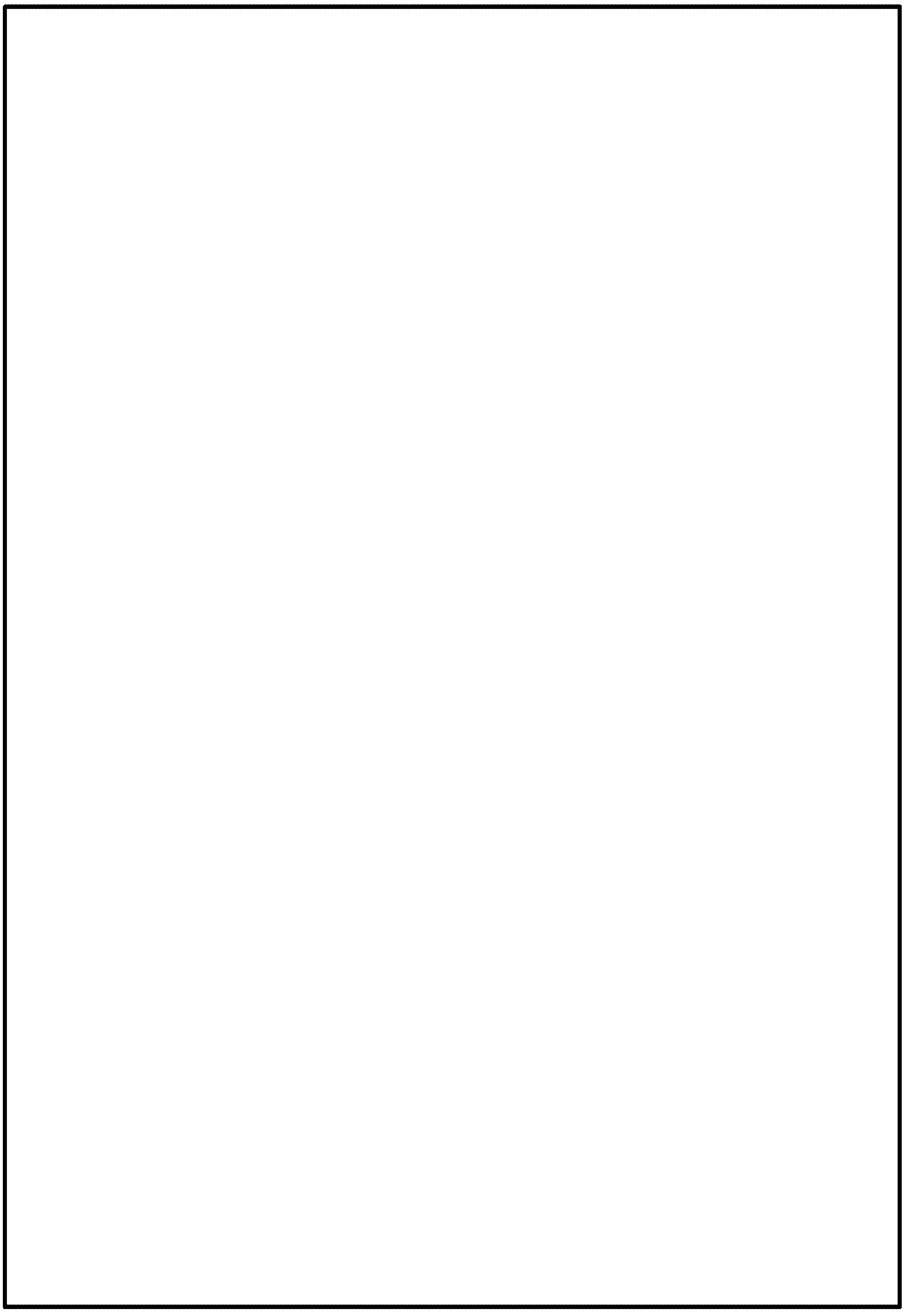
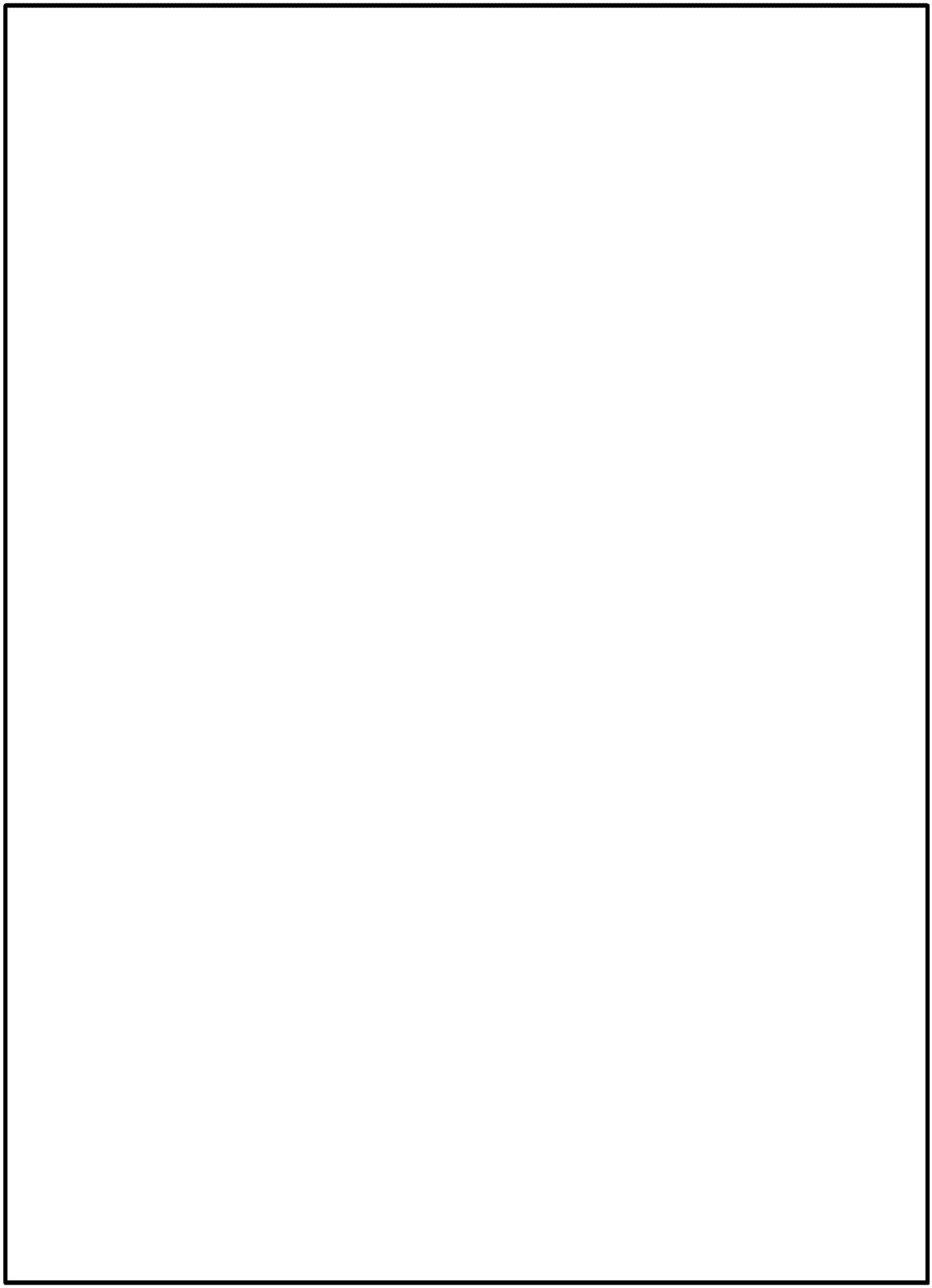
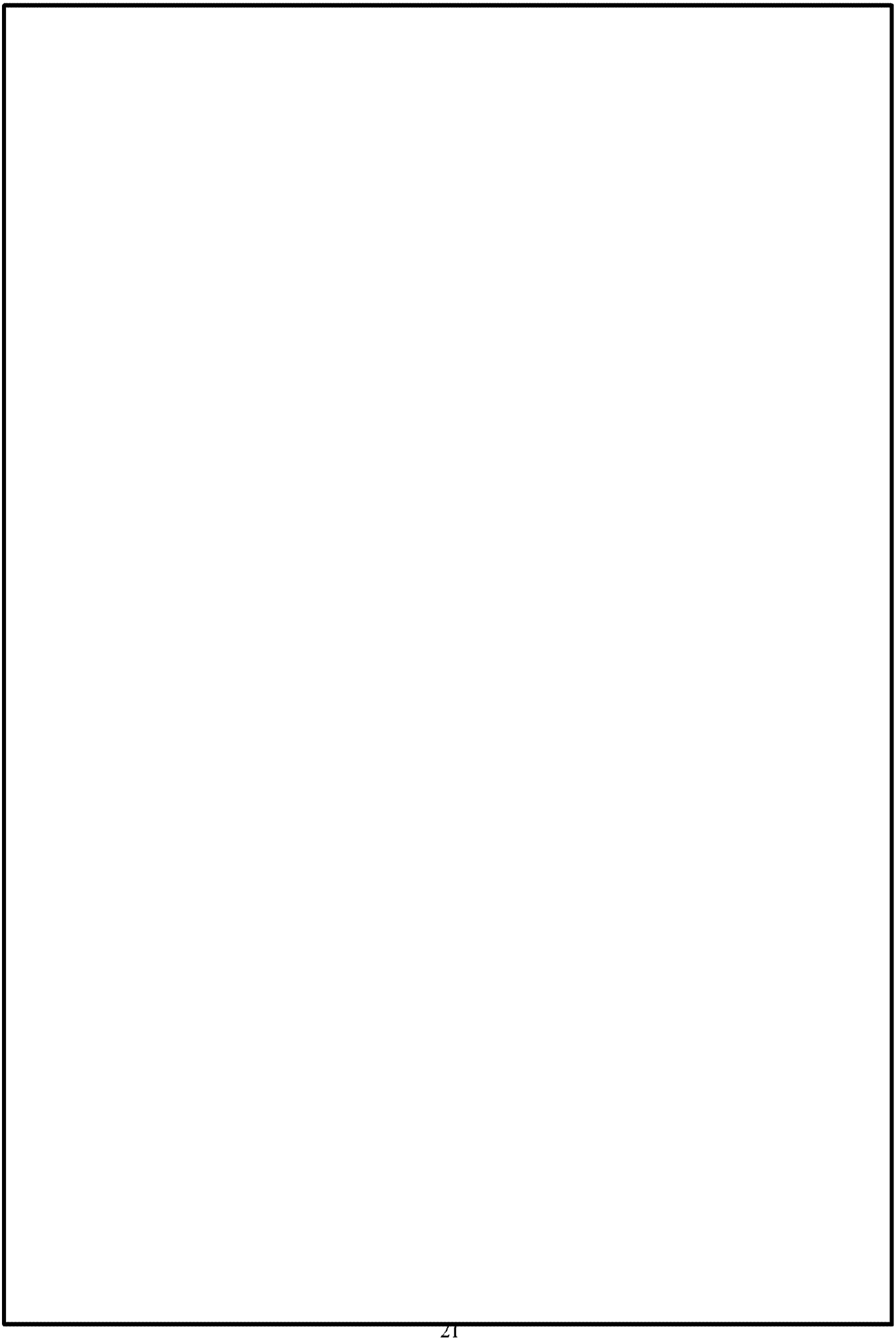
COMPETITION (b)(4)







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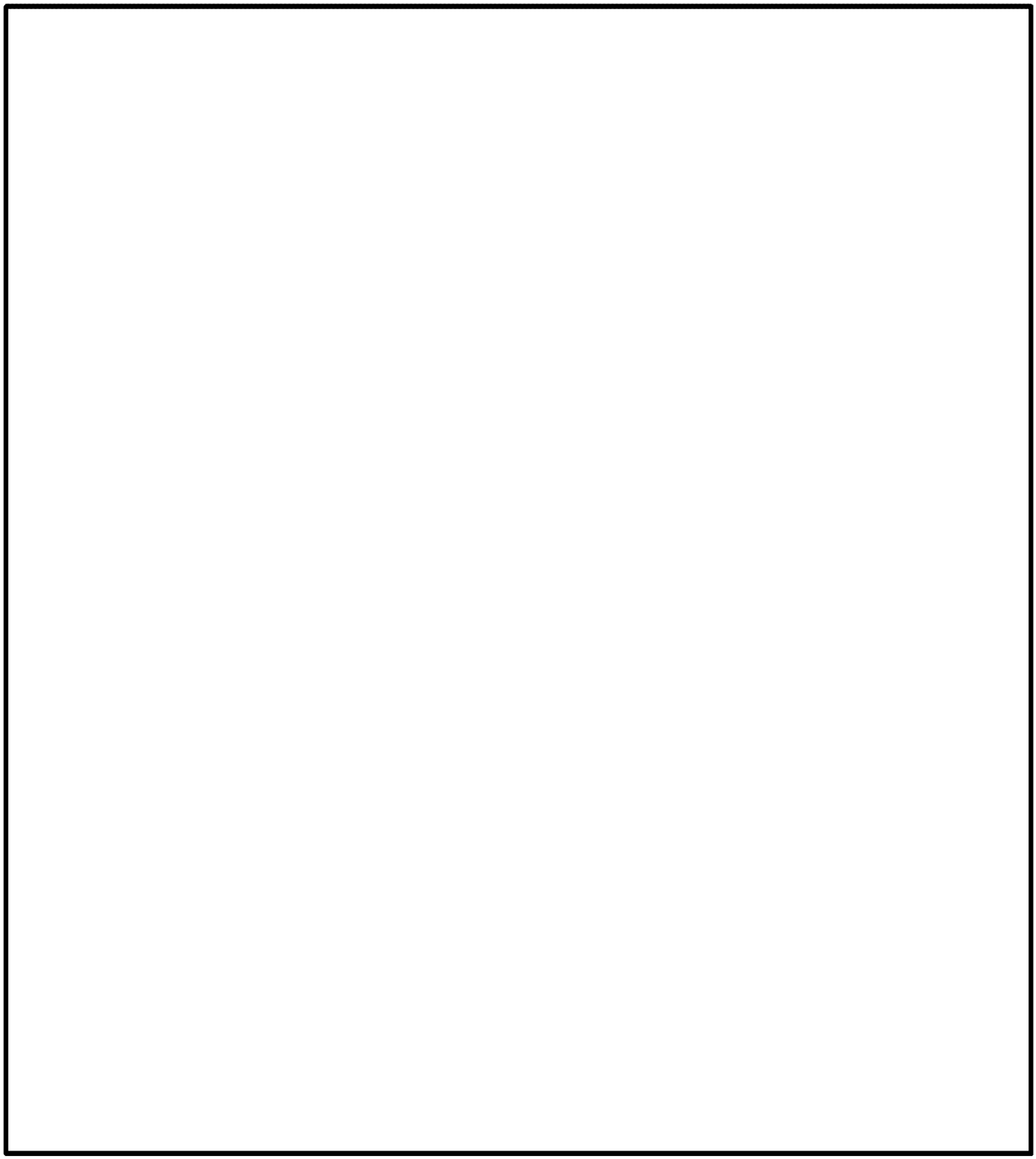
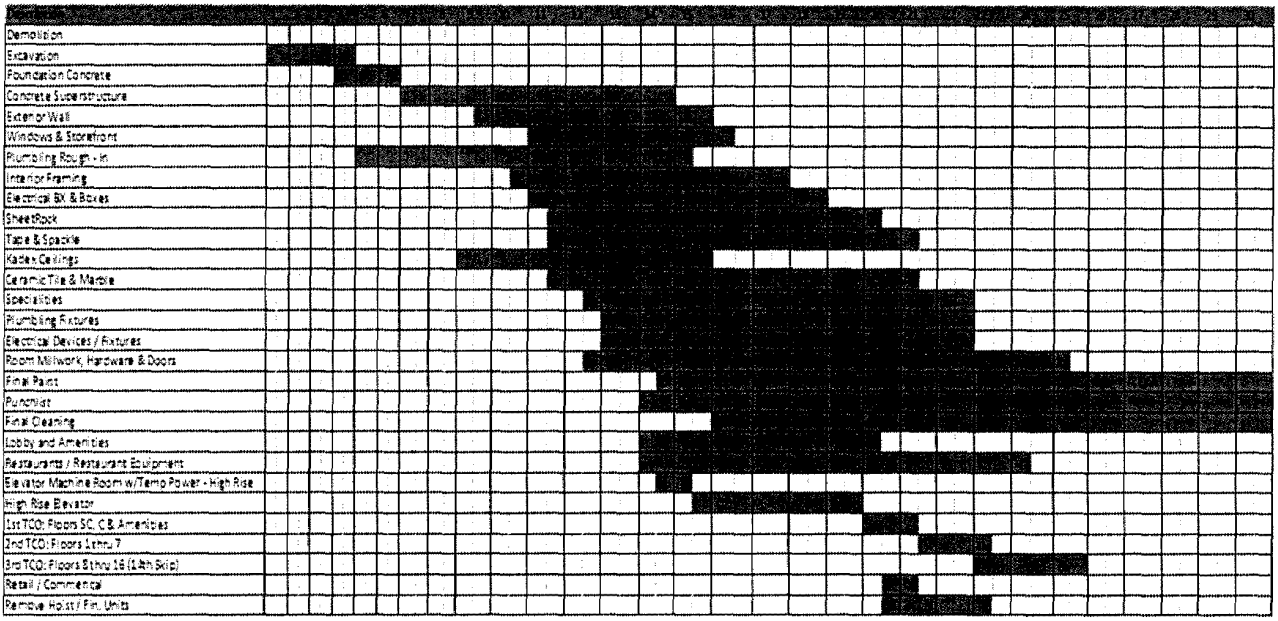


CONSTRUCTION OF THE PROJECT

The construction of the Four Points Flushing Hotel & Condominium project will take approximately 30 months to complete. The developer already has obtained the architectural designs, fabrications, excavations, and procurement and will apply for all necessary permit and licenses in place. The actual construction is expected to be completed in the near future. The timeline at provides the particulars of the various phases of the construction over a period of project months from the commencement of the construction. For example, the early months will consist of the excavation and necessary foundation work.

The construction of the Four Points Flushing Hotel project will take approximately 30-months to complete starting with excavation. The project location is currently demolished and is ready to do construction. The construction timeline is attached below.



The developer is scheduled to obtained all necessary permit and licenses in construction and development of the project. The actual construction is expected to start at the end of 2014, and it is anticipated to be completed by mid-2017. The timeline at provides the particulars of the various phases of the construction over a period of project months from the commencement of the construction. For example, the early months will consist of the excavation and necessary foundation work. The Shoring of Excavation is expected to take 4 months, the construction timeline describes that concrete will be poured into concrete slabs for the individual floors. At this time, the construction of the hotel has made considerable headway. The construction timeline above provides the particulars of multiple phases of the construction over a period of 30 months from the commencement of the construction.

CONSTRUCTION PERMITS AND LICENSES

In New York City the construction is "as of-right" development which complies with all applicable zoning regulations and does not require any discretionary action (special permit or variance) by the City Planning Commission or Board of Standards and Appeals for approval. Assuming that the project complies with all other Code and Zoning regulations, the NYC Department of Buildings Plan Examiner Plan Examiner will approve the Plans, further to the architect's construction detailed blueprints and renditions.

It is not necessary for the project to seek the additional approvals of the City Planning Commission, or of the Local Community Board, or of any other outside party of interest. If the project complies with the applicable Zoning Laws currently in force, the developer is entitled to build. Therefore building permits are only valid for a limited amount of time and the project will apply for the relevant permits prior to the commencement of the construction activities.

* * * * *

MANAGEMENT BIOGRAPHIES AND INTERRELATIONS

The following paragraphs set forth the Managing Member and Officers of the job creating entity Farrington Realty, LLC.

The amounts and percentage of Units beneficially owned are reported on the basis of regulations of the SEC governing the determination of beneficial ownership of securities. Under the rules of the SEC, a person is deemed to be a "beneficial owner" of a security if that person has or shares "voting power," which includes the power to vote or to direct the voting of such security, or "investment power," which includes the power to dispose of or to direct the disposition of such security. A person is also deemed to be a beneficial owner of any securities of which that person has a right to acquire beneficial ownership within 60 days. Under these rules, more than one person may be deemed a beneficial owner of the same securities and a person may be deemed a beneficial owner of securities as to which he has no economic interest.

MANAGEMENT BIOGRAPHIES

Mr. George Xu, CEO/Regional Center Principal

Mr. George Xu is the founder and the principal of the Century New York City Regional Center ("CNYCRC"). Mr. Xu is also the founder and President of Century Development Group, a real estate development company. With over 16 years of real estate holding and development experience, he has worked on over a million of square feet of real estate developments; mixed-use developments including residential, hospitality, office, retail, and in all phases of assembly, acquisition, finance, design, construction, marketing and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters. Mr. Xu provides marketing oversight and policy guidance for the Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and a Master of Science degree in Computer Science from Polytechnic University, New York.

Qili Li, MD, Regional Center Principal

In private practice for more than 14 years specializing in the field of Obstetrics and Gynecology in downtown Flushing, Queens County, New York City. Dr. Li attended the Sophie Davis School of Biomedical Education were She graduated with Magna Cum Laude with honors. She received her Medical Doctor degree from New York Medical College. She completed her internship and residency training in Obstetrics/Gynecology at North Shore University Hospital at Manhasset, New York. She is board certified in the specialty of Obstetrics/Gynecology. She is a fellow of the American College of Obstetrics/Gyneoclogy (ACOG). In recent years, like many of her colleagues, Dr. Li has expanded her interest/investment in real estate. She is currently involved in several real estate development projects ranging from high end condominium to hotel construction.

James Ho, Vice President

Mr. James Ho graduated from Polytechnic University majoring in Electrical Engineering and Computer Science. Mr. Ho has seven years of experience in computer programming and twelve years in securities trading and security related business. Currently he is involved in real estate development of three projects in New York City area. Mr. Ho's role in the CNYCRC is to provide oversight of operations, maintain cohesion between a project's developer, general contractor, law and accounting firms, and to ensure overall compliance.

Robert Chen Vice President

Mr. Robert Chen oversees the overall operations of the Regional Center. He's also in charge of due diligence and evaluating potential projects and determines business feasibilities. Prior to join CNYCRC, Mr. Chen has

over 10 years' experience in senior manager position with FedEx. He has owned, managed and operated companies in computer wholesale and repair business. Mr. Chen received his Bachelor of Science degree in Environmental Health Science from City University of New York.

David Pan, Vice President

Mr. David Pan has over 15 years of experience in fixed-income securities trading and risk management, having worked in various roles at Credit Suisse, Citigroup, Deutsche Bank and the hedge fund industry. Formerly a Director at Credit Suisse in the Strategic Risk Management division covering Residential Mortgage Backed Security (RMBS) business where he was instrumental in developing models and methodologies in assessing the firm's risk exposure to the mortgage security market. Prior to his Wall Street career, Mr. Pan spent 10 years as a senior software engineer responsible for the development of the state-of-the-art fixed-income security trading and analytics software systems. He graduated with a Bachelor's degree in Computer Science from Queens College, City University of New York.

Anthea Quan, Accounting Controller

She is responsible for the accounting, financial reporting and audit functions. Also performs management of operating cash flow, financial analysis, obtaining financial for development projects and investor distribution. She is passionate about accounting and has experience working with a variety of small business. Ms. Quan graduated from Yanbian University in China with a bachelor of mathematics. She is fluent in Chinese, English and Korean, resides in New York with her husband.

Tracy Law, Director of Project Management

Ms. Tracy Law is responsible for a full spectrum on operations to ensure that projects are done on time and on budget. Her constant communication with contractors and architects provides a strong network of relationships in the field. She is responsible for supervising and coordinating OS&E and FF&E. She is integral in bringing new hotels to opening. Ms. Law graduated with a Bachelor of Science degree in Accounting from Queens College, City College of New York.

Lynn Wei, Director of Marketing and Business Development

Ms. Lynn Wei is responsible for a full spectrum of business development initiatives including creating and overseeing international marketing strategies for all CNYCRC project offerings. She is also involved in managing client relations. Ms. Wei is also a senior business development associate at the Century Development Group. In this capacity, she focused on creating Request for Proposals and general marketing materials, as well as developing a customer analytical database, and implementing strategic marketing and communication initiatives. Ms. Wei graduated with a Master of Science degree in Economics from Brooklyn College, City University of New York and a Bachelor of Administrative Degree in Marketing from Shanghai Finance University.

* * * * *

CONFLICTS OF INTEREST

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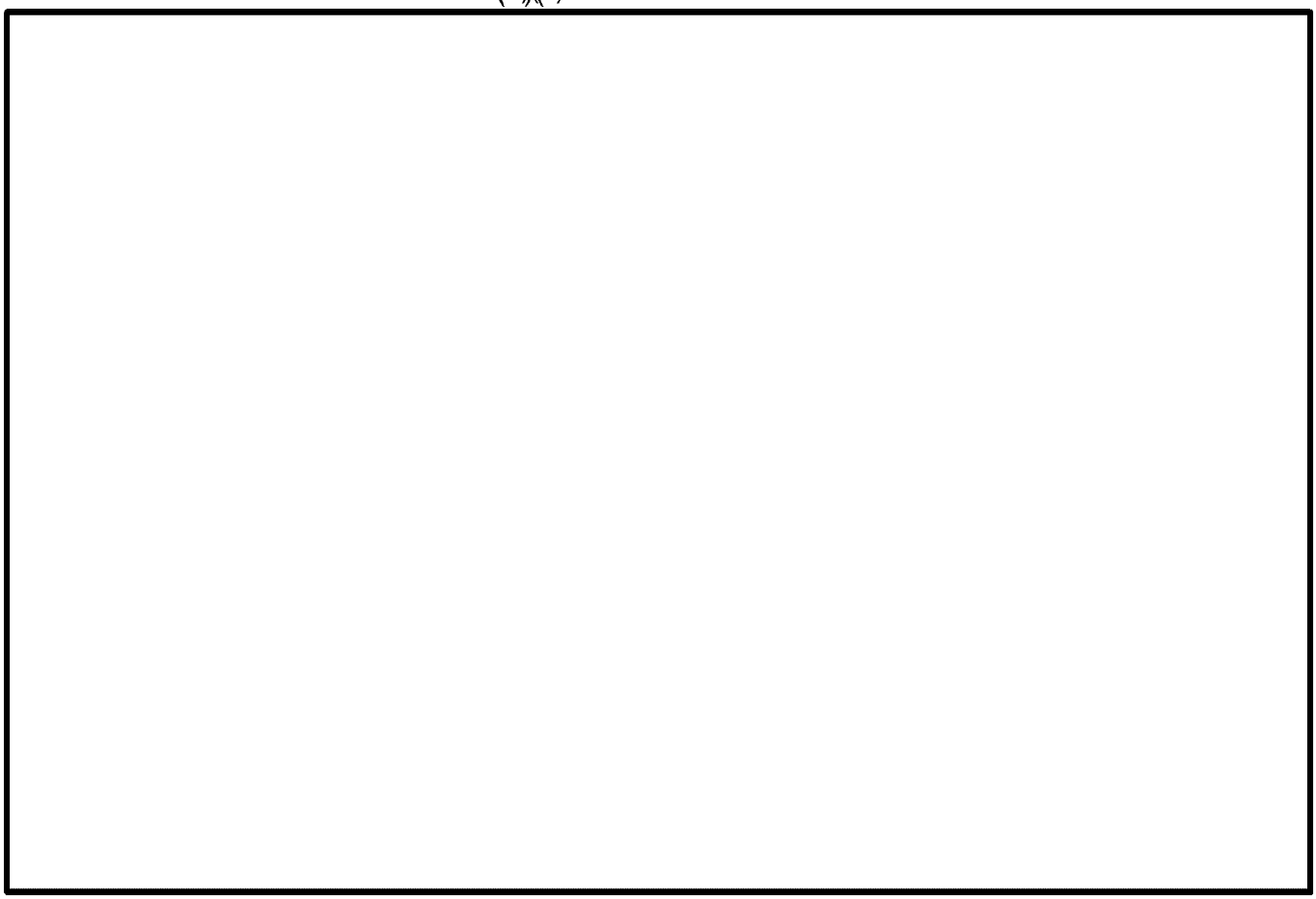

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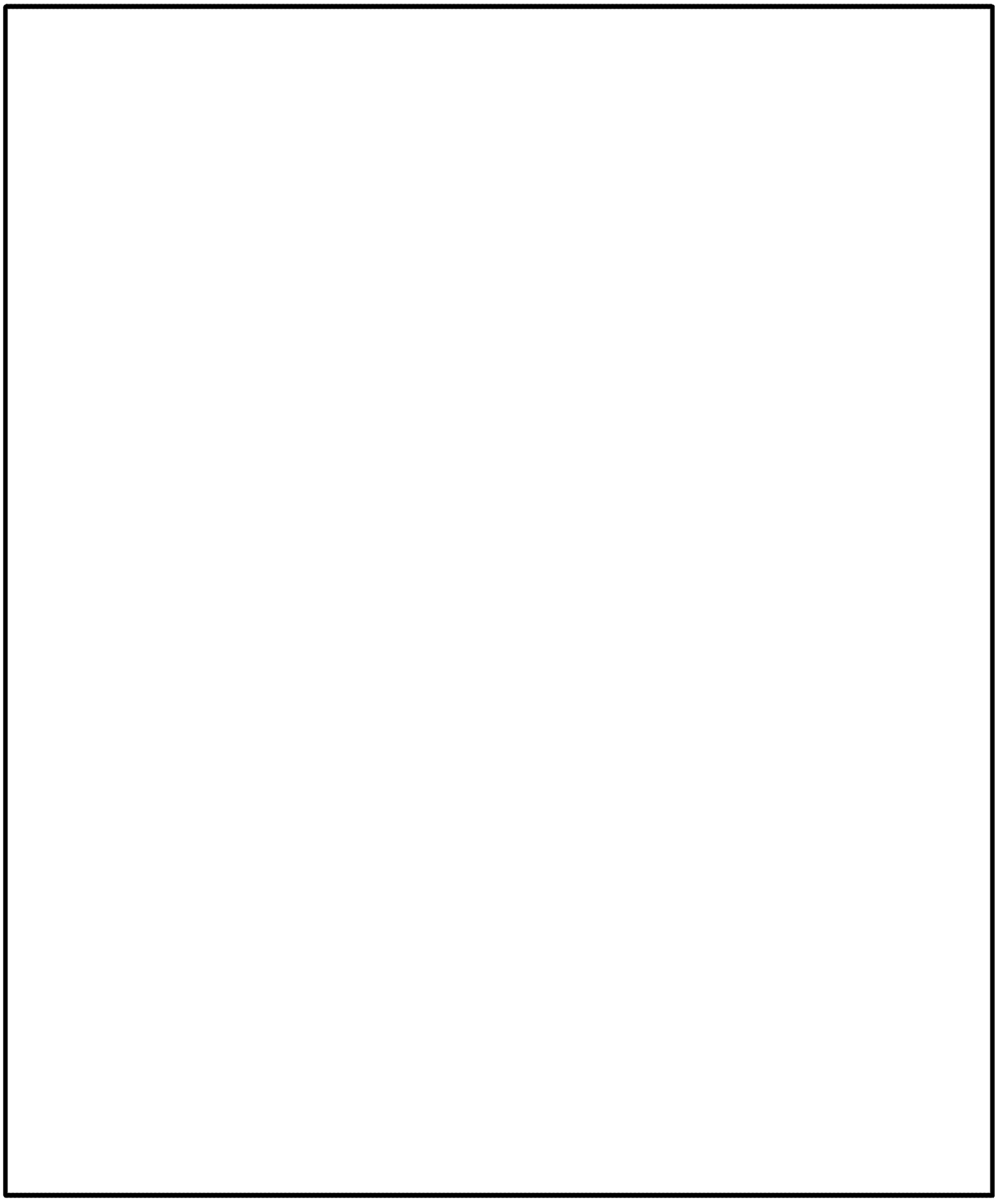
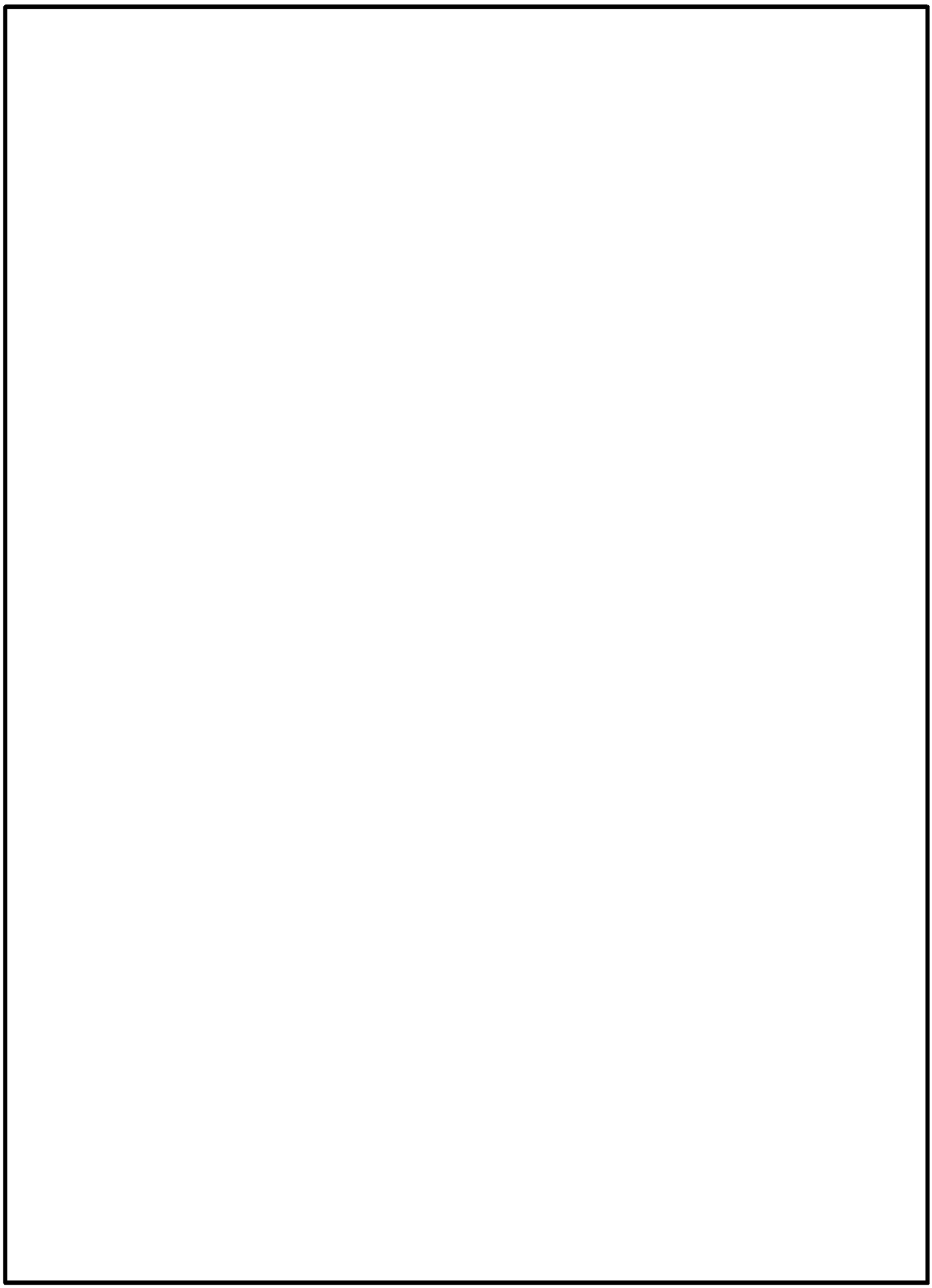
FINANCIAL CONSIDERATIONS

THE OFFERING





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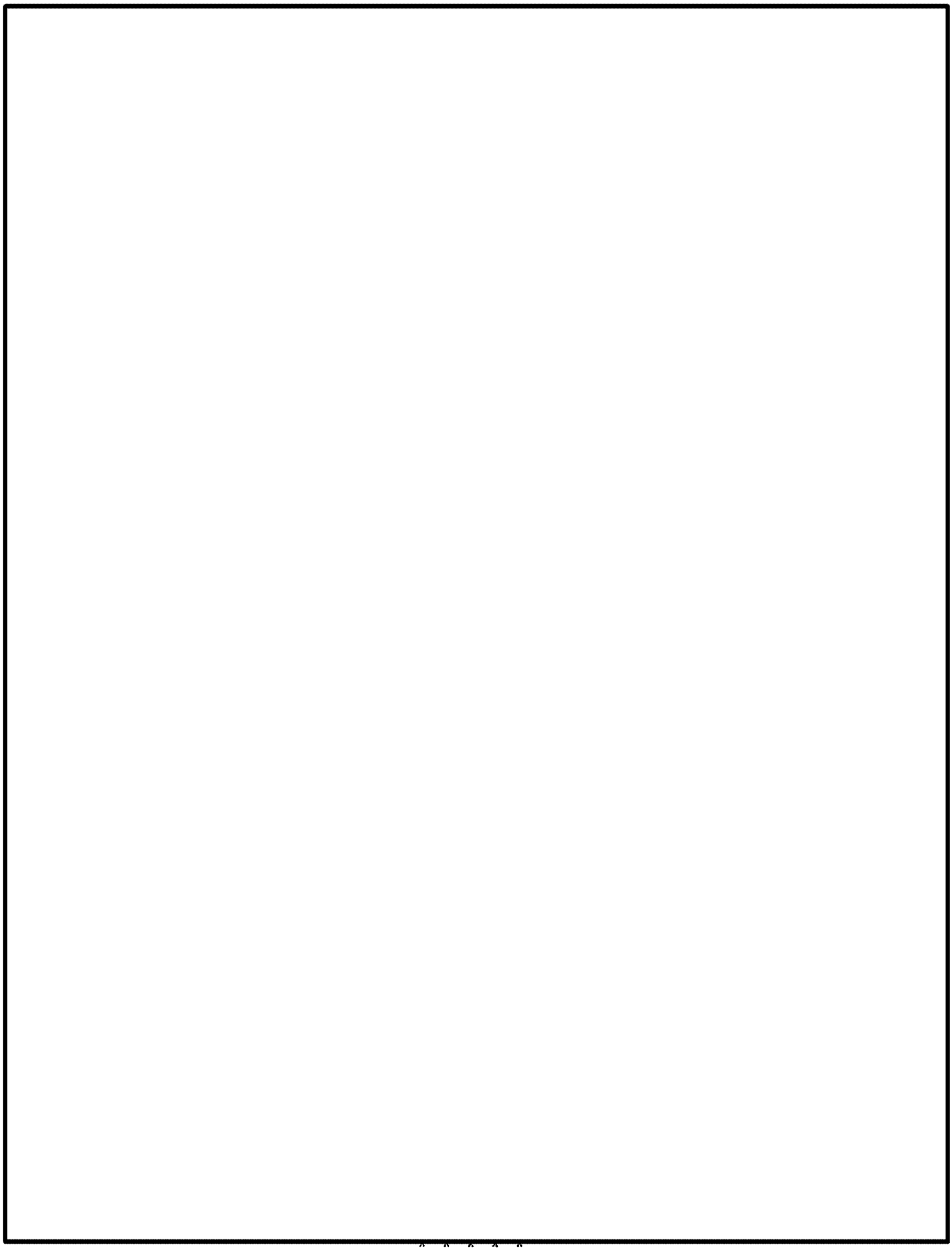


TAX CONSIDERATIONS

* * * * *

EB-5 IMMIGRATION DISCLOSURES AND RISK FACTORS

The U.S. Congress created the employment-based fifth preference (**"EB-5"**) immigrant visa category in 1990 for immigrants who invest in and manage U.S. commercial enterprises that benefit the U.S. economy through what is labeled the "EB-5 Program." Each investment needs to create or save at least 10 full-time jobs for U.S. workers.

The minimum amount required to invest is $500,000, although that amount is reduced to $500,000 if the investment is made into a new commercial enterprise principally doing business in a high unemployment area or qualifying Targeted Employment Area (collectively defined as a "**Targeted Employment Area**" or "**TEA**"). This project is located in a Targeted Employment Area, thus the minimum capital investment remains $500,000.

A description of the requirements and processes of the EB-5 Program is based on information obtained by the LLC from third parties whom the LLC believes are reliable. However, there can be no assurance that such information is accurate or current, or that it includes all of the risks relating to U.S. immigration laws or to the EB-5 Program. See "Risk Factors," below.

Investors in this Offering who have subscribed for Interests with the intention of applying for U.S. permanent residence on account of investment in the LLC should be aware of certain risk factors relating to immigration to the United States generally, and to the EB-5 Program and its administration specifically. An Investor who is interested in purchasing Interests with the intention of obtaining first conditional, and thereafter permanent, residence is encouraged, along with his or her advisors, to make his or her own independent review of the EB-5 Program and the various immigration risk factors relating to the process in obtaining a conditional and permanent residency status to determine if an investment in the Interests is a suitable approach for him or her.

THE LLC MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND CONCERNING WHETHER AN INVESTMENT IN THE LLC WILL MEET THE REQUIREMENTS OF THE EB-5 PROGRAM OR OTHER U.S. IMMIGRATION REQUIREMENTS. NO ASSURANCES CAN BE GIVEN THAT AN INVESTMENT IN THE LLC WILL RESULT IN AN IMMIGRANT INVESTOR RECEIVING AN EB-5 VISA OR CONDITIONAL OR PERMANENT RESIDENT STATUS.

General Immigration Risks. Congress and/or USCIS may change the law, regulations, or interpretations of the law, including the EB-5 Program, without notice and in a manner that may be detrimental to an Investor and/or the LLC. Investors who obtain conditional or permanent resident status must intend to make the United States their primary residence. The EB-5 Policy Memorandum was issued on May 30, 2013, which changes a significant amount of key definitions and criteria. Permanent residents who continue to live abroad risk revocation of their conditional or permanent residence status. The process of obtaining conditional and permanent resident status involves numerous factors and circumstances which are not within the control of the LLC, or the scope of this Memorandum. These include, but are not limited to, an immigrant Investor's particular personal history and characteristics, and quotas established by the United States government limiting the number of immigrant visas available to qualified individuals seeking conditional or permanent resident status under the EB-5 Program.

EB-5 Program Expiration. The expiration date for the EB-5 Program, is currently September 30, 2015. It is believed that the U.S. Congress will extend the EB-5 Program after that date; however, there can be no assurance that the EB-5 Program's term will be extended, or that applications submitted before the EB-5 Program's expiration will be adjudicated by the USCIS.

Use of Immigration Attorney and Processing Time. The filing of an I-526 Petition by an Investor with USCIS should be done by a qualified U.S. immigration attorney. As of the date of this document, the Manager has been advised that the USCIS is taking approximately eleven (11) months to approve (or deny) an I-526 Petition. It is impossible to predict USCIS processing times. Once approved, the case will either be forwarded to the U.S. State Department's National Visa Center and then to a U.S. Consulate selected by the Investor for processing,

or, if the Investor is already in the U.S., the Investor may adjust his or her status to that of conditional permanent resident. Depending on which option the Investor chooses, it may take an additional six (6) months or longer for a U.S. Consulate to process the immigrant visa application, or for the USCIS to adjust an Investor's status, and issue a conditional green card. Investors should not physically move to the United States until their immigrant visa has been issued.

Administrative Risk due to Changes in USCIS Policies. Processing times and USCIS' consideration and eventual approval of Investors' I-526 petitions could be negatively impacted by changes to USCIS' procedures or to its interpretation and implementation of current or future laws and regulations.

Mezzanine Lending Risk: Farrington EB-5 Capital, LLC provides mezzanine debt capital to Four Points Flushing Hotel & Condominium project. Mezzanine debt capital generally refers to that layer of financing between a company's senior debt and equity, filling the gap between the said capital. The EB-5 financing subordinates in priority of payment to senior debt, in this case, Northern Bank & Trust loan but senior in rank to owner's equity.

Jobs. USCIS requires proof that each investor's investment resulted in creating ten (10) jobs as part of the removal of conditions required for obtaining permanent residency status. The structure of the Offering is such that all jobs counted for purposes of Investors' immigration petitions must be created directly by the LLC. Based upon the Manager's estimates, the Manager believes that an investment in the Interests should satisfy the job creation requirement for the number of investors sought, specifically four hundred and two (402) jobs. See "Risk Factors", below.

The Manager estimates that the Project will create a maximum total of approximately four hundred and two (402) qualifying U.S. jobs, which is forty (40) per investor or ten percent (10%) more than the amount required. Each Investor in the LLC who will petition for permanent residency in the U.S. under the EB-5 Program based on an investment in this Offering must demonstrate that the Project created at least ten (10) U.S. jobs on account of that Investor's investment in order to qualify for permanent residency status under the EB-5 Program. The qualifying jobs created by the LLC's Investment of the Offering proceeds shall be allocated to the Investors on a first-in, first-out basis tied to the later date on which the following shall have occurred: (a) the LLC has accepted an Investor's subscription, or (b) the LLC has received in the project or in escrow such Investor's Capital Contribution and Administrative Fee. Accordingly, the first ten qualifying jobs that are created by the Project will be attributed to the first Investor who satisfies the requirements of clauses (a) and (b) of this paragraph, the second ten qualifying jobs that are created by the Project will be attributed to the second Investor who satisfies the requirements of clauses (a) and (b) of this paragraph, and so on until all qualifying jobs that are created by the Project have been allocated on a first-in, first-out basis to each Investor who satisfies the requirements of clauses (a) and (b) of this paragraph.

The Manager's job creation estimates are based upon the LLC's proposed activity and other circumstances of this Project. As stated above, the Manager's analysis estimates that the Project will create a likely maximum total of approximately seven hundred and thirty (730) U.S. jobs. However, there can be no assurance that this estimate, or the assumptions upon which it is based, is or are accurate, or that the actual number of direct employees will be close to the number predicted in such analysis. Depending upon any disparity actually realized, there may be insufficient employment to remove conditional visa status, resulting in a delay, or denial, of permanent residency for one or more Investors. Because the qualifying jobs created by the Investment shall be allocated to the Investors on a first-in, first-out basis tied to the date of Investors' subscriptions, as detailed in the paragraph immediately above, while the LLC believes that a sufficient number of qualifying jobs will be created by the Project for all Investors, if less than the number of direct, jobs estimated are actually created by the Project, the first-in, first-out method of allocating jobs will provide greater security for earlier subscribing Investors than for later subscribing Investors with respect to the removal of conditions required for obtaining permanent residency status.

Proving Lawful Source of Funds. As part of the I-526 Petition, an Investor must present to USCIS clear documentary evidence of the source of the funds invested, and that the funds belong to the Investor. Generally, the Investor can satisfy the source of funds requirement by submitting documents showing that he or she has a

level of income from legal sources that would yield sufficient funds for the investment. USCIS generally requires copies of income tax returns to satisfy the source of funds requirement. For Investors who do not have such records, there may be other records that can be provided to USCIS by an Investor to demonstrate that the investment funds came from legal sources. USCIS may require proof of a more specific path of funds earned in individual cases. All such matters regarding the Investor's I-526 Petition should be discussed with his or her immigration counsel. An Investor may be unable to present evidence that USCIS considers sufficient to carry the Investor's burden to show the legitimate source of the investment funds.

Policy Formulation. The EB-5 Program requires an Investor to participate in policy formulation or management position within the LLC. The LLC believes, but cannot guarantee, that as a Member in the LLC, each Investor is provided with the powers and duties under the Operating Agreement sufficient to meet the USCIS requirement that an Immigrant Investor is actively participating in policymaking or management of a new commercial enterprise.

At-Risk Investment. An Investor's investment must be and remain "at risk" to qualify for the EB-5 Program. As part of the green card application, an Investor must show evidence that he or she has placed the required amount of capital at risk for the purpose of generating a return on the capital placed at risk. The LLC believes that an investment in the Interests will place an Investor's investment in the LLC at risk, because as described herein there is no assurance that the business of the LLC will be able to return any Investor's investment in the Interests at any time, if ever. However, purchase of Interests does not guarantee conditional or permanent residency in the United States. Furthermore, Project conditions could arise under which transactions removing Investors' capital from active "at risk" use in the LLC could become commercially necessary. No assurance can be given that conditions to residency under the EB-5 Program will be removed.

EB-5 Visa Retrogression. Section 203(b)(5) of the Immigration and Nationality Act ("**INA**") allocates 10,000 immigrant visas per fiscal year to qualified individuals seeking lawful permanent resident status in the United States on the basis of their capital investment in a commercial enterprise qualifying under the EB-5 Program. To date, USCIS has issued less than 10,000 EB-5 visas per year for each year that it has issued EB-5 visas; however, recent trends have demonstrated that the number of EB-5 visas issued each year is on the rise. If all 10,000 EB-5 visas are issued in a single year, no further visas shall be issued until the commencement of the next fiscal year. Given the sharp increase in current visa issuance trends, especially investors from mainland China, there can be no assurance that the ceiling of 10,000 EB-5 visas per year will not be reached, and accordingly, no assurance that a visa shall be available for all Investors at the time of adjudication of their individual I-526 petitions. The investors' children close to 21-years-old may "age out" and application may be delayed when the investors wait for the priority date to become current.

Ceiling on EB-5 Visas, By Country. As stated above, there are approximately 10,000 U.S. visas reserved each year to the EB-5 immigrant visa category. Furthermore, within the overall EB-5 category, sub-categories exist as to the portion of the total number of visas allowable to immigrant investors from each foreign country, meaning that there is a ceiling on EB-5 visas for each country. The per country quota is 7% in each immigrant visa category. The U.S. Department of State ("**DOS**") has never yet issued the total 10,000 EB-5 visas in any year since the EB-5 category's creation in 1990. However, both the overall EB-5 Program and the Regional Center Program have experienced the significant increase in usage in recent months referred to above, that shows signs of accelerating rather than diminishing, and it is anticipated that the 10,000 number shall be fully used if not this year, then the next. If 10,000 visas are issued in any one or more years, or if more EB-5 investors qualify from a given country than is allowable under the annual per-country cap for that country, this could create a backlog in the EB-5 category. This means an investor from such country who otherwise qualifies for an EB-5 visa would not receive his/her conditional green card until additional visas become available in the following year. When the EB-5 applicants reach the ceiling of 10,000 visas, country limit may apply. EB-5 visa retrogression may occur. This could delay an investor's entry to the U.S. if he/she is engaged in consular processing or the filing of his /her adjustment of status application if he/she is already in the U.S. If visa backlogs delay an investor's receipt of a conditional green card, this could also delay the filing of his/her I-829 Petition, which in turn could negatively affect his/her ability to prove requisite job creation within the prescribed time frame and remove the conditions to permanent residency.

No Guarantee of Positive Adjudication of I-526, I-829, or I-485. Adjudication of all I-526 and I-829 petitions, along with all I-485 "Application to Register Permanent Residence or Adjust Status" ("**I-485**"), is within the sole and exclusive purview of USCIS. Although the Issuer's management believes that an investment in the Interests offered hereby should enable an Investor to qualify for a positive determination of his or her I-526 and I-485, and that a successful conclusion to said investment in full satisfaction of all requirements of the EB-5 Program ought to qualify Investors for I-829 approval, there can be no guarantee that any Investor shall ultimately receive a positive adjudication of each, or any, of these petitions or applications.

Project Delays May Negatively Impact Immigration Process. Various delays caused by circumstances both within and without the control of the LLC, and/or their respective contract partners in the conduct and closing of this Offering and the execution of the Project thereafter may result in a delay in the commencement of the Project or in delays in the construction, sale, and operation of the Project as contemplated hereby. One or more of said delays, if incurred, could result in unavoidable delays in the creation, and proving, of necessary jobs. Such delays may impact the adjudication of Investor I-526s, I-485s, and I-829s in materially adverse ways.

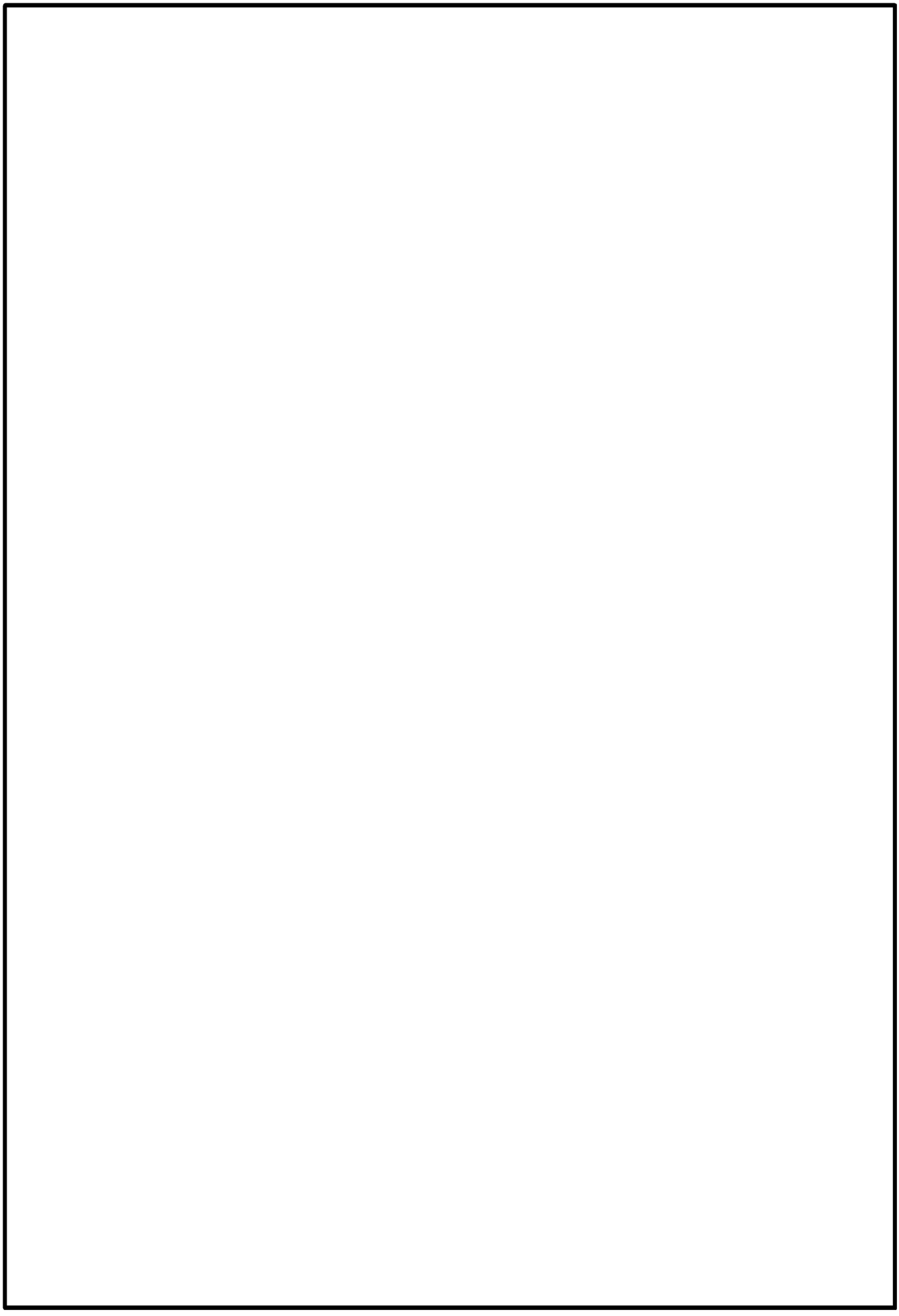
Targeted Employment Area and Targeted Employment Area Designation. Demographic shifts could cause the loss of the "high unemployment area" designation affording Targeted Employment Area (TEA) status to the area where the Project is located. Although EB-5 Investors who subscribed in the Project when it was located in a Targeted Employment Area needed only invest $500,000 in the Project, if the Project's Targeted Employment Area status is lost during the course of the Offering, Investors who subscribe thereafter would need to invest $500,000 to qualify for the EB-5 Program. This project is located in Flushing, Queens County in the State of New York. The project location is qualified as Targeted Employment Area under the EB-5 Program.

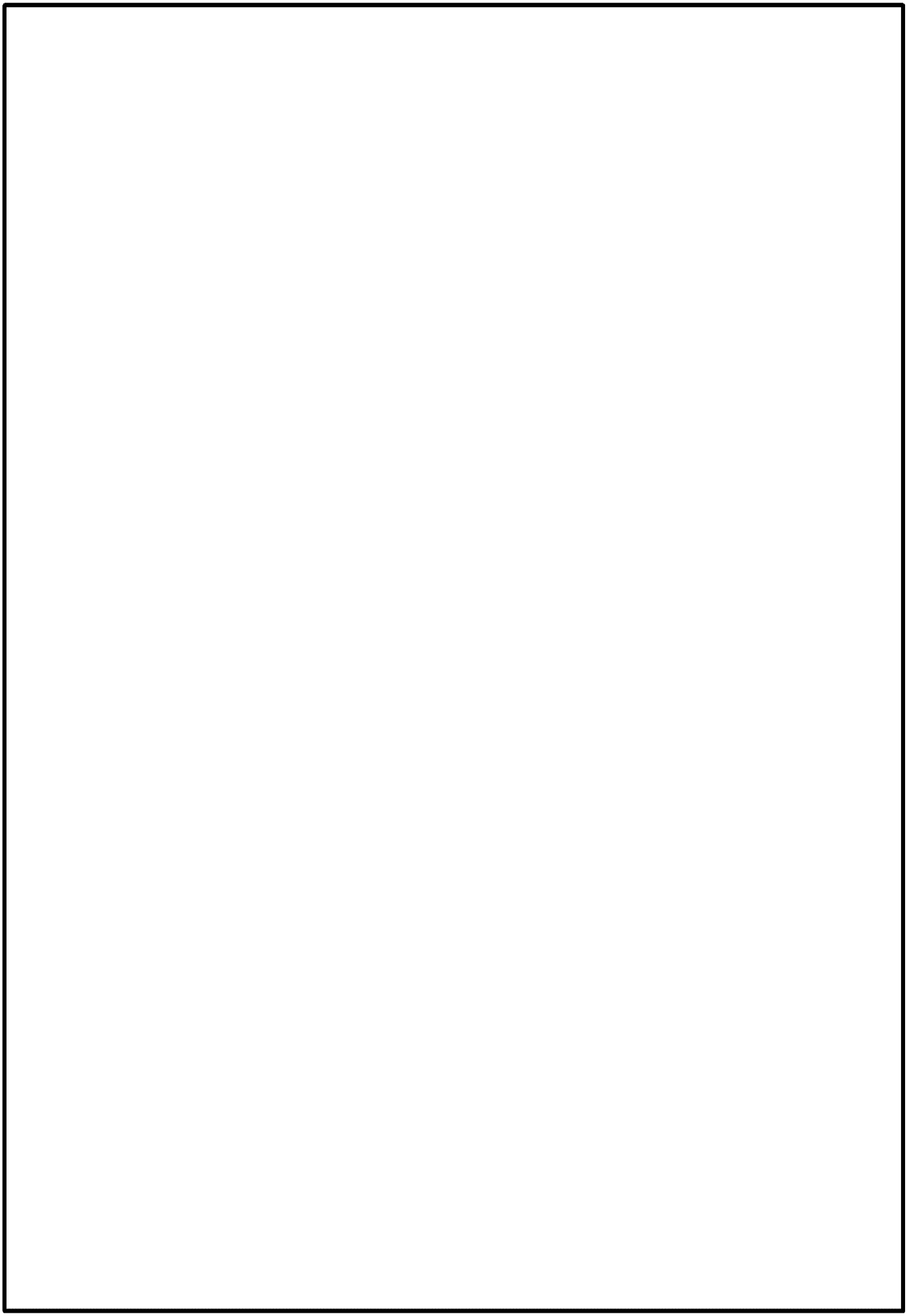
* * * * *

Admissible to the U.S.: Foreign persons applying for a U.S. Green Card must demonstrate that they are admissible to the U.S. Section 212 of the Immigration and Nationality Act sets forth various grounds of inadmissibility, which may prevent an otherwise eligible applicant from receiving a green card or entering the U.S. Foreign individuals who are ineligible to receive a Green Card or to be admitted to the U.S. include, but are not limited to, an individual who (1) is determined to have a communicable disease of public health significance, which shall include infection with the etiologic agent for acquired immune deficiency syndrome; (2) is determined to have a physical or mental disorder and behavior associated with the disorder that may pose, or has posed, a threat to the property, safety, or welfare of the individual or others; (3) is determined to have had a physical or mental disorder and a history of behavior associated with the disorder, which behavior has posed a threat to the property, safety, or welfare of the individual or others, and which behavior is likely to recur or to lead to other harmful behavior; (4) is determined to be a drug abuser or addict; (5) has been convicted of committing, or who admits having committed, acts which constitute the essential elements of a crime involving moral turpitude (other than a purely political offense), or a violation of (or a conspiracy or attempt to violate) any law or regulation of a State, the United States, or a foreign country relating to a controlled substance; (6) has been convicted of 2 or more offenses (other than purely political offenses), regardless of whether the conviction was in a single trial or whether the offenses arose from a single scheme of misconduct and regardless of whether the offenses involved moral turpitude, for which the aggregate sentences to confinement were 5 years or more; (7) is or has been an illicit trafficker in any controlled substance or in any listed chemical (as defined in section 102 of the Controlled Substances Act (21 U.S.C. § 802), or is or has been a knowing aider, abettor, assister, conspirator, or colluder with others in the illicit trafficking in any such controlled or listed substance or chemical, or endeavored to do so; (8) is the spouse, son, or daughter of an alien inadmissible under clause (7) and has, within the previous 5 years, obtained any financial or other benefit from the illicit activity of that alien, and knew or reasonably should have known that the financial or other benefit was the product of such illicit activity; (9) is coming to the U.S. solely, principally, or incidentally to engage in prostitution, or has engaged in prostitution within 10 years of the date of application for a visa, admission, or adjustment of status; (10) directly or indirectly procures or attempts to procure, or (within 10 years of the date of application for a visa, admission, or adjustment of status) procured or attempted to procure or to import, prostitutes or persons for the purpose of prostitution, or receives or (within such 10 year period) received, in whole or in part, the proceeds of prostitution; (11) is coming to the United States to engage in any other unlawful commercialized vice, whether or not related to prostitution; (12) has committed in the U.S. a serious criminal offense, regardless of whether such offense was prosecuted as a result of diplomatic immunity; (13) is excludable from the U.S. on grounds relating to national security, related grounds, or terrorist activities; (14) is excludable from the U.S. on grounds relating to foreign policy; (15) is or has been a member of or affiliated with the Communist or any other totalitarian party or who has participated in Nazi prosecutions or genocide; (16) is likely to become a public charge at any time after entry; (17) by fraud or willfully misrepresenting a material fact, seeks to procure (or has sought to procure or has procured) a visa, other documentation, or admission into the U.S.; (18) illegally entered into the U.S.; or (19) has at any time knowingly encouraged, induced, assisted, abetted, or aided any other alien to enter or to try to enter the U.S. in violation of law.

* * * * *

RISK FACTORS





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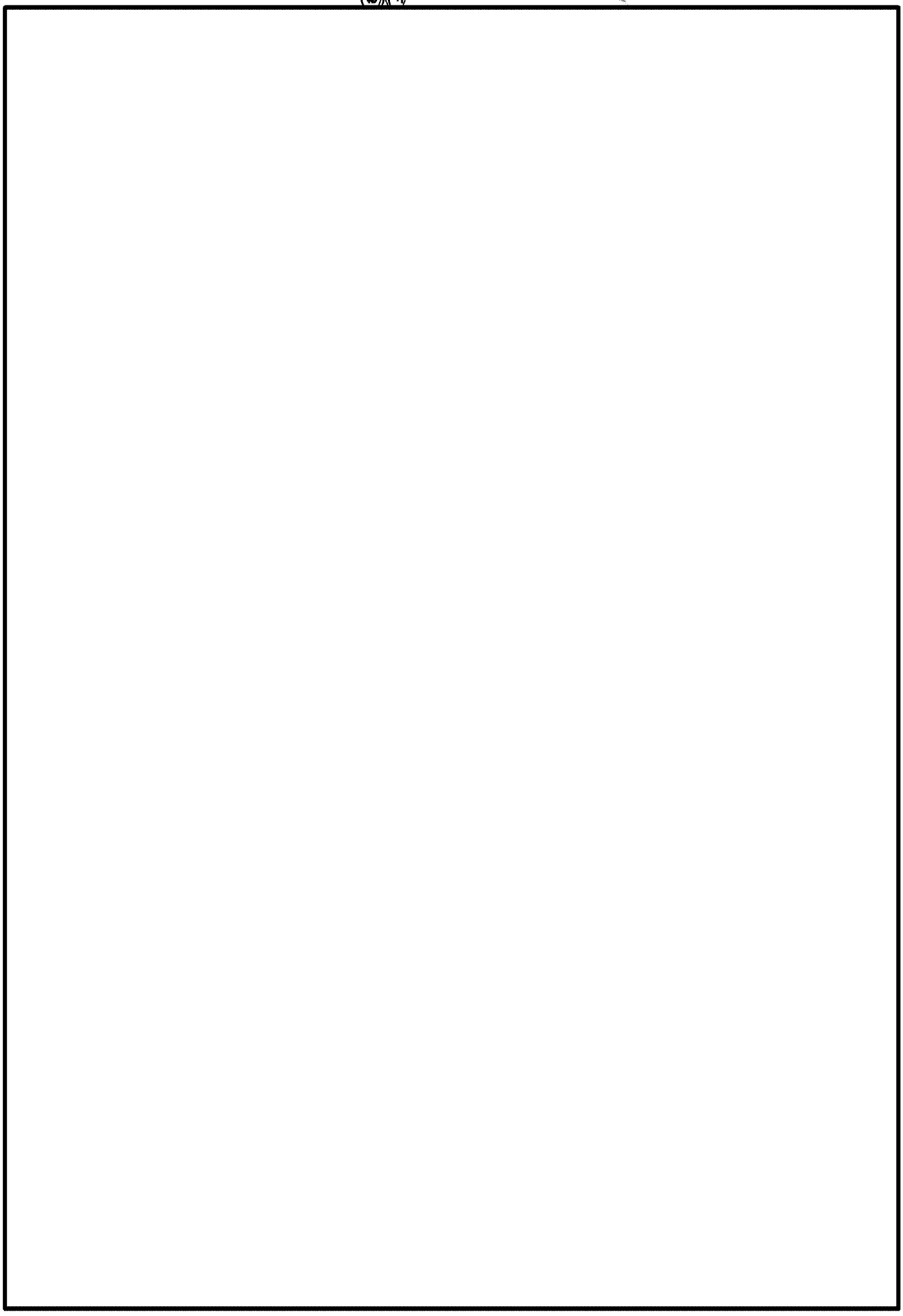
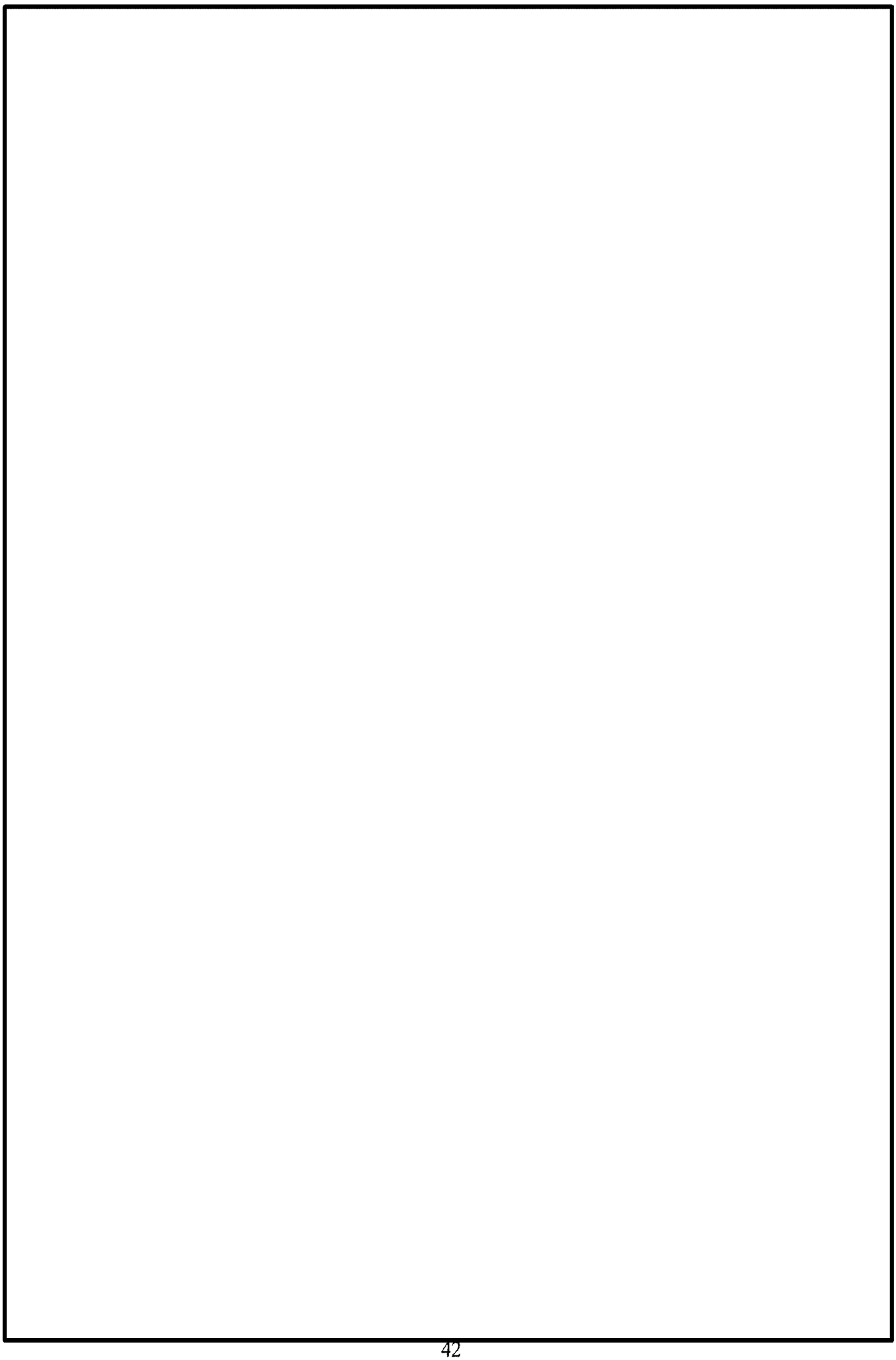
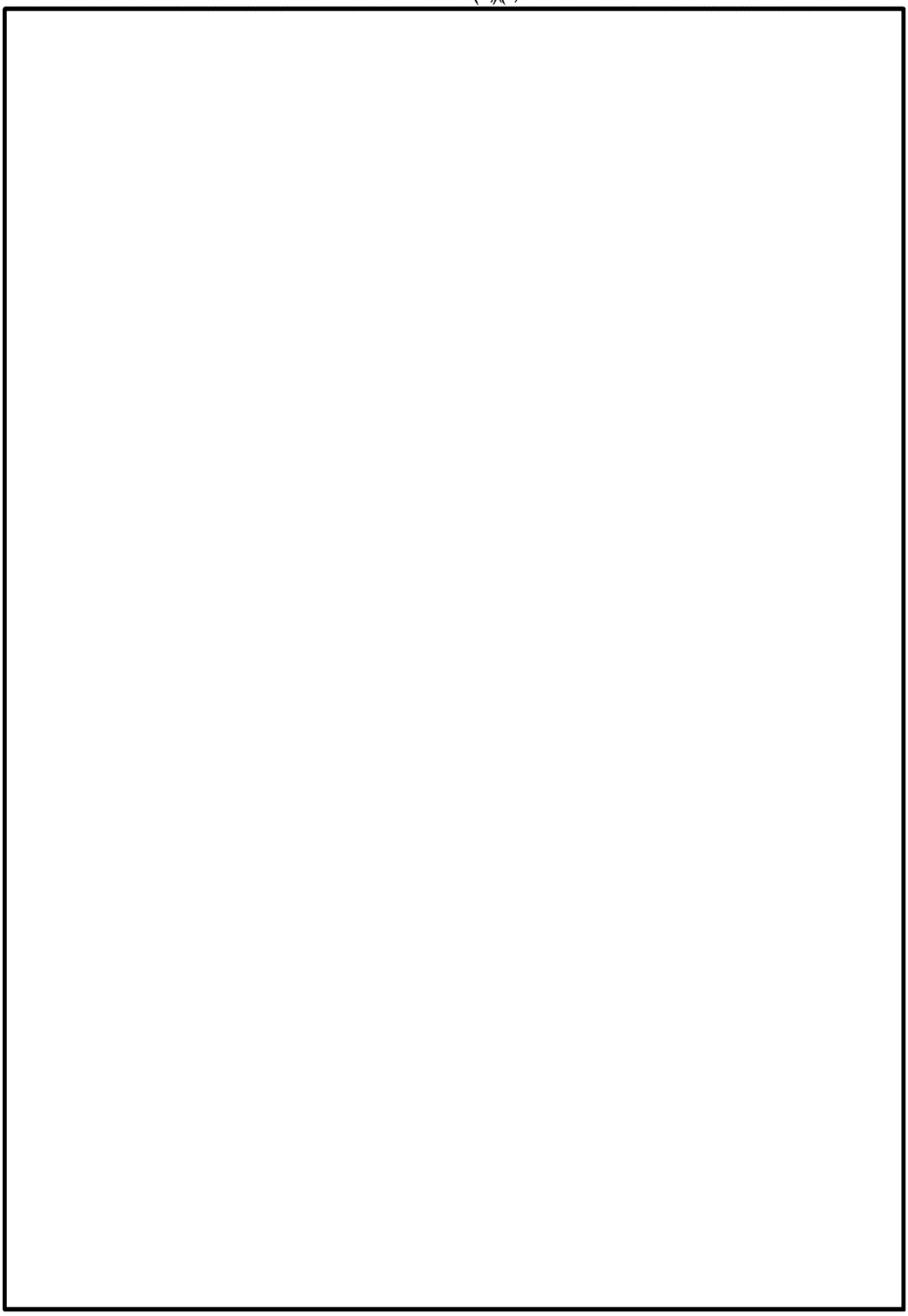
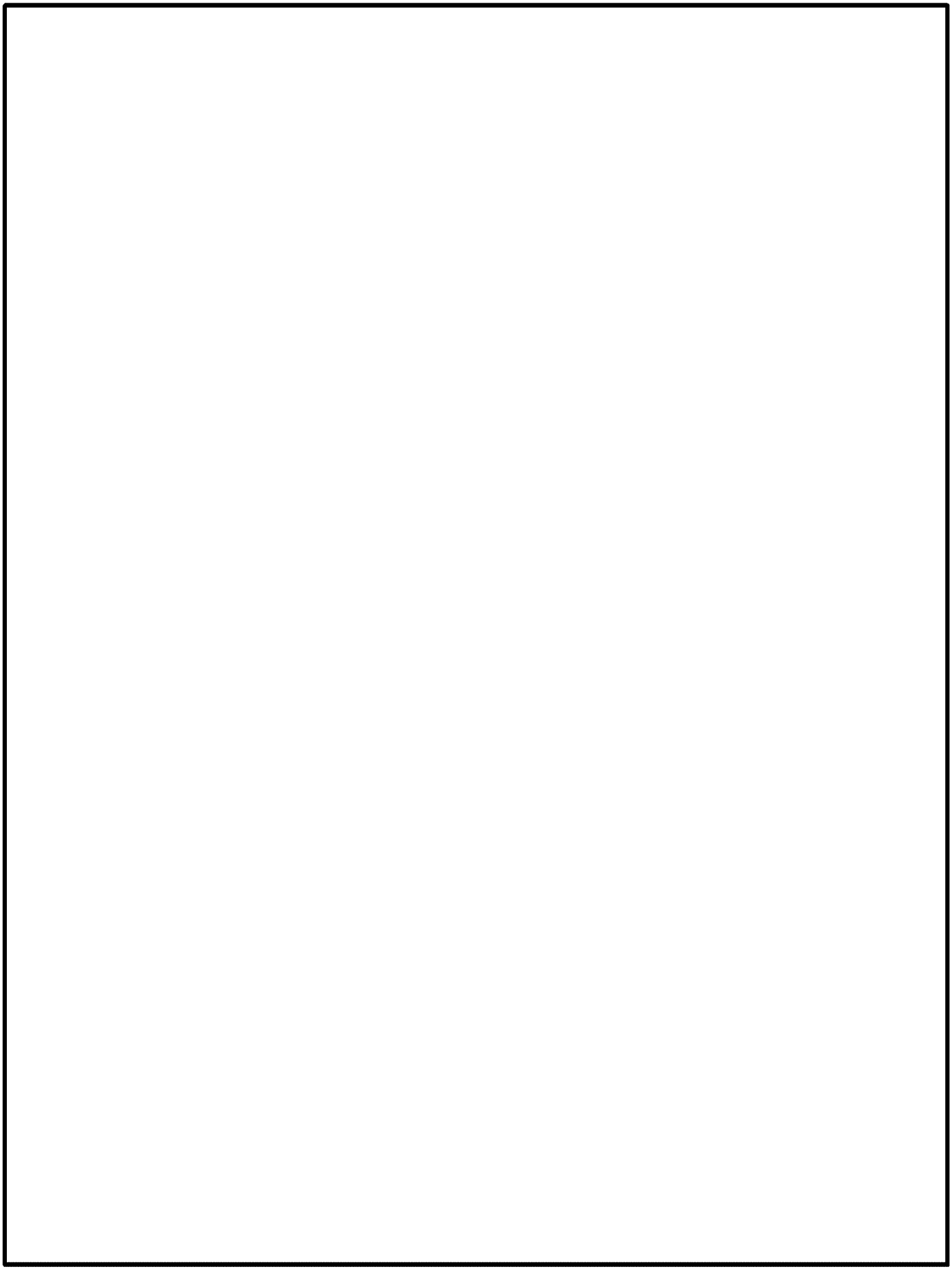
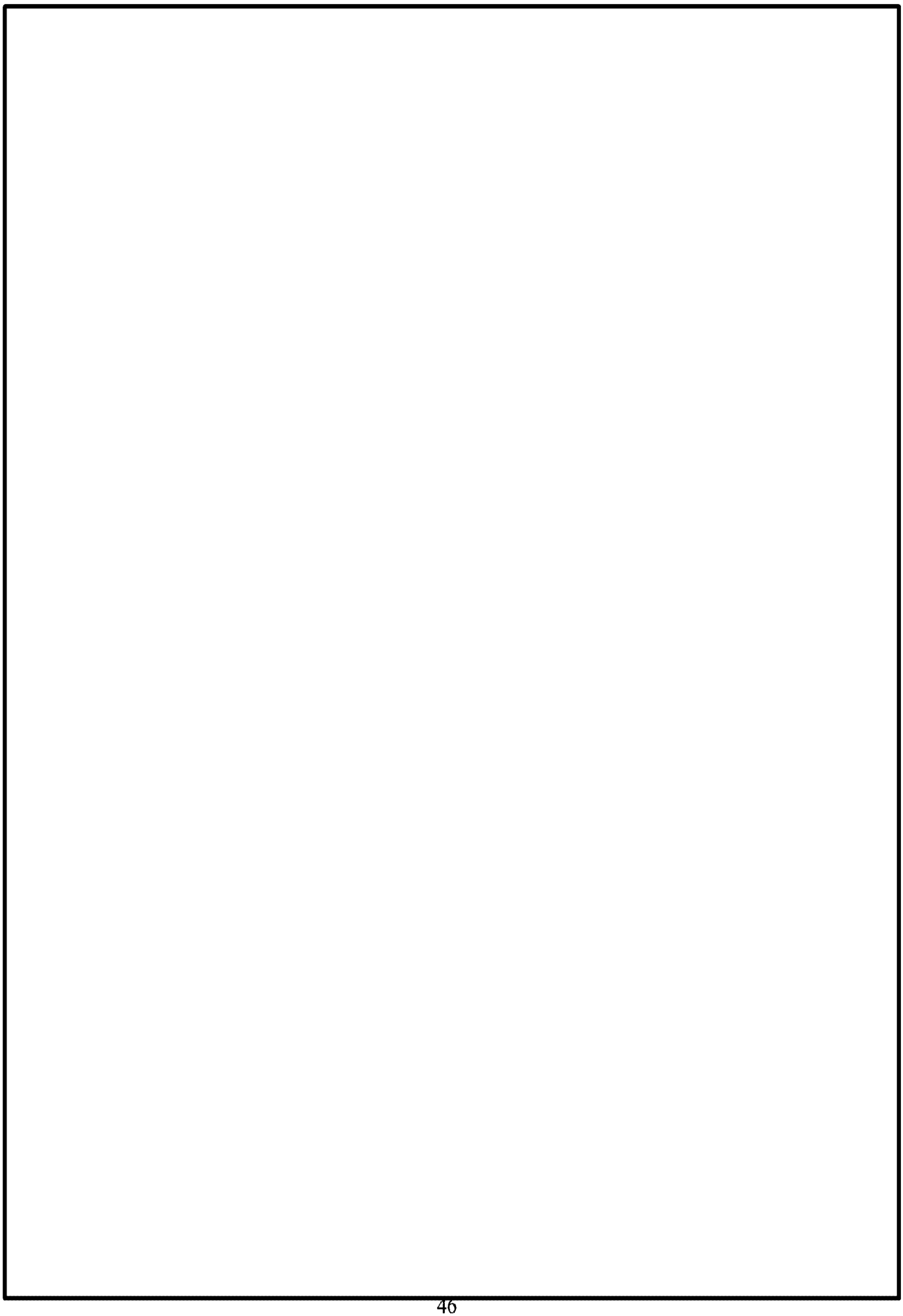








SUBSCRIPTION PROCEDURES



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INDEX OF EXHIBITS

[INSERT]

EXHIBIT A
OPERATING AGREEMENT

EXHIBIT B
SUBSCRIPTION AGREEMENT

EXHIBIT C
INVESTOR ELIGIBILITY QUESTIONNAIRE

EXHIBIT D
ESCROW AGREEMENT

EXHIBIT E
COMPREHENSIVE EB-5 BUSINESS PLAN AND TARGETED EMPLOYMENT AREA STATUS

All Exhibits are available for review upon request. Requests should be directed to our Managing Member, George Xu, at Farrinton EB-5 Capital, LLC, 35-06 Keavutt St, Suite CF-A, Flushing, NY 11354. Our Managing Member's telephone number is 718.939.1060. Copies of all exhibits will be delivered before execution of the subscription agreement.

Farrington EB-5 Capital, LLC

A New York Limited Liability Company

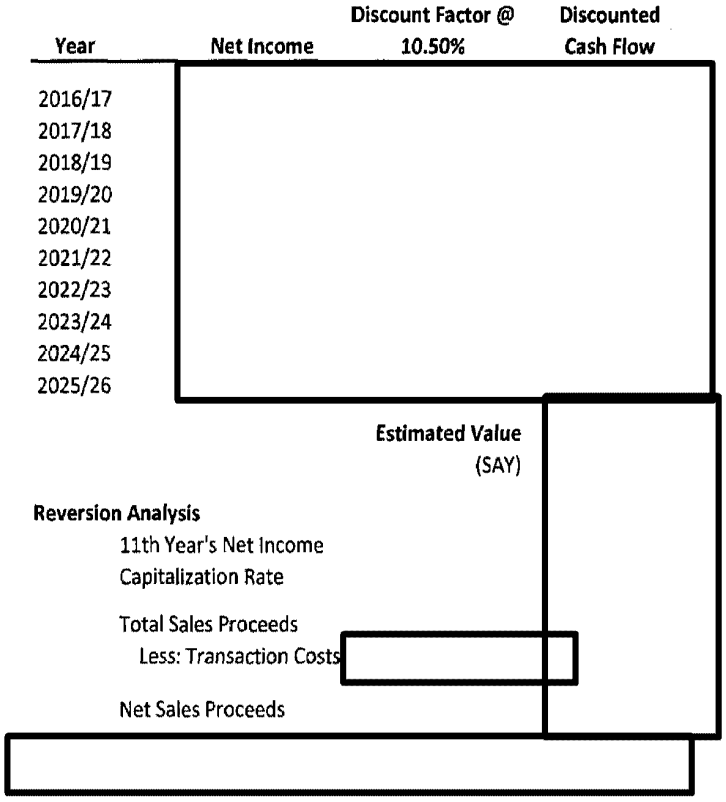
Operating Agreement

Farrington EB-5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
718.939.1060

Copy No. _____

Utilizing the discount rate set forth, the discounted-cash-flow procedure is summarized as follows.

FIGURE 11-27 DISCOUNTED CASH FLOW ANALYSIS – WHEN COMPLETE

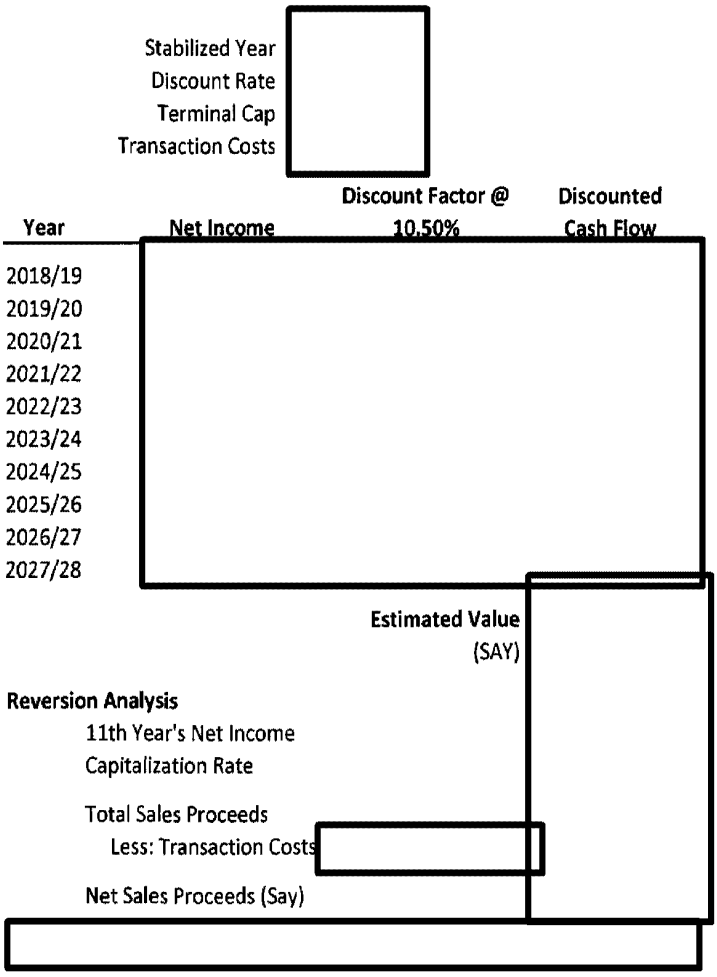


Discounted Cash Flow Analysis – "When Stabilized"

The preceding valuation process was repeated using the projected cash flows beginning as of the stabilized year. An adjustment, if applicable, is applied to the discount rate to reflect potential changes in the investment climate by the date of stabilization. The discounted cash flow procedure is summarized as follows.

(b)(4)

FIGURE 11-28 DISCOUNTED CASH FLOW ANALYSIS—STABILIZED VALUE



Based on this procedure, it is our opinion that the prospective market value of the subject property, as of March 1, 2018, will be

Conclusion

Using the income capitalization approach, the proposed subject property was valued by a mortgage-equity analysis, a straightforward discounted-cash-flow analysis, and a direct capitalization technique. Based on our review of each method and their inherent strengths and weaknesses, as well as investor attitudes and methodologies, we have reconciled the "when complete" prospective value indication via the income capitalization approach to Furthermore, it is our opinion that the "when stabilized" value is

(b)(4)

12. Sales Comparison Approach

The sales comparison approach is based on the principle of substitution, which defines a property's value as the cost of acquiring an equally desirable substitute (assuming that no costly delay is incurred in making the substitution). Thus, the sales comparison approach can be used to form an opinion of a property's market value from the price at which equally desirable properties have sold, or for which they can be purchased, on the open market.

Hotel Investment Market Overview

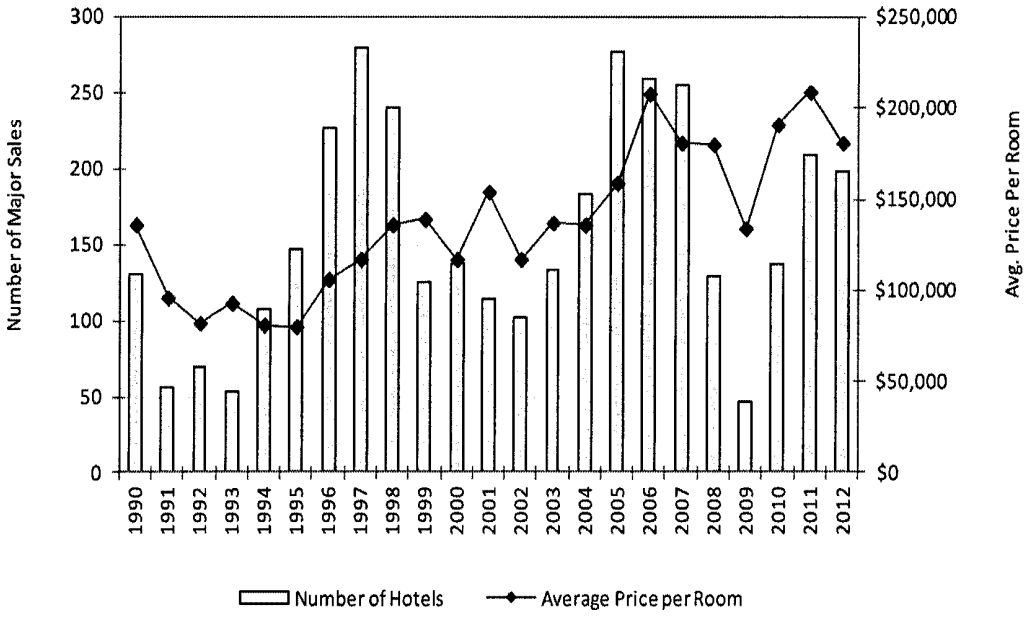
The following overview of the hotel investment market during recent industry investment cycles provides a context for the sales comparison approach.

The volume of hotel transactions and the price paid for individual assets are influenced by two principal factors: the availability of capital and the performance of the lodging sector as a whole. When high levels of leverage are available on favorable terms and the industry is performing well, investors are attracted to the market, and both prices and the number of transactions increase. These market conditions often induce sellers to put their properties on the market, further fueling the pace of transaction activity. Conversely, when the availability of capital declines and interest rates increase, both the pace of activity and pricing levels decrease. When these capital conditions coincide with a downturn in industry performance, the transaction market drops off significantly. In these market conditions, sellers are typically unwilling to put their properties on the market, electing to wait until market conditions improve. The impact of these influences results in a cyclical investment market, recording peaks and valleys in response to changes in the capital markets and the economy.

The following graph sets forth the number of major transactions (defined as those with a purchase price in excess of $10 million) and the average price per room over the period 1990 to 2012.[15]

[15] HVS, Major U.S. Transactions Survey, updated annually and available for purchase at www.hvs.com/bookstore

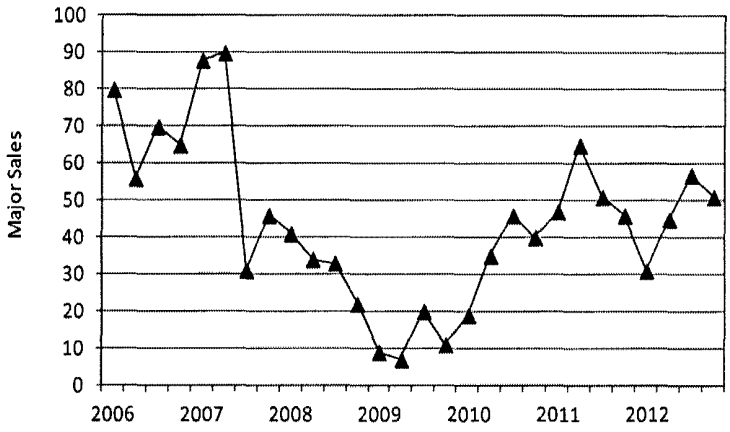
FIGURE 12-1 U.S. HOTEL TRANSACTIONS BY YEAR (SALES ABOVE $10M)



Source: HVS

The cyclical nature of the hospitality investment market is evident in the sales data for the past 20 years. The recession of the early 1990s and concurrent S&L crisis combined to cause three successive years of limited transaction activity; furthermore, values per room decreased during this period as well. Strong industry performance, coupled with the widespread availability of both debt and equity capital, supported peak levels of investment activity and higher prices per room in the mid- to late 1990s. Increasing caution in the capital markets, combined with the 2000/01 recession, led to a downturn in investment activity that extended from 1999 through 2003. The market began to recover in 2004, and then peak levels of activity were recorded in regard to both the number of transactions and the average price per room from 2005 through mid-year 2007. The trend in these years reflects the aggressive attitude of both debt and equity capital, combined with strong performance by the lodging industry as whole. The transaction market has been extremely volatile since 2005, as evidenced by the following chart, which shows the number of transactions by quarter.

FIGURE 12-2 U.S. HOTEL TRANSACTIONS BY QUARTER (SALES ABOVE $10M)



Source: HVS

Following peak levels of activity in the first half of 2007, transaction activity slowed dramatically beginning in July of that year when the ratings agencies raised concerns about underwriting standards for CMBS debt issuance. Although the lodging industry continued to perform strongly throughout 2007, the decline in CMBS lending put the brakes on hotel sales activity in the latter half of 2007. The stalled hotel transaction market continued through 2008, as evidenced by the over 50% decline in the number of transactions. The slowing economy and weakening hotel fundamentals, coupled with higher capital costs, contributed to a lower average price per room. In 2009, the transaction market came to a virtual standstill, with fewer transactions recorded than in any of the previous 19 years. The unavailability of mortgage capital and the limited inventory of quality assets for sale were the principal causes of the dramatic drop in transaction activity; weak performance by the industry as a whole also discouraged investment in the sector.

Lodging industry performance bottomed out in the fourth quarter of 2009, with demand growth turning positive in early 2010. With a recovery in fundamentals underway, transaction activity began to recover in 2010, fueled in large part by aggressive acquisition programs on the part of newly formed and existing REITs and investment funds. Mortgage capital became increasingly available in the latter half of the year, including both on-book loans and renewed CMBS lending programs. The dramatic improvements in the performance of the lodging industry, combined with widespread optimism concerning the outlook for the sector, have

also contributed to the resurgence of interest in hospitality investments. These trends are evident in the data for 2010, which indicate that the number of transactions tripled the total recorded in 2009, and the average price per room increased by over 43%. It should be noted, however, that the average price per key is greatly impacted by the kinds of hotels being sold. In 2010, the lodging REITs pursued high-quality assets in gateway cities that commanded very high prices per room, a factor that led to the high average price per key that year. This trend continued through the first half of 2011; however, with the volatility of the stock market in August of 2011 and the decline in lodging REIT share prices, transaction activity slowed significantly in the second half of the year.

The trends that emerged in 2010 continued to influence transaction activity in 2011. Transaction activity in the first half of 2011 increased significantly from the levels recorded in 2010, but then moderated in the latter half of the year due to the uncertainty caused by the debt crisis in the U.S. and Europe. As of early 2013, the market is once again re-energized; equity interest in the sector remains strong, and debt is increasingly available. Loan-to-value ratios are rising and interest rates have declined to new historic lows. These factors, combined with continued strong industry fundamentals, are expected to attract more investors and sellers to the market as the year progresses. The REITs are again in acquisition and disposition mode, although their activity has moderated from their levels in 2010/11. Market participants expect transaction activity to continue to increase over the course of 2013, as improved market conditions encourage owners to sell their assets. Notably, a majority of the investment activity in the current cycle to date has been focused on institutional-grade assets encompassing both full-service and well-branded select-service properties in strong markets, particularly in gateway cities. Assets lacking these attributes are now also benefitting from positive economic trends. As the cycle evolves, investor interest is expected to broaden outside the premier sectors and markets. Nevertheless, some hotels, particularly aging assets and/or those in need of unfunded capital improvements, will continue to be challenged.

The improvements in market conditions since 2010 have resulted in increased sales transaction activity reflective of investor expectations in a normalized market. Thus, we have tried to focus on sales transactions from 2011 to the present, if adequate comparable data are available. Sales from prior years may be pertinent if there has been sparse activity in the subject property's product type since the 2008/09 economic downturn. Capitalization rates derived from the historical income of the sales vary widely, depending upon when the sale occurred and how a hotel was performing at the time of sale. Given these factors, we have researched and relied upon the most relevant comparable sales data in our appraisal of the subject property, although adjustments for changes in capital

market conditions may be warranted, depending on the date and particular attributes of the transaction.

Sales History of Subject

The developer of the proposed subject property is Farrington Realty, LLC; the parent company of this owning partnership is Century Construction Group Corp, which is based in Flushing, New York. The subject site was last sold in June 2003; Farrington Realty, LLC has owned the site since 2003 and purchased it at this time from Smarkel, LLC for a reported price of $4,300,000. No other transfers of the property have reportedly occurred since 2003.

Comparable Sales

To present our selection of comparable sales, we conducted a comprehensive search for transactions of hotels that bear comparison to the proposed subject property in one or more key areas. When possible, we gave priority to transactions occurring in the same state or region as the subject property. We also considered factors such as operational and physical similarities to the proposed subject property, including brand affiliation and revenue-generating aspects. We have primarily focused on transactions that occurred within the last three years because of changes in market conditions since that time. As illustrated below, very few transactions have occurred in the outer boroughs of New York City over the last few years.

(b)(4)

FIGURE 12-3 REVIEW OF PERTINENT TRANSACTIONS

Property	Location	Sale Date	Price	Rooms	Price/Rm	Overall Cap	Year Opened

(b)(4)

FIGURE 12-4 REVIEW OF PERTINENT TRANSACTIONS (CONTD.)

Property	Location	Sale Date	Price	Rooms	Price/Rm	Overall Cap	Year Opened

(b)(4)

13. Cost Approach

The cost approach reflects a set of procedures through which a value indication is derived for the fee simple interest in a property by estimating the current cost to construct a reproduction of, or replacement for, the existing structure; deducting accrued depreciation from the reproduction or replacement cost; and adding the estimated land value plus an entrepreneurial profit. Adjustments may then be made to the indicated fee simple value of the subject property to reflect the value of the property interest being appraised.

Because the subject property is proposed, the cost approach has some applicability. In this report section, we will estimate the development cost of the improvements, estimate the market value of the site, and add an entrepreneurial profit incentive to arrive at the total cost new to develop the subject property. The total cost new to build the facility is often used by hotel buyers as a benchmark against the income and sales indications – particularly for new hotels.

Land Valuation

Land value may be estimated in a variety of ways including the sales comparison approach and the allocation, extraction, or ground rent capitalization methods. For the majority of hostelry properties, the two primary methods used are the sales comparison approach and the ground-lease capitalization approach.

Over the past 15 years, hotels and resorts have routinely been constructed on leased land. While the lease terms differ somewhat from property to property, the basis for the rental calculation is often tied to a percentage of revenue formula. Using the forecasted revenues for the proposed subject property and applying a typical hotel ground-lease rental formula, the appraiser is able to determine the hotel's economic rental (i.e., the income attributed to the land). The land value can then be estimated by capitalizing the hypothetical ground rent. The self-adjusting aspect of this approach is a key element to its reliability.

Our analysis of these ground-lease rental formulas indicates that economic ground rents for hotels such as the proposed subject property typically range from approximately 5.0% to 8.0% of rooms revenue. Hotels with a significant amount of land relative to the property's room count, hotels in resort areas, or hotels in land-sparse downtown markets may command higher ground rent.

(b)(4)

Based on the revenue projections set forth for the proposed subject property as part of this appraisal, the following table shows how the economic ground rent has been calculated. Note that the stabilized revenue level has been deflated back to 2013 dollars.

Deflated Stabilized Rooms Revenue	
Rental Percentage	
Economic Ground Rent	

Rent generated from an unsubordinated ground lease represents a low-risk flow of income. Because the tenant improvements typically amount to more than five times the value of the land, the risk of default is almost nonexistent. For hotel ground leases where rent is tied to revenue, the property owner is also protected from the adverse effects of inflation. Based on these minimal risk factors and the current cost of long-term capital, it is our opinion that the appropriate ground rent overall capitalization rate would be as indicated in the following table because of the aforementioned low level of risk.

Applying the indicated capitalization rate to the proposed subject property's economic ground rent results in the following estimate of land value.

Economic Ground Rent / Capitalization Rate	=	

This conclusion has been rounded to in the remainder of our analysis.

Development Cost

As a basis for estimating the developmental costs, we have used information provided by the developer. We note that a detailed construction budget was not available for our review. However, based on the development costs of comparable hotels in New York City, the construction costs provided by the developer appears to be reasonable.

Based on the preceding analysis, we estimate the development cost of the subject property as follows.

(b)(4)

(b)(4)

FIGURE 13-1 DEVELOPMENT COST SUMMARY

Item	Cost per Room	Cost
Hard & Soft Costs		
Furniture, Fixtures, & Equipment		
Land		
Total Development Cost		

Allocation of Developer's Profit

Developer's profit represents the entrepreneurial incentive anticipated by hotel developers to induce the construction of a new hotel project. Given the influence of economic conditions on the hotel industry, developer's profit has not always been in evidence. If the economic value of a new hotel does not exceed the development cost, indicating that developers will not earn any profit from their efforts, it is unlikely that the project will be completed because the financial incentive is not present.

We have made a developer's profit estimate as a component of the total development cost, which is illustrated in the following table.

FIGURE 13-2 ENTREPRENEURIAL INCENTIVE ESTIMATE

Item	Profit Percentage	Cost	Developer's Profit
Hard & Soft Costs			
Furniture, Fixtures, & Equipment			
Land Value			
Total Developer's Incentive			

Conclusion

In the estimation of the total development cost for the proposed subject property, the costs of several components of the total property were quantified based on information provided by the developer. The land value was estimated by the ground lease approach. The following table summarizes our estimate of the total development cost of the subject property.

(b)(4)

(b)(4)

FIGURE 13-3 TOTAL DEVELOPMENT COST

Item	Cost per Room	Cost
Hard & Soft Costs		
Furniture, Fixtures, & Equipment		
Land		
Total		
Plus Developer's Incentive		
Total Development Cost		

This estimate has been rounded to [redacted]. Due to the hotel's proposed status, this value estimate is considered applicable to our appraisal analysis, to some extent.

(b)(4)

14. Reconciliation of Value Indications

The reconciliation, which is the last step in the appraisal process, involves summarizing and correlating the data and procedures employed throughout the analysis. The final value conclusion is arrived at after reviewing the estimates indicated by the income capitalization, sales comparison, and cost approaches. The relative significance, applicability, and defensibility of each indicated value are considered, and the greatest weight is given to that approach deemed most appropriate for the property being appraised.

The purpose of this report is to estimate the market value of the fee simple interest in the subject property; our appraisal involves a careful analysis of the property itself and the economic, demographic, political, physical, and environmental factors that influence real estate values.

Income Capitalization Approach

To estimate the subject property's value via the income capitalization approach, we have analyzed the local market for transient accommodations, examined the competitive environment, projected occupancy and average rate levels, and developed a forecast of income and expense that reflects anticipated income trends and cost components through a stabilized year of operation. The subject property's projected net income before debt service was allocated to the mortgage and equity components based on market rates of return and loan-to-value ratios. Through a discounted cash flow and income capitalization procedure, the value of each component was calculated; the total of the mortgage and equity components equates to the value of the property.

Our nationwide experience indicates that the procedures used in estimating market value by the income capitalization approach are comparable to those employed by the hotel investors who constitute the marketplace. For this reason, we believe that the income capitalization approach produces the most supportable value estimate, and it is given the greatest weight in our final estimate of the subject property's market value.

Sales Comparison Approach

The sales comparison approach uses actual sales of similar properties to provide an indication of the subject property's value. Although we have investigated a number of sales in an attempt to develop a range of value indications, several adjustments are necessary to render these sales prices applicable to the subject property. The adjustments, which tend to be subjective, diminish the reliability of the sales comparison approach; furthermore, typical hotel investors employ a sales comparison procedure only to establish broad value parameters.

(b)(4)

Due to the lack of recent comparable hotel sales, we have deemed the sales comparison approach inapplicable for the valuation of the proposed subject property.

Cost Approach

As discussed in the Cost Approach chapter, this methodology is applicable for this property to some extent, has been considered in our reconciliation process. We have estimated the value of the subject property via the cost approach at [redacted]

Value Conclusion

Careful consideration has been given to the strengths and weaknesses of the three approaches to value discussed above. In recognition of the purpose of this appraisal, we have given primary weight to the value indicated by the income capitalization approach.

Based on our analysis, it is our opinion that the "as is" market value of the fee simple interest in the Proposed Four Points Flushing, as of June 14, 2013, is:

[redacted]

Based on our analysis, it is our opinion that the "when complete" prospective market value of the fee simple interest in the real and personal property of the Proposed Four Points Flushing, as of March 1, 2016, will be:

[redacted]

This value estimate equates to [redacted] per room.

We have also estimated the prospective market value of the subject property as of its projected date of stabilization. Based on our analysis, it is our opinion that the "when stabilized" prospective market value of the fee simple interest in the real and personal property of the Proposed Four Points Flushing, as of March 1, 2018, will be:

[redacted]

The estimates of market value include the land, the improvements, and the furniture, fixtures, and equipment. The appraisal assumes that the hotel is open and operational.

(b)(4)

We have made no assumptions of hypothetical conditions in our report. The analysis is based on the extraordinary assumption that the described improvements have been completed as of the prospective "when complete" date of value. The reader should understand that the completed subject property does not yet, in fact, exist as of the date of appraisal. Our appraisal does not address unforeseeable events that could alter the proposed project and/or the market conditions reflected in the analyses; we assume that no significant changes, other than those anticipated and explained in this report, will take place between the date of inspection and date of prospective value. We have made no other extraordinary assumptions specific to the subject site. However, several important general assumptions have been made that apply to this appraisal and our valuations of proposed hotels in general. These aspects are set forth in the Assumptions and Limiting Conditions chapter of this report.

Allocation of Value

USPAP requires the appraiser to "identify any personal property, trade fixtures, or intangible items that are not real property but are included in the appraisal" and "to analyze the effect on value of such non-real property items."[16] The estimates of prospective market value include the land, improvements, and personal property. The appraisal assumes that the hotel is open and operational at this time.

Hotels comprise three primary components: the real property (land and improvements), personal property, and intangible property. Real property is "the interests, benefits, and rights inherent in the ownership of real estate (land and improvements."[17] Personal property is defined as "identifiable tangible objects that are considered by the general public as being 'personal' – for example, furnishings, artwork, antiques, gems and jewelry, collectibles, machinery and equipment; all tangible property that is not classified as real estate."[18]

The personal property consists of the furniture, fixtures, and equipment (FF&E) and the inventories in place at the subject property as of the date of value. Personal property is an integral part of a transient lodging facility. The allocation of a portion of the overall hotel's value to the personal property is not explicitly considered by hotel investors in making their pricing decisions. Lodging facilities are usually sold with their personal property in place. In accordance with the Uniform Standards of Professional Appraisal Practice (USPAP), the appraisers have delineated the market value of the subject hotel's personal property.

[16] The Appraisal Foundation, Uniform Standards of Professional Appraisal Practice, 2012-2013 ed. (Washington: The Appraisal Foundation, 2012).

[17] Ibid.

[18] Ibid.

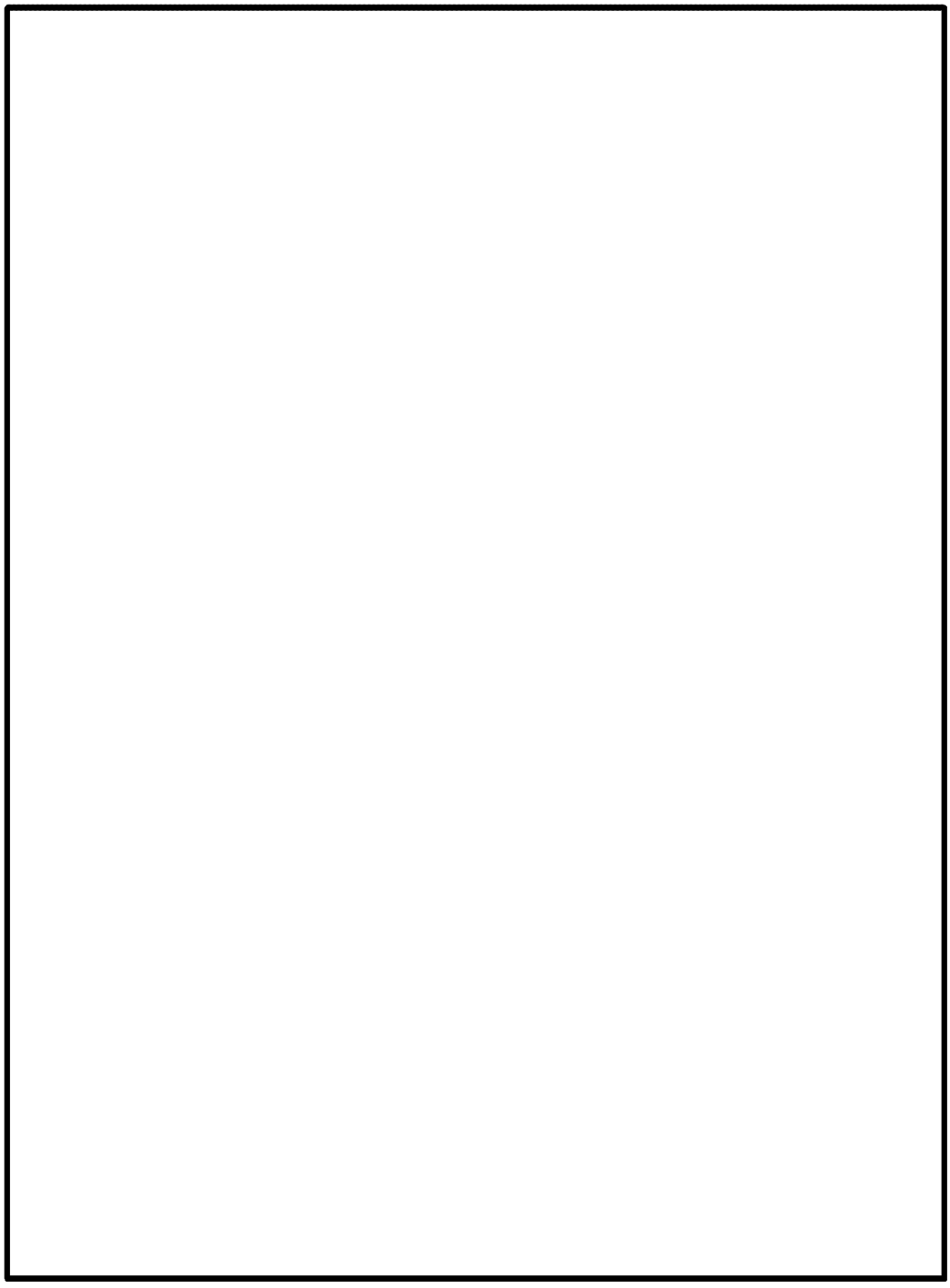
USPAP defines intangible property as "nonphysical assets, including but not limited to franchises, trademarks, patents, copyrights, goodwill, equities, securities, and contracts as distinguished from physical assets such as facilities and equipment."[19] All value attributable to the intangible property has been removed with the assumed expense of a management fee and a franchise fee in the valuation process.

Our concluded opinions of the subject hotel's market value include the value of the real property (land and improvements) and the value of the personal property only.

[19] Ibid.

15. Statement of Assumptions and Limiting Conditions

(b)(4)



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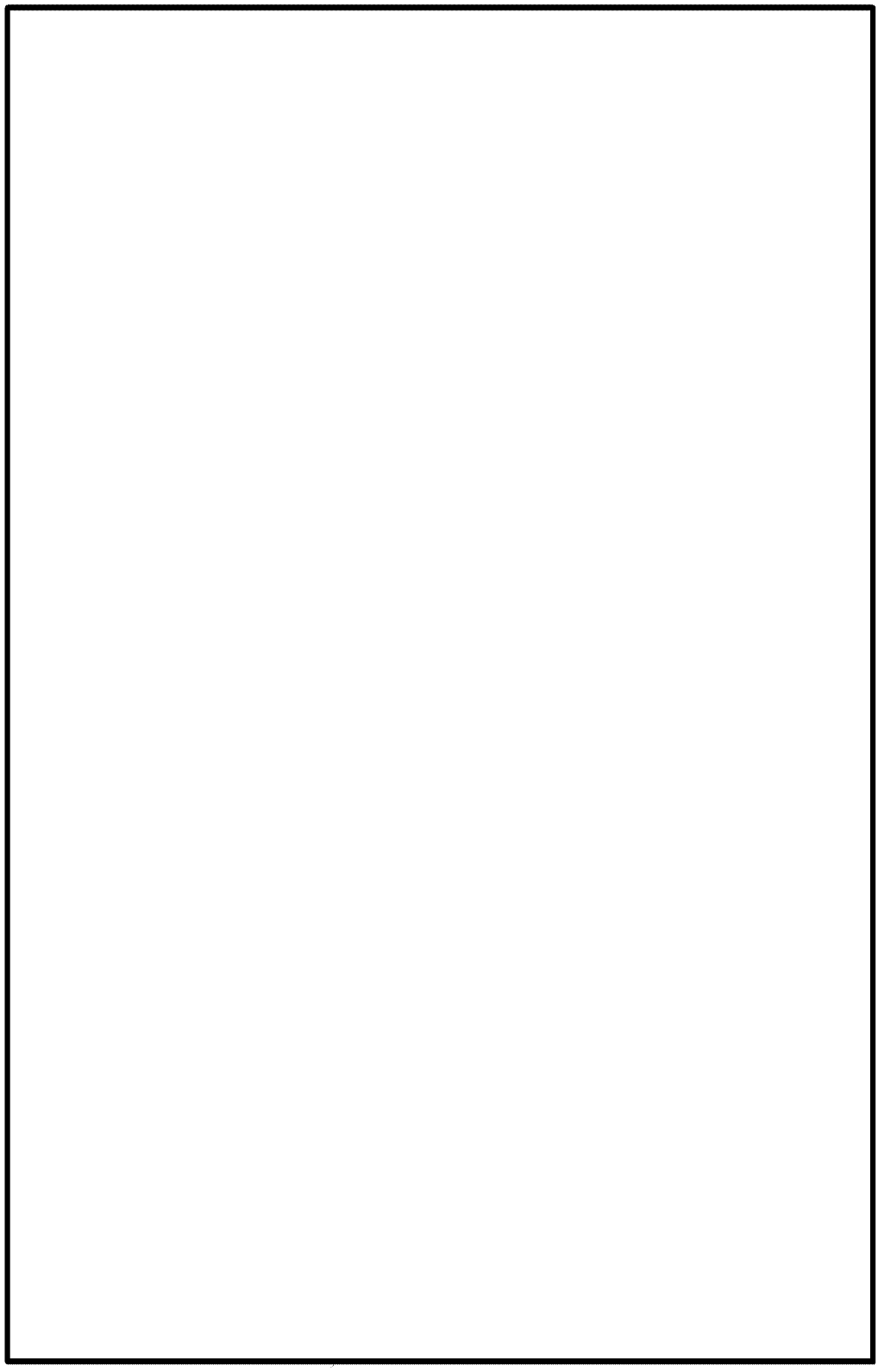

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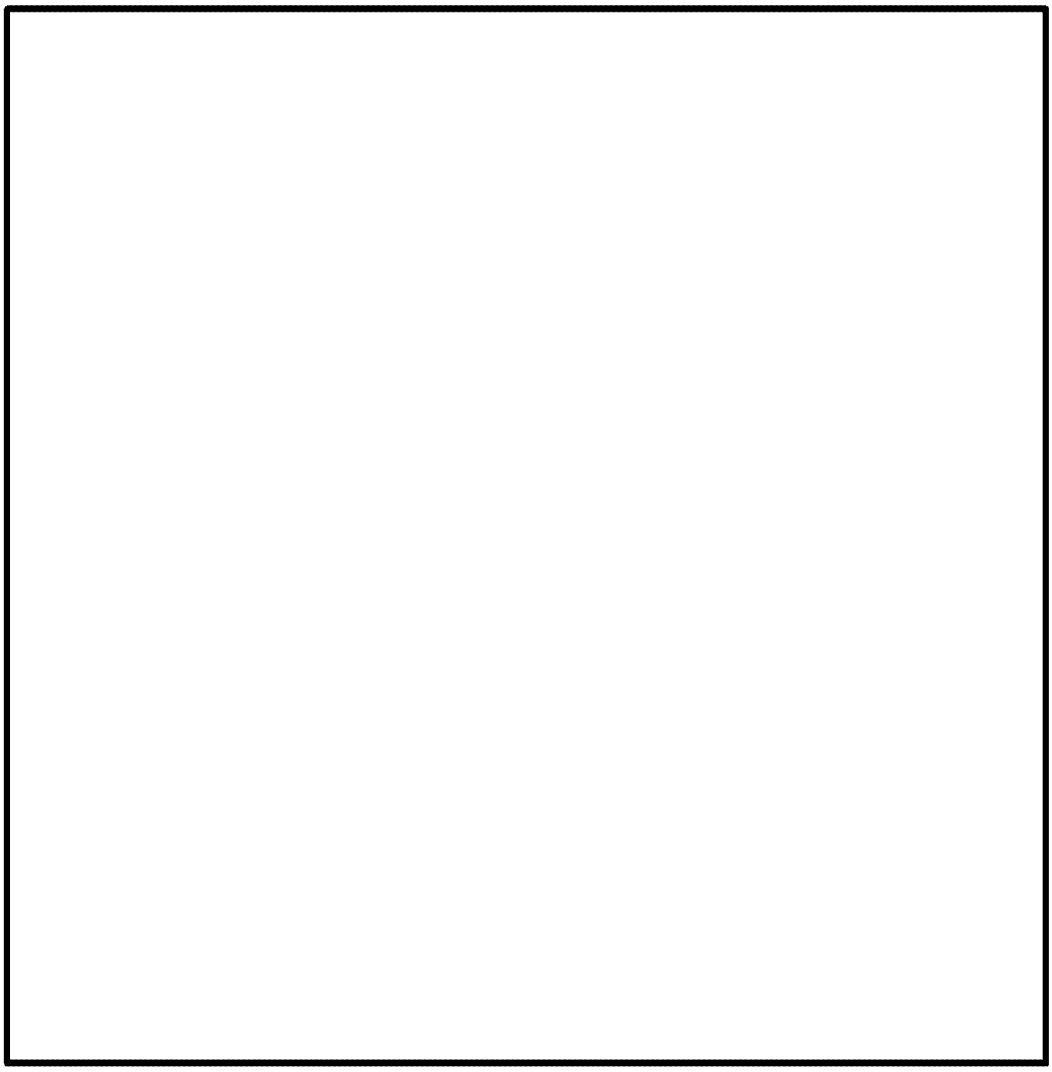


16. Certification

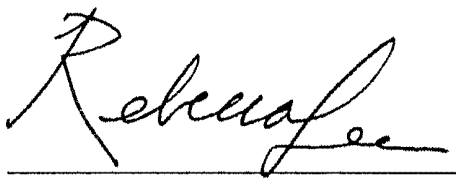
The undersigned hereby certify that, to the best of our knowledge and belief:

1. the statements of fact presented in this report are true and correct;
2. the reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, opinions, and conclusions;
3. we have no present or prospective interest in the property that is the subject of this report and no personal interest with respect to the parties involved;
4. we have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment;
5. our engagement in this assignment was not contingent upon developing or reporting predetermined results;
6. our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal;
7. our analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice;
8. Rebecca Lee personally inspected the property described in this report; Roland de Milleret, MAI participated in the analysis and reviewed the findings, but did not personally inspect the property for the purposes of this appraisal; however, Roland de Milleret, MAI has inspected the property for a previous HVS assignment;
9. Rebecca Lee provided significant real property appraisal assistance to Roland de Milleret, MAI, and that no one other than those listed above and the undersigned prepared the analyses, conclusions, and opinions concerning the real estate that are set forth in this appraisal report; Rebecca Lee and Roland de Milleret, MAI have performed a market study on this property within the past three years;

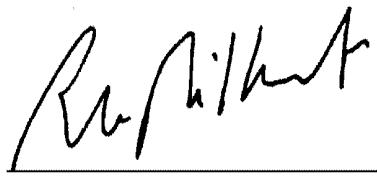
10. the reported analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and the Standards of Professional Appraisal Practice of the Appraisal Institute;

11. the use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives; and

12. as of the date of this report, Roland de Milleret, MAI has completed the requirements of the continuing education program of the Appraisal Institute.



Rebecca Lee
Vice President
Hotel Appraisals, LLC



Roland de Milleret, MAI
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RL: RdM

Penetration Explanation

Let us illustrate the penetration adjustment with an example.

A market has three existing hotels with the following operating statistics:

BASE-YEAR OCCUPANCY AND PENETRATION LEVELS

Property	Number of Rooms	Fair Share	Commercial	Meeting and Group	Leisure	Occupancy	Penetration
Hotel A	100	23.5 %	60 %	20 %	20 %	75.0 %	100.8 %
Hotel B	125	29.4	70	10	20	65.0	87.4
Hotel C	200	47.1	30	60	10	80.0	107.5
Totals/Average	**425**	**100.0 %**	**47 %**	**38 %**	**15 %**	**74.4 %**	**100.0 %**

Based upon each hotel's room count, market segmentation, and annual occupancy, the annual number of room nights accommodated in the market from each market segment can be quantified, as set forth below.

MARKET-WIDE ROOM NIGHT DEMAND

Market Segment	Annual Room Night Demand	Percentage of Total
Commercial	54,704	47.4 %
Meeting and Group	43,481	37.7
Leisure	17,246	14.9
Total	**115,431**	**100.0 %**

The following discussion will be based upon an analysis of the commercial market segment. The same methodology is applied for each market segment to derive an estimate of a hotel's overall occupancy. The table below sets forth the commercial demand accommodated by each hotel. Each hotel's commercial penetration factor is computed by:

1) calculating the hotel's market share % of commercial demand (commercial room nights accommodated by subject hotel divided by total commercial room nights accommodated by all hotels) and

2) dividing the hotel's commercial market share % by the hotel's fair share %.

The following table sets forth each hotel's fair share, commercial market share, and commercial penetration factor.

COMMERCIAL SEGMENT PENETRATION FACTORS

Property	Number of Rooms	Fair Share	Commercial Capture	Commercial Market Share	Commercial Penetration
Hotel A	100	23.5 %	16,425	30.0 %	127.6 %
Hotel B	125	29.4	20,759	37.9	129.0
Hotel C	200	47.1	17,520	32.0	68.1
Totals/Average	**425**	**100.0 %**	**54,704**	**100.0 %**	**100.0 %**

If a new 100-room hotel enters the market, the fair share of each hotel changes because of the new denominator, which has increased by the 100 rooms that have been added to the market.

COMMERCIAL SEGMENT FAIR SHARE

Property	Number of Rooms	Fair Share
Hotel A	100	19.0 %
Hotel B	125	23.8
Hotel C	200	38.1
New Hotel	100	19.0
Total	**525**	**100.0 %**

The new hotel's penetration factor is projected for its first year of operation. It is estimated that the hotel will capture (penetrate) only 85% of its fair share as it establishes itself in the market. The new hotel's market share and room night capture can be calculated based upon the hotel's estimated penetration factor. When the market share of the existing hotels and that of the new hotel are added up, they no longer equal 100% because of the new hotel's entry into the market. The market share of each hotel must be adjusted to reflect the change in the denominator that comprises the sum of each hotel's market share.

This adjustment can be mathematically calculated by dividing each hotel's market share percentages by the new denominator of 97.1%. The resulting calculations reflect each hotel's new adjusted market share. The sum of the adjusted market shares equals 100%, indicating that the adjustment has been successfully completed. Once the market shares have been calculated, the penetration factors can be recalculated (adjusted market share divided by fair share) to derive the adjusted penetration factors based upon the new hotel's entry into the market. Note that each existing hotel's penetration factor actually increases because the new hotel is capturing (penetrating) less than its fair share of demand.

COMMERCIAL SEGMENT PROJECTIONS (YEAR 1)

Property	Number of Rooms	Fair Share	Hist./Proj. Penetration Factor	Hist./Proj. Market Share	Adjusted Market Share	Adjusted Penetration Factor	Projected Capture
Hotel A	100	19.0 %	127.6 %	24.3 %	25.0 %	131.4 %	13,688
Hotel B	125	23.8	129.0	30.7	31.6	132.8	17,299
Hotel C	200	38.1	68.1	25.9	26.7	70.1	14,600
New Hotel	100	19.0	85.0	16.2	16.7	87.5	9,117
Totals/Average	**525**	**100.0 %**		**97.1 %**	**100.0 %**		**54,704**

In its second year of operation, the new hotel is projected to penetrate above its fair share of demand. A penetration rate of 130% has been chosen, as the new hotel is expected to perform at a level commensurate with Hotel A and Hotel B in this market segment. The same calculations are performed to adjust market share and penetration factors. Note that now the penetration factors of the existing hotels decline below their original penetration rates because of the new hotel's above-market penetration. Also, note that after the market share adjustment, the new hotel retains a penetration rate commensurate with Hotel A and Hotel B, though the penetration rates of all three hotels have declined by approximately nine percentage points because of the reapportionment of demand.

Once the market shares of each hotel have been adjusted to reflect the entry of the new hotel into the market, the commercial room nights captured by each hotel may be projected by multiplying the hotel's market share percentage by the total commercial room-night demand. This calculation is shown below.

COMMERCIAL SEGMENT PROJECTIONS (YEAR 2)

Property	Number of Rooms	Fair Share	Hist./Proj. Penetration Factor	Hist./Proj. Market Share	Adjusted Market Share	Adjusted Penetration Factor	Projected Capture
Hotel A	100	19.0 %	131.4 %	25.0 %	23.1 %	121.5 %	12,662
Hotel B	125	23.8	132.8	31.6	29.3	122.9	16,004
Hotel C	200	38.1	70.1	26.7	24.7	64.8	13,507
New Hotel	100	19.0	130.0	24.8	22.9	120.3	12,531
Totals/Average	**525**	**100.0 %**		**108.1 %**	**100.0 %**		**54,704**

Explanation of the Simultaneous Valuation Formula

The algebraic equation known as the simultaneous valuation formula, which solves for the total property value using a ten-year mortgage and equity technique, was developed by Suzanne R. Mellen, CRE, MAI, FRICS, ISHC, Managing Director of the San Francisco office of HVS. A complete discussion of the technique is presented in her article entitled "Simultaneous Valuation: A New Technique."[20]

The process of solving for the value of the mortgage and equity components begins by deducting the annual debt service from the projected income before debt service, leaving the net income to equity for each year. The net income as of the eleventh year is capitalized into a reversionary value using the terminal capitalization rate. The equity residual, which is the total reversionary value less the mortgage balance at that point in time and less any brokerage and legal costs associated with the sale, is discounted to the date of value at the equity yield rate. The net income to equity for each projection year is also discounted back to the date of value. The sum of these discounted values equals the value of the equity component. Because the equity component comprises a specific percentage of the total value, the value of the mortgage and the total property can be computed easily. This process can be expressed in two algebraic equations that set forth the mathematical relationships between the known and unknown variables using the following symbols.

[20]Suzanne R. Mellen. "Simultaneous Valuation: A New Technique," *Appraisal Journal*, April, 1983.

NI	=	Net income available for debt service
V	=	Value
M	=	Loan-to-value ratio
f	=	Annual debt service constant
n	=	Number of years in the projection period
d_e	=	Annual cash available to equity
d_r	=	Residual equity value
b	=	Brokerage and legal cost percentage
P	=	Fraction of the loan paid off during the projection period
f_p	=	Annual constant required to amortize the entire loan during the projection period
R_r	=	Overall terminal capitalization rate that is applied to net income to calculate the total property reversion (sales price at the end of the projection period)
$1/S^n$	=	Present worth of $1 factor (discount factor) at the equity yield rate

Using these symbols, the following formulas can be used to express some of the components of this mortgage and equity valuation process.

Debt Service – A property's debt service is calculated by first determining the mortgage amount that equals the total value (V) multiplied by the loan-to-value ratio (M). Debt service is derived by multiplying the mortgage amount by the annual debt service constant (f). The following formula represents debt service.

$$f \times M \times V = \text{Debt Service}$$

Net Income to Equity (Equity Dividend) – The net income to equity (d_e) is the property's net income before debt service (NI) less debt service. The following formula represents the net income to equity.

$$NI - (f \times M \times V) = d_e$$

Reversionary Value – The value of the hotel at the end of the tenth year is calculated by dividing the eleventh-year net income before debt service (NI^{11}) by the terminal capitalization rate (R_r). The following formula represents the property's tenth-year reversionary value.

$$(NI^{11}/R_r) = \text{Reversionary Value}$$

Brokerage and Legal Costs – When a hotel is sold, certain costs are associated with the transaction. Normally, the broker is paid a commission and the attorney collects legal fees. In the case of hotel transactions, brokerage and legal costs typically range from 1% to 4% of the sales price. Because these expenses reduce the proceeds to the seller, they are usually deducted from the reversionary value in the mortgage and equity valuation process. Brokerage and legal costs (b), expressed as a percentage of reversionary value (NI^{11}/R_r), are calculated by application of the following formula.

$$b\ (NI^{11}/R_r) = \text{Brokerage and Legal Costs}$$

Ending Mortgage Balance – The mortgage balance at the end of the tenth year must be deducted from the total reversionary value (debt and equity) in order to determine the equity residual. The formula used to determine the fraction of the loan remaining (expressed as a percentage of the original loan balance) at any point in time (P) takes the annual debt service constant of the loan over the entire amortization period (f) less the mortgage interest rate (i), and divides it by the annual constant required to amortize the entire loan during the ten-year projection period (f_p) less the mortgage interest rate. The following formula represents the fraction of the loan paid off (P).

$$(f - i)/(f_p - i) = P$$

If the fraction of the loan paid off (expressed as a percentage of the initial loan balance) is P, then the remaining loan percentage is expressed as 1 - P. The ending mortgage balance is the fraction of the remaining loan (1 - P) multiplied by the initial loan amount (M x V). The following formula represents the ending mortgage balance.

$$(1 - P) \times M \times V$$

Equity Residual Value – The value of the equity upon the sale at the end of the projection period (d_r) is the reversionary value less the brokerage and legal costs and the ending mortgage balance. The following formula represents the equity residual value.

$$(NI^{11}/R_r) - (b\ (NI^{11}/R_r) - ((1 - P) \times M \times V) = d_r$$

Annual Cash Flow to Equity – The annual cash flow to equity consists of the equity dividend for each projection year plus the equity residual at the end of the tenth year. The following formula represents the annual cash flow to equity.

$$NI^1 - (f \times M \times V) = d_e^1$$

$$NI^2 - (f \times M \times V) = d_e^2$$

$$NI^{10} - (f \times M \times V) = d_e^{10}$$

$$(NI^{11}/R_r) - (b\,(NI^{11}/R_r) - ((1 - P) \times M \times V) = d_r$$

Value of the Equity – If the initial mortgage amount is calculated by multiplying the loan-to-value ratio (M) by the property value (V), then the equity value is one minus the loan-to-value ratio multiplied by the property value. The following formula represents the value of the equity.

$$(1 - M)\,V$$

Discounting the Cash Flow to Equity to the Present Value – The cash flow to equity in each projection year is discounted to the present value at the equity yield rate ($1/S^n$). The sum of these cash flows is the value of the equity (1 - M) V. The following formula represents the calculation of equity as the sum of the discounted cash flows.

$$(d_e^1 \times 1/S^1) + (d_e^2 \times 1/S^2) + \ldots + (d_e^{10} \times 1/S^{10}) + (d_r \times 1/S^{10}) = (1 - M)\,V$$

Combining the Equations: Annual Cash Flow to Equity and Discounting the Cash Flow to Equity to the Present Value – The last step is to arrive at one overall equation that shows that the annual cash flow to equity plus the yearly discounting to the present value equals the value of the equity.

$$((NI^1 - (f \times M \times V))\ 1/S^1) + ((NI^2 - (f \times M \times V))\ 1/S^2) + \ldots$$

$$((NI^{10} - (f \times M \times V))\ 1/S^{10}) +$$

$$(((NI^{11}/R_r) - (b\,(NI^{11}/R_r)) - ((1 - P) \times M \times V))\ 1/S^{10}) = (1 - M)\,V$$

Because the only unknown in this equation is the property's value (V), it can be solved readily.

Ten-Year Projection of Income and Expense – Because the fixed and variable forecast of income and expense is carried out only to the stabilized year, it is necessary to continue the projection to the eleventh year. In most cases, net income before debt service beyond the stabilized year is projected at an assumed inflation rate. By increasing a property's revenue and expenses at the same rate of inflation, net income remains constant as a percentage of total revenue, and the dollar amount escalates at the annual inflation rate. The ten-year forecast of

income and expense illustrates the subject property's net income, which is assumed to increase by 3.0% annually subsequent to the hotel's stabilized year of operation.

The following values are assigned to the variable components for the purposes of this valuation.

SUMMARY OF KNOWN VARIABLES

Annual Net Income	NI	See Ten-Year Forecast
Loan-To-Value Ratio	M	65 %
Interest Rate	*i*	5.50 %
Debt Service Constant	f	0.073690
Equity Yield	Ye	17.0 %
Transaction Costs	b	2.0 %
Annual Constant Required to Amortize the Loan in Ten Years	fp	0.130232
Terminal Capitalization Rate	Rr	8.0 %

The following table illustrates the present worth of a $1 factor at the 17.0% equity yield rate.

PRESENT WORTH OF $1 FACTOR AT THE EQUITY YIELD RATE

Year Ending	Present Worth of $1 Factor at 17.0%
2016/17	0.854688
2017/18	0.730492
2018/19	0.624343
2019/20	0.533619
2020/21	0.456078
2021/22	0.389804
2022/23	0.333161
2023/24	0.284749
2024/25	0.243372
2025/26	0.208007

Using these known variables, the following intermediary calculations must be made before applying the simultaneous valuation formula. The fraction of the loan paid off during the projection period is calculated as follows.

P = (0.07369 - 0.0550) / (0.13023 - 0.0550) = 0.248440

The annual debt service is calculated as f x M x V.

(f x M x V)= 0.07369 x 0.65 x V = (0.0479)V

Inserting the known variables into the hotel valuation formula produces the following.

(3,724,000 - 0.04790 V) x 0.8547 +
(3,968,000 - 0.04790 V) x 0.73051 +
(3,996,000 - 0.04790 V) x 0.62437 +
(4,055,000 - 0.04790 V) x 0.53365 +
(4,152,000 - 0.04790 V) x 0.45611 +
(4,276,000 - 0.04790 V) x 0.38984 +
(4,405,000 - 0.04790 V) x 0.3332 +
(4,536,000 - 0.04790 V) x 0.28478 +
(4,672,000 - 0.04790 V) x 0.2434 +
(4,812,000 - 0.04790 V) x 0.20804 +

(((4,956,000 / 0.080) - (0.020 x (4,956,000 / 0.080)) -

((1 - 0.248440) x 0.7 x V)) x 0.208037) = (1 - 0.65)V

Like terms are combined as follows.

$31,829,157 - 0.324771V = (1 - 0.65)V
$31,829,157 = 0.67477V
V = $31,829,157 / 0.67477
V = $47,170,320

Total Property Value as Indicated by the Income Capitalization Approach (Say) = $47,200,000

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(b)(6)

Rebecca Lee

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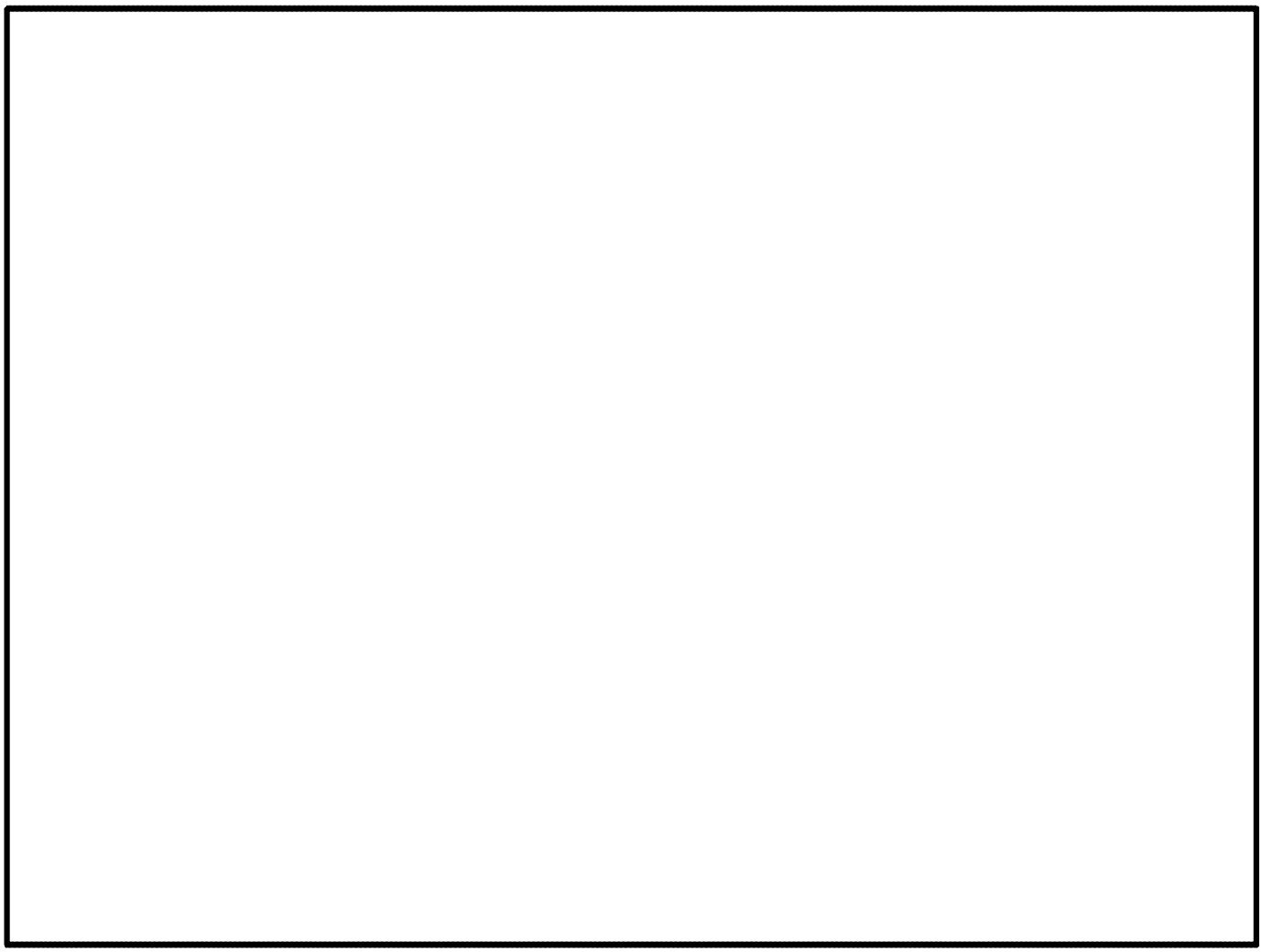

Roland de Milleret, MAI

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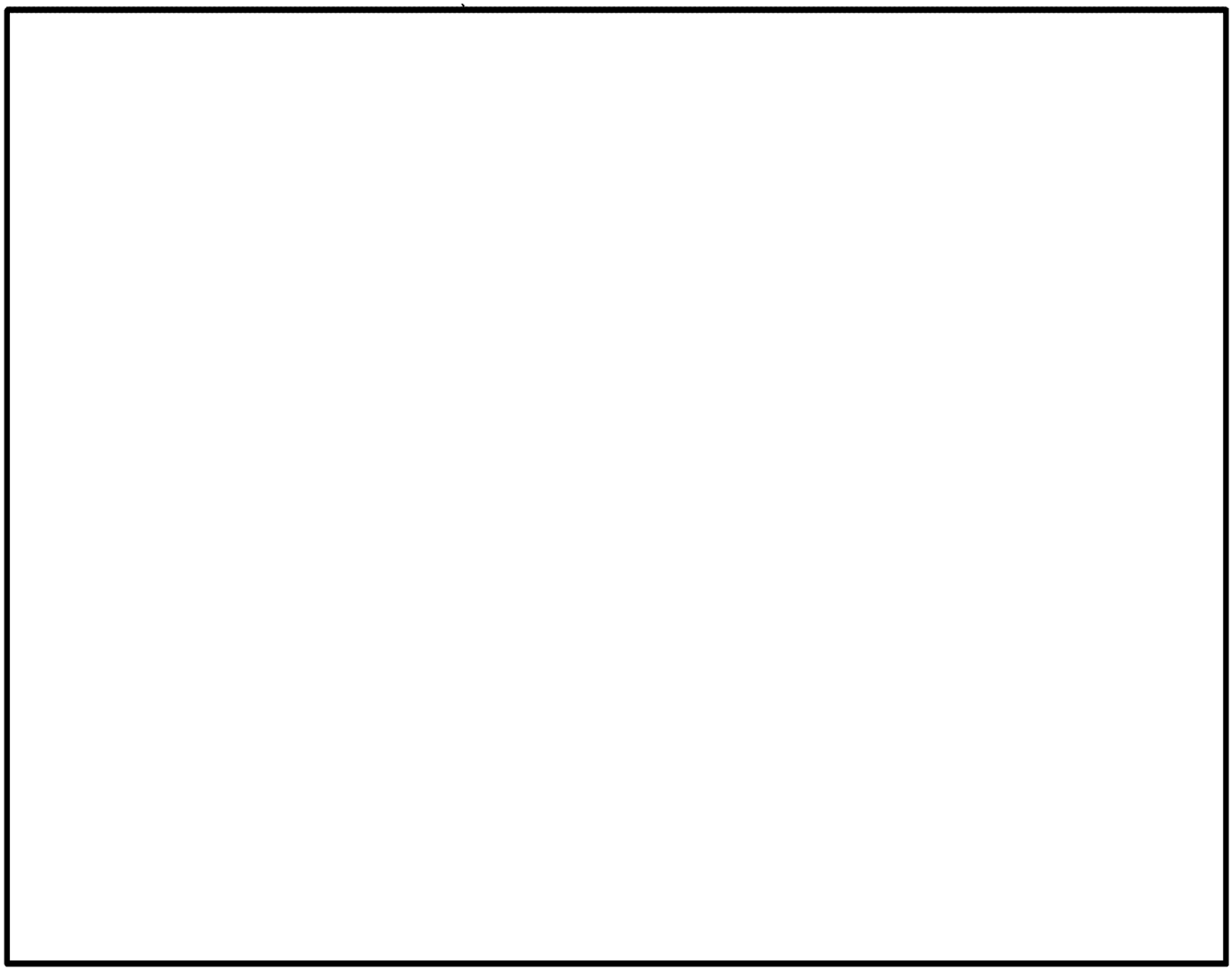

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EXAMPLES OF CORPORATE AND INSTITUTIONAL CLIENTS SERVED

(b)(6)

EXAMPLES OF CORPORATE AND INSTITUTIONAL CLIENTS SERVED (CONTINUED)

EXAMPLES OF HOTELS APPRAISED OR EVALUATED

(b)(6)

EXAMPLES OF HOTELS APPRAISED OR EVALUATED (CONTINUED)

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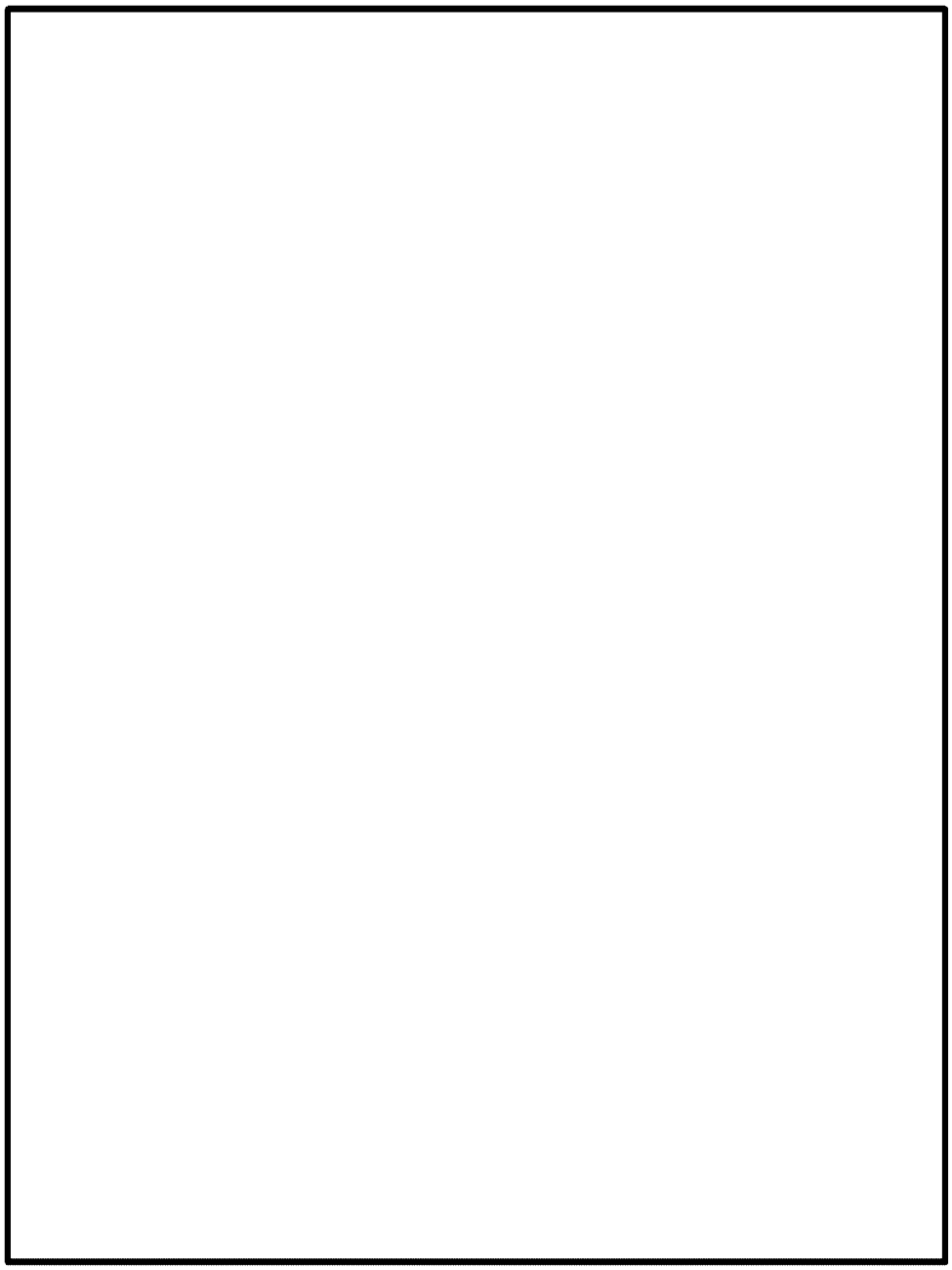
EXAMPLES OF HOTELS APPRAISED OR EVALUATED (CONTINUED)



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EXAMPLES OF HOTELS APPRAISED OR EVALUATED (CONTINUED)

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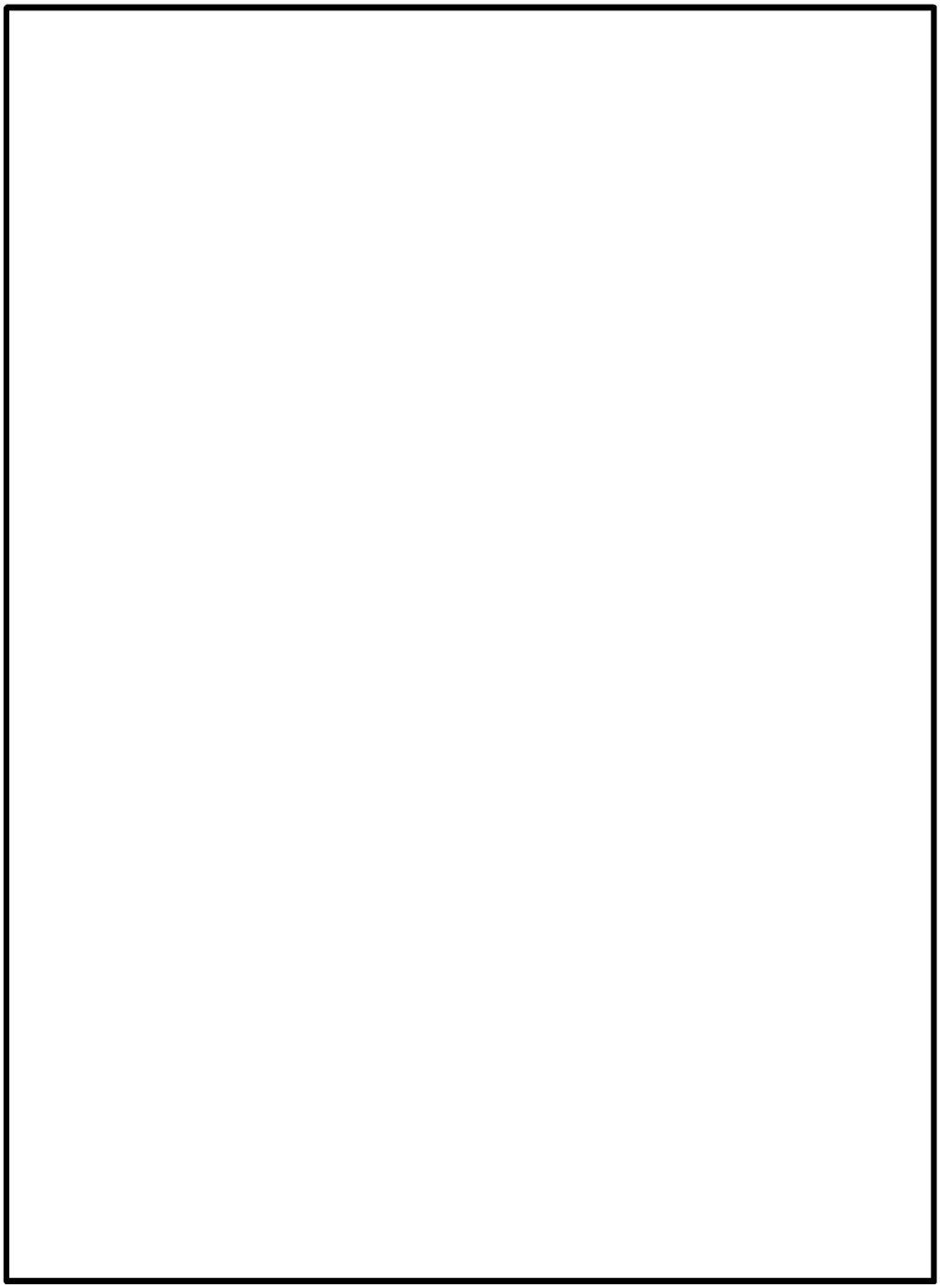
EXAMPLES OF HOTELS APPRAISED OR EVALUATED (CONTINUED)



HVS

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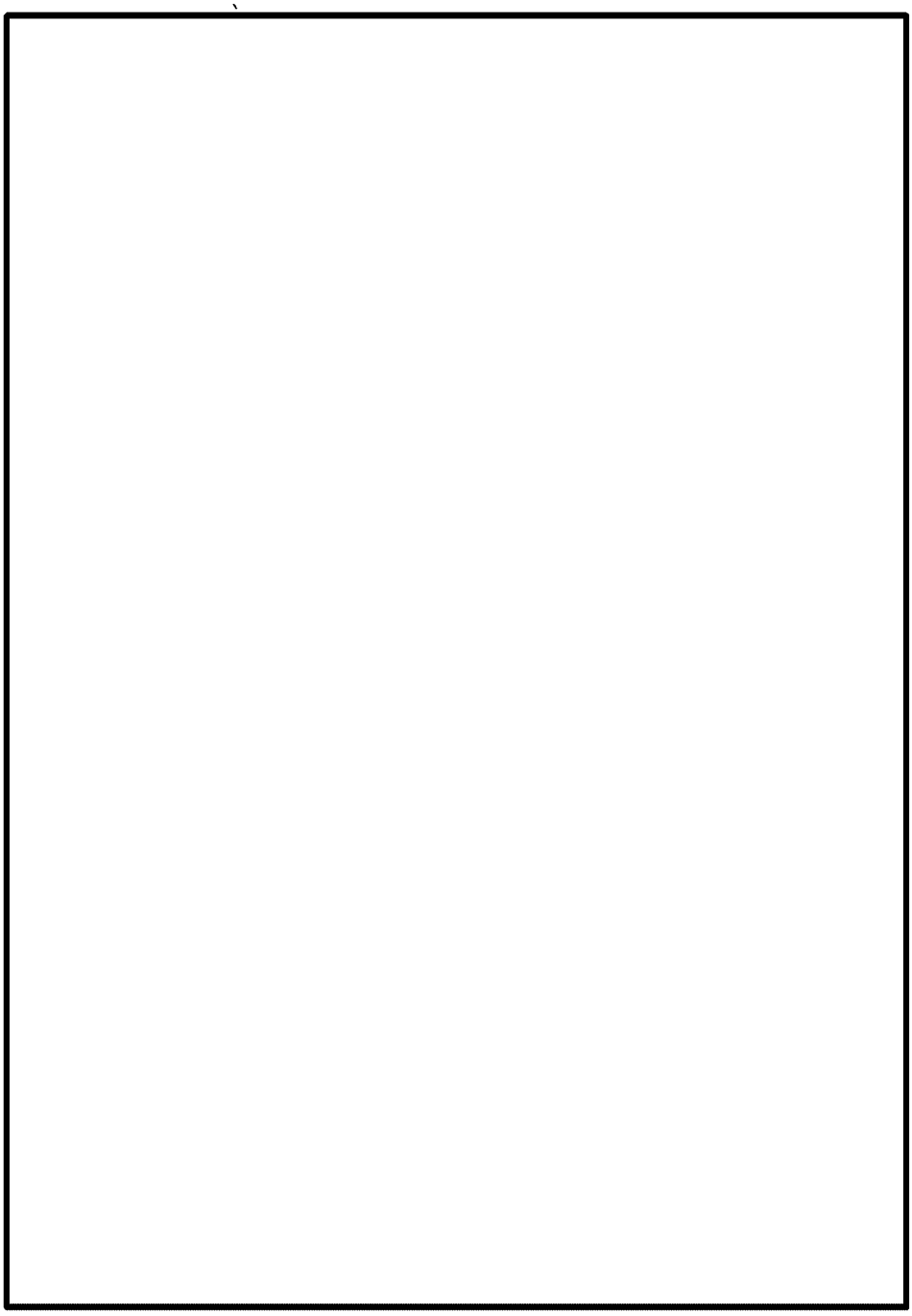
EXAMPLES OF HOTELS APPRAISED OR EVALUATED (CONTINUED)



HVS

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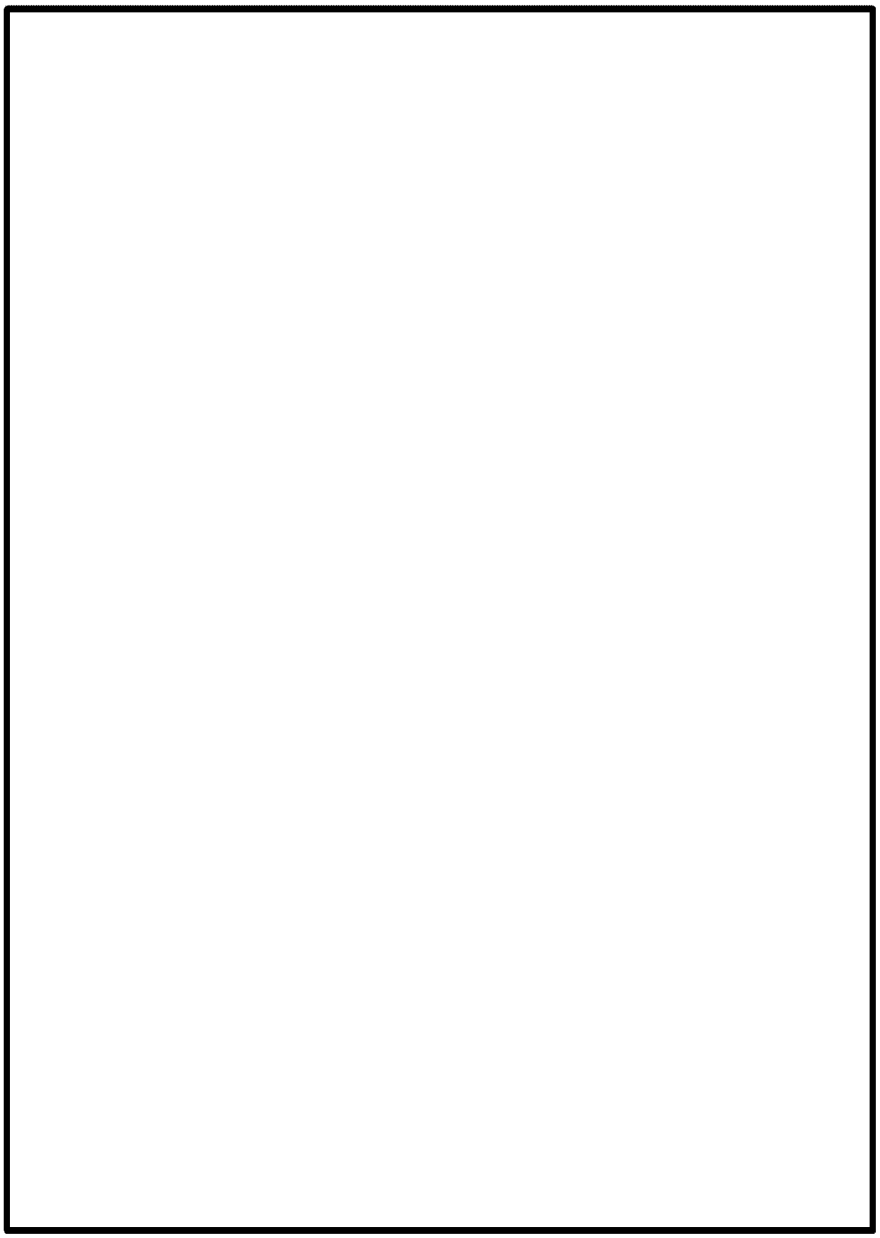
EXAMPLES OF HOTELS APPRAISED OR EVALUATED (CONTINUED)



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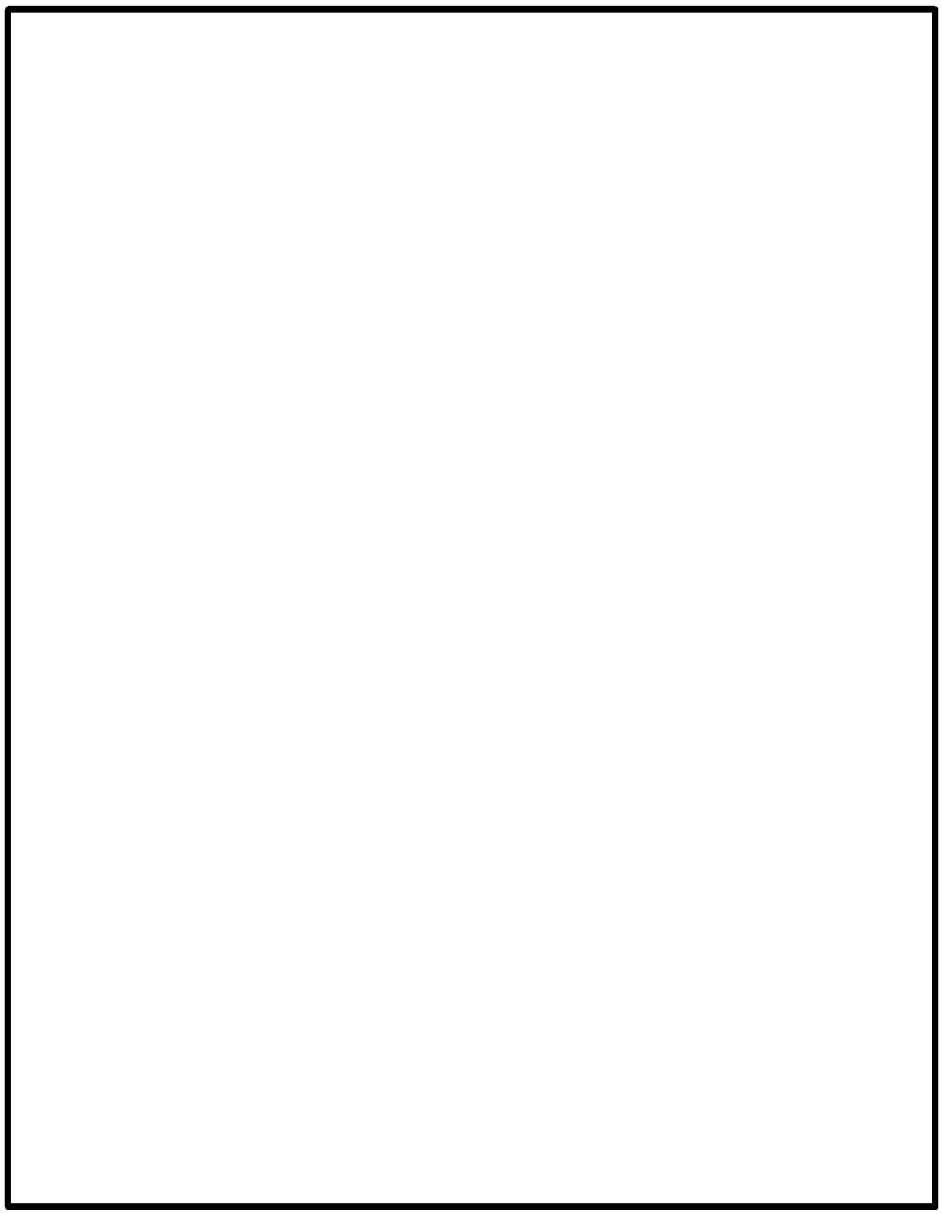
EXAMPLES OF HOTELS APPRAISED OR EVALUATED (CONTINUED)



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EXAMPLES OF HOTELS APPRAISED OR EVALUATED (CONTINUED)

About HVS

HVS is the world's leading consulting and services organization focused on the hotel, restaurant, shared ownership, gaming, and leisure industries. Established in 1980, the company offers a comprehensive scope of services and specialized industry expertise to help you enhance the economic returns and value of your hospitality assets.

Because hotels represent both real property and operating businesses, the founding partners of HVS decided to develop the first comprehensive valuation methodology for appraising these specialized assets. Their initial textbook on this topic entitled, The Valuation of Hotels and Motels, published by the Appraisal Institute, created the industry standard for valuing hotels and is now used by virtually every appraiser around the world. HVS continues to be at the forefront of hotel valuation methodology, having published six textbooks and hundreds of articles on this subject, which are used in appraisal courses and seminars and at leading hotel schools such as Lausanne, IMHI, and Cornell. HVS associates are constantly called upon to teach this methodology to hotel owners, lenders, and operators and to participate at industry conferences. HVS principals literally 'wrote the book' on hotel valuation, which significantly enhances the credibility and reliability of our conclusions.

Over the past three decades, HVS has expanded both its range of services and its geographical boundaries. The company's global reach, through a network of 30 offices staffed by 400 seasoned industry professionals, gives you access to an unparalleled range of complementary services for the hospitality industry:

Consulting & Valuation
Investment Banking
Asset Management & Advisory
Hotel Management
Hotel Parking Consulting
Executive Search
Food & Beverage Services
Gaming Services
Property Tax Services
Convention, Sports & Entertainment Facilities
Interior Design
Sales & Marketing Services
Shared Ownership Services
Golf Services
Eco Services
Risk Management

Our clients include prominent hotel owners, lending institutions, international hotel companies, management entities, governmental agencies, and law and accounting firms from North America, Europe, Asia, Latin America, and the Caribbean. HVS principals are regarded as the leading professionals in their respective regions of the globe. We are client driven, entrepreneurial, and dedicated to providing the best advice and services in a timely and cost-efficient manner. HVS employees continue to be industry leaders, consistently generating a wide variety of articles, studies, and publications on all aspects of the hospitality industry.

HVS is the industry's primary source of hotel ownership data. Our 2,000+ assignments each year keep us at the forefront of trends and knowledge regarding information on financial operating results, management contracts, franchise agreements, compensation programs, financing structures, and transactions. With access to our industry intelligence and data, you will have the most timely information and the best tools available to make critical decisions about your hospitality assets.

For further information regarding our expertise and specifics about our services, please visit www.hvs.com.

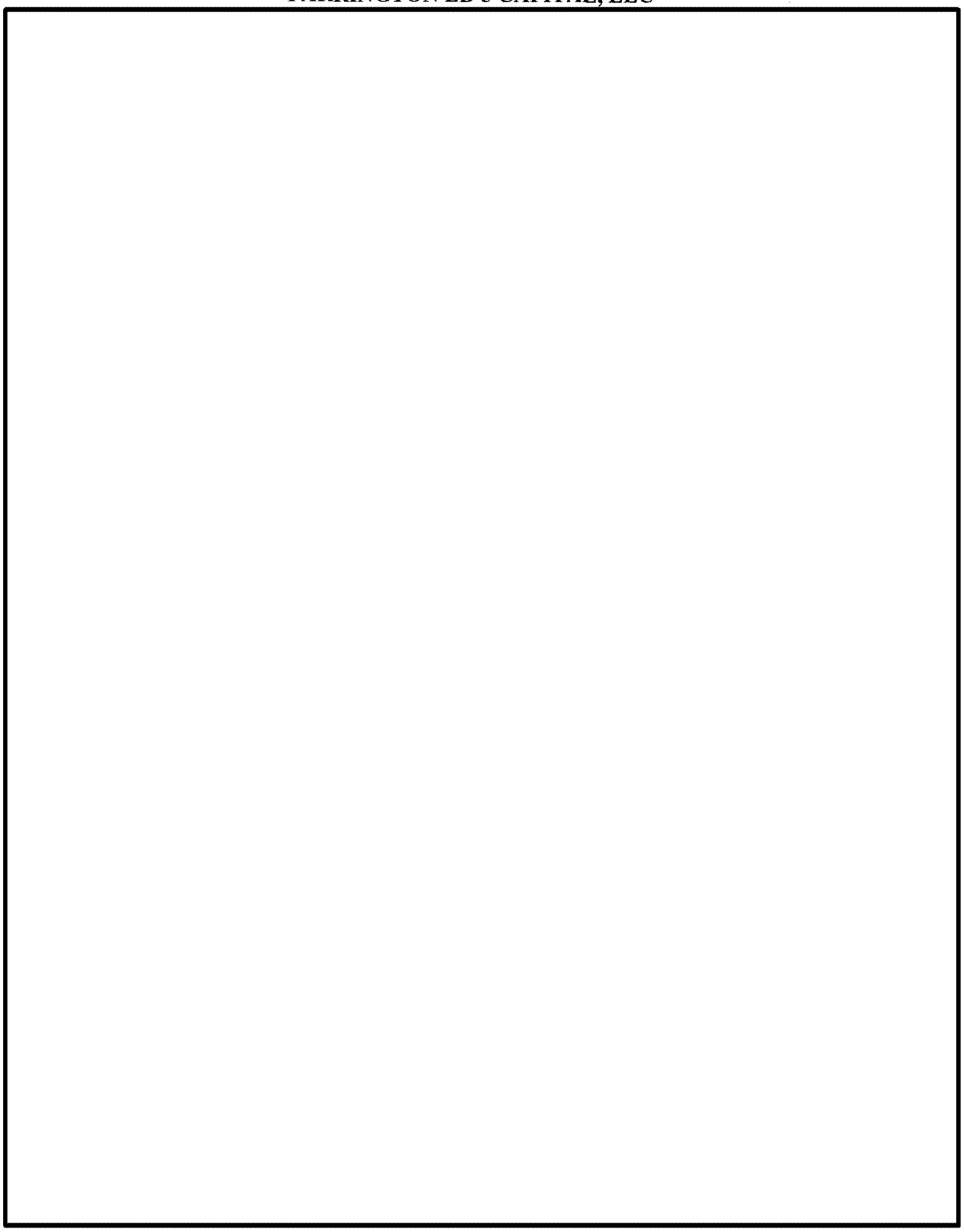
communities. The scope of these analyses included forecasting growth in property tax base, population, municipal revenues, expenditures, capital investment needs, debt service, resulting property tax rates and annual tax burden on homeowners.

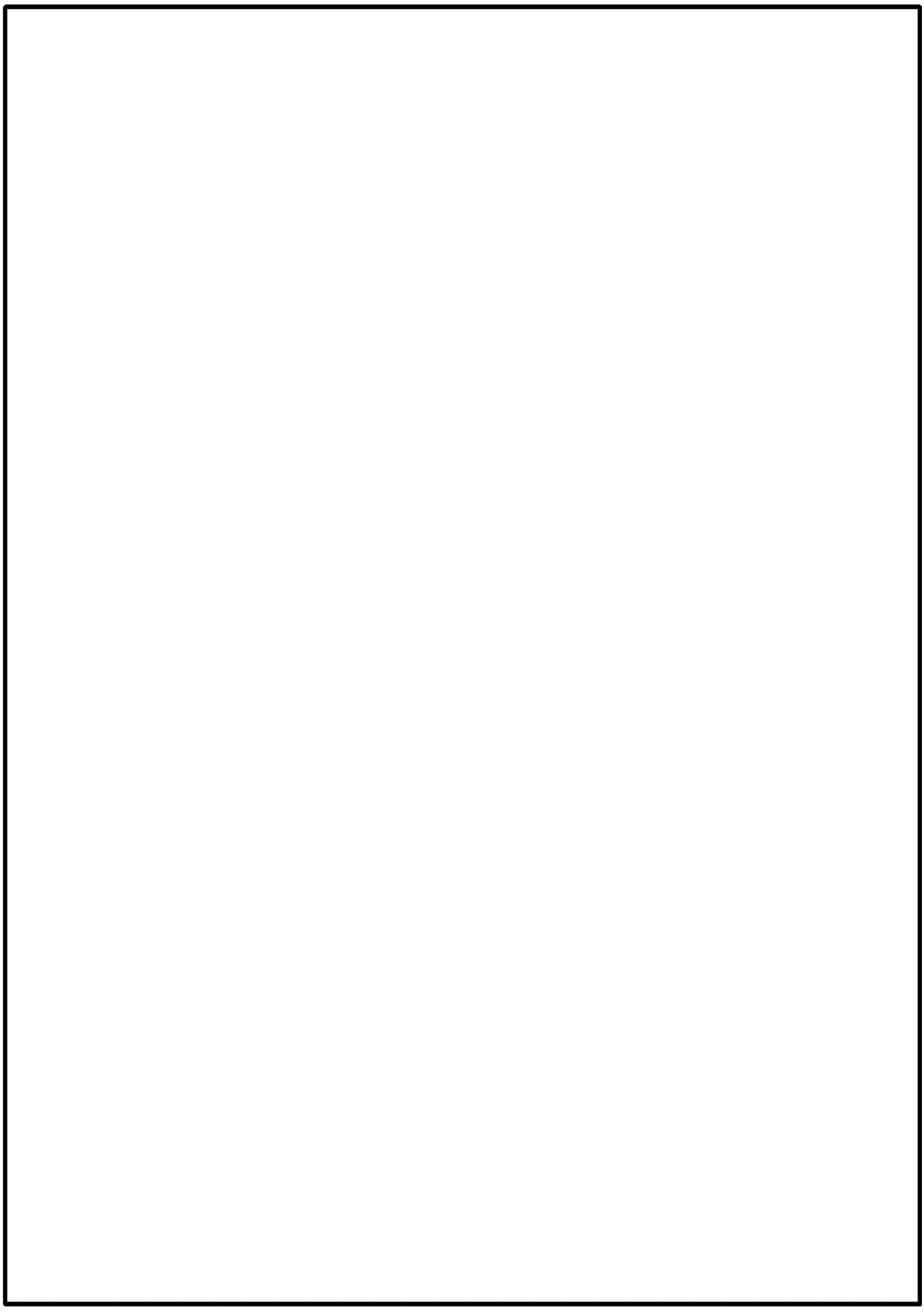
- Budget Forecasting: Developed a long-range budget forecasting model and consulted with the Plymouth MA Finance Department to update and maintain the forecasts over a three-year period. Prepared a 20-year sales tax forecasting model for Ontario County, NY as part of a strategic plan to increase sales tax revenue growth. Prepared a visitor forecasting and business planning model to assist the Jekyll Island Authority in evaluating options for increasing revenues and financing improvements to the Jekyll Island State Park.

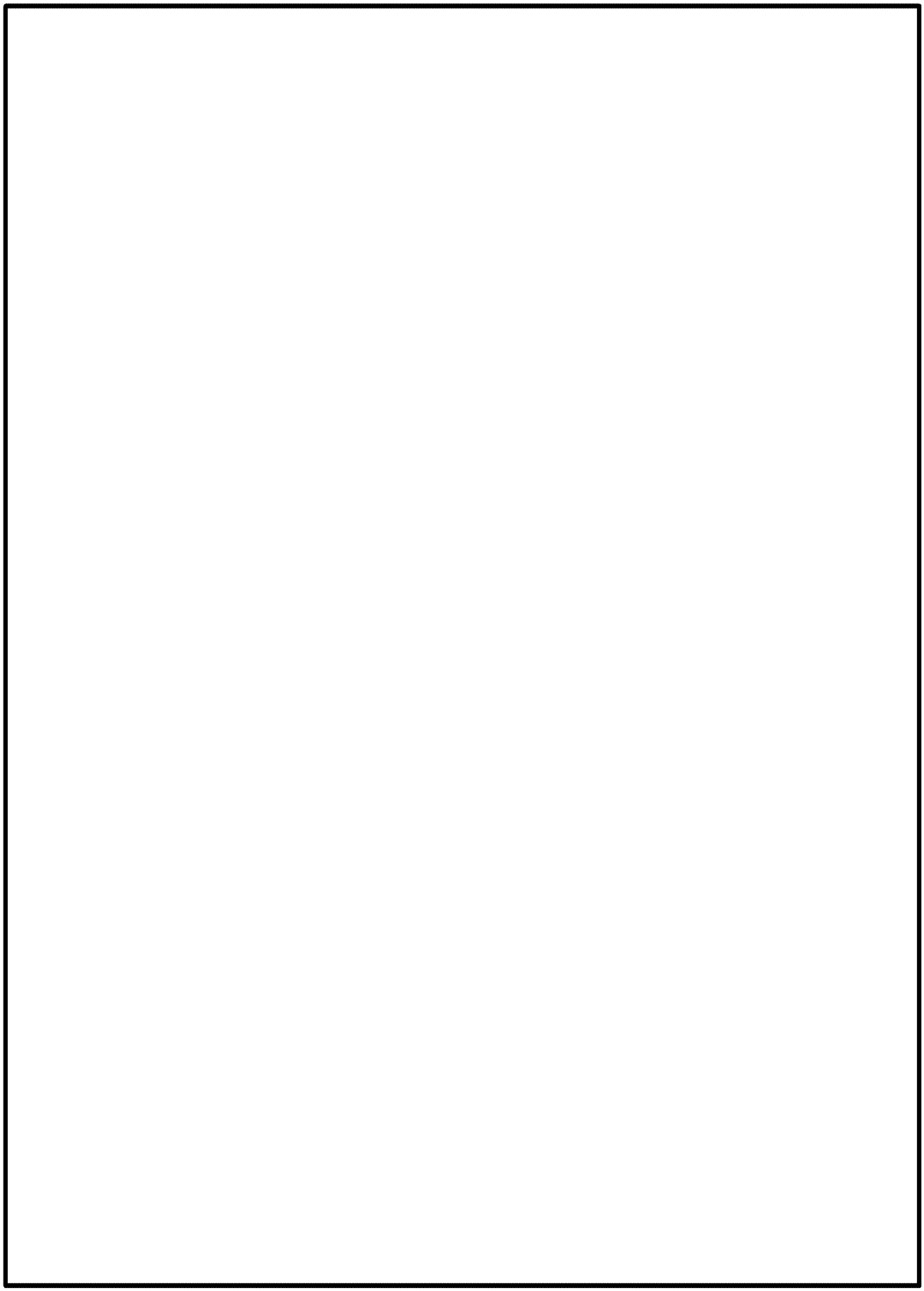
- Development in resort locations: Forecasted impacts on construction industry employment and the overall economic and fiscal impacts of alternative growth management scenarios for the island of Nantucket, MA. Provided financial advisory services in the negotiation of commercial ground leases for the Jekyll Island Authority.

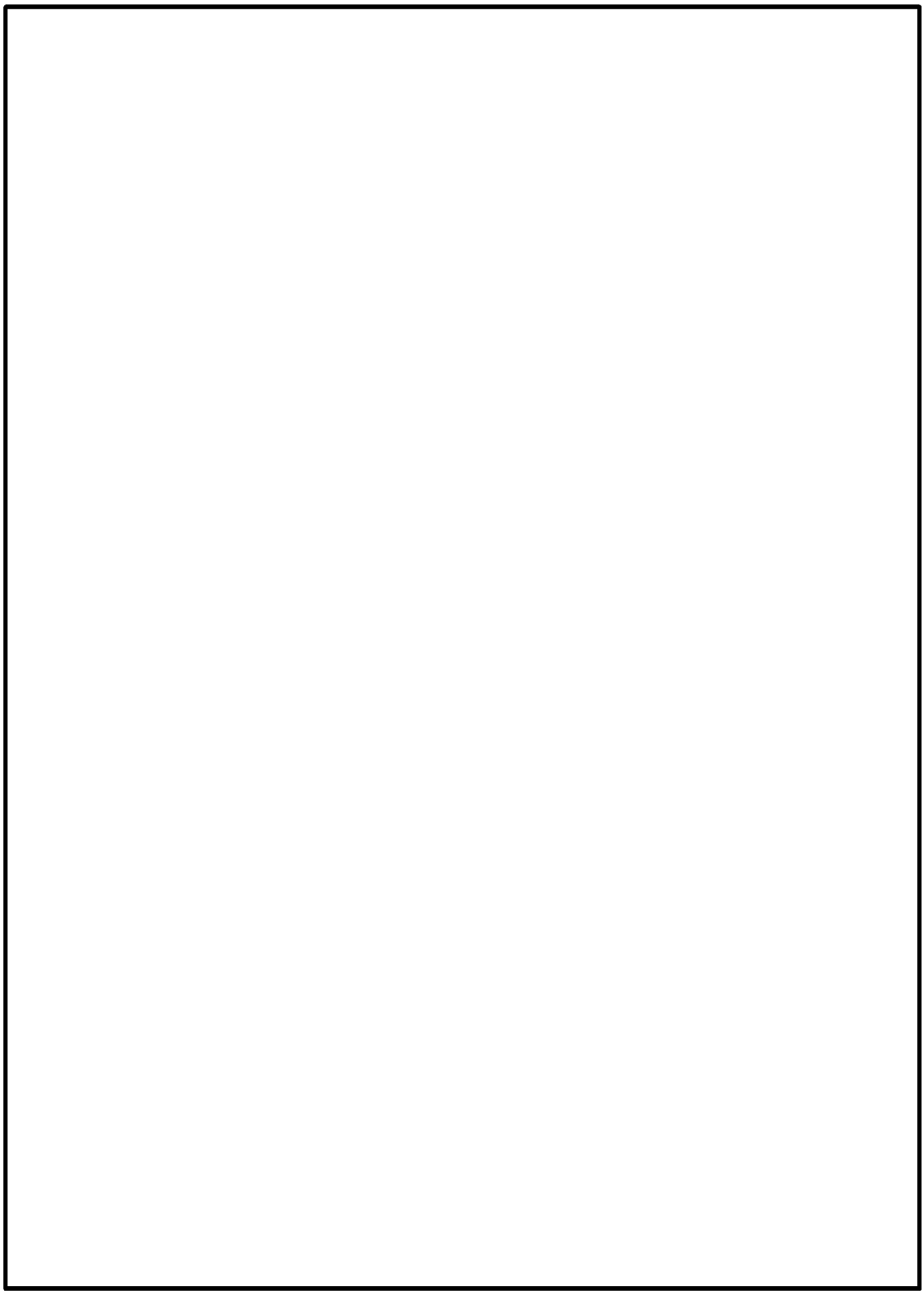
(b)(4)

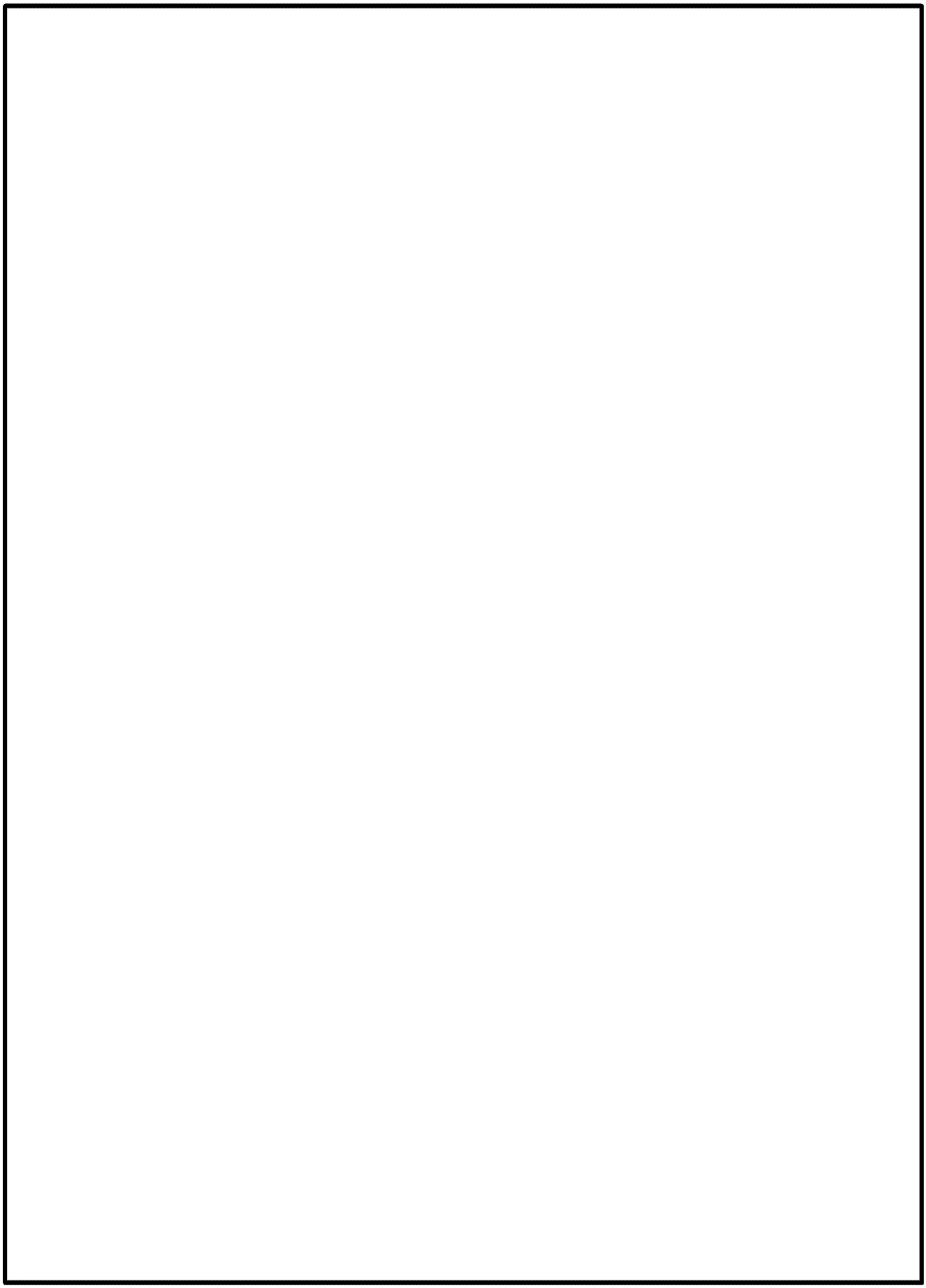
OPERATING AGREEMENT
OF
FARRINGTON EB-5 CAPITAL, LLC

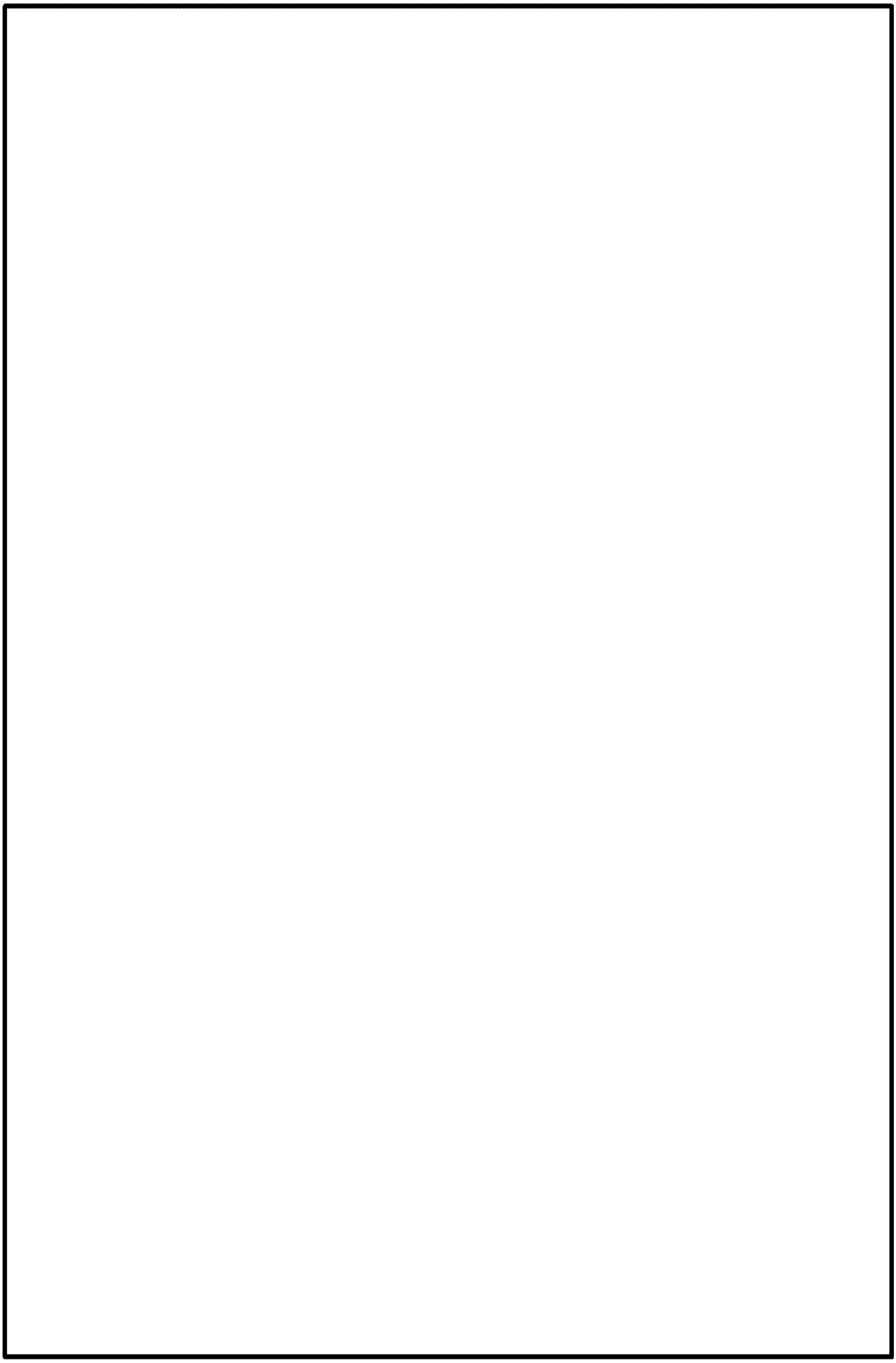


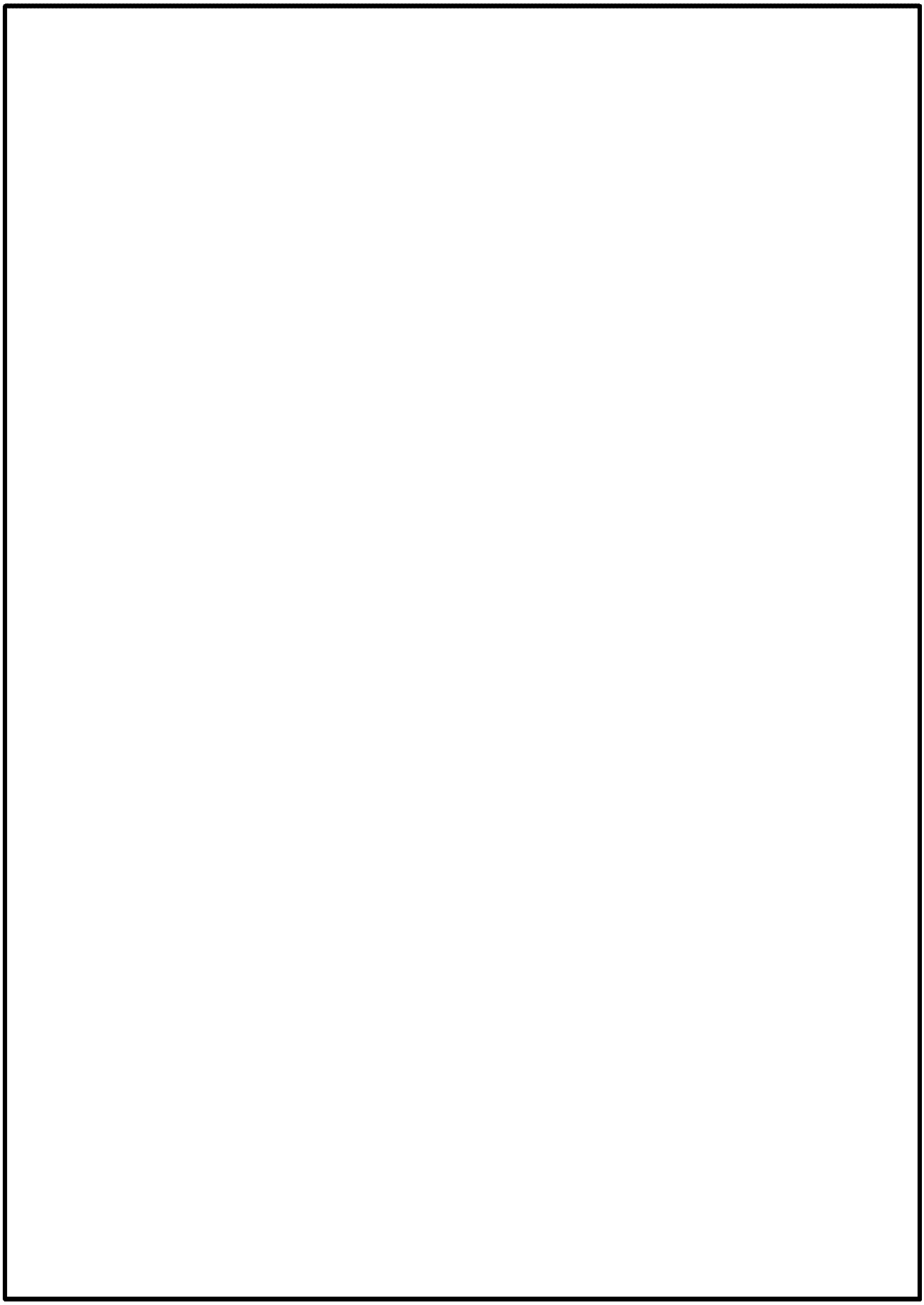


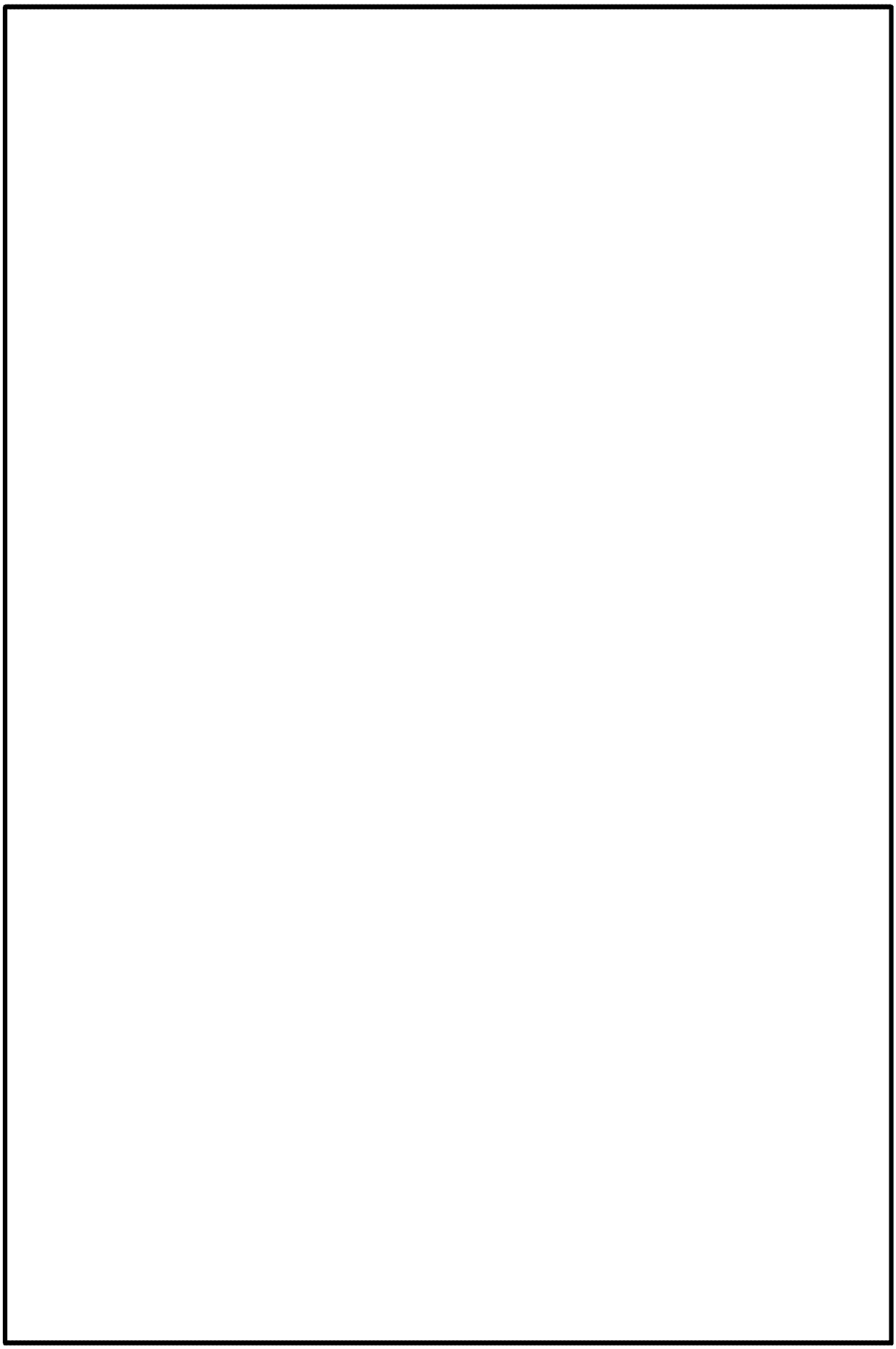


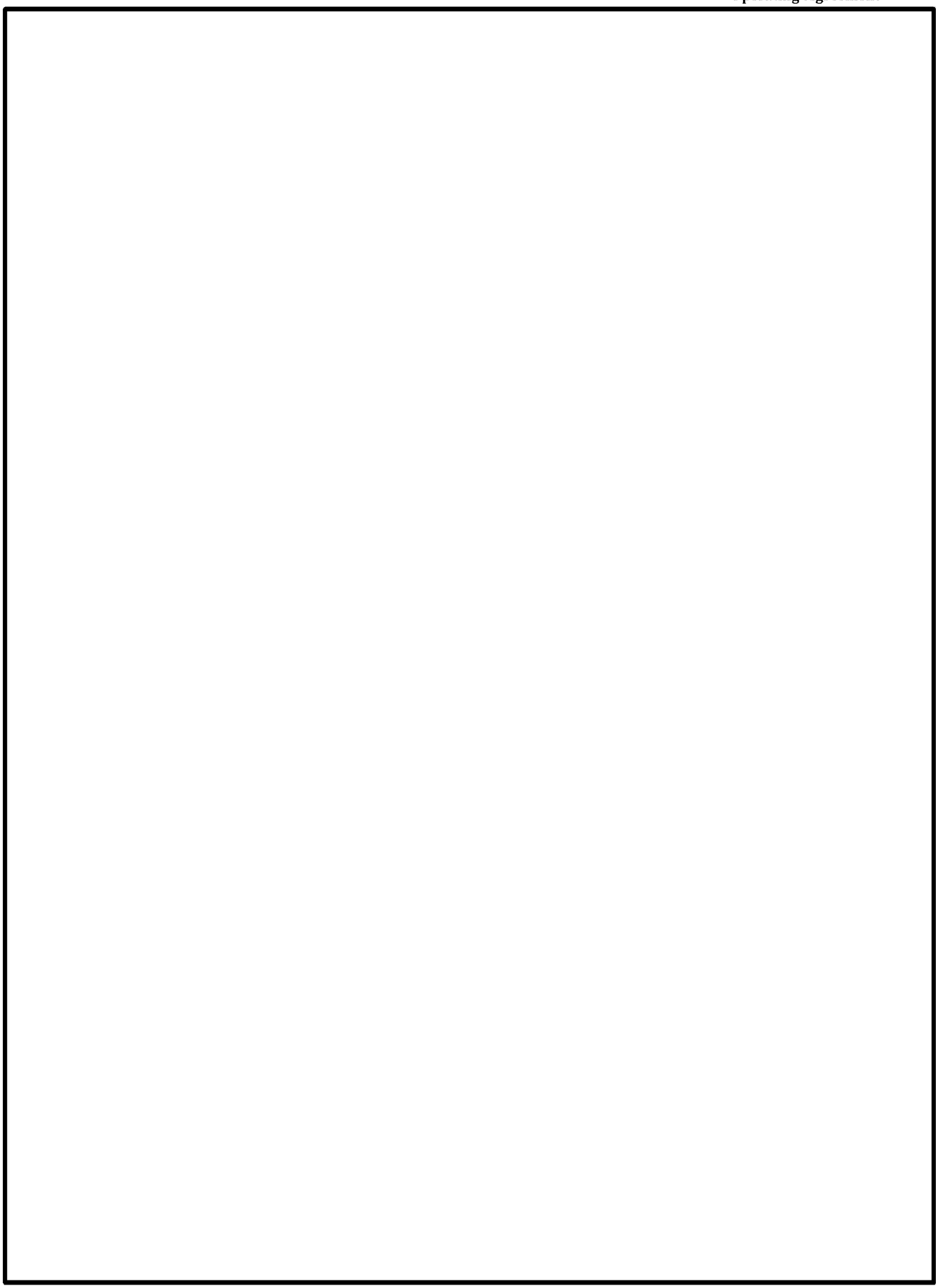


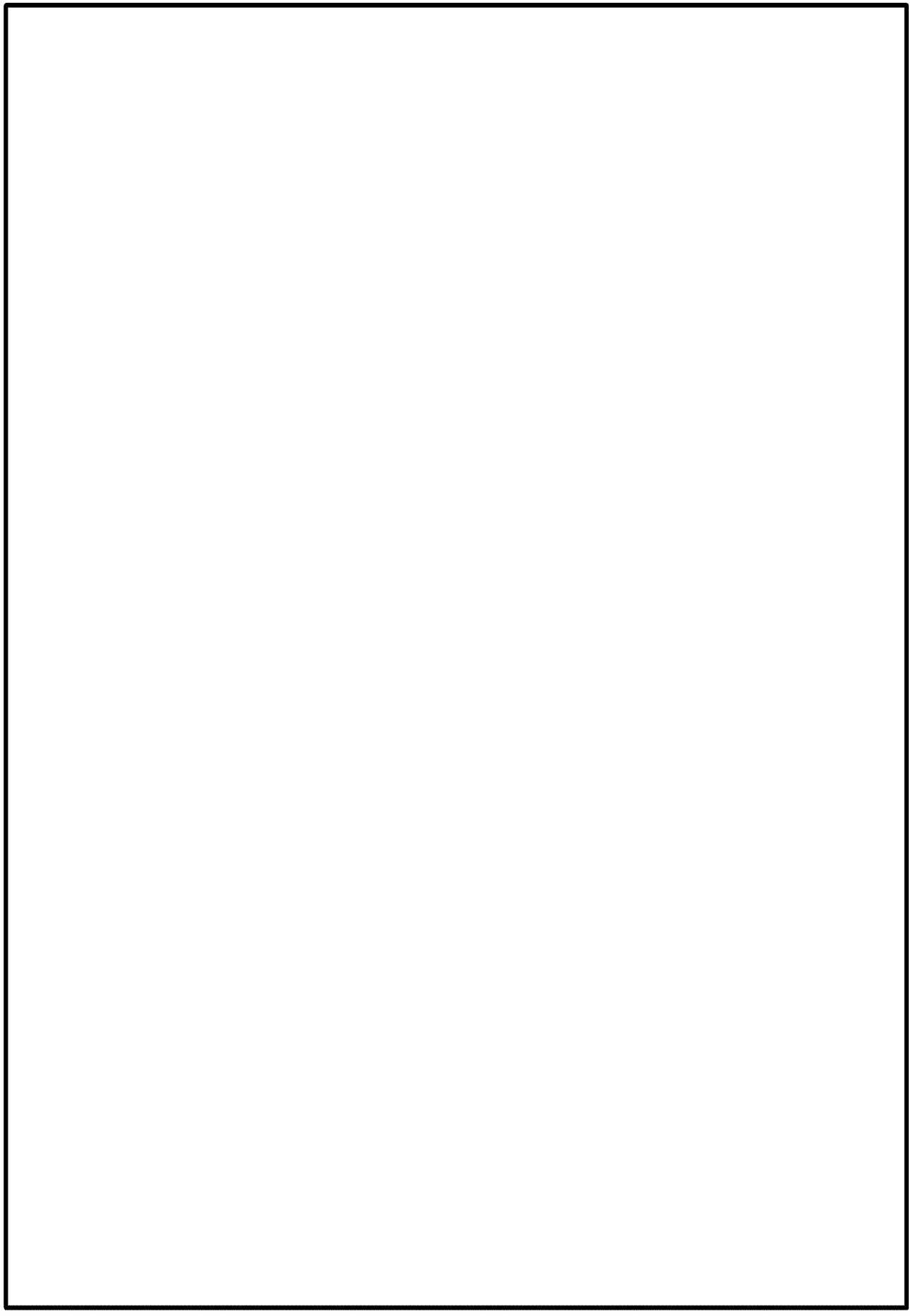


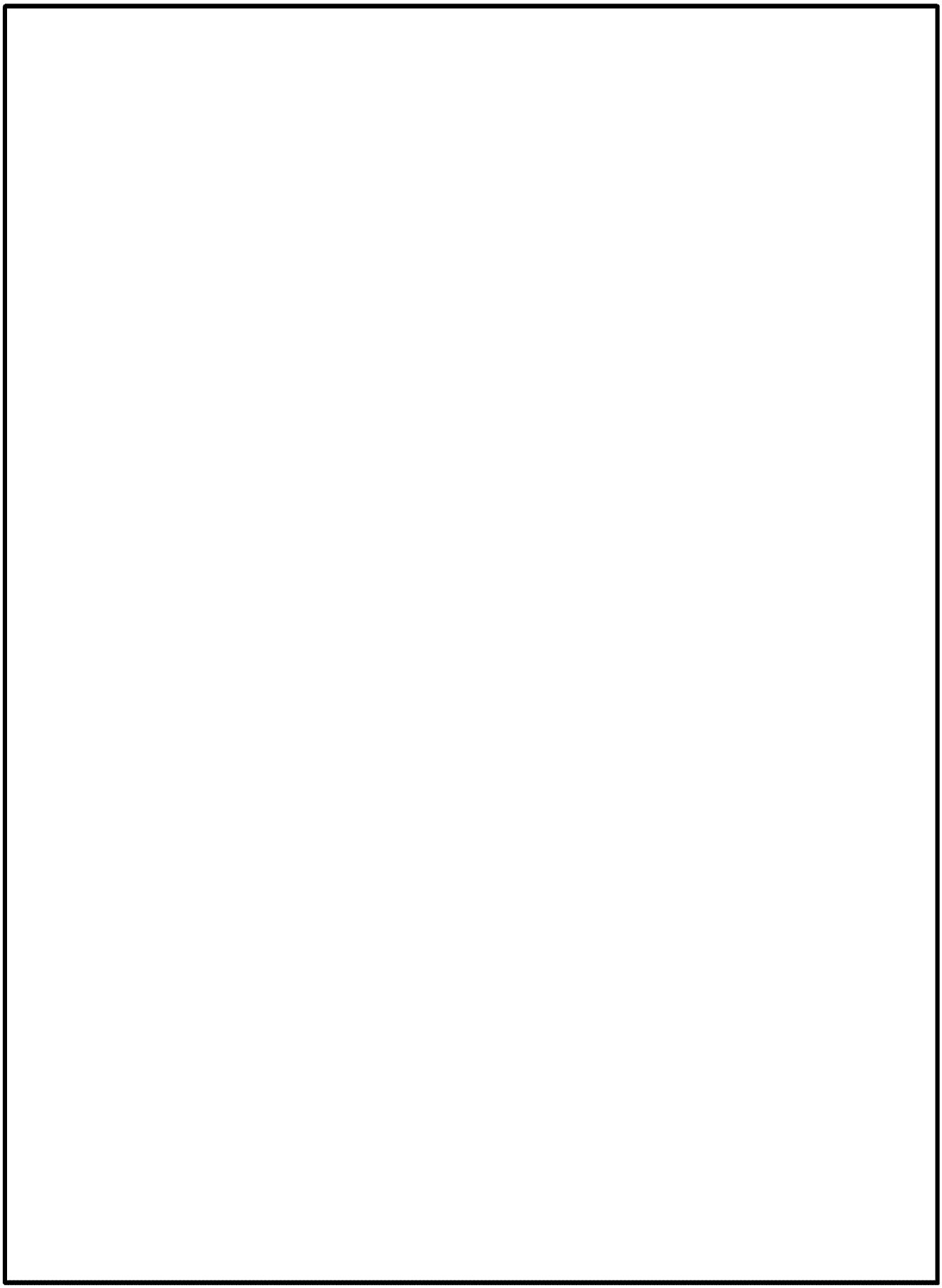


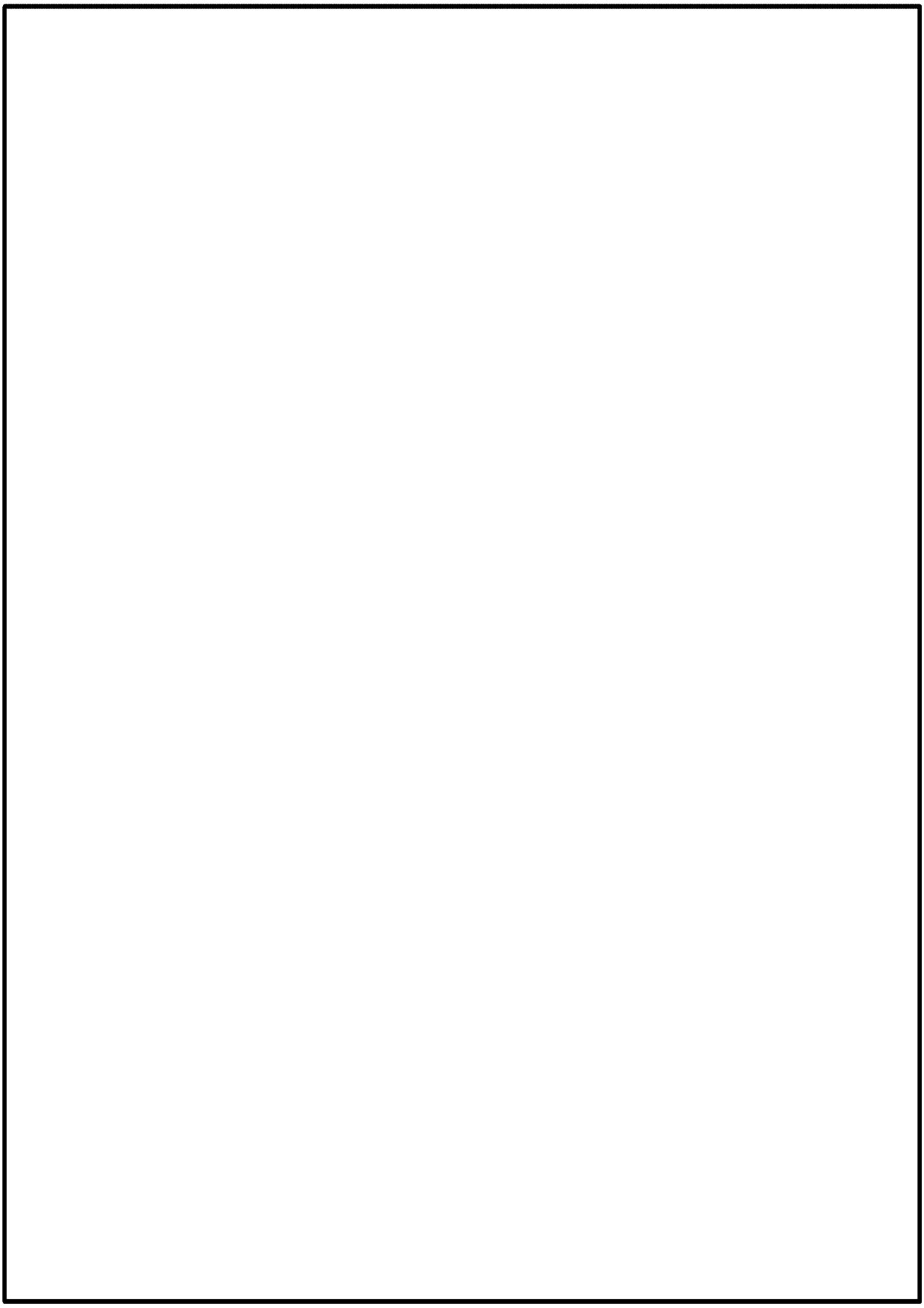


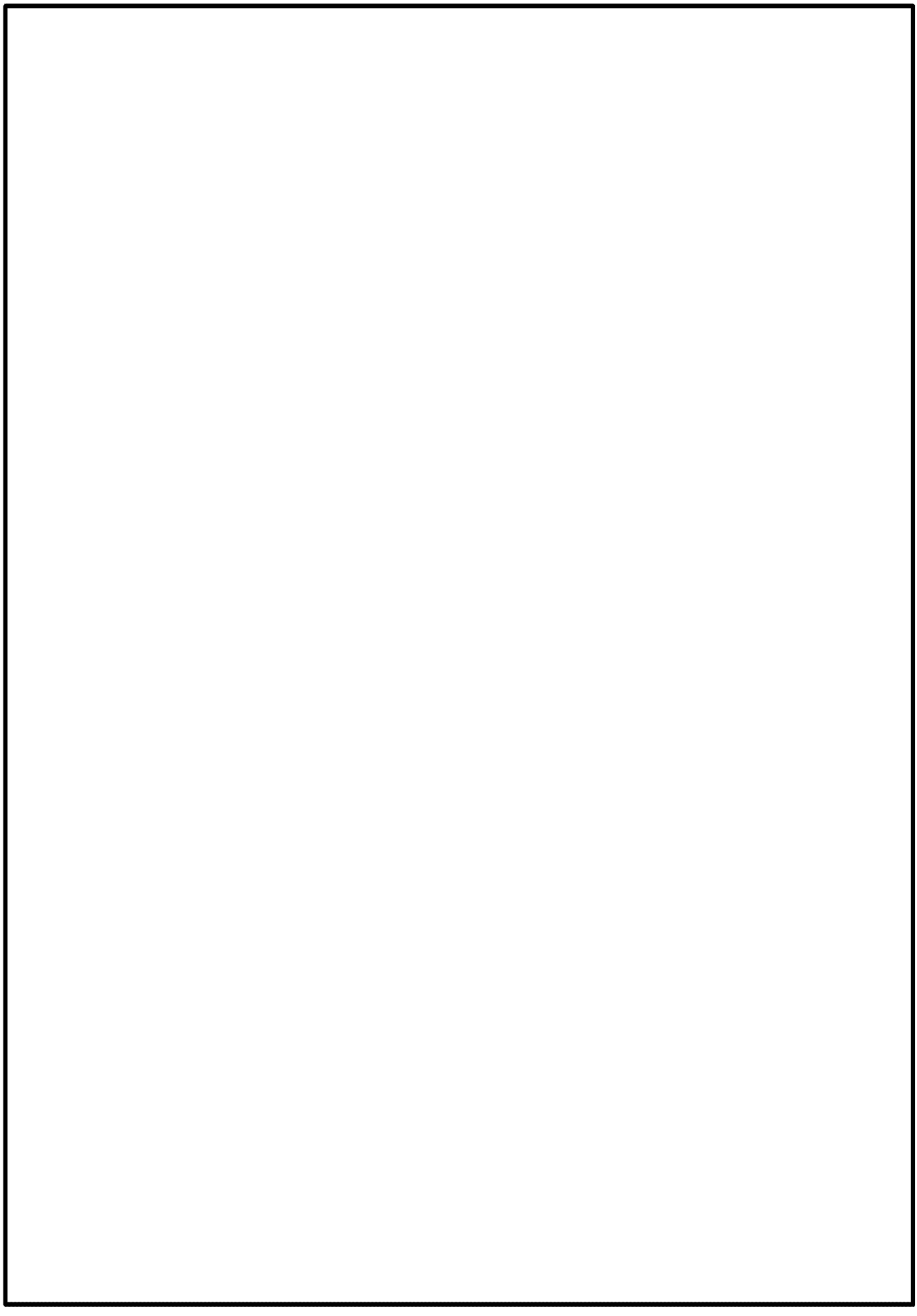


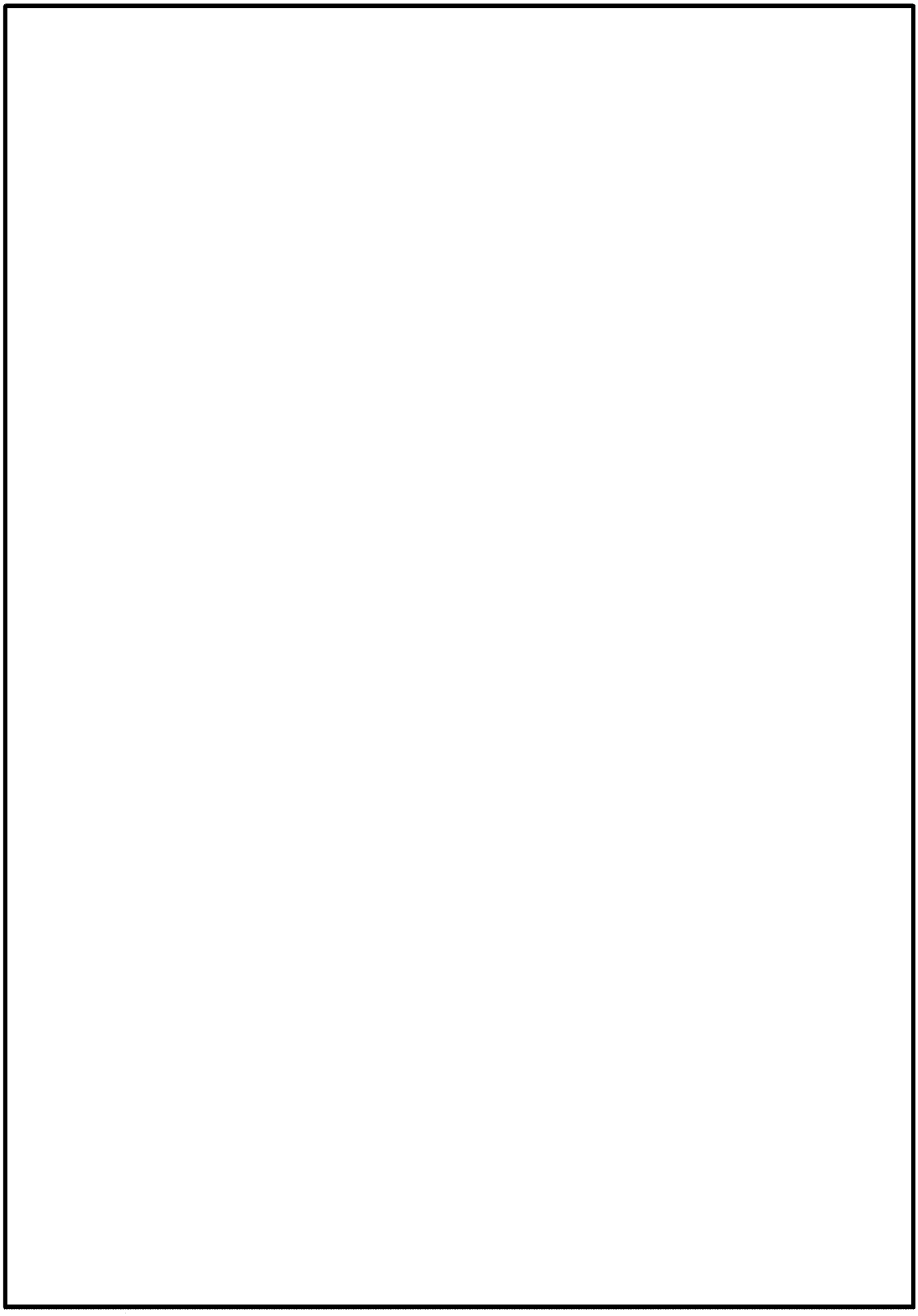


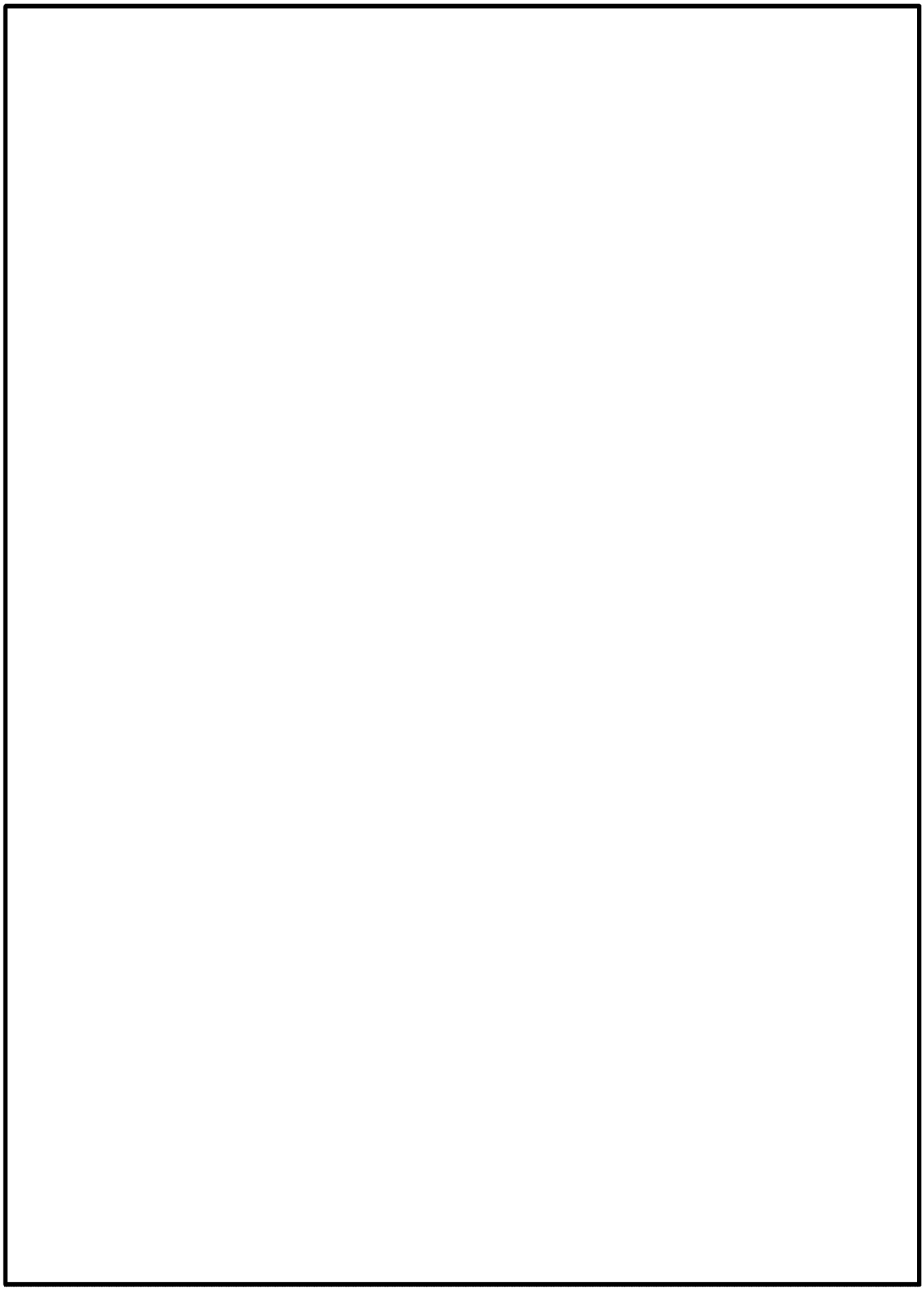


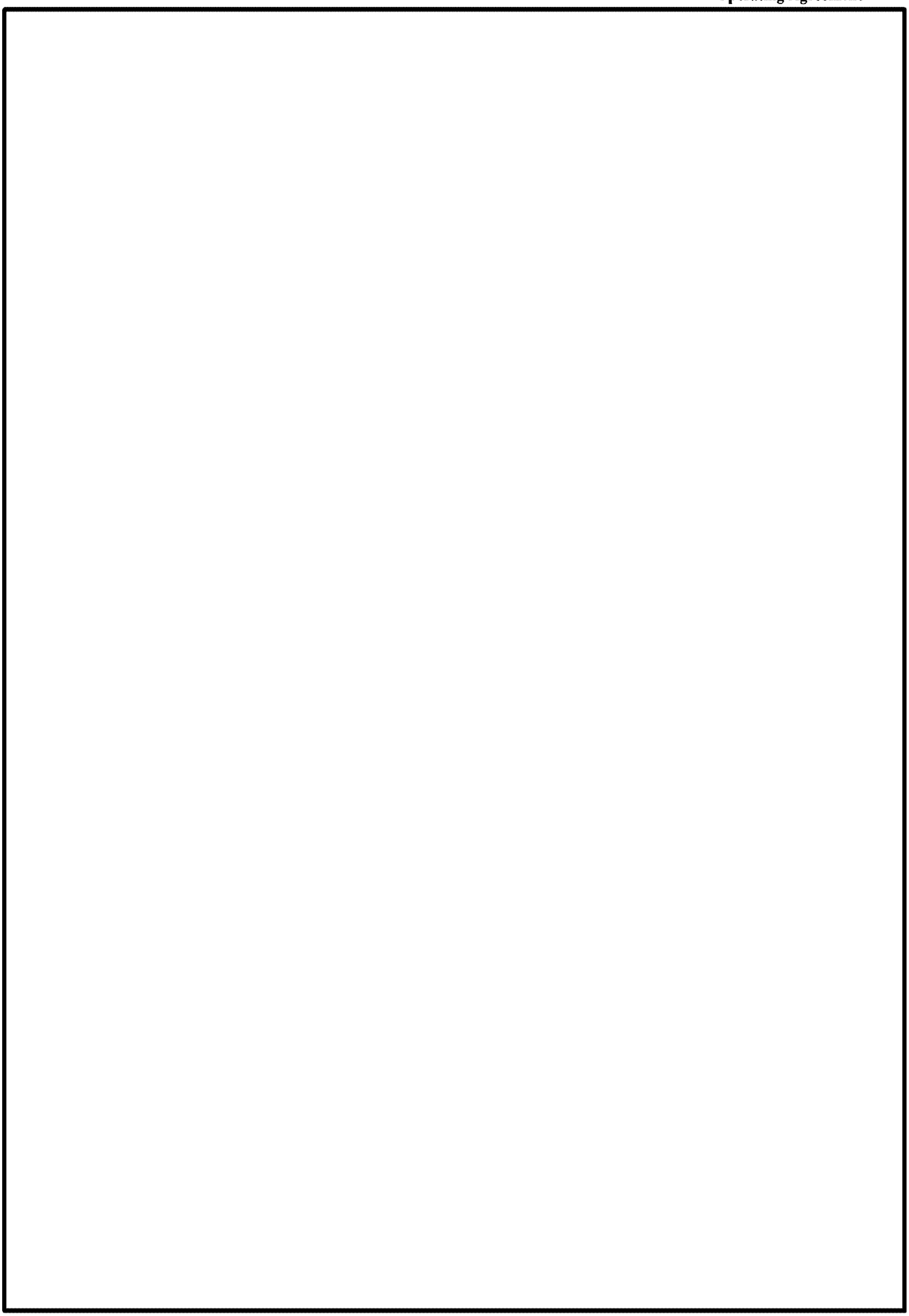


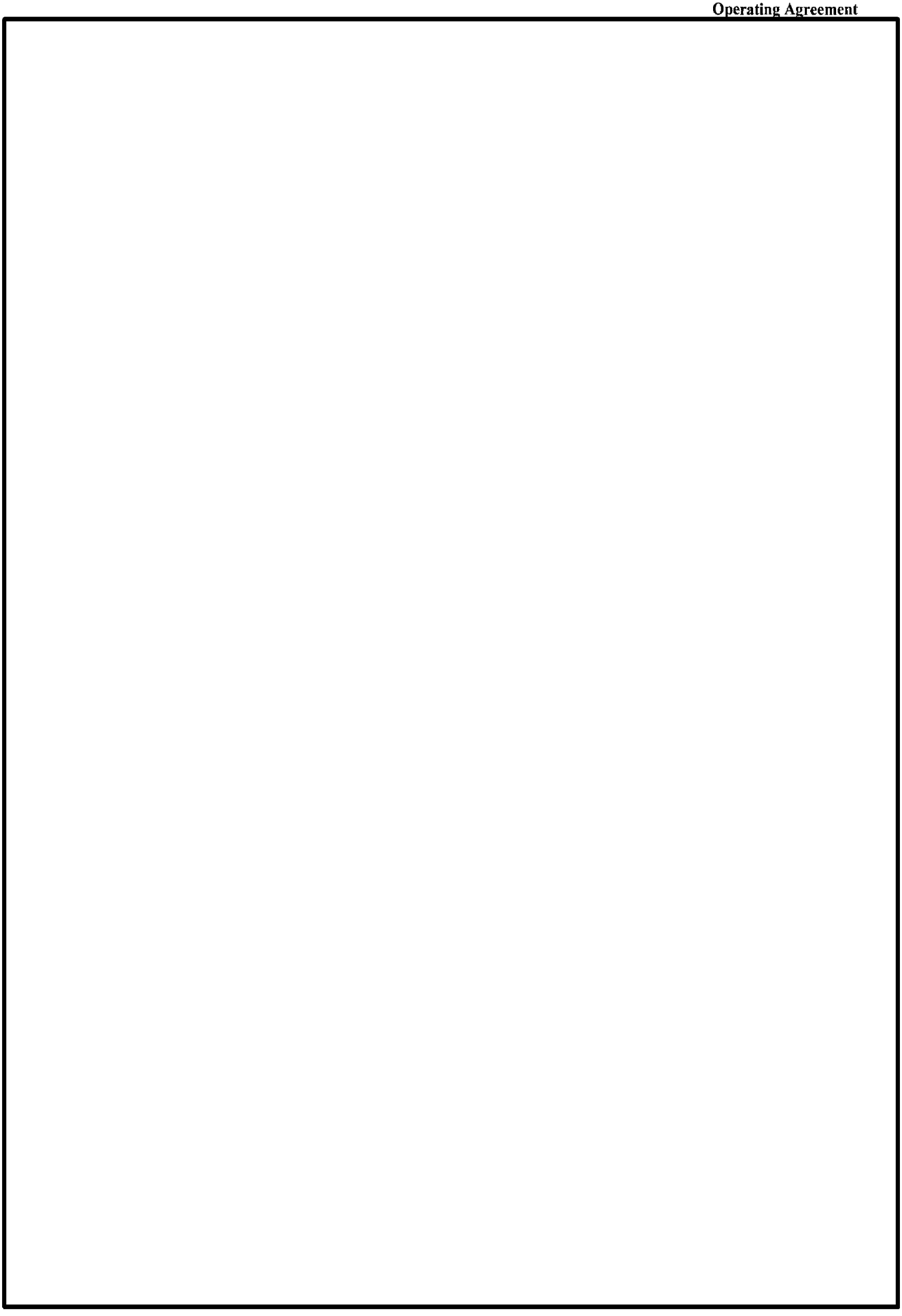


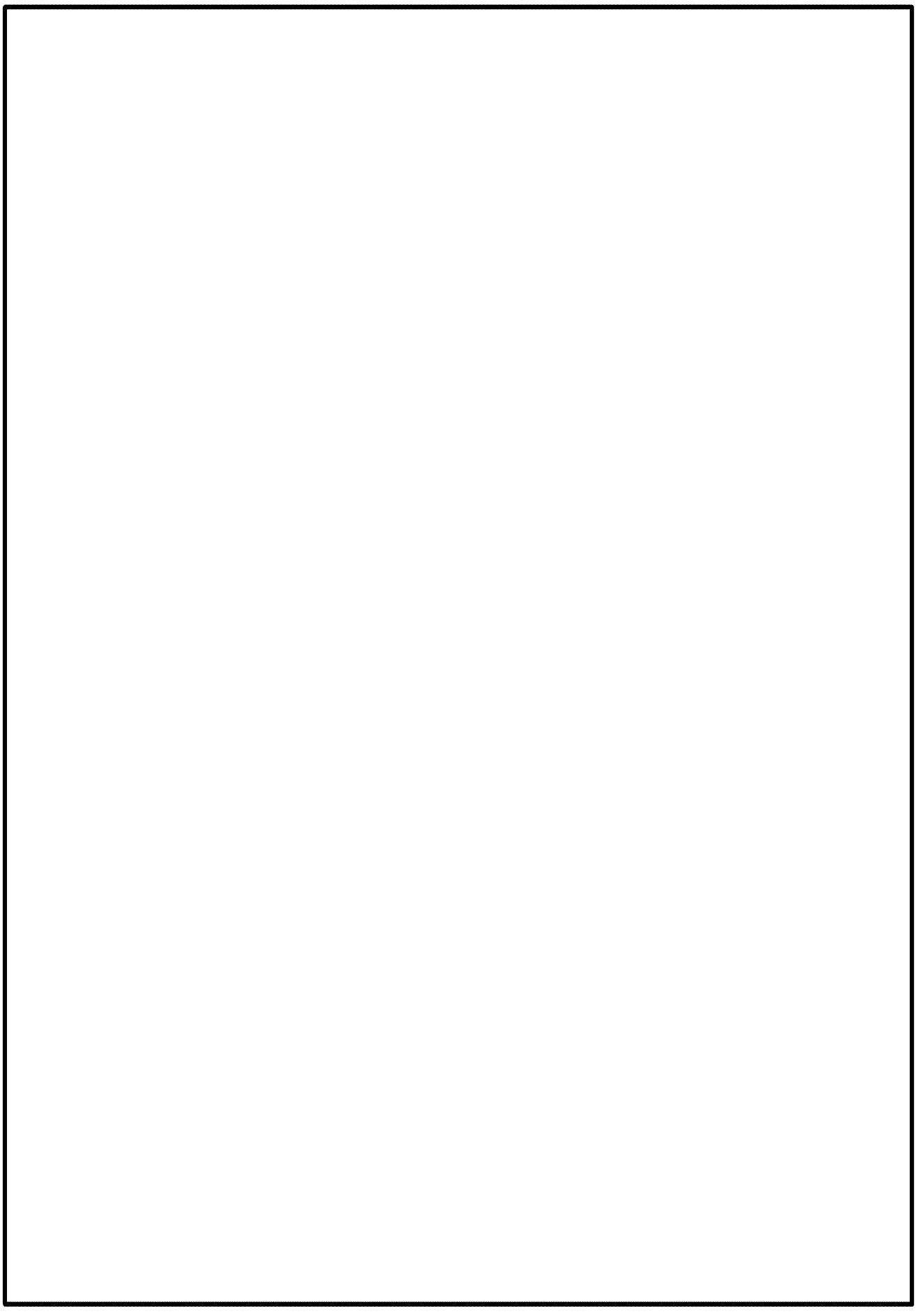


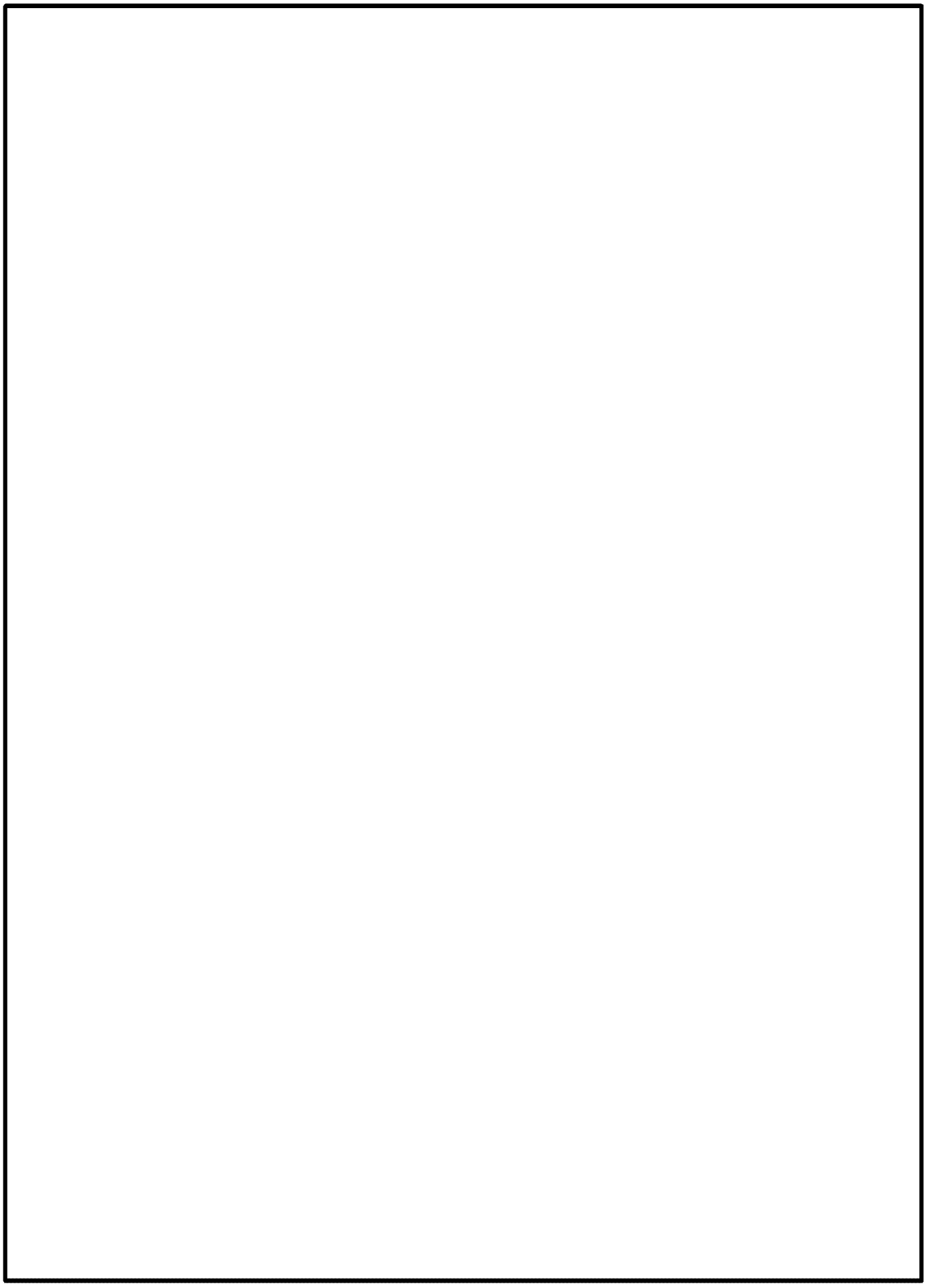


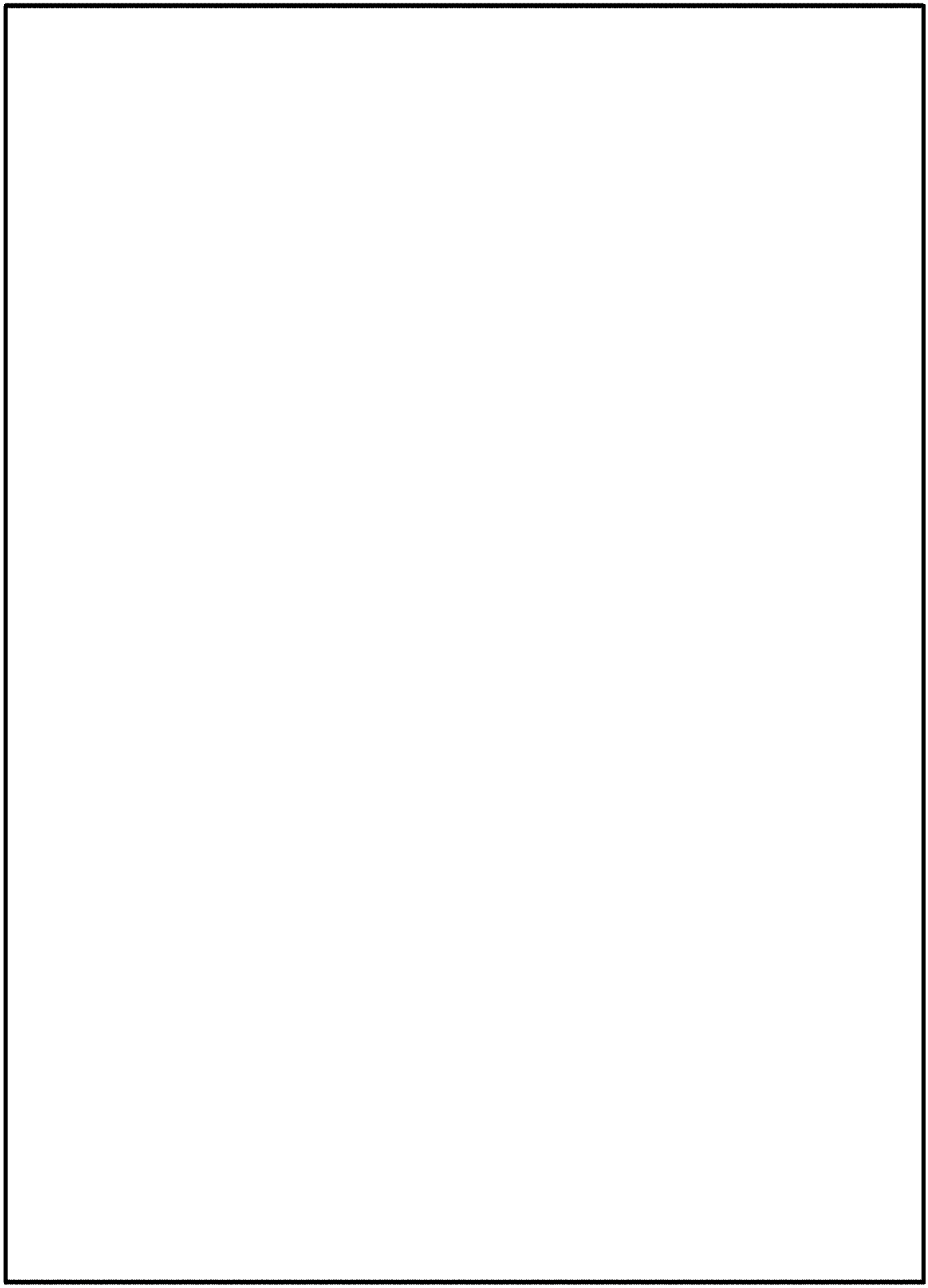


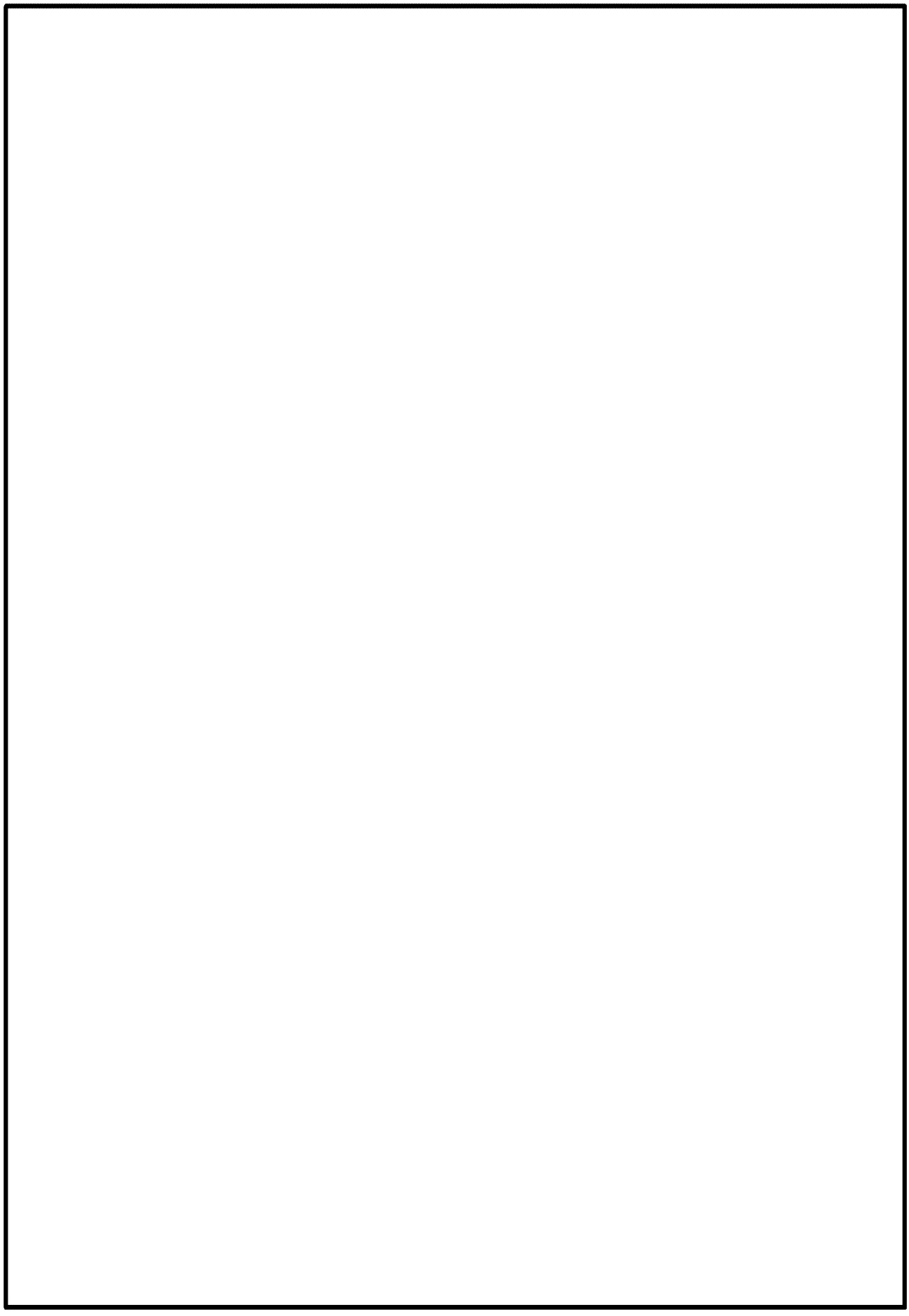


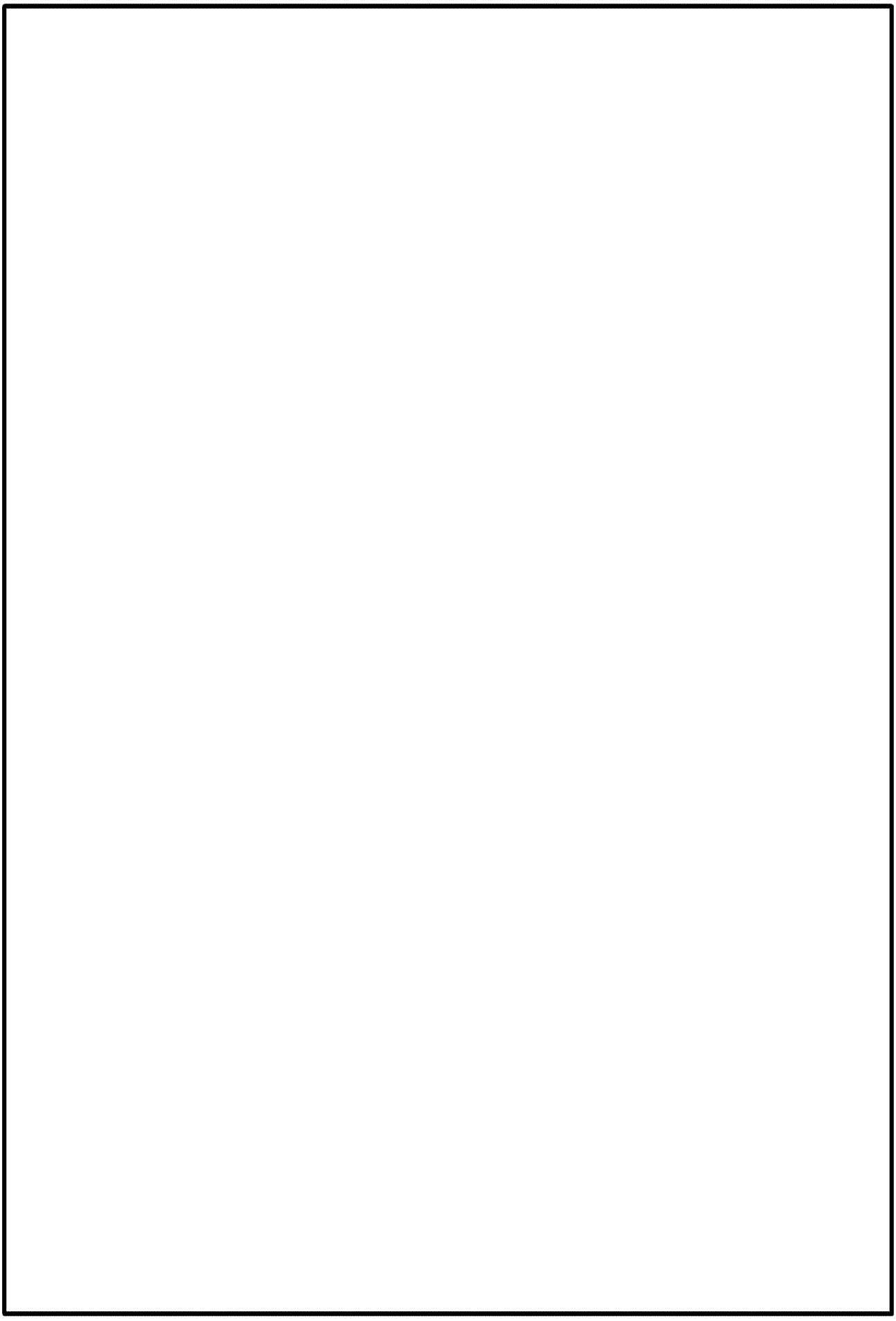












[Signature pages follow]

IN WITNESS WHEREOF, the undersigned have entered into this Agreement as of the commencement of the term of the LLC pursuant to Section 1.6 hereof.

THE MANAGER:

FARRINGTON REALTY, LLC,
a New York limited liability Company

By: _____
Name: George Xu
Title: Managing Member

THE MEMBERS:

Each person who shall sign a Member Signature Page in the form attached hereto as Exhibit A and whose signature page hereto shall be accepted by the LLC.

EXHIBIT A

MEMBER SIGNATURE PAGE

SIGNATURE PAGE TO
THE OPERATING AGREEMENT OF
Farrington EB-5 Capital, LLC
DATED AS OF _____, 2014

IN WITNESS WHEREOF, the undersigned has executed and delivered this Agreement as of _____ __, 2013.

_____
Name of the Member (Please type or print)

By: _____
Name:

CAPITAL CONTRIBUTION AMOUNT: $500,000

Accepted, as of the date first written above:

Farrington EB-5 Capital, LLC
a New York Limited Liability Company

By: Farrington Realty, LLC
Its: Managing Member

By: _____
Name: George Xu
Title: Managing Member

EXHIBIT B

OPEARTING AGREEMENT
OF Farrington EB-5 Capital, LLC

MEMBERS; CAPITAL CONTRIBUTIONS; PERCENTAGE INTERESTS

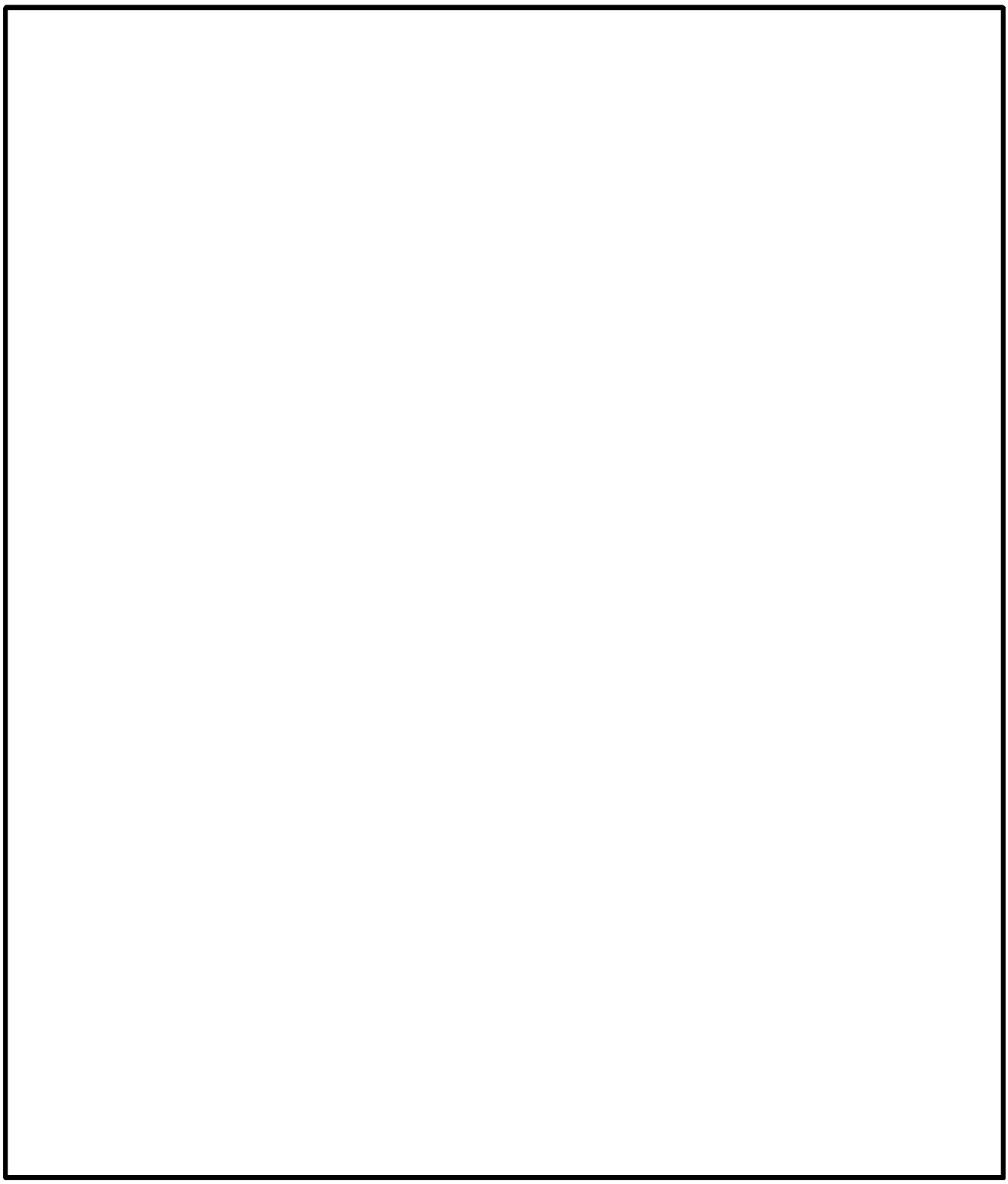
Name and Addresses	Capital Contributions	Percentage Interests
EB-5 Interest Holders		
Name	$500,000	_____%
Name	$500,000	_____%
Name	$500,000	_____%

EXHIBIT C

OPERATING AGREEMENT
OF
Farrington EB-5 Capital, LLC

(b)(4)

DEFINITIONS



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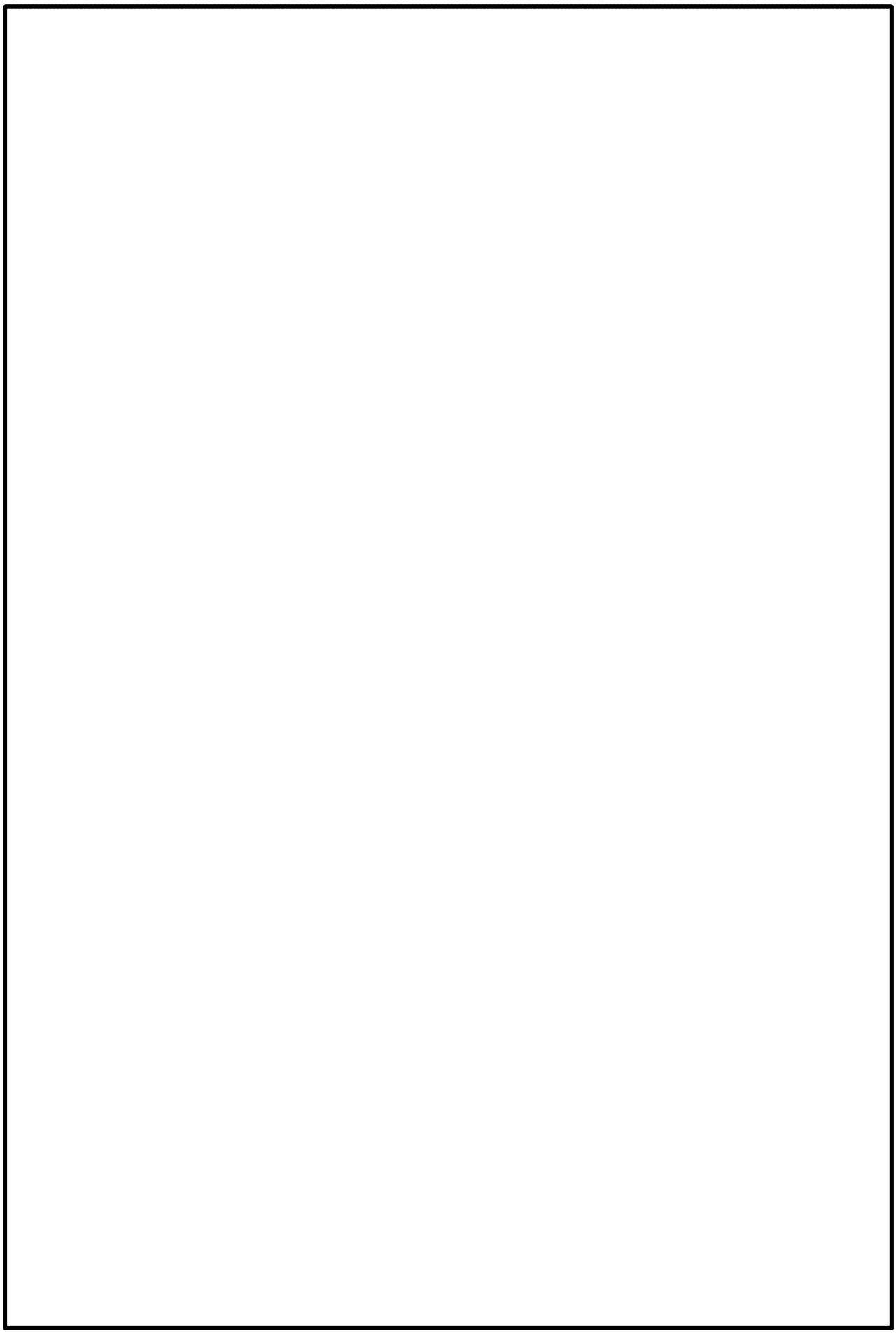

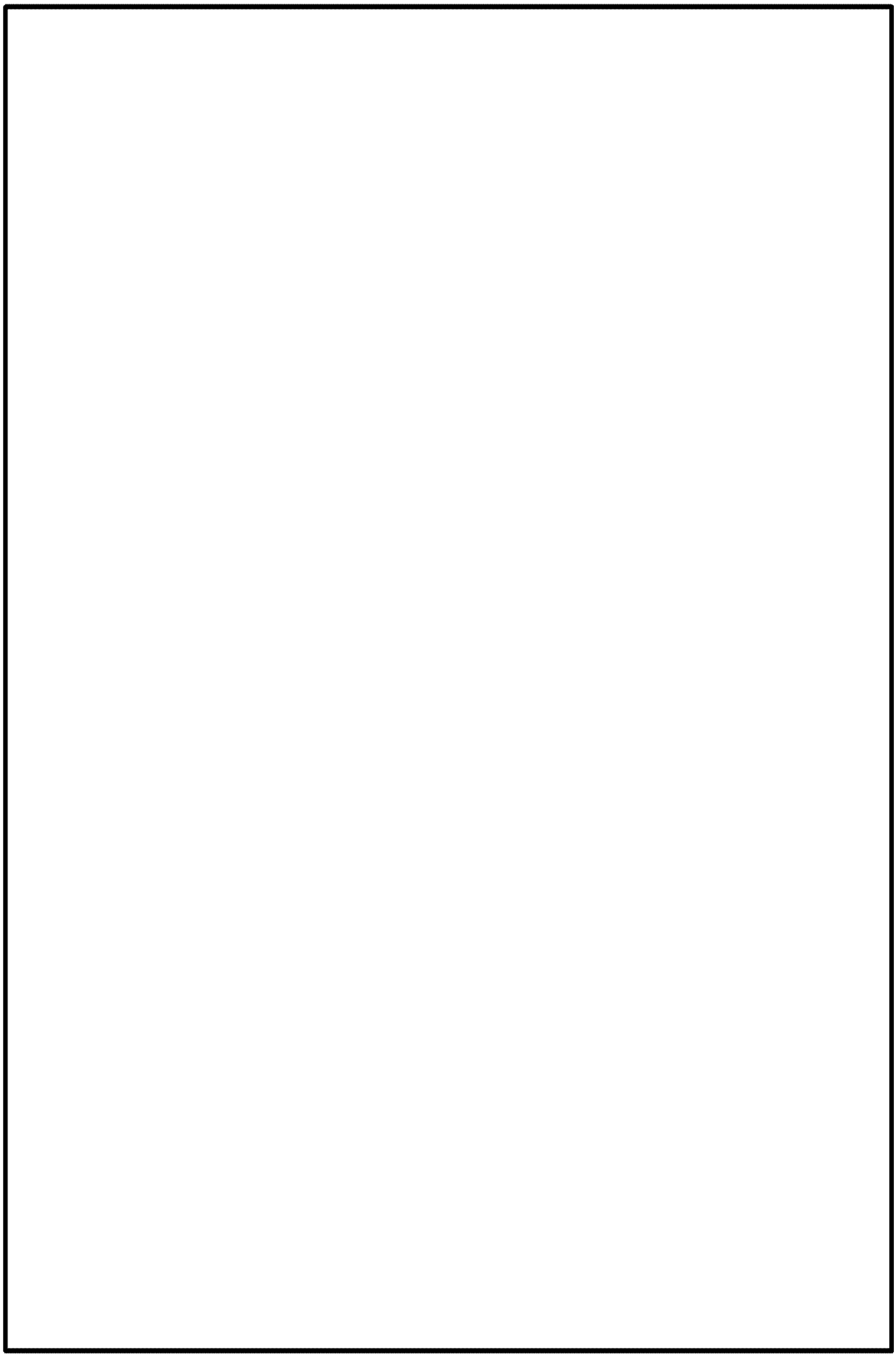

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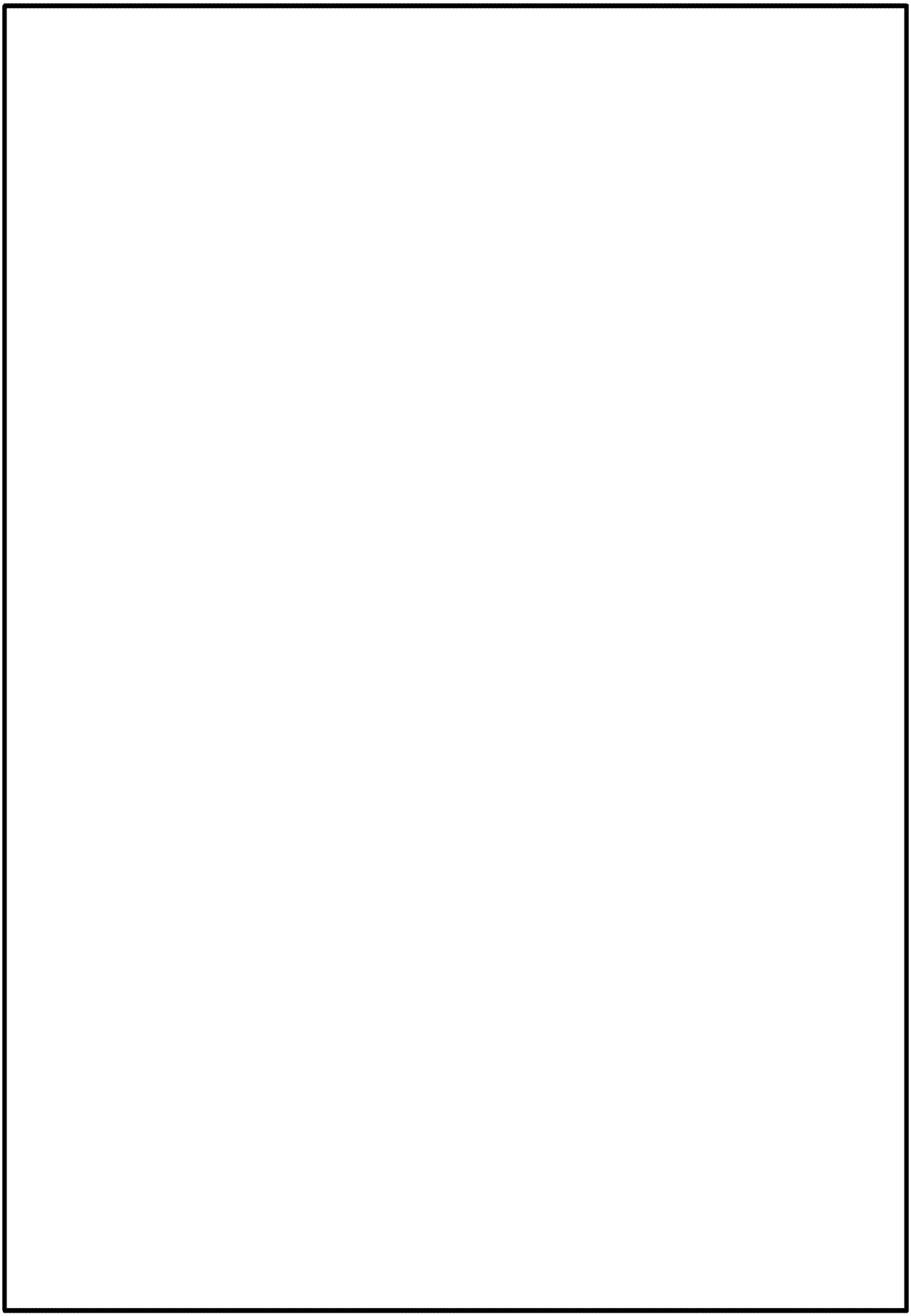

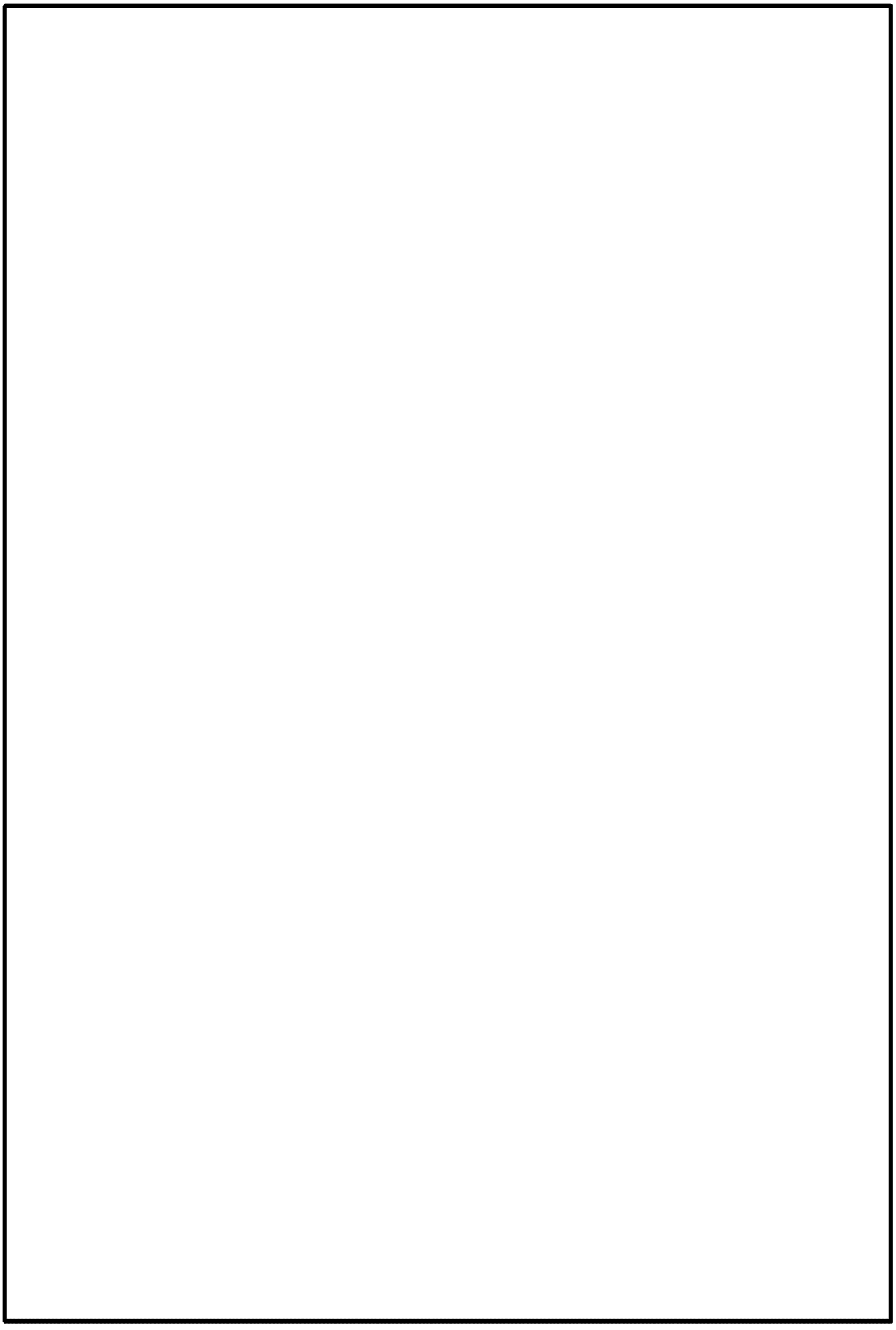

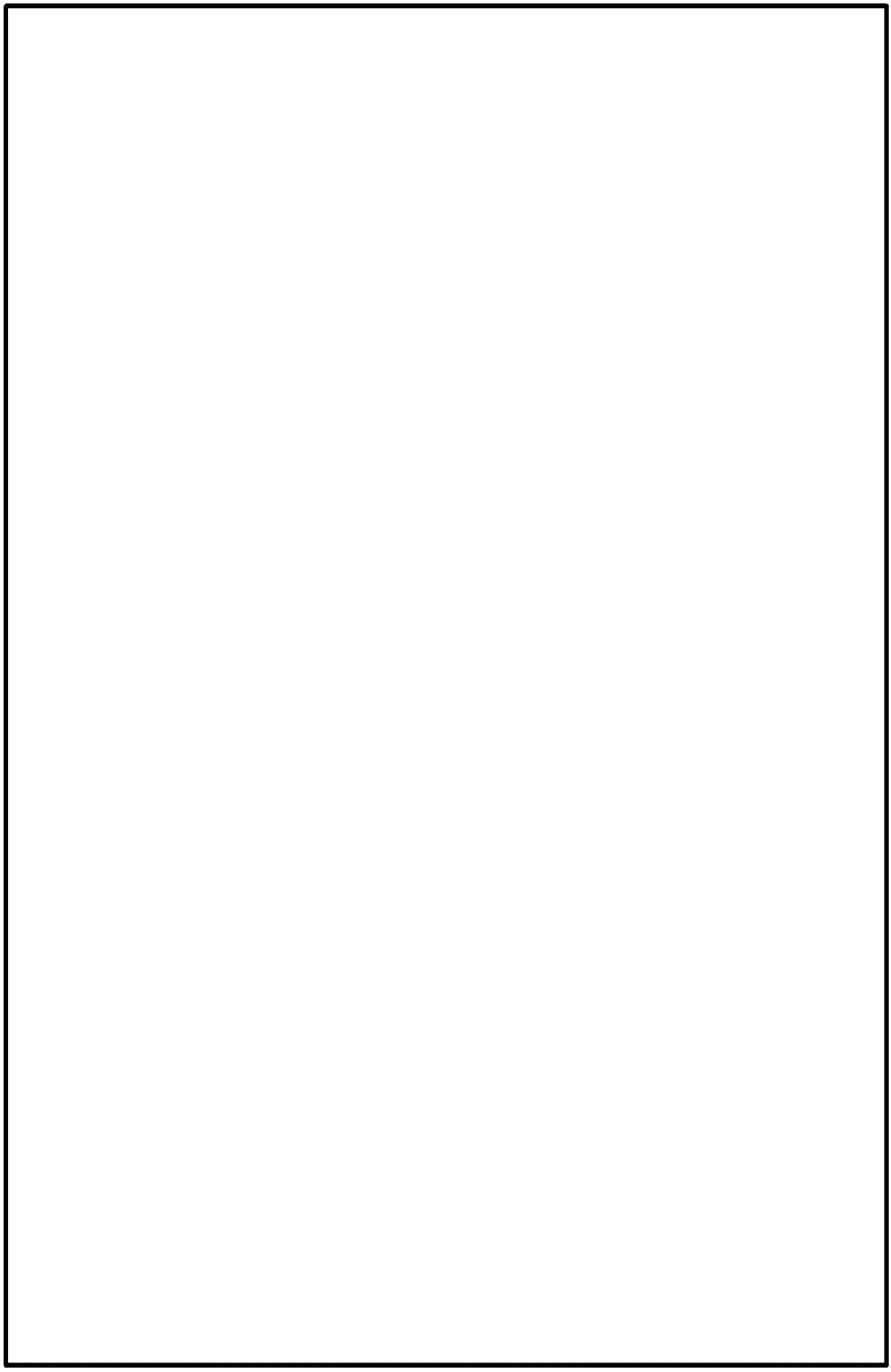

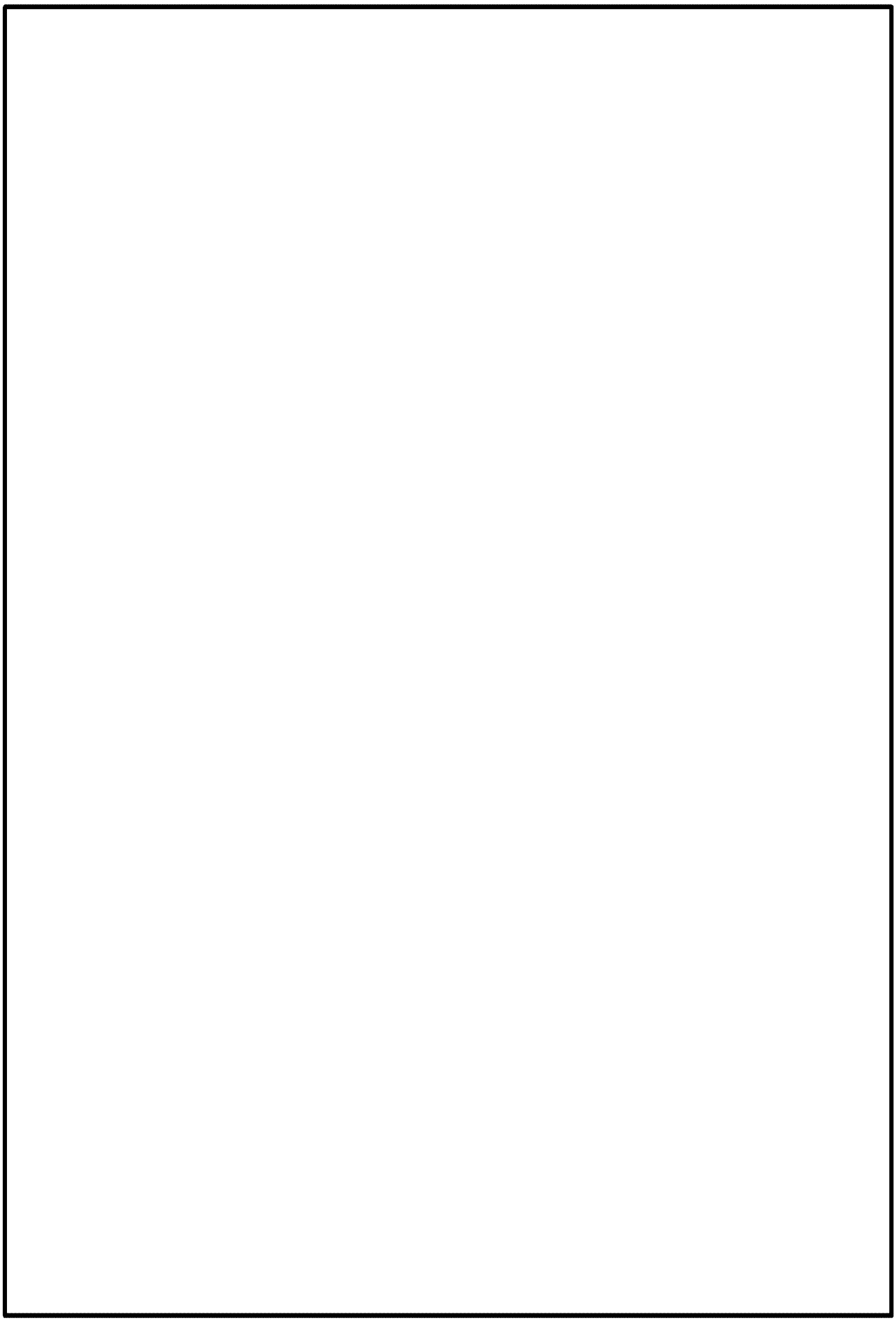

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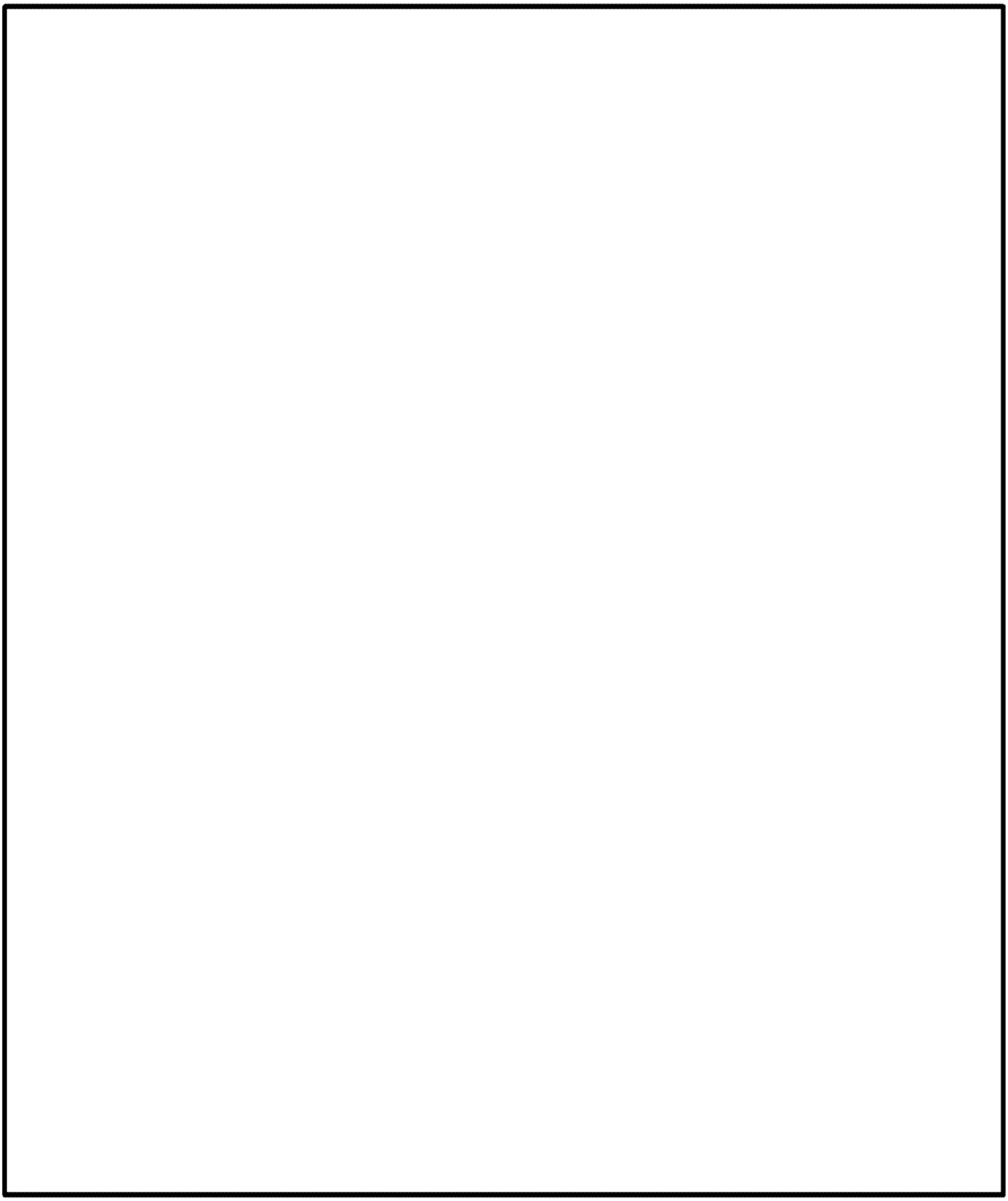
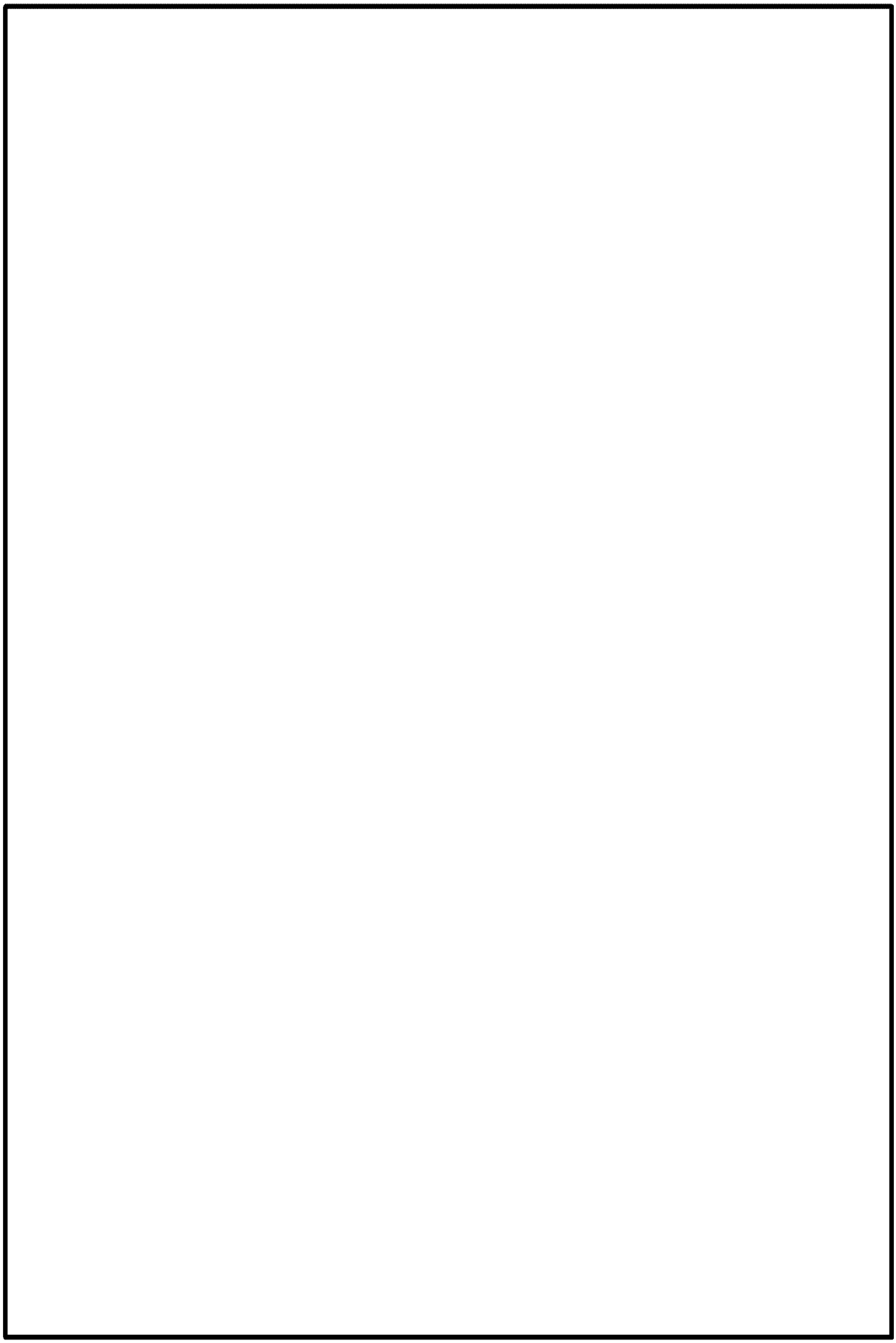
EXHIBIT D

OPERATING AGREEMENT
OF
Farrington EB-5 Capital, LLC (b)(4)

ALLOCATIONS





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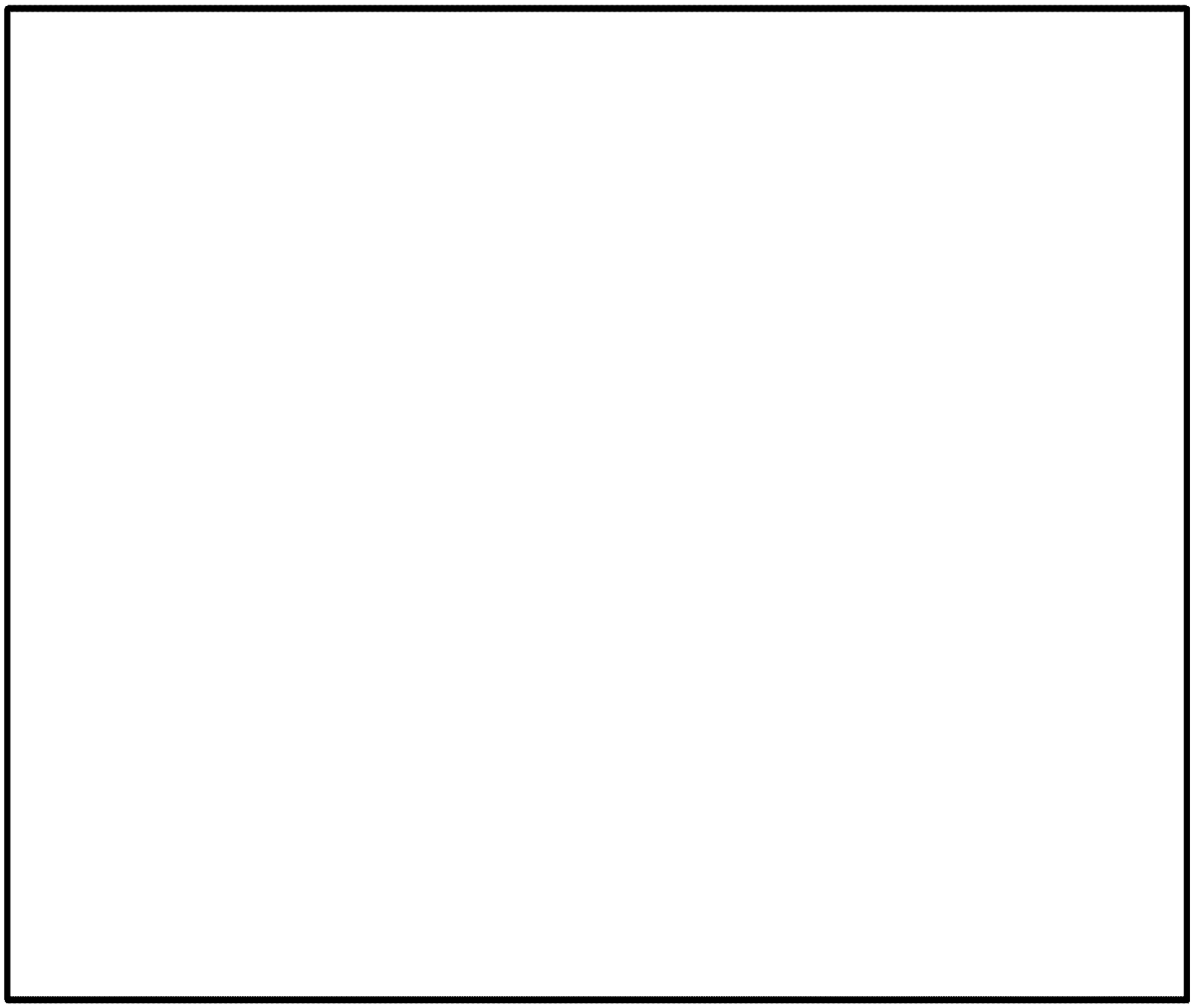

Farrington EB-5 Capital, LLC
A New York Limited Liability Company

Limited Liability Company Interests

Subscription Agreement

If you decide not to participate in this offering, please return the Confidential Private Offering Memorandum (together with all amendments, appendices, and supplements thereto), this Subscription Agreement, and any copies of the aforementioned documentation (and any portions thereof) to:

Farrington EB-5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
718.939.1060

Copy No. _____

Farrington EB-5 Capital, LLC
Subscription Instructions

1. Please complete, date, and sign the Subscription Agreement. By signing, you agree to abide by the Limited Liability Company Agreement of Farrington EB-5 Capital, LLC, a New York Limited Liability Company (the "LLC"), and to the terms and conditions of the Subscription Agreement. Please keep a signed copy of all completed and signed documents for your records.

2. Please send the original of your completed, dated and signed Subscription Agreement to:

(b)(4)

Farrington EB-5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354

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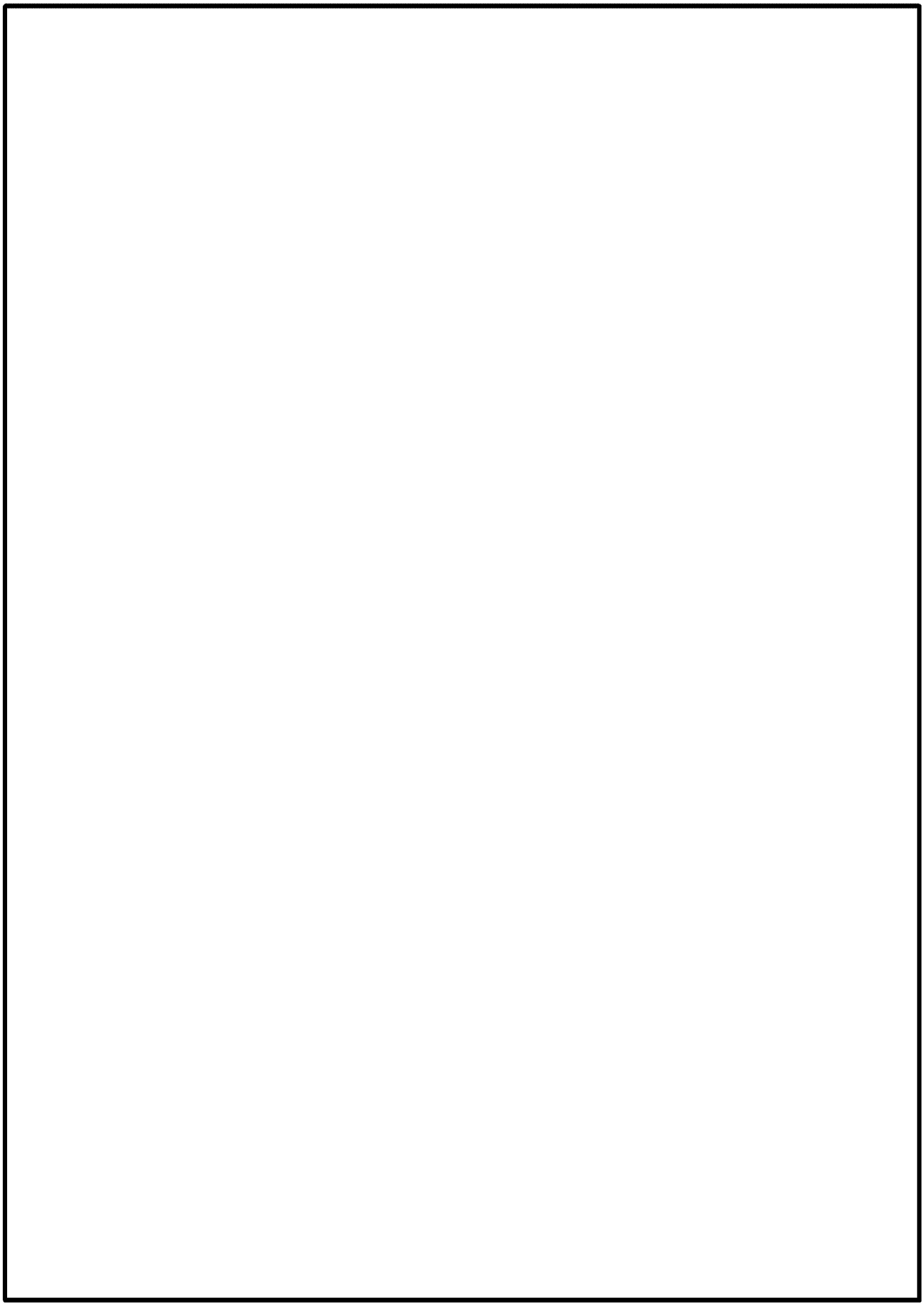

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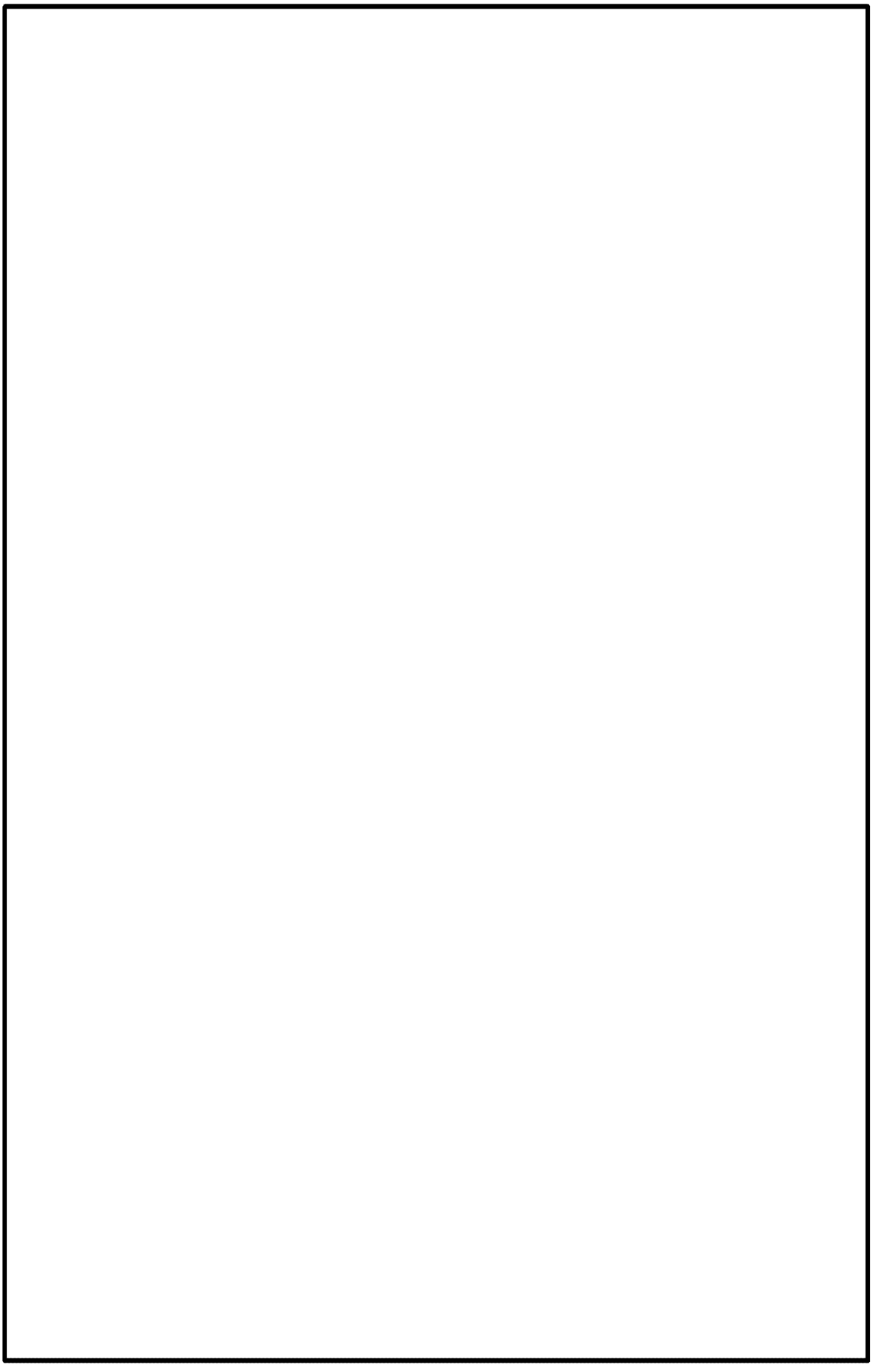

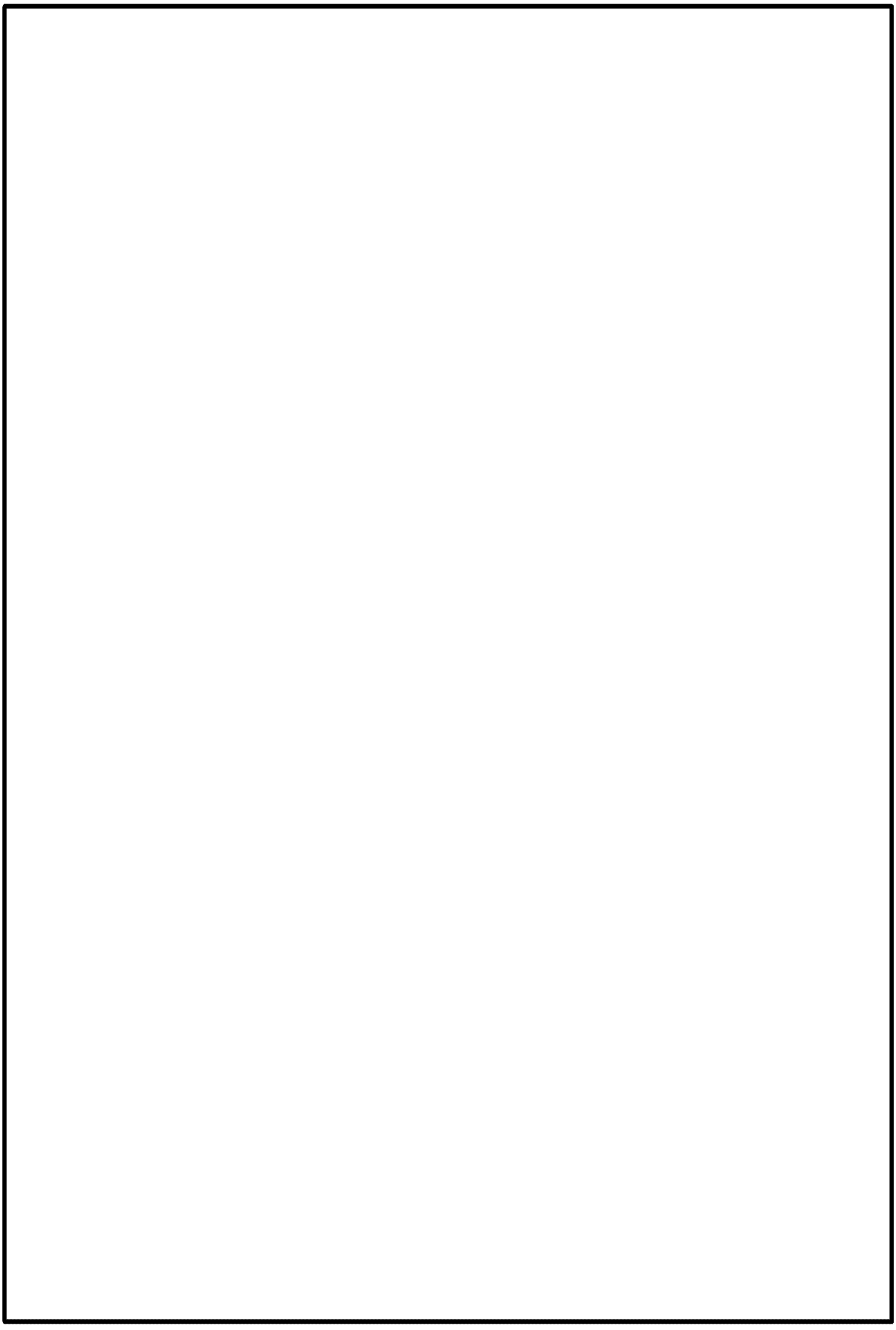

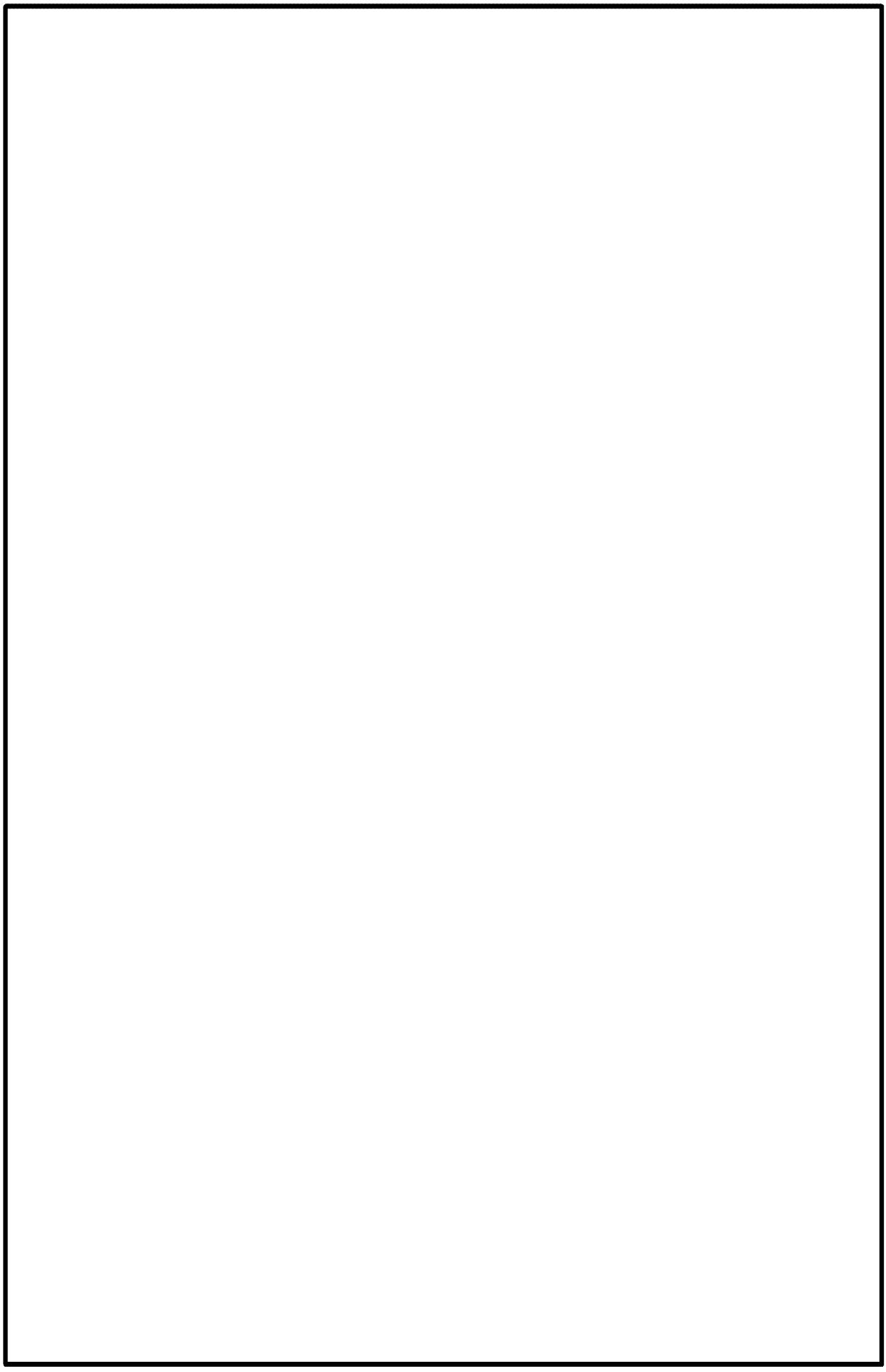

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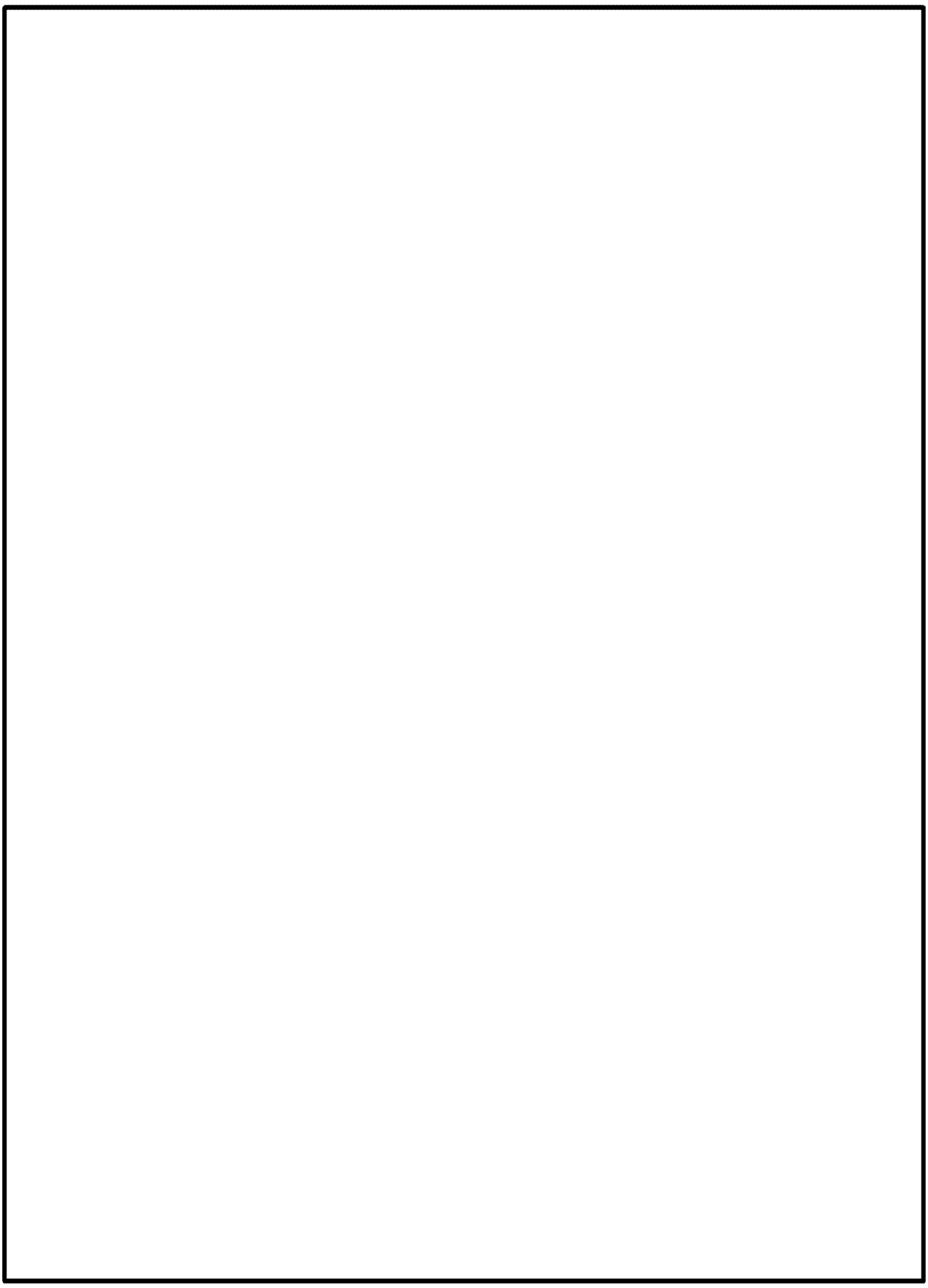

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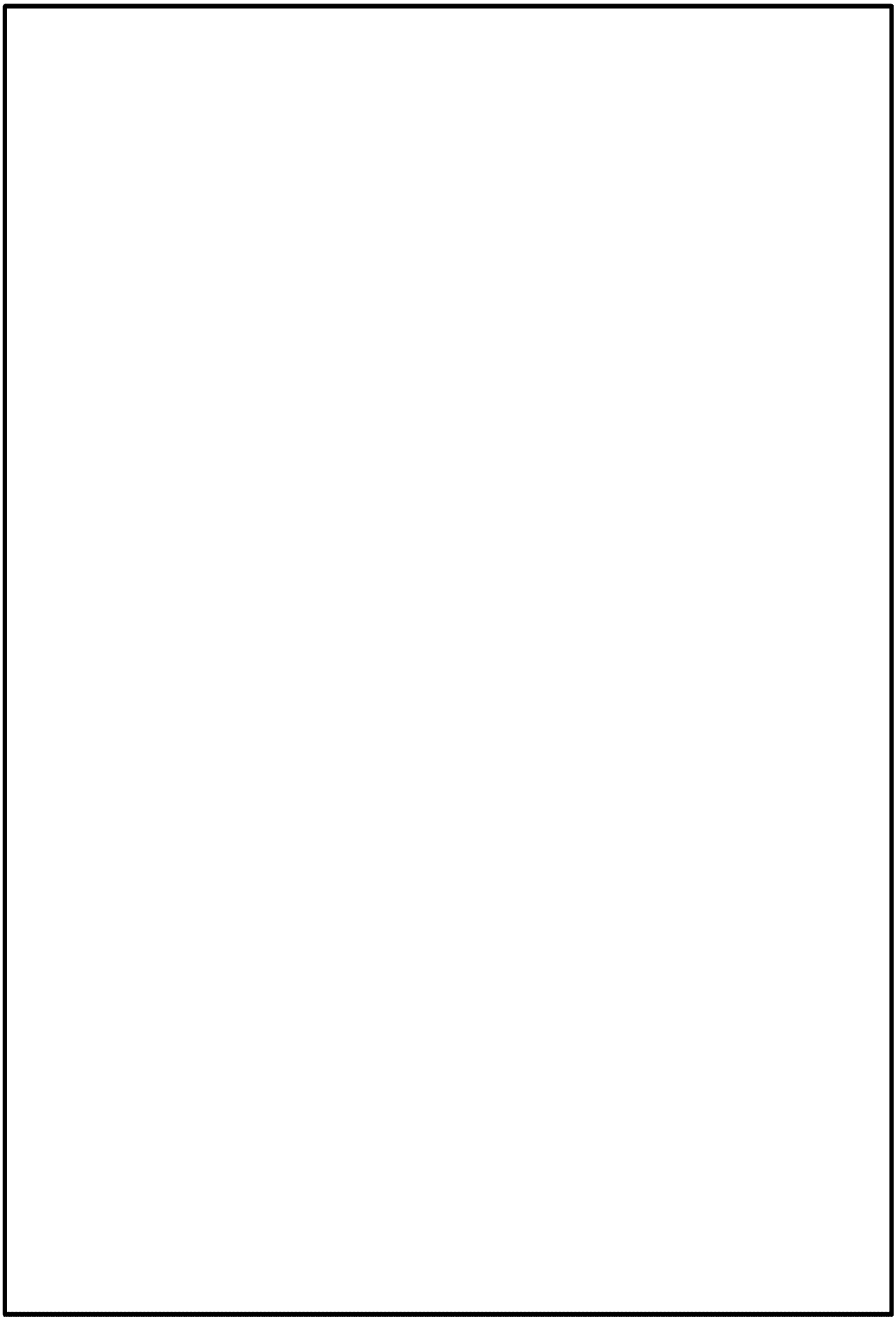

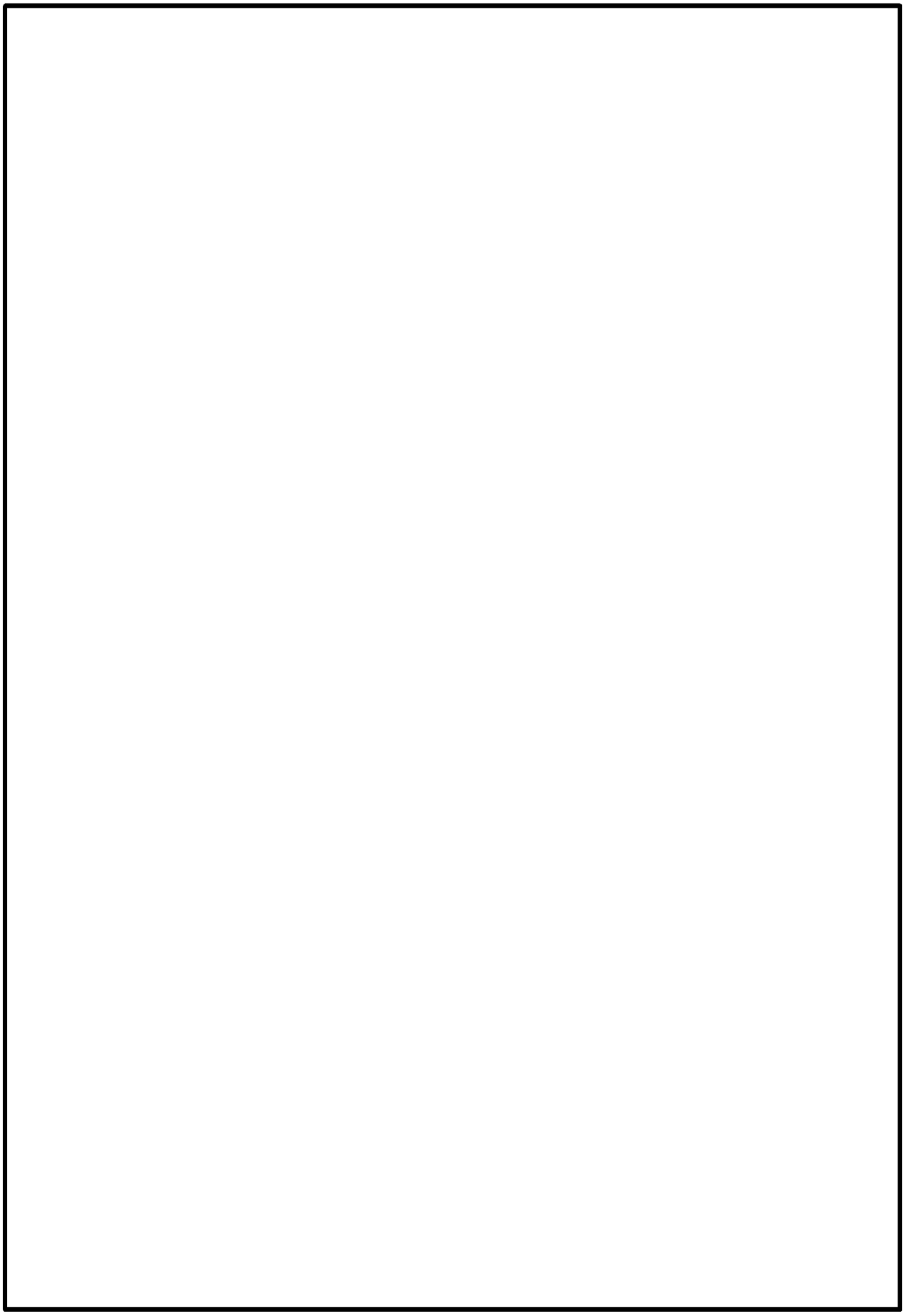

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IN WITNESS WHEREOF, the undersigned has executed this Subscription Agreement as of _____ __, 2014.

SIGNATURE FOR INVESTOR

_____
(Signature)

_____
(Print Name)

ACCEPTANCE

Farrington Realty, LLC, as Managing Member of the Farrington EB-5 Capital, LLC, hereby accepts the above subscription to acquire Interests.

Dated: _____ __, 2014

Farrington EB-5 Capital, LLC

By:_____
Name: George Xu
Title: Managing Member

Farrington EB-5 Capital, LLC
A New York Limited Liability Company

And

Century New York City Regional Center, LLC

Escrow Bank

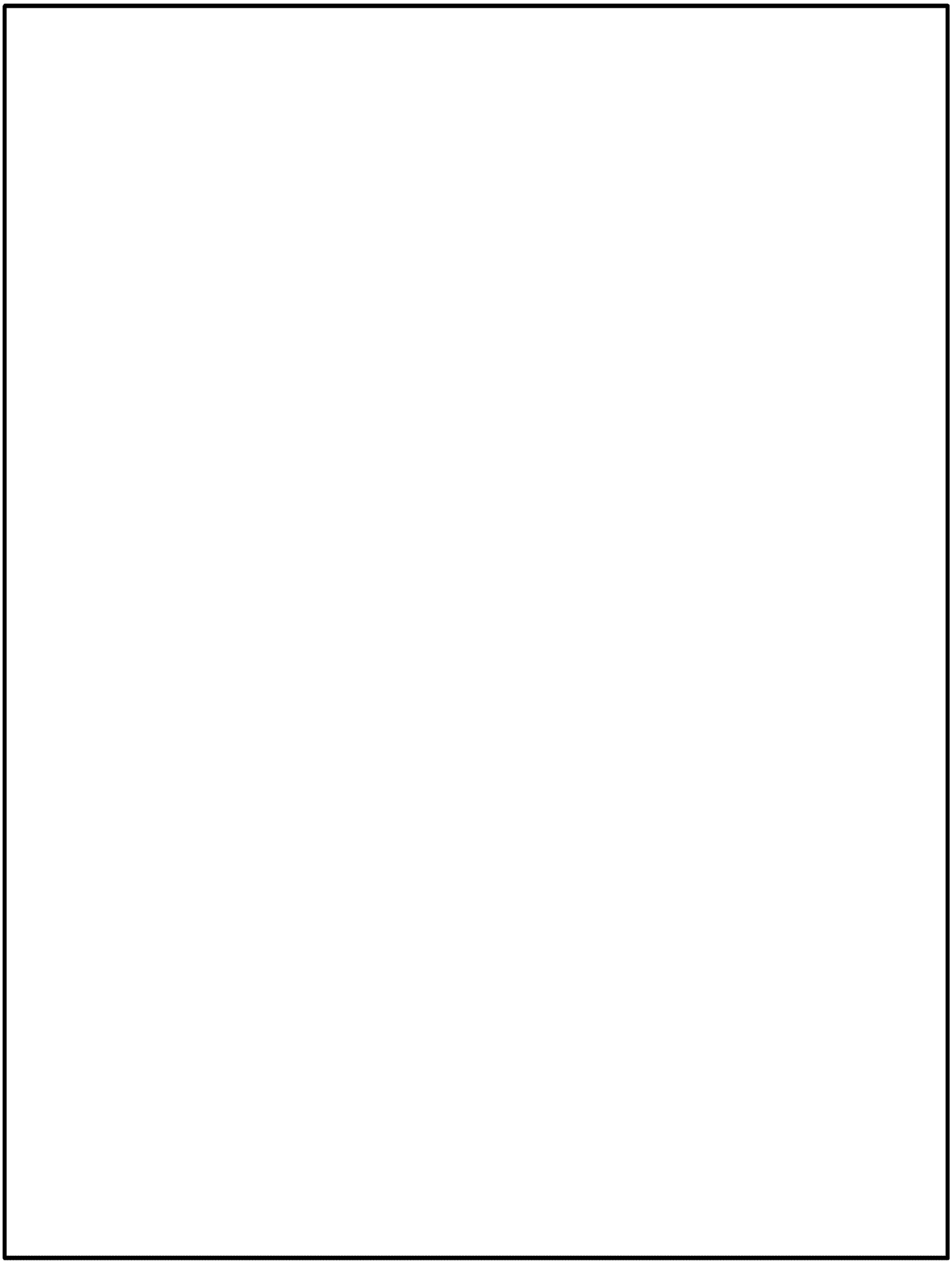
Escrow Agreement

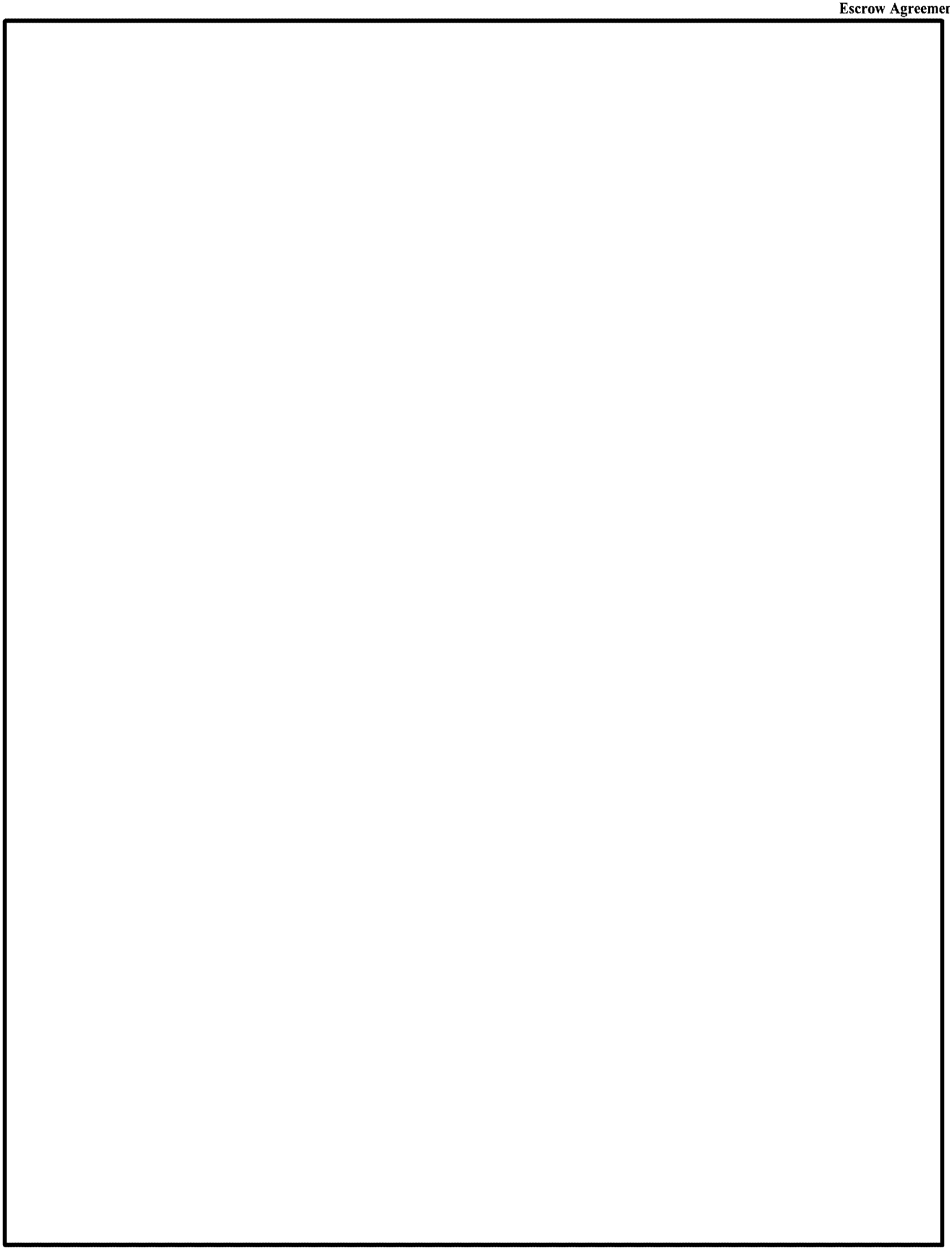
Farrington EB-5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
Att: George Xu
centurygroup88@yahoo.com
718.939.1060

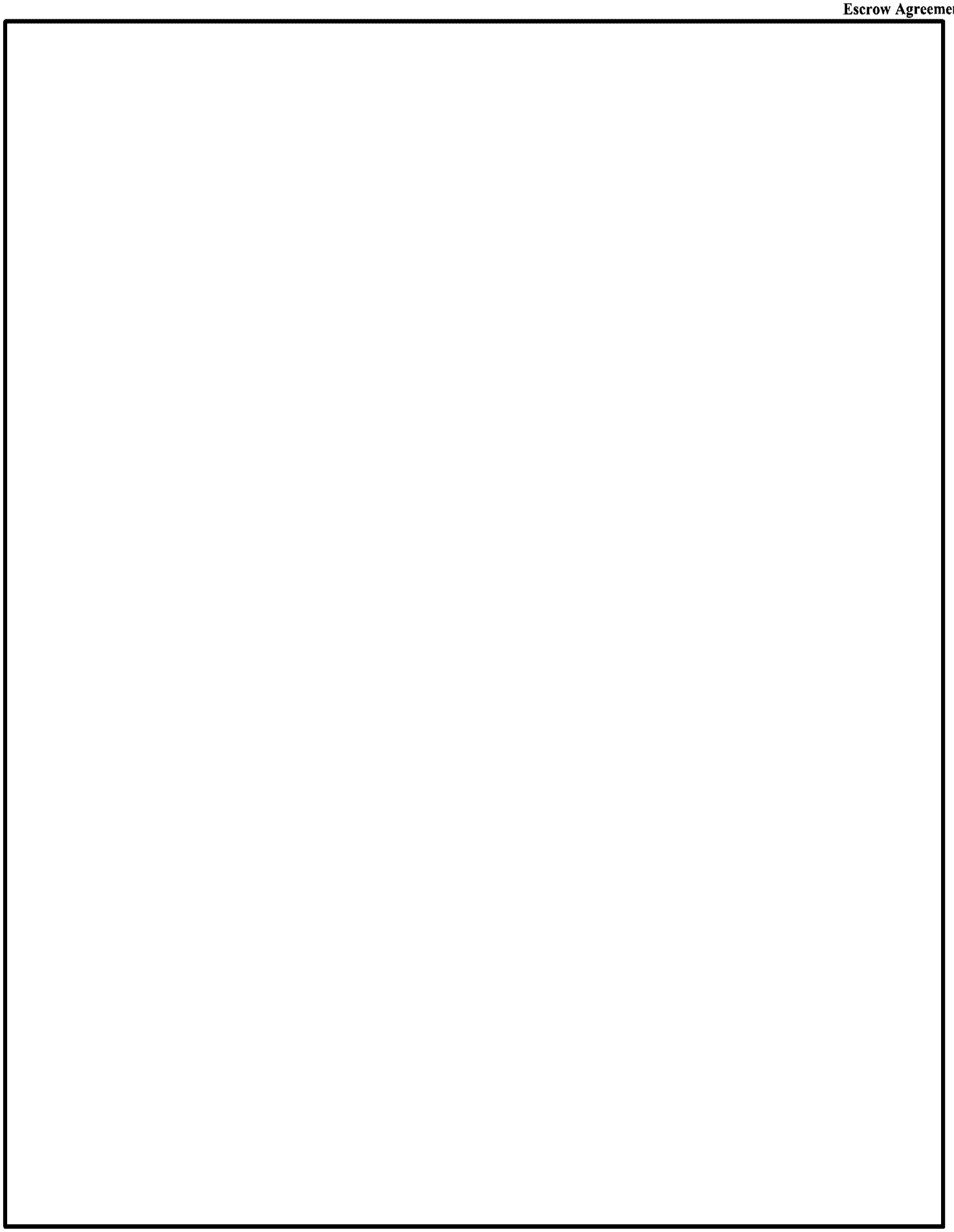
Copy No. _____

(b)(4)

ESCROW AGREEMENT







[redacted]

[Balance of page intentionally left blank; signature page follows]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

Farrington EB-5 Capital, LLC

By: Century New York City Regional Center, LLC,
Managing Member

By:_____
Duly Authorized Representative
Name: Mr. George Xu
Title: Managing Member

"MANAGER"

Century New York City Regional Center, LLC,

By:_____
Duly Authorized Representative
Name: Mr. George Xu
Title: Managing Member

"ESCROW AGENT"

Escrow Bank

By: _____
Name:
Title: Principal

Wire Instruction Attached

Preferred Bank
To be determined

SWIFT ID:
ABA:
Account Name:
Account Number:
Reference:

100% Recycled
30% PCW

Exhibit 7

Targeted Employment Area (TEA) Confirmation Letters:

Issued by the Empire State Development

Project Location:

- Four Points Flushing Hotel is located at 134-37 35th Avenue. Flushing, New York 11354
- The area is composed of census tract 889.02 in Queens County and is certified as a Targeted Employment Area (TEA)

Empire State Development

March 26, 2014

Mr. Yi Song, Esq.
Mona Shah & Associates
299 Broadway, Suite 1005
New York, New York 10007

Dear Mr. Song:

Attached is a letter from Mr. Joseph Nardone, of the New York State Department of Labor, identifying an area including census tract 889.02 in Queens County. Based on 2013 annual average labor force data, the Department of Labor has determined that this area meets the minimum threshold of unemployment to qualify as a Targeted Employment Area.

Based on the Labor Department's determination, I am able to certify that the area described in the attached letter qualifies as a Targeted Employment Area.

Census tract 889.02, in Queens County, contains 134-37 35th Avenue, Flushing, New York 11354.

Please feel free to contact me if you have any questions.

Sincerely,

Ms. Kay Alison Wilkie
Director for International Policy

cc: Joseph Nardone, DOL

New York State Department of Labor
Andrew M. Cuomo, *Governor*
Peter M. Rivera, *Commissioner*

March 25, 2014

Kay Alison Wilkie
Director for International Policy
Division of Business Advocacy and Research
Empire State Development | NYS Department of Economic Development
625 Broadway
Albany, NY 12245

Dear Ms. Wilkie:

The 2013 average unemployment rate for census tract 889.02 in Queens County that contains the address, 134-37 35th Avenue, Flushing, NY 11354, as you requested is 10.5 percent. The current minimum threshold to qualify as a Targeted Employment Area is 11.1 percent.

For your consideration, we developed an alternative area composed of census tracts 863, 865, 867, and 889.02 in Queens County with an annual average unemployment rate of 11.7 percent.

These data were estimated using census share methodology as stipulated by the U.S. Bureau of Labor Statistics in LAUS Technical Memorandum No. S-05-21. Census2000 tract boundaries, Census2000 household-only labor force data, and 2013 annual average Local Area Unemployment Statistics (LAUS) data were used in this estimate.

Please feel free to contact me if you have any questions.

Sincerely,

Joseph Nardone

W. Averell Harriman State Office Campus
Building 12, Room 490, Albany, NY 12240
518-457-1350
www.labor.ny.gov

U.S. Department of Homelanc curity
U.S. Citizenship and Immigration Services

Notice of Action

A#		Application/Petition I-924
Receipt # RCW1420251818		Applicant/Petitioner PETITIONER
Notice Date March 19, 2015	Page 1 of 4	Beneficiary

PETITIONER
George Xu
c/o Mona Shah and Associates
299 Broadway, Suite 1005
New York, NY 10007

Request for Evidence

Based upon a review of your petition and supporting documentation, U.S. Citizenship and Immigration Services (USCIS) has found that you have not established that you are eligible for the benefit you are seeking. In order to determine whether you are eligible for the benefit, USCIS requests that you submit additional evidence. The deficiencies in your petition and the evidence that USCIS is requesting are explained in the attached document.

(SEE ATTACHED)

If you reside within the United States, you must submit the requested evidence no later than 87 days from the date of this notice. If you reside outside of the United States, you must submit the requested evidence no later than 98 days from the date of this notice. USCIS is unable to grant additional time for responding to this request for evidence. *See* 8 C.F.R. § 103.2(b)(8)(iv).

You must submit all of the requested materials at one time. Submission of only some of the requested evidence will be considered a request for a decision on the record. *See* 8 CFR § 103.2(b)(11). If you do not respond by the deadline, USCIS may deny your petition as abandoned, may deny your petition based on the record, or may deny your petition for both reasons. *See* 8 CFR § 103.2(b)(13)(i).

If you reside inside the United States, your deadline for submitting a response is: Monday, June 15, 2015.

IMPORTANT: RETURN THIS ORIGINAL NOTICE ON TOP OF THE REQUESTED INFORMATION AND/OR EVIDENCE LISTED ON THE ATTACHED SHEET(S).

Keep a photocopy of this notice for your records. If you otherwise write to us about your case, please provide a copy of this notice.

You will be notified separately about any other applications or petitions you have filed.

Send your response to this address:

U.S. Citizenship and Immigration Services
Immigrant Investor Program Office
131 M Street, NE
Mailstop 2235
Washington, DC 20529

A copy of this notice was sent to:

Mehreen Shah
299 Broadway, Suite 1005
New York, NY 20007

Form I-924, Application for Regional Center Under the Immigrant Investor Pilot Program; Request for Evidence

A request for initial designation as a Regional Center under the Immigrant Investor Program ("Investor Program") or an amendment to an existing Regional Center designation, may involve:

1. A request for review of an exemplar Form I-526, Immigrant Petition by Alien Entrepreneur, prior to the filing of Form I-526 Petitions by individual alien entrepreneurs with USCIS and/or;
2. In the case of a Regional Center amendment request, a review of a new specific capital investment project where the Regional Center designation involved a review of an exemplar capital investment project.

It appears that you are requesting initial designation as a Regional Center under the Investor Program.

I. Procedural History and Regional Center Background

The proposed Regional Center entity, Century New York City Regional Center, ("CNYCRC"), was established on March 25, 2014 in New York, and is structured as an LLC. CNYCRC is requesting jurisdiction over the following geographic area:

State of	Counties
New York	Queens, New York, Bronx County, Richmond County, Westchester County, and Nassau County

CNYCRC plans to offer EB-5 capital investment opportunities in affiliated new commercial enterprises, organized as corporations, LLCs, LPs, etc., focusing on projects in the following industry categories:

Industry Category	NAICS Code
Commercial and Institutional Building Construction	236223
Furniture and Home Furnishing Merchant Wholesalers	4232
Restaurants and Other Eating Places	72251
Construction (Building & Site)	2362/23622
Food Services and drinking places	72251
Real Estate	53112/5313
Other government enterprises	921

Architectural, engineering and related services	5413
Insurance	5241
Accounting tax preparation, bookkeeping services	5412
Legal Services	5411
Monetary authorities and depository credit intermediation	5222

The capital investment projects will involve to job creating enterprises located within the proposed bounds of the Regional Center.

Based upon a review of the initial record of evidence, United States Citizenship and Immigration Services (USCIS) cannot conclude that the applicant has established eligibility for regional center designation. To assist the applicant in focusing on the deficiencies in the existing record, USCIS serves this Request for Evidence. The deficiencies of the current record are outlined below.

II. Evidentiary Requirements for Regional Center Proposals

8 CFR 204.6 (m)(3) describes the evidence that must be submitted in support of a Regional Center proposal. After review of your proposal, the following information, evidence and/or clarification is required. Note that in response to this notice, that it is helpful to provide a cover letter that acts as an executive summary, followed by a table of contents with sections that are tabbed at the bottom of the page.

1. Regional Center's Operational Plan (8 CFR 204.6(m)(3)(iii) and 8 CFR 204.6(m)(6)):

A Regional Center proposal should have at least two business plans. One for the Regional Center's Operational Plan and an actual or exemplar business plan for a project in each of the defined target industries in the proposal.

The business plan for the Regional Center contains language that is ambiguous and may not comply with the elgibility requirements of the EB-5 program. Specifically, page 6 states, "EB-5 investors will earn not earn any percentage of the interest income from lent through the Regional Center proportionate to their capital contribution." In addition, page 28 of the Confidential Private Offering memorandum, third paragraph, under the heading "Offering Proceeds," it is stated that the loan "will bear no interest.

Per 8 CFR 204.6(j)(2): *To show that the petitioner has invested or is actively in the process of investing the required amount of capital, the petition must be accompanied by evidence that the petitioner has placed the required amount of capital at risk for the purpose of generating a return on the capital placed at risk.*

Furthermore, The USCIS Administrative Appeals Office ("AAO") held that for the capital to be "at risk" there must be a risk of loss and a chance for gain. See *Matter of Izummi,* 22 I&N Dec. 169 (Assoc. Comm., 1998).

Based on the issues identified above, it appears that your proposed plan may prevent an investor from having their required capital considered "at risk". Please explain how the RC plans to rectify future proposals in order to address the deviation from policy described above.

Translations:

Any document containing a foreign language submitted to USCIS shall be accompanied by a full English translation that the translator has certified as complete and accurate, and by the translator's certification that he or she is competent to translate from the foreign language into English.

Copies:

Unless specifically required that an original document be filed with an application or petition, an ordinary legible photocopy may be submitted. Original documents submitted when not required will remain part of the record, even if the submission was not required.

III. Conclusion

USCIS has determined that the record submitted does not establish eligibility for the benefit sought. Accordingly, USCIS has requested evidence which addresses the issues outlined above. As required by regulation, the applicant must prove, by a preponderance of the evidence (that it is more likely than not), that the applicant is fully qualified for the benefit sought. Please note that USCIS will make a final decision based on the initial evidence submitted upon filing and after consideration of all additional evidence submitted in response to this request.

NOTES:
Any document submitted to the USCIS containing a foreign language, must be accompanied by a full English language translation that has been certified by the translator as complete and accurate, and that the translator is competent to translate from the foreign language into English. Submit clear and legible copies of all requested evidence. If clear and legible copies are not possible, submit the original documents. These originals will be returned, if requested.

Please provide an index of any submitted evidence and include corresponding tabs for each section of evidence.

ECONOMIC ANALYSIS
SELECTED EXHIBITS FROM PETITIONER

C Johnston Ph.D.

N.Y.S. DEPARTMENT OF STATE
DIVISION OF CORPORATIONS AND STATE RECORDS ALBANY, NY 12231-0001

ONLINE FILING RECEIPT

ENTITY NAME: CENTURY NEW YORK CITY REGIONAL CENTER, LLC

DOCUMENT TYPE: ARTICLES OF ORGANIZATION (DOM. LLC) COUNTY: QUEE

FILED:03/25/2014 DURATION:********** CASH#:140325010322 FILE#:140325010322
DOS ID:4550615

FILER: EXIST DATE

SERVICO INC. 03/25/2014
283 WASHINGTON AVE.
ALBANY, NY 12206

ADDRESS FOR PROCESS:

THE LIMITED LIABILITY COMPANY
35-06 LEAVITT STREET
SUITE CF-A
FLUSHING, NY 11354

REGISTERED AGENT:

The limited liability company is required to file a Biennial Statement with the Department of State every two years pursuant to Limited Liability Company Law Section 301. Notification that the Biennial Statement is due will only be made via email. Please go to www.email.ebiennial.dos.ny.gov to provide an email address to receive an email notification when the Biennial Statement is due.

SERVICE COMPANY: SERVICO, INC.-35
SERVICE CODE: 35

FEE:	200.00	PAYMENTS	200.00
FILING:	200.00	CHARGE	0.00
TAX:	0.00	DRAWDOWN	200.00
PLAIN COPY:	0.00		
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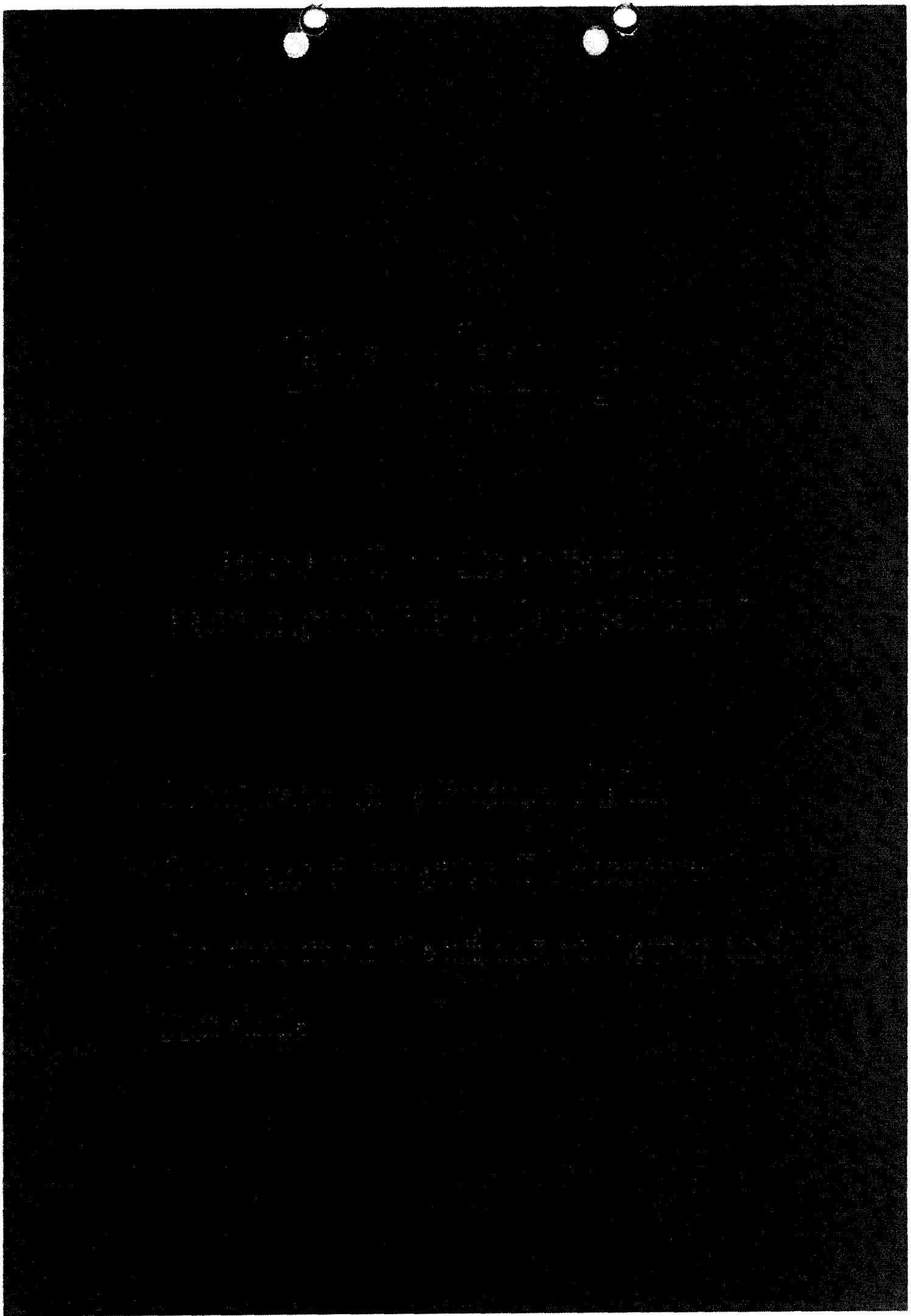

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EXECUTIVE SUMMARY

The proposed Four Points Flushing Hotel & Condominium is seeking regional center designation as a hypothetical project. The plan is to construct and develop a mix-use buidling which consists of 210-room hotel, 101 residential condominium units, retail spaces, community facilities and parking spaces (the "Project") in Flushing, Queens, one of the five boroughs of New York City. The project is located at 134-37 35th Avenue in Flushing, New York, NY 11354. This area encompasses some of the most commercially active portions of downtown Flushing, including the majority of Chinese and Korean businesses. It is also a popular destination for Asian tourists.

Farrington EB-5 Capital, LLC will be the new commercial enterprise, (hereinafter the "NCE") a newly formed entity for the purpose of raising EB-5 investment capital. Farrington Realty, LLC is the job creating entity (hereinafter "JCE") owns and operates the project. The NCE will be managed by Mr. George Xu, the developer and owner of the Project. The business entity structure is outlined in the table below.

New Commercial Enterprise (NCE)	Farrington EB-5 Capital, LLC
Regional Center (RC)	Century New York City Regional Center, LLC
Job Creating Entity (JCE)	Farrington Realty, LLC

The Proposed Four Points Flushing EB-5 Project entails a new construction of a mixed-use building which consists of a 210-room hotel, 101 residential condominium units, retail spaces, community facilities and parking spaces in Flushing, Queens, one of the five boroughs of New York City. Four Points by Sheraton is a mid-scale hotel brand by Starwood Hotels & Resorts offering a full-service hotel experience at a reasonable price. The construction and operation of the regional base of invested capital, the creation of new jobs, and the associated economic growth effects will be put into effect with the capital raised from immigrant investors through the EB-5 Program.

(b)(4)

The NCE is seeking to raise a maximum of [redacted] in investor capital from 70 EB-5 investors for the EB-5 Immigrant Investor Program (hereinafter "EB-5") for the Four Points Flushing Hotel & Condominium. According to the Economic Impact Report, the project will create [redacted] jobs, including [redacted] jobs from direct and indirect from construction employment, [redacted] direct jobs from operation, and [redacted] indirect jobs from operation.

LOCATION – TARGETED EMPLOYMENT AREA

The EB-5 investment within a targeted employment area is calculated at a ratio of $500,000 for every 10 jobs created. The maximum credited foreign investment the [redacted] jobs can support under the EB-5 Program is [redacted] capital raise. The Project is only seeking to raise [redacted] from the EB-5 Program.

The project is located at 134-37 35th Avenue in Flushing, New York, NY 11354. The location is in census tract 889.02 in Queens County, a designated Targeted Employment Area ("TEA") confirmed by the Empire State Development and New York State Department of Labor. Please see the TEA letters attached at **Exhibit 7.**

Thus the project is located in a TEA and shall have a minimum investment requirement by each member of $500,000 USD. Membership units for the EB-5 investors shall be sold at [redacted] USD, of which $500,000 USD shall be utilized towards the construction of the project and [redacted] USD shall go towards an Administrative Fee.

DEVELOPMENT COSTS:

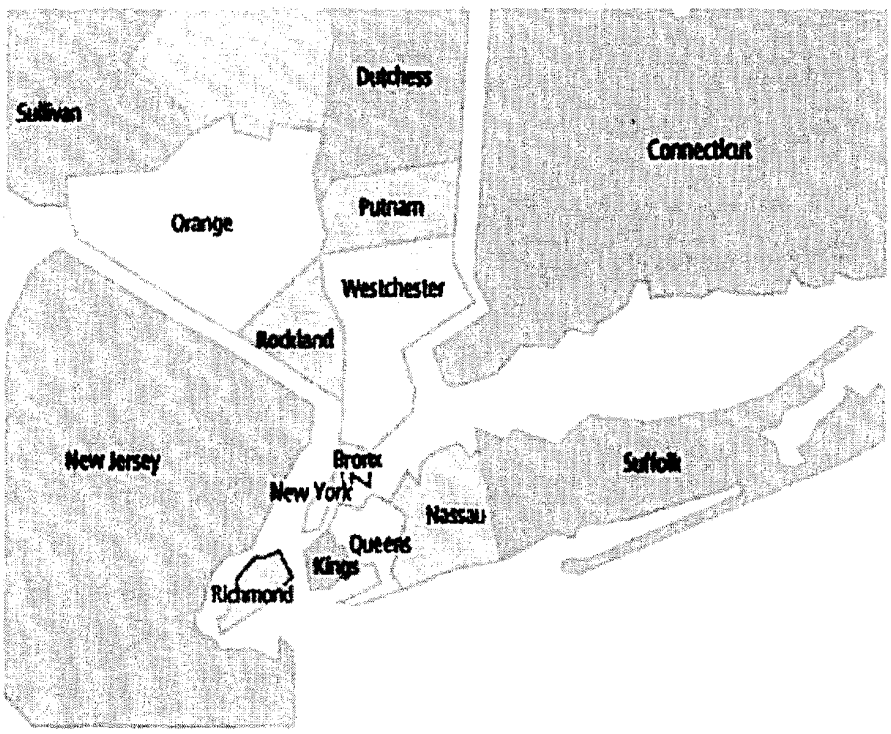
The total development cost is estimated at [redacted] consisting of hard construction costs approximately [redacted] soft costs [redacted] and other costs. The owner's equity is approximately 30% of the development costs. The maximum raise of EB-5 investment funds would be [redacted] The project developers are actively seeking traditional bank financing and other bridge financing as an alternative to EB-5 financing.

REGIONAL CENTER:

Farrington EB-5 Capital, LLC ("NCE") is managed by Century New York City Regional Center, LLC. The NCE was organized as a New York Limited Liability Company on March 31, 2014 with the primary business objective to raise EB-5 capital to fund real estate development projects such as the Four Points Flushing located at 134-37 35th Avenue in Flushing, New York, NY 11354. The project is owned by the project developer Farrington Realty, LLC where Mr. George Xu is the principal.

GEOGRAPHIC SCOPE:

The Four Points Flushing is located in Queens County. The RC requests the following seven (7) counties to be included in the RC's geographic boundaries: Queens County, New York County, Kings County, Bronx County, Richmond County, Westchester County and Nassau County. Please see the County map below.



Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment requirement is not required if investment opportunities arise outside the geographic area referenced above.

NAICS CODES:

The RC development project requests designation in the following industries based on the North America Industry Classification System ("**NAICS**") Code:

Construction Hard Costs

- Construction (Building & Site) – 2362/23622
- Wholesale Trade (FF&E) – 42/4232
- Hotel and Motel (including Casino) – 72251
- Food Services and drinking places – 72251
- Real Estate – 53112/5313

Financing & Soft Costs

- Other government enterprises – 921
- Architectural, engineering and related services – 5413
- Insurance - 5241
- Accounting tax preparation, bookkeeping services – 5412
- Legal Services – 5411
- Monetary authorities and depository credit intermediation – 5222
- Other miscellaneous professional and technical services - 5419

The joint tower is a part of a mixed-use development that will include ±10,000 square feet of commercial and retail space along 35th Avenue at the ground level. The commercial and retail spaces will be operated as separate entities.

PROJECT LOCATION AND TARGET EMPLOYMENT AREA

The project is located at 134-37 35th Avenue in Flushing, New York, NY 11354. The location is in census tract 889.02 in Queens County, a designated Targeted Employment Area ("TEA") confirmed by the Empire State Development and New York State Department of Labor. Please see the TEA letters attached at Exhibit 7.

Thus, the project is located in a TEA and shall have a minimum investment requirement by each member of $500,000 USD. Membership units for the EB-5 investors shall be sold at [redacted] USD, of which $500,000 USD shall be utilized towards the construction of the project and [redacted] USD shall go towards an Administrative Fee. (b)(4)

(b)(4)

Image shows View of Project Site

Below are architectural rendering and floor plans of the Project:

Architectural Rendering of Four Points Flushing Hotel & Condominium

SECTION II: MARKET ANALYSIS

This section includes the analysis of the target market, perspective customers, market demand and analysis method, and the project's competitive advantages and highlights.

Source of the data: The market analysis is provided by HVS Consulting and Valuation Services ("HVS"). HVS is the world's premier hotel consulting and valuation firm, known for their impeccable worldwide reputation for credibility, excellence, and thoroughness. They provide full services and solutions on consulting and valuation; executive search; investment banking; asset management and strategic advisory; hotel management; convention, sports, and entertainment facilities consulting; design; shared ownership; parking; gaming; golf; sustainability; risk management; and property tax. HVS is the industry's primary source of hotel sales data, research, market studies, and educational information relating to the hospitality industry.

HVS was established in 1980 by Chairman and Founder Steve Rushmore, MAI, FRICS, CHA, and now directed by President and CEO Stephen Rushmore, Jr., MAI. HVS are members of:
MAI: Member of the Appraisal Institute
CHA: Certified Hotel Administrator
FRICS: Fellows of Royal Institution of Chartered Surveyors

LOCATION

The Project, Four Points Flushing Hotel & Condominium, is located in Flushing, New York. Located in the Flushing district of New York City's Queens Borough, the site is readily accessible to a variety of local, county, state, and interstate highways. Major interstates, such as Interstates 278, 495, and 95, connect Flushing to other major cities – New Haven, Connecticut; Philadelphia, Pennsylvania; and not mention its close proximity to Manhattan, New York. Manhattan, the commercial center of New York City, may be easily accomplished via the Long Island Expressway, the Grand Central Parkway, the New York City Subway, and the Long Island Rail Road. Guests will have access to the hotel through Farrington Street and 35th Avenue. The project's location is in a commercially active area in Flushing.

market is expected to remain undersupplied. Market-wide occupancy is expected to remain close to maximum-level capacity, in the mid-80 percent range, through 2015. New supply is expected to increase by approximately 15.0 percent by 2015. As a result, HVS forecasts moderate average rate growth over the next three years. From 2013 to 2015, HVS forecasts relatively modest increases in RevPAR, primarily driven by ADR growth. Overall, RevPAR is forecast to appropriately recover and surpass its pre-recession (2008) in 2014. Increases in supply are expected to be readily absorbed and thus are not anticipated to significantly affect the recovery. Reflective of such trends, the Manhattan lodging market seemingly remains poised for a strong recovery, irrespective of any forthcoming increases in supply.

Queens Lodging Market

Queens is one of the most ethnically diverse communities in the U.S. It has served as a bedroom community for Manhattan, but has also developed its own employment base. The two major airports, JFK International and LaGuardia, have played an important role in shaping the area's economy. The Borough of Queens is home to more than 34,500 businesses, ranging from small retail outlets to large manufacturing plants. No single company or industry is dominant, although health care, air transportation, and services are major sectors. Some of Queens' largest employers include Steinway & Sons, British Airways, St. John's University, and Citibank.
More than 59% of Queens's residents commute to Manhattan for work. Of the 41% of workers who remain in Queens for employment, 32% work in the services industry, 21% in retail, 15% in public utilities, 11% in manufacturing, 8% in government, 7% in construction, and 6% in FIRE (finance, insurance, and real estate).

Although Queens has never been a major center for office development, the retail sector has benefited from the area's concentration of residential developments. Downtown Jamaica, which is located north of the subject property, in central Queens, is one of the largest concentrations of retail space in New York City, attracting visitors from throughout the region, owing to the appealing prices offered by the local merchants. However, Queens still exports a disproportionate share of its retail spending to neighboring Manhattan and Nassau County.
While not as rich in tourist attractions as Manhattan, the Borough of Queens offers its own array of leisure-oriented sites.

The following table lists selected visitor attractions located in Queens.

FIGURE 5-1 SELECTED QUEENS VISITOR ATTRACTIONS

Attraction	Type	Location	Notes
Queens Botanical Garden	Garden	Flushing	Acres of plantlife, including a Japanese Garden
Queens County Farm Museum	Museum	Floral Park	47 acres, including a historic farmhouse, as well as livestock and planting fields
New York Hall of Science	Museum	Queens	225-exhibit, hands-on science center
Louis Armstrong House & Archives	Museum	Flushing	Music, photos, films, instruments, awards
New York City Hall of Fame	Museum	Flushing	Recognizes those that contributed to NYC
The Queens Museum of Art	Museum	Queens	Art exhibits dating from 1800s to present
Isamu Noguchi Foundation, Inc	Museum	Sunnyside	Comprehensive collection of artwork by Isamu Noguchi
King Manor Museum	Museum	Flushing	Historic home in 11-acre park
Alley Pond Environmental Center, Inc	Nature	Douglaston	635 acres of woodlands, meadows, and fresh and salt water marshes
Flushing Town Hall-Concert Hall	Performing Arts	Flushing	340-seat concert hall
Queens Theater in the Park	Performing Arts	Flushing	478-seat theater, 99-seat experimental theater
Black Spectrum Theater	Performing Arts	Jamaica	Theater and films examining issues of concern to African-American youth
Colden Center for the Performing Arts	Performing Arts	Flushing	Auditorium with seating capacity of 2,127 and 429-seat concert hall
Thalia Spanish Theater	Performing Arts	Sunnyside	Produces Spanish zarzuela (operetta)
Shea Stadium	Sports	Flushing	Major League Baseball - home of New York Mets
Equestrian, Aqueduct Racetrack	Sports	Queens	Horse race track with 1,600-seat restaurant
USTA National Tennis Center	Sports	Flushing	Home of U.S. Open
Jamaica Center for Arts and Learning, Inc	Visual Arts	Jamaica	Exhibits of local and national artists, workshops
Queens Zoo	Zoo	Flushing	11-acre zoo with North American wildlife

Source: NYC & Company

The hotels included in the historical supply and demand trends in Figure 7-4 below are existing hotels located in Queens County New York City.

FIGURE 7-4 HISTORICAL SUPPLY AND DEMAND TRENDS

Year	Average Daily Room Count	Available Room Nights	Change	Occupied Room Nights	Change	Occupancy	Change	Average Rate	Change	RevPAR	Change
2006	1,934	705,893	—	565,492	—	80.1 %	—	$154.97	—	$124.15	—
2007	1,981	723,065	2.4 %	574,886	1.7 %	79.5	(0.8) %	163.47	5.5 %	129.97	4.7 %
2008	1,983	723,675	0.1	570,040	(0.8)	78.8	(0.9)	162.59	(0.5)	128.07	(1.5)
2009	2,065	753,555	4.1	556,018	(2.5)	73.8	(6.3)	134.56	(17.2)	99.29	(22.5)
2010	2,211	807,015	7.1	621,810	11.8	77.1	4.4	140.32	4.3	108.12	8.9
2011	2,211	807,015	0.0	613,984	(1.3)	76.1	(1.3)	142.73	1.7	108.59	0.4
2012	2,227	812,684	0.7	660,273	7.5	81.2	6.8	147.98	3.7	120.23	10.7
Average Annual Compounded Change:											
2006-2012			2.4 %		2.6 %				(0.8) %		(0.5) %
Year-to-Date Through May											
2012	2,211	333,861	—	239,133	—	71.6 %	—	$133.09	—	$95.32	—
2013	2,387	360,437	8.0 %	288,544	20.7 %	80.1	11.8 %	155.42	16.8 %	124.42	30.5 %

Hotels Included in Sample	Number of Rooms	Year Affiliated	Year Opened	Comments
Courtyard New York La Guardia Airport	288	Nov 1996	Jun 1963	
La Guardia Airport Hotel	229	Apr 2008	Jun 1981	Formerly a Wyndham Garden in 2/98.
Marriott New York La Guardia	438	Nov 1981	Nov 1981	
Holiday Inn Express La Guardia Airport	82	Nov 2008	Jun 1983	11/08 added 10 rooms; 07/12 added 1 room.
La Guardia Plaza Hotel	353	Jan 2011	Sep 1989	Opened as a Crowne Plaza.
Sheraton Hotel La Guardia East	173	Jan 1992	Jan 1992	
Holiday Inn La Guardia Airport	214	Dec 2006	Jul 2001	Opened as a Ramada.
Comfort Inn Flushing	48	Sep 2002	Sep 2002	
Fairfield Inn New York La Guardia Airport Flushing	88	Nov 2005	Nov 2005	Added 2 rooms in 11/12.
Lexington Marco LaGuardia Hotel	81	Jun 2009	Aug 2006	Opened as a Wingate.
Hampton Inn New York La Guardia	220	Sep 2009	Sep 2009	
Springhill Suites New York La Guardia Airport	173	Dec 2012	Dec 2012	
	Total 2,387			

Source: STR Global

service, a fitness center, a swimming pool, meeting space, and on-site catering. In 2012, the Four Points brand in North America achieved an average occupancy level of 70.7%, an average rate of $111.48, and an average RevPAR of $78.76.

FIGURE 4-1 PROPOSED FACILITIES SUMMARY

Guestroom Configuration	Number of Units
King	110
Double/Double	89
ADA King	6
ADA Double/Double	5
Total	210

Food & Beverage Facilities	Seating Capacity
Restaurant, Bar & Lounge	176

Indoor Meeting & Banquet Facilities	Square Footage
Community Facility	17,000
Banquet Hall	2,800
Meeting Room	590
Boardroom	430
Total	20,820

Amenities & Services	
Indoor Swimming Pool	Fitness Room
Guest Laundry Facility	Lobby Workstation
Vending Areas	Gift Shop

Infrastructure	
Parking Spaces	215
Elevators	2 Guest
Life-Safety Systems	Sprinklers, Smoke Detectors

PROJECT HIGHLIGHTS:

- **Close proximity to Manhattan, New York**
- **Proximity to Flushing Main Street, major commercial and residential areas with high concentrations of Chinese and Korean population**
- **Proximity to two major airports in New York City**
- **Four Points by Sheraton, a mid-scale hotel brand offering a full-service hotel experience at a sensible price**
- **Century Construction Group is an established developer is Flushing, NY**
- **210-rooms restaurant and lounge with an indoor pool, a fitness center, a banquet hall, large meeting space**
- **17,000-square-foot community facility space**
- **Lobby workstation, guest laundry facilities, and a gift shop**

Ramada Flushing is a newly built hotel in 2014. It offers onsite fitness room, business center with fax, copy and printer service, and car parking in a garage for a nominal charge. It offers free continental breakfast daily and free Wi-Fi Internet access throughout the hotel. Select top floor accommodations for stunning Manhattan skyline views. All guest rooms and suites feature desk, iron, ironing board, coffee maker, hair dryer, dataport, pay movies, and flat screen HDTV. This Queens hotel is 100% smoke-free. The hotel features a business center and conference rooms. A standard comfort room rate is $151/night.

MARKETING STRATEGY

The Four Point Flushing Hotel & Condominium will offer a well-designed, functional layout of support areas and guestrooms and target at the midmarket. All typical and market-appropriate features and amenities appear to be included in the hotel's design. The building will be fully open and operational on the assumed opening date and will meet all local building codes and brand standards. The hotel staff will be adequately trained to allow for a successful opening and that pre-marketing efforts will have introduced the product to major local accounts at least six months in advance of the opening date.

The project principals own Century Construction Group, an established brand in Flushing, New York. It has successfully completed and marketed similar projects such as Marriot Fairfield Inn., Leavitt Manor Condominium, Farrington Estate, all located in Flushing. The project principals plan to expand its existing midmarket to reach more audience through the Four Points Flushing Hotel project.

The project plans to raise (b)(4) from [redacted] EB-5 investors. The hypothetical regional center is expected to be approved within the next 6 months. Meanwhile, the project plans to conduct pre-marketing trips overseas in China and Asia.

SECTION III: FINANCIAL
VIABILITY OF THE PROJECT; PROJECT FUNDING & CAPITALIZATION EXIT PLAN; INCOME PROJECTIONS & REASONABLE ANALYSIS METHODOLOGY

EXIT PLAN & PROJECT VIABILITY

The loan from Farrington EB-5 Capital, LLC will be paid off in full either through the residential condominium sales, refinancing of hotel, retails and community facility upon stabilization. The project will not be refinanced or sold prior to the adjudication of the I-829 petitions.

The project principal has extensive experience and is confident that the proceeds from either strategy should be more than sufficient to pay off the EB-5 investors in full. However, in the event the above strategy is insufficient to pay off the loan in full, the borrower shall cover the shortfall from its own operating cash flow, or risk foreclosure and loss of its ownership of the Project to the Partnership. This is not a redemption clause. The EB-5 capital is placed "at risk". The developer will make the best efforts that are economically feasible to repay the EB-5 investors.

USE OF CAPITAL

The Four Point Flushing Hotel's development cost is estimated at (b)(4) consisting of hard construction costs approximately (b)(4) and (b)(4) soft costs. For analysis purposes this equates to a total development budget of $195/SF for 354,000 SF of gross building area including parking decks. This budget includes hard costs, contingencies, financing, pre-opening and other soft costs, but excludes site acquisition.

The JCE Company intends to raise capital to cover the costs using both conventional financing and through business loans by means of a private placement offering to EB-5 investors.

(b)(4)

Specifically, the NCE will raise a maximum of [redacted] in EB-5 capital, which will be loaned to the JCE. The Company plans to sell EB5 Membership Units, at $500,000 per unit, to qualified foreign investors seeking to obtain permanent residence in the United States through the EB-5 Visa Program. No additional capital contributions are required.

Contingency Plan:

As necessary, the Farrington Realty, LLC(JCE) may also provide a temporary short-term bridge financing or traditional bank financing through lenders in order to commence construction and create jobs in advance of EB-5 funding.

Attached below is the Forecasted Occupancy Rate of the Four Point Flushing Hotel:

FORECAST OF SUBJECT PROPERTY'S OCCUPANCY

Market Segment	2017	2018	2019	2020
Commercial				
Demand				
Market Share				
Capture				
Penetration				
Group				
Demand				
Market Share				
Capture				
Penetration				
Leisure				
Demand				
Market Share				
Capture				
Penetration				
Total Room Nights Captured				
Available Room Nights				
Subject Occupancy				
Marketwide Available Room Nights				
Fair Share				
Marketwide Occupied Room Nights				
Market Share				
Marketwide Occupancy				
Total Penetration				

(b)(4)

It is to be noted that the first year of operations does not reflect anticipated long-term performance of the hotel project. It only reflects the initial operations from the time the hotel first opens with little business, as it builds to full staffing complement, begins to work "the kinks" out of operations, gets marketing efforts underway and allows time for them to get traction, and builds the market image and place for the hotel. Based on operating history and market performance (with inflation adjustment), it is conservatively estimated that stabilization will occur in year 3 by 2017 with an annual occupancy of 72%. The term "stabilization" properly reflects the industry experience over most of the past century that after this initial ramp up, the hotel reaches a stabilized level that will be maintained during its 20 to 30 year economic lifespan.

FINANCIAL PROJECTIONS AND ANALYSIS METHODOLOGY

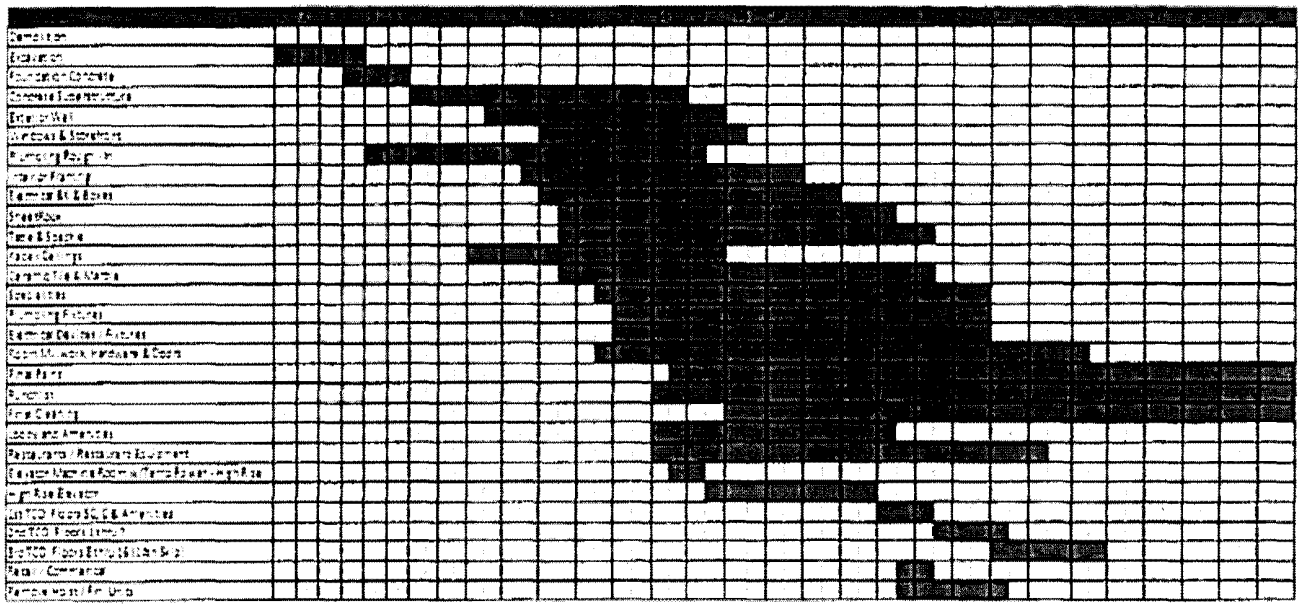
The financial projection data of the project is provided by independent studies HVS Group. In order to examine the job creation based on the projections, the following analysis methodologies

SECTION IV: CONSTRUCTION / PERMITS AND LICENSES

A. PARTICULARS OF THE CONSTRUCTION PHASES

Please refer to the timeline for the construction attached at **Exhibit 3.**
(Snap shot below)

This detailed construction timeline was produced by **Century Construction Group,** the General Contractors for the construction. The General Construction Verification Letter dated May 16, 2014 can be found at **Exhibit 3.**



Snapshot of the Construction Timeline

The construction of the Four Points Flushing Hotel & Condominium project will take approximately 30-months to complete. The submitted schedule at **Exhibit 3.** The project location is demolished in early 2014. The building is currently scheduled to start excavation soon.

The developer obtained all necessary permit and licenses in demolition, and is scheduled to obtain the permit and licenses for construction and development of the project. The actual

construction is expected to start at the end of 2014, and it is anticipated to be completed by mid-2017.

The timeline provides the particulars of the various phases of the construction over a period of project months from the commencement of the construction. For example, the early months will consist of the excavation and necessary foundation work. The Shoring of Excavation is expected to take 4 months, the construction timeline describes that concrete will be poured into concrete slabs for the individual floors. At this time, the construction of the hotel has made considerable headway. The construction timeline above provides the particulars of multiple phases of the construction over a period of 30 months from the commencement of the construction.

THE CONSTRUCTION BUDGET & TIMELINE

Table 1: Estimated Total Development Budget
Four Points Sheraton/Luxury Condo Development, Flushing, NY

Line Item	Total	Cost/SF	Cost/SF	% of
Site Acquisition				
Hard Costs				
Carpentry				
Metals				
Masonry				
Concrete				
Site Work				
Weatherproofing				
Doors & Windows				
Elevators				
Mechanical, Electrical & HVAC				
Finishes				
Specialties				
General Conditions				
FF&E				
Subtotal: Hard Costs				
Financing & Soft Costs				
Building Permits, Taxes, Connection & Impact Fees				
Property Taxes During Construction				
Architectural, Engineering & Environmental				
Insurance				
Market Study/Appraisal				
Recording Fees				
Accounting				
Legal/Title				
Financing/Lenders Fees/Construction Bonds				
Construction Interest Reserve				
Brokerage Commissions				
Contingency				
Subtotal: Financing & Soft Costs				
Total Development Budget				

(b)(4)

Sources: Farrington Realty, LLC; HVS Consulting & Valuation Services Division of Hotel Appraisals, LLC and Bleakly Advisory Group, Inc.

The Four Points Flushing Hotel hard construction costs prepared by ***Century Construction Group*** have been estimated to be [redacted] and the estimated time to complete the construction will be within **30 months**.

(b)(4)

(i) **Analysis Method of the Construction Timeline and Costs**

The construction timeline is estimated to be 30 months excluding the time to demolish the existing structure. The construction budget for the project is estimated at [redacted] The hotel (b)(4)
will include 210 guest rooms/suites, offering a restaurant, bar and lounge, an indoor pool, fitness center, conference rooms, and a 1,025 SF retail/gift shop space located in the lobby area. The construction of the Project will take approximately 30-months to complete. The construction budget was estimated by **Century Construction Group** This was based on their previous experience of projects similar in size and nature and scope. [1]

Century Construction Group has worked in the construction industry for twenty (20) years and have supervised, managed and/or constructed similar projects to Four Point Flushing Hotel & Condomium. Century's experience includes hospitality, commercial interior and residential projects, such as Marriot Fairfield Inn, Leavitt Manor Condominium, Whitestone Tower Condominium all located in Flushing.

(ii) **Mr. George Xu is an Expert in the Field.**

Mr. George Xu is also the owner of the Four Point Flushing Hotel & Condominium project and the owner of the proposed Century New York City Regional Center. He is the founder and President of Century Development Group, a real estate development company. With over 20 years of real estate holding and development experience, he has worked on over a million of square feet of real estate developments; mixed-use developments including residential, hospitality, office, retail, and in all phases of assembly, acquisition, finance, design, construction, marketing and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters. Mr. Xu provides marketing oversight and policy guidance for the Century New York City Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and a Master of Science degree in Computer Science from Polytechnic University, New York.

[1] Please see Exhibit 3 – Verification Letter and supporting documents.

Please see the snapshot of the verification letter below.

May 16, 2014

Attention: EB-5 Unit
U.S. Citizenship and Immigration Services
California Service Center
Department of Homeland Security
24000, Avila Road, Room 2312
Laguna Niguel, CA 92677

Re: Four Points Sheraton / Luxury Condo Development
134-37 35th Avenue, Flushing NY 11354

Dear CSC EB-5 Unit Officer:

Century Construction Group was hired by Farrington Realty LLC as the general contractor on the above-referenced Project. I am the president of Century Construction Group and have worked in the construction industry for twenty years and have supervised, managed and/or constructed. My experience includes hospitality, commercial interior and residential projects. I have constructed similar projects to the proposed Four Points Sheraton in term of size, budgets and timeline. Such as Marriot Fairfield Inn, Leavitt Manor Condominium, Farrington Estate all located in Flushing. I have been asked by Farrington Realty, LLC to provide you with some information concerning the Project in connection with certain funding obtained by EB-5.

Century Construction Group has advised that construction estimate cost would be [redacted] (b)(4) The construction timeline is 30 months. This mixed used building consists of luxury condominium, hotel, commercial retail, community facility/medical offices, and parking garage. The Four Points Sheraton will provide 210 keys and 101 Luxury Condo. The project is scheduled to start in beginning of August 2014. I attest that the construction budgets and timeline are estimated based on established industry standards

Very Truly Yours,

George Xu
President

35-06 Leavitt St., Suite CF-A Flushing, NY 11354
Tel: (718) 939 1060 Fax: (718) 939 1036

(iii) **Satisfactory Compliance with *Matter of Ho*:**

Mr. George Xu has the appropriate qualifications that validate his position as an expert in the field, he is therefore in a position to be an authority on the construction budget and timeline.

In addition, George Xu's statement satisfactorily complies with the *Matter of Ho* in terms of comparison studies of the business described. On page 9 of the *Matter of Ho*, the submitted documents shall contain *"a comparison of competition's products."* And *"set forth the business' organizational structure and its personnel's experience"*. The letter and professional profile includes Mr. George Xu's previous experience and construction timeline and the attached documentation for Century Construction Group verifies their ability to accurately assess the construction budget based on the comparison studies of similar projects in similar locations.

PERMITS AND LICENSES

In New York City the construction is "as of-right" development which complies with all applicable zoning regulations and does not require any discretionary action (special permit or variance) by the City Planning Commission or Board of Standards and Appeals for approval. Assuming that the project complies with all other Code and Zoning regulations, the NYC Department of Buildings Plan Examiner Plan Examiner will approve the Plans, further to the architect's construction detailed blueprints and renditions.

It is not necessary for the project to seek the additional approvals of the City Planning Commission, or of the Local Community Board, or of any other outside party of interest. If the project complies with the applicable Zoning Laws currently in force, the developer is entitled to build. Therefore building permits are only valid for a limited amount of time and the project will apply for the relevant permits prior to the commencement of the construction activities.

Below are **Sample Permits for Century Construction Group's Previous Projects.**

6/2/14 Work Permit Data

NYC Buildings

CLICK HERE TO SIGN UP FOR BUILDINGS NEWS

NYC Department of Buildings

Work Permit Data

Premises: 137-08 31 ROAD QUEENS
BIN: 4537661 **Block:** 4410 **Lot:** 7503

Filed As: 137-08 31 ROAD QUEENS
Job Type NB - NEW BUILDING

View Permit History

Job No:	402279823			**Fee:**	STANDARD
Permit No:	402279823-01-NB	**Issued:**	09/04/2008	**Expires:**	09/02/2009
Seq. No.:	04	**Filing Date:**	09/04/2008 RENEWAL	**Status:**	ISSUED
Work:		**Proposed Job Start:**	02/21/2006	**Work Approved:**	01/26/2006

NEW BUILDING -

Related fence job no: 402279823
Use: J-2 - RESIDENTIAL APT HOUSE **Landmark:** NO **Stories:** 7
Site Fill: ON-SITE
Review is requested under Building Code: 1968

Issued to: JIASHU XU **GC SAFETY REGISTRATION:** 0027315-GC
Business: C & G CONSTR GROUP CORP CORP
134-03 35TH AVE FLUSHING NY 11354 **Phone:** 718-321-8652

Filing Representative: HUIJIANG LUO
Business: MICHAEL KANG ARCHITECT, PLLC **Phone:** 718-353-2929
37-01 MAIN STREET, SUITE 3A FLUSHING NY 11354

Superintendent of Construction: JEFF LIU **Registration No:** 0022982
Business: UNITED CONSTRUCTION & DEV **Phone:** 718-321-8652
134-03 35TH AVENUE FLUSHING NY 11354

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City

SECTION V: EMPLOYMENT AND JOB CREATION

(b)(4)

Based on the EB-5 Economic Impact Studies conducted by Bleakly Advisory Group, the Four Point Flushing Hotel will create [redacted] jobs, including [redacted] jobs from direct and indirect from construction employment, [redacted] direct jobs from operation, and [redacted] indirect jobs from operation. The project intends to raise [redacted] from [redacted] EB-5 investors.

(b)(4)

The project is a mixed-use development. It is complex in terms of estimating its job creation effects. From permanent operations, impacts to final demand include the hotel, a real estate management entity that will lease commercial space, manage the condominium association and parking garage, plus the business operations of retail tenants. The issue of how the community center/space will be operated and whether income projections from that facility will be sufficient to support permanent employment are discussed in the Economic Impact Studies. In addition, the tenant-created employment is not included in the total calculation of the EB-5 capital raise.

The operational direct jobs are listed as follows:

Direct Employees from Hotel Operation			
	Position	Employees Needed	Weeks to Open
	Management		
1	General Manager	1	26
2	Assistant General Manager	1	8
3	Controller	1	4
4	Assistant Controller	1	4
5	Guest Service Manager	1	6
6	Guest Service Supervisor	4	3
7	Executive Housekeeper	1	8
8	Housekeeping Supervisor	4	6
9	Chief Engineer	1	8
10	Director of Sales	1	26
11	Sales Coordnator	2	4
	Total	18	
	Position	Employees Needed	Days Paid Till Open
	Line Level		
1	Guest Service Agent	12	15
2	Night Auditor	4	15
3	Breakfast Attendant	6	15
4	Room Attendant	36	20
5	Houseman	10	20
6	Maintencance Tech	6	20
7	Parking Valets	3	15
8	Food Service	14	15
	Total	91	

CONSTRUCTION AND OPERATION IMPACTS

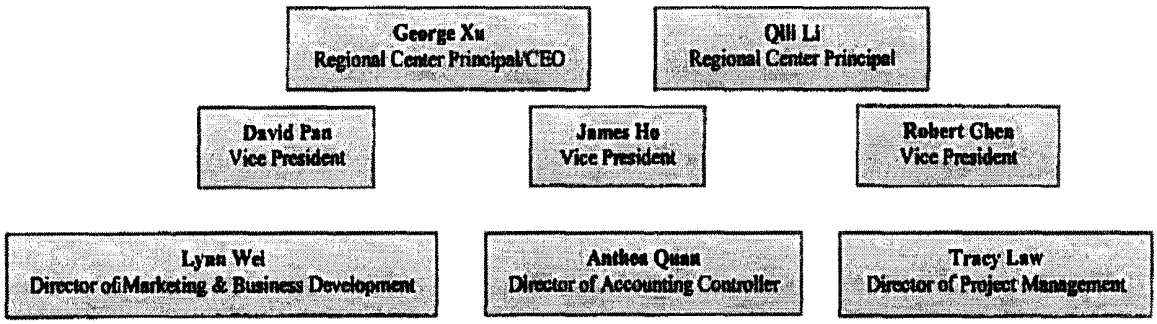
Construction Impacts

Revised construction costs as provided by the Client are itemized. Please see the Economic Studies for details. Approximately 88% of the project's development budget can be claimed as having an economic impact to the Region. The adjustment was made by excluding debt service reserves, property taxes during construction and a portion of the estimated financing costs.

SECTION VI: MANAGEMENT AND CORPORATE STRUCTURE

The business organizational structure and personnel experiences are as follows:

Business' organizational structure and its personnel's experience



George Xu, CEO/Regional Center Principal

Mr. George Xu is the founder and the principle of the Century New York City Regional Center ("CNYCRC"). Mr. Xu is also the founder and President of Century Development Group, a real estate development company. With over 16 years of real estate holding and development experience, he has worked on over a million of square feet of real estate developments; mixed-use developments including residential, hospitality, office, retail, and in all phases of assembly, acquisition, finance, design, construction, marketing and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters. Mr. Xu provides marketing oversight and policy guidance for the Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and a Master of Science degree in Computer Science from Polytechnic University, New York.

N.Y.S. DEPARTMENT OF STATE
DIVISION OF CORPORATIONS AND STATE RECORDS ALBANY, NY 12231-0001

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SERVICO INC. 03/31/2014
283 WASHINGTON AVE.
ALBANY, NY 12206

ADDRESS FOR PROCESS:

THE LIMITED LIABILITY COMPANY
35-06 LEAVITT STREET
SUITE CF-A
FLUSHING, NY 11354

REGISTERED AGENT:

The limited liability company is required to file a Biennial Statement with the Department of State every two years pursuant to Limited Liability Company Law Section 301. Notification that the Biennial Statement is due will only be made via email. Please go to www.email.ebiennial.dos.ny.gov to provide an email address to receive an email notification when the Biennial Statement is due.

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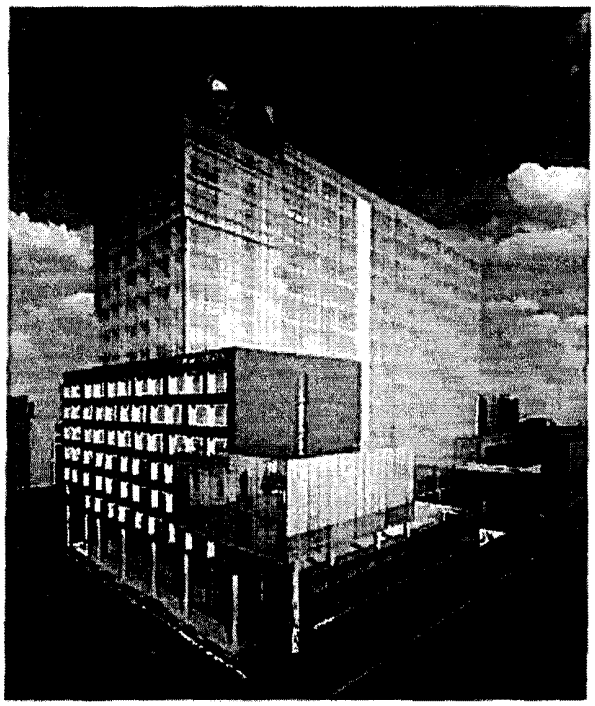
HVS

SELF-CONTAINED APPRAISAL REPORT

Proposed Four Points Flushing

134-37 35TH AVENUE
FLUSHING, NEW YORK



SUBMITTED TO:

Mr. George Xu
Farrington Realty, LLC
35-06 Leavitt Street, Unit CFA
Flushing, New York 11354

+1 (718) 939-1060
+1 (718) 939-1036 FAX
georgexu88@yahoo.com

PREPARED BY:

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Division of Hotel Appraisals, LLC
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Specialists in Hotel Consulting and Appraisal Worldwide

July 26, 2013

Mr. George Xu
Farrington Realty, LLC
35-06 Leavitt Street, Unit CFA
Flushing, New York 11354

Re: Proposed Four Points Flushing
Flushing, New York
HVS Reference: 2013010447

Dear Mr. Xu:

Pursuant to your request, we herewith submit our self-contained appraisal report pertaining to the above-captioned proposed hotel. We have inspected the real estate and analyzed the market conditions in the Flushing, New York area. We have also reviewed the proposed improvements for this site. Our report was prepared in accordance with, and is subject to, the requirements of the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) and the Uniform Standards of Professional Appraisal Practice (USPAP), as provided by the Appraisal Foundation.

Based on our analysis, it is our opinion that the "as is" market value of the fee simple interest in the Proposed Four Points Flushing, as of June 14, 2013, is:

[redacted] (b)(4)

Based on our analysis, it is our opinion that the "when complete" prospective market value of the fee simple interest in the real and personal property of the Proposed Four Points Flushing, as of March 1, 2016, will be:

[redacted] (b)(4)

This value estimate equates to [redacted] per room.

We have also estimated the prospective market value of the subject property as of its projected date of stabilization. Based on our analysis, it is our opinion that the "when stabilized" prospective market value of the fee simple interest in the real and personal property of the Proposed Four Points Flushing, as of March 1, 2018, will be:

[redacted] (b)(4)

We have made no assumptions of hypothetical conditions in our report. The analysis is based on the extraordinary assumption that the described improvements have been completed as of the prospective "when complete" date of value. The reader should understand that the completed subject property does not yet, in fact, exist as of the date of appraisal. Our appraisal does not address unforeseeable events that could alter the proposed project and/or the market conditions reflected in the analyses; we assume that no significant changes, other than those anticipated and explained in this report, will take place between the date of inspection and date of prospective value. We have made no other extraordinary assumptions specific to this appraisal. However, several important general assumptions have been made that apply to this appraisal and our valuations of proposed hotels in general. These aspects are set forth in the Assumptions and Limiting Conditions chapter of this report.

We hereby certify that we have no undisclosed interest in the property, and our employment and compensation are not contingent upon our findings. This study is subject to the comments made throughout this report and to all assumptions and limiting conditions set forth herein.

Sincerely,
Hotel Appraisals, LLC

Rebecca Lee, Vice President
rlee@hvs.com, +1 (516) 248-8828 ext. 205

Roland de Milleret, MAI, Managing Director
rdemilleret@hvs.com, +1 (516) 248-8828 ext. 269
State Appraiser License (NY) 46000044494

RL: RdM

Economic Impact Analysis for the Proposed Four Points Sheraton/Farrington Luxury Condominium Development

Flushing, New York

Updated: July 2014

Prepared For

Farrington EB-5 Capital, LLC
134-37 35th Avenue
Flushing, New York

Prepared By

Bleakly Advisory Group

6000 Lake Forrest Drive, Suite 108
Atlanta, Georgia 30328

Executive Summary (b)(4)

The subject of this economic impact analysis (EIA) is a proposed [redacted] select service hotel and mixed-use development to be located in Flushing, Queens in New York City (the Project). This analysis was prepared by Bleakly Advisory Group, Inc. (BAG) Farrington EB-5 Capital, LLC (the Client), under subcontract to Mona Shah & Associates, PLLC. Source data relied upon for this EIA was obtained from an "EB-5 Business Plan" for the Four Points Flushing Hotel & Condominium prepared on behalf of Farrington EB-5 Capital, LLC.

The Project's economic impacts were measured for the seven New York counties located within the New York-Northern New Jersey-Long Island, NY-NJ-PA Metropolitan Statistical Area (the Region) using RIMS II. The specific purpose of the report is to serve as a "job creation study" following guidelines established by the United States Citizenship and Immigration Services (USCIS) under the EB-5 Regional Center Program. Therefore, the analysis focuses on quantifying the EB-5-recognized/eligible job creation effects from both the Project's (temporary) construction and (permanent) annual operations.

The following points highlight the analysis findings and conclusions:

- Development of the proposed project will result in a [redacted] increase in net direct output to the region's economy from construction spending (inflation adjusted to 2010$). The duration of construction is expected to be 30 months.

- Resulting total output generated by the construction investment on the region's economy, including multiplier effects, approaches [redacted] That output would support [redacted] in total earnings across all industries, including direct effects, and support a total o[redacted] jobs. The investment is estimated to raise household earnings by an average o[redacted] per job. Because the construction period is more than 2 years, "direct" construction jobs associated with this Project are counted for EB-5 purposes. BAG estimates that investment in the project would suppor[redacted] direct construction jobs plus [redacted] indirect and induced jobs during the construction period.

- The hotel market study and financial analysis appearing in the Business Plan indicates that the proposed hotel will reach stabilized operations within the third year of start-up and generate [redacted] in annual gross sales. Combined with ancillary parking,

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commercial leasing and management of the residential condominiums, stabilized year revenues from all project components totals [redacted]

- BAG estimated that roughly 90% of stabilized gross sales would be a net direct impact to the region's economy. These adjustments reduced the Project's effective (stabilized year) output to the region's economy to [redacted] when inflation adjusted to 2010$.

- The net change in final demand method generates a total regional gain in annual output of nearly [redacted] across all industries. The investment is projected to increase household earnings throughout the region by [redacted] including payrolls to employees of the facilities. The project supports a total of [redacted] obs from permanent operations, including multiplier effects. Average earnings across all industries approach [redacted] per job in 2010$.

- BAG concluded that of the [redacted] otal in-region jobs supported by stabilized operations, [redacted] rovides a reasonable estimate of verifiable direct FTE employment while the balance of [redacted] obs represents the Project's indirect and induced employment effects. This conclusion is consistent with hotel staffing and payroll projections contained in the Business Plan. Direct FTE job creation represents 68% of the Project's total estimated employment impact on the region's economy from annual operations.

- The Project is located within an area that qualifies as a State-designated "Targeted Employment Area" (TEA). As such, EB-5 supportable investment is calculated at a ratio of $500,000 for every 10 jobs created. The maximum credited foreign investment for this project under the EB-5 Program is based upon the sum of the calculated direct and indirect construction employment [redacted] obs), direct permanent employment to be offered by the proposed facility, [redacted] FTE positions) plus the indirect permanent employment [redacted] indirect/ induced jobs) supported by those direct jobs.

Divided by the ratio of $500,000 per 10 jobs created, the resulting total o[redacted] obs supports a maximum EB-5 investment o[redacted]

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including structured parking, average roughly $239 per square foot of enclosed floor area and $195/gross SF including structured parking.

Table 1: Estimated Total Development Budget
Four Points Sheraton/Luxury Condo Development, Flushing, NY

Line Item	Total Cost	Cost/SF SF	Cost/SF Room	% of Total
Site Acquisition				
Hard Costs				
Carpentry				
Metals				
Masonry				
Concrete				
Site Work				
Weatherproofing				
Doors & Windows				
Elevators				
Mechanical, Electrical & HVAC				
Finishes				
Specialties				
General Conditions				
FF&E				
Subtotal: Hard Costs:				
Financing & Soft Costs				
Building Permits, Taxes, Connection & Impact Fees				
Property Taxes During Construction				
Architectural, Engineering & Environmental				
Insurance				
Market Study/Appraisal				
Recording Fees				
Accounting				
Legal/Title				
Financing/Lenders Fees/Construction Bonds				
Construction Interest Reserve				
Brokerage Commissions				
Contingency				
Subtotal: Financing & Soft Costs:				
Total Development Budget				

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Sources: Farrington Realty, LLC; HVS Consulting & Valuation Services and Bleakly Advisory Group, Inc.

In order to isolate and estimate the Project's indirect economic impact to the region during the construction phase, BAG first considered whether or not 100% of the development costs included in Table 1 could be reasonably claimed as having a direct effect on the Region's

product or service that was produced within the region – followed by independently verifying the suppliers' reported information. Given the fact that no contracts have been issued for the Project, that level of verification is not possible.

The remaining expenditures totaling [redacted] were then used as the starting point for estimating indirect job creation effects from the Project's construction. (These costs appear in Table 2.) We also allocated roughly 25% of FF&E spending as an impact to the region's economy and distributed that spending to the wholesale trade sector. This percentage was considered reasonable and sufficient to capture in-region spending on distribution costs, wholesale mark-ups, installation costs or components that might be manufactured in-region. The remaining industry allocations can be imputed by comparing Tables 1 and 2. Resulting indirect industry earnings from the facility's development were modeled as a one-time/one year estimate.

The next step in the methodology involved allocating the [redacted] in development costs to the relevant industry sectors that can be measured using the RIMS II model. The resulting industry distribution of spending impacts is also shown in Table 2. In making these allocations, BAG distributed the used portion of the contingency cost line items proportionally among relevant industry sectors.

Table 2: Estimated Industry Distribution of Facility Construction Spending
Four Points Sheraton/Luxury Condo Development, Flushing, NY

Industry Allocation of Development Budget (Current Dollars)	RIMS II Industry Code	Associated NAICS Codes	Total Costs
Construction Hard Costs			
Construction (Buildings & Site)			
Wholesale Trade (FF&E)			
Subtotal: Hard Costs:			
Financing & Soft Costs			
Other government enterprises			
Real Estate			
Architectural, engineering, and related services			
Insurance			
Accounting, tax preparation, bookkeeping services			
Legal Services			
Monetary authorities and depository credit intermediation			
Other miscellaneous professional and technical services			
Subtotal: Financing & Soft Costs:			
Total Indirect Construction Impacts [3]:			

Sources: Farrington Realty, LLC; HVS Consulting & Valuation Services and Bleakly Advisory Group, Inc.

The costs appearing in Table 2 were then inflation adjusted (discounted) to 2010 levels before applying the RIMS II multipliers. This adjustment was based on the "New York CPI" (All Urban Consumers) and totaled -4.87%. This further reduced the impact from construction spending to [redacted] which is shown in the "Total Costs" column of Table 3.

Because the duration of construction is expected to exceed two years, it is not necessary to adjust the final demand employment multipliers to remove the effects of direct jobs which are embedded within the construction industry multiplier. To be conservative, for the remaining 9 industry sectors BAG adjusted the final demand employment multipliers to remove the effects of direct jobs that are embedded within those multipliers. To remove direct effects, USCIS has approved methodologies that adjust final demand employment multipliers by a ratio of indirect to direct jobs, calculated using the direct effects employment multiplier. These adjustments are reflected in the "Adjusted Employment Final Demand" column appearing in Table 3. The calculation used to make the adjustments is also described in footnote #3 of the table.

The total construction impacts of this investment are calculated in Table 3. Using the change in final demand method, BAG allocated the estimated [redacted] of "in- region" purchases (in 2010$) among the affected industry sectors and multiplied the direct effects by the respective industries' associated RIMS II multipliers for the region. Resulting total output generated by the investment, including multiplier effects, is estimated to be [redacted] According to RIMS II, that output would suppor [redacted] in total earnings across all industries, including direct effects.

Multiplying the estimated total regional output by the final demand employment multipliers supports a total of [redacted] jobs, including (both) direct and indirect jobs in the construction sector (top row) and indirect effects (only) in the remaining industry sectors. Our analysis of the multipliers indicates that roughly 40% of the Project's total employment effects in the construction industry sector would be indirect/induced [redacted] jobs) and the balance of [redacted] jobs would be directly supported by construction spending. Therefore, of the [redacted] total jobs calculated in Table 3, BAG estimates that [redacted] are direct and the remaining [redacted] are indirect.

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Table 5: Annual Operating Income & Expense

Estimated Parking Pro Forma: Four Points Sheraton/Luxury Condo Development, Flushing, NY

REVENUE FACTORS

PARKING SPACES	
TOTAL SPACES	279

HOTEL ASSUMPTIONS	
Number of Rooms	
Occupancy Rate (Year 1)	
Occupancy Rate (Year 2)	
Occupancy Rate (Year 3)	
Drive-Up Ratio	
Valet Capture Rate	
Sq. Ft. Meeting/Banquet	

Hotel Revenue	SPACES	Turns	CARS / DAY	DAYS / YEAR	RATE / CAR	ANNUAL VEHICLES	YEAR 1 REVENUE	YEAR 2 REVENUE	YEAR 3 REVENUE

Other Revenue	SPACES	Turns	CARS / DAY	DAYS / YEAR	RATE / CAR	ANNUAL VEHICLES	YEAR 1 REVENUE	YEAR 2 REVENUE	YEAR 3 REVENUE

Retail Leasing (b)(4)

A representative retail operating pro forma is presented in Table 6 on the next page. The Client indicated that prevailing retail and restaurant rents in downtown Flushing are in the range of $40/SF NNN and that the Project should be capable of equaling or exceeding those rents. Relying upon this estimate, BAG constructed a simple retail pro forma using typical operating pass through expenses. We also started rents at $38/SF to be conservative and reached $40 effective rents by the stabilized year. The pro forma also assumes that 9 of 10 planned commercial spaces totaling 9,918 SF will be leased. The remaining retail space shown in the project plans is assumed to be dedicated to the hotel and all resulting revenues/ expenses would be retained by and are already included in the hotel pro forma.

Table 6: Annual Operating Income & Expense

Estimated Retail Pro Forma: Four Points Sheraton/Luxury Condo Development, Flushing, NY

	Base-Year Calculations	Stabilized 1	2	3	4	5
Retail Proforma						
	Base Year	2017/18	2018/19	2019/20	2020/21	2021/22
Retail Leases Total Revenue						
"Community Facility" Total Revenue						
Retail Operating Expenses						
Retail EBITDA						
DETAILED PROFORMA						
Retail Leasable Area						
Average Rent PSF						
Pass-through %						
Occupancy Rate						
Community Facility Area						
Average Rent PSF						
Occupancy Rate						
Space A TI and Com (psf)						
Retail Space Rent Escalator						
Total Retail Space Rent Escalator						
Operating Cost Escalator						
Total Operating Escalator						
Retail Revenue						
Retail Rent						
Community Facility Area Rent						
Retail Pass-through						
Total Revenue before Loss						
Less Vacancy/Credit Loss						
Total Revenue						
Retail Operating Expenses						
Utilities						
Elec, Plumb, HVAC, Engineering						
Elevator						
Garage and Other						
Security and Landscape						
Insurance						
Property Tax						
CAM Expense						
Administrative Fee						
Incentive Management Fee						
Total Expenses						
Capital Reserve						
EBITDA						
EBITDA Margin						

Source: Bleakly Advisory Group, Inc.

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In addition it is assumed that the planned 16,800 SF community facility space would be rented for meetings, special events and other purposes to generate additional income. BAG included a

modest allowance under the assumption that the facility could attract 100 to 150 events per year. Including this event space, by year 3 the project is shown to generate [redacted] in total leasing income including CAM and other pass through charges. Assuming that the leasing operation is managed internally, staffing would be funded through a percentage of applicable pass through charges, plus EBIDTA that is not dedicated to debt service.

Residential Condominiums

Finally, a representative stabilized year condominium association operating budget is presented in Table 7. The Client indicated that the residential condominium fees of [redacted] per unit per month are reasonable for the location and the fact that the condominium is connected to the hotel and could access hotel services. Relying upon this estimate, BAG constructed a simple stabilized year operating statement for management of the condominium. The statement shows total revenues just over [redacted] with a modest 4% margin over expenses. Based on the range of services to be offered, it is estimated that roughly 62% of expenses would be payroll related.

Table 7: Annual Operating Income & Expense

Estimated Condominium Association Pro Forma: Four Points Sheraton/Luxury Condo Development, Flushing, NY

	Base	Stabilized Year Revenues/Expenses			Estimated	Estimated
REVENUES:	**Inputs**	**Total**	**Annual/Unit**	**/Unit/Month**	**% Labor**	**Payroll**
Total Units						
Base Monthly Condominium Fee	$					
Laundry Services & Ancillary Income						
TOTAL REVENUES						
OPERATING EXPENSES:						
Concierge						
General Mangers						
Groundskeeping						
Guest Services/Front Desk						
Housekeeping						
Insurance						
Laundry Services						
Repairs and Maintenance						
Security						
Telephone and Internet						
Utilities						
Valet and Doormen						
TOTAL OPERATING EXPENSES						
OPERATING INCOME						
ADMINISTRATIVE EXPENSES						
Office Expenses						
Office Personnel						
Professional Fees						
TOTAL ADMINISTRATIVE EXPENSES						
TOTAL EXPENSES						
NOI						

Source: Bleakly Advisory Group, Inc.

Combined Operations

The combined operating revenues of these components approach [redacted] and are obviously sufficient to support a sizeable payroll and produce a significant direct impact to final demand. Total stabilized year revenues are summarized in Table 8. After considering different alternatives, BAG decided to isolate the hotel's food & beverage revenues/expenses and assign the resulting economic impacts to the "food service and drinking places" sector. The hotel's rooms and other revenues were attributed to the lodging industry sector. (Assigning 100% of impacts to the "hotels and motels" sector would have produced marginally different results.) The remaining activities were attributed to the real estate industry sector.

Table 8: Summary Stabilized Year Revenues
Four Points Sheraton/Luxury Condo Development, Flushing, NY

Stabilized Year Summary	Stabilized Year Revenues
Gross Rooms Revenues	[redacted]
Other Hotel Operations	
Restaurant/Food & Beverage	
Parking Garage	
Commercial Leasing	
Residential Condominium Management	
TOTAL OUTPUT:	

Sources: HVS Consulting & Valuation Services & Bleakly Advisory Group, Inc.

After considering these factors, BAG decided to deduct roughly [redacted] of the Project's stabilized year gross revenues as an "adjustment" to the final demand employment multiplier, under the assumption that a portion of the forecasted EBITDA is likely to be distributed to out-of-region and foreign sources/investors and therefore not benefit the region's economy. The resulting adjustments allocate the remaining gross revenues as a direct-effect impact to the region's economy. The adjustments discussed above reduced the Project's total stabilized year direct output to [redacted]

Based upon the strong market analysis findings, BAG found no reason to further adjust the Project's output to account for competitive impacts (i.e. removal of market share from existing in-region businesses), as those effects are assumed to be negligible. The resulting economic impact calculations appear in Table 9. The net change in final demand methodology was used, similar to the method used to estimate construction-related employment, except that there was no effort to remove the direct effects portion of any of the multipliers. Pro forma operating forecasts in Tables 4 through 7 represent 2014 constant dollar estimates. BAG therefore applied an inflation adjustment to convert stabilized year revenues back to 2010 dollars, similar to construction costs, which lowered the number to [redacted] The direct effects were assigned to the hotels and motels, including casino hotels; food services and drinking places and real estate sectors. The resulting calculations appear in Table 9.

Table 9: Estimated Direct and Indirect Permanent Employment Effects (CPI Adjusted)
Four Points Sheraton/Luxury Condo Development, Flushing, NY

Industry Sector	RIMS II Industry Code	Associated NAICS Codes	Direct Output	Final Demand Multipliers			Economic Impacts		
				Output ($)	Earnings ($)	Employment (Jobs)	Output ($)	Earnings ($)	Employment (Jobs)
Hotels and motels, including casino hotels									
Food services and drinking places									
Real Estate									
Total Impacts:									

Sources: HVS Consulting & Valuation Services Division of Hotel Appraisals, LLC and Bleakly Advisory Group, Inc.

Conclusion: Permanent Employment Effects

In summary, using the net change in final demand method BAG estimates that the mixed-use Project will directly add nearly [redacted] to the region's annual output (in 2010$), based on projected annual operations. The net change in final demand method generates a total regional gain in annual output across all industries of more than [redacted] The investment is also projected to increase household earnings throughout the region by [redacted] This method produces a total regional employment impact of [redacted] jobs from stabilized operations including direct, indirect and induced jobs. This equates to average earnings of roughly [redacted] per job in 2010$.

Estimate of Direct Jobs

The next step in the methodology involved estimating that portion of the total employment impact of [redacted] total jobs, which would represent full-time equivalent positions (FTE's) directly hired by the Project and subject to validation at the time of I-829 approval. Direct employment estimates for the hotel are addressed first, followed by the other project components.

Staffing estimates for the hotel appear in the business plan and were calculated by the hotel market consultant. These estimates are based upon comparable select service hotels of similar size and operating characteristics, located in major U.S. cities. Based on the experience of comparable hotels, the analyst estimated the need for 91 positions, as detailed in Table 10. BAG estimates that as EB-5 qualifying FTE jobs, 91 positions would require a payroll of nearly [redacted] (Direct salaries only - payroll expenses and fringe benefits are excluded.) A projected direct payroll of this size would represent roughly 40% of total stabilized year expenses as calculated in Table 4 and appears to be reasonable. A staffing level of 91 positions with a [redacted] payroll represents an average annual gross wage of [redacted] per position and also appears reasonable.

Table 10: Estimated Hotel Staffing
Four Points Sheraton/Luxury Condo Development, Flushing, NY

Direct Employees from Hotel Operation			
	Position	Employees Needed	Weeks to Open
	Management		
1	General Manager	1	26
2	Assistant General Manager	1	8
3	Controller	1	4
4	Assistant Controller	1	4
5	Guest Service Manager	1	6
6	Guest Service Supervisor	4	3
7	Executive Housekeeper	1	8
8	Housekeeping Supervisor	4	6
9	Chief Engineer	1	8
10	Director of Sales	1	26
11	Sales Coordnator	2	4
	Total	18	
	Position	Employees Needed	Days Paid Till Open
	Line Level		
1	Guest Service Agent	12	15
2	Night Auditor	4	15
3	Breakfast Attendant	6	15
4	Room Attendant	36	20
5	Houseman	10	20
6	Maintencance Tech	6	20
7	Parking Valets	3	15
8	Food Service	14	15
	Total	91	

To further verify this direct job estimate BAG examined the respective RIMS II direct effects employment multipliers for the hotel and motel (1.55) food services (1.30) sectors. Dividing the employment outputs in Table 8 (which were calculated using the final demand method) by these multipliers indicates that 89 of the [redacted] (b)(4) total jobs would be direct, very similar to the estimate of 91FTE employees presented in Table 10. This finding also suggests that the number of EB-5 eligible hotel positions is reasonably estimated. Based on this information, BAG concluded that 90 jobs provide a reasonable estimate of verifiable direct hotel/food service employment on an FTE basis.

Estimated EB-5 Supportable Investment

According to information provided in the Business Plan, the Project qualifies as being located within is a State-designated "Targeted Employment Area" (TEA). As such, EB-5 supportable investment is calculated at a ratio of $500,000 for every 10 jobs created. The maximum credited foreign investment for this project under the EB-5 Program in this case is based upon the sum of the calculated direct on site construction employment [redacted] jobs), the indirect employment in other industries supported by that construction investment [redacted] jobs), the direct permanent employment to be offered by the proposed hotel and ancillary mixed use components [redacted] FTE positions supported by stabilized operations), and the indirect permanent employment [redacted] indirect/induced jobs) supported by those direct jobs. That resulting total of [redacted] jobs is then divided by the ratio of $500,000 per 10 jobs created.

Therefore, based upon the preceding analysis BAG estimates that the Project would support a maximum EB-5 investment of [redacted] allocated as follows.

EB-5 Summary		
Direct Construction Employment	[redacted]	Construction period > 2 years allows direct jobs for construction hard costs
Indirect Construction Employment		Indirect effects across all industry sectors during the construction period
Direct Permanent (Net gain)		Direct FTE jobs from annual hotel operations at stabilized occupancy
Indirect Permanent (Net gain)		Indirect jobs supported by annual operations
Total		EB-5 credited jobs created (indirect construction + direct FTE + indirect employment + tenants)
Ratio of 10 Jobs per		Units invested (Assumes project is located in a Targeted Employment Area)
=		Total Potential EB-5 Equity Capital

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GDated: _____ __, 2014 Name: _____

No.: ____ of ____

CONFIDENTIAL PRIVATE OFFERING MEMORANDUM

(b)(4) [redacted] LIMITED LIABILITY COMPANY INTERESTS

OF

FARRINGTON EB-5 CAPITAL, LLC

A New York Limited Company LLC

Up to [redacted] (b)(4)

of

Member Interests

$500,000.00 per Interest

Minimum Investment of 1 Interest ($500,000.00)

Farrinton EB-5 Capital, LLC

35-06 Leavitt St, Suite CF-A

Flushing, NY 11354

718 .939.1060

Attn: George Xu

centurygroup88@yahoo.com

FINANCIAL CONSIDERATIONS

* * * * *

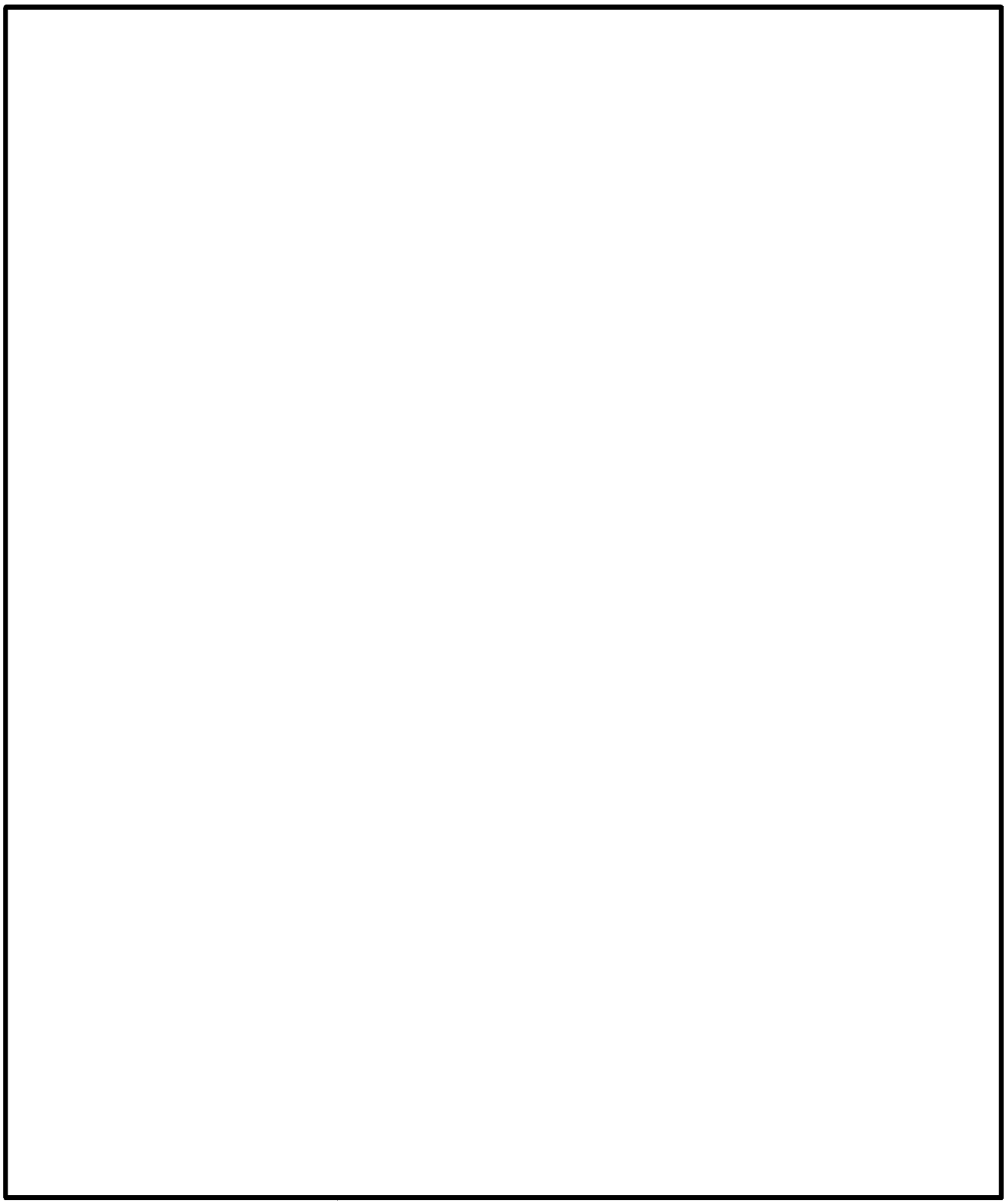

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Table 4: Annual Operating Income & Expense

Four Points Sheraton/Luxury Condo Development, Flushing, NY

	Stabilized									
Year	1	2	3	4	5	6	7	8	9	10
Year Ending	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27
No. Of Rooms										
Rooms Sold										
Occupancy										
ADR										
ADR % Change										
RevPAR										
RevPAR % Change										
Revenue										
Rooms										
Food and Beverage										
Other Departments										
Rentals and Other Income										
Total Revenue										
Departmental Expenses										
Rooms										
Food and Beverage										
Other Operating Departmer										
Total Expenses										
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Undistributed Operating										
G&A										
Marketing										
Franchise Fees										
Repairs & Maintenance										
Utilities										
Total Expenses										
House Profit										
Fixed Expenses										
Management Fee										
Property and Other Taxes										
Insurance										
Other										
Total Fixed Expenses										
EBITDA before FF&E										
FF&E Reserve										
EBITDA after FFE Reserv										
EBITDA Margin										

Sources: HVS Consulting & Va

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Table 3: Estimated Industry Distribution of Facility Construction Spending (CPI Adjusted)

Four Points Sheraton/Luxury Condo Development, Flushing, NY

Industry Allocation of Development Budget (Current Dollars)	RIMS II Industry Code	Associated NAICS Codes	Total Costs	Final Demand Multipliers [2] Output ($)	Earnings ($)	Employment (Jobs)	Direct Effects Multipliers [3] Earnings ($)	Employment (Jobs)	Adjusted [3] Employment Final Demand	Economic Impacts Output ($)	Earnings ($)	Employment (Jobs)
Construction Hard Costs												
Construction (Buildings & Site)	230000	2362, 2362										
Wholesale Trade (FF&E)	420000	42, 4232										
Subtotal: Hard Costs:												
Financing & Soft Costs												
Other government enterprises	S00A00	921										
Real Estate	531000	531, 5313										
Architectural, engineering, and related services	541300	5413										
Insurance	524100	5241										
Accounting, tax preparation, bookkeeping services	523000	5412										
Legal Services	522A00	5411										
Monetary authorities and depository credit intermediation	51A000	5222										
Other miscellaneous professional and technical services	541700	5419										
Subtotal: Financing & Soft Costs:												
Total Indirect Construction Impacts [3]:												

NOTES:

[1] BAG allocated development costs itemized in Table 1 to the most applicable detailed industry sectors recognized in the RIMS II model. Less than 100% of the development budget is used in estimating direct employment impacts from development of the proposed facility.

[2] Final Demand Multipliers are used for industries which are most closely associated with cost categories used in the development budget. Contingency budgets are spread proportionally to other line items.

[3] In order to isolate "indirect" construction impacts which are eligible for consideration under the EB-5 Program, the final demand employment multiplier is adjusted downward by the ratio of the indirect portion of the direct effects employment multiplier. For the construction industry the "adjusted" final demand employment multiplier was calculated as

Sources: Farrington Realty, LLC; HVS Consulting & Valuation Services and Bleakly Advisory Group, Inc.

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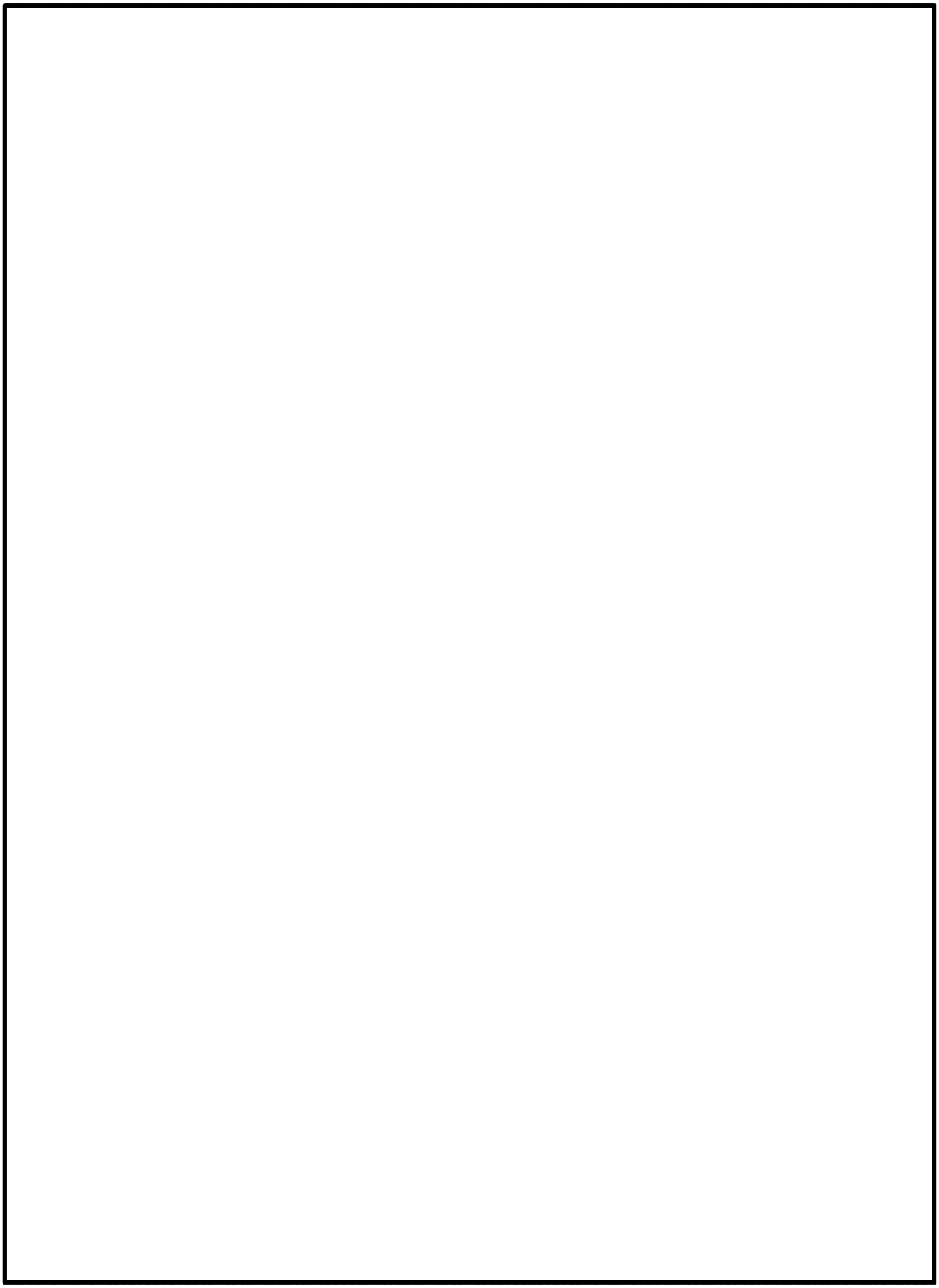

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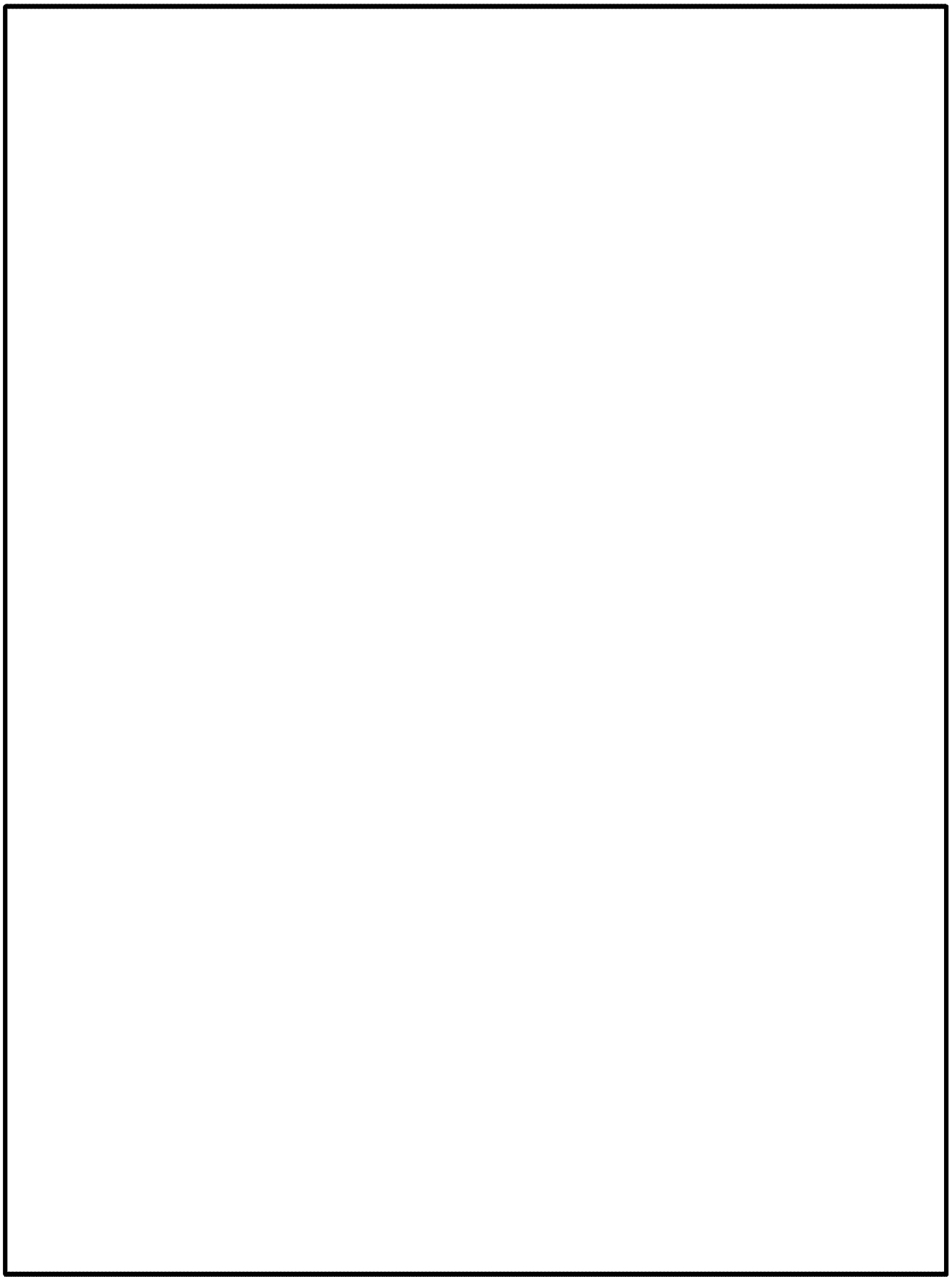

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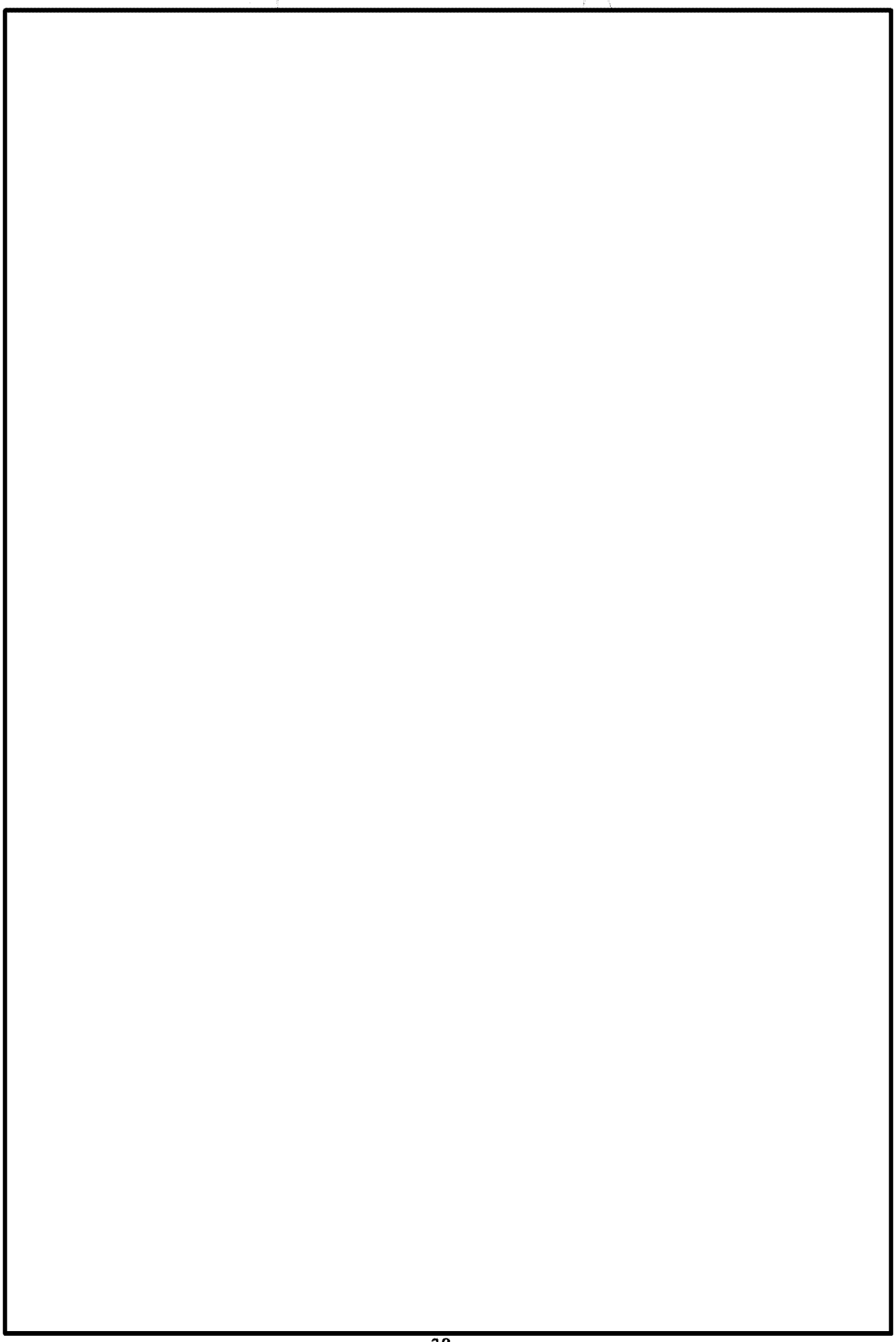
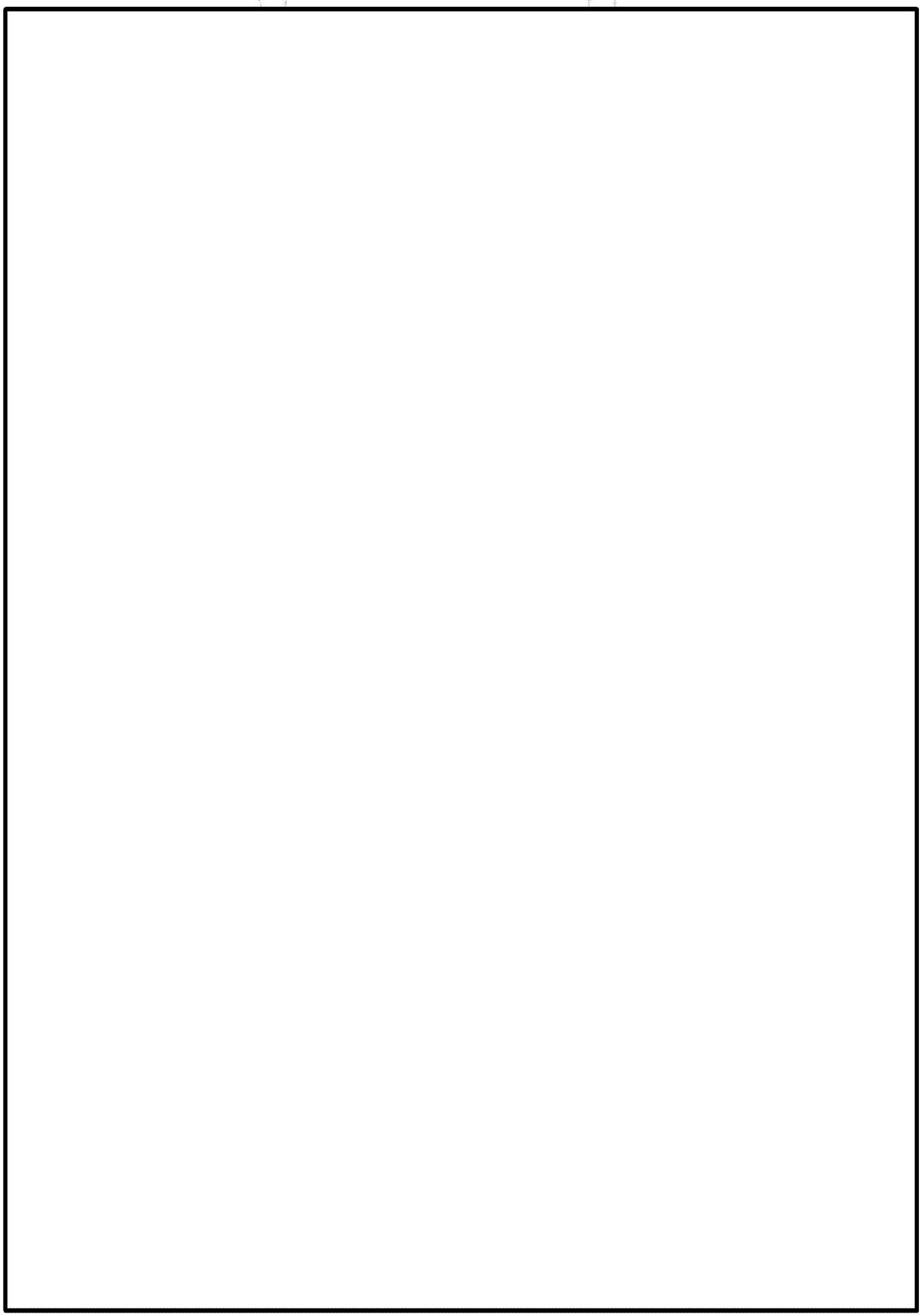
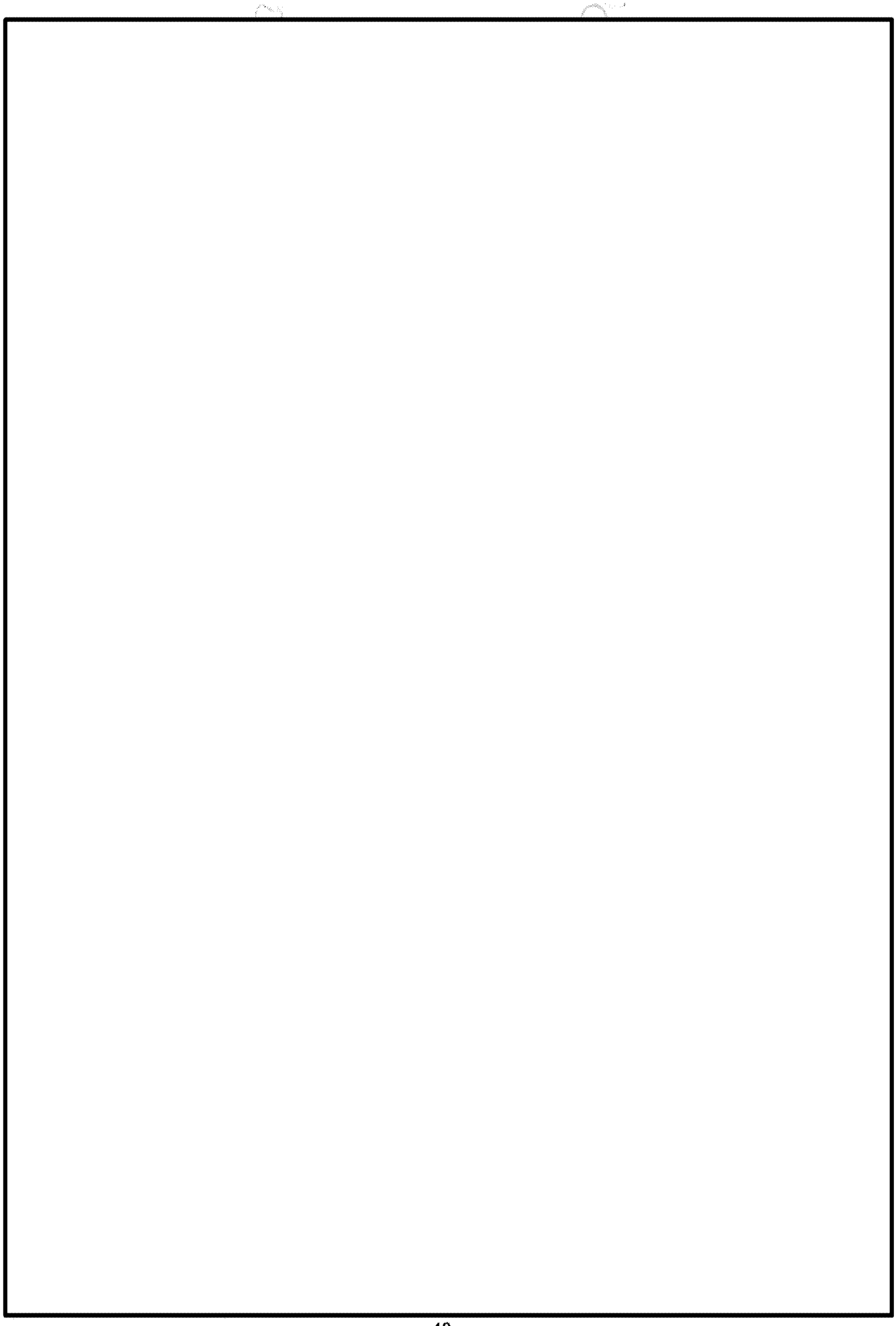
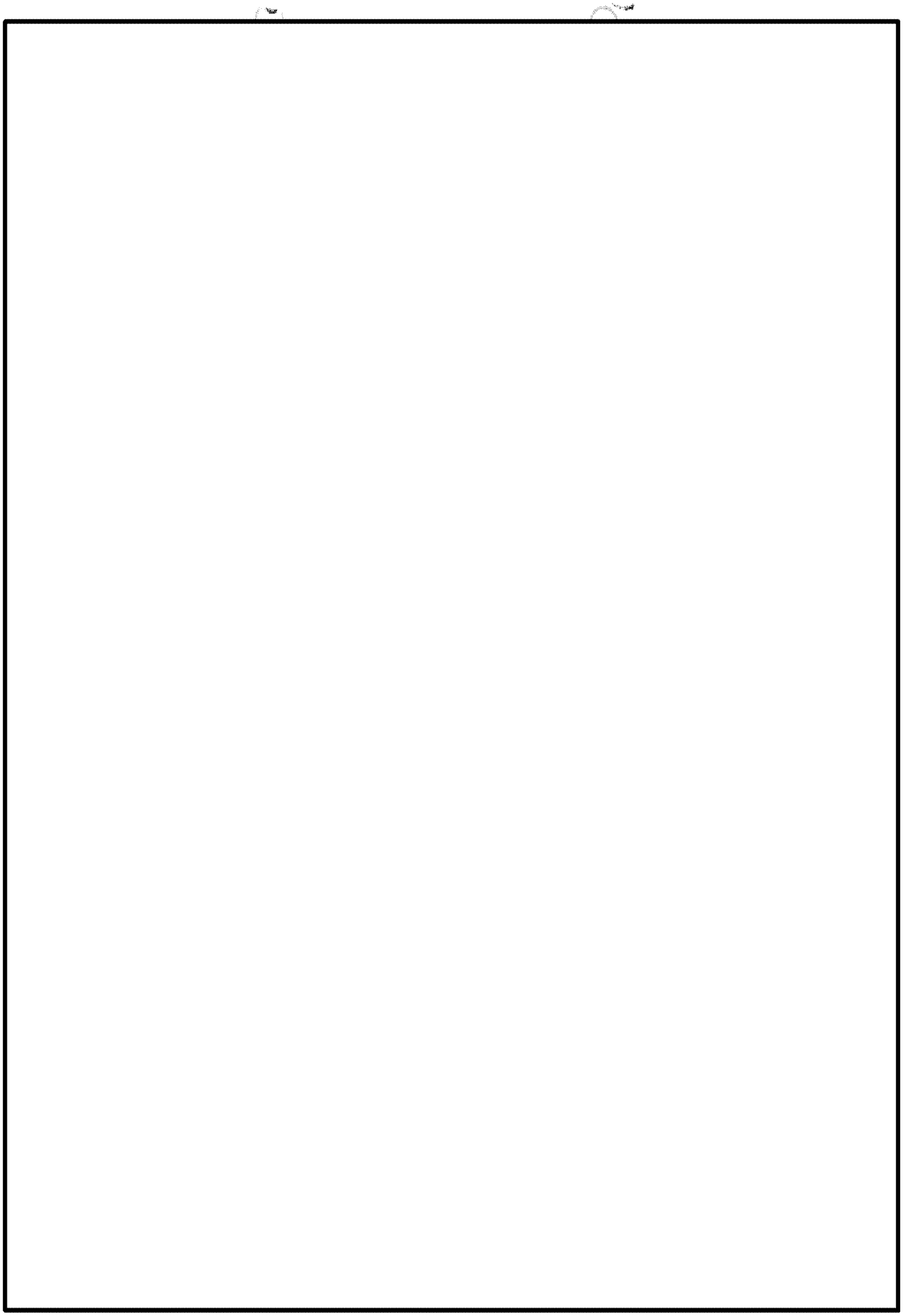
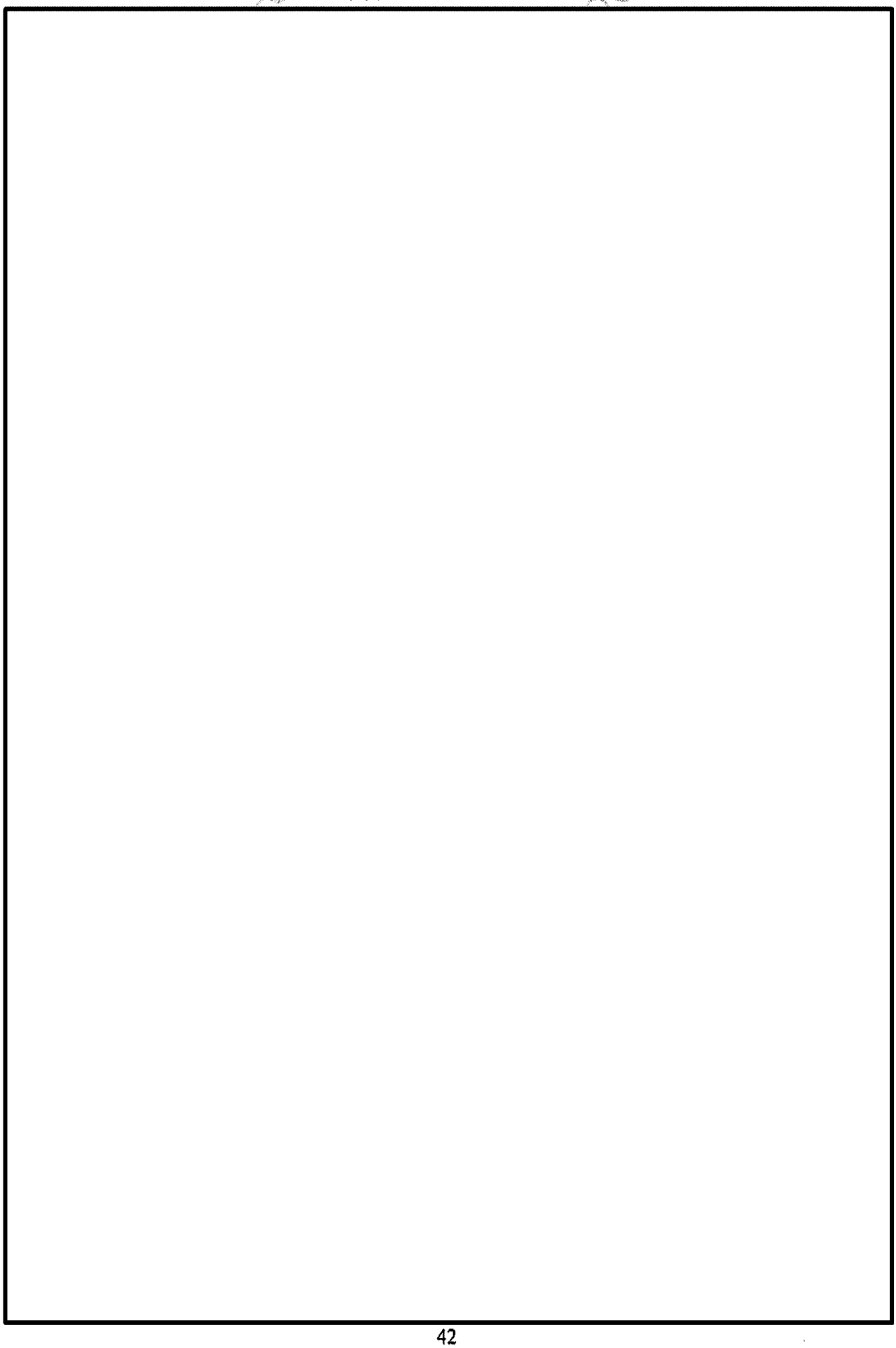
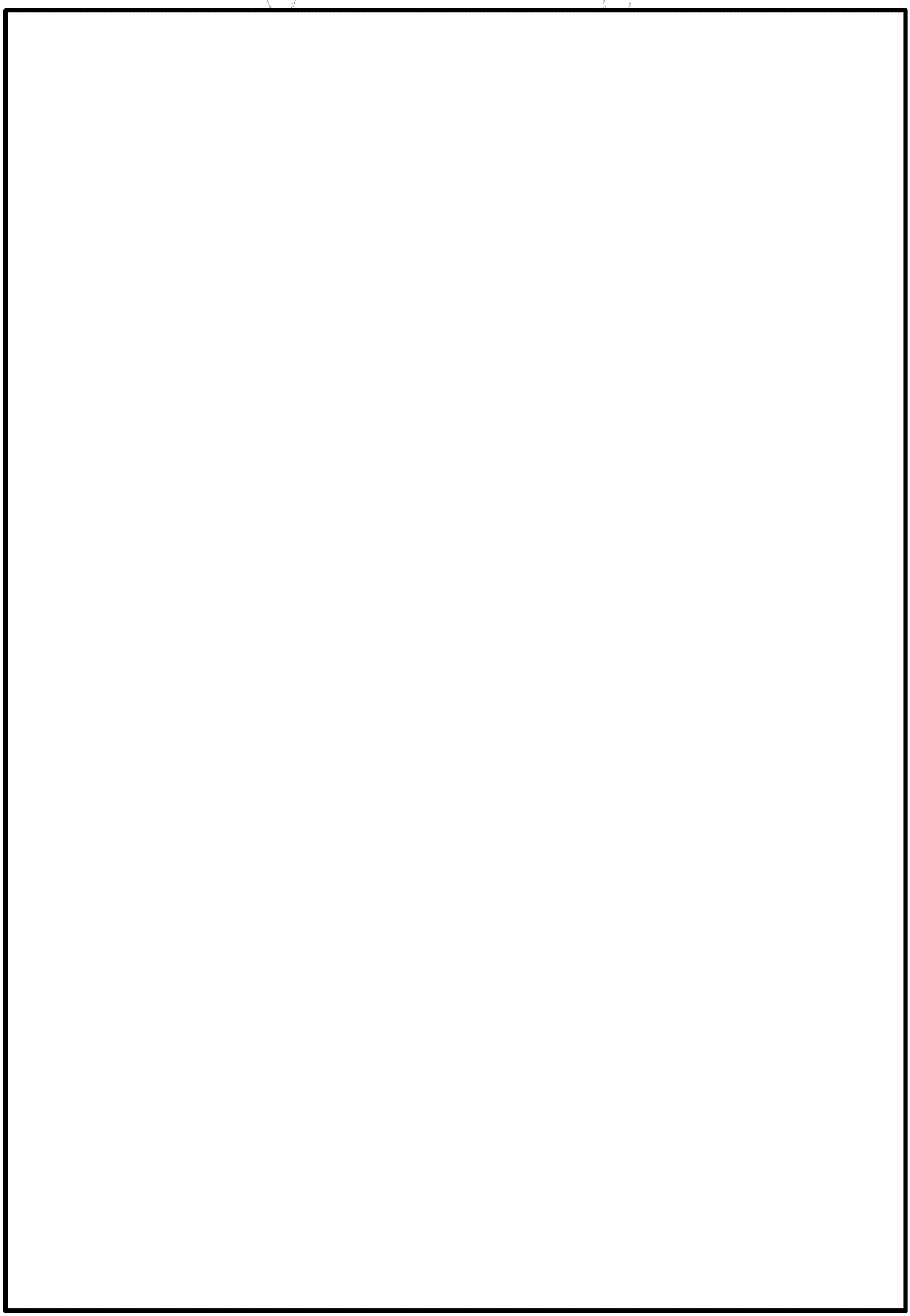


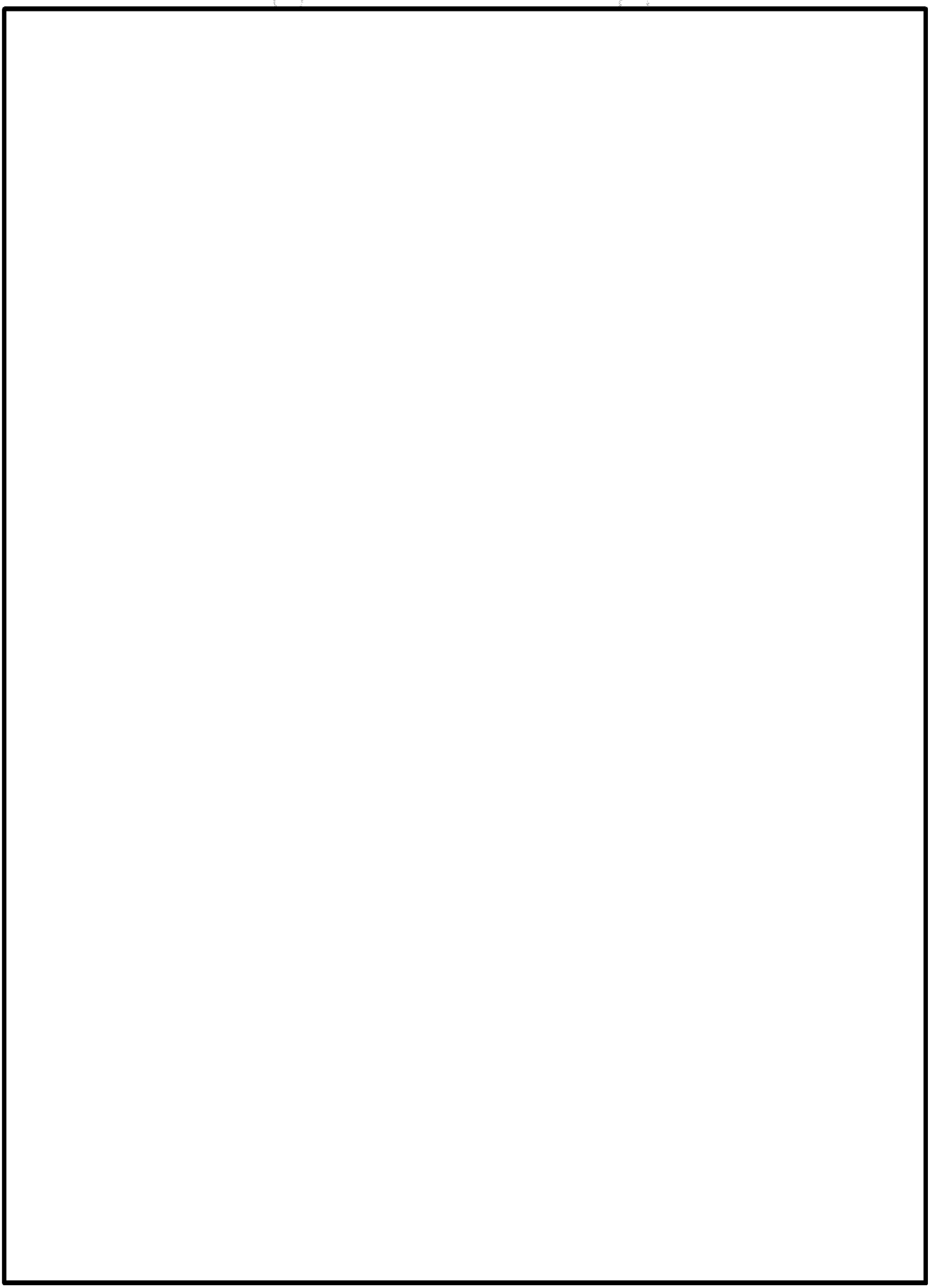












INDEX OF EXHIBITS

[INSERT]

EXHIBIT A
OPERATING AGREEMENT

EXHIBIT B
SUBSCRIPTION AGREEMENT

EXHIBIT C
INVESTOR ELIGIBILITY QUESTIONNAIRE

EXHIBIT D
ESCROW AGREEMENT

EXHIBIT E
COMPREHENSIVE EB-5 BUSINESS PLAN AND TARGETED EMPLOYMENT AREA STATUS

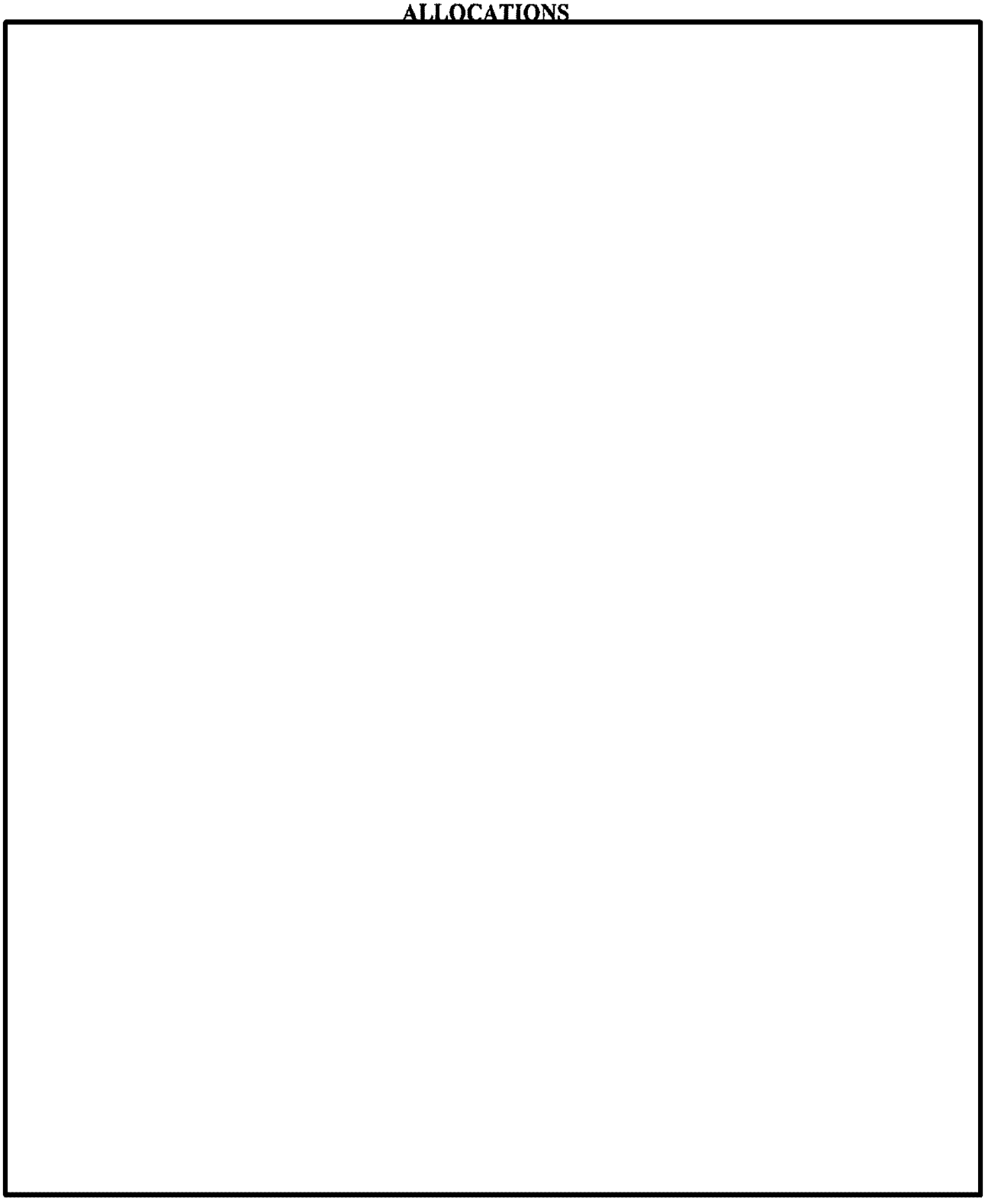
All Exhibits are available for review upon request. Requests should be directed to our Managing Member, George Xu, at Farrinton EB-5 Capital, LLC, 35-06 Keavutt St, Suite CF-A, Flushing, NY 11354. Our Managing Member's telephone number is 718.939.1060. Copies of all exhibits will be delivered before execution of the subscription agreement.

EXHIBIT D

OPERATING AGREEMENT
OF
Farrington EB-5 Capital, LLC

(b)(4)

ALLOCATIONS



Farrington EB-5 Capital, LLC
A New York Limited Liability Company

Limited Liability Company Interests

Subscription Agreement

If you decide not to participate in this offering, please return the Confidential Private Offering Memorandum (together with all amendments, appendices, and supplements thereto), this Subscription Agreement, and any copies of the aforementioned documentation (and any portions thereof) to:

Farrington EB-5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
718.939.1060

Copy No. _____

Farrington EB-5 Capital, LLC
A New York Limited Liability Company

And

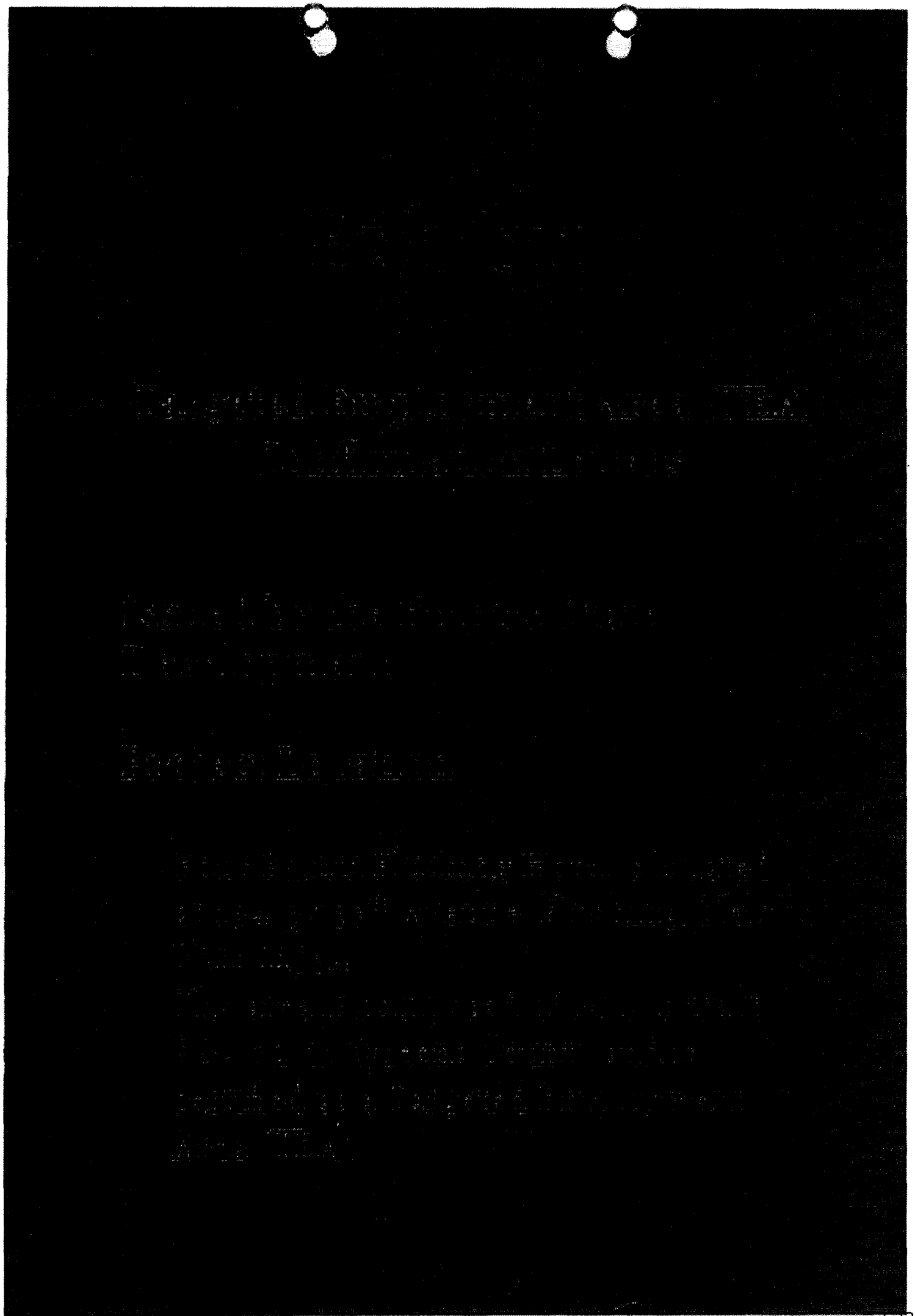
Century New York City Regional Center, LLC

Escrow Bank

Escrow Agreement

Farrington EB-5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
Att: George Xu
centurygroup88@yahoo.com
718.939.1060

Copy No. _____



New York State Department of Labor
Andrew M. Cuomo, *Governor*
Peter M. Rivera, *Commissioner*

March 25, 2014

Kay Alison Wilkie
Director for International Policy
Division of Business Advocacy and Research
Empire State Development | NYS Department of Economic Development
625 Broadway
Albany, NY 12245

Dear Ms. Wilkie:

The 2013 average unemployment rate for census tract 889.02 in Queens County that contains the address, 134-37 35th Avenue, Flushing, NY 11354, as you requested is 10.5 percent. The current minimum threshold to qualify as a Targeted Employment Area is 11.1 percent.

For your consideration, we developed an alternative area composed of census tracts 863, 865, 867, and 889.02 in Queens County with an annual average unemployment rate of 11.7 percent.

These data were estimated using census share methodology as stipulated by the U.S. Bureau of Labor Statistics in LAUS Technical Memorandum No. S-05-21. Census2000 tract boundaries, Census2000 household-only labor force data, and 2013 annual average Local Area Unemployment Statistics (LAUS) data were used in this estimate.

Please feel free to contact me if you have any questions.

Sincerely,

Joseph Nardone

W. Averell Harriman State Office Campus
Building 12, Room 490, Albany, NY 12240
518-457-1350
www.labor.ny.gov

U.S. Department of Homeland Security
U.S. Citizenship and Immigration Services

Notice of Action

A#		Application/Petition I-924, Application For Regional Center Under the Immigrant Investor Pilot Program
Receipt # RCW1523752875		Applicant/Petitioner George Xu Century New York City Regional Center, LLC
Notice Date September 16, 2016	Page 1 of 5	Beneficiary

George Xu
35-06 Leavitt St. Suite CF-A
Flushing, NY 11354

Request for Evidence

IMPORTANT: WHEN YOU HAVE COMPLIED WITH THE INSTRUCTIONS ON THIS FORM, RESUBMIT THIS NOTICE ON TOP OF ALL REQUESTED DOCUMENTS AND /OR INFORMATION TO THE ADDRESS BELOW. THIS OFFICE HAS RETAINED YOUR PETITION/APPLICATION WITH SUPPORTING DOCUMENTS.

THE INFORMATION REQUESTED BELOW MUST BE RECEIVED BY THIS OFFICE NO LATER THAN EIGHTY-FOUR (84) DAYS FROM THE DATE OF THIS NOTICE. IF YOU DO NOT PROVIDE THE REQUESTED DOCUMENTATION WITHIN THE TIME ALLOTTED, YOUR APPLICATION WILL BE CONSIDERED ABANDONED PURSUANT TO 8 C.F.R. 103.2(B)(13) AND, AS SUCH, WILL BE DENIED.

CSC _____ WS _____ DIV I

RETURN THIS NOTICE ON TOP OF THE REQUESTED INFORMATION LISTED ON THE ATTACHED SHEET.

Note: You are given until December 12, 2016 in which to submit the information requested.

Pursuant to 8 C.F.R. 103.2(b)(11) failure to submit ALL evidence requested at one time may result in the denial of your petition.

For more information, visit our website at www.uscis.gov

Or call us at 1-800-375-5283

Telephone service for the hearing impaired: 1-800-767-1833

You will be notified separately about any other applications or petitions you filed. Save a photocopy of this notice. Please enclose a copy of it if you write to us about this case, or if you file another application based on this decision. Our address is:

U.S. CITIZENSHIP AND IMMIGRATION SERVICES IMMIGRANT INVESTOR PROGRAM OFFICE 131 M STREET, NE MAILSTOP 2235 WASHINGTON, DC 20529	Mehreen Shah Mona Shah & Associates 299 Broadway Suite 1005 New York, NY 10007

Form I-797 (1/00)

Please see additional information on the back.

Form I-924, Application for Regional Center Under the Immigrant Investor Pilot Program; Request for Evidence

A request for initial designation as a Regional Center under the Immigrant Investor Program ("Investor Program") or an amendment to an existing Regional Center designation, may involve:

1. A request for review of an exemplar Form I-526, Immigrant Petition by Alien Entrepreneur, prior to the filing of Form I-526 Petitions by individual alien entrepreneurs with USCIS and/or;
2. In the case of a Regional Center amendment request, a review of a new specific capital investment project where the Regional Center designation involved a review of an exemplar capital investment project.

It appears that you are requesting an amendment to your Regional Center designation to include a review of a specific investment project and/or a review of an exemplar Form I-526 Petition.

I. Procedural History and Regional Center Background

The Regional Center entity, Century New York City ("CNYC") Regional Center was established on 3/24/2014 in New York, and is structured as a LLC. CNYC was initially approved for designation in the Pilot Program on 5/14/2015. Based on the initial designation and any subsequently approved designation amendments, CNYC has jurisdiction over the following geographic area:

State	County	Approval Date
New York	New York	5/14/2015
	Queens	
	Bronx	
	Richmond	
	Westchester	
	Nassau	

CNYC has or plans to offer EB-5 capital investment opportunities in affiliated new commercial enterprises, organized as LLCs, focusing on projects in the following approved industry categories:

Industry Category	NAICS	Approval Date
Nonresidential Building Construction	2362	5/14/2015
Furniture and Home Furnishing Merchant Wholesalers	4232	
Monetary Authorities and Depository Credit Intermediation	5222	
Insurance Carriers	5241	
Lessors of Nonresidential Buildings (Except Miniwarehouses)	53112	
Legal Services	5411	
Accounting, Tax Preparation, and Bookkeeping Services	5412	
Architectural, Engineering, and Related Services	5413	
Other Miscellaneous Professional and Technical Services	5419	

Hotel and Motel (including Casinos)	7211	
Restaurants and Other Eating Places	722	

The capital investment projects have or will involve a combination of an equity investment and loan to job creating enterprises located within the proposed bounds of the Regional Center.

CNYC is now requesting to modify its Regional Center designation as follows:

CNYC has submitted for review a project amendment to include an actual project and an exemplar Form I-526 for the Four Points Flushing Hotel & Condominium project, which is a mixed-use building consisting of the following components:

- 210-room hotel branded Four Points by Sheraton
- 100 residential condominium units
- 10 retail stores
- 279-space parking garage
- Community facility

Based upon a review of the initial record of evidence, United States Citizenship and Immigration Services (USCIS) cannot conclude that the applicant has established eligibility to amend its regional center designation. To assist the applicant in focusing on the deficiencies in the existing record, USCIS serves this Request for Evidence. The deficiencies of the current record are outlined below.

II. Evidentiary Requirements for Regional Center Proposals

8 CFR 204.6 (m)(3) describes the evidence that must be submitted in support of a Regional Center proposal. After review of your proposal, the following information, evidence and/or clarification is required. Note that in response to this notice it is helpful to provide a cover letter that acts as an executive summary, followed by a table of contents with sections that are tabbed at the bottom of the page.

1. Administrative Oversight (8 CFR 204.6(m)(6)):

A promotional video[1] publicly available on Youtube.com and accessed on August 18, 2016 asserts USCIS has approved 60 EB-5 investment slots for the Farrington Tower Project and also promises prospective investors the project would purposely undersubscribe the project to maintain a job creation buffer.

The figures cited in the promotional video appear consistent with the contents of the amendment currently under adjudication, but which has not yet been approved. Other materials submitted in the record but have not yet been approved include the economic impact analysis job creation estimates and the offering documents that detail the subscription target of 60 investors. Furthermore, the job creation buffer is not noted in the offering documents submitted with the amendment.

Any representation that USCIS approved the amendment currently under adjudication is false. Incumbent upon regional centers is the responsibility for management and oversight. To the extent that misleading promotional material has been distributed within your regional center's network of attorneys, recruiters,

[1] https://www.youtube.com/watch?v=2UJBBRgB_6o

finders or other related entities, please remove it from circulation and correct this misinformation in the marketplace immediately.

As you may know, deceptive acts or practices and false advertisements may violate Federal laws governing unfair trade and false advertisements. See 15 U.S.C. §§ 45 and 52. IPO may refer regional centers and related commercial enterprises to the Federal Trade Commission or Securities and Exchange Commission for further action as necessary.

2. Regional Center Request for Approval of an Actual Project Supported by an Exemplar I-526 Petition

Project – 8 CFR 204.6(j) and Matter of Ho

8 CFR 204.6(j)(4) requires evidence that the new commercial enterprise (NCE) will create at least 10 full-time positions per EB-5 investor. Pursuant to 8 C.F.R. § 204.6(j)(4)(i)(B), if the employment-creation requirement has not been satisfied prior to filing the I-526 petition, the petitioner must submit a "comprehensive business plan." To be considered "comprehensive," a business plan must be sufficiently detailed to permit the USCIS to reasonably conclude that the NCE has the potential to meet the job-creation requirements. In Matter of Ho, 22 I. & N. Dec. 206 (Assoc. Comm'r, 1998), the Administrative Appeals Office held that a "comprehensive business plan as contemplated by the regulations should contain, at a minimum, a description of the business, its products and/or services, and its objectives." Elaborating on the contents of an acceptable business plan, the decision states the following:

> The plan should contain a market analysis, including the names of competing businesses and their relative strengths and weaknesses, a comparison of the competition's products and pricing structures, and a description of the target market/prospective customers of the new commercial enterprise. The plan should list the required permits and licenses obtained. If applicable, it should describe the manufacturing or production process, the materials required, and the supply sources. The plan should detail any contracts executed for the supply of materials and/or the distribution of products. It should discuss the marketing strategy of the business, including pricing, advertising, and servicing. The plan should set forth the business's organizational structure and its personnel's experience. It should explain the business's staffing requirements and contain a timetable for hiring, as well as job descriptions for all positions. It should contain sales, cost, and income projections and detail the bases therefor. Most importantly, the business plan must be credible. Matter of Ho, 22 I. & N. Dec. 206 at 213 (Assoc. Comm'r, 1998)

NYMRC is seeking approval for an actual project with an exemplar I-526 petition. An actual project is a project that the applicant feels certain will meet established EB-5 eligibility requirements outlined in 8 CFR 204.6(j) and Matter of Ho, 22 I. & N. Dec. 206, (Assoc. Comm'r 1998). Generally, this would be a project that has advanced to the stage where work may begin immediately upon approval of the project.

Upon reviewing the business plan, USCIS finds that the evidence in the record does not establish that the business plan is Matter of Ho compliant. The record does not include sufficient evidence that, taken together, reaches the minimum preponderance of evidence requirement for approving this project based on the information provided. Specifically, USCIS has noted the following deficiencies:

(b)(4)

1. The business plan states that up to [redacted] of the total project cost will be funded by a loan from Cathay Bank but insufficient documentation was provided in the record to confirm that these funds have been committed to the project. The record includes an Indicative Term Sheet dated 9/16/2014 that is for discussion purposes only. Please provide evidence that these funds have been secured. Acceptable evidence includes executed loan agreements or other legally binding documents.

2. The business plan states that the land costs will be approximately [redacted] but this valuation is not supported by either data in the record or in the public domain. The Appraisal Report prepared by HVS dated 7/26/2013 states that the "as is" market value of the land was [redacted] on 6/14/2013. Additionally, the New York City Property website[2] shows a market value o[redacted] for 2016/17. Please provide evidence that supports the proposed valuation or otherwise explains these discrepancies.

3. The business plan states that the hotel will be branded a Four Points by Sheraton but the Confidential Private Offering Memorandum, dated August 15, 2015, states that "As of the date of this memorandum, the Project has not been fully approved by Sheraton for use of the Four Seasons[3] franchise. There can be no assurance that Sheraton will ultimately approve the Borrower's request for the Four Seasons franchise designation. If the Borrower is not approved, it may seek an alternative franchise or no franchise at all." Since the job creation estimates for the operation of the hotel are based on projected annual revenue figures derived from average daily rate of comparable mid-scale hotels, securing a franchise agreement from Four Points or a comparable hotel chain is crucial for validating the estimate of total job creation for this project. Please provide evidence that a franchise agreement has been obtained.

III. Conclusion

USCIS has determined that the record submitted does not establish eligibility for the benefit sought. Accordingly, USCIS has requested evidence which addresses the issues outlined above. As required by regulation, the applicant must prove, by a preponderance of the evidence (that it is more likely than not), that the applicant is fully qualified for the benefit sought. Please note that USCIS will make a final decision based on the initial evidence submitted upon filing and after consideration of all additional evidence submitted in response to this request.

NOTES:

Any document submitted to the USCIS containing a foreign language, must be accompanied by a full English language translation that has been certified by the translator as complete and accurate, and that the translator is competent to translate from the foreign language into English. Submit clear and legible copies of all requested evidence. If clear and legible copies are not possible, submit the original documents. These originals will be returned, if requested.

Please provide an index of any submitted evidence and include corresponding tabs for each section of evidence.

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[2] http://nycprop.nyc.gov/nycproperty/nynav/jsp/selectbbl.jsp

[3] USCIS assumes that references to the luxury Four Seasons brand in the Offering Memorandum are typos and were meant to refer to the mid-scale Four Points chain owned by Starwood Resorts & Hotels.

Notice of Entry of Appearance as Attorney or Accredited Representative

Department of Homeland Security

DHS Form G-28
OMB No. 1615-0105
Expires 03/31/2018

Part 1. Information About Attorney or Accredited Representative

1. USCIS ELIS Account Number *(if any)*
▶

Name and Address of Attorney or Accredited Representative

2.a. Family Name *(Last Name)*: Mehreen
2.b. Given Name *(First Name)*: Shah
2.c. Middle Name:
3.a. Street Number and Name: 299 Broadway
3.b. Apt. ☐ Ste. ☒ Flr. ☐: 1005
3.c. City or Town: New York
3.d. State: NY
3.e. ZIP Code: 10007
3.f. Province:
3.g. Postal Code:
3.h. Country: USA
4. Daytime Telephone Number: 2122337473
5. Fax Number: 2122334877
6. E-Mail Address *(if any)*: mona@mshahlaw.com
7. Mobile Telephone Number *(if any)*:

Part 2. Notice of Appearance as Attorney or Accredited Representative

This appearance relates to immigration matters before *(Select **only one** box)*:

1.a. ☒ USCIS
1.b. List the form numbers: I-924
2.a. ☐ ICE
2.b. List the specific matter in which appearance is entered:
3.a. ☐ CBP
3.b. List the specific matter in which appearance is entered:

I enter my appearance as attorney or accredited representative at the request of:

4. Select **only one** box:
☐ Applicant ☒ Petitioner ☐ Requestor
☐ Respondent (ICE, CBP)

Information About Applicant, Petitioner, Requestor, or Respondent

5.a. Family Name *(Last Name)*: XU
5.b. Given Name *(First Name)*: George
5.c. Middle Name:
6. Name of Company or Organization *(if applicable)*: N/A

Part 2. Notice of Appearance as Attorney or Accredited Representative *(continued)*

Information About Applicant, Petitioner, Requestor, or Respondent (continued)

7. USCIS ELIS Account Number *(if any)*
   ▶
8. Alien Registration Number (A-Number) or Receipt Number
9. Daytime Telephone Number
10. Mobile Telephone Number *(if any)*
11. E-Mail Address *(if any)*
    mona@mshahlaw.com

Mailing Address of Applicant, Petitioner, Requestor, or Respondent

NOTE: Provide the mailing address of the applicant, petitioner, requestor, or respondent. If the applicant, petitioner, requestor, or respondent has used a safe mailing address on the application, petition, or request being filed with this Form G-28, provide it in these spaces.

12.a. Street Number and Name: 3506 Levitt Street

12.b. Apt. ☐ Ste. ☒ Flr. ☐ CFA

12.c. City or Town: Flushing

12.d. State: NY **12.e.** ZIP Code: 11354

12.f. Province

12.g. Postal Code

12.h. Country: USA

Part 3. Eligibility Information for Attorney or Accredited Representative

Select **all applicable** items.

1.a. ☒ I am an attorney eligible to practice law in, and a member in good standing of, the bar of the highest courts of the following states, possessions, territories, commonwealths, or the District of Columbia. *(If you need additional space, use **Part 6.**)*

Licensing Authority: New York Court of Appeals

1.b. Bar Number *(if applicable)*: MS1058

1.c. Name of Law Firm: Mona Shah & Associates

1.d. I *(choose one)* ☒ ***am not*** ☐ ***am*** subject to any order of any court or administrative agency disbarring, suspending, enjoining, restraining, or otherwise restricting me in the practice of law. If you are subject to any orders, explain in the space below. *(If you need additional space, use **Part 6.**)*

2.a. ☐ I am an accredited representative of the following qualified nonprofit religious, charitable, social service, or similar organization established in the United States, so recognized by the Department of Justice, Board of Immigration Appeals, in accordance with 8 CFR 292.2. Provide the name of the organization and the expiration date of accreditation.

2.b. Name of Recognized Organization

2.c. Date accreditation expires *(mm/dd/yyyy)* ▶

Part 3. Eligibility Information for Attorney or Accredited Representative *(continued)*

3. ☐ I am associated with

[ ],

the attorney or accredited representative of record who previously filed Form G-28 in this case, and my appearance as an attorney or accredited representative is at his or her request.

NOTE: If you select this item, also complete **Item Numbers 1.a. - 1.b. or Item Numbers 2.a. - 2.c.** in **Part 3.** *(whichever is appropriate).*

4.a. ☐ I am a law student or law graduate working under the direct supervision of the attorney or accredited representative of record on this form in accordance with the requirements in 8 CFR 292.1(a)(2)(iv).

4.b. Name of Law Student or Law Graduate

[ ]

Part 4. Applicant, Petitioner, Requestor, or Respondent Consent to Representation, Contact Information, and Signature

Consent to Representation and Release of Information

1. I have requested the representation of and consented to being represented by the attorney or accredited representative named in **Part 1.** of this form. According to the Privacy Act of 1974 and DHS policy, I also consent to the disclosure to the named attorney or accredited representative of any record pertaining to me that appears in any system of records of USCIS, ICE or CBP.

When you (the applicant, petitioner, requestor, or respondent) are represented, DHS will send notices to both you and your attorney or accredited representative either through mail or electronic delivery.

DHS will also send the Form I-94, Arrival Departure Record, to you **unless** you select **Item Number 2.a.** in **Part 4.** All secure identity documents and Travel Documents will be sent to you (the applicant, petitioner, requestor, or respondent) unless you ask us to send those documents to your attorney of record or accredited representative.

If you do not want to receive original notices or secure identity documents directly, but would rather have such notices and documents sent to your attorney of record or accredited representative, please select **all applicable** boxes below:

2.a ☒ I request DHS send any notice (including Form I-94) on an application, petition, or request to the business address of my attorney of record or accredited representative as listed in this form. I understand that I may change this election at any future date through written notice to DHS.

2.b. ☒ I request that DHS send any secure identity document, such as a Permanent Resident Card, Employment Authorization Document, or Travel Document, that I am approved to receive and authorized to possess, to the business address of my attorney of record or accredited representative as listed in this form. I consent to having my secure identity document sent to my attorney of record or accredited representative and understand that I may request, at any future date and through written notice to DHS, that DHS send any secure identity document to me directly.

3.a. Signature of Applicant, Petitioner, Requestor, or Respondent

[ ]

3.b. Date of Signature *(mm/dd/yyyy)*▶ 08/14/2015

Part 5. Signature of Attorney or Accredited Representative

I have read and understand the regulations and conditions contained in 8 CFR 103.2 and 292 governing appearances and representation before the Department of Homeland Security. I declare under penalty of perjury under the laws of the United States that the information I have provided on this form is true and correct.

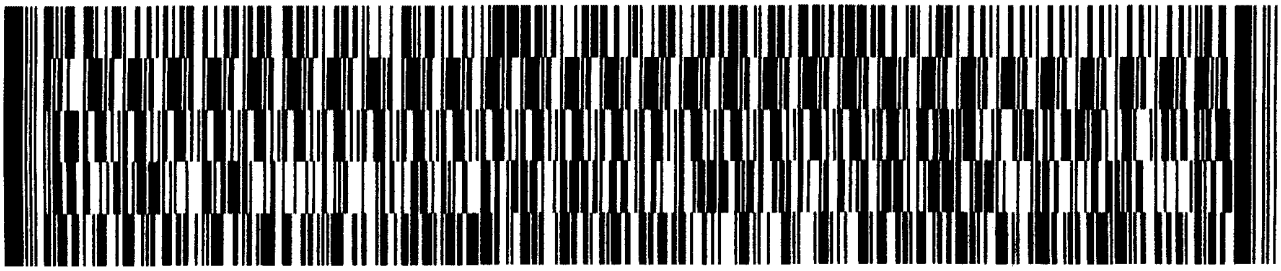
1. Signature of Attorney or Accredited Representative

[ ]

2. Signature of Law Student or Law Graduate

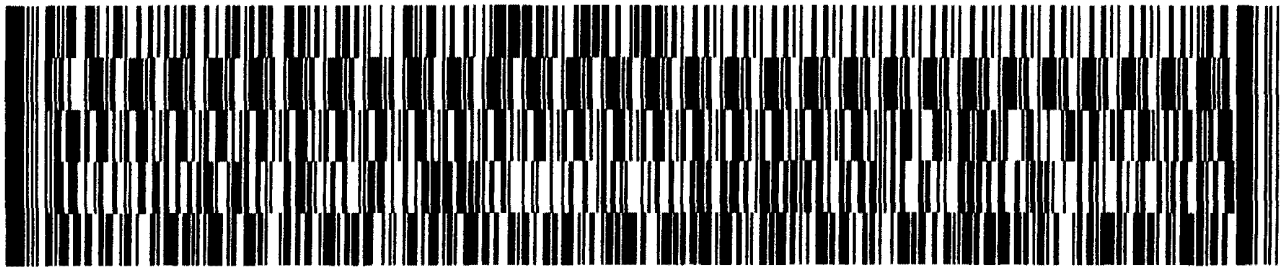
[ ]

3. Date of Signature *(mm/dd/yyyy)*▶ 08/20/2015



Part 6. Additional Information

Use the space below to provide additional information pertaining to **Part 3., Item Numbers 1.a. - 1.d.**



RECD CSC150AUG25 18:24

OMB No. 1615-0061; Expires 03/31/2016

Department of Homeland Security
U.S. Citizenship and Immigration Services

Form I-924, Application for Regional Center Under the Immigrant Investor Pilot Program

Do Not Write in This Block - for USCIS Use Only (except G-28 block below)	
Action Block	F RCW1523752875 egarcia2 1924 08/25/2015 ☒ G-28 attached Attorney's State License No. MS1058

Part 1. Information About Principal of the Regional Center

Name: Last	First	Middle
Xu	George	

C/O: Mona Shah and Associates

Street Address/P.O. Box: 299 Broadway, Suite 1005

City: New York	State: NY	Zip Code: 10007

Date of Birth (mm/dd/yyyy):	Fax Number (include area code): (212) 233-4877	Telephone Number (include area code): (212) 233-7473

Web site address:

Part 2. Application Type (Select one)

☐ **a.** Initial Application for Designation as a Regional Center

☒ **b.** Amendment to an approved Regional Center application. Note the previous application receipt number, if any (also attach the Regional Center's previous approval notice): _____

Part 3. Information About the Regional Center

(Use a continuation sheet, if needed, to provide information for additional management companies/agencies, Regional Center principals, agents, individuals or entities who are or will be involved in the management, oversight, and administration of the regional center.)

A. Name of Regional Center: Century New York City Regional Center, LLC

Street Address/P.O. Box: 35-06 Leavitt Street, Suite CF-A

City: Flushing	State: NY	Zip Code: 11354

Web site address:	Fax Number (include area code): (212) 233-4877	Telephone Number (include area code): (212) 233-7473

Part 3. Information About the Regional Center (Continued)

B. Name of Managing Company/Agency: Century New York City Regional Center, LLC

Street Address/P.O. Box: 35-06 Leavitt Street, Suite CF-A

City: Flushing	State: NY	Zip Code: 11354
Web site address:	Fax Number (include area code): (509) 965-8535	Telephone Number (include area code): (509) 965-4240

C. Name of Other Agent: Mona Shah & Associates

Street Address/P.O. Box: 299 Broadway, Suite 1005

City: New York	State: NY	Zip Code: 10007
Web site address: www.mshahlaw.com	Fax Number (include area code): (212) 233-4877	Telephone Number (include area code): (212) 233-7473

D. Continuation, if needed, to provide information for additional management companies/agencies, regional center principals, agents, individuals or entities who are or will be involved in the management, oversight, and administration of the regional center.)

Please see attached Counsel's project cover letter.

Part 3. Information About the Regional Center (Continued)

Note: If extra space is needed to complete any item, attach a continuation sheet, indicate the item number, and provide the response.

1a. Describe the structure, ownership and control of the regional center entity.

The Regional Center will be managed by the Founder and Principle, George Xu; Principle, Qili Li; Vice President, David Pan; Vide President, James Ho; Vice President, Robert Chen; Director of Marketing & Business Development, Lynn Wei; Director of Account Controller, Anthea Quan; and the Director of Project Management, Tracy Law. Please see attached Counsel's project cover letter and organizational chart.

b. Date the Regional Center was established(mm/dd/yyyy): 03/24/2014

c. Organization Structure for the Regional Center:

- ☐ **1.** Agency of a U.S. State or Territory (identify) _____
- ☐ **2.** Corporation
- ☐ **3.** Partnership (including Limited Partnership)
- ☒ **4.** Limited Liability Company (LLC)
- ☐ **5.** Other (Explain) _____

2. Has this regional center's designation ever been formally terminated by USCIS, or has the regional center ever filed a Form I-924 or regional center proposal or amendment that was denied?

☒ No ☐ Yes - Attach a copy of the adverse decision, with an explanation, the date of decision, and case number, if any.

3. Describe the geographic area of the regional center. **Note:** This area must be contiguous. Provide a map of the geographic area.

Geographic area of the regional center includes the New York counties of Queens County, New York County, Bronx County, Richmond County, Westchester County and Nassau County.

The map of the geographic area is attached in the Business Plan.

4. Describe the regional center's administration, oversight, and management functions that are or will be in place to monitor all EB-5 capital investment activities and the allocation of the resulting jobs created or maintained under the sponsorship of the regional center.

Please see counsel's cover letter and administrative exhibits.

Part 3. Information About the Regional Center (Continued)

5. Describe the past, current, and future promotional activities for the regional center. Include a description of the budget for this activity, along with evidence of the funds committed to the regional center for promotional activities. Submit a plan of operation for the regional center that addresses how EB-5 investors will be recruited, the methods by which the capital investment opportunities will be offered to the investors, and how they will subscribe or commit to the investment interest.

Century New York City Regional Center has a comprehensive marketing plan in operation. Please see attached project cover letter and attachments for details.

6. Describe whether and how the regional center is engaged in supporting a due diligence screening of its alien investor's lawful source of capital and the alien investor's ability to fully invest the requisite amount of capital. Also, describe the regional center's prospective plans in this regard if they differ from past practice.

Century New York City Regional Center will support due diligence screening of its foreign investors' lawful source of capital by requiring all investors to complete the Regional Center's Suitability Evaluation Form and to provide certified and notarized documentary evidence, containing official seal or consular legalization, of any loan or mortgage agreements, promissory notes, security agreements, foreign business registration records, corporate, partnership, and personal tax returns.

7. Identify each industry that has or will be the focus of EB-5 capital investments sponsored through the regional center.

Industry Category Title: Residential Building Construction NAICS Code for the Industry Category: 2 3 6 1 _ _	Is the Form I-924 application supported by an economic analysis and underlying business plan for the determination of prospective EB-5 job creation through EB-5 investments in this industry category? ☐ No - Attach an explanation ☒ Yes
Industry Category Title: Nonresidential Building Construction NAICS Code for the Industry Category: 2 3 6 2 _ _	Is the Form I-924 application supported by an economic analysis and underlying business plan for the determination of prospective EB-5 job creation through EB-5 investments in this industry category? ☐ No - Attach an explanation ☒ Yes
Industry Category Title: Furniture and Home Furnishing Mercha NAICS Code for the Industry Category: 4 2 3 2 _ _	Is the Form I-924 application supported by an economic analysis and underlying business plan for the determination of prospective EB-5 job creation through EB-5 investments in this industry category? ☐ No - Attach an explanation ☒ Yes

Part 3. Information About the Regional Center (Continued)

8a. Describe and document the current and/or prospective structure of ownership and control of the commercial entities in which the EB-5 alien investors have or will make their capital investments.

Please see the Operating Agreement attached in the Exhibits.

b. Date commercial enterprise established, if any (mm/dd/yyyy): 03/31/2014

c. Organization Structure for commercial enterprise:

- ☐ **1.** Corporation
- ☐ **2.** Partnership (including Limited Partnership)
- ☒ **3.** Limited Liability Company (LLC)
- ☐ **4.** Other (Explain) _____

d. Has or will the Regional Center or any of its principals or agents have an equity stake in the commercial enterprise?

☒ No ☐ Yes - Attach an explanation and documentation that outlines when and under what circumstances these remittances will be paid.

e. Has or will the Regional Center or any of its principals or agents receive fees, profits, surcharges, or other like remittances through EB-5 capital investment activities from this commercial enterprise, beyond the minimum capital investment threshold required of the EB-5 alien entrepreneurs?

☐ No ☒ Yes - Attach an explanation and documentation that outlines when and under what circumstances these remittances will be paid.

Part 4. Applicant Signature

Read the information on penalties in the instructions before completing this section. If someone helped you prepare this petition, he or she must compete **Part 5.**

I certify, under penalty of perjury under the laws of the United States of America, that this form and the evidence submitted with it are all true and correct. I authorize the release of any information from my records that U.S. Citizenship and Immigration Services needs to determine eligibility for the benefit being sought. I also certify that I have authority to act on behalf of the Regional Center.

Signature of Applicant	**Daytime Phone Number** (Area/Country Codes)	**Date** (mm/dd/yyyy)
		08/14/2015
Printed Name of Applicant	**E-Mail Address**	
George Xu		
Relationship to the Regional Center Entity (Managing Member, President, CEO, etc.)		
Principal of the Regional Center		

Part 5. Signature of Person Preparing This Form, If Other Than Above (Sign Below)

I declare that I prepared this application using information provided by someone with authority to act on behalf of the Regional Center, and the answers and information provided by the Regional Center.

Attorney or Representative: In the event of a Request for Evidence (RFE), may the USCIS contact you by Fax or E-mail? ☐ No ☒ Yes

Signature of Preparer	**Printed Name of Preparer**	**Date** (mm/dd/yyyy)
	Mehreen Shah, Esq.	08/20/2015
Firm Name and Address Mona Shah & Associates 299 Broadway, Suite 1005 New York, NY 10007		
Daytime Phone Number (Area/Country Codes)	**Fax Number** (Area/ Country Codes)	**E-Mail Address**
(212) 233-7473	(212) 233-4877	mona@mshahlaw.com

Century New York City Regional Center, LLC
Continuation Sheet

Part 3. Information About the Regional Center

Question 7. Identify each industry that has or will be the focus of EB-5 capital investments sponsored through the regional center.

Industry Category Title	NAICS Code	Economic Analysis & Business Plan?
Food Services and drinking places	72251	Yes
Real Estate	53112/5313	Yes
Other government enterprises	921	Yes
Architectural, engineering and related services	5413	Yes
Insurance	5241	Yes
Accounting tax preparation, bookkeeping services	5412	Yes
Legal Services	5411	Yes
Monetary authorities and depository credit intermediation	5222	Yes
Other miscellaneous professional and technical services	5419	Yes

Part 3. Information About the Regional Center

Question 8e. Has or will the Regional Center or any of its principals or agents receive fees, profits, surcharges, or other like remittances through EB-5 capital investment activities from this commercial enterprise, beyond the minimum capital investment threshold required of the EB-5 alien entrepreneurs?

The Regional Center will charge each investor a [redacted] administrative fee. Please see the Offering Documents at Exhibit 5 for more details.

(b)(4)

MONA SHAH & ASSOCIATES
—ATTORNEYS AT LAW—

299 Broadway, Suite 1005
New York, NY 10007

Tel: 212-233-7473
Fax: 212-233-4877
E Fax: 917-210-3711

Email: info@mshahlaw.com
Web: www.mshahlaw.com

August 20, 2015

VIA Fed-Ex Delivery

USCIS – California Service Center
Attn: EB-5 RC Processing Unit
24000 Avila Road, 2nd Floor
Laguna Niguel, CA 92677

RE: Request for an Amendment to an Approved Regional Center Application, Form I-924, Exemplar Filing for a New Project (Farrington EB-5 Capital, LLC) and Form I-526 Petition
Petitioner: Century New York City Regional Center, LLC / RCW1420251818
Project: Farrington EB-5 Capital, LLC

Dear Adjudicating Officer,

Attached please find request for an amendment to Century New York City Regional Center, LLC's previously approved RC petition, along with an Exemplar Form I-526.

Attached also is our G-28 and supporting documentation, indexed and tabbed.

Should you require any additional document or clarification, please do not hesitate to contact us, we will be delighted to oblige.

Sincerely,

Mona Shah & Associates

Omar Al Hakim, Esq.

OH/hm
Enclosures

Submitted By:

Mona Shah & Associates

Attorneys for:
Century New York City Regional Center
299 Broadway, Suite 1005
New York, NY 10007
Tel: (212) 233 7473

Century New York City Regional Center, LLC
Receipt No: RCW14202251818/ Regional Center ID: 14202251818

Century New York City Regional Center, LLC

REQUEST FOR AN AMENDMENT TO AN APPROVED REGIONAL CENTER APPLICATION, FORM I-924, EXEMPLAR FILING FOR A NEW PROJECT (Farrington EB-5 Capital, LLC) AND FORM I-526 PETITION

OMB No. 1615-0026; Exp. 09/30/2016

Department of Homeland Security
U.S. Citizenship and Immigration Services

Form I-526, Immigrant Petition by Alien Entrepreneur

Do Not Write in This Block - For USCIS Use Only (Except G-28 Block Below)		
Classification	**Action Block**	Fee Receipt
Priority Date		**To be completed by Attorney or Representative, if any** ☒ G-28 is attached Attorney's State License No. MS1058
Remarks:		

START HERE - Type or print in black ink.

Part 1. Information About You

Family Name	Given Name	Middle Name
Doe	John	

Address - In Care of Name, if applicable

Street Number and Name	Apt. Number
134-37 35th Avenue	

City	State or Province	Country	Zip/Postal Code
Flushing	New York	USA	11354

Date of Birth *(mm/dd/yyyy)*	Country of Birth	Social Security Number (if any)	A-Number (if any)
01/01/1975	New York	N/A	N/A

If you are in the United States, provide the following information:

Date of Arrival *(mm/dd/yyyy)*	I-94 Number	Passport Number
Travel Document Number	Expiration Date for Passport or Travel Document	Country of Issuance for Passport or Travel Document
Current Nonimmigrant Status	Date Current Status Expires *(mm/dd/yyyy)*	Daytime Telephone Number (with Area Code)

Part 2. Application Type *(Check one)*

a. ☒ This petition is based on an investment in a commercial enterprise in a targeted employment area for which the required amount of capital invested has been adjusted downward.

b. ☐ This petition is based on an investment in a commercial enterprise in an area for which the required amount of capital invested has been adjusted upward.

c. ☐ This petition is based on an investment in a commercial enterprise that is not in either a targeted area or in an upward adjustment area.

Part 3. Information About Your Investment

Name of commercial enterprise in which funds are invested ***(Required Field - Do Not Leave Blank)***

Farrington EB-5 Capital, LLC

Street Address

134-37 35th Avenue, Flushing, NY 11354

Phone Number with Area Code	Business organized as (corporation, partnership, etc.)
+1 (718) 939-1060	Limited Liability Company

RECEIVED: _____ RESUBMITTED: _____ RELOCATED: SENT _____ REC'D _____

Part 3. Information About Your Investment *(Continued)*

(b)(3)

Kind of business (e.g. furniture manufacturer): Investment Fund

Date established (mm/dd/yyyy): 03/25/2014

IRS Tax #:

Date of your initial investment (mm/dd/yyyy):

Amount of your initial investment: $ 000,000,500,000.00

Your total capital investment in the enterprise to date: $ 000,000,500,000.00

Percentage of the enterprise you own:

If you are not the sole investor in the new commercial enterprise, list on separate paper the names of all other parties (natural and non-natural) who hold a percentage share of ownership of the new enterprise and indicate whether any of these parties is seeking classification as an alien entrepreneur. Include the name, percentage of ownership, and whether or not the person is seeking classification under section 203(b)(5). **NOTE:** A "natural" party would be an individual person, and a "non-natural" party would be an entity such as a corporation, consortium, investment group, partnership, etc.

If you indicated in **Part 2** that the enterprise is in a targeted employment area or in an upward adjustment area, name the county and State: County: Queens State: NY

Part 4. Additional Information About the Enterprise

Type of Enterprise (check one):

- [X] New commercial enterprise resulting from the creation of a new business.
- [ ] New commercial enterprise resulting from the purchase of an existing business.
- [ ] New commercial enterprise resulting from a capital investment in an existing business.

Composition of the Petitioner's Investment:

Total amount in U.S. bank account	$ 000,000,000.00
Total value of all assets purchased for use in the enterprise	$ 000,000,000.00
Total value of all property transferred from abroad to the new enterprise	$ 000,000,000.00
Total of all debt financing	$ 000,000,000.00
Total stock purchases	$ 000,000,000.00
Other (explain on separate paper)	$ 000,500,000.00
Total	$ 000,000,500,000.00

Income:

When you made the investment	Gross	$ 000,000,000.00	Net	$ 000,000,000.00
Now	Gross	$ 000,000,000.00	Net	$ 000,000,000.00

Net worth:

When you made investment	Gross	$ 000,000,000.00	Now	$ 000,000,000.00

Part 5. Employment Creation Information

Number of full-time employees in the enterprise in U.S. (excluding you, your spouse, sons, and daughters)

When you made your initial investment? 0 Now 0 Difference 0

How many of these new jobs were created by your investment? 0

How many additional new jobs will be created by your additional investment? 10+

What is your position, office, or title with the new commercial enterprise?

Members

Briefly describe your duties, activities, and responsibilities.

Vote & participate in company matters based on the company's Limited Liability Agreement

What is your salary? $ What is the cost of your benefits? $

Part 6. Processing Information

Check One:

☐ The person named in **Part 1** is now in the United States, and an application to adjust status to permanent resident will be filed if this petition is approved.

☒ If the petition is approved and the person named in **Part 1** wishes to apply for an immigrant visa abroad, complete the following for that person:

Country of nationality: U.S.

Country of current residence or, if now in the United States, last permanent residence abroad:

U.S.

If you provided a United States address in **Part 1**, print the person's foreign address:

If the person's native alphabet is other than Roman letters, write the foreign address in the native alphabet:

Are you in deportation or removal proceedings? ☐ Yes (Explain on separate paper) ☒ No

Have you ever worked in the United States without permission? ☐ Yes (Explain on separate paper) ☒ No

Part 7. Signature *Read the information on penalties in the instructions before completing this section.*

I certify, under penalty of perjury under the laws of the United States of America, that this petition and the evidence submitted with it is all true and correct. I authorize the release of any information from my records that U.S. Citizenship and Immigration Services needs to determine eligibility for the benefit I am seeking.

Signature Date

Mobile Phone Number (b)(6) E-Mail Address mona@mshahlaw.com

NOTE: *If you do not completely fill out this form or fail to the submit the required documents listed in the instructions, you may not be found eligible for the immigration benefit you are seeking and this petition may be denied.*

Part 8. Signature of Person Preparing Form, If Other Than Above (Sign below)

I declare that I prepared this application at the request of the above person, and it is based on all information of which I have knowledge.

Signature Print Your Name Mehreen Shah, Esq. Date 08/20/2015

Firm Name Mona Shah & Associates Daytime phone # with area code 212 233 7473

Address 299 Broadway, Suite 1005, New York, NY 10007

U.S. Department of Homeland Security
U.S. Citizenship and Immigration Services
Immigrant Investor Program
Washington, DC 20529

U.S. Citizenship and Immigration Services

May 14, 2015
George Xu
Century New York City Regional Center
35-06 Leavitt Street, Unit CFA
Flushing, New York 11354

Application:	Form I-924, Application for Regional Center under the Immigrant Investor Pilot Program
Applicant(s):	Century New York City Regional Center
Re:	Initial Regional Center Designation Century New York City Regional Center RCW1420251818/ID1420251818

This notice is in reference to the Form I-924, Application for Regional Center Under the Immigrant Investor Pilot Program that was filed by the applicant with the U.S. Citizenship and Immigration Services ("USCIS") on July 21, 2014. The Form I-924 application was filed to request approval of initial regional center designation under the Immigrant Investor Program. The Immigrant Investor Program was established under § 610 of the Department of Commerce, Justice and State, the Judiciary, and Related Agencies Appropriations Act of 1993 (Pub. L. 102-395, Oct. 6, 1992, 106 Stat. 1874).

I. Executive Summary of Adjudication

Effective the date of this notice, USCIS approves the Form I-924 request to designate Century New York City Regional Center as a qualifying participant in the Immigrant Investor Program.

II. Regional Center Designation

USCIS approves the applicant's request to focus, promote economic growth, and offer capital investment opportunities in the following geographic area and industry categories:

A. Geographic Area

State	Counties/Cities
New York	Queens, New York, Bronx County, Richmond County, Westchester County, and Nassau County

Note: Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment request is not required if investment opportunities arise outside the geographic area referenced above. USCIS will evaluate eligibility upon the filing of an initial Form I-526 related to that new investment opportunity.

B. Industry Categories

Industry Category	NAICS code
Nonresidential Building Construction	2362
Furniture and Home Furnishing Merchant Wholesalers	4232
Hotel and Motel (including Casino)	72251
Restaurants and Other Eating Places	72251
Lessors of Nonresidential Buildings (Except Miniwarehouses)	53112
Architectural, Engineering and Related Services	5413
Insurance Carriers	5241
Accounting Tax Preparation, Bookkeeping Services	5412
Legal Services	5411
Monetary Authorities and Depository Credit Intermediation	5222
Other miscellaneous professional and technical services	5419

Note: Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment request is not required if investment opportunities arise outside the industry categories referenced above. USCIS will evaluate eligibility upon the filing of an initial Form I-526 related to that new investment opportunity.

III. Job Creation

USCIS approves the geographic area and industry categories noted above based on the economic impact analysis presented and reviewed in conjunction with the adjudication of
oposal.

ect does not have the factual details necessary to be in compliance
described in Matter of Ho, 22 I&N Dec. 206 (Assoc. Comm'r 1998),
s approval of the hypothetical job creation estimates presented in the
accorded deference and may not be relied upon by an individual
ie Form I-526. The business plan and job creation estimates will
ew by USCIS when an individual investor files Form I-526. Once an
icated upon the filing of the initial Form I-526, USCIS will give
nt Forms I-526 when the critical assumptions remain materially
unchanged from the initially-approved Form I-526.

When filing Form I-526, it will be the responsibility of the individual investor to submit a comprehensive, detailed and credible business plan, showing by a preponderance of the evidence that his or her investment in the new commercial enterprise will create not fewer than 10 full-time positions. If prior to filing a form I-829, the job creation estimated in the business plan submitted by the individual investor materially changes or will not be realized, then it will be the responsibility of the EB-5 investor to notify USCIS of an agreed upon methodology to allocate job creation among eligible investors.

IV. Guidelines for Filing Form I-526 Petitions

Each individual petition, in order to demonstrate that it is affiliated with the Century New York City Regional Center in conjunction with addressing all the requirements for an individual immigrant investor petition, shall also contain the following:

1. A copy of this regional center approval notice and designation letter including all subsequent amendment approval letters (if applicable).

2. An economic impact analysis which reflects a job creation methodology required at 8 CFR § 204.6 (j)(4)(iii) and shows how the capital investment by an individual immigrant investor will create not fewer than ten (10) indirect jobs for each immigrant investor.

3. A comprehensive, detailed and credible business plan for an actual project that contains the factual details necessary to be in compliance with the requirements described in Matter of Ho, 22 I&N Dec. 206 (Assoc. Comm'r 1998).

4. Legally executed organizational documents of the commercial enterprise.

Note: The project reviewed with this Form I-924 application is a hypothetical project. Organizational and transactional documents associated with the new commercial enterprise (NCE) submitted with this Form I-924 have not been reviewed to determine compliance with program requirements since these documents will receive de novo review in subsequent filings (e.g., an amended Form I-924 application with a Form I-526 exemplar or the first Form I-526 petition filed by an investor under the regional center project).

V. Designee's Responsibilities in the Operations of the Regional Center

As provided in 8 CFR § 204.6 (m)(6), to ensure that the regional center continues to meet the requirements of section 610(a) of the Appropriations Act, a regional center must provide USCIS with updated information to demonstrate the regional center is continuing to promote economic growth, improved regional productivity, job creation, and increased domestic capital investment in the approved geographic area. Such information must be submitted to USCIS on an annual basis or as otherwise requested by USCIS. The applicant must monitor all investment activities under the sponsorship of the regional center and to maintain records in order to provide the information required on the Form I-924A Supplement to Form I-924. Form I-924A, Supplement to Form I-924 Application is available in the "Forms" section on the USCIS website at www.uscis.gov.

Regional centers that remain designated for participation in the Immigrant Investor Program as of September 30th of a calendar year are required to file Form I-924A Supplement in that year. The Form I-924A Supplement with the required supporting documentation must be filed on or before December 29th of the same calendar year.

The failure to timely file a Form I-924A Supplement for each fiscal year in which the regional center has been designated for participation in the Immigrant Investor Program will result in the issuance of an intent to terminate the participation of the regional center in the Immigrant Investor Program, which may ultimately result in the termination of the designation of the regional center.

The regional center designation is non-transferable.

VI. Legal Notice

This approval and designation of a Regional Center under the Immigrant Investor Program does not constitute or imply an endorsement or recommendation by USCIS, the United States Government or any instrumentality thereof, of the investment opportunities, projects or other business activities related to or undertaken by such Regional Center. Except as expressly set forth in this approval and designation, USCIS has not reviewed any information provided in connection with or otherwise related to the Regional Center for compliance with relevant securities laws or any other laws unrelated to eligibility for designation as a Regional Center. Accordingly USCIS makes no determination or representation whatsoever regarding the compliance of either the Regional Center or associated New Commercial Enterprises with such laws.

Each Regional Center designated by USCIS must monitor and oversee all investment offerings and activities associated with, through or under the sponsorship of the Regional Center. The failure of an associated New Commercial Enterprise to comply with all laws and regulations related to such investment offerings and activities may result in the issuance by USCIS of a notice of intent to terminate the Regional Center designation.

If the applicant has any questions concerning the regional center designation under the Immigrant Investor Program, please contact the USCIS by email at USCIS.ImmigrantInvestorProgram@uscis.dhs.gov.

Sincerely,

Nicholas Colucci
Chief, Immigrant Investor Program

cc: Mehreen Shah, Esq.
299 Broadway, Suite 1005
New York, NY 10007

Submitted by:
Mona Shah & Associates
Attorneys for the Petitioner,
Century New York City Regional Center, LLC
299 Broadway, Suite 1005
New York, NY 10007
Tel: (212)233-7473

August 20, 2015

UNITED STATES DEPARTMENT OF STATE
US CITIZENSHIP AND IMMIGRATION SERVICE

In the Matter of:

	}
I-924 EXEMPLAR FILING	}
Pursuant to 8 CFR ss.204.6	}
Petitioner: Century New York City Regional Center	}
Project: Farrington EB-5 Capital, LLC	}

REQUEST FOR AN AMENDMENT TO AN APPROVED REGIONAL CENTER APPLICATION, FORM I-924, EXEMPLAR FILING FOR A NEW PROJECT (Farrington EB-5 Capital, LLC) AND FORM I-526 PETITION

ATTORNEY MEMORANDUM

This Instant Request for an Amendment is filed to seek:

(1) A preliminary determination of an exemplar Form I-526 – *Farrington EB-5 Capital, LLC*

This letter and the annexed supporting documentation constitute a request for the approval of an exemplar Form I-526, filed in accordance with 8 CFR 204.6., in order for

Submitted by:
Mona Shah & Associates
Attorneys for the Petitioner,
Century New York City Regional Center, LLC
299 Broadway, Suite 1005
New York, NY 10007
Tel: (212)233-7473

August 20, 2015

UNITED STATES DEPARTMENT OF STATE
US CITIZENSHIP AND IMMIGRATION SERVICE

In the Matter of:

}
I-924 EXEMPLAR FILING }
Pursuant to 8 CFR ss.204.6 }
Petitioner: Century New York City Regional Center }
Project: Farrington EB-5 Capital, LLC }

REQUEST FOR AN AMENDMENT TO AN APPROVED REGIONAL CENTER APPLICATION, FORM I-924, EXEMPLAR FILING FOR A NEW PROJECT (Farrington EB-5 Capital, LLC) AND FORM I-526 PETITION

ATTORNEY MEMORANDUM

This Instant Request for an Amendment is filed to seek:

(1) A preliminary determination of an exemplar Form I-526 – *Farrington EB-5 Capital, LLC*

This letter and the annexed supporting documentation constitute a request for the approval of an exemplar Form I-526, filed in accordance with 8 CFR 204.6., in order for

USCIS to determine if the documentation is EB-5 compliant and thus facilitate adjudication of an actual but identical Form I-526 petition, if the evidence of record otherwise establishes EB-5 eligibility.

Attached is a detailed exhibit list covering all the supporting documents; the exhibits have been tabbed for your reference.

I. Preliminary:

The petitioning regional center is named *Century New York City Regional Center*. The company was incorporated on March 25, 2014. Please see company formation documents, exhibited at **Exhibit 2.**

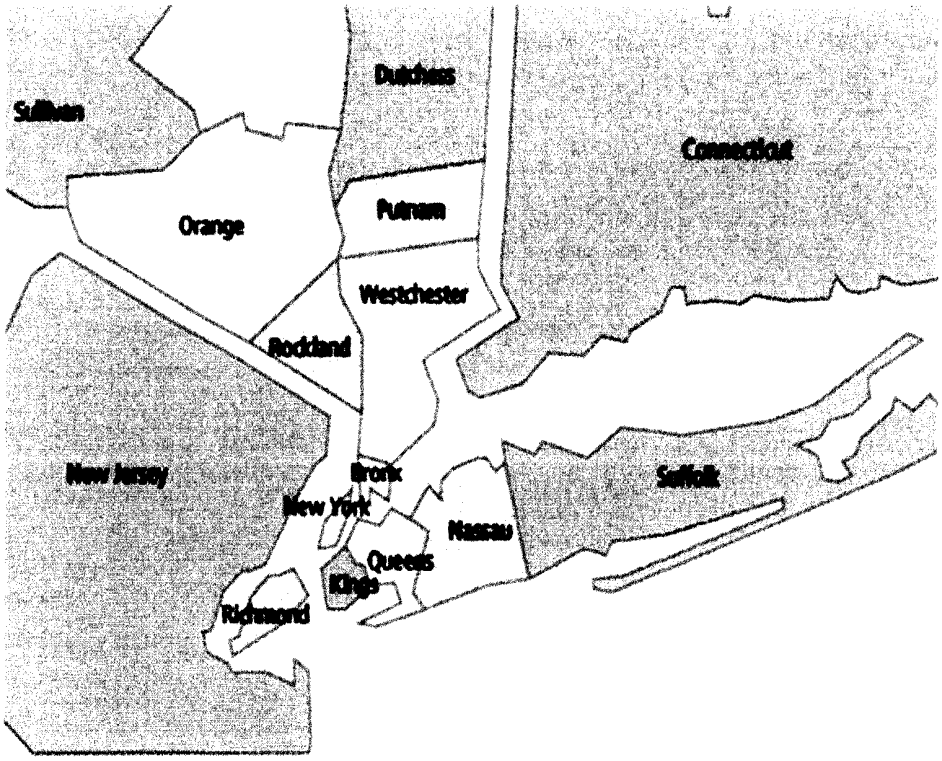
The Century New York City Regional Center, LLC (hereafter "CNYC") seeks approval of an exemplar Form I-526, filed in accordance with 8 CFR 204.6., in order for USCIS to determine if the documentation is EB-5 compliant and thus facilitate adjudication of an actual but identical Form I-526 petition, if the evidence of record otherwise establishes EB-5 eligibility.

II. Prior Approval

CNYC was approved on March 14, 2015. Please see approval letter **at Exhibit 1.**

III. Regional Center Geographical Region and TEA Designation

The geographical area for CNYC has not changed. It continues to comprise the New York counties of Queens County, New York County, Bronx County, Richmond County, Westchester County and Nassau County. Below is a map of the geographical area.



The Project is located at 134-37 35th Avenue. Flushing, New York 11354. This is a designated targeted employment area (TEA), as per 8CFR 204.6 and thus qualified to accept an investment of $500,000.00. Please see attached **Exhibit 7**, TEA confirmation letter issued by the Empire State Development.

III. Industry Sectors Requested

The industry sectors have not changed. Please see the North American Industry Classification System (NAICS) code listed below:

Farrington Realty, LLC developments continue to encompass the following industries:

North American Industry Classification System (NAICS) codes are listed as follows:

Construction Hard Costs

- Construction (Building & Site) – 2362/23622
- Wholesale Trade (FF&E) – 42/4232
- Real Estate – 53112/5313

(b)(4)

Financing & Soft Costs

- Other government enterprises – 921
- Architectural, engineering and related services – 5413
- Insurance - 5241
- Accounting tax preparation, bookkeeping services – 5412
- Legal Services – 5411
- Monetary authorities and depository credit intermediation – 5222
- Other miscellaneous professional and technical services – 5419

IV. Brief Project Description

The Project will provide funding to construct and operate a mix-use building which consists of 210-room hotel, 100 residential condominium units, retail spaces, community facilities and parking space. The Project is looking to raise US [redacted] from [redacted] investors through EB5 investment.

Attached at **Exhibit 3** is a comprehensive business plan, compliant with *Matter of Ho.* CNYC is seeking approval of an exemplar Form I-526, filed in accordance with 8 CFR 204.6., in order for USCIS to determine if the documentation is EB-5 compliant and thus facilitate adjudication of an actual but identical Form I-526 petition, if the evidence of record otherwise establishes EB-5 eligibility. The business plan clearly describes how the project will promote economic growth through improved regional productivity, job creation, and increased domestic capital investment.

V. Promotion of Economic Growth

The New Commercial Enterprise (NCE) Farrington EB-5 Capital, LLC is seeking to raise US[redacted] in investors' capital from [redacted] investors through the EB-5 Immigrant Investor Program for the expansion plan into the seven counties in the state of New York.

Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment is not required if investment opportunities arise outside the geographic area referenced.

(b)(4)

Under 8 CFR 204.6(g), the establishment of a new commercial enterprise may be used as the basis of a petition for classification as an alien entrepreneur by more than one investor, provided each petitioning investor has invested or is actively in the process of investing the required amount for the area in which the new commercial enterprise is principally doing business, and provided each individual investment results in the creation of at least ten (10) full-time positions for qualifying employees. The establishment of a new commercial enterprise may be used as the basis of a petition for classification as an alien entrepreneur even though there are several owners of the enterprise, including persons who are not seeking classification under Section 203(b)(5) of the Act and non-natural persons, both foreign and domestic, provided that the source(s) of all capital invested is identified and all invested capital has been derived by lawful means.

VI. Job Creation (b)(4)

Exhibited hereto at **Exhibit 5** is a *full* economic analysis by Dr. Michael K. Evans of Evans, Carroll & Associates, Inc, dated July 24, 2015. According to the Economic Impact Report, the Flushing Hotel will create [redacted] jobs, including [redacted] jobs from direct and indirect from construction [redacted] direct and indirect jobs from operation, and [redacted] direct and indirect jobs from rental income.

(b)(4)

Century New York City Regional Center take note of recent USCIS guidance which states: that the full-time employment requirement excludes jobs that are intermittent, temporary, seasonal or transient in nature [1] seen as intermittent, temporary, seasonal and transient rather than permanent.

The Project has developed a five year strategic business plan to increase sales and market share. The method of obtaining the funding would be through EB-5 program. The alternative financing plan is to obtain a bridge loan. The financial banking criteria and federally defined underwriting guidelines will be applied in determining the rate of the mortgage loan.

[1] Spencer Enterprises v. U.S., 229 F.Supp.2d 1025 (E.D. Cal. 2001)

The JCE will augment its organic growth through a carefully designed program in the real estate development. The JCE will review each hotel project under the RC that is seeking funding focusing on job creation, development potential, financial stability and exit plan. The Four Points Hotel project meets the JCE's assessment standards after conducting full due diligence studies.

VII. Source of Capital

Amount and Source of the Regional Center's Operating Capital: Regional Center's Operational Plan (8 CFR 204.6(m) and 8 CFR 204.6):

Please see attached **at Exhibit 2** Statement from the regional center owner Mr. George Xu relating to the Source of Funds. The promoters and members of Century New York City Regional Center have proven financial credentials, they have capitalized the Company. Century New York City Regional Center does not rely on the capital to be infused by the foreign investors to sustain the business activities of the Regional Center. None of the 'threshold foreign capital' will be used in the running of the Regional Center. The foreign capital to be brought by the foreign investor will be solely invested in the 'new commercial enterprise' only. The promoters/ members of Century New York City Regional Center have invested their capital in the regional center. They have the resources to invest as much capital into Century New York City Regional Center as needed to successfully meet all the financial obligations including marketing, advertising, traveling, administration among others. The members of Century New York City Regional Center have pledged not to use the threshold foreign investment to sustain the Regional Center.

EB-5 investors will only place their capital contribution at risk; they are not liable for the general affairs of the Project. EB-5 investors will not be required to make additional capital contributions to satisfy operating losses or capital shortfalls.

VIII. Investment Terms

Each EB-5 investor must execute the Private Placement Memorandum, the Operating Agreement, and the Subscription Agreement, all attached at **Exhibit 6.**

If the I-526 petition is denied or if the I-526 petition is approved but the EB-5 investor is denied at the consulate interview, Century New York City Regional Center will return the investor's capital contribution $500,000 and [redacted] (b)(4) administrative fee without interest. In addition, EB-5 Investors must pay an administrative fee of [redacted] (b)(4) which will be used to pay for a thorough review of the investor's personal questionnaire, background documents, commissions, finder's fees, to offset advertising costs and other administrative expenses.

The Subscription Agreement requires the investor to affirm that he or she is an accredited investor pursuant to Rule 506 of Regulation D under the Securities Act of 1933. By signing the Subscription Agreement, the EB-5 investor agrees to become a member pursuant to the particular LLC Operating Agreement and Subscription Agreement **Exhibit 6**. Immigrant investors may not file their I-526 petition until their cash investments are fully invested in the particular project. The investor deposits his investment capital directly to the account of the Project managing the particular project. EB-5 regulations and USCIS rulings require that the investment be at risk for at least five (5) years. However, the Project may, at its sole discretion, make distributions of profits and income during this time period.

IX. Regional Center's Operational Plan - Recruitment and Due Diligence:

Attached **at Exhibit 2** is the RC Business plan, containing the **Administration & Due Diligence plan**, addressing how investors will be recruited and how the regional center will conduct its due diligence ensuring that all immigrant investor funds are lawfully obtained. The document shows that the Regional Center will require all investors to complete a confidential 'Investor Suitability Questionnaire' form, also attached **Exhibit 2** and if appropriate, satisfy the accredited investor rules, before being accepted into the EB-5 project. The document descriptively seeks information about the alien investor's personal information, education, employment history, financial history including bankruptcy, criminal or civil history, savings, loans, inheritance, gifts, business capital, net worth and other disclosures of admittance as mandated by USCIS.

Administrative Oversight:

Attached at **Exhibit 2** is a description of how Century New York City Regional Center will administer, oversee and manage the proposed regional center; identify qualified individual petitioners for specific investment opportunities; manage the flow of information to investors and their attorneys for the submission of I-526 and I-829 petitions filed through the regional center. Century New York City Regional Center takes the issue of due diligence screening of its alien investor's lawful source of capital very seriously.

The regional center will require the alien investor to prove that the funds come from a lawful source. The regional center will obtain documentary evidence of the source of funds, such as any loan or mortgage agreement for which the petitioner is personally and primarily liable. Likewise, the regional center will scrutinize any foreign capital brought into the US through his business in his home country.

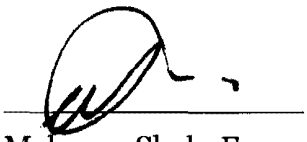
Additionally, the regional center will obtain evidence identifying any other source(s) of capital. The regional center will strictly follow the guidelines to obtain certified copies of any judgments or evidence of all pending governmental civil or criminal actions, governmental administrative proceedings, and any private civil actions (pending or otherwise) involving monetary judgments against the petitioner from any court in or outside the United States within the past fifteen years.

In Conclusion:

The documentary evidence submitted complies with the regulatory requirements for approval of an exemplar Form I-526. Thank you for your consideration in this matter.

Respectfully Submitted:

Dated: August 20, 2015
New York, NY

By: 

Mehreen Shah, Esq.
Mona Shah & Associates
Attorneys for *New York EB-5 Regional Center, LLC*

REGIONAL CENTER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: FARRINGTON EB-5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 14:

Independent Third Party Analysis

The purpose of these documents is to show the viability of the project.

- **Hazard Report** for Farrington Realty, LLC, which provides a remedial action plan for hazardous material. Prepared by FPM Group dated April of 2015
- **Noise and Air Report** for Farrington Realty, LLC, which provides a remedial action plan for air quality and noise. Prepared by Raymond Chan Architect, PC dated May of 2015
- **Soil Removal Contract** for Farrington Realty, LLC, which provides a remedial action plan for transportation & disposal of non-hazardous contaminated soils.

Remedial Action Plan

For

134-37 35th Avenue

Flushing, Queens, New York

Block 4949, Lot(s) 31

OER Project Number 14EHAN384Q

E-Designation E-246

CEQR Number 04DCP013Q

134-03 35th Street (aka New Millenium/Prince Street) Rezoning Action

Prepared for:

Farrington Realty, LLC

35-06 Leavitt Street, Suite CF-A

Flushing, NY 11354

Prepared by:

FPM Group

909 Marconi Avenue

Ronkonkoma, New York 11779

APRIL 2015

REMEDIAL ACTION PLAN

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Appendix 1 – Soil/Materials Management Plan

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Appendix 3 – Proposed Development Plans

Appendix 4 – Vapor Barrier Specifications, Product Literature and Design Drawings

LIST OF ACRONYMS

Acronym	Definition
AST	Aboveground Storage Tank
CAMP	Community Air Monitoring Plan
C&D	Construction & Demolition
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
CO	Certificate of Occupancy
CPC	City Planning Commission
DSNY	Department of Sanitation
"E"	E-Designation
EAS	Environmental Assessment Statement
EIS	Environmental Impact Statement
ESA	Environmental Site Assessment
EC/IC	Engineering Control and Institutional Control
ELAP	Environmental Laboratory Accreditation Program
FDNY	New York City Fire Department
GPR	Ground Penetrating Radar
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations Emergency Response
IDW	Investigation Derived Waste
Notice - NNO	Notice of No Objection
Notice - NTP	Notice To Proceed
Notice - NOS	Notice Of Satisfaction
Notice - FNOS	Final Notice of Satisfaction
NYC BSA	New York City Board of Standards and Appeals
NYC DCP	New York City Department of City Planning
NYC DEP	New York City Department of Environmental Protection
NYC DOB	New York City Department of Buildings
NYC DOF	New York City Department of Finance
NYC HPD	New York City Housing Preservation and Development
NYCRR	New York Codes Rules and Regulations
NYC OER	New York City Office of Environmental Remediation

NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYS DEC PBS	New York State Department of Environmental Conservation Petroleum Bulk Storage
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
OSHA	United States Occupational Health and Safety Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PE	Professional Engineer
PID	Photo Ionization Detector
PM	Particulate Matter
QEP	Qualified Environmental Professional
RA	Register Architect
RAP	Remedial Action Plan
RCA	Recycled Concrete Aggregate
RCR	Remedial Closure Report
RD	Restrictive Declaration
RI	Remedial Investigation
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSDS	Sub-Slab Depressurization System
SVOCs	Semi-Volatile Organic Compounds
USCS	Unified Soil Classification System
USGS	United States Geological Survey
UST	Underground Storage Tank
TAL	Target Analyte List
TCL	Target Compound List
VB	Vapor Barrier
VOCs	Volatile Organic Compounds

CERTIFICATION

I, ____Kevin Loyst_____, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for the Farrington Realty, LLC Site, OER Project #14HAN384Q.

I, _____Stephanie Davis_____ am a Qualified Environmental Professional as defined in §43-140. I have primary direct responsibility for implementation of the remedial action for the Farrington Realty, LLC Site, OER Project #14HAN384Q.

I certify that this Remedial Action Plan (RAP) has a plan for handling, transport and disposal of soil, fill, fluids and other materials removed from the property in accordance with applicable City, State and Federal laws and regulations. Importation of all soil, fill and other material from off-Site will be in accordance with all applicable City, State and Federal laws and requirements. This RAP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

Kevin Loyst
Name

076321-1
NYS PE License Number

Signature

4-17-15
Date

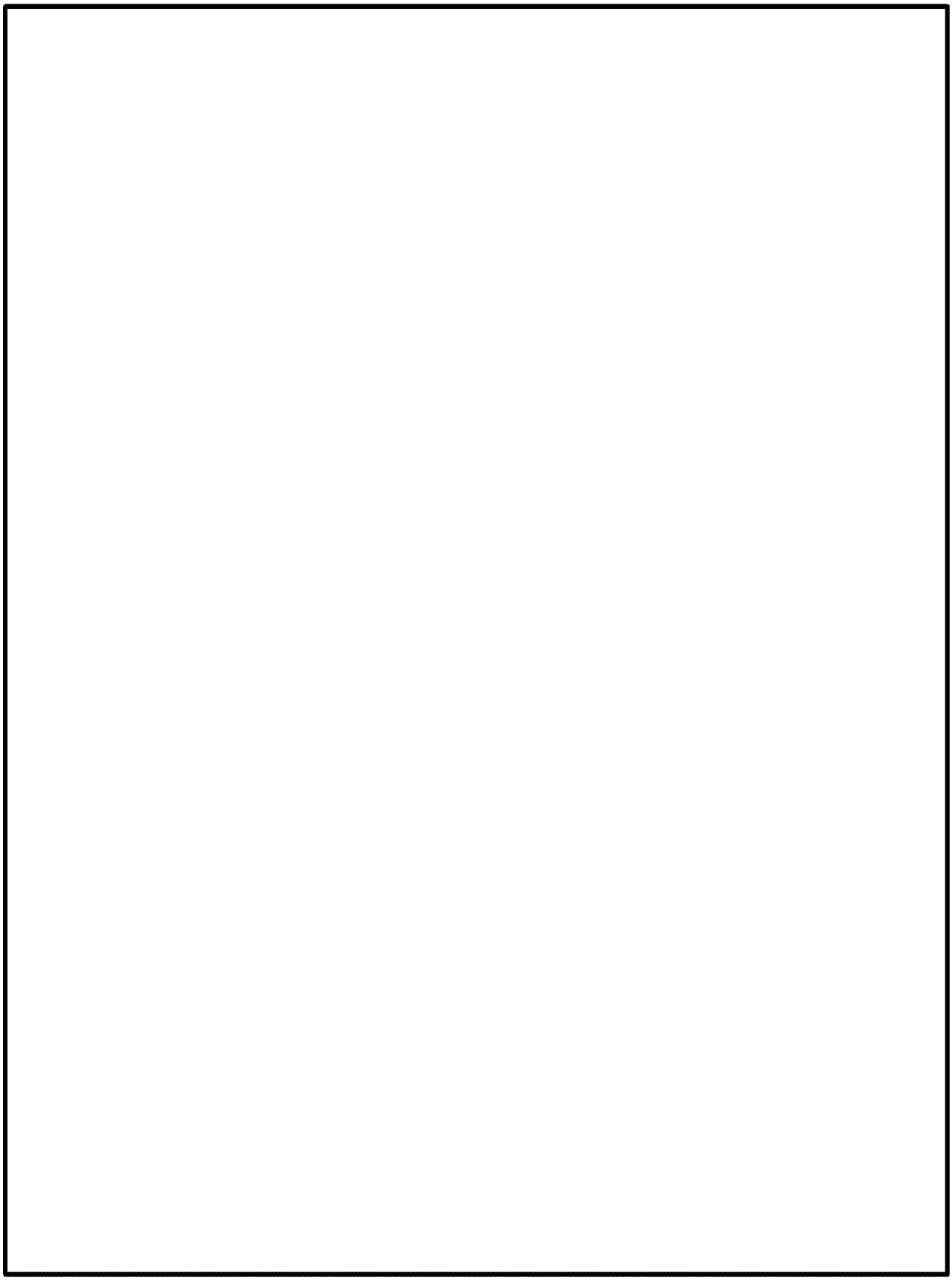
Stephanie Davis
QEP Name

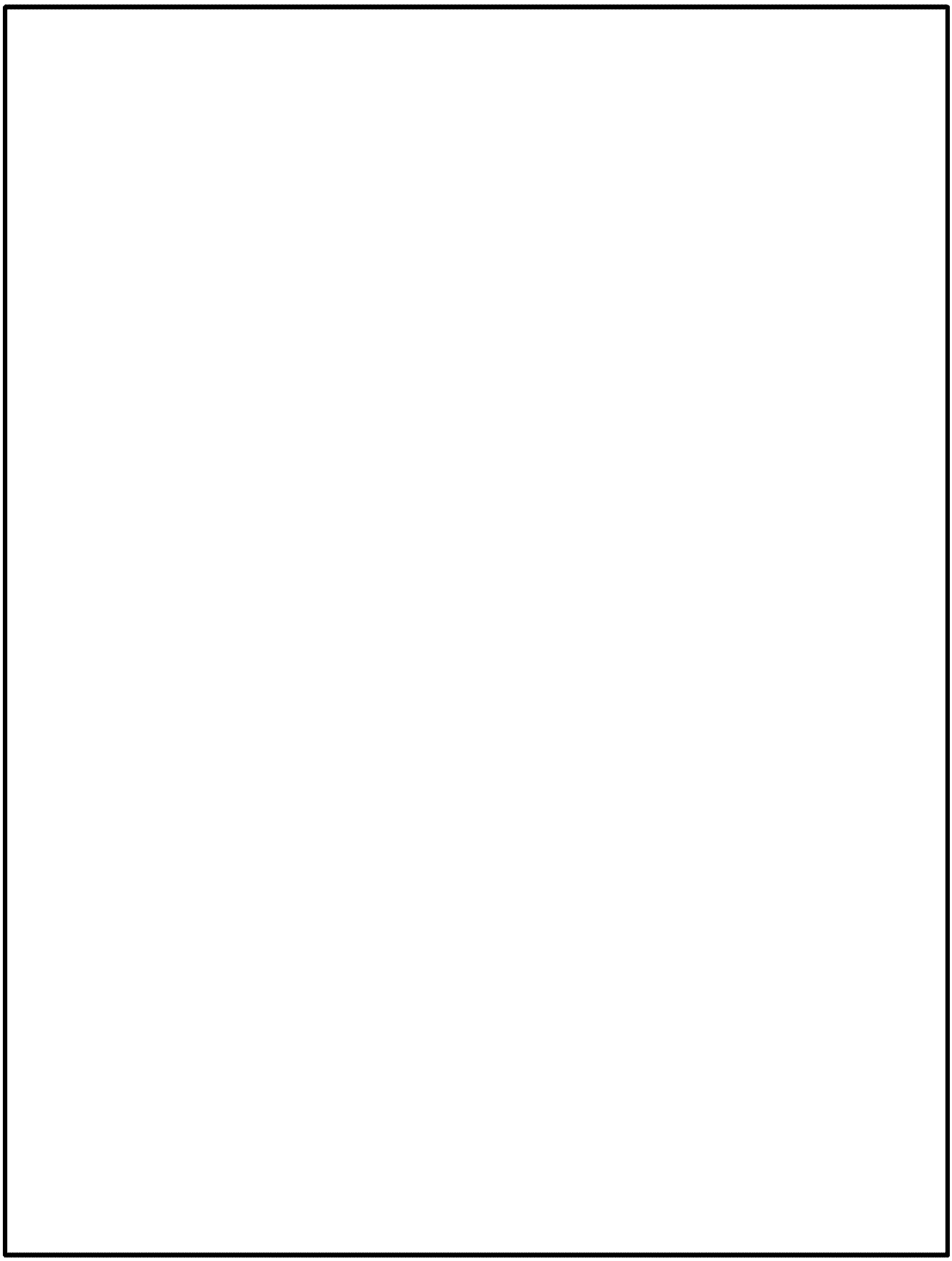
QEP Signature

4-20-15
Date

(b)(4)

EXECUTIVE SUMMARY





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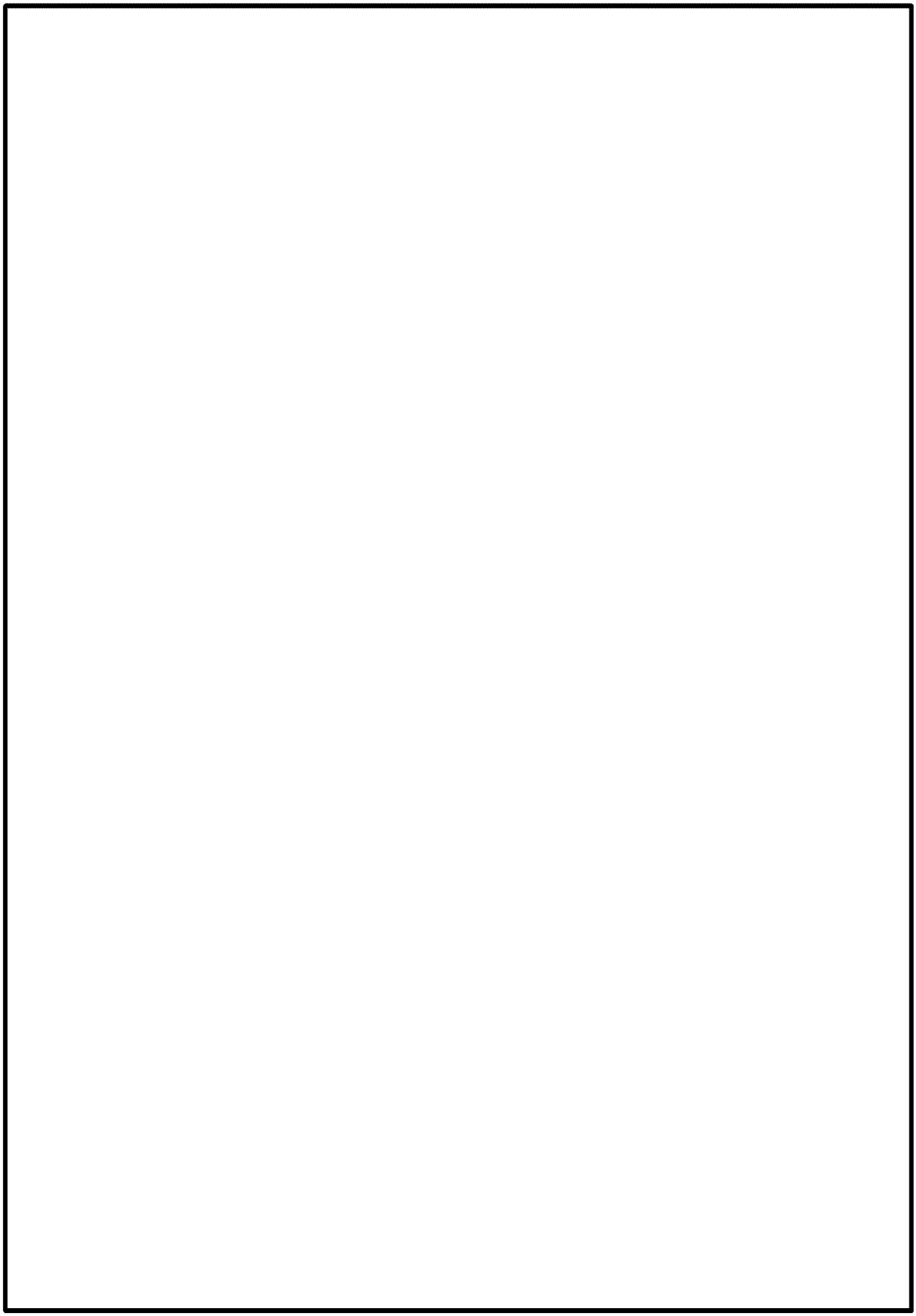
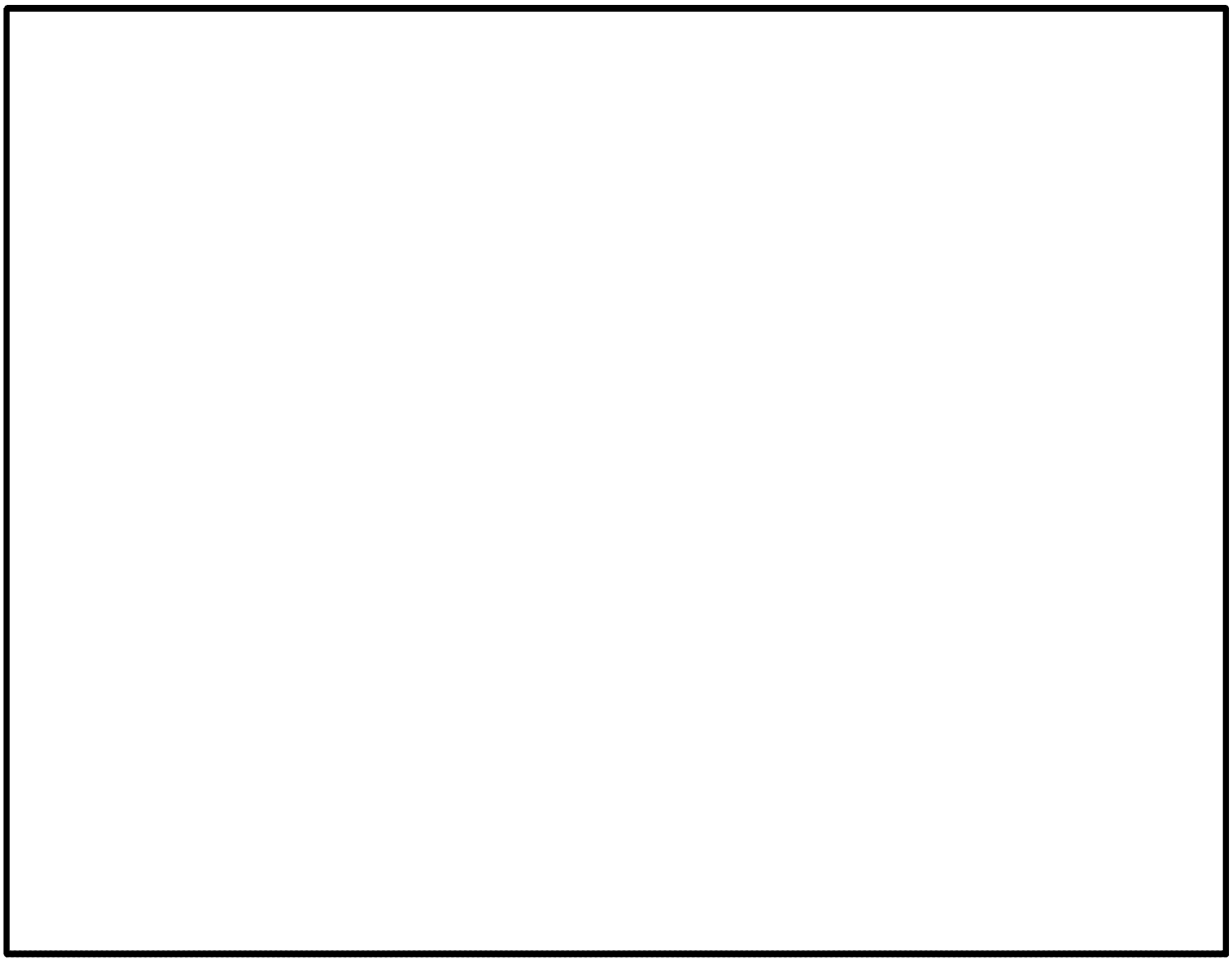
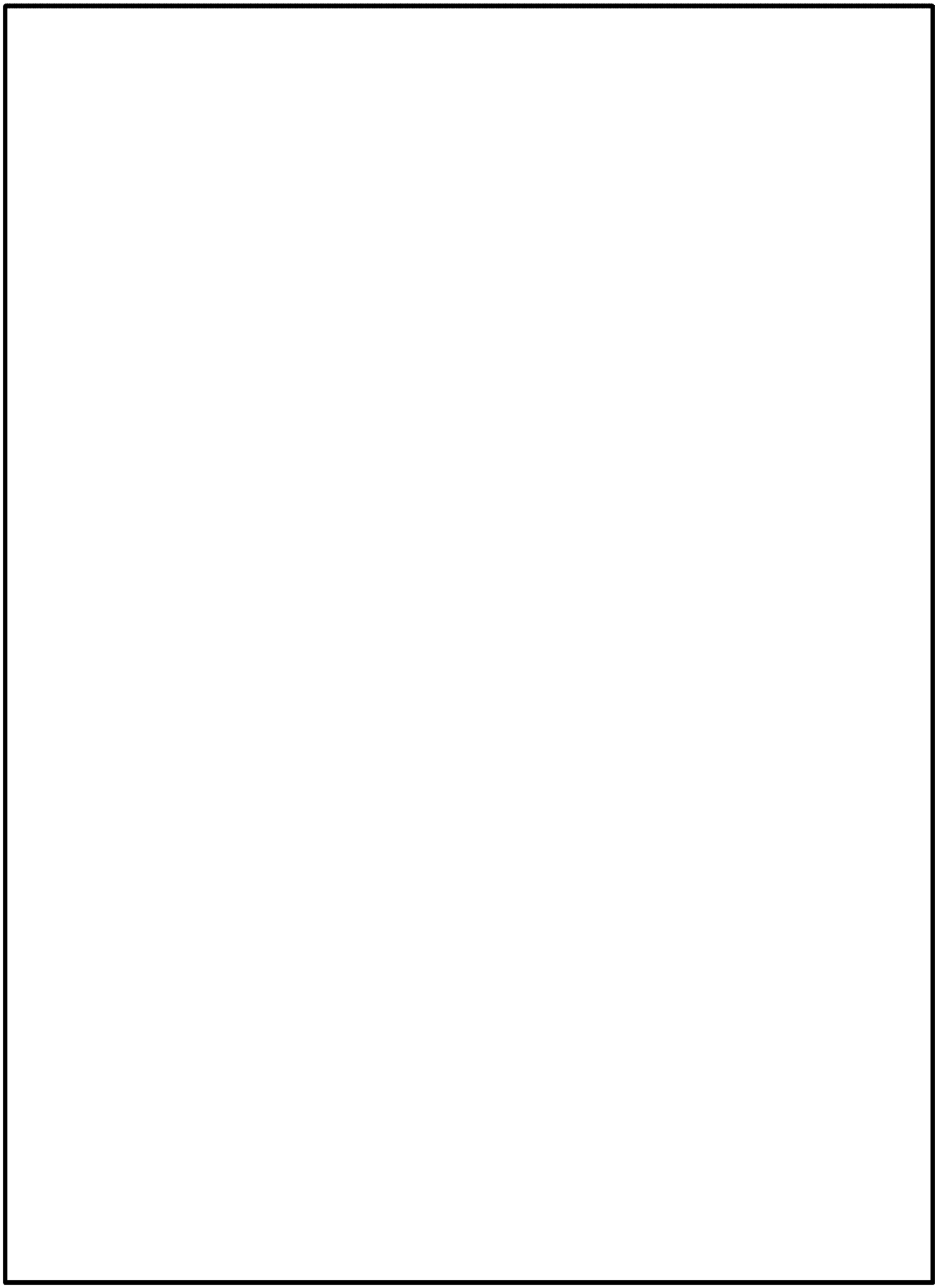
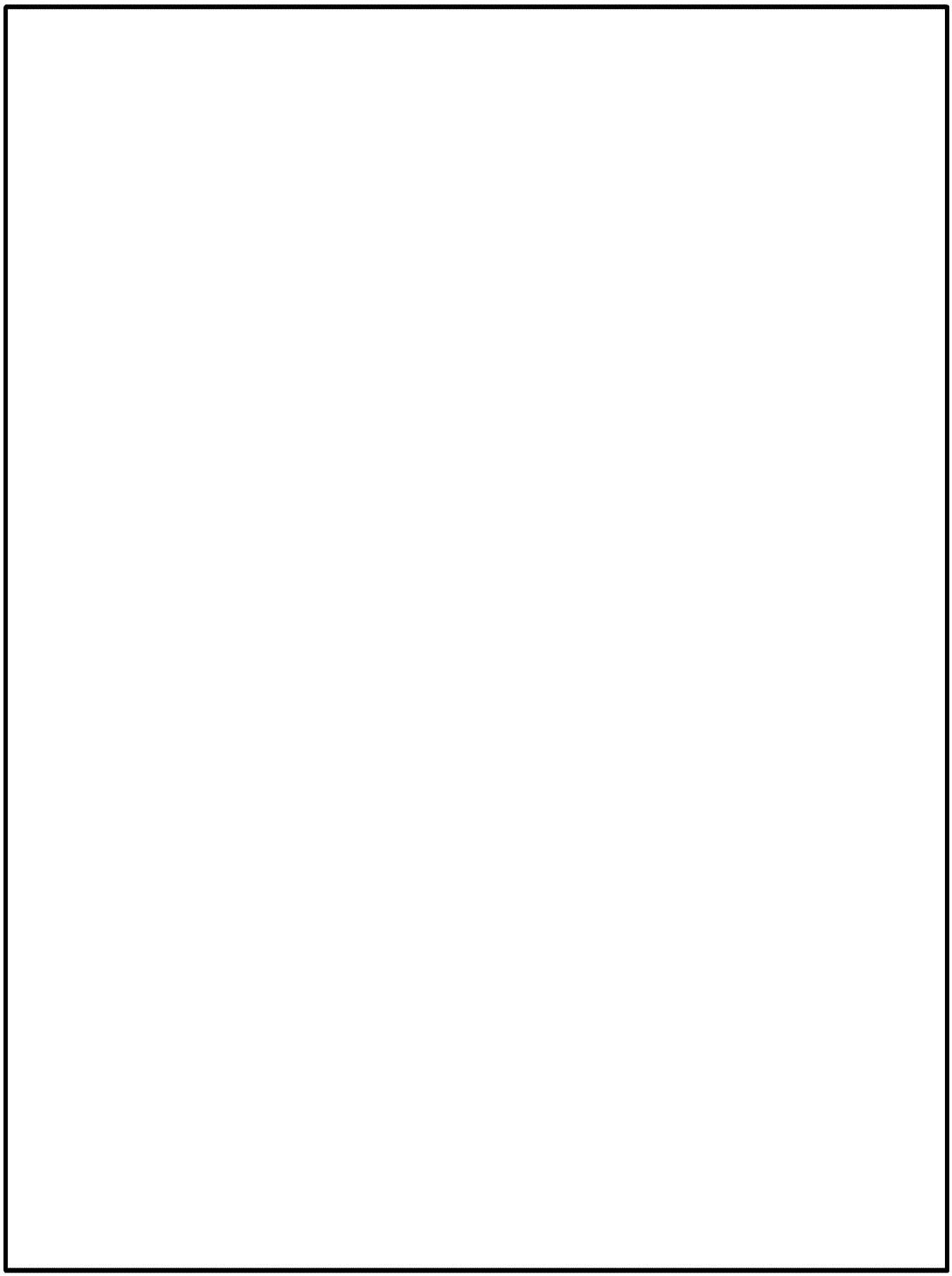




(b)(4) REMEDIAL ACTION PLAN

1.0 SITE BACKGROUND





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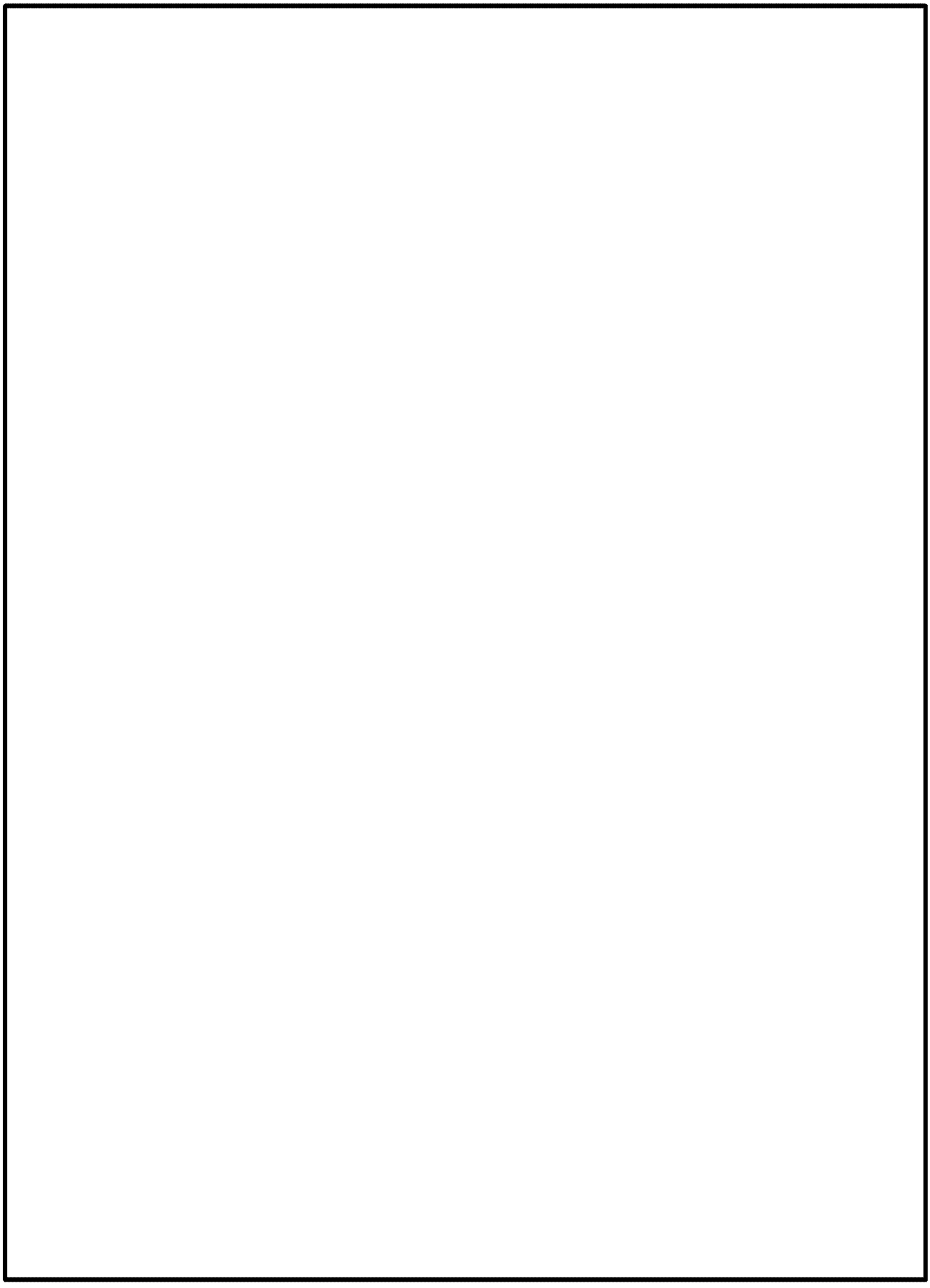

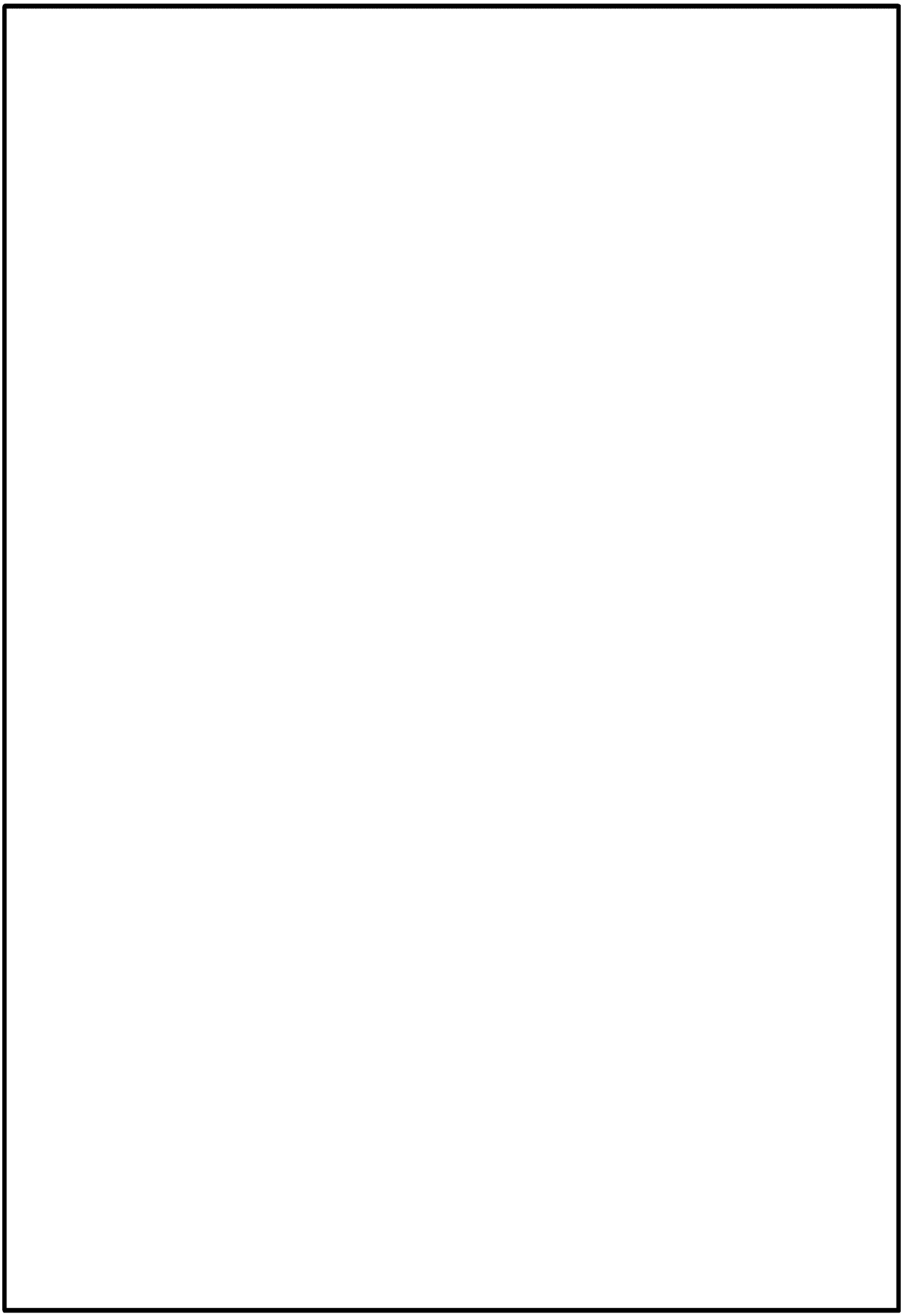

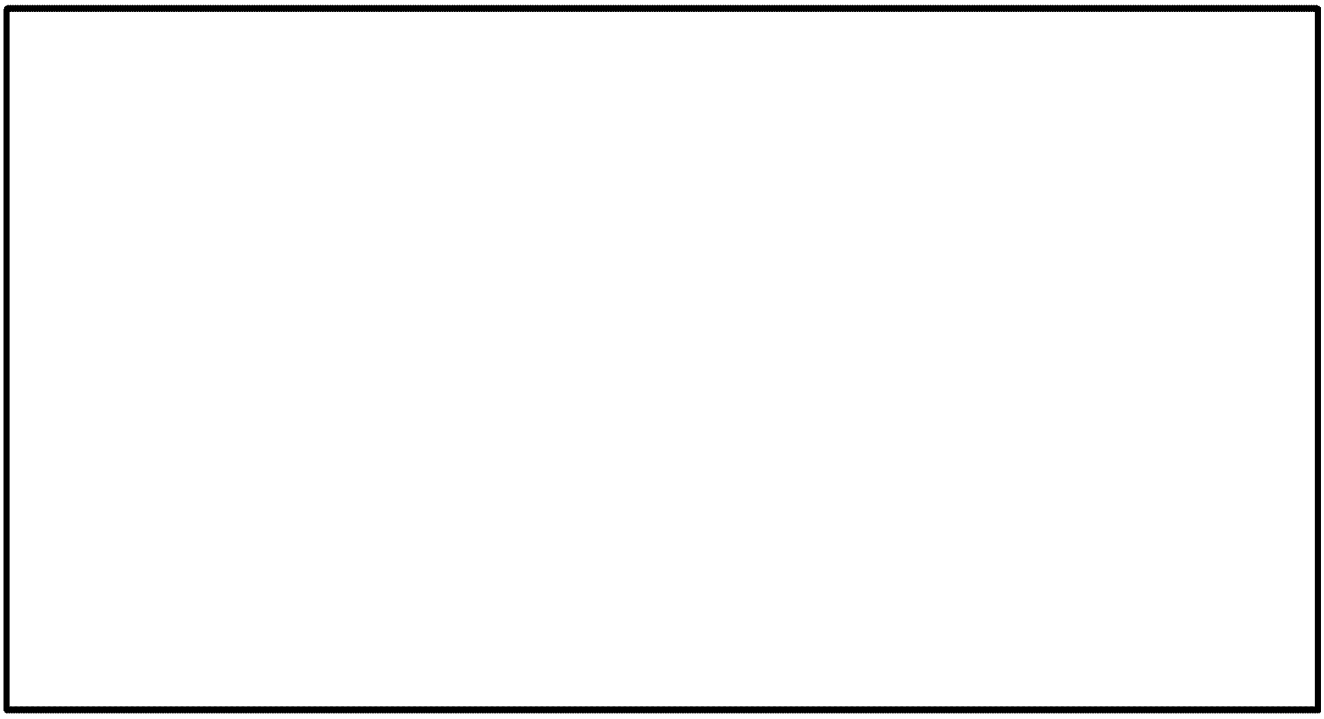

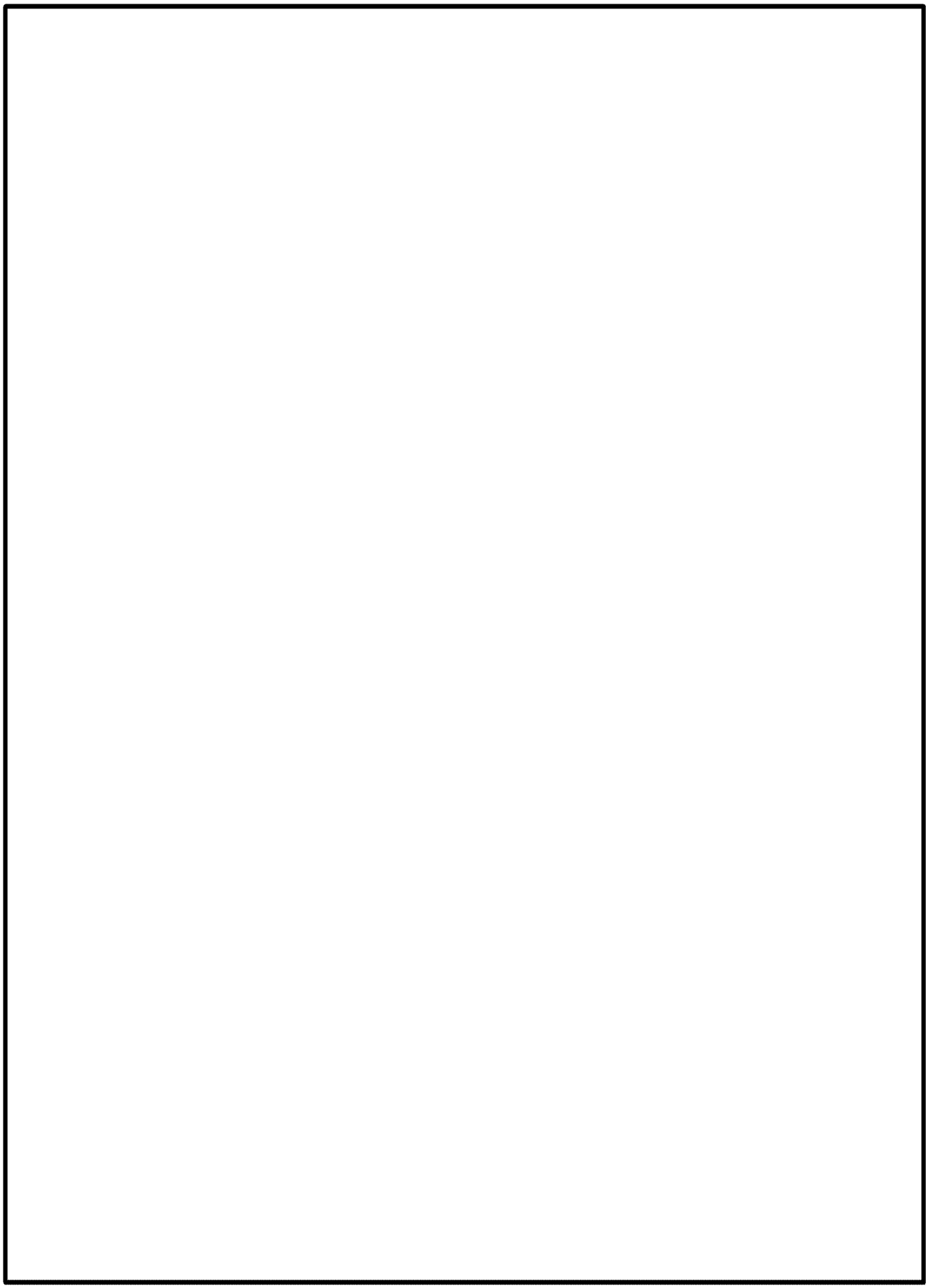

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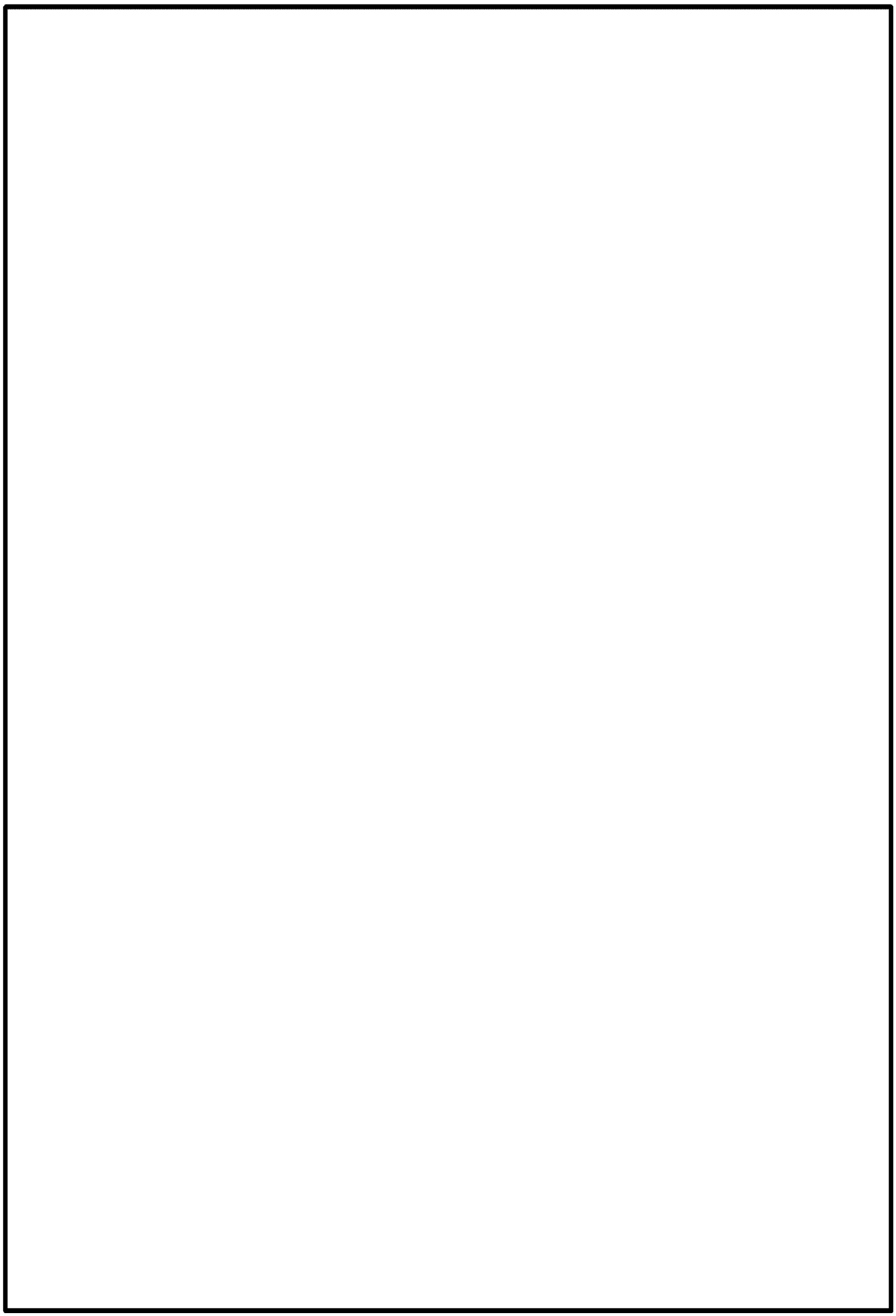

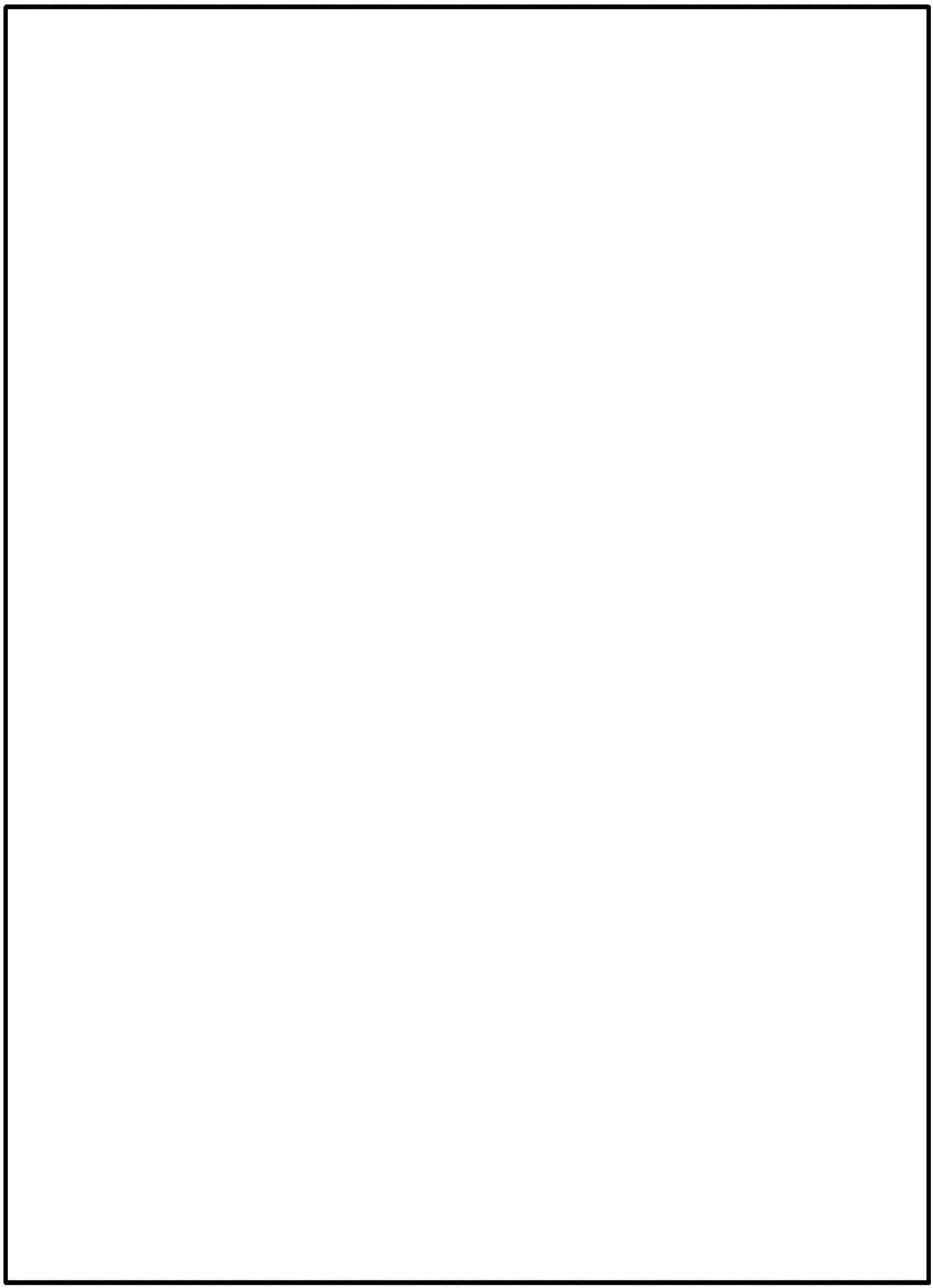

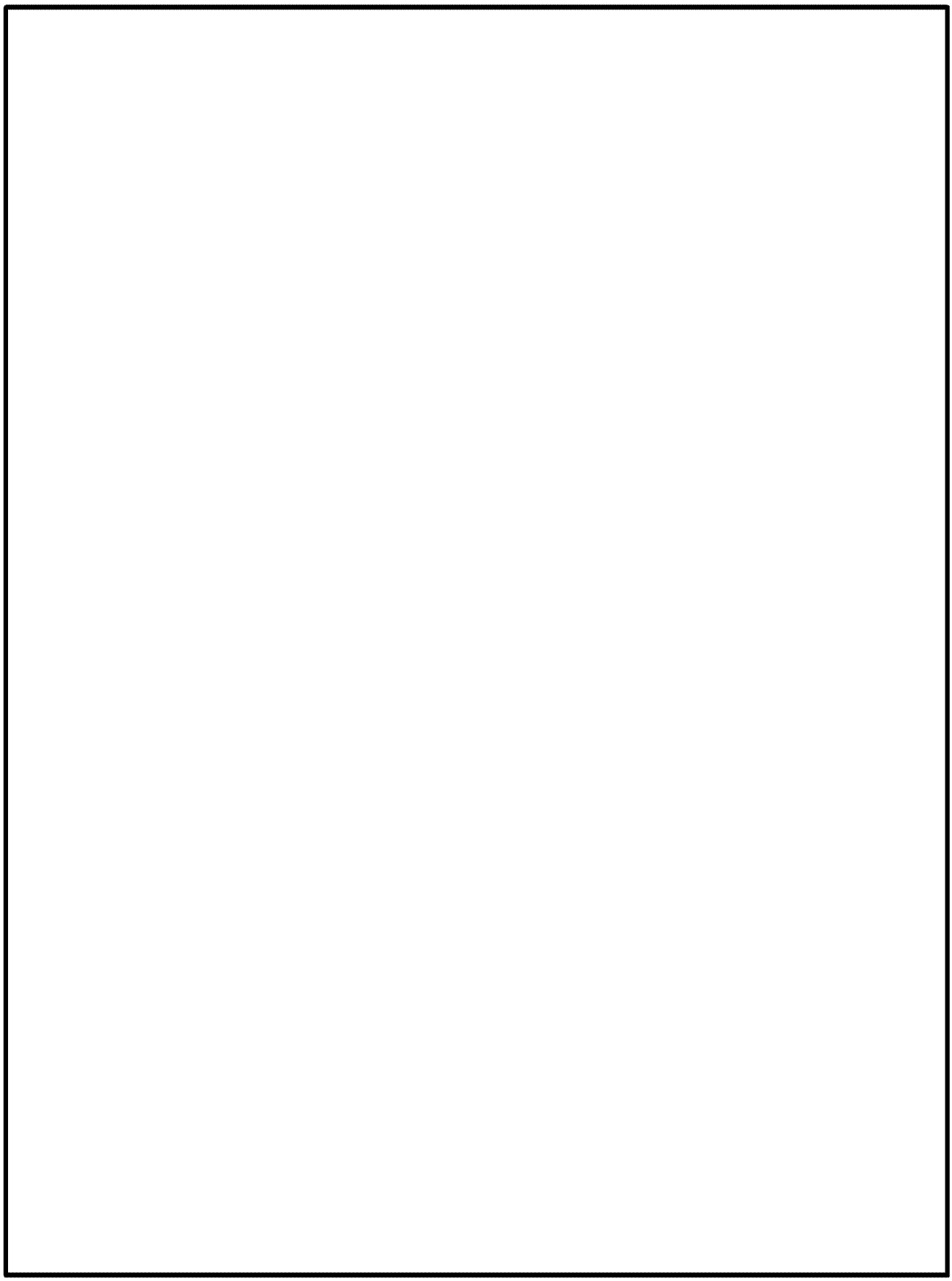

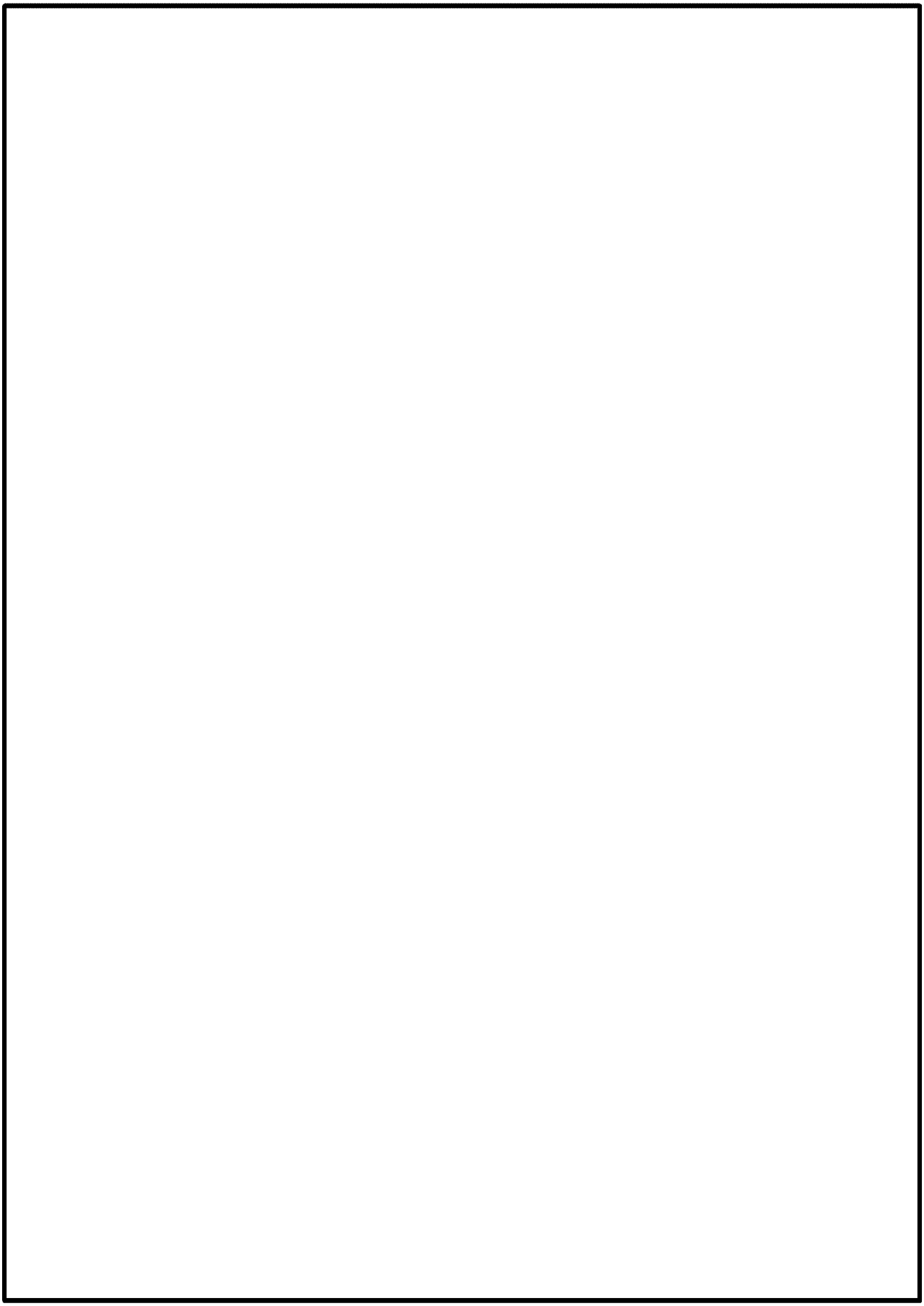

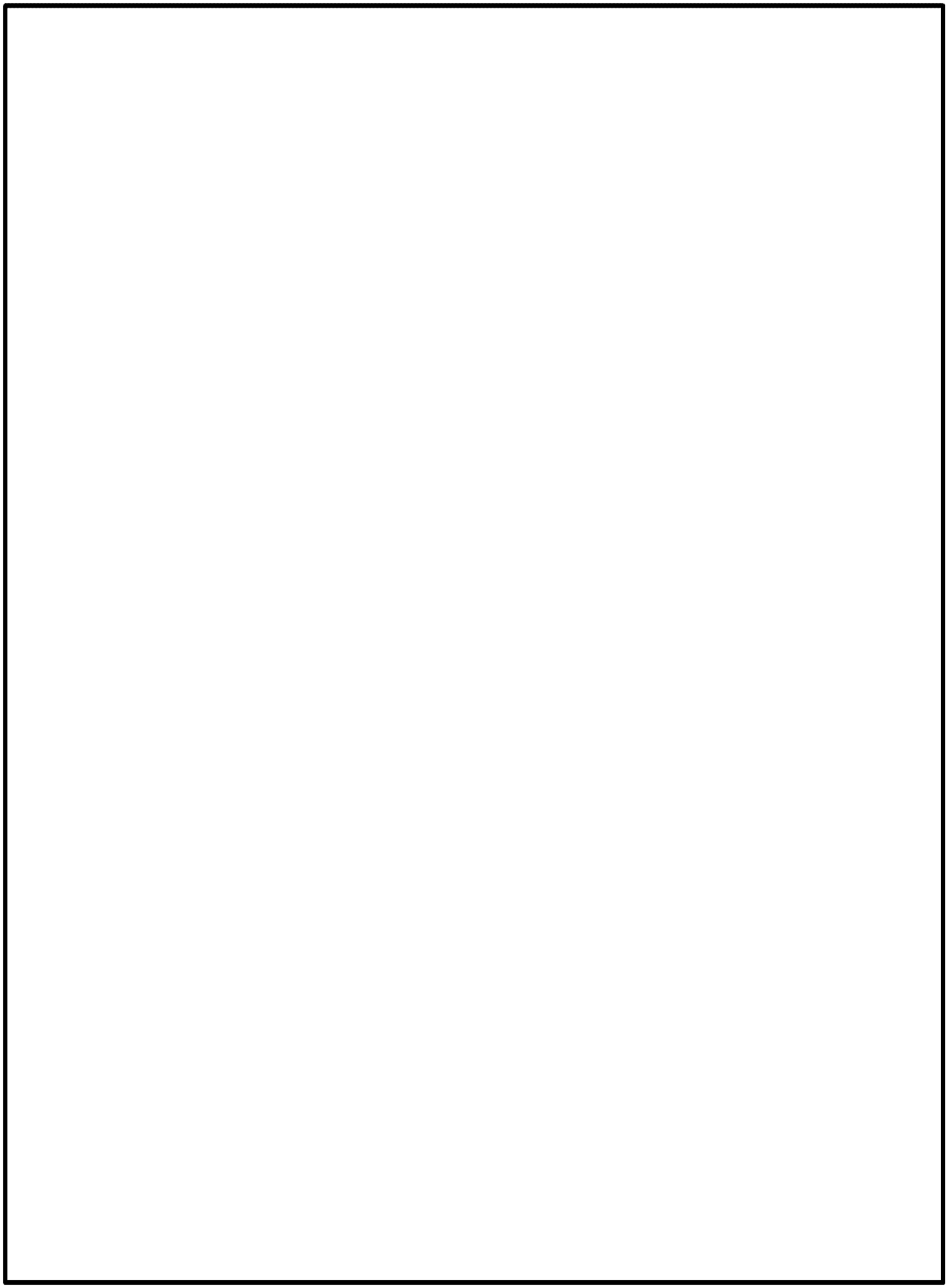

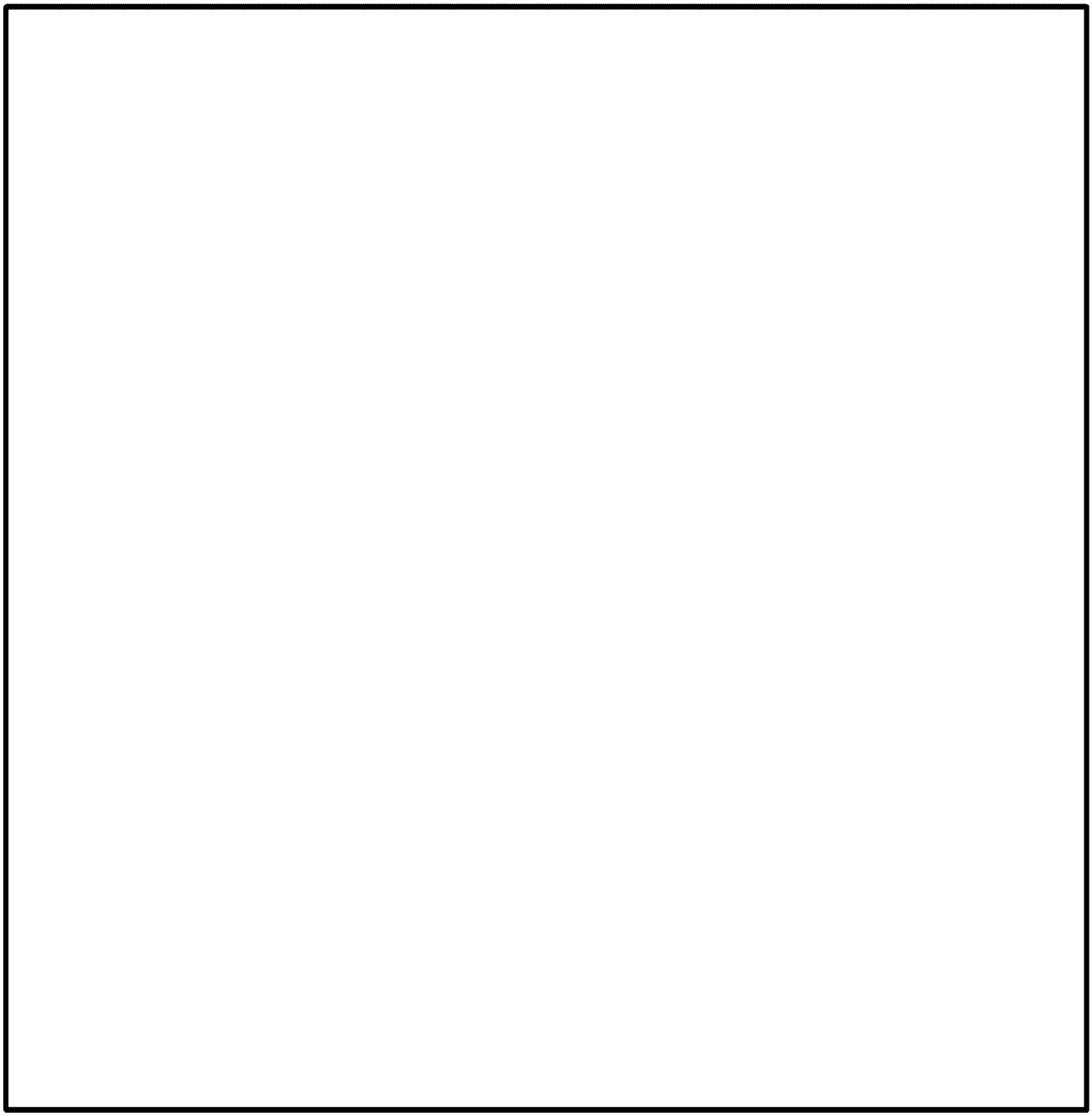

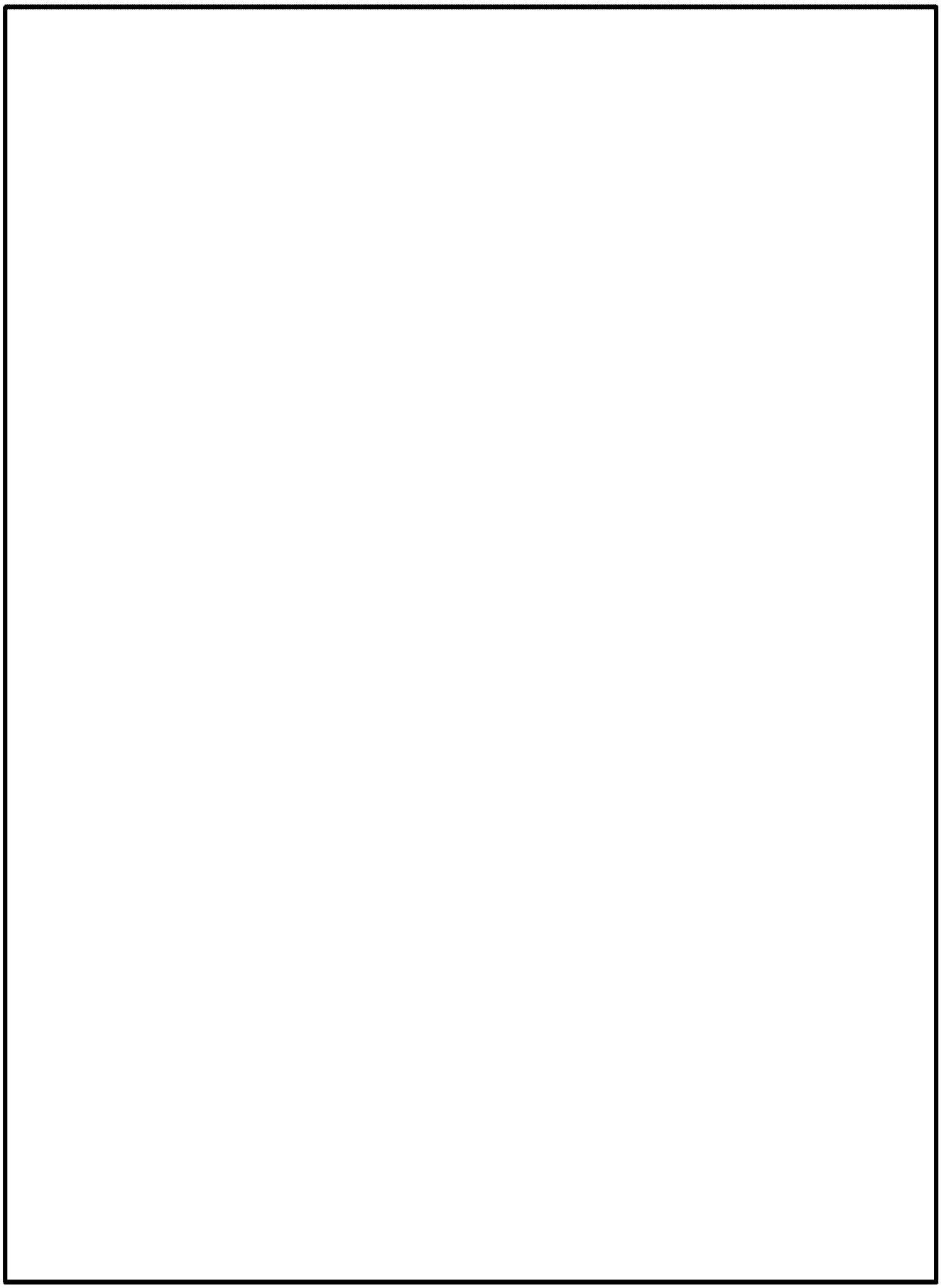

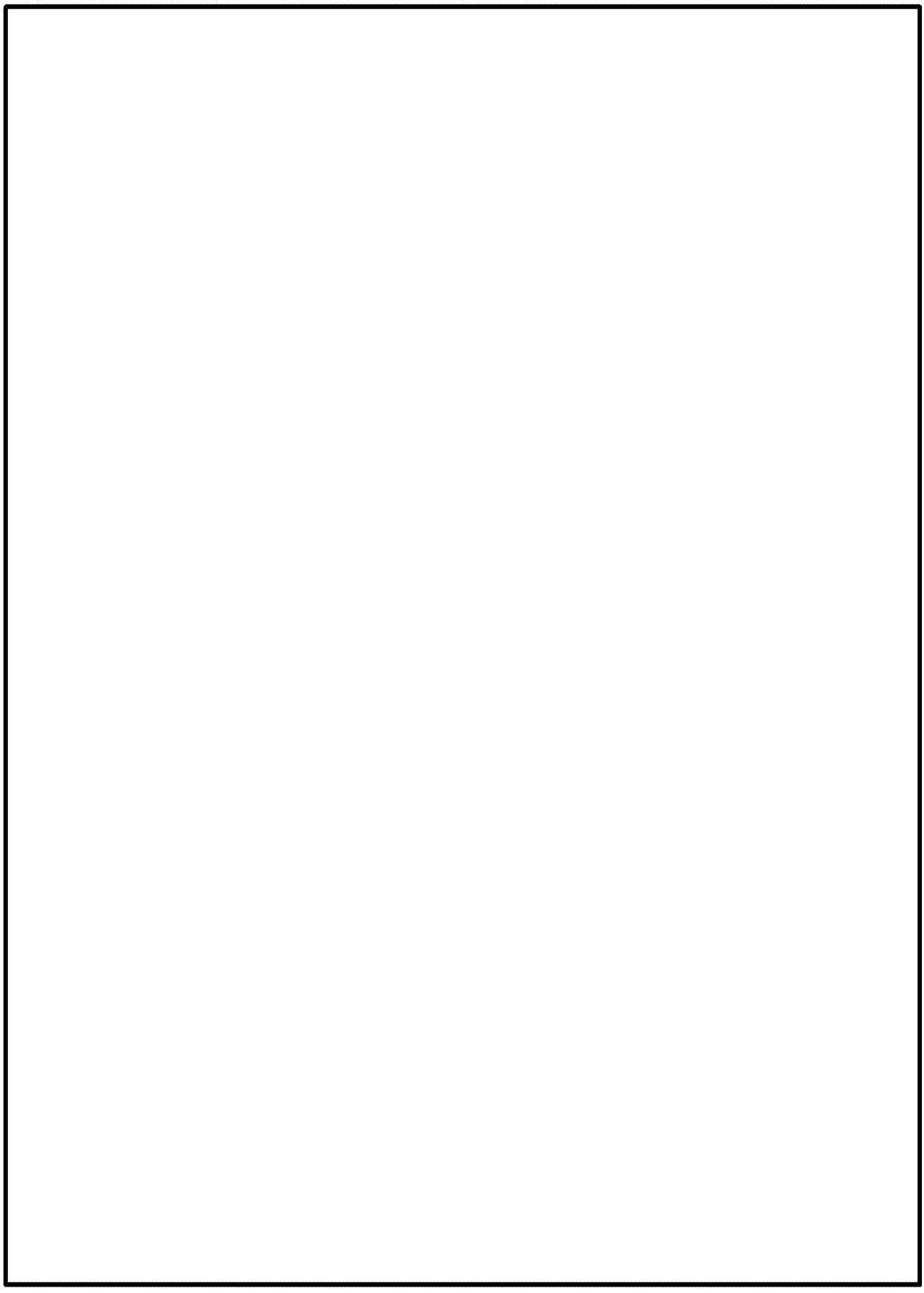

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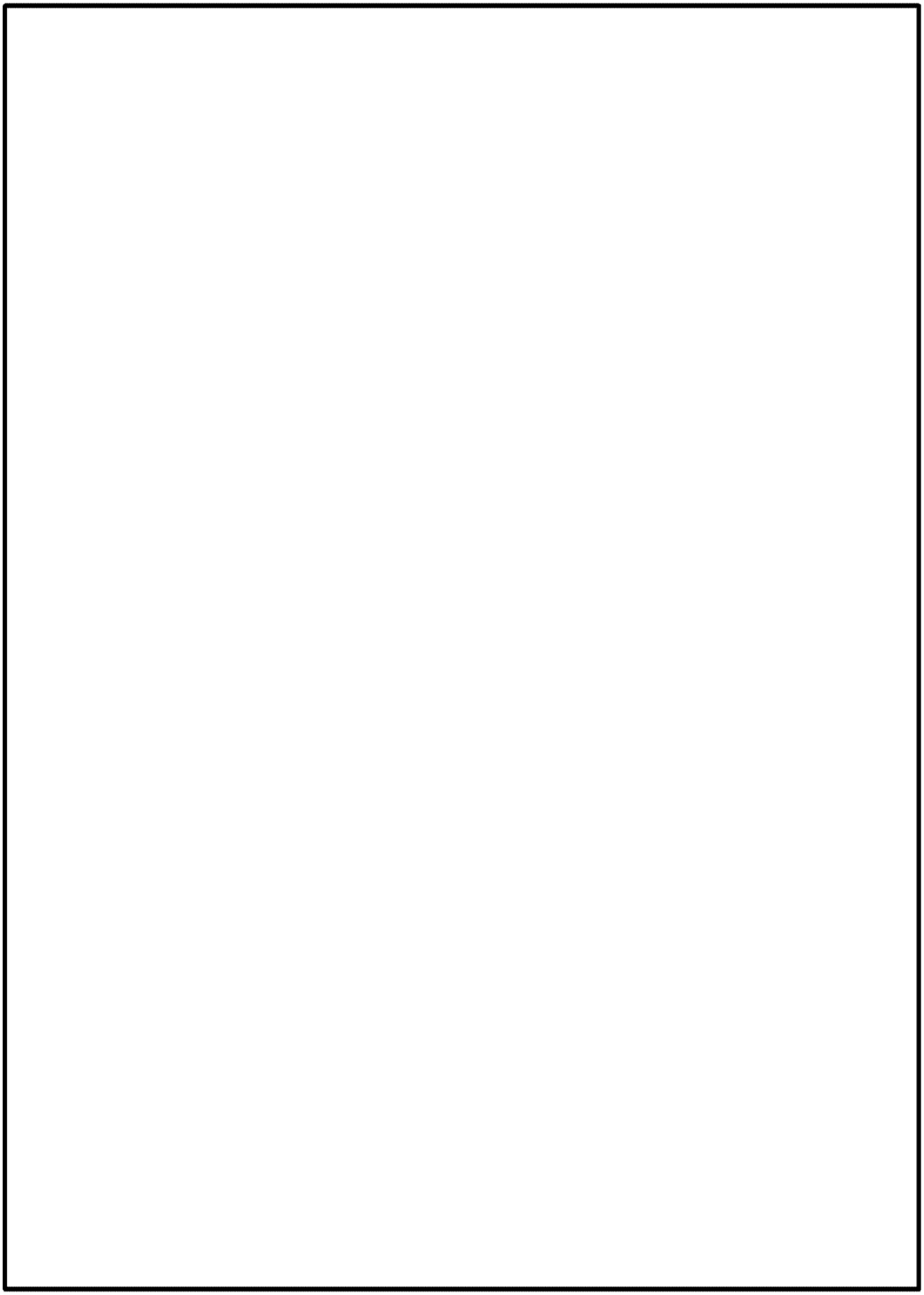
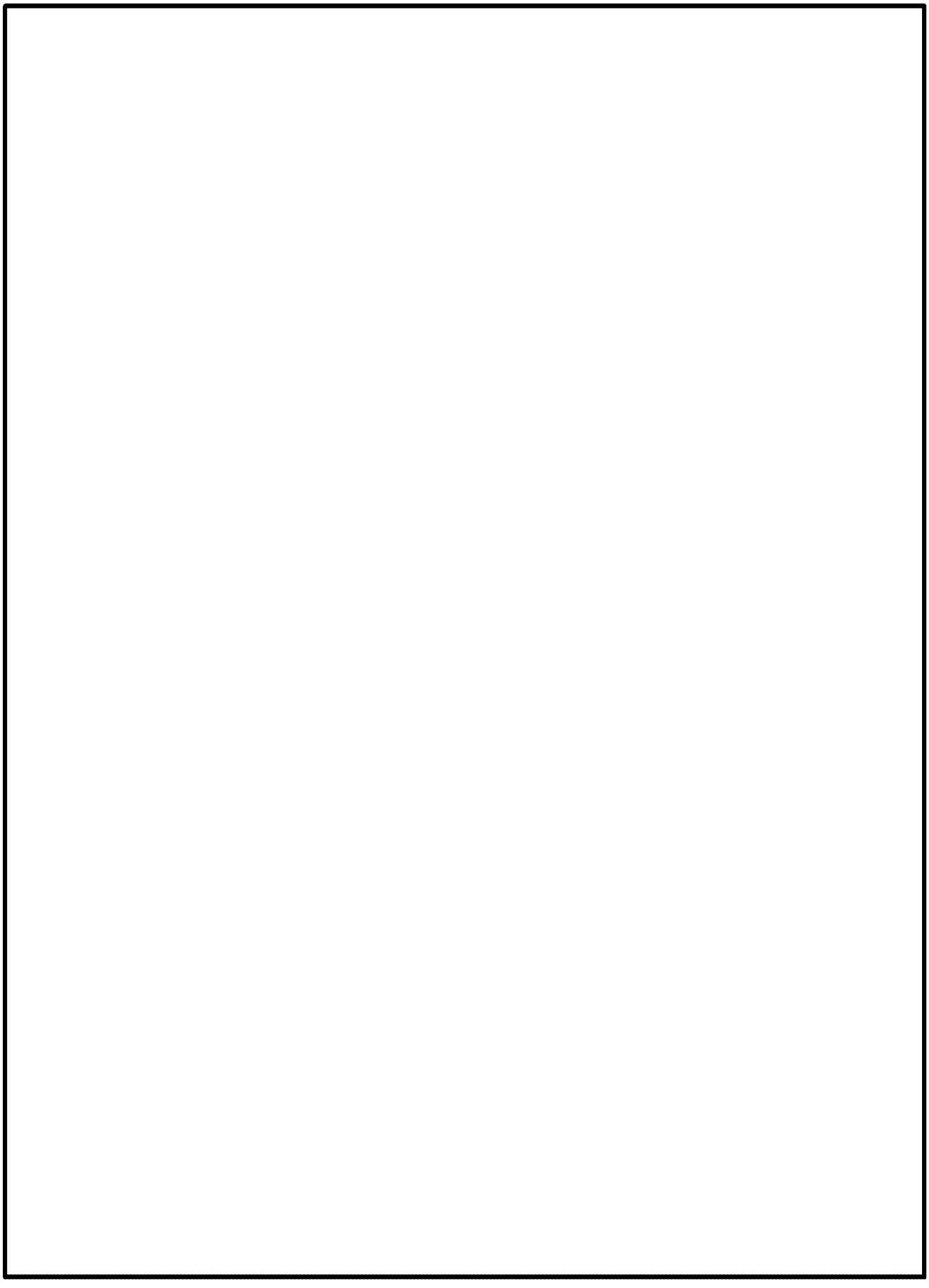
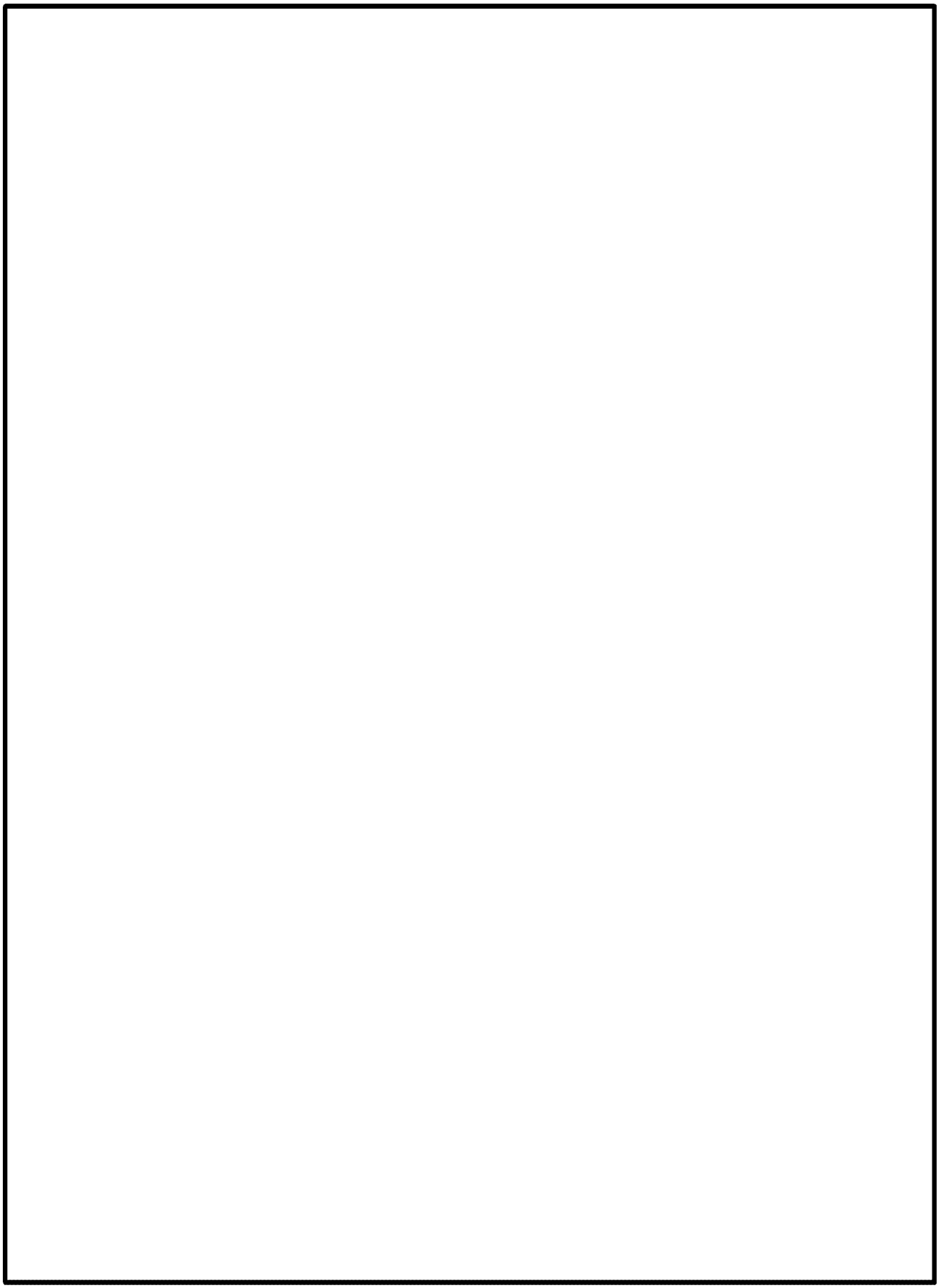
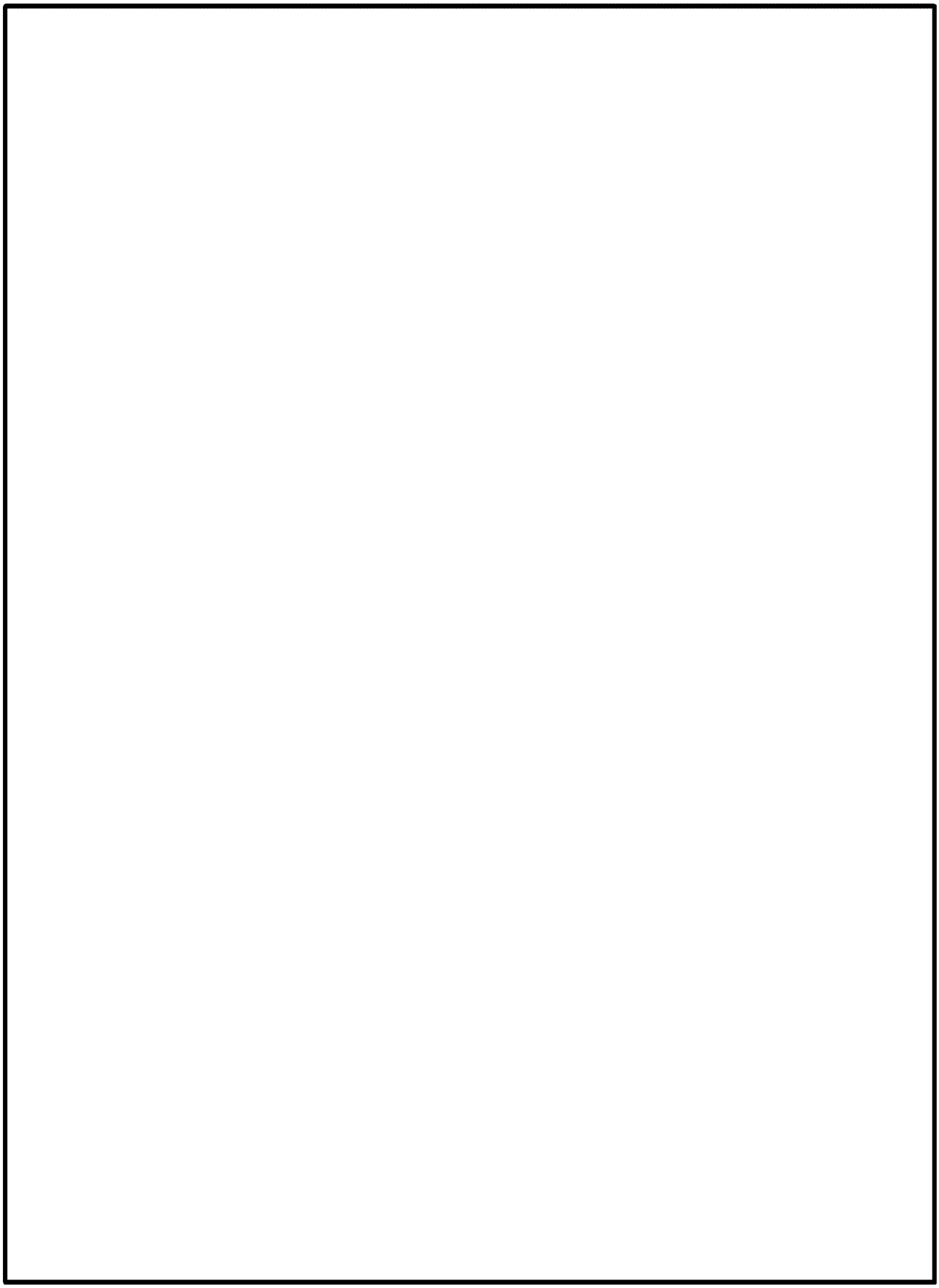
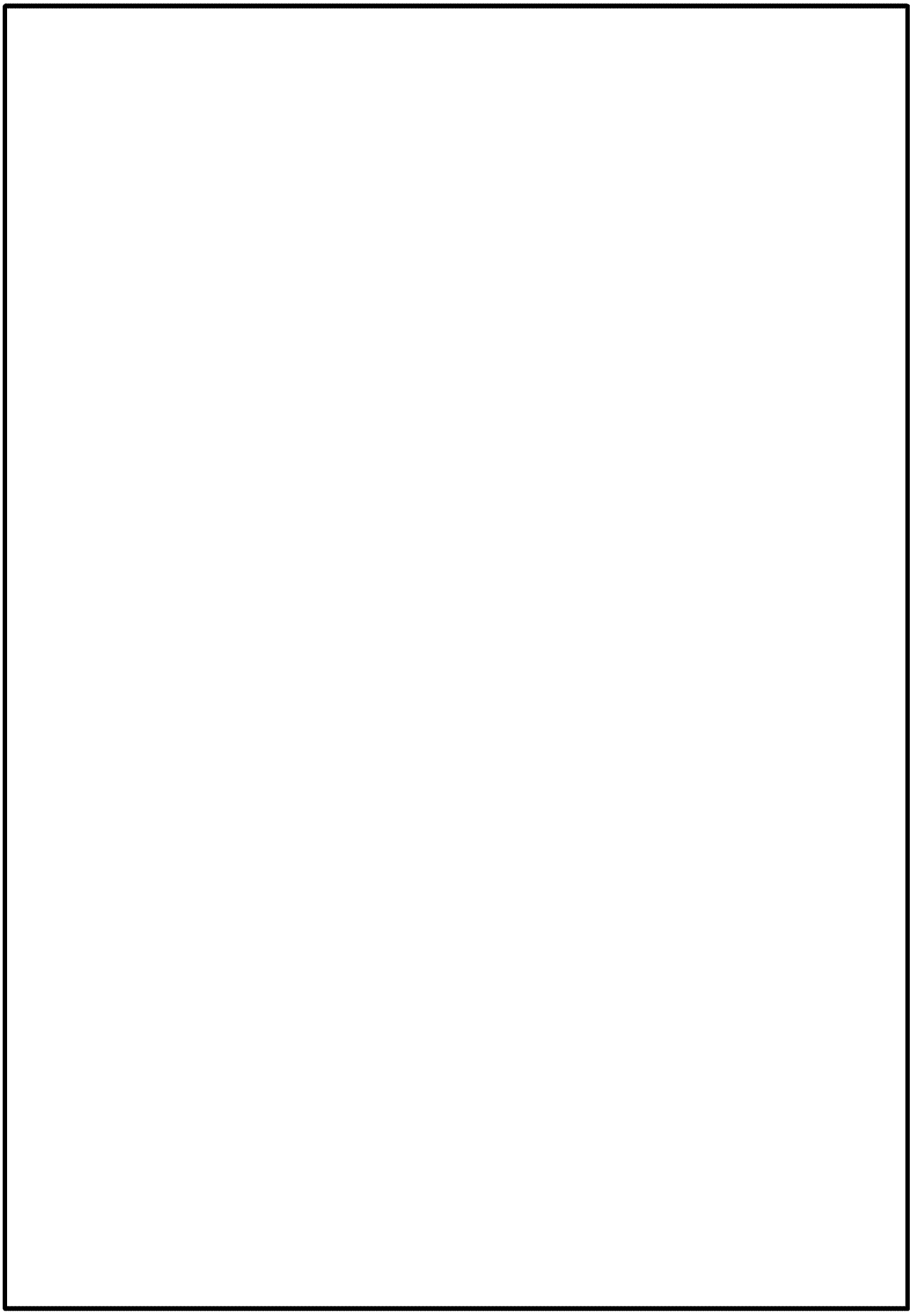
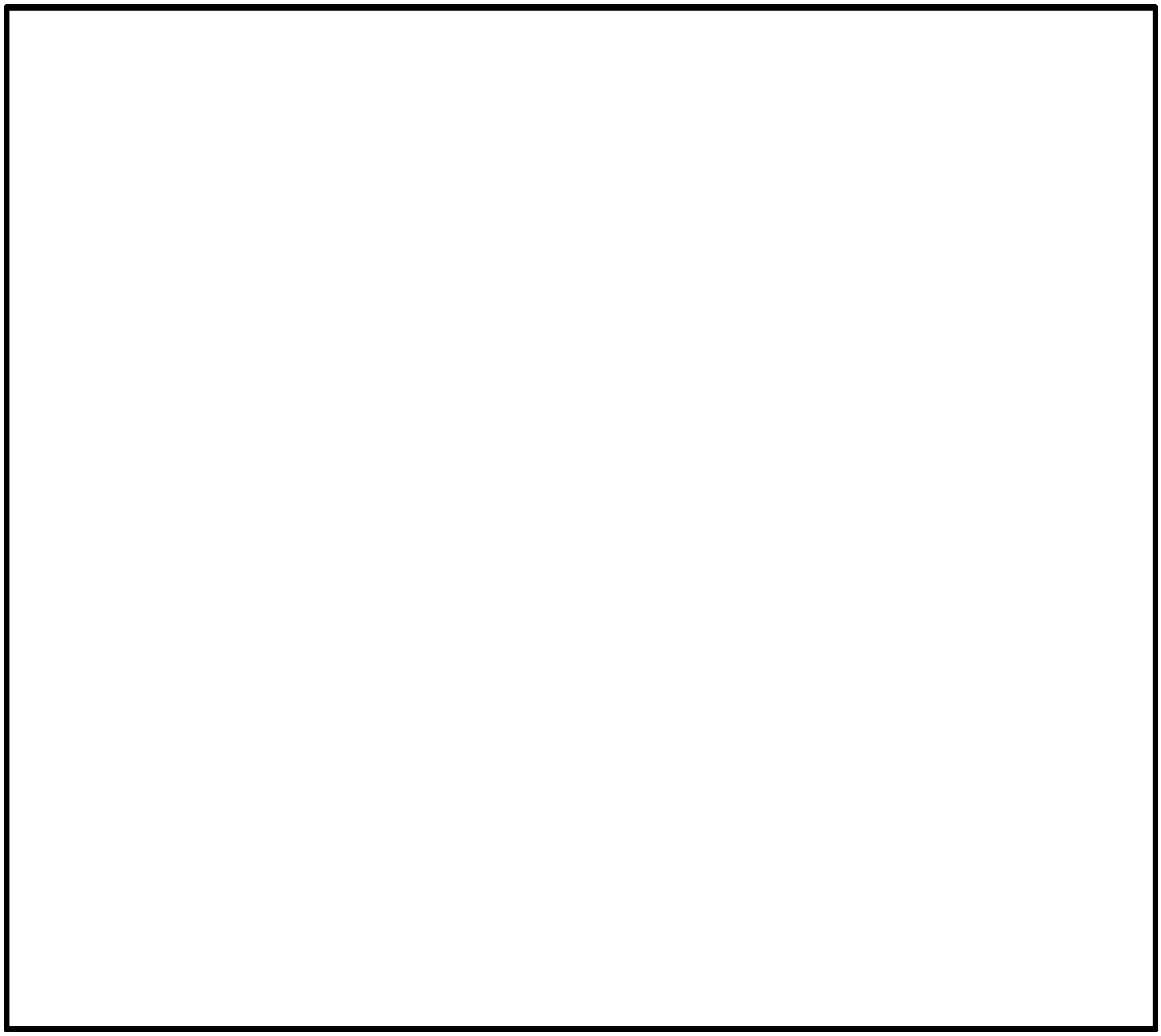


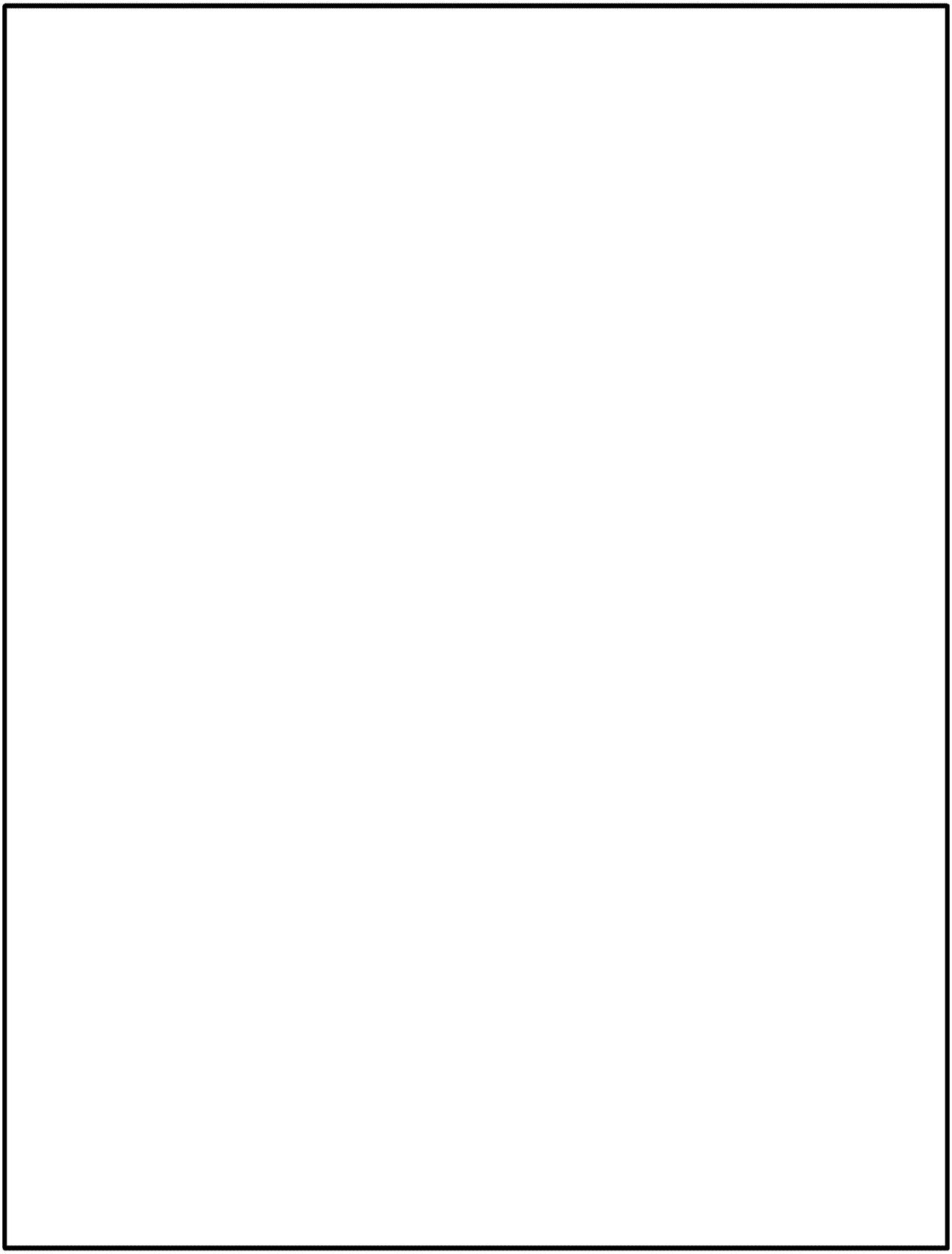












Remedial Closure Report Certification

The following certification will appear in front of the Executive Summary of the Remedial Closure Report. The certification will include the following statements:

I, _____, am currently a professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the 134-37 35th Avenue Site 14EHAN384Q.

I, _____, am a qualified Environmental Professional. I had primary direct responsibility for implementation remedial program for the 134-37 35th Avenue Site 14EHAN384Q.

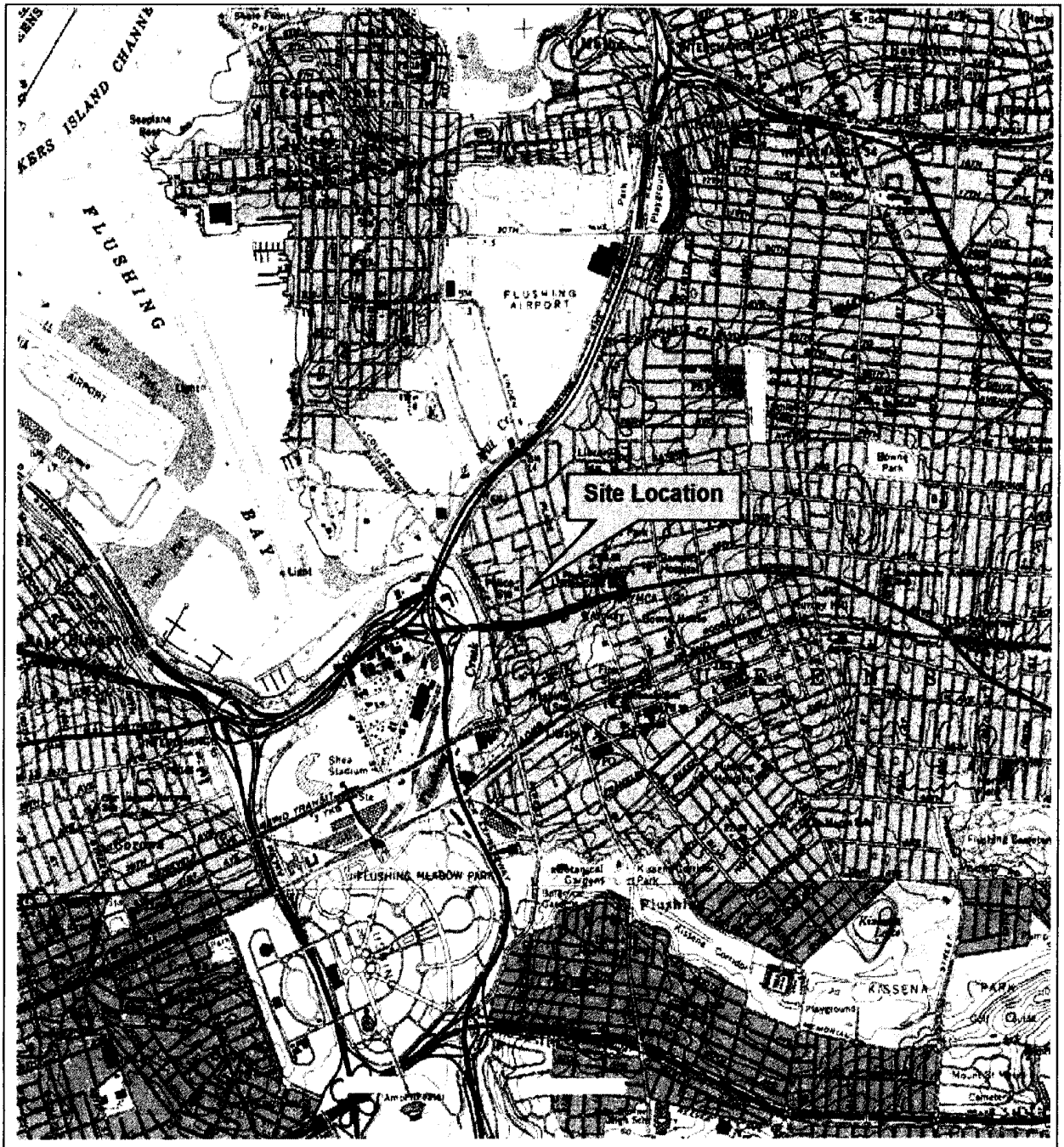
I certify that the OER-approved Remedial Action Plan dated _____ was implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

5.0 SCHEDULE

The table below presents a schedule for the proposed remedial action and reporting. If the schedule for remediation and development activities changes, it will be updated and submitted to OER. Currently, a 28 week remediation period is anticipated.

Schedule Milestone	Weeks from Remedial Action Start	Duration (weeks)
OER Approval of RAP	0	-
Mobilization	2	2
Remedial Construction	4	24
Demobilization	28	2
Submit Remedial Closure Report	30	4

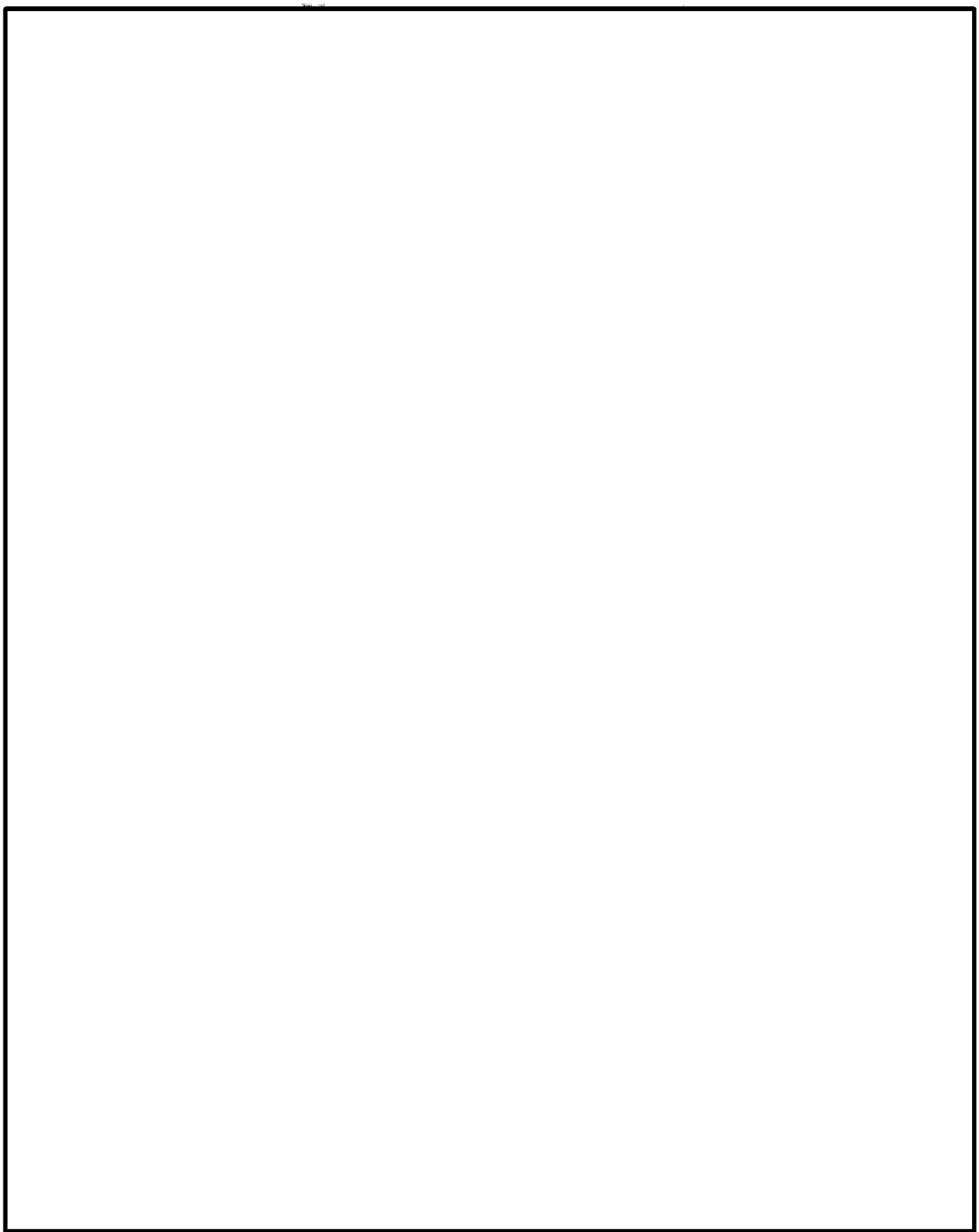
FIGURES



Source: US Geological Survey 7.5-Minute
Flushing and Jamaica Quadrangles

NORTH

FPM GROUP		
FIGURE 1.1.1 SITE LOCATION MAP 134-37 35th AVENUE FLUSHING, NEW YORK		
Drawn by: GH	Checked By: GH	Date: 12/31/2013



LEGEND

MW-11 ⊕ EXISTING MONITORING WELL

FPM GROUP

FIGURE 1.1.2
SITE PLAN
134-37 35th AVENUE
FLUSHING, NEW YORK

Drawn By: H.C.	Checked By: G.H.	Date: 9/9/14

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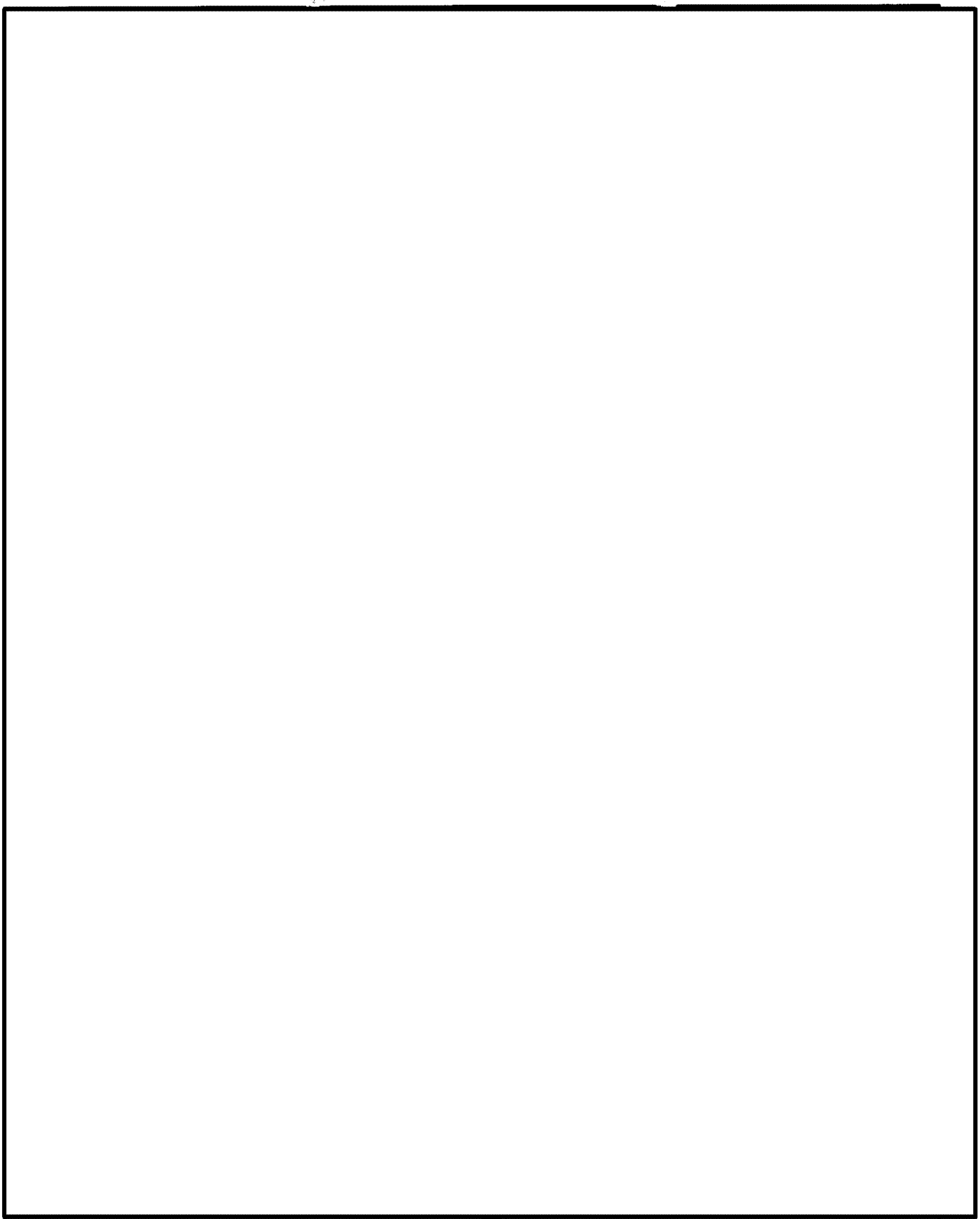

35th AVENUE

0 25' 50'

APPROXIMATE SCALE IN FEET

FPM GROUP

FIGURE 1.2.1
FUTURE DEVELOPMENT PLAN
134-37 35th AVENUE
FLUSHING, NEW YORK

Drawn By: H.C.	Checked By: G.H.	Date: 1/13/14

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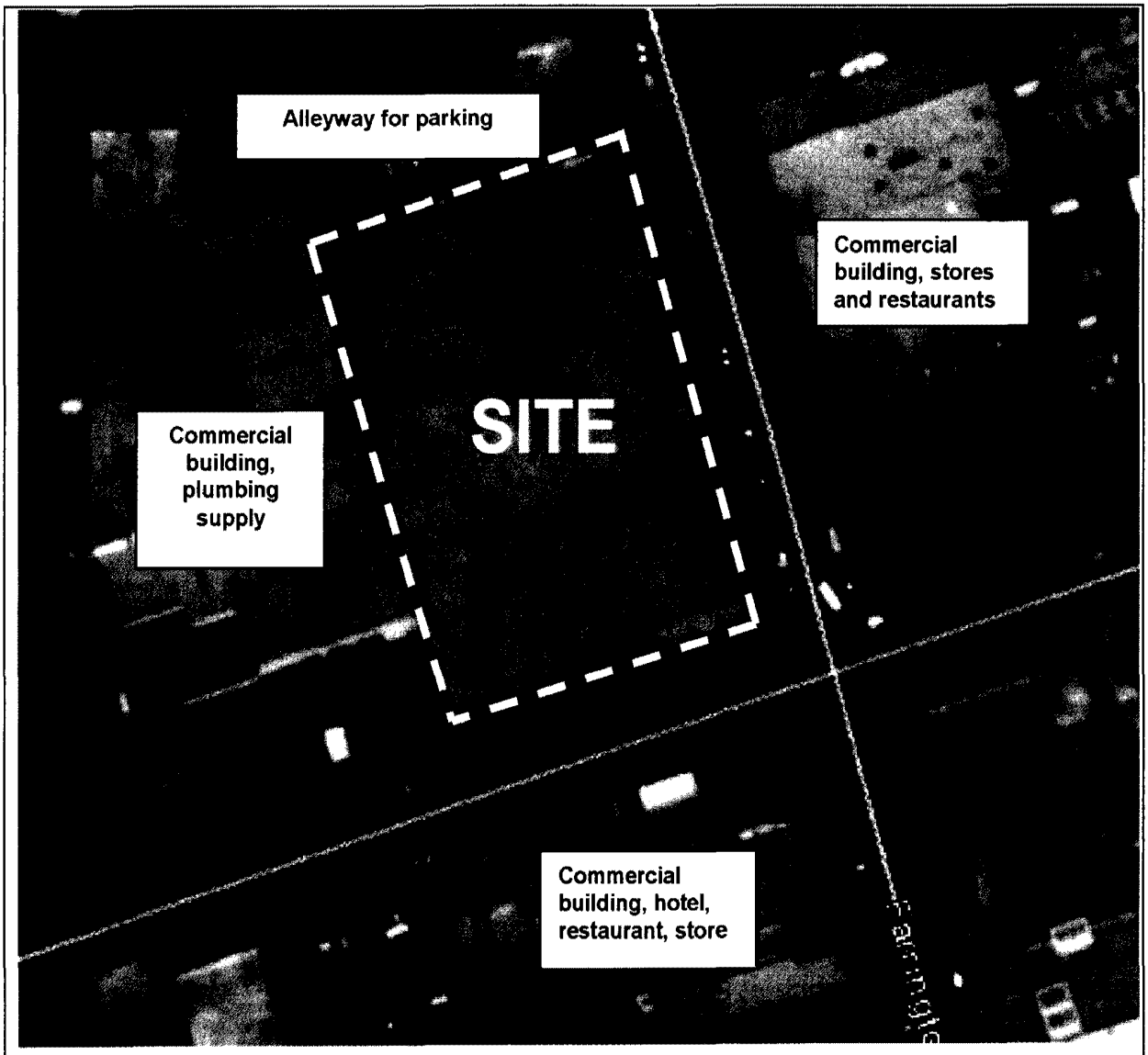
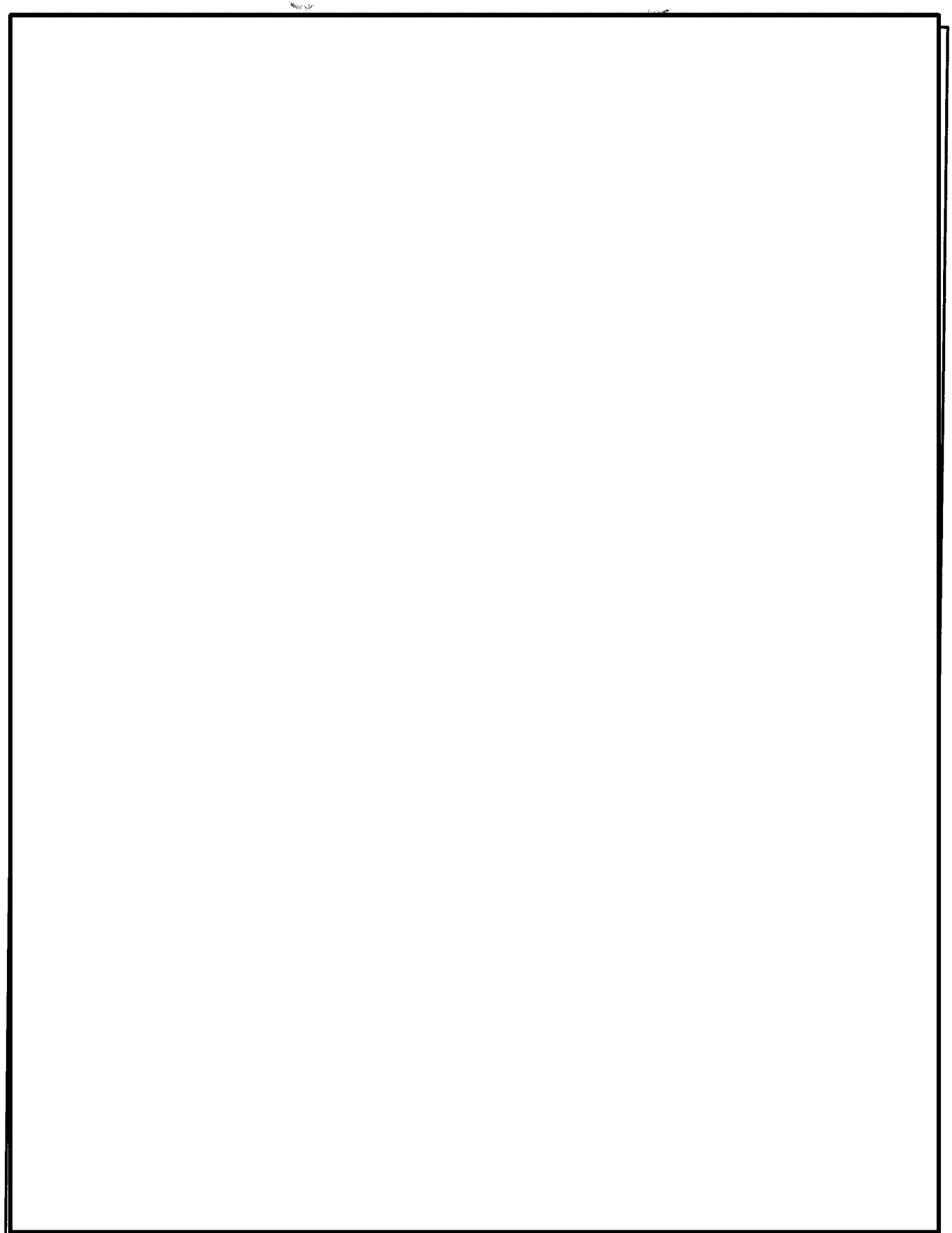


Source: Google Earth

FPM GROUP		
FIGURE 1.3.1 SURROUNDING LAND USAGE 134-37 35TH AVENUE FLUSHING, NEW YORK		
Drawn by: GH	Checked By: BC	Date: 1/14/2015

(b)(4)



MW-1 ⊕	EXISTING MONITORING WELL
B-1 ●	JULY/AUGUST 2014 SOIL BORING SAMPLE LOCATION
GW-1 ○	JULY 2014 GROUNDWATER SAMPLE LOCATION
SV-01 ▲	JULY 2014 SOIL VAPOR SAMPLE LOCATION
⊙	POST EXCAVATION SOIL SAMPLE LOCATION

FPM GROUP

FIGURE 2.3.1
END POINT SAMPLE LOCATIONS
134-37 35th AVENUE
FLUSHING, NEW YORK

Drawn By: H.C.	Checked By: G.H.	Date: 1/21/15

Z:\FARRINGTON REALTY\Phase II\END POINT SAMP LOC.dwg, 4/23/2015 12:55:45 PM, DWG To PDF.pc3

TABLES

TABLE 2.3.1
375-6.8(a): UNRESTRICTED USE SOIL CLEANUP OBJECTIVES

Contaminant	CAS Number	Unrestricted Use
Semivolatile organic compounds		
Acenaphthene	83-32-9	20
Acenapthylene [f]	208-96-8	100 [a]
Anthracene [f]	120-12-7	100 [a]
Benz(a)anthracene [f]	56-55-3	1 [c]
Benzo(a)pyrene	50-32-8	1 [c]
Benzo(b)fluoranthene [f]	205-99-2	1 [c]
Benzo(g,h,i)perylene [f]	191-24-2	100
Benzo(k)fluoranthene [f]	207-08-9	0.8 [c]
Chrysene [f]	218-01-9	1 [c]
Dibenz(a,h)anthracene [f]	53-70-3	0.33 [b]
Fluoranthene [f]	206-44-0	100 [a]
Fluorene	86-73-7	30
Indeno(1,2,3-cd)pyrene [f]	193-39-5	0.5 [c]
m-Cresol [f]	108-39-4	0.33 [b]
Naphthalene [f]	91-20-3	12
o-Cresol [f]	95-48-7	0.33 [b]
p-Cresol [f]	106-44-5	0.33 [b]
Pentachlorophenol	87-86-5	0.8 [b]
Phenanthrene [f]	85-01-8	100
Phenol	108-95-2	0.33 [b]
Pyrene [f]	129-00-0	100

Notes:

All soil cleanup objectives (SCOs) are in parts per million (ppm).

[a] The SCOs for unrestricted use were capped at a maximum value of 100 ppm. See Technical Support Document (TSD), section 9.3.

[b] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.

[c] For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 1 SCO value for this use of the site.

[d] SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

[e] The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

[f] Protection of ecological resources SCOs were not developed for contaminants identified in Table 375-6.8(b) with "NS". Where such contaminants appear in Table 375-6.8(a), the applicant may be required by the Department to calculate a protection of ecological resources SCO according to the TSD.

APPENDIX 1

SOIL/MATERIALS MANAGEMENT PLAN

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SOIL/MATERIALS MANAGEMENT PLAN

1.1 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional and will be reported in the Remedial Closure Report (RCR). Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of the Notice of Satisfaction.

1.2 Stockpile Methods

Excavated soil from suspected areas of contamination (e.g., hot spots, USTs, drains, etc.) will be stockpiled separately and will be segregated from clean soil and construction materials. Stockpiles will be used only when necessary and will be removed as soon as practicable. While stockpiles are in place, they will be inspected daily, and before and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. Excavated soils will be stockpiled on, at minimum, double layers of 8-mil minimum sheeting, will be kept covered at all times with appropriately anchored plastic tarps, and will be routinely inspected. Broken or ripped tarps will be promptly replaced.

All stockpile activities will be compliant with applicable laws and regulations. Soil stockpile areas will be appropriately graded to control run-off in accordance with applicable laws and regulations. Stockpiles of excavated soils and other materials shall be located at least of 50 feet from the property boundaries, where possible. Hay bales or equivalent will surround soil stockpiles except for areas where access by equipment is required. Silt fencing and hay bales will be used as needed near catch basins, surface waters and other discharge points.

1.3 Characterization of Excavated Materials

Soil/fill or other excavated media that is transported off-Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Soils proposed for reuse on-Site will be managed as defined in this plan.

1.4 Materials Excavation, Load-Out and Departure

The PE/QEP overseeing the remedial action will:

- oversee remedial work and the excavation and load-out of excavated material;
- ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;
- ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in this RAP;
- ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate parties;
- ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

Open and uncontrolled mechanical processing of historical fill and contaminated soil on-Site will not be performed without prior OER approval.

1.5 Off-Site Materials Transport

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. If loads contain wet material capable of causing leakage from trucks, truck liners will be used. Queuing of trucks will be performed on-Site, when possible in order to minimize off Site disturbance. Off-Site queuing will be minimized.

Outbound truck transport routes are in Section 3.8 of the RAP. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive

sites; (b) use of mapped truck routes; (c) minimizing off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

1.6 Materials Disposal Off-Site

The following documentation will be established and reported by the PE/QEP for each disposal destination used in this project to document that the disposal of regulated material exported from the Site conforms with applicable laws and regulations: (1) a letter from the PE/QEP or Applicant to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in New York under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Applicant. The letter will include as an attachment a summary of all chemical data for the material being transported; and (2) a letter from each disposal facility stating it is in receipt of the correspondence (1, above) and is approved to accept the material. These documents will be included in the RCR.

The RCR will include an itemized account of the destination of all material removed from the Site during this remedial action. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the RCR.

All impacted soil/fill or other waste excavated and removed from the Site will be managed as regulated material and will be disposed in accordance with applicable laws and regulations. Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in conformance with its applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the RCR. A manifest system for off-Site transportation of exported materials will be

employed. Manifest information will be reported in the RCR. Hazardous wastes derived from on-Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

1.7 Demarcation

After completion of hotspot removal and any other invasive remedial activities, and prior to backfilling, the top of the residual soil/fill will be defined by one of three methods: (1) placement of a demarcation layer. The demarcation layer will consist of geosynthetic fencing or equivalent material to be placed on the surface of residual soil/fill to provide an observable reference layer. A description or map of the approximate depth of the demarcation layer will be provided in the RCR; or (2) a land survey of the top elevation of residual soil/fill before the placement of cover soils, pavement and associated sub-soils, or other materials or structures or, (3) all materials beneath the approved cover will be considered impacted and subject to site management after the remedy is complete. Demarcation may be established by one or any combination of these three methods. As appropriate, a map showing the method of demarcation for the Site and all associated documentation will be presented in the RCR. This demarcation will constitute the top of the site management horizon.

1.8 Import of Backfill Soil from Off-Site Sources

This Section presents the requirements for imported fill materials to be used below the cover layer and within the clean soil cover layer. All imported soils will meet OER-approved backfill and cover soil quality objectives for this Site. The backfill and cover soil quality objectives are listed in the RAP.

A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any applicable documentation. Material from industrial sites, spill sites, environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

The following potential sources may be used pending attainment of backfill and cover soil quality objectives:

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;
- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYS DEC.

All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in this RAP. The RCR will report the source of the fill, evidence that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed.

Source Screening and Testing

Inspection of imported fill material will include visual, olfactory and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:

- Trucks with imported fill material will be in compliance with applicable laws and regulations and will enter the Site at designated locations;
- The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and
- Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite samples of imported material will be taken at a minimum frequency of one sample for every 500 cubic yards of material. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements and is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) will be imported from facilities permitted or registered by NYSDEC. Facilities will be identified in the RCR. A PE/QEP is responsible to ensure that the facility is compliant with 6NYCRR Part 360 registration and permitting requirements for the

period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA material is not acceptable for, and will not be used as cover material.

1.9 Fluids Management

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable laws and regulations. Liquids discharged into the New York City sewer system will receive prior approval by New York City Department of Environmental Protection (NYC DEP). The NYC DEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. Discharge to the New York City sewer system will require an authorization and sampling data demonstrating that the groundwater meets the City's discharge criteria. The dewatering fluid will be pretreated as necessary to meet the NYC DEP discharge criteria. If discharge to the City sewer system is not appropriate, the dewatering fluids will be managed by transportation and disposal at an off-Site treatment facility.

Discharge of water generated during remedial construction to surface waters (i.e. a stream or river) is prohibited without a SPDES permit issued by New York State Department of Environmental Conservation.

1.10 Storm-water Pollution Prevention

Applicable laws and regulations pertaining to storm-water pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this RAP (silt fences and barriers, and hay bale checks) will be installed around the entire perimeter of the remedial construction area and inspected once a week and after every storm event to ensure that they are operating appropriately. Discharge locations will be inspected to determine whether erosion control measures are effective in preventing significant impacts to receptors. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion of the silt fence anchor will be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

1.11 Contingency Plan

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to OER's Project Manager. Petroleum spills will be reported to the NYS DEC Spill Hotline. These findings will be included in the daily report. If previously unidentified contaminant sources are found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to OER. Chemical analytical testing will be performed for Full List volatiles and semi-volatiles, pesticides/PCBs, and TAL metals, as appropriate.

1.12 Odor, Dust and Nuisance Control

Odor Control

All necessary means will be employed to prevent on- and off-Site odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) use of foams to cover exposed odorous soils. If odors develop and cannot otherwise be controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; and (e) use of chemical odorants in spray or misting systems.

This odor control plan is capable of controlling emissions of nuisance odors. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. OER will be notified of all odor complaint events. Implementation of all odor controls, including halt of work, will be the responsibility of the PE/QEP's certifying the RCR.

Dust Control

Dust management during invasive on-Site work will include, at a minimum:

- Use of a dedicated water spray methodology for roads, excavation areas and stockpiles.

- Use of properly anchored tarps to cover stockpiles.
- Exercise extra care during dry and high-wind periods.
- Use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted and the source of dusts will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. OER will be notified of all dust complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the PE/QEP's responsible for certifying the Remedial Closure Report.

Other Nuisances

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards.

Rodent control will be provided, during Site clearing and grubbing, and during the remedial program, as necessary, to prevent nuisances.

1.13 Import of Clean Cover

All imported soil will be uncontaminated, clean soil that meets the lesser of the appropriate NYSDEC 6 NYCRR Part 375-6.8(a) Unrestricted Use SCOs and the NYSDEC 6 NYCRR Part 375-6.8 groundwater protection SCOs.

The imported uncontaminated, clean soil cover will be from an approved source/facility and will be evaluated by the PE/QEP to ensure:

1) That a segregated stockpile is properly maintained at the source and will not be comingled with any other material prior to importing and grading the clean soil material at the Site;
2) That the material does not include any solid waste, including construction and demolition material, as it's prohibited;

3) That screening for evidence of contamination by visual, olfactory and PID soil screening practices prior to testing at the source as well as upon importing to the Site for grading is completed; and

4) That a maximum five-part composite sample will be collected from the segregated stockpile at the source at a minimum frequency of one sample per 250 cubic yards and analyzed for the following Full List parameters:

- VOCs by EPA Method 8260C (rev. 2006)
- SVOCs by EPA Method 8270D (rev. 2007)
- Pesticides by EPA Method 8081B (rev. 2000)
- PCBs by EPA Method 8082A (rev. 2000)
- TAL Metals by EPA Method 6010C (rev. 2007)

Upon receipt of the segregated stockpile analytical results collected at the source, a Clean Soil Sampling Report will be submitted to OER for review/approval prior to importing. The report will include the following:

1) Summary of number of samples collected and analyzed, tabulated data and comparison to the selected Site Use SCOs;

2) Analytical data sheets and chain of custody documentation;

3) Summary of number of tons of cubic yards;

4) An affidavit from the source/facility on company letterhead stating that the segregated stockpile has been properly maintained at the source and complies with the requirements listed above; and

5) A copy of source/facility NYSDEC permit;

The following documentation will be presented in the Final Remedial Closure Report:

1) Copies of purchase invoices;

2) Truck transportation slips from the source to the Site;

3) Confirmation of the number of tons and cubic yards of OER approved clean soil cover material imported and graded at the site on top of highly visible demarcation barrier; and

4) Site plan depicting all areas where the OER approved clean soil cover has been placed.

APPENDIX 2

CONSTRUCTION HEALTH AND SAFETY PLAN

CONSTRUCTION
HEALTH AND SAFETY PLAN
FOR
134-37 35TH AVENUE
FLUSHING, NEW YORK
OER PROJECT NUMBER 14EHAN384Q

PREPARED FOR

FARRINGTON REALTY, LLC

PREPARED BY

FPM group.
909 MARCONI AVENUE
RONKONKOMA, NEW YORK 11779

FPM

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LIST OF ATTACHMENTS

A Materials Safety Data Sheets

SECTION 1.0
INTRODUCTION

This Construction Health and Safety Plan (CHASP) has been written for compliance with "OSHA Hazardous Waste Operations Standards (29 CFR 1910.120)", the guidance documents, "Standard Operating Safety Guidelines (Office of Solid Waste and Emergency Response, 1988)" and the "Occupational Safety and Health Guidance Manual for Hazardous Waste Activities" (U.S. Department of Health and Human Services, 1985).

1.1 Scope and Applicability of the CHASP

This CHASP is designed to be applicable to location(s) where the excavation of soil/fill will be performed at the Site. Dewatering is not anticipated at this time and is, therefore, not included herein. This CHASP may also be modified or amended to meet specific needs of the work proposed. This CHASP will detail the Site safety procedures, Site background, and safety monitoring. Contractors will be required to adopt this CHASP in full. A Health and Safety Officer (HSO) will be present at the Site to inspect the implementation of the CHASP. However, it is the sole responsibility of the contractor(s) to comply with the CHASP.

The CHASP has been formulated as a guide to complement professional judgment and experience. The appropriateness of the information presented should always be evaluated with respect to unforeseen Site conditions which may arise.

1.2 Site Work Zone and Visitors

The Site work zone (a.k.a. exclusion zone) during excavation activities will be a 30-foot radius about the work location. This work zone may be extended if, in the judgment of the health and safety officer (HSO), Site conditions warrant a larger work zone.

No visitors will be permitted within the work zone without the consent of the HSO. All visitors will be required to be familiar with, and comply with, the CHASP. The HSO will deny access to those whose presence within the work zone is unnecessary or those who are deemed by the HSO to be in non-compliance with the CHASP.

All Site workers, including the contractors, who may directly contact Site soil will be required to have 40-hour hazardous material training (eight-hour refresher courses annually), respirator fit test certification if respirators are to be used, and medical surveillance as required in 29 CFR 1910.120.

The HSO will also give an on-Site health and safety discussion to all Site personnel, including the contractors, prior to initiating Site work involving soil. Workers not in attendance during the health and safety talk will be required to have the discussion with the HSO prior to entering the work zone.

Emergency telephone numbers and directions to the nearest hospital are found in Table 1.2.1.

TABLE 1.2.1
EMERGENCY TELEPHONE NUMBERS

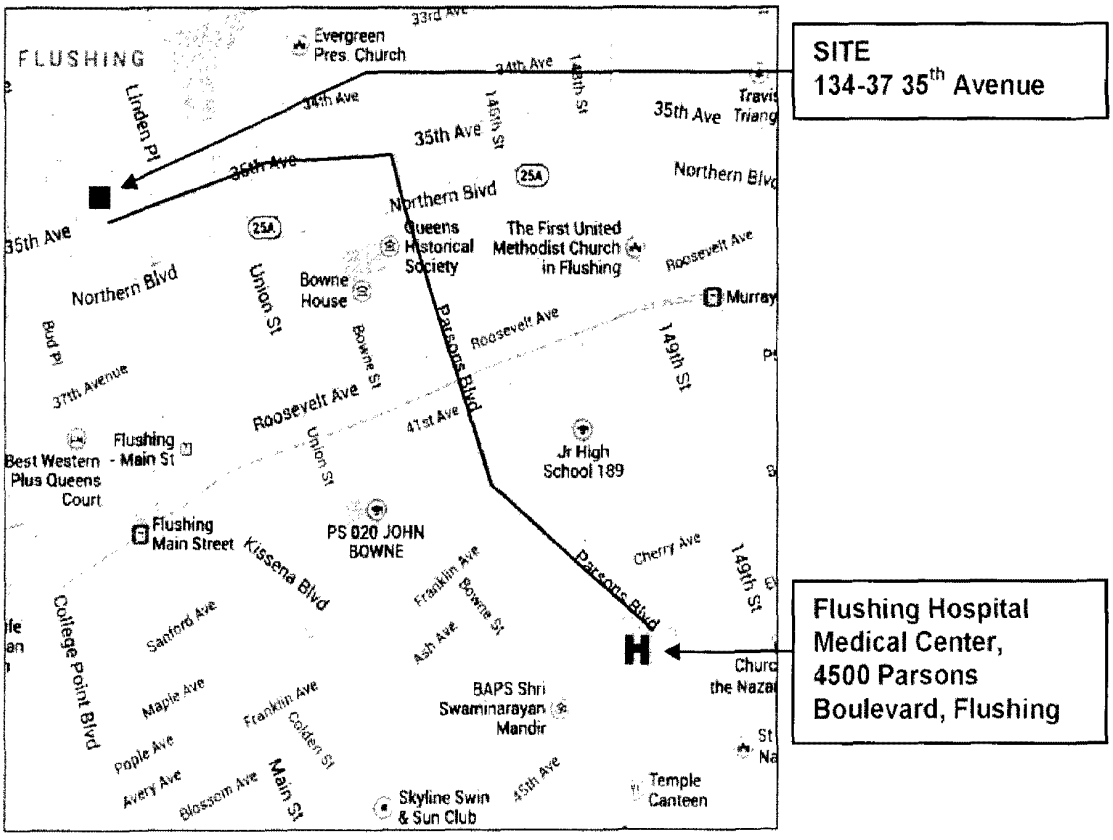
Police	911
Ambulance	911
Poison Control Center	212-764-7667
New York State Spills Hotline	800-457-7362
Flushing Hospital Medical Center	718-670-5495

FPM Contact Personnel (631-737-6200)

Dr. Kevin J. Phillips, P.E.	Cell #	[redacted] (b)(6)
Ben Cancemi, Project Manager and Health and Safety Officer	Cell #	
Stephanie Davis, Project Coordinator, QA/QC Officer	Cell #	
George Holmes, Alternate Health & Safety Officer	Cell #	

Directions to Flushing Hospital Medical Center (718-670-5495)

Turn left from the south side of the Site and head east on 35th Avenue about one-half mile to Parsons Boulevard. Turn right onto Parsons Boulevard and continue south approximately three-quarters of a mile. Flushing Hospital Medical Center will be on the right.



SECTION 2.0
KEY PERSONNEL AND RESPONSIBILITIES

The FPM project manager for this project will be Ben Cancemi. The FPM project field staff will include John Bukoski and George Holmes. Contractor personnel may also be on Site. The senior FPM staff member on Site will act as HSO and will report to the project manager. In the event that an FPM HSO is not present, an alternate qualified HSO will be appointed. Contractor personnel will be provided with health and safety information by the HSO and will be expected to follow this CHASP.

SECTION 3.0
SITE BACKGROUND

3.1 Site History and Known Chemical Constituents at the Site

The Site is comprised of an undeveloped property located at 134-37 35th Avenue, Flushing, New York. The Site is approximately 39,000 square feet in size. The Site was formerly utilized as a bus facility, a New York City Department of Sanitation (NYCDOS) garage, theater, restaurant, bar, store, and parking garage. Soil/fill is present at the Site and is impacted with semivolatile organic compounds (SVOCs). Although no significantly-elevated levels were detected, concentrations of several SVOCs were noted to exceed Track 1 and/or Track 2 SCOs.

SECTION 4.0
TASK/OPERATION HEALTH AND SAFETY ANALYSIS

This section will present health and safety analyses for the excavation of soil/fill.

4.1 Safety Analysis

Excavation of soil/fill and petroleum-contaminated soils will be performed by a contractor with oversight by FPM and/or the Site Supervisor. Excavation will involve the use of heavy equipment. Safety concerns will include risk of injury due to being struck by equipment, being trapped between moving equipment parts, being struck by dropped materials, and hearing damage due to equipment noise. Site personnel will take precautions against these risks when working in the vicinity of heavy equipment by being aware of equipment locations and movement, by wearing steel-toed boots and hard hats, and by using hearing protection, if necessary. Site personnel who have not previously worked in the vicinity of heavy equipment will be paired with an experienced person for at least one day to familiarize themselves with heavy equipment operations and safety procedures.

A calibrated photoionization detector (PID) will be used to monitor VOCs in the worker's breathing zone during excavation of petroleum-contaminated soils. Although previous onsite monitoring during intrusive activities has not indicated the presence of significant VOCs, steady-state PID readings greater than 10 ppm in the worker's breathing zone will require upgrading to Level C personal protective equipment. Steady-state readings, for this purpose, will be defined as readings between 10 and 20 parts per million (ppm) above background for a minimum of ten seconds. Readings will be obtained at points around and in proximity to the excavation area. These points will define the worker's breathing zone. Level C personal protection will include full-face air-purifying respirators with dust and organic vapor cartridges (personal protective equipment will be described in greater detail in Section 7.0). All FPM personnel and contractors within the potential to require respiratory protection must be properly trained and fit tested prior to donning respirators.

Upon encountering PID levels greater than 20 ppm above background in the worker's breathing zone, work will stop until the source of vapors is abated and readings are less than 20 ppm above background. If, at any time, PID readings exceed steady-state levels greater than 50 ppm above background, or any conditions exist which the HSO determines will require Level B personal protective equipment, all work at the Site will cease immediately and all personnel will evacuate the work zone. Evacuation will occur in the upwind direction if discernable. Level B conditions are not anticipated to be encountered; however, if level B conditions arise, no Site work will be performed by FPM or contractors and a complete evaluation of the operation will be performed and this CHASP will be modified.

All personnel who may directly contact soil will be required to wear chemical-resistant gloves (such as butyl or nitrile) when the potential for dermal contact with the soil is possible. Dermal contact with soils will be avoided.

Hard hats and steel-toe, steel-shank safety boots will be required when work is performed in the vicinity of heavy equipment (drill rigs, backhoes, etc.).

4.2 Other Safety Considerations

4.2.1 Noise

During excavation operations or any other operation that may generate potentially harmful levels of noise, the HSO will monitor noise levels with a Realistic[tm] hand-held sound level meter. Noise levels will be monitored in decibels (dBs) in the A-weighted, slow-response mode. Noise level readings that exceed the 29 CFR 1910.95 permissible noise exposure limits will require hearing protection (see Table 4.2.1.1 for permissible noise exposures).

Hearing protection will be available to all Site workers. The hearing protection will consist of foam, expansion-fit earplugs (or other approvable hearing protection) with an Environmental Protection Agency noise reduction rating of at least 29 dB. Hearing protection must alleviate worker exposure to noise to an eight-hour time-weighted average of 85 dB or below. In the event that the hearing protection is inadequate, work will cease until a higher level of hearing protection can be incorporated.

TABLE 4.2.1.1
PERMISSIBLE NOISE EXPOSURES*

Duration Per Day Hours	Sound Level dBA Slow Response
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25	115

Notes:

When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: $C_1/T_1+C_2/T_2$ C_6/T_6 exceeds unity, then, the mixed exposure should be considered to exceed the limit value. Cn indicates the total time of exposure at a specified noise level, and Tn indicates the total time of exposure permitted at that level.

Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

*Standards derived from 29 CFR 1910.95

4.2.2 Slip/Trip/Fall Preventative Measures

To reduce the potential for slipping, tripping, or falling, the work zone will be kept clear of unnecessary equipment. All Site workers will be required to wear work boots with adequate tread to reduce the potential for slipping (work boots must be leather or chemical-resistant and contain steel toes and steel shanks).

4.2.3 Insects and Ticks

Insect and tick problems are expected to be minimal. Potential insect problems include, but are not limited to, bees, wasps, and hornets. Prior to commencement of work, each work area will be surveyed for nests and hives to reduce the possibility of disturbing these insects. In addition, each Site worker will be asked to disclose any allergies related to insect stings or bites. The worker will be requested to keep his or her anti-allergy medicine on Site.

Tick species native to Long Island consist of the pinhead-sized deer tick and the much-larger dog tick. Due to a paucity of suitable habitat, ticks are not anticipated to be present at this site.

4.2.4 Heat/Cold Stress

Heat stress may become a concern, especially if protective clothing is donned which will decrease natural ventilation. To assist in reducing heat stress the following measures will be taken:

- An adequate supply of water or other liquids will be brought on Site. To prevent dehydration, personnel will be encouraged to drink generous amounts of water even if not thirsty.

- A shady rest area will be designated (such as beneath the trees in the northeast corner of the property) to provide shelter during sunny days.

- In hot weather, workers wearing protective clothing may be rotated.

Indications of heat stress range from mild (fatigue, irritability, anxiety, decreased concentration, dexterity or movement) to fatal. Medical help will be obtained for serious conditions. Heat-related problems are:

- Heat rash: caused by continuous exposure to heat and humid air and aggravated by chafing clothes. Decreases ability to tolerate heat as well as being a nuisance.

- Heat cramps: caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially salts). Signs: muscle spasm and pain in the extremities and abdomen.

- Heat exhaustion: caused by increased stress on various organs to meet increased demands to cool the body. Signs: shallow breathing; pale, cool, moist skin; profuse sweating; dizziness and lassitude.

- Heat stroke: the most severe form of heat stress. Can be fatal. Medical help must be obtained immediately. Body must be cooled immediately to prevent severe injury and/or death. Signs: red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

Cold exposure is a concern if work is conducted during cold weather or marginally cold weather during precipitation periods or moderate to high wind velocity periods. To assist in reducing cold exposure the following measures will be taken:

All personnel will be required to wear adequate and appropriate clothing. This will include head gear to prevent the high percentage loss of heat that occurs in this area (thermal liners for hard hats if hard hats are required).

- Provide a readily available warm shelter near each work zone.
- Carefully schedule work and rest periods to account for the current temperature and wind velocity conditions.
- Monitor work patterns and physical condition of workers and rotate personnel, as necessary.

Indications of cold exposure range from shivering, dizziness, numbness, confusion, weakness, impaired judgement, impaired vision to drowsiness. Medical help will be obtained for serious conditions if they occur. Cold exposure-related problems are:

- Frost bite: Ice crystal formation in body tissues. The restricted blood flow to the injured part results in local tissue destruction.
- Hypothermia: Severe exposure to cold temperature resulting in the body losing heat at a rate faster than the body can generate heat. The stages of hypothermia are shivering, apathy, loss of consciousness, decreasing pulse rate and breathing rate and death.

4.2.5 Potential Electrical Hazards

Potential electric hazards consist primarily of underground and overhead power lines. Potential underground electrical hazards will be minimized by having a utility markout performed for the Site prior to any intrusive work. In addition, available as-built Site blueprints and owner knowledge will be used to avoid contact with subsurface utility lines or structures. Overhead electrical hazards will be evaluated by visually observing the work location prior to performing operations which have the potential to contact overhead utilities. No work shall be performed in close proximity to overhead utilities.

4.2.6 The Buddy System

All activities in contaminated or potentially contaminated areas will be conducted by pairing off the Site workers in groups of two (or three if necessary). Each person (buddy) will be able to:

- Provide his or her partner with assistance.
- Observe his or her partner for signs of chemical or heat exposure.
- Periodically check the integrity of his or her partner's protective clothing.
- Notify the HSO or others if emergency help is needed.

The buddy system will be instituted at the beginning of each workday. If new workers arrive on Site, a buddy will be chosen prior to the new worker entering the work zone.

4.2.7 Site Communications

Two sets of communication systems will be established at the Site: internal communication among personnel on-Site, and external communication between on-Site and off-Site personnel.

Internal communication will be used to:

- Alert team members to emergencies.
- Pass along safety information such as heat stress check, protective clothing check, etc.
- Communicate changes in the work to be accomplished.
- Maintain Site control.

An external communication system between on-Site and off-Site personnel will be established to:

- Coordinate emergency response
- Report to the Project Manager
- Maintain contact with essential off-Site personnel

A field telephone will be available at all times in the HSO's vehicle. In addition, the nearest stationary phone will be identified prior to the commencement of Site operations and this location will be relayed to all Site workers.

4.2.8 General Safe Work Practices

Standing orders applicable during Site operations are as follows:

- No smoking, eating, drinking, or application of cosmetics in the work zone.
- No matches or lighters in the work zone.
- All Site workers will enter/exit work zone through the Site access point.
- Any signs of unusual conditions will require reporting the information to the HSO, who will take appropriate action.
- Loose fitting clothing or loose long hair will be prohibited in the work zone during drilling operations.
- A signal person will direct the backing of work vehicles.
- Equipment operators will be instructed to check equipment for abnormalities such as oozing liquids, frayed cables, unusual odors, etc.

SECTION 5.0
PERSONNEL TRAINING REQUIREMENTS

All FPM personnel and contractor personnel will receive adequate training prior to entering the Site. FPM and contractor's personnel with the potential to contact Site soil will, at a minimum, have completed OSHA-approved, 40-hour hazardous materials Site safety training and OSHA-approved, eight-hour safety refresher course within one year prior to commencing field work. The HSO will have received the OSHA-approved, eight-hour course on managing hazardous waste operations. In addition, each worker must have a minimum of three days field experience under the direct supervision of a trained, experienced supervisor.

Prior to Site fieldwork, the HSO will conduct an in-house review of the project with respect to health and safety with all FPM personnel who will be involved with fieldwork at the Site. The review will include discussions of signs and symptoms of chemical exposure and heat stress that indicate potential medical emergencies presented in Table 5.1. In addition, review of personal protective equipment will be conducted, to include the proper use of air-purifying respirators.

TABLE 5.1
SIGNS AND SYMPTOMS OF EXPOSURE TO CHEMICALS

Type of Hazard	Signs and Symptoms	
Chemical Hazard	Behavioral changes Breathing difficulties Changes in complexion of skin color Confusion Coordination difficulties Coughing Depression Dermatitis Dilated Pupils Dizziness Euphoria Fatigue and/or weakness Flushed face and/or neck Insomnia Irregular heartbeat Irritability	Irritation of eyes, nose, respiratory tract, skin or throat Headache Lacrimation Light-Headedness Muscle Fatigue Nausea Nervousness Numbness in limbs Paresthesia Sleepiness Tingling Tremors Vertigo Visual disturbance Vomiting
Heat Exhaustion	Clammy skin Confusion Dizziness Fainting Fatigue Heat rash	Light-headedness Nausea Profuse sweating Slurred speech Weak pulse
Heat Stroke (may be fatal)	Confusion Convulsions Hot skin, high temperature (yet may feel chilled)	Incoherent speech Staggering gait

SECTION 6.0
MEDICAL SURVEILLANCE PROGRAM

All workers at the Site with the potential to contact Site soil must participate in a medical surveillance program in accordance with 29 CFR 1910.120. A medical examination and consultation must have been performed within the last twelve months to be eligible for Site work.

The content of the examination and consultation will include a medical and work history with special emphasis on symptoms related to the handling of hazardous substances, health hazards, and fitness for duty including the ability to wear required personal protective equipment under conditions (i.e., temperature extremes) that may be expected at the work Site. All medical examinations and procedures shall be performed by, or under the supervision of, a licensed physician.

The physician shall furnish a written opinion containing:

- The results of the medical examination and tests.
- The physician's opinion as to whether the employee has any detected medical conditions that would place the worker at increased risk of material impairment of the employee's health from work in hazardous waste operations.
- The physician's recommended limitations upon the worker assigned to the work.
- A statement that the worker has been informed by the physician of the results of the medical examination and any further examination or treatment.

An accurate record of the medical surveillance will be retained. The record will consist of at least the following information:

- The name and social security number of the employee.
- Physician's written opinions, recommended limitations, and results of examinations and tests.
- Any worker medical complaints related to exposure to hazardous substances.

SECTION 7.0
PERSONAL PROTECTIVE EQUIPMENT

7.1 General Considerations

The two basic objectives of the personal protective equipment (PPE) are to protect the wearer from safety and health hazards, and to prevent the wearer from incorrect use and/or malfunction of the PPE.

Potential Site hazards were discussed previously in Section 4.0. The duration of Site activities for individual workers is estimated to be several days. All work is expected to be performed during daylight hours and workdays, in general, are expected to be eight to ten hours in duration. Any work performed beyond daylight hours will require the permission of the HSO. This decision will be based on the adequacy of artificial illumination and the type and necessity of the task being performed.

Personal protection levels for the Site activities, based on past investigations, are anticipated to be Level D with the possibility of upgrading to Level C. The equipment included for each level of protection is provided as follows:

Level C Protection

Personnel protective equipment:

- Air-purifying respirator, full-face
- Chemical-resistant clothing includes: Tyvek^{tm} (spunbonded olefin fibers) for particulate and limited splash protection or Saranex^{tm} (plastic film-laminated Tyvek) for permeation resistance to solvents.
- Coveralls*, or
- Long cotton underwear*
- Gloves (outer), chemical-resistant
- Gloves (inner), chemical-resistant
- Boots (outer), leather or chemical-resistant, steel toe and shank.
- Boot covers (outer), chemical-resistant (disposable)*
- Hard hat (face shield)*
- Escape mask*
- 2-way radio communications (intrinsically safe)*

(*) optional

Criteria for Selection of Level C Protection

Meeting all of these criteria permits use of Level C Protection:

- Oxygen concentrations are not less than 19.5% by volume.
- Measured air concentrations of identified substances will be reduced by the respirator below the substance's threshold limit value (TLV).
- Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any body area left unprotected by chemical-resistant clothing.
- Job functions do not require self-contained breathing apparatus.
- Direct readings are below 50 ppm on the PID.

Level D Protection

Personnel protective equipment:

- Coveralls
- Gloves
- Boots/shoes, leather or chemical-resistant, steel toe and shank.
- Safety glasses or chemical splash goggles*
- Hard hat (face shield*)
- Escape mask*

(*) optional

Criteria for Selection of Level D Protection

Meeting any of these criteria allows use of Level D Protection:

- No contaminant levels above 5 ppm organic vapors and dusty conditions are present.
- Work functions preclude splashes, immersion, or the reasonable potential for unexpected inhalation of any chemicals above the TLV.

Additional Considerations for Selecting Levels of Protection

Other factors which will be considered in selecting the appropriate level of protection are heat and physical stress. The use of protective clothing and respirators increases physical stress, in particular, heat stress on the wearer. Chemical protective clothing greatly reduces natural ventilation and diminishes the body's ability to regulate its temperature. Even in moderate ambient temperatures, the diminished capacity of the body to dissipate heat can result in one or more heat-related problems.

All chemical protective garments can be a contributing factor to heat stress. Greater susceptibility to heat stress occurs when protective clothing requires the use of a tightly fitted hood against the respirator face piece, or when gloves or boots are taped to the suit. As more body area is covered, less cooling takes place, increasing the probability of heat stress.

Wearing protective equipment also increases the risk of accidents. It is heavy, cumbersome, decreases dexterity, agility, interferes with vision, and is fatiguing to wear. These factors all increase physical stress and the potential for accidents. In particular, the necessity of selecting a level of protection will be balanced against the increased probability of heat stress and accidents.

7.2 Donning and Doffing Ensembles

Donning an Ensemble

A routine will be established and practiced periodically for donning a Level C ensemble. Assistance may be provided for donning and doffing since these operations are difficult to perform alone.

Table 7.2.1 lists sample procedures for donning a Level C ensemble. These procedures should be modified depending on the particular type of suit and/or when extra gloves and/or boots are used.

Doffing an Ensemble

Exact procedures for removing Level C ensembles must be established and followed to prevent contaminant migration from the work area and transfer of contaminants to the wearer's body, the doffing assistant, and others.

Doffing procedures are provided in Table 7.2.2. These procedures should be performed only after decontamination of the suited worker. They require a suitably attired assistant. Throughout the procedures, both worker and assistant should avoid any direct contact with the outside surface of the suit.

7.3 Respirator Fit Testing

The fit or integrity of the facepiece-to-face seal of a respirator affects its performance. Most facepieces fit only a certain percentage of the population; thus each facepiece must be tested on the potential wearer in order to ensure a tight seal. Facial features such as scars, hollow temples, very prominent cheekbones, deep skin creases, dentures or missing teeth, and the chewing of gum and tobacco may interfere with the respirator-to-face seal. A respirator shall not be worn when such conditions prevent a good seal. The worker's diligence in observing these factors shall be evaluated by periodic checks. Fit testing will comply with 29 CFR 1910.1025 regulations.

7.4 Inspection

The PPE inspection program will entail five different inspections:

- Inspection and operational testing of equipment received from the factory or distributor.
- Inspection of equipment as it is issued to workers.
- Inspection after use.

TABLE 7.2.1
SAMPLE DONNING PROCEDURES

1. Inspect the clothing and respiratory equipment before donning (see Inspection in subsection 7.4).

2. Adjust hard hat or headpiece if worn, to fit user's head.

3. Standing or sitting, step into the legs of the suit; ensure proper placement of the feet within the suit; then gather the suit around the waist.

4. Put on chemical-resistant safety boots over the feet of the suit. Tape the leg cuff over the tops of the boots.

5. Don the respirator and adjust it to be secure, but comfortable.

6. Perform negative and positive respirator facepiece seal test procedures.

   - To conduct a negative-pressure test, close the inlet part with the palm of the hand or squeeze the breathing tube so it does not pass air, and gently inhale for about 10 seconds. Any inward rushing of air indicates a poor fit. Note that a leaking facepiece may be drawn tightly to the face to form a good seal, giving a false indication of adequate fit.

   - To conduct a positive-pressure test, gently exhale while covering the exhalation valve to ensure that a positive pressure can be built up. Failure to build a positive pressure indicates a poor fit.

7. Depending on type of suit:

   - Put on inner gloves (surgical gloves).

   - Additional overgloves, worn over attached suit gloves, may be donned later.

8. Put on hard hat

9. Have assistant observe the wearer for a period of time to ensure that the wearer is comfortable, psychologically stable, and that the equipment is functioning properly.

TABLE 7.2.2
DOFFING PROCEDURES

1. Remove any extraneous or disposable clothing, boot covers, outer gloves, and tape.

2. Remove respirator by loosening straps and pulling straps over the top of the head and move mask away from head. Do not pull mask over the top of the head.

3. Remove arms, one at a time, from suit, avoiding any contact between the outside surface of the suit and wearer's body and lay the suit out flat behind the wearer. Leave internal gloves on, if any.

4. Sitting, if possible, remove both legs from the suit.

5. After suit is removed, remove internal gloves by rolling them off the hand, inside out.

- Periodic inspection of stored equipment.

- Periodic inspection when a question arises concerning the appropriateness of the selected equipment, or when problems with similar equipment arise.

The inspection checklist is provided in Table 7.4.1.

TABLE 7.4.1
PPE INSPECTION CHECKLIST

CLOTHING

Before use:

- Determine that the clothing material is correct for the specified task at hand.
- Visually inspect for:
  - imperfect seams
  - non-uniform coatings
  - tears
  - malfunctioning closures
- Hold up to light and check for pinholes.
- Flex product:
  - Observe for cracks
  - Observe for other signs of shelf deterioration
  -
- If the product has been used previously, inspect inside and out for signs of chemical attack:
  - discoloration
  - swelling
  - stiffness

TABLE 7.4.1 (CONTINUED)
PPE INSPECTION CHECKLIST

- If the product has been used previously, inspect inside and out for signs of chemical attack:
  - discoloration
  - swelling
  - stiffness

During the work task, periodically inspect for:

- Evidence of chemical attack such as discoloration, swelling, stiffening, and softening. Keep in mind, however, that chemical permeation can occur without any visible effects.
- Closure failure
- Tears
- Punctures
- Seam discontinuities

GLOVES

Before use:

- Pressurize glove to check for pinholes. Either blow into glove, then roll gauntlet toward fingers or inflate glove and hold under water. In either case, no air should escape.

AIR-PURIFYING RESPIRATORS

- Inspect air-purifying respirators:
  - before each use to be sure they have been adequately cleaned
- Check material conditions for:
  - signs of pliability
  - signs of deterioration
  - signs of distortion
- Examine cartridges to ensure that:
  - they are the proper type for the intended use
  - the expiration date has not been passed
  - they have not been opened or used previously
- Check faceshields and lenses for:
  - cracks
  - crazing
  - fogginess
- Air purifying respirators will be stored individually in re-sealable plastic bags.

7.5 Storage

Clothing and respirators will be stored properly to prevent damage or malfunction due to exposure to dust, moisture, sunlight, damaging chemicals, extreme temperatures, and impact. Storage procedures are as follows:

Clothing:

- Potentially contaminated clothing will be stored in an area separate from street clothing.
- Potentially contaminated clothing will be stored in a well-ventilated area, with good air flow around each item, if possible.
- Different types and material of clothing and gloves will be stored separately to prevent issuing the wrong material by mistake.
- Protective clothing will be folded or hung in accordance with manufacturer's recommendations.

Respirators:

- Air-purifying respirators should be dismantled, washed, and placed in sealed plastic bags.

7.6 Maintenance

Specialized maintenance will be performed only by the factory or an authorized repair person. Routine maintenance, such as cleaning, will be performed by the personnel to whom the equipment is assigned. Respirators will be cleaned at the end of each day with alcohol pads or, preferably, by washing with warm soapy water.

7.7 Decontamination Methods

All personnel, clothing, equipment, and samples leaving the contaminated (work zone) area of the Site must be decontaminated to remove any harmful chemicals that may have adhered to them. Decontamination methods either (1) physically remove contaminants (2) inactivate contaminants by chemical detoxification or disinfection/sterilization, or (3) remove contaminants by a combination of both physical and chemical means. In many cases, gross contamination can be removed by physical means involving dislodging/displacement, rinsing, wiping off, and evaporation. Contaminants that can be removed by physical means include dust, vapors, and volatile liquids. All reusable equipment will be decontaminated by rinsing in a bath of detergent and water (respirators, gloves to be reused). Monitoring equipment will be decontaminated by wiping with paper towels and water.

The effectiveness of the decontamination will be evaluated near the beginning of Site activities and will be modified if determined to be ineffective. Visual observation will be used for this purpose. The HSO will inspect decontaminated materials for discoloration, stains, corrosive effects, visible dirt, or other signs of possible residual contamination.

All disposable PPE will be discarded following use. All used PPE to be discarded will be placed in an appropriate receptacle for disposal.

SECTION 8.0
DECONTAMINATION PROCEDURES FOR SAMPLING AND EXCAVATION EQUIPMENT

All non-dedicated sampling equipment shall be decontaminated prior to, and following, use at each sampling location. Decontamination procedures shall consist of the following:

1. Scrub equipment in a bath of low-phosphate detergent and potable water.

2. Potable water rinse.

3. Air dry.

4. Aluminum foil wrap, shiny side out, for transport.

Personal protective equipment decontamination has been discussed in Subsection 7.7.

All excavation equipment that has contacted Site soil will be decontaminated prior to leaving the Site. Decontamination of this equipment will consist of physically removing adhering soil using hand tools followed by rinsing the equipment with potable water. Decontamination will be performed in the immediate vicinity of the work area so that the removed soil and rinseate will be discharged in the area from which it originated.

SECTION 9.0
CALIBRATION PROCEDURES, FREQUENCIES, AND MAINTENANCE

This section will present the calibration procedures, frequencies, and maintenance for the health and safety field monitoring instruments. The use of the monitoring equipment is presented as follows (the manufacturer's owner's manuals for all equipment used will be present at the Site):

1. Photovac MicroTIP - this instrument is a photoionization detector (PID) that measures the concentration of airborne ionizable gases and vapors. The MicroTIP does not distinguish between individual compounds and will not read methane. The calibration will be performed using ambient air to "zero" the instrument and a 95 ppm cylinder of isobutylene to calibrate the span. The calibration will be performed as follows:

   a. Connect the supplied regulator to the Span Gas cylinder. Hand-tighten the fittings.

   b. Open the valve on the gas bag by turning the valve stem fully counter clockwise.

   c. Attach the gas bag adapter nut to the regulator. Hand-tighten the fittings.

   d. Turn the regulator knob counter clockwise about half turn to start the flow of gas.

   e. Fill the gas bag about half full and then close the regulator fully clockwise to turn off the flow of gas.

   f. Disconnect the bag from the adapter and empty it. Flush the bag a few times with the Span Gas and then fill it.

   g. Close the gas bag by turning the valve clockwise.

   h. Press SETUP and select the desired Cal Memory with arrow keys and press ENTER. Press EXIT to leave Setup.

   i. Press CAL and expose MicroTIP to ambient air. Press ENTER and MicroTIP sets its zero point.

   j. MicroTIP then asks for the Span Gas concentration. Enter the Known Span Gas concentration and then connect the Span Gas bag adapter to the inlet.

   k. Press ENTER and MicroTIP sets its sensitivity.

   l. When MicroTIP's display reverts to normal, MicroTIP is calibrated and ready for use. Remove the Span Gas bag from the inlet.

The instrument will be calibrated prior to the commencement of each day's work. The instrument will be charged overnight prior to each day's work.

SECTION 10.0
EMERGENCY RESPONSE PLAN

This section will present the Emergency Response Plan (ERP) for the Site. Pre-emergency planning will consist of reviewing the ERP with all workers at the Site prior to initiation of work.

Personnel Roles

It is anticipated that during excavation activities at the Site, in general, several persons will be on the Site: the HSO and contractors. Should an emergency situation arise at the Site, the HSO will assume control and decision-making. The HSO will also resolve all disputes concerning health and safety requirements and precautions. The HSO will also:

- Be authorized to seek and purchase supplies as necessary.
- Have control over activities of everyone entering the Site.

The HSO will communicate with off-Site personnel, including the Project Manager, to evaluate data and assist in the decision-making process. Phone numbers for the fire department, police, ambulance, poison control center, NYC Department of Environmental Protection, and NYS Department of Environmental Conservation Spill Response Department are listed in Table 1.2.1 of this document. The hospital that will be utilized during an emergency will be Manhattan Medical. The directions to the hospital, along with the hospital's emergency room phone number are presented in Table 1.2.1. Copies of Table 1.2.1 will be available at the Site and will be placed in vehicles of personnel involved in soil activities at the Site.

Response Follow-Up

Following an emergency, or incident, a detailed report will be generated by the HSO. All equipment will be restored to pre-emergency conditions. The CHASP will be reviewed following an emergency to determine if it provides adequate information to assist in dealing with the emergency. The CHASP may be revised to incorporate additional information as needed.

Emergency Recognition and Prevention

Before daily work assignments begin, each day a brief on-Site meeting will be held by the HSO to address health and safety issues related to the day's work. Prior to initiation of work, a detailed on-Site health and safety meeting will be held to review all potential hazards, contingencies, and safety measures.

Safe Distances and Places of Refuge

The main potential cause of work zone evacuation is a significant vapor release. Vapor release evacuation will be discussed prior to subsurface activities at the Site and in general will be in the upwind direction. Wind direction will be monitored at each work location and all workers will be notified of the direction of evacuation prior to commencement of work. Safe distances will be discussed at each location and determined by the HSO. The PID will be used to determine if workers have evacuated a sufficient distance.

At all times, vehicles which may be utilized in an emergency for transport to the hospital (or other destination) will have clear access to leave the Site. The HSO will assure that an emergency vehicle does not become blocked-in by other vehicles.

Site Security and Control

The HSO will control entry of personnel into the work zone. No unnecessary persons shall be permitted in the work zone.

Decontamination Procedures During Emergencies

In the event of a medical emergency, decontamination will be performed if it does not interfere with essential treatment. Decontamination will be performed by washing, rinsing, and/or cutting off protective clothing and equipment.

If decontamination cannot be performed, the victim will be wrapped in plastic to reduce contamination to other personnel. Emergency and off-Site medical personnel will be alerted to the potential contamination.

Emergency Medical Treatment and First Aid

Medical emergencies will be treated, in general, by medical experts by transporting the victim to the nearby hospital. A first aid kit will be present on Site for minor medical treatment.

ATTACHMENT A

MATERIALS SAFETY DATA SHEETS

MATHESON
TRI•GAS
ask. . .The Gas Professionals™

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
150 Allen Road Suite 302
Basking Ridge, New Jersey 07920
Information: 1-800-416-2505

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: TRICHLOROETHYLENE

TRADE NAMES/SYNONYMS:
MTG MSDS 199; ACETYLENE TRICHLORIDE; ETHYLENE TRICHLORIDE; 1-CHLORO-2,2-DICHLOROETHYLENE; 1,1-DICHLORO-2-CHLOROETHYLENE; TCE; ETHINYL TRICHLORIDE; TRICHLOROETHENE; 1,1,2-TRICHLOROETHYLENE; 1,1,2-TRICHLOROETHENE; UN 1710; RCRA U228; C2HCl3; MAT23850; RTECS KX4550000

CHEMICAL FAMILY: halogenated, alkenes

CREATION DATE: Jan 24 1989
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: TRICHLOROETHYLENE
CAS NUMBER: 79-01-6
PERCENTAGE: >99

COMPONENT: INHIBITORS
CAS NUMBER: Not assigned.
PERCENTAGE: <0.1

COMPONENT: AMINES
CAS NUMBER: Not assigned.
PERCENTAGE: <0.1

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=1 REACTIVITY=0

EMERGENCY OVERVIEW:

COLOR: colorless
PHYSICAL FORM: liquid
ODOR: sweet odor
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, allergic reactions, cancer hazard (in humans)
PHYSICAL HAZARDS: May polymerize. Containers may rupture or explode. May decompose on contact with air, light, moisture, heat or storage and use above room temperature. Releases toxic, corrosive, flammable or explosive gases.

POTENTIAL HEALTH EFFECTS:
INHALATION:
SHORT TERM EXPOSURE: irritation, changes in blood pressure, nausea, vomiting, stomach pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, mood swings, tremors, loss of coordination, visual disturbances, bluish skin color, lung congestion, kidney damage, liver damage, unconsciousness, coma
LONG TERM EXPOSURE: same as effects reported in short term exposure, loss of appetite, weight loss, blood disorders, brain damage, cancer
SKIN CONTACT:
SHORT TERM EXPOSURE: irritation, allergic reactions
LONG TERM EXPOSURE: irritation, allergic reactions, nausea, loss of appetite, weight loss, difficulty breathing, headache, drowsiness, dizziness, joint pain, loss of coordination, visual disturbances, paralysis
EYE CONTACT:
SHORT TERM EXPOSURE: irritation (possibly severe), blurred vision
LONG TERM EXPOSURE: irritation (possibly severe), eye damage
INGESTION:
SHORT TERM EXPOSURE: same as effects reported in short term inhalation
LONG TERM EXPOSURE: same as effects reported in long term inhalation

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

NOTE TO PHYSICIAN: For ingestion, consider gastric lavage. Consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Slight fire hazard.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile).

FLASH POINT: No data available.
LOWER FLAMMABLE LIMIT: 7.8% @ 100 C
UPPER FLAMMABLE LIMIT: 52% @ 100 C
AUTOIGNITION: 770 F (410 C)

6. ACCIDENTAL RELEASE MEASURES

AIR RELEASE:
Reduce vapors with water spray. Collect runoff for disposal as potential hazardous waste.

SOIL RELEASE:
Dig holding area such as lagoon, pond or pit for containment. Dike for later disposal. Absorb with sand or other non-combustible material.

WATER RELEASE:
Absorb with activated carbon. Remove trapped material with suction hoses. Collect spilled material using mechanical equipment. Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

OCCUPATIONAL RELEASE:
Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Small liquid spills: Absorb with sand or other non-combustible material. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Store in a cool, dry place. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
TRICHLOROETHYLENE:
100 ppm OSHA TWA
200 ppm OSHA ceiling
300 ppm OSHA peak (5 minutes in any 2 hours)
50 ppm (269 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993)
200 ppm (1070 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)
10 ppm ACGIH TWA
25 ppm ACGIH STEL
25 ppm NIOSH TWA 10 hour(s)
2 ppm NIOSH ceiling 60 minute(s) (used as halogenated anesthetic gas)

VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
At any detectable concentration -
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape -
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.
Any appropriate escape-type, self-contained breathing apparatus.
For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid
COLOR: colorless
ODOR: sweet odor
MOLECULAR WEIGHT: 131.39
MOLECULAR FORMULA: Cl-C-H-C-Cl2
BOILING POINT: 189 F (87 C)
FREEZING POINT: -99 F (-73 C)
VAPOR PRESSURE: 58 mmHg @ 20 C
VAPOR DENSITY (air=1): 4.53
SPECIFIC GRAVITY (water=1): 1.4642
WATER SOLUBILITY: 0.1%
PH: Not available
VOLATILITY: Not available
ODOR THRESHOLD: 21 ppm
EVAPORATION RATE: 0.69 (carbon tetrachloride=1)
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available
SOLVENT SOLUBILITY:
Soluble: alcohol, ether, acetone, chloroform, benzene, vegetable oils

10. STABILITY AND REACTIVITY

REACTIVITY: May decompose on contact with air, light, moisture, heat or storage and use above room temperature. Releases toxic, corrosive, flammable or explosive gases.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: bases, metals, combustible materials, oxidizing materials

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: phosgene, halogenated compounds, oxides of carbon

POLYMERIZATION: May polymerize. Avoid contact with heat or light and monitor inhibitor content.

11. TOXICOLOGICAL INFORMATION

TRICHLOROETHYLENE:
IRRITATION DATA: 2 mg/24 hour(s) skin-rabbit severe; 20 mg/24 hour(s) eyes-rabbit moderate
TOXICITY DATA: 140700 mg/m3/1 hour(s) inhalation-rat LC50; >20 gm/kg skin-rabbit LD50; 4920 mg/kg oral-rat LD50
CARCINOGEN STATUS: NTP: Anticipated Human Carcinogen; IARC: Human Limited Evidence,

Animal Sufficient Evidence, Group 2A; ACGIH: A2 -Suspected Human Carcinogen
LOCAL EFFECTS:
Irritant: inhalation, skin, eye
ACUTE TOXICITY LEVEL:
Moderately Toxic: ingestion
Slightly Toxic: inhalation
Relatively Non-toxic: dermal absorption
TARGET ORGANS: immune system (sensitizer), central nervous system
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: heart problems
TUMORIGENIC DATA: Available.
MUTAGENIC DATA: Available.
REPRODUCTIVE EFFECTS DATA: Available.
ADDITIONAL DATA: May cross the placenta. Stimulants such as epinephrine may induce ventricular fibrillation.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:
FISH TOXICITY: 3100 ug/L 96 hour(s) LC50 (Mortality) Flagfish (Jordanella floridae)

INVERTEBRATE TOXICITY: 1700 ug/L 7 hour(s) EC50 (Regeneration) Flatworm (Dugesia japonica)

OTHER TOXICITY: 45000 ug/L 48 week(s) LC50 (Mortality) Clawed toad (Xenopus laevis)

FATE AND TRANSPORT:
BIOCONCENTRATION: 17 ug/L 1-14 hour(s) BCF (Residue) Bluegill (Lepomis macrochirus) 8.23 ug/L

13. DISPOSAL CONSIDERATIONS

Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U228. Hazardous Waste Number(s): D040. Dispose of in accordance with U.S. EPA 40 CFR 262 for concentrations at or above the Regulatory level. Regulatory level- 0.5 mg/L. Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Trichloroethylene
ID NUMBER: UN1710
HAZARD CLASS OR DIVISION: 6.1
PACKING GROUP: III
LABELING REQUIREMENTS: 6.1

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Trichloroethylene
UN NUMBER: UN1710
CLASS: 6.1
PACKING GROUP/CATEGORY: III

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
TRICHLOROETHYLENE: 100 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: Yes
FIRE: No
REACTIVE: No
SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65):
TRICHLOROETHYLENE

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.

STATE REGULATIONS:
California Proposition 65:
Known to the state of California to cause the following:
TRICHLOROETHYLENE
Cancer (Apr 01, 1988)

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: D2

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

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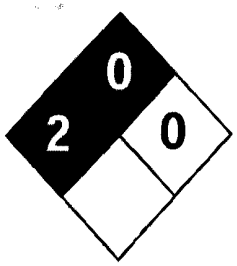

Health	2
Fire	0
Reactivity	0
Personal Protection	G

Material Safety Data Sheet
Tetrachloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Tetrachloroethylene

Catalog Codes: SLT3220

CAS#: 127-18-4

RTECS: KX3850000

TSCA: TSCA 8(b) inventory: Tetrachloroethylene

CI#: Not available.

Synonym: Perchloroethylene; 1,1,2,2-Tetrachloroethylene; Carbon bichloride; Carbon dichloride; Ankilostin; Didakene; Dilatin PT; Ethene, tetrachloro-; Ethylene tetrachloride; Perawin; Perchlor; Perclene; Perclene D; Percosolvel; Tetrachloroethene; Tetraleno; Tetralex; Tetravec; Tetroguer; Tetropil

Chemical Name: Ethylene, tetrachloro-

Chemical Formula: C2-Cl4

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Tetrachloroethylene	127-18-4	100

Toxicological Data on Ingredients: Tetrachloroethylene: ORAL (LD50): Acute: 2629 mg/kg [Rat]. DERMAL (LD): Acute: >3228 mg/kg [Rabbit]. MIST(LC50): Acute: 34200 mg/m 8 hours [Rat]. VAPOR (LC50): Acute: 5200 ppm 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (anticipated carcinogen) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, peripheral nervous system, respiratory tract, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 25 (ppm) from OSHA (PEL) [United States] TWA: 25 STEL: 100 (ppm) from ACGIH (TLV) [United States] TWA: 170 (mg/m3) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Ethereal.

Taste: Not available.

Molecular Weight: 165.83 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 121.3°C (250.3°F)

Melting Point: -22.3°C (-8.1°F)

Critical Temperature: 347.1°C (656.8°F)

Specific Gravity: 1.6227 (Water = 1)

Vapor Pressure: 1.7 kPa (@ 20°C)

Vapor Density: 5.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 5 - 50 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.4

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:
Miscible with alcohol, ether, chloroform, benzene, hexane. It dissolves in most of the fixed and volatile oils. Solubility in water: 0.015 g/100 ml @ 25 deg. C It slowly decomposes in water to yield Trichloroacetic and Hydrochloric acids.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Oxidized by strong oxidizing agents. Incompatible with sodium hydroxide, finely divided or powdered metals such as zinc, aluminum, magnesium, potassium, chemically active metals such as lithium, beryllium , barium. Protect from light.

Special Remarks on Corrosivity: Slowly corrodes aluminum, iron, and zinc.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2629 mg/kg [Rat]. Acute dermal toxicity (LD50): >3228 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 5200 4 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.

Special Remarks on Toxicity to Animals:
Lowest Publishe Lethal Dose/Conc: LDL [Rabbit] - Route: Oral; Dose: 5000 mg/kg LDL [Dog] - Route: Oral; Dose: 4000 mg/kg LDL [Cat] - Route: Oral; Dose: 4000 mg/kg

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects and birth defects(teratogenic). May affect genetic material (mutagenic). May cause cancer.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes skin irritation with possible dermal blistering or burns. Symtoms may include redness, itching, pain, and possible dermal blistering or burns. It may be absorbed through the skin with possible systemic effects. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Eyes: Contact causes transient eye irritation, lacrimation. Vapors cause eye/conjunctival irritation. Symptoms may include redness and pain. Inhalation: The main route to occupational exposure is by inhalation since it is readily absorbed through the lungs. It causes respiratory tract irritation, . It can affect behavior/central nervous system (CNS depressant and anesthesia ranging from slight inebriation to death, vertigo, somnolence, anxiety, headache, excitement, hallucinations, muscle incoordination, dizziness, lightheadness, disorentiation, seizures, enotional instability, stupor, coma). It may cause pulmonary edema Ingestion: It can cause nausea, vomiting, anorexia, diarrhea, bloody stool. It may affect the liver, urinary system (proteinuria, hematuria, renal failure, renal tubular disorder), heart (arrhythmias). It may affect behavior/central nervous system with symptoms similar to that of inhalation. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may result in excessive drying of the skin, and irritation. Ingestion/Inhalation: Chronic exposure can affect the liver(hepatitis,fatty liver degeneration), kidneys, spleen, and heart (irregular heartbeat/arrhythmias, cardiomyopathy, abnormal EEG), brain, behavior/ central nervous system/peripheral nervous system (impaired memory, numbness of extremeties, peripheral neuropathy and other

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 18.4 mg/l 96 hours [Fish (Fatthead Minnow)]. 18 mg/l 48 hours [Daphnia (daphnia)]. 5 mg/l 96 hours [Fish (Rainbow Trout)]. 13 mg/l 96 hours [Fish (Bluegill sunfish)].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Tetrachloroethylene UNNA: 1897 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Tetrachloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Tetrachloroethylene Connecticut hazardous material survey.: Tetrachloroethylene Illinois toxic substances disclosure to employee act: Tetrachloroethylene Illinois chemical safety act: Tetrachloroethylene New York release reporting list: Tetrachloroethylene Rhode Island RTK hazardous substances: Tetrachloroethylene Pennsylvania RTK: Tetrachloroethylene Minnesota: Tetrachloroethylene Michigan critical material: Tetrachloroethylene Massachusetts RTK: Tetrachloroethylene Massachusetts spill list: Tetrachloroethylene New Jersey: Tetrachloroethylene New Jersey spill list: Tetrachloroethylene Louisiana spill reporting: Tetrachloroethylene California Director's List of Hazardous Substances: Tetrachloroethylene TSCA 8(b) inventory: Tetrachloroethylene TSCA 8(d) H and S data reporting: Tetrachloroethylene: Effective date: 6/1/87; Sunset date: 6/1/97 SARA 313 toxic chemical notification and release reporting: Tetrachloroethylene CERCLA: Hazardous substances.: Tetrachloroethylene: 100 lbs. (45.36 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R40- Possible risks of irreversible effects. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S23- Do not breathe gas/fumes/vapour/spray S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37- Wear suitable gloves. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: g

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:29 PM

Last Updated: 05/21/2013 12:00 PM

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United States Environmental Protection Agency
Office of Solid Waste Washington, DC 20460
January 2008

Polycyclic Aromatic Hydrocarbons (PAHs)

What are PAHs?

Short for polycyclic aromatic hydrocarbons, PAHs describe chemicals that are often found together in groups of two or more. PAHs are found naturally in the environment but they can also be man-made. In their purest form, PAHs are solid and range in appearance from colorless to white or pale yellow-green. PAHs are created when products like coal, oil, gas, and garbage are burned but the burning process is not complete. Although PAHs can exist in over 100 different combinations, the National Waste Minimization Program defines this group using the Toxic Release Inventory reporting category for polycyclic aromatic compounds.

Chemicals included in this category, by name and CAS number, are:

1. Benzo(a)anthracene, 56-55-3
2. Benzo(a)phenanthrene (chrysene), 218-01-9
3. Benzo(a)pyrene, 50-32-8
4. Benzo(b)fluoranthene, 205-99-2
5. Benzo(j)fluoranthene, 205-82-3
6. Benzo(k)fluoranthene, 207-08-9
7. Benzo(j,k)fluorene (fluoranthene), 206-44-0
8. Benzo(r,s,t)pentaphene, 189-55-9
9. Dibenz(a,h)acridine, 226-36-8
10. Dibenz(a,j)acridine, 224-42-0
11. Dibenzo(a,h)anthracene, 53-70-3
12. Dibenzo(a,e)fluoranthene, 5385-75-1
13. Dibenzo(a,e)pyrene, 192-65-4
14. Dibenzo(a,h)pyrene, 189-64-0
15. Dibenzo(a,l)pyrene, 191-30-0
16. 7H-Dibenzo(c,g)carbazole, 194-59-2
17. 7,12-Dimethylbenz(a)anthracene, 57-97-6
18. Indeno(1,2,3-cd)pyrene 193-39-5
19. 3-Methylcholanthrene, 56-49-5
20. 5-Methylchrysene, 3697-24-3
21. 1-Nitropyrene, 5522-43-0

It should be noted that some PAHs are listed individually on EPA's Priority Chemical list. They are:

1. Acenaphthene, 83-32-9
2. Acenaphtylene, 208-96-8
3. Anthracene, 120-12-7
4. Benzo(g,h,i)perylene, 191-24-2
5. Fluorene, 86-73-7
6. Phenanthrene, 85-01-8
7. Pyrene, 129-00-0

Why are PAHs bad actors?

PAHs are a concern because they are persistent. Because they do not burn very easily, they can stay in the environment for long periods of time. Individual PAHs vary in behavior. Some can turn into a vapor in the air very easily. Most do not break down easily in the water.

What are PAHs used for?

Most PAHs are used to conduct research. However, some PAHs are used to make dyes, plastics, and pesticides. Some are even used in medicines.

How can PAHs enter and leave your body?

One of the most common ways PAHs can enter the body is through breathing contaminated air. PAHs get into your lungs when you breathe them. If you live near a hazardous waste site where PAHs are disposed, you are likely to breathe PAHs. If you eat or drink food and water contaminated with PAHs, you could be

exposed. Exposure to PAHs can also occur if your skin contacts PAH-contaminated soil or products like heavy oils, coal tar, roofing tar, or creosote. Creosote is an oily liquid found in coal tar and is used to preserve wood. Once in your body, PAHs can spread and target fat tissues. Target organs include the kidneys and liver. However, PAHs will leave your body through urine and feces in a matter of days.

How can you be exposed to PAHs?

You can be exposed to PAHs in the environment, in your home, and in the workplace. Because PAHs exist naturally in the environment and are man-made, you can be exposed in a number of ways. Fumes from vehicle exhaust, coal, coal tar, asphalt, wildfires, agricultural burning and hazardous waste sites are all sources of exposure.

You could be exposed to PAHs by breathing cigarette and tobacco smoke, eating foods grown in contaminated soil, or by eating meat or other food that you grilled. Grilling and charring food actually increases the amount of PAHs in the food.

If you work in a plant that makes coal tar, asphalt and aluminum, or that burns trash, you can be exposed to PAHs. You can also be exposed if you work in a facility that uses petroleum or coal, or where wood, corn, and oil are burned.

How can PAHs affect your health?

A number of PAHs have caused tumors in laboratory animals that were exposed to PAHs through their food, from breathing contaminated air, and when it was applied to their skin. When pregnant mice ate high doses of a PAH (benzo(a)pyrene) they experienced reproductive problems. In addition, the offspring of the pregnant mice showed birth defects and a decrease in their body weight. Other effects include damage to the skin, body fluids, and the immune system. However, these effects have not been seen in humans.

Is there a medical test to determine if you have been exposed to PAHs?

There is a test that can measure the presence of PAH in your urine. This test can only tell you if you have been exposed; but it can't reveal how harmful the effects of the exposure will be. This test would have to be performed in a laboratory that has special equipment to detect the PAHs. Another test currently being developed will be able to measure PAHs in your body tissue and blood.

What are the medical treatments in cases of exposure?

Most exposures to PAHs happen every day at very low levels in the air we breathe and the foods we eat. Treatment for a short-term exposure is unlikely. Contact your doctor if you experience symptoms of PAHs poisoning.

What levels of exposure have resulted in harmful health effects?

There is no information available from studies on humans to tell what effects can result from being exposed to individual PAHs at certain levels. However, breathing PAHs and skin contact seem to be associated with cancer in humans. Animal studies showed that mice exposed to 308 parts per million (ppm) of PAHs (specifically benzo (a) pyrene) in food for 10 days (short term exposure) caused birth defects. Mice exposed to 923 ppm of benzo (a) pyrene in food for months caused problems in the liver and blood.

Where can I get more information?

Contact your state health or environmental department, or:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road, N.E., E-29
Atlanta, Georgia 30333

References

1. Agency for Toxic Substances and Disease

Registry (ATSDR), Public Health Statement, *Polycyclic Aromatic Hydrocarbons, December 1990.* U.S. Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA, December 1990.

2. United States Environmental Protection Agency, Office of Environmental Information, *Emergency Planning and Community Right-to-Know Act – Section 313: Guidance for Reporting Toxic Chemicals: Polycyclic Aromatic Compounds Category*, EPA 260-B-01-03, Washington, DC, August 2001.

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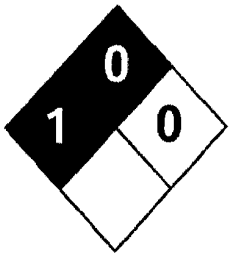

Health	1
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Lead MSDS

Section 1: Chemical Product and Company Identification

Product Name: Lead

Catalog Codes: SLL1291, SLL1669, SLL1081, SLL1459, SLL1834

CAS#: 7439-92-1

RTECS: OF7525000

TSCA: TSCA 8(b) inventory: Lead

CI#: Not available.

Synonym: Lead Metal, granular; Lead Metal, foil; Lead Metal, sheet; Lead Metal, shot

Chemical Name: Lead

Chemical Formula: Pb

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Lead	7439-92-1	100

Toxicological Data on Ingredients: Lead LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Non-flammable in presence of open flames and sparks, of shocks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: When heated to decomposition it emits highly toxic fumes of lead.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.05 (mg/m3) from ACGIH (TLV) [United States] TWA: 0.05 (mg/m3) from OSHA (PEL) [United States] TWA: 0.03 (mg/m3) from NIOSH [United States] TWA: 0.05 (mg/m3) [Canada]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 207.21 g/mole

Color: Bluish-white. Silvery. Gray

pH (1% soln/water): Not applicable.

Boiling Point: 1740°C (3164°F)

Melting Point: 327.43°C (621.4°F)

Critical Temperature: Not available.

Specific Gravity: 11.3 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, excess heat

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Can react vigorously with oxidizing materials. Incompatible with sodium carbide, chlorine trifluoride, trioxane + hydrogen peroxide, ammonium nitrate, sodium azide, disodium acetylide, sodium acetylide, hot concentrated nitric acid, hot concentrated hydrochloric acid, hot concentrated sulfuric acid, zirconium.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. May cause damage to the following organs: blood, kidneys, central nervous system (CNS).

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential: Skin: Lead metal granules or dust: May cause skin irritation by mechanical action. Lead metal foil, shot or sheets: Not likely to cause skin irritation Eyes: Lead metal granules or dust: Can irritate eyes by mechanical action. Lead metal foil, shot or sheets: No hazard. Will not cause eye irritation. Inhalation: In an industrial setting, exposure to lead mainly occurs from inhalation of dust or fumes. Lead dust or fumes: Can irritate the upper respiratory tract (nose, throat) as well as the bronchi and lungsby mechanical action. Lead dust can be absorbed through the respiratory system. However, inhaled lead does not accumulate in the lungs. All of an inhaled dose is eventually abssorbed or transferred to the gastrointestinal tract. Inhalation effects of exposure to fumes or dust of inorganic lead may not develop quickly. Symptoms may include metallic taste, chest pain, decreased physical fitness, fatigue, sleep disturbance, headache, irritability, reduces memory, mood and personality changes, aching bones and muscles, constipation, abdominal pains, decreasing appetite. Inhalation of large amounts may lead to ataxia, deliriuim, convulsions/seizures, coma, and death. Lead metal foil, shot, or sheets: Not an inhalation hazard unless metal is heated. If metal is heated, fumes will be released. Inhalation of these fumes may cause "fume metal fever", which is characterized by flu-like symptoms. Symptoms may include metallic taste, fever, nausea, vomiting, chills, cough, weakness, chest pain, generalized muscle pain/aches, and increased white blood cell count. Ingestion: Lead metal granules or dust: The symptoms of lead poisoning include abdominal pain or cramps (lead cholic), spasms, nausea, vomiting, headache, muscle weakness, hallucinations, distorted perceptions, "lead line" on the gums, metallic taste, loss of appetite, insomnia, dizziness and other symptoms similar to that of inhalation. Acute poisoning may result in high lead levels in the blood and urine, shock, coma and death in extreme cases. Lead metal foil, shot or sheets: Not an ingestion hazard for usual industrial handling.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (female) which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Lead California prop. 65 (no significant risk level): Lead: 0.0005 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Lead Connecticut hazardous material survey.: Lead Illinois toxic substances disclosure to employee act: Lead Illinois chemical safety act: Lead New York release reporting list: Lead Rhode Island RTK hazardous substances: Lead Pennsylvania RTK: Lead

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R20/22- Harmful by inhalation and if swallowed. R33- Danger of cumulative effects. R61- May cause harm to the unborn child. R62- Possible risk of impaired fertility. S36/37- Wear suitable protective clothing and gloves. S44- If you feel unwell, seek medical advice (show the label when possible). S53- Avoid exposure - obtain special instructions before use.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Last Updated: 06/09/2012 12:00 PM

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MATERIAL SAFETY DATA SHEET

Gasoline, All Grades **MSDS No. 9950**

EMERGENCY OVERVIEW

DANGER!

EXTREMELY FLAMMABLE - EYE AND MUCOUS MEMBRANE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED - ASPIRATION HAZARD

NFPA 704 (Section 16)

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

1. CHEMICAL PRODUCT and COMPANY INFORMATION

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs):	**CHEMTREC (800)424-9300**
COMPANY CONTACT (business hours):	Corporate Safety (732)750-6000
MSDS (Environment, Health, Safety) Internet Website	www.hess.com

SYNONYMS: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS *

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Gasoline (86290-81-5)	100
Benzene (71-43-2)	0.1 - 4.9 (0.1 - 1.3 reformulated gasoline)
n-Butane (106-97-8)	< 10
Ethyl Alcohol (Ethanol) (64-17-5)	0 - 10
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Tertiary-amyl methyl ether (TAME) (994-05-8)	0 to 17.2
Toluene (108-88-3)	1 - 25
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 - 15

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol or MTBE and/or TAME).

Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

3. HAZARDS IDENTIFICATION

EYES
Moderate irritant. Contact with liquid or vapor may cause irritation.

SKIN
Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY
Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 - Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

4. FIRST AID MEASURES

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION
Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT:	-45 °F (-43°C)
AUTOIGNITION TEMPERATURE:	highly variable; > 530 °F (>280 °C)
OSHA/NFPA FLAMMABILITY CLASS:	1A (flammable liquid)
LOWER EXPLOSIVE LIMIT (%):	1.4%
UPPER EXPLOSIVE LIMIT (%):	7.6%

FIRE AND EXPLOSION HAZARDS
Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA
SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain MTBE and/or TAME. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 "Low Expansion Foam - 1994 Edition."

FIRE FIGHTING INSTRUCTIONS
Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

******USE ONLY AS A MOTOR FUEL******
******DO NOT SIPHON BY MOUTH******

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

EXPOSURE LIMITS

Component (CAS No.)	Source	TWA (ppm)	STEL (ppm)	Exposure Limits Note
Gasoline (86290-81-5)	ACGIH	300	500	A3
Benzene (71-43-2)	OSHA	1	5	Carcinogen
	ACGIH	0.5	2.5	A1, skin
	USCG	1	5	
n-Butane (106-97-8)	ACGIH	1000	--	Aliphatic Hydrocarbon Gases Alkane (C1-C4)
Ethyl Alcohol (ethanol) (64-17-5)	OSHA	1000	--	
	ACGIH	1000	--	A4
Ethyl benzene (100-41-4)	OSHA	100	--	
	ACGIH	100	125	A3
n-Hexane (110-54-3)	OSHA	500	--	
	ACGIH	50	--	Skin
Methyl-tertiary butyl ether [MTBE] (1634-04-4)	ACGIH	50		A3
Tertiary-amyl methyl ether [TAME] (994-05-8)				None established
Toluene (108-88-3)	OSHA	200		Ceiling: 300 ppm; Peak: 500 ppm (10 min.)
	ACGIH	20	--	A4
1,2,4- Trimethylbenzene (95-63-6)	ACGIH	25	--	
Xylene, mixed isomers (1330-20-7)	OSHA	100	--	
	ACGIH	100	150	A4

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as that made of of E.I. DuPont Tychem ®, products or equivalent is recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE

A translucent, straw-colored or light yellow liquid

ODOR
A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with MTBE and/or TAME may have a sweet, ether-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

ODOR THRESHOLD

	Odor Detection	Odor Recognition
Non-oxygenated gasoline:	0.5 - 0.6 ppm	0.8 - 1.1 ppm
Gasoline with 15% MTBE:	0.2 - 0.3 ppm	0.4 - 0.7 ppm
Gasoline with 15% TAME:	0.1 ppm	0.2 ppm

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	85 to 437 °F (39 to 200 °C)
VAPOR PRESSURE:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	AP 3 to 4
SPECIFIC GRAVITY (H_2O = 1):	0.70 – 0.78
EVAPORATION RATE:	10-11 (n-butyl acetate = 1)
PERCENT VOLATILES:	100 %
SOLUBILITY (H_2O):	Non-oxygenated gasoline - negligible (< 0.1% @ 77 °F). Gasoline with 15% MTBE - slight (0.1 - 3% @ 77 °F); ethanol is readily soluble in water

10. STABILITY and REACTIVITY)
STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID
Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

INCOMPATIBLE MATERIALS
Keep away from strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

11. TOXICOLOGICAL PROPERTIES
ACUTE TOXICITY
Acute Dermal LD50 (rabbits): > 5 ml/kg
Acute Oral LD50 (rat): 18.75 ml/kg
Primary dermal irritation (rabbits): slightly irritating
Draize eye irritation (rabbits): non-irritating
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY
Carcinogenicity: OSHA: NO IARC: YES - 2B NTP: NO ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

This product may contain methyl tertiary butyl ether (MTBE): animal and human health effects studies indicate that MTBE may cause eye, skin, and respiratory tract irritation, central nervous system depression and neurotoxicity. MTBE is classified as an animal carcinogen (A3) by the ACGIH.

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. If released, oxygenates such as ethers and alcohols will be expected to exhibit fairly high mobility in soil, and therefore may leach into groundwater. The API (www.api.org) provides a number of useful references addressing petroleum and oxygenate contamination of groundwater.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME:	Gasoline
DOT HAZARD CLASS and PACKING GROUP:	3, PG II
DOT IDENTIFICATION NUMBER:	UN 1203
DOT SHIPPING LABEL:	FLAMMABLE LIQUID

PLACARD:

15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION WT. PERCENT
Benzene (71-43-2)	0.1 to 4.9 (0.1 to 1.3 for reformulated gasoline)
Ethyl benzene (100-41-4)	< 3

n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Toluene (108-88-3)	1 to 15
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 to 15

US EPA guidance documents (www.epa.gov/tri) for reporting Persistent Bioaccumulating Toxics (PBTs) indicate this product may contain the following deminimis levels of toxic chemicals subject to Section 313 reporting:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION - Parts per million (ppm) by weight
Polycyclic aromatic compounds (PACs)	17
Benzo (g,h,i) perylene (191-24-2)	2.55
Lead (7439-92-1)	0.079

CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

INGREDIENT NAME (CAS NUMBER)	Date Listed
Benzene	2/27/1987
Ethyl benzene	6/11/2004
Toluene	1/1/1991

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)
Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION

NFPA® HAZARD RATING	HEALTH:	1	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
HMIS® HAZARD RATING	HEALTH:	1 *	Slight
	FIRE:	3	Serious
	PHYSICAL:	0	Minimal
			* CHRONIC

SUPERSEDES MSDS DATED: 07/01/06

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
AIHA	American Industrial Hygiene Association	DOT	U.S. Department of Transportation [General Info: (800)467-4922]
ANSI	American National Standards Institute (212)642-4900	EPA	U.S. Environmental Protection Agency
API	American Petroleum Institute (202)682-8000	HMIS	Hazardous Materials Information System

IARC	International Agency For Research On Cancer
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association (617)770-3000
NIOSH	National Institute of Occupational Safety and Health
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)
NTP	National Toxicology Program
OPA	Oil Pollution Act of 1990
OSHA	U.S. Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	Self-Contained Breathing Apparatus
SPCC	Spill Prevention, Control, and Countermeasures
STEL	Short-Term Exposure Limit (generally 15 minutes)
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (8 hr.)
WEEL	Workplace Environmental Exposure Level (AIHA)
WHMIS	Workplace Hazardous Materials Information System (Canada)

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

APPENDIX 3

PROPOSED DEVELOPMENT PLANS

SUB-CELLAR 2	38775	0	0	0	0	35452	3323	0			325/8 = 40.63	147		
SUB-CELLAR 1	38775	0	0	0	0	12545	26230	0			11,170 /300 = 37.23	29		11, /10 =
CELLAR	34073	0	11170*	5080*	4655*	12231	21842	0				4	2	
1	31790	403		392	337	17660	12998	1132			16,377 /1000 = 16.37	70		16, /10 =
2	23142	16377		5697	565		503	22639	13					
3	17577			16156	447		974	16603	41					
4	17911			16486	447		978	16933	42					
5	16486			15118	450		918	15568	38		210/ 8 = 26.25			84, /10 = 8
6	16486			15118	450		918	15568	38					
7	16486			15133	459		894	15592	38					
8	12982				12314		668	12314		19				
9	12853				12184		669	12184		19				
10	12853				12184		669	12184		19				
11	12853				12184		669	12184		19	148 x 70% = 103.6			148 x =
12	12853				12184		669	12184		19				
13	12853				12184		669	12184		19				
14	12853				12184		669	12184		19				
15	12853				12347		506	12347		15				
TOTAL	354454	16780	0	84100	100920	77888	74766	201800	210	148	224.08	250 (PLUS 25 RESER'I)	2	85.
									358					

MAX. FA ALLOWED		16780 < 42,050 SF	84100 ≤ 84,100 SF	100920 ≤ 100,920 SF
MAX. FA OF BUILDING		201800 < 201,840 SF		
TOTAL FAR OF BUILDING		0.40 < 1.00	2.00 ≤ 2.00	2.40 ≤ 2.40
		4.80 ≤ 4.80 (LOT AREA: 42,050 SF)		

* (ZR 12-10) CELLAR FLOOR, CHASE & MECH. SPACE NOT COUNT AS ZONING FLO

** TOTAL BUILDING GROSS AREA INCLUDE CELLAR F.A. & DEDUCTIBLE FLOOR ARI

ZR 23-64 & ZR 33-441 <ALT. FRONT SETBACKS @ 35TH AVE.>
ON WIDE ST., 10' DEPTH OF OPTIONAL FRONT OPEN AREA
MAX. HEIGHT ABOVE STREET LINE = 60' FEET

<SKY EXPOSURE PLANE>
EXPOSURE PLANE BEGINS AT 60'
V7.6 H1.0 ON WIDE STREET
(SEE BUILDING SECTION, DWG A.601)

PARKING REQUIREMENT
ZR 36-21 <REQ. PARKINGS FOR COMMERCIAL>
RETAIL: 1 PER 300 SF

HOTELS(a): 1 PER 8 GUEST ROOMS
HOTELS(b): MEETING/ EATING OR DRINKING PLACES:
1 PER 8 PERSON RATED CAPACITY
COMMUNITY CLUB: 1 PER 10 PERSONS

ZR 25-23 <REQ. PARKINGS FOR RESIDENTIAL>
TOTAL NUMBER OF DWELLING UNITS = 70%

TOTAL PARKING REQUIRED = 224.08
TOTAL PARKING PROPOSED = 250 -(COMPLIES)
(SEE PARKING REQUIREMENT TABLE)

ZR 36-70 <BICYCLE PARKING>
FOR RESIDENTIAL USES
USE GROUP 2 = 1 PER 2 DWELLING UNITS

ALL OTHER USE GROUP 3 & 4 = 1 PER 10,000 SF

USE GROUP 5A = 1 PER 10,000 SF
(EXCEPT EATING & DRINKING ESTABLISHMENTS)

GENERAL RETAIL - USE GROUP 6 = 1 PER 10,000 SF

TOTAL BICYCLE SPACE REQUIRED = 85.17
TOTAL BICYCLE SPACE PROPOSED = 85 -(COMPLIES)
(SEE PARKING REQUIREMENT TABLE)

ZR 36-73
15 SF OF AREA SHALL BE PROVIDED FOR
EACH BICYCLE SPACE.
85 SPACE x 15 SQ. FT. = 1,275 SQ. FT. REQUIRED

STREET TREE PLANTING
ZR 33-03, ZR 26-41
REQUIRED ONE STREET TREE FOR EVERY 25' OF STREET
FRONTAGE OF THE ZONING LOT.

TABLE 1107.6.1.1
<ACCESSIBLE DWELLING & SLEEPING UNITS>

TOTAL NO. OF UNITS PROVIDED	REQUIRED MIN. NO. OF ROLL-IN SHOWERS	TOTAL NO. OF REQ. ACCESSIBLE UNITS
150 AND OVER	1 % OF TOTAL	5% OF TOTAL
101 TO 149	2	7
210 ROOMS (2ND~7TH FL)	2 REQUIRED, 2 PROPOSED @ 5TH & 7TH FL	10.5 REQUIRED, 11 PROPOSED @ 2ND~7TH FL
148 ROOMS (8TH~15TH FL)	2 REQUIRED, 2 PROPOSED @ 8TH~14TH FL, 1 PROPOSED @ 15TH FL (TOTAL OF 15)	7 REQUIRED, 148 PROPOSED @ 8TH~15TH FL

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E	KING	ADA KING	STUDIO KING	STUDIO QUEEN/ QUEEN	STANDARD KING		1 BEDROOM SUITE	CONFERENCE SUITE	2 BEDROOM SUITE	3 BEDROOM SUITE	ADA STUDIO KING - (SHOWER)	ADA STUDIO QUEEN/ QUEEN - (SHOWER)	ADA STANDARD KING	ADA 1-BEDROOM SUITE	ADA CONFERENCE SUITE	ADA BEDRO SUIT
	12	0														
	21	1														
	21	1														
	19	1														
	19	1														
	19	1														
			1	7	4		2				1	1	1	1	1	
			1	7	3	1	2	1			1	1	1	1		
			1	7	3	1	2	1			1	1	1	1		
			1	7	3	1	2	1			1	1	1	1		
			1	7	3	1	2	1			1	1	1	1		
			1	7	3	1	2	1			1	1	1	1		
			1	7	3	1	2	1			1	1	1	1		
				7			2	1	1	1		1		1		1
	111	**5**	**7**	**56**	**22**	**6**	**16**	**7**	**1**	**1**	**7**	**8**	**7**	**8**	**1**	**1**
	52.86%	**2.38%**	**4.73%**	**37.84%**	**14.86%**	**4.05%**	**10.81%**	**4.73%**	**0.68%**	**0.68%**	**4.73%**	**5.41%**	**4.73%**	**5.41%**	**0.68%**	**0.68%**
	100%								**148**	**100%**						

NDS

ALL CONSTRUCTION; 2-HR RATED
ACE, AND 6" NON-BEARING CMU WALL
DE W/ 2 1/2" METAL STUD, 2" SEMI-RIGID
SUM WALL BOARD FURRING PARTITION.

TERIOR WALL CONSTRUCTION; 2-HR RATED
/ STONE MECHANICAL CLIP TO CMU WALL;
).

XTERIOR WALL CONSTRUCTION; 2-HR RATED
/ ALUM. PANEL CLIP / FASTEN TO CMU WALL;
STL. FASTENER, TYP.

FINISH SYSTEM (EIFS) ON 2-HR RATED CMU WALL

WALL; SEE STRUCTURAL DRAWINGS FOR
IG INFORMATION.

(2) HR FIRE RATED 6" OR 8" NON-BEARING CONCRETE MASONRY PARTITION; SEE STRUCTURAL DRAWINGS FOR REINFORCING INFORMATION.

(2) HR FIRE RATED & ACOUSTICAL PARTITION; (2) LAYERS OF 5/8" TYPE "X" GYPSUM WALL BOARDS ON BOTH SIDES OF 3 5/8" 20 G.A. METAL STUD @ MAX. 16" O.C.; RUN STUDS AND BOARDS FULL HEIGHT TO UNDERSIDE OF SLAB WITH 3 1/2" SEMI-RIGID THERMAFIBER INSULATION; CAULK ALL PERIMETER WITH ACOUSTICAL SEALANT; MIN. STC=50; BSA# 310-60-SM.

(2) HR FIRE RATED SHAFT WALL CONSTRUCTION; (2) LAYERS 5/8" TYPE "X" GYPSUM WALL BOARDS AT FINISH SIDE, 2 1/2" 20 G.A. C-H METAL STUDS AT 24" O.C., AND 1" GYPSUM LINER AT SHAFT SIDE; RUN STUDS AND BOARDS FULL HEIGHT TO UNDERSIDE OF SLAB WITH 1 1/2" SEMI-RIGID THERMAFIBER INSULATION; CAULK ALL PERIMETER; STC=48; BSA# 354-76-M.

(1) HR RATED PARTITION; (1) LAYER OF 5/8" TYPE "X" GYPSUM WALL BOARD ON BOTH SIDES OF 3 5/8" 20 G.A. METAL STUD @ MAX. 16" O.C.; RUN STUDS AND BOARDS FULL HEIGHT TO UNDERSIDE OF SLAB WITH 3 1/2" SEMI-RIGID THERMAFIBER INSULATION; BRACED FURRING STUDS 48" O.C. VERTICALLY; CAULK ALL PERIMETER.

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MEAN CURB LEVEL CALCULATION

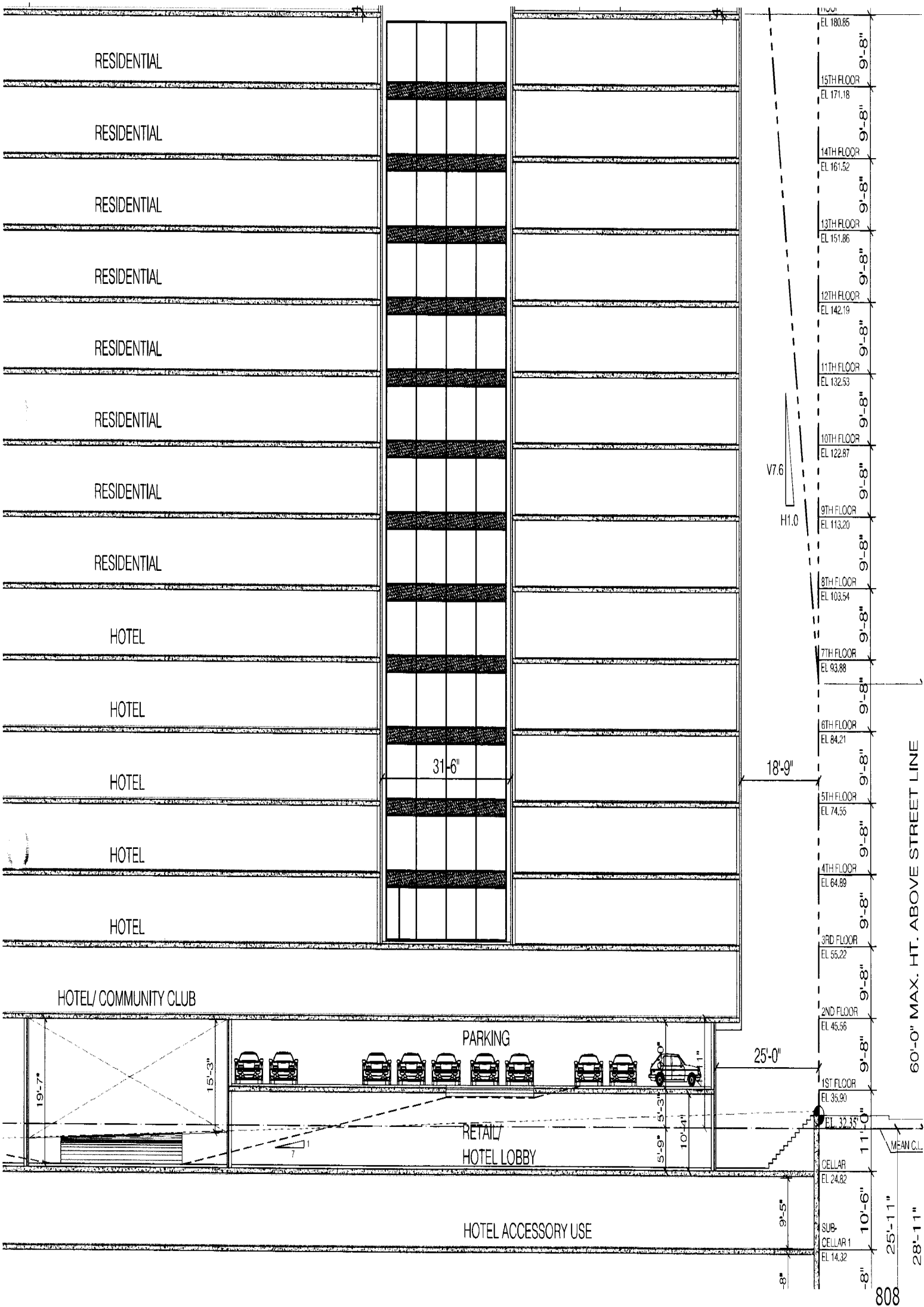
- MEAN CURB LEVEL AT FARRING
  31.84 + 27.02 / 2 = 29.43

- MEAN CURB LEVEL AT 35TH AVE
  32.53 + 31.85 / 2 = 32.19

$$\frac{[A+B/2 \times a] + [B+C/2 \times b]}{a+b} =$$

$$\frac{[29.43 \times 235] + [32.19 \times 165]}{235 + 165} =$$

$$\frac{6,916.05+5,311.35}{400} = 30.57'$$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HOTEL
HOTEL/ COMMUNITY CLUB
PARKING
RETAIL/
HOTEL LOBBY
HOTEL ACCESSORY USE
31'-6"
18'-9"
25'-0"
V7.6
H1.0
EL 180.85
15TH FLOOR
EL 171.18
14TH FLOOR
EL 161.52
13TH FLOOR
EL 151.86
12TH FLOOR
EL 142.19
11TH FLOOR
EL 132.53
10TH FLOOR
EL 122.87
9TH FLOOR
EL 113.20
8TH FLOOR
EL 103.54
7TH FLOOR
EL 93.88
6TH FLOOR
EL 84.21
5TH FLOOR
EL 74.55
4TH FLOOR
EL 64.89
3RD FLOOR
EL 55.22
2ND FLOOR
EL 45.56
1ST FLOOR
EL 35.90
EL. 32.35'
CELLAR
EL 24.82
SUB-
CELLAR 1
EL 14.32
9'-8"
11'-0"
10'-6"
25'-11"
28'-11"
9'-5"
-8"
19'-7"
15'-3"
5'-9"
5'-3"
10'-4"
1"
0"
MEAN C.L.
60'-0" MAX. HT. ABOVE STREET LINE

APPENDIX 4

VAPOR BARRIER SPECIFICATIONS, PRODUCT LITERATURE, AND DESIGN DRAWINGS

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GRACE

PREPRUFE® 300R & 160R

Pre-applied waterproofing membranes that bond integrally to poured concrete for use below slabs or behind basement walls on confined sites

Description

Preprufe® 300R & 160R membranes are unique composite sheets comprising a thick HDPE film, an aggressive pressure sensitive adhesive and a weather resistant protective coating.

Unlike conventional non-adhering membranes, which are vulnerable to water ingress tracking between the unbonded membrane and structure, the unique Preprufe bond to concrete prevents ingress or migration of water around the structure.

The Preprufe R System includes:

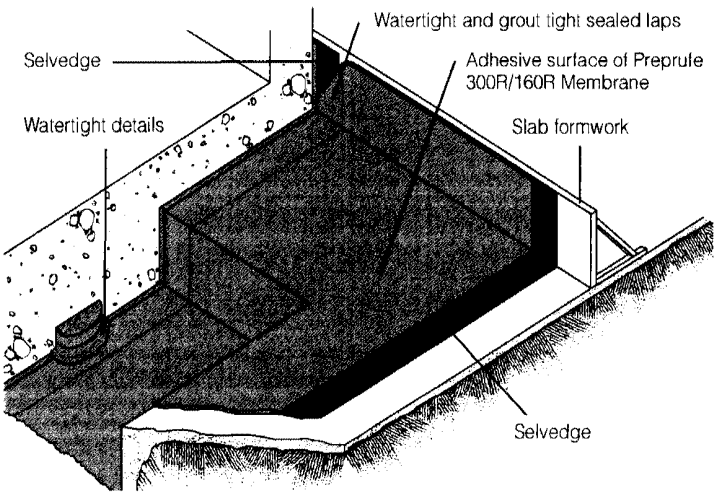
- **Preprufe 300R**—heavy-duty grade for use below slabs and on rafts (i.e. mud slabs). Designed to accept the placing of heavy reinforcement using conventional concrete spacers.
- **Preprufe 160R**—thinner grade for blindside, zero property line applications against soil retention systems.
- **Preprufe Tape LT**—for covering cut edges, roll ends, penetrations and detailing (temperatures between 25°F (-4°C) and 86°F (+30°C)).
- **Preprufe Tape HC**—as above for use in Hot Climates (minimum 50°F (10°C)).
- **Bituthene® Liquid Membrane**—for sealing around penetrations, etc.
- **Adcor™ ES**—waterstop for joints in concrete walls and floors
- **Preprufe Tieback Covers**—preformed cover for soil retention wall tieback heads
- **Preprufe Preformed Corners**—preformed inside and outside corners

Preprufe 300R & 160R membranes are applied either horizontally to smooth prepared concrete, carton forms or well rolled and compacted earth or crushed stone substrate; or vertically to permanent formwork or adjoining structures. Concrete is then cast directly against the adhesive side of the membranes. The specially developed Preprufe adhesive layers work together to form a continuous and integral seal to the structure.

Preprufe can be returned up the inside face of slab formwork but is not recommended for conventional twin-sided formwork on walls, etc. Use Bituthene self-adhesive membrane or Procor® fluid applied membrane to walls after removal of formwork for a fully bonded system to all structural surfaces.

Advantages

- **Forms a unique continuous adhesive bond to concrete poured against it**—prevents water migration and makes it unaffected by ground settlement beneath slabs
- **Fully-adhered watertight laps** and detailing
- **Provides a barrier to water, moisture and gas**—physically isolates the structure from the surrounding ground
- **BBA Certified** for basement Grades 2, 3, & 4 to BS 8102:1990
- **Zero permeance** to moisture
- **Solar reflective**—reduced temperature gain
- **Simple and quick to install**—requiring no priming or fillets
- **Can be applied to permanent formwork**—allows maximum use of confined sites
- **Self protecting**—can be trafficked immediately after application and ready for immediate placing of reinforcement
- **Unaffected by wet conditions**—cannot activate prematurely
- **Inherently waterproof, non-reactive system:**
  - not reliant on confining pressures or hydration
  - unaffected by freeze/thaw, wet/dry cycling
- **Chemical resistant**—effective in most types of soils and waters, protects structure from salt or sulphate attack



Drawings are for illustration purposes only.
Please refer to graceconstruction.com for specific application details.

Installation

The most current application instructions, detail drawings and technical letters can be viewed at graceconstruction.com. For other technical information contact your local Grace representative.

Preprufe 300R & 160R membranes are supplied in rolls 4 ft (1.2 m) wide, with a selvedge on one side to provide self-adhered laps for continuity between rolls. The rolls of Preprufe Membrane and Preprufe Tape are interwound with a disposable plastic release liner which must be removed before placing reinforcement and concrete.

Substrate Preparation

All surfaces—It is essential to create a sound and solid substrate to eliminate movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 0.5 in. (12 mm). Grout around all penetrations such as utility conduits, etc. for stability (see Figure 1).

Horizontal—The substrate must be free of loose aggregate and sharp protrusions. Avoid curved or rounded substrates. When installing over earth or crushed stone, ensure substrate is well compacted to avoid displacement of substrate due to traffic or concrete pour. The surface does not need to be dry, but standing water must be removed.

Vertical—Use concrete, plywood, insulation or other approved facing to sheet piling to provide support to the membrane. Board systems such as timber lagging must be close butted to provide support and not more than 0.5 in. (12 mm) out of alignment.

Membrane Installation

Preprufe can be applied at temperatures of 25°F (-4°C) or above. When installing Preprufe in cold or marginal weather conditions 55°F (<13°C) the use of Preprufe Tape LT is recommended at all laps and detailing. Preprufe Tape LT should be applied to clean, dry surfaces and the release liner must be removed immediately after application. Alternatively, Preprufe Low Temperature (LT) is available for low temperature condition applications. Refer to Preprufe LT data sheet for more information.

Horizontal substrates—Place the membrane HDPE film side to the substrate with the clear plastic release liner facing towards the concrete pour. End laps should be staggered to avoid a build up of layers. Leave plastic release liner in position until overlap procedure is completed (see Figure 2).

Accurately position succeeding sheets to overlap the previous sheet 3 in. (75 mm) along the marked selvedge. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back the plastic release liner from between the overlaps as the two layers are bonded together. Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller. Completely remove the plastic liner to expose the protective coating. Any initial tack will quickly disappear.

Refer to Grace Tech Letter 15 for information on suitable rebar chairs for Preprufe.

Vertical substrates—Mechanically fasten the membrane vertically using fasteners appropriate to the substrate with the the clear plastic release liner facing towards the concrete pour. The membrane may be installed in any convenient length. Fastening can be made through the selvedge using a small and low profile head fastener so that the membrane lays flat and allows firmly rolled overlaps. Immediately remove the plastic release liner.

Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Roll firmly to ensure a watertight seal.

Roll ends and cut edges—Overlap all roll ends and cut edges by a minimum 3 in. (75 mm) and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary. Allow to dry and apply Preprufe Tape LT (or HC in hot climates) centered over the lap edges and roll firmly (see Figure 3). Immediately remove printed plastic release liner from the tape.

Details

Refer to Preprufe Field Application Manual, Section V Application Instructions or visit graceconstruction.com. This manual gives comprehensive guidance and standard details.

Membrane Repair

Inspect the membrane before installation of reinforcement steel, formwork and final placement of concrete. The membrane can be easily cleaned by power washing if required. Repair damage by wiping the area with a damp cloth to ensure the area is clean and free from dust, and allow to dry. Repair small punctures (0.5 in. (12 mm) or less) and slices by applying Preprufe Tape centered over the damaged area and roll firmly. Remove the release liner from the tape. Repair holes and large punctures by applying a patch of Preprufe membrane, which extends 6 in. (150 mm) beyond the damaged area. Seal all edges of the patch with Preprufe Tape, remove the release liner from the tape and roll firmly. Any areas of damaged adhesive should be covered with Preprufe Tape. Remove printed plastic release liner from tape. Where exposed selvedge has lost adhesion or laps have not been sealed, ensure the area is clean and dry and cover with fresh Preprufe Tape, rolling firmly. Alternatively, use a hot air gun or similar to activate adhesive and firmly roll lap to achieve continuity.

Pouring of Concrete

Ensure the plastic release liner is removed from all areas of Preprufe membrane and tape.

It is recommended that concrete be poured within 56 days (42 days in hot climates) of application of the membrane. Following proper ACI guidelines, concrete must be placed carefully and consolidated properly to avoid damage to the membrane. Never use a sharp object to consolidate the concrete.

Removal of Formwork

Preprufe membranes can be applied to removable formwork, such as slab perimeters, elevator and lift pits, etc. Once the concrete is poured the formwork must remain in place until the concrete has gained sufficient compressive strength to develop the surface bond. Preprufe membranes are not recommended for conventional twin-sided wall forming systems.

A minimum concrete compressive strength of 1500 psi (10 N/mm^2) is recommended prior to stripping formwork supporting Preprufe membranes. Premature stripping may result in displacement of the membrane and/or spalling of the concrete.

Refer to Grace Tech Letter 17 for information on removal of formwork for Preprufe.

Figure 1

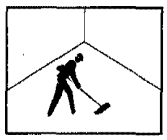


Figure 2

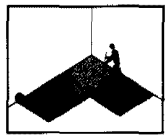
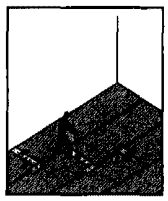
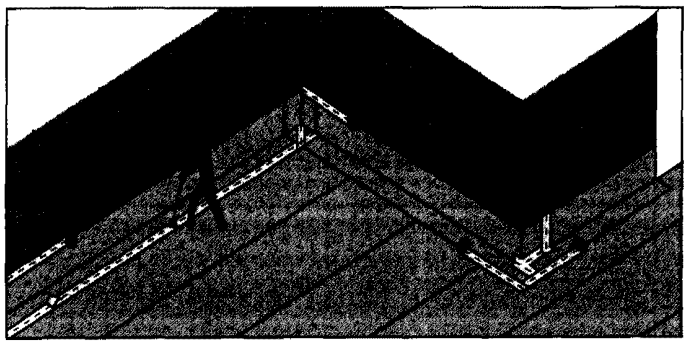


Figure 3

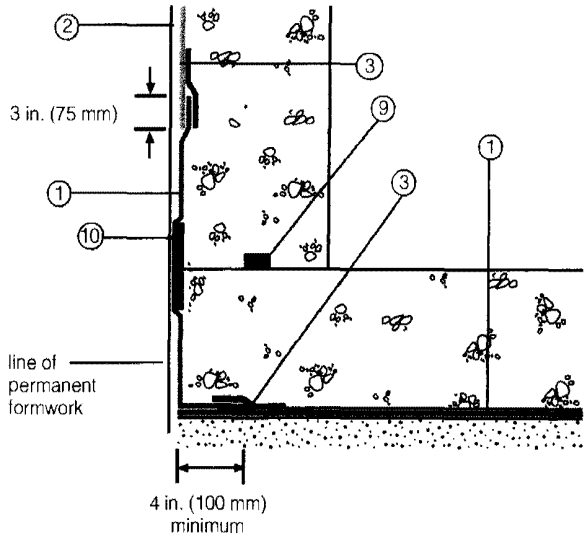




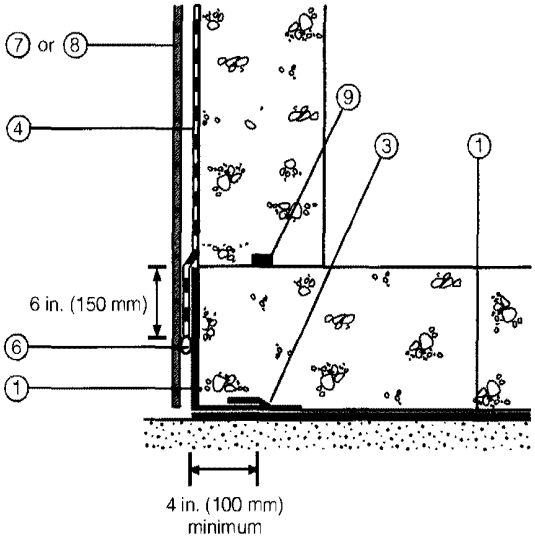
Detail Drawings

Details shown are typical illustrations and not working details. For a list of the most current details, visit us at graceconstruction.com. For technical assistance with detailing and problem solving please call toll free at 866-333-3SBM (3726).

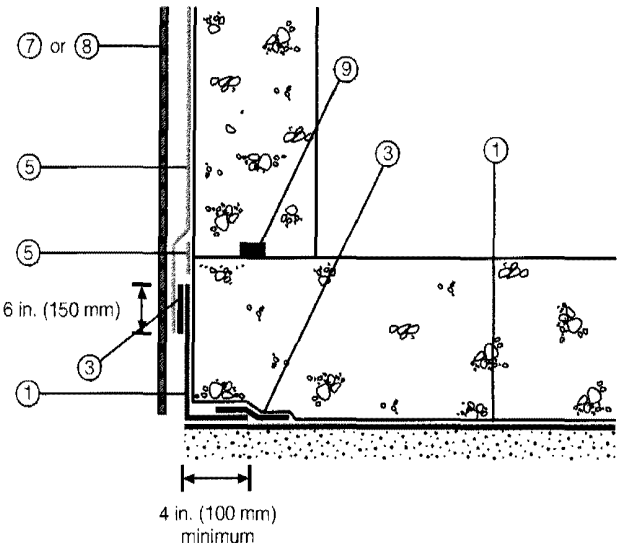
Wall base detail against permanent shutter



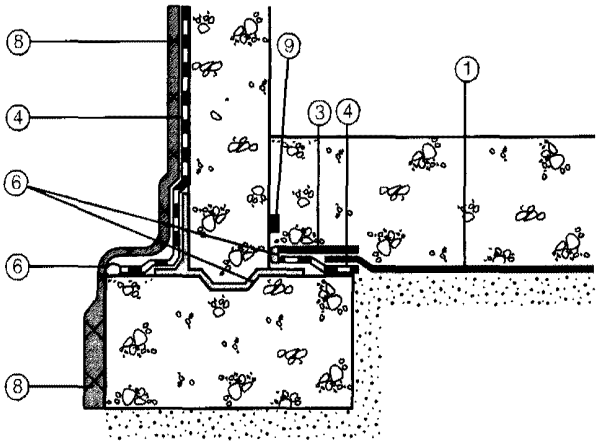
Bituthene wall base detail (Option 1)



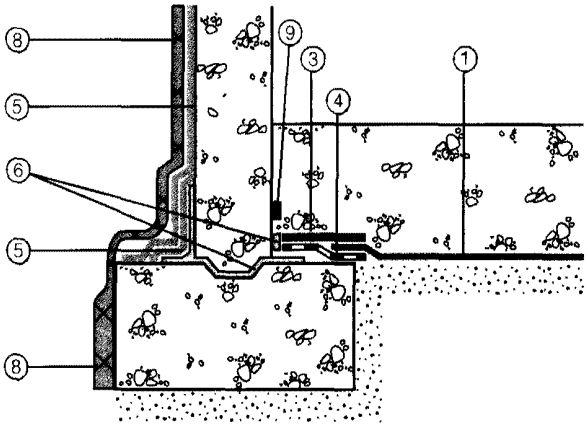
Procor wall base detail (Option 1)



Bituthene wall base detail (Option 2)



Procor wall base detail (Option 2)



1 Preprufe 300R
2 Preprufe 160R
3 Preprufe Tape
4 Bituthene
5 Procor
6 Bituthene Liquid Membrane
7 Protection
8 Hydroduct®
9 Adcor ES
10 Preprufe CJ Tape

Supply

Dimensions (Nominal)	Preprufe 300R Membrane	Preprufe 160R Membrane	Preprufe Tape (LT or HC*)
Thickness	0.046 in. (1.2 mm)	0.032 in. (0.8 mm)	
Roll size	4 ft x 98 ft (1.2 m x 30 m)	4 ft x 115 ft (1.2 m x 35 m)	4 in. x 49 ft (100 mm x 15 m)
Roll area	392 ft² (36 m²)	460 ft² (42 m²)	
Roll weight	108 lbs (50 kg)	92 lbs (42 kg)	4.3 lbs (2 kg)
Minimum side/end laps	3 in. (75 mm)	3 in. (75 mm)	3 in. (75 mm)
* LT denotes Low Temperature (between 25°F (-4°C) and 86°F (+30°C)) HC denotes Hot Climate (50°F (>+10°C))			
Ancillary Products			
Bituthene Liquid Membrane—1.5 US gal (5.7 liter) or 4 US gal (15.1 liter)			

Physical Properties

Property	Typical Value 300R	Typical Value 160R	Test Method
Color	white	white	
Thickness	0.046 in. (1.2 mm)	0.032 in. (0.8 mm)	ASTM D3767
Lateral Water Migration Resistance	Pass at 231 ft (71 m) of hydrostatic head pressure	Pass at 231 ft (71 m) of hydrostatic head pressure	ASTM D5385, modified[1]
Low temperature flexibility	Unaffected at -20°F (-29°C)	Unaffected at -20°F (-29°C)	ASTM D1970
Resistance to hydrostatic head	231 ft (71 m)	231 ft (71 m)	ASTM D5385, modified[2]
Elongation	500%	500%	ASTM D412, modified[3]
Tensile strength, film	4000 psi (27.6 MPa)	4000 psi (27.6 MPa)	ASTM D412
Crack cycling at -9.4°F (-23°C), 100 cycles	Unaffected, Pass	Unaffected, Pass	ASTM C836
Puncture resistance	221 lbs (990 N)	100 lbs (445 N)	ASTM E154
Peel adhesion to concrete	5 lbs/in. (880 N/m)	5 lbs/in. (880 N/m)	ASTM D903, modified[4]
Lap peel adhesion	5 lbs/in. (880 N/m)	5 lbs/in. (880 N/m)	ASTM D1876, modified[5]
Permeance to water vapor transmission	0.01 perms (0.6 ng/(Pa x s x m²))	0.01 perms (0.6 ng/(Pa x s x m²))	ASTM E96, method B
Water absorption	0.5%	0.5%	ASTM D570

Footnotes:

1. Lateral water migration resistance is tested by casting concrete against membrane with a hole and subjecting the membrane to hydrostatic head pressure with water. The test measures the resistance of lateral water migration between the concrete and the membrane.
2. Hydrostatic head tests of Preprufe Membranes are performed by casting concrete against the membrane with a lap. Before the concrete cures, a 0.125 in. (3 mm) spacer is inserted perpendicular to the membrane to create a gap. The cured block is placed in a chamber where water is introduced to the membrane surface up to the head indicated.
3. Elongation of membrane is run at a rate of 2 in. (50 mm) per minute.
4. Concrete is cast against the protective coating surface of the membrane and allowed to properly dry (7 days minimum). Peel adhesion of membrane to concrete is measured at a rate of 2 in. (50 mm) per minute at room temperature.
5. The test is conducted 15 minutes after the lap is formed (per Grace published recommendations) and run at a rate of 2 in. (50 mm) per minute.

Specification Clauses

Preprufe 300R or 160R shall be applied with its adhesive face presented to receive fresh concrete to which it will integrally bond. Only Grace Construction Products approved membranes shall be bonded to Preprufe 300R/160R. All Preprufe 300R/160R system materials shall be supplied by Grace Construction Products, and applied strictly in accordance with their instructions. Specimen performance and formatted clauses are also available.

NOTE: Use Preprufe Tape to tie-in Procor with Preprufe.

Health and Safety

Refer to relevant Material Safety data sheet. Complete rolls should be handled by a minimum of two persons.

www.graceconstruction.com

For technical assistance call toll free at 866-333-3SBM (3726)

Adcor is a trademark and Preprufe, Bituthene and Hydroduct are registered trademarks of W. R. Grace & Co.–Conn.
Procor is a U.S. registered trademark of W. R. Grace & Co.–Conn., and is used in Canada under license from PROCOR LIMITED.

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the users' consideration, investigation and verification, but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. W. R. Grace & Co.–Conn., 62 Whittemore Avenue, Cambridge, MA 02140. In Canada, Grace Canada, Inc., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.

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PF-111H Printed in U.S.A. 07/12 FA/PDF

GRACE

NYC Office of Environmental Remediation

PROJECT SUBMITTAL COVER SHEET

E-DESIGNATION AND *RESTRICTIVE DECLARATION PROGRAM

***for recorded Restrictive Declarations only – post CEQR**

PROJECT TRACKING NUMBERS

1a. 14EHAN384Q — OER PROJECT NUMBER (10 CHARACTER TRACKING NUMBER)

1b. _____ — DEP PROJECT NUMBER (FOR PROJECTS PREVIOUSLY REVIEWED BY NYCDEP)

1c. 420892323 — DEPARTMENT OF BUILDINGS JOB NUMBER(S)

1d. _____ — OTHER REFERENCE NUMBER(S) IF APPLICABLE (I.E. NYSDEC SPILL, BCP, ETC.)

PROJECT LOCATION

INDICATE LOCATION OF SITE PROVIDE ALL ASSOCIATED TAX BLOCK AND LOT NUMBERS

2a. 35th Ave. Farrington St. Hotel Development — PROJECT NAME (IF APPLICABLE)

2b. 134-37 35th Avenue — STREET ADDRESS(S)

Flushing (CITY) | New York (STATE) | 11354 (ZIP)

2c. Block 4949 (TAX BLOCK AND LOT NUMBER(S)) Lot 31 | Queens (BOROUGH) | 7 (COMMUNITY DISTRICT)

REVIEW TYPE

INDICATE THE REVIEW REQUIRED FOR THE SUBMITTED DOCUMENTS

3. TYPE OF ENVIRONMENTAL REVIEW (CHECK ALL THAT APPLY)

- [x] E-DESIGNATION NUMBER (EX: E-175) — E-246
  - [x] HAZARDOUS MATERIALS
  - [x] AIR QUALITY
  - [x] WINDOW/WALL NOISE ATTENUATION
- [ ] RESTRICTIVE DECLARATION NUMBER (EX: R-16) _____
  - CITY REGISTER FILE NUMBER (CRFN): _____
  - RECORDING DATE: _____

DOCUMENTS SUBMITTED

4.

- [x] CERTIFIED ARCHITECTURAL/ENGINEER PLANS
- [x] CERTIFIED PROJECT DESCRIPTION
- [ ] PHASE I ENVIRONMENTAL SITE ASSESSMENT (PHI)
- [ ] PHASE II SUBSURFACE INVESTIGATION WORK PLAN (PHII)
- [ ] PHASE II HEALTH AND SAFETY PLAN (HASP)
- [ ] PHASE II SUBSURFACE INVESTIGATION REPORT (PH II REPORT)
- [x] REMEDIAL ACTION PLAN (RAP)
- [ ] CONSTRUCTION HEALTH AND SAFETY PLAN (CHASP)
- [ ] CERTIFIED REMEDIAL CLOSURE REPORT
- [ ] CERTIFIED AIR QUALITY SPECIFICATIONS
- [ ] CERTIFIED WINDOW SPECIFICATIONS/ALTERNATE VENTILATION MEANS
- [ ] CERTIFIED INSTALLATION REPORT
- [ ] OTHER _____

PROJECT DESCRIPTION

AS PER ARCHITECT / ENGINEER OF RECORD

5. PROVIDE A BRIEF DESCRIPTION OF THE PROPOSED PROJECT AS PER THE ARCHITECT / ENGINEER OF RECORD. THE DESCRIPTION SHOULD INCLUDE, AT A MINIMUM, THE TYPE OF ALTERNATION OR NEW DEVELOPMENT/EXPANSION BEING PERFORMED, EXTENT OF GROUND/SOIL DISTURBANCE, PROPOSED GRADE-LEVEL OPEN SPACE AREAS NOT CAPPED WITH CONCRETE OR ASPHALT, ETC.

The applicant is proposing to build a new (15)-story building with (1) full cellar and (2) full sub-cellars. The building will be used for parking at sub-cellar level 2; Parking and hotel accessory use (pool, fitness, laundry,computer and conference rooms) in the sub-cellar level 1; Retail and hotel lobby at the cellar level; Parking on the 1st floor; Hotel guest rooms and community clubs on the 2nd floor; Hotel guest rooms on the 3rd -7th floors and Residential multiple dwellings on the 8th through 15th floors.

CONTACT INFORMATION

PROVIDE ALL APPLICABLE CONTACT INFORMATION

6a. PRIMARY APPLICANT INFORMATION	6b. OTHER CONTACT INFORMATION
Architect	MEP Engineer
COMPANY TYPE (CONSULTANT, ARCHITECT, ENGINEER, ETC.)	COMPANY TYPE (CONSULTANT, ARCHITECT, ENGINEER, ETC.)
Raymond Chan Architect, PC	EJC ENGINEERING, PLLC
COMPANY NAME	COMPANY NAME
Raymond Chan	ERIC CHANG
CONTACT PERSON	CONTACT PERSON
136-40 39th Avenue	136-21 ROOSEVELT AVE STE 211
ADDRESS	ADDRESS
Flushing, NY 11354	FLUSHING NY 11354
CITY STATE ZIP	CITY STATE ZIP
718-445-2345 718-359-8809	718-353-8010 718-353-4007
TELEPHONE FAX	TELEPHONE FAX
info@raymondchanarchitect.com	ejceng@verizon.net
EMAIL ADDRESS	EMAIL ADDRESS

PROFESSIONAL CERTIFICATION

FOR PROJECT ELEMENTS REQUIRING CERTIFICATION BY A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER (PE) OR REGISTERED ARCHITECT (RA)

7a. I HEREBY CERTIFY THAT THE FOLLOWING STAMP AND SIGNATURE REPRESENT THE ORIGINAL STAMP AND SIGNATURE IMAGES INCLUDED IN THE DIGITAL MATERIALS SUBMITTED FOR THE AFOREMENTIONED PROJECT SITE.

Raymond Chan
PREPARER NAME

Registered Architect
PREPARER TITLE

PREPARER SIGNATURE

5/13/15
DATE

STAMP HERE

7a. I HEREBY CERTIFY THAT THE FOLLOWING STAMP AND SIGNATURE REPRESENT THE ORIGINAL STAMP AND SIGNATURE IMAGES INCLUDED IN THE DIGITAL MATERIALS SUBMITTED FOR THE AFOREMENTIONED PROJECT SITE.

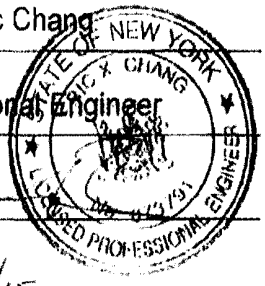
Eric Chang
PREPARER NAME

Professional Engineer
PREPARER TITLE

PREPARER SIGNATURE

5/ /15
DATE

STAMP HERE



SUBMISSIONS

WHERE TO SEND

SEND DIGITAL PROJECT SUBMITTALS ALONG WITH COVER SHEET TO:

Mayor's Office of Environmental Remediation
E-Designation Program
c/o Maurizio Bertini, Assistant Director
100 Gold Street, 2nd Floor
New York, NY 10038

THIS COMPLETED COVER SHEET SHOULD BE SUBMITTED VIA HARD COPY AS WELL AS DIGITALLY.

OER RESERVES 30 DAYS FOR REVIEW OF ALL SUBMISSIONS. ALL INDIVIDUALS MAKING HAND DELIVERIES SHOULD GO TO **1 CENTRE STREET (MAIL ROOM), NEW YORK, NY 10007.**

FOR QUESTIONS REGARDING THE E-DESIGNATION PROGRAM OR A PROJECT SUBMISSION, EMAIL US AT EDESIGNATION@DEP.NYC.GOV OR CALL US AT (212) 788-8841.

CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) ENVIRONMENTAL REQUIREMENTS
Table 1 - (E) Designations

E-No. Effective Date Satisfaction Date	CEQR No. Application No. Zoning Map No.	Description	Tax Block	Tax Lot(s)	Lot Remediation Date
		Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems	831	1,11,20,25,27,29	
		Exhaust stack location limitations	831	1,11,20,25,27,29	
		Hazardous Materials* Phase I and Phase II Testing Protocol	831	1,11,20,25,27,29	
			833	1,2,3,16,19,23,32, 123	
			835	4,27	
			837	9,50,52	
			840	52,53	
			842	71,83	
		Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems	844	49,52,59,60	
		Exhaust stack location limitations	844	49,52,59,60	
		Hazardous Materials* Phase I and Phase II Testing Protocol	844	40,42,45,46,49,52, 59,60,67,146	
			846	53,67	
			854	1,3	
			872	9,11	
E-246 1/23/2010	09DCP013Q C 090278MQ 10a	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems	4049	21	
		Air Quality - HVAC fuel limited to natural gas	4049	46	
		Exhaust stack location limitations	4049	21	
		Hazardous Materials* Phase I and Phase II Testing Protocol	4049	31,8900	
		Window Wall Attenuation & Automatic Ventilation	4049	31,46	
E-247 1/29/2010	09DME010Q 100207MQ 10a 10b	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems	4078	46	
		Air Quality - HVAC fuel limited to natural gas	4078	25	
		Exhaust stack location limitations	4078	25,46	
		Window Wall Attenuation & Alternate Ventilation	4078	25	
E-248 1/29/2010	09MCP004Q 080326MQ 3d	Air Quality - #2 Fuel Oil or Natural Gas for HVAC systems	1270	80,86,99,110,130	
		Exhaust stack location limitations	1270	80,86,94,110,130	

* Underground gasoline storage tanks included in category of hazardous materials contamination as of 6/16/94.
** Indicates that a tax lot with multiple development sites is partially remediated.

WARNING: These printed materials may be out of date.
Please ensure you have the current version that can be found on www.nyc.gov/oec.

Table 19-2
Noise Exposure Guidelines For Use in City Environmental Impact Review[1]

Receptor Type	Time Period	Acceptable General External Exposure	Airport[3] Exposure	Marginally Acceptable General External Exposure	Airport[3] Exposure	Marginally Unacceptable General External Exposure	Airport[3] Exposure	Clearly Unacceptable General External Exposure	Airport[3] Exposure
1. Outdoor area requiring serenity and quiet[2]		$L_{10} \leq 55$ dBA	$L_{dn} \leq 60$ dBA		$60 < L_{dn} \leq 65$ dBA		(i) $65 < L_{dn} \leq 70$ dBA, (ii) $70 \leq L_{dn}$		$L_{dn} \leq 75$ dBA
2. Hospital, nursing home		$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 65$ dBA		$65 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
3. Residence, residential hotel, or motel	(7 AM to 10 PM)	$L_{10} \leq 65$ dBA		$65 < L_{10} \leq 70$ dBA		$70 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
	(10 PM to 7 AM)	$L_{10} \leq 55$ dBA		$55 < L_{10} \leq 70$ dBA		$70 < L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
4. School, museum, library, court, house of worship, transient hotel or motel, public meeting room, auditorium, out-patient public health facility		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)	
5. Commercial or office		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)		Same as Residential Day (7 AM-10 PM)	
6. Industrial, public areas only[4]	Note 4	Note 4		Note 4		Note 4		Note 4	

Notes:

(i) In addition, any new activity shall not increase the ambient noise level by 3 dB(A) or more.

[1] Measurements and projections of noise exposures are to be made at appropriate heights above site boundaries as given by American National Standards Institute (ANSI) Standards; all values are for the worst hour in the time period.

[2] Tracts of land where serenity and quiet are extraordinarily important and serve as important public need, and where the preservation of these qualities is essential for the area to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, or open spaces dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet. Examples are grounds for ambulatory hospital patients and patients and residents of sanitariums and nursing homes.

[3] One may use the FAA-approved L_{dn} contours supplied by the Port Authority, or the noise contours may be computed from the federally approved INM Computer Model using flight data supplied by the Port Authority of New York and New Jersey.

[4] External Noise Exposure standards for industrial areas of sounds produced by industrial operations other than operating motor vehicles or other transportation facilities are spelled out in the New York City Zoning Resolution, Sections 42-20 and 42-21. The referenced standards apply to M1, M2, and M3 manufacturing districts and to adjoining residence districts (performance standards are octave band standards).

Sources: New York City Department of Environmental Protection (adopted policy 1983).

421. MOBILE SOURCES

421.1. Vehicular Noise

The impact assessments for vehicular noise compare the proposed project $L_{eq(1)}$ noise levels at receptors potentially affected by the project to those calculated for the No-Action condition. If the No-Action levels are less than 60 dB(A) $L_{eq(1)}$ and the analysis period is not at nighttime, an increase of 5 dB(A) $L_{eq(1)}$ or more in the future with the project would be considered a significant impact. In order for the 5 dB(A) threshold to be valid, the resultant With-Action condition noise level would have to be equal to or less than 65 dB(A). If the No-Action noise level is equal to or greater than 62 dB(A) $L_{eq(1)}$, or if the analysis period is a nighttime analysis period, the incremental significant impact threshold would be 3 dB(A) $L_{eq(1)}$. If the No-Action noise level is 61 dB(A) $L_{eq(1)}$, the maximum incremental increase would be 4 dB(A), since an increase higher than this would result in a noise level higher than the 65 dB(A) $L_{eq(1)}$ threshold and be considered significant.

WARNING: These printed materials may be out of date.
Please ensure you have the current version that can be found on www.nyc.gov/oec.

If the proposed project would introduce a sensitive receptor, With-Action noise levels in dB(A) $L_{10(1)}$ would be compared to the values contained in the Noise Exposure Guidelines. If these noise levels would exceed the marginally acceptable levels, a significant impact would occur unless the building design as proposed provides a composite building attenuation that would be sufficient to reduce these levels to an acceptable interior noise level. These values are shown in Table 19-3. The applicant should demonstrate that sufficient attenuation is provided in the form of composite building attenuation calculations based upon the Outdoor Indoor Transmission Class (OITC) values of individual major window/wall/ventilation components, unless a federal funding source, as defined in Subsection 723 of this chapter, requires usage of a different single number rating, such as the Sound Transmission Class (STC) rating, to calculate the noise levels and attenuation values.

Table 19-3
Required Attenuation Values To Achieve Acceptable Interior Noise Levels

	Marginally Unacceptable				Clearly Unacceptable
Noise level with proposed project	$70<L_{10}\leq73$	$73<L_{10}\leq76$	$76<L_{10}\leq78$	$78<L_{10}\leq80$	$80<L_{10}$
Attenuation[A]	(I) 28 dB(A)	(II) 31 dB(A)	(III) 33 dB(A)	(IV) 35 dB(A)	$36 + (L_{10} - 80)$[B] dB(A)

Note: [A] The above composite window-wall attenuation values are for residential dwellings and community facility development. Commercial office spaces and meeting rooms would be 5 dB(A) less in each category. All of the above categories require a closed window situation and hence an alternate means of ventilation.
[B] Required attenuation values increase by 1 dB(A) increments for L_{10} values greater than 80 dBA.
Source: New York City Department of Environmental Protection

421.2. *Aircraft Noise*

If the proposed project would create an aircraft facility (heliport or airport), cause a change in flight paths or flight frequency at an aircraft facility, or be subject to aircraft noise, the impact criteria discussed in Sections 410 and 420 apply. If these levels in dB(A) $L_{dn(V)}$ exceed the marginally acceptable level, a significant impact would occur, unless the building design as proposed provides a composite building attenuation that would be sufficient to reduce these levels to an acceptable interior noise level. In the case of significantly impacted buildings, design measures should be implemented that achieve the levels of composite building attenuation provided in Table 19-3. The applicant should demonstrate that sufficient attenuation is provided in the form of composite building attenuation calculations based upon the OITC values of individual major window/wall/ventilation components, unless a federal funding source, as defined in Subsection 723 of this chapter, requires usage of a different single number rating, such as the STC rating, to calculate the noise levels and attenuation values.

421.3. *Train Noise*

If the proposed project would create a rail facility, cause a change in frequency of trains along the rail facility, or be subject to rail noise, the impact criteria discussed in Sections 410 and 420 apply. If these levels in dB(A) $L_{dn(1)}$ exceed the marginally acceptable level, a significant impact would occur, unless the building design as proposed provides a composite building attenuation that would be sufficient to reduce these levels to an acceptable interior noise level. In the case of significantly impacted buildings, design measures should be implemented that achieve the levels of composite building attenuation provided in Table 19-3. The applicant should demonstrate that sufficient attenuation is provided in the form of composite building attenuation calculations based upon the OITC values of individual major window/wall/ventilation components, unless a federal funding source, as defined in Subsection 723 of this chapter, requires usage of a different single number rating, such as the STC rating, to calculate the noise levels and attenuation values.

E-246

DEPARTMENT OF CITY PLANNING
CITY OF NEW YORK

OFFICE OF THE CHAIR

CONDITIONAL NEGATIVE DECLARATION

Project Identification
CEQR No. 04DCP013Q
ULURP No. 030223 ZMQ
SEQRA Classification: Unlisted

Lead Agency
City Planning Commission
22 Reade Street
New York, NY 10007
Contact: Robert Dobruskin
(212) 720-3423

Name, Description and Location of Proposal

134-03 35th Street (aka New Millenium/Prince Street)

The applicant, C & G Empire Realty LLC, is proposing a zoning map amendment on a portion of Block 4949 (Lots 31, 46, and 8900) from a M1-1 zoning district to a R6 zoning district with a C2-2 commercial overlay. The subject area is located in the Downtown Flushing neighborhood in Queens Community District 7 north of Northern Boulevard and east of College Point Boulevard. The proposed rezoning area is on the north side 35th Avenue between Prince and Farrington Streets. The proposed action would serve to extend an adjacent R6/C2-2 zoning district that exist along the south side of 35th Avenue to include the proposed rezoning area.

The proposed action would facilitate a proposal by the applicant to redevelop a 43,146 square-foot property located at 134-03 35th Street (Block 4949, Lot 46) that is currently developed with a two-story, approximately 30,438 square-foot structure occupied by a wholesale appliance and plumbing supply company, accessory office space, and three retail stores. The applicant intends to redevelop the site as a 11-story mixed use building with a total floor area of 125,570 square feet (2.91 FAR) that contains 100 residential dwelling units (87,780 square feet), 17,640 square feet of commercial space, and community facility space of 20,150 square feet that includes a community center (14,000 square feet). The proposed project would also provide 189 subsurface and surface parking spaces with access from 35th Street for the residential subsurface parking garage (170 spaces) and from Prince Street for the non-residential surface parking area (19 spaces). To ensure a conservative analysis, the environmental review considers a projected development on the same site with 100 dwelling units, 17,640 square feet of commercial space, and 48,014 square feet of community facility space for a total floor area of approximately 153,434 square feet (3.56 FAR).

In addition, the proposed action could facilitate development on a second site, not owned by the applicant, located at 134-37 35th Street (Block 4949, Lot 31) and currently developed with a a one-story, approximately 36,960 square-foot former warehouse occupied by a restaurant,

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nightclub, and accessory offices. Under the proposed action, the site could potentially be redeveloped as a 11-story mixed-use building of approximately 172,480 square feet (4.10 FAR) containing approximately 110 residential dwelling units (96,480 square feet), approximately 38,000 square feet of ground floor retail and commercial office space, approximately 38,000 square feet of second floor community facility medical office space, and approximately 344 accessory garage parking spaces in the building's cellar and sub-cellar levels.

Lot 8900, located north of and adjacent to Lot 31, would not be developed in the future as it would continue to serve as a right-of-way providing access to the adjacent lots 31 and 46. It was assumed for the purpose of this environmental review that the development rights pertaining to lot 8900 would be transferred to lot 31 as illustrated above. The analysis year for the proposed action is 2011.

As noted above, the rezoning area is presently zoned as a M1-1 district that permits light industrial uses at a maximum floor area ratio (FAR) of 1.0. The proposed action would rezone the area to a residential R6 zoning district with C2-2 commercial overlay that would permit mixed use buildings at a maximum FAR of 4.80. Building heights for R6 zoning districts are governed by the sky exposure plane. However, as this location is along the flight path for the LaGuardia Airport, buildings would be limited to no more than 115 feet in height. Also in R6 districts, parking is required at a rate of seven spaces for every ten dwelling units and open space has to be provided at a ratio between 27.5 to 37.5 percent.

The surrounding area is presently zoned M1-1 or M2-1 to the north and west of the proposed rezoning area. To the south beyond the adjacent R6/C2-2 district and south of Northern Boulevard are C4-3 and C4-2 districts. And to the east is a residential R6 district. At the current time, the properties adjacent to the proposed rezoning area to the north include a three-story walk up apartment building and a recently constructed three-story building containing two commercial uses (office and storage). Further to the north and west are one- and two-story warehouses, auto repair garages, and several small one- and two-story office and commercial buildings. It also includes several residential buildings including several three-story apartment buildings, two-story residences and row houses, and an eight-story condominium building. The area to the south of the site is predominantly developed with residential uses including two- and three-story residential and mixed-use buildings (ground floor retail space) and a four-story apartment building directly across 35th Avenue from the site. The area also includes several one- and two-story commercial buildings, a church and day care center, and a few one- and two-story warehouses. Four-story apartment buildings are located directly across the street from the proposed rezoning area to the east, as is the seven-story Flushing International Hotel and several retail stores along 35th Avenue.

To avoid any potential significant adverse impacts, an (E) designation (E-246) would be mapped as part of the proposed rezoning. The applicant's site (Block 4949, Lot 46) would receive an (E) designation for air quality and noise. The non-applicant site (Block 4949, Lot 31) would receive an (E) designation for hazardous materials, air quality and noise. In addition the lot that is presently serving as a right-of-way (Block 4949, Lot 8900) would receive an (E) designation for hazardous materials.

Development of a site with an (E) designation for hazardous materials would require that a Phase I Environmental Site Assessment in accordance with the American Society of Testing Materials

(ASTM) E1527-05 be conducted, and if necessary, a sampling and remediation protocol be developed and implemented to the satisfaction of New York City Department of Environmental Protection (DEP) prior to issuance of a building permit (pursuant to Section 11-15 of the City's Zoning Resolution). Such designation would eliminate the potential for significant adverse impacts from hazardous materials due to implementation of the proposed project.

The text of the (E) designation for hazardous materials for the properties identified below is as follows:

Block 4949, Lots 31 and 8900

Task 1

The fee owner(s) of the lot(s) restricted by this (E) designation will be required to prepare a scope of work for any soil, gas, or groundwater sampling and testing needed to determine if contamination exists, the extent of the contamination, and to what extent remediation may be required. The scope of work will include all relevant supporting documentation, including site plans and sampling locations. This scope of work will be submitted to DEP for review and approval prior to implementation. It will be reviewed to ensure that an adequate number of samples will be collected and that appropriate parameters are selected for laboratory analysis.

No sampling program may begin until written approval of a work plan and sampling protocol is received from DEP. The number and location of sample sites should be selected to adequately characterize the type and extent of the contamination, and the condition of the remainder of the site. The characterization should be complete enough to determine what remediation strategy (if any) is necessary after review of the sampling data. Guidelines and criteria for choosing sampling sites and performing sampling will be provided by DEP upon request.

Task 2

A written report with findings and a summary of the data must be presented to DEP after completion of the testing phase and laboratory analysis for review and approval. After receiving such test results, a determination will be provided by DEP if the results indicate that remediation is necessary.

If DEP determines that no remediation is necessary, written notice shall be given by DEP.

If remediation is necessary according to test results, a proposed remediation plan must be submitted to DEP for review and approval. The fee owner(s) of the lot(s) restricted by this (E) designation must perform such remediation as determined necessary by DEP. After completing the remediation, the fee owner(s) of the lot restricted by this (E) designation should provide proof that the work has been satisfactorily completed.

A DEP-approved construction-related health and safety plan would be implemented during excavation and construction activities to protect workers and the community from potentially significant adverse impacts associated with contaminated soil

and/or groundwater. This Plan would be submitted to DEP for review and approval prior to implementation.

The (E) designation for air quality would preclude the potential for significant adverse air quality impacts related to heating and hot water systems (HVAC) emissions. The text of the (E) designation for air quality for the properties identified below is as follows:

Block 4949, Lot 31

Any new residential and/or commercial development on the above-referenced property must use natural gas for HVAC systems or, if fuel oil No.4/2 is used, ensure that the heating, ventilating and air conditioning stack(s) are located at least 37 feet from the lot lines facing Prince Street and 35th Avenue, to avoid any potential significant adverse air quality impacts.

Block 4949, Lot 46

Any new residential and/or commercial development on the above-referenced property must use natural gas exclusively as the type of fuel for HVAC systems, to avoid any potential significant adverse air quality impacts.

The (E) designation for noise would preclude the potential for significant adverse impacts related to high levels of ambient noise associated with traffic along 35th Avenue. The text of the (E) designation for certain noise attenuation requirements for the properties identified below is as follows:

Block 4949, Lots 31 and 46

In order to ensure an acceptable interior noise environment, future residential/community facility/commercial uses must provide a closed window condition with a minimum of 30 dBA window/wall attenuation in order to maintain an interior noise level of 45 dBA. In order to maintain a closed-window condition, an alternate means of ventilation must also be provided. Alternate means of ventilation includes, but is not limited to, central air conditioning or air conditioning sleeves containing air conditioners.

Statement of No Significant Effect:

The Environmental Assessment and Review Division of the Department of City Planning, on behalf of the City Planning Commission, has completed its technical review of the Environmental Assessment Statement, dated January 21, 2009, prepared in connection with the ULURP Application (No. 030223 ZMQ). The City Planning Commission has determined that the proposed actions will have no significant effect on the quality of the environment, once it is modified as follows:

1. The applicant agrees via a restrictive declaration to conduct a Phase II Environmental Site Assessment (Phase II) in accordance with the sampling protocol approved by New York City Department of Environmental Protection (DEP).

The applicant further agrees to perform any necessary remediation of the subject property if hazardous materials are found as the result of the Phase II. The applicant would prepare a Remedial Action Plan, including a sampling protocol and a health and safety plan, for DEP for approval. Remediation measures would be undertaken pursuant to the approved remediation plan.

The restrictive declaration also restricts the applicant from submitting any permit applications to the New York City Department of Buildings (DOB) that would allow for soil disturbance on the subject property until such time that DEP provides the necessary written notice to DOB.

2. The applicant agrees via a restrictive declaration to conduct archaeological identification, investigation and mitigation in accordance with the *CEQR Technical Manual* and New York City Landmarks Preservation Commission (LPC) Guidelines for Archaeological Work in New York City.

   The restrictive declaration also restricts the applicant from submitting any permit applications to the DOB that would allow for soil disturbance on the subject property until such time that LPC provides the necessary written notice to DOB.

Supporting Statement:

The above determination is based on an environmental assessment which finds that:

1. Existing land and environmental records for the subject property were reviewed by DEP's Bureau of Environmental Planning and Assessment, and pursuant to a letter dated February 28, 2005, subsurface investigation of soil and groundwater was recommended by DEP due to the potential presence of hazardous materials on the site as a result of past and present on-site land uses. As such, the applicant has entered into a restrictive declaration which requires that a Phase II Environmental Site Assessment (Phase II) be conducted in accordance with the approved sampling protocol.

   Further, if warranted by the Phase II, the applicant would conduct any necessary site remediation in accordance with a Remedial Action Plan reviewed and approved by DEP. The restrictive declaration is binding upon the property's successors and assigns. The declaration serves as a mechanism to assure the potential for hazardous material contamination that may exist in the sub-surface soils and groundwater on the project site would be properly characterized prior to any site disturbance (i.e., site grading, excavation, demolition, or building construction). The restrictive declaration was prepared in a form acceptable to the DEP and the restrictive declaration was executed on July 3, 2006. Pursuant to a letter from the DEP dated September 14, 2006, the DEP is in receipt of a signed copy of a DEP-approved restrictive declaration with proof of recording for the site.

   Furthermore, as stated in the letter of February 28, 2005, DEP stipulated that the applicant would be required to conduct a building hazardous material survey of lead-based paint, PCBs, and asbestos in areas where construction, demolition, and/or renovation would occur on the subject property.

   Consequently, no significant adverse impacts related to hazardous materials will occur.

2. A previous application for the proposed development site requested a determination from LPC as to whether the subject site contains any historical, architectural, or archaeological significance. By letter dated December 31, 2002, LPC determined that the subject site may be archaeologically significant and that further testing would be required in order to determine if the site contains remains from Native American burials and occupation as well as from circa 1859 residential occupation. As such, the applicant has entered into a restrictive declaration which requires that prescribed archaeological work be conducted in accordance with in accordance with the *CEQR Technical Manual* and LPC Guidelines for Archaeological Work in New York City.

   The restrictive declaration is binding upon the property's successors and assigns. The declaration serves as a mechanism to assure that archaeological testing be conducted and that any necessary mitigation measures be undertaken prior to any site disturbance (i.e., site grading, excavation, demolition, or building construction). The restrictive declaration was prepared in a form acceptable to the LPC and the restrictive declaration was executed on May 10, 2006 and recorded with the City's Department of Finance on August 30, 2006.

   Consequently, no significant adverse impacts to archaeological resources will occur.

3. No other significant adverse effects on the environment which would require an Environmental Impact Statement are foreseeable.

It is fully agreed and understood that if the foregoing conditions, modification, and alterations are not fully incorporated into the proposed actions, this Conditional Negative Declaration shall become null and void. In such event, the applicant shall be required to prepare a Draft Environmental Impact Statement before proceeding further with said proposal.

134-03 35th Street (aka New Millenium/Prince Street)
CEQR No. 04DCP013Q

This Conditional Negative Declaration has been prepared in accordance with Article 8 of the Environmental Conservation Law 6NYCRR part 617.

I, the Undersigned, as the applicant or authorized representative for this proposal, hereby affix my signature in acceptance of the above conditions to the proposed actions.

Signature of ~~Applicant~~ or Authorized Representative

Date: 1/25/10

GEORGE XU
Name of Applicant or Authorized Representative

Robert Dobruskin

Date: 11/22/10

Robert Dobruskin, AICP, Director
Environmental Assessment & Review Division
Department of City Planning

Date: 6/7/10

Amanda M. Burden, FAICP, Chair
City Planning Commission

Appendix C

Owner/ Developer Commitment Letter

Farrington Realty, LLC
35-06 Leavitt St. CF-A, Flushing, NY 11354
Tel: 718.939.1060 Fax: 718.939.1036

May 21, 2015

Mr. Maurizio Bertini, Assistant Director
NYC Office of Environmental Remediation
100 Gold Street, 2nd Floor
New York, NY 10038

Re: 35th Avenue Farrington Street Hotel Development
134-37 35th Avenue, Block 4949, Lot(s) #31, #30, OER Project# 14EHAN384Q
DOB Job# 420892323

Dear Mr. Bertini:

As the developer/owner of the above referenced project, Farrington Realty, LLC is aware of the remedial actions as presented in the Remedial Action Plan (RAP) for Noise and Air Quality dated March 23, 2015 as prepared and certified by Raymond Chan, R.A., our project Architect, Raymond Chan Architect, P.C.

It is agreed that any changes to the RAP must be submitted and approved by OER before being implemented.

We have considered the cost of these remedial actions and commit to installing the required elements as specified in the above referenced documents and agree to bring into compliance any construction which is found not to comply with the proposed remedial actions.

Please contact me if you have any questions regarding to this commitment.

George Xu

Appendix D

Installation Report for Air Quality and Noise – Certification and Guidance

An Installation Report (IR) will be submitted to OER following implementation of the remedial action defined in this RAP. The IR will document that the remedial work required under this RAP has been completed and has been performed in compliance with this plan. The IR will include:

Air Quality E-Designation

1. Letter stamped with a P.E. or R.A. seal certifying the completion of the installation of the HVAC system and/or boilers, as per the commitments specified in the Notice to Proceed and approved RAP. The letter must specify the system and/or units' manufacturer, model, type of fuel's usage and where required, the location of the stack (e.g., distance from lot line, height above street level). In addition, the letter should include a brief description of the project (e.g., number of floors, building height, number of units/rooms, total square footage, etc.). If requesting a Notice of No Objection for a Temporary Certificate of Occupancy, the letter must specify the reasons for requesting it, the areas of the building for which the installations have and have not been completed, the floors and/or the residential units which will be covered by the TCO. Please use a table listing the apartments to be included and excluded from the TCO request, by floor. Note: Notice of No Objection requests for TCO applications are for large scale development projects (only) and are issued by OER on a case by case basis.
2. Signed and stamped gas riser diagram or plan showing the location of the fuel tank (highlighted), marked "AS-BUILT".
3. Signed and stamped plans, marked "AS-BUILT", showing the location of the stack (highlighted) and the distances (highlighted) from each edge of the building (ONLY IF REQUIRED BY E-DESIGNATION).
4. Pictures of natural gas meter, tank where present, line connection to the HVAC system or boiler(s), HVAC system or boiler(s), stack.

Noise E-Designation

1. Letter stamped with a P.E. or R.A. seal certifying the completion of the installation of all the windows and alternate means of ventilation's components, as per the commitments specified in the Notice to Proceed and approved RAP. The letter must specify the windows' manufacturer, model, and glazing composition (e.g., ¼-inch glass, ½-inch air space, ¼-inch glass), and the alternate means of ventilation's manufacturer and model. In addition, the letter should include a brief description of the project (e.g., number of floors, building height, number of units/rooms, total square footage, etc.). If requesting a Notice of No Objection for a Temporary Certificate of Occupancy, the letter must specify the reasons for requesting it, the areas of the building for which the installations have and have not been completed, the floors and/or the residential units which will be covered by the TCO. Please use a table listing the apartments to be included and excluded from the TCO request, by floor. Note: Notice of No Objection requests for TCO applications are

for large scale development projects (only) and are issued by OER on a case by case basis.

2. Signed and stamped elevations, marked as "AS-BUILT", showing the locations of the different windows and glazing as described in the approved RAP
3. Signed and stamped plans, marked as "AS-BUILT", showing the locations of the alternate means of ventilation (AMV) as described in the approved RAP
4. Pictures (maximum of two 4" X 6" or larger photos per page) of each façade of the building, installed windows (interior and exterior) and alternate means of ventilation (interior and exterior).

Installation Report Certification

The following certification will appear in front of the Executive Summary of the Installation Report. The certification will include the following statements:

I, name, am currently a registered professional engineer/ registered architect licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the Site name Site (NYC Block xxxx and Lot(s) xxx).

I certify that the Site description presented in this Installation Report is identical to the Site description and associated amendments presented in the Notice to Proceed issued by DEP/OER to the NYC DOB on date.

I certify that the OER-approved Remedial Action Plan dated month, day, year and Stipulations in the Decision Document dated month, day, year were implemented and that all requirements in those documents have been complied with.

I certify that the remedial activities were observed by qualified professionals under my supervision and that the remediation requirements set forth in the Remedial Action Plan have been achieved.

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

_____
Name

_____
NYS P.E./R.A. License Number

PE/RA Stamp

_____
Signature

_____
Date

Appendix E

Gas Riser Diagram

For Plumbing Gas Riser Diagram, see Dwg. P-040.

Appendix F

Fuel Lines and Tanks

For plan showing Fuel Lines and Tanks, see Dwg. M-020.

Appendix G

Stack Location Plan

N/A

Appendix H

Window Schedules and Specifications

1. Window Schedules, see dwg. A-900 through A-909

2. Window Manufacturer, Model & Specifications
   A. Crystal Window- Series 8000: brochure;
   B. Crystal Window- Casement Window- Series 8000: specifications;
   C. Crystal Window- Fixed Window- Series 8100: specifications and detail;
   D. Crystal Window- Sliding Door- 1240 Series: brochure, specifications and detail;
   E. Gamco- Balcony Door- BD-325 Series: brochure, specifications and detail;
   F. Gamco- Curtain Wall System- CW250 Series: brochure, specifications and detail;
   G. Tubelite- Storefront & Doors- TU24000 Series: brochure: specifications and detail

3. The Brick Industry Association, technical notes on Brick Construction, &
   Section detail on metal panel on concrete block

WINDOW/DOOR SCHEDULE

LEGEND	QUANTITY	SIZE WIDTH	SIZE HEIGHT	HEAD HEIGHT	TYPE	MATERIAL	O.I.T.C.	U FACTOR	SHGC	FUNCTION	MANUFACTURER & MODEL
W1	91	9'-0"	7'-8"	7'-8"	CASEMENT & FIXED WINDOW	ALUMINUM & GLASS	30 & 32	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100
W2	120	6'-0"	7'-8"	7'-8"	CASEMENT & FIXED WINDOW	ALUMINUM & GLASS	30 & 32	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100
W3	26	5'-0"	7'-8"	7'-8"	CASEMENT & FIXED WINDOW	ALUMINUM & GLASS	30 & 32	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100
W4	14	3'-0"	7'-8"	7'-8"	CASEMENT & FIXED WINDOW	ALUMINUM & GLASS	30 & 32	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100
W5/W5A	79	9'-0"	7'-8"	7'-8"	CASEMENT & FIXED WINDOW W/ SLIDING DOOR	ALUMINUM & GLASS	30, 32 & 33	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000, 8100 & 1240
W6	16	6'-2"	7'-8"	7'-8"	CASEMENT & FIXED WINDOW W/ SWING DOOR	ALUMINUM & GLASS	30, 32 & 33	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100 GAMCO: BD-325
W7	100	8'-0"	7'-8"	7'-8"	CASEMENT & FIXED WINDOW	ALUMINUM & GLASS	30 & 32	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100
W8	6	5'-0"	7'-8"	7'-8"	CASEMENT & FIXED WINDOW	ALUMINUM & GLASS	30 & 32	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100
W9/W9A	14	5'-2"	7'-8"	7'-8"	FIXED WINDOW & SWING DOOR	ALUMINUM & GLASS	32 & 33	0.27 & 0.43	0.46	OPERABLE	CRYSTAL SERIES 8100, GAMCO: RD-325
W10	96	2'-0"	7'-3"	7'-8"	FIXED WINDOW	ALUMINUM & GLASS	32	0.27	0.46	INOPERABLE	CRYSTAL SERIES 8100
W11	22	2'-0"	5'-8"	7'-8"	FIXED WINDOW	ALUMINUM & GLASS	32	0.27	0.46	INOPERABLE	CRYSTAL SERIES 8100
W12	5	12'-0"	7'-8"	7'-8"	CASEMENT & FIXED WINDOW	ALUMINUM & GLASS	30 & 32	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100
W13	1	12'-0"	17'-4"	17'-4"	CASEMENT & FIXED WINDOW	ALUMINUM & GLASS	30 & 32	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100
W14	2	5'-0"	6'-2"	7'-8"	CASEMENT & FIXED WINDOW	ALUMINUM & GLASS	30 & 32	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100
W15	4	9'-0"	6'-2"	7'-8"	CASEMENT & FIXED WINDOW	ALUMINUM & GLASS	30 & 32	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100
W16	1	31'-7 1/2"	6'-2"	7'-8"	CASEMENT & FIXED WINDOW	ALUMINUM & GLASS	30 & 32	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100
W17	1	20'-0"	3'-0"	7'-8"	FIXED WINDOW	ALUMINUM & GLASS	32	0.27	0.46	INOPERABLE	CRYSTAL SERIES 8100
W18	1	16'-0"	3'-0"	7'-8"	FIXED WINDOW	ALUMINUM & GLASS	32	0.27	0.46	INOPERABLE	CRYSTAL SERIES 8100
W19	2	6'-0"	6'-0"	7'-8"	FIXED WINDOW	ALUMINUM & GLASS	32	0.27	0.46	INOPERABLE	CRYSTAL SERIES 8100
W20	1	3'-4"	17'-4"	17'-4"	FIXED WINDOW	ALUMINUM & GLASS	32	0.27	0.46	INOPERABLE	CRYSTAL SERIES 8100
W21	6	5'-0"	17'-4"	17'-4"	CURTAIN WALL	ALUMINUM & GLASS	32	0.47	0.67	INOPERABLE	GAMCO SERIES CW-250
W22	1	10'-0"	7'-2"	7'-8"	CASEMENT & FIXED WINDOW	ALUMINUM & GLASS	30 & 32	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100
W23	1	34'-4"	7'-2"	7'-8"	CASEMENT & FIXED WINDOW W/ SWING DOOR	ALUMINUM & GLASS	30, 32 & 33	0.27 & 0.43	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100 GAMCO: BD-325
W24	1	20'-0"	7'-2"	7'-8"	CASEMENT & FIXED WINDOW W/ SWING DOOR	ALUMINUM & GLASS	30, 32 & 33	0.27 & 0.43	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100, GAMCO: BD-325
W25	2	25'-0"	7'-2"	7'-8"	CASEMENT & FIXED WINDOW W/ SWING DOOR	ALUMINUM & GLASS	30, 32 & 33	0.27 & 0.43	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100 GAMCO: BD-325
W26	1	15'-10 1/2"	7'-2"	7'-8"	FIXED WINDOW W/ SWING DOOR	ALUMINUM & GLASS	32 & 33	0.27 & 0.43	0.46	OPERABLE	CRYSTAL SERIES 8100 GAMCO: BD-325
W27	1	6'-0"	7'-8"	7'-8"	FIXED WINDOW	ALUMINUM & GLASS	32	0.27	0.46	INOPERABLE	CRYSTAL SERIES 8100
W28	1	15'-10 1/2"	7'-2"	7'-8"	FIXED WINDOW	ALUMINUM & GLASS	32	0.27	0.46	INOPERABLE	CRYSTAL SERIES 8100
W29	1	8'-6"	7'-2"	7'-8"	FIXED WINDOW	ALUMINUM & GLASS	32	0.27	0.46	INOPERABLE	CRYSTAL SERIES 8100
W30	1	48'-5"	17'-4"	17'-4"	CASEMENT & CURTAIN WALL	ALUMINUM & GLASS	30 & 32	0.27 & 0.47	0.46 & 0.67	OPERABLE	CRYSTAL SERIES 8000, GAMCO: CW-250
W31	1	5'-0"	17'-4"	17'-4"	CURTAIN WALL	ALUMINUM & GLASS	32	0.47	0.67	INOPERABLE	GAMCO SERIES CW-250
W32	8	22'-2"	7'-8"	7'-8"	CASEMENT & FIXED WINDOW	ALUMINUM & GLASS	30 & 32	0.27	0.46	OPERABLE	CRYSTAL SERIES 8000 & 8100
W33	1	22'-2"	45'-10"	45'-10"	CURTAIN WALL W/ SWING DOOR	ALUMINUM & GLASS	32 & 33	0.47 & 0.43	0.67	OPERABLE	GAMCO, SERIES CW-250 & BD-325
W34	1	4'-8"	45'-0"	45'-0"	CURTAIN WALL	ALUMINUM & GLASS	32	0.47	0.67	INOPERABLE	GAMCO SERIES CW-250

WINDOW/DOOR SCHEDULE

LEGEND	QUANTITY	SIZE WIDTH	SIZE HEIGHT	HEAD HEIGHT	TYPE	MATERIAL	O.I.T.C.	U FACTOR	SHGC	FUNCTION	MANUFACTURER & MODEL
S1	1	31'-7 1/2"	11'-1"	11'-1"	STOREFRONT W/ SWING DOOR	ALUMINUM & GLASS	31 & 30	0.29	--	OPERABLE	UTEC USE STOREFRONT & DOOR SERIES TU2-4000
S2	1	31'-0"	11'-6"	11'-6"	STOREFRONT	ALUMINUM & GLASS	31	0.29	--	INOPERABLE	UTEC USE STOREFRONT, SERIES TU2-1000
S3	1	20'-0"	8'-8"	8'-8"	STOREFRONT	ALUMINUM & GLASS	31	0.29	--	INOPERABLE	UTEC USE STOREFRONT, SERIES TU2-1000
S4	1	12'-11 1/2"	11'-0"	11'-0"	STOREFRONT W/ SWING DOOR	ALUMINUM & GLASS	31 & 30	0.29	--	OPERABLE	UTEC USE STOREFRONT & DOOR SERIES TU2-4000
S5	1	12'-4"	8'-2"	8'-2"	STORFFRONT	ALUMINUM & GLASS	31	0.29	--	INOPERABLE	UTEC USE STOREFRONT, SERIES TU2-1000
S6	1	10'-8"	7'-10"	7'-10"	STOREFRONT	ALUMINUM & GLASS	31	0.29	--	INOPERABLE	UTEC USE STOREFRONT, SERIES TU2-1000
S7	1	23'-6"	7'-6"	7'-6"	STOREFRONT	ALUMINUM & GLASS	31	0.29	--	INOPERABLE	UTEC USE STOREFRONT, SERIES TU2-1000
S8	1	21'-4"	14'-9"	14'-9"	STOREFRONT W/ SWING DOOR	ALUMINUM & GLASS	31 & 30	0.29	--	OPERABLE	UTEC USE STOREFRONT & DOOR SERIES TU2-4000
S9	1	20'-5"	14'-9"	14'-9"	STOREFRONT W/ SWING DOOR	ALUMINUM & GLASS	31 & 30	0.29	--	OPERABLE	UTEC USE STOREFRONT & DOOR SERIES TU2-4000
S10	1	20'-5"	14'-9"	14'-9"	STOREFRONT W/ SWING DOOR	ALUMINUM & GLASS	31, 30 & 25	0.29	--	OPERABLE	UTEC USE STOREFRONT & DOOR SERIES TU2-4000
S11	1	20'-5"	14'-9"	14'-9"	STOREFRONT W/ SWING DOOR	ALUMINUM & GLASS	31 & 30	0.29	--	OPERABLE	UTEC USE STOREFRONT & DOOR SERIES TU2-4000
S12	1	20'-5"	14'-9"	14'-9"	STOREFRONT W/ SWING DOOR	ALUMINUM & GLASS	31 & 30	0.29	--	OPERABLE	UTEC USE STOREFRONT & DOOR SERIES TU2-4000
S13	1	5'-2"	14'-9"	14'-9"	STOREFRONT	ALUMINUM & GLASS	31	0.29	--	INOPERABLE	UTEC USE STOREFRONT, SERIES TU2-1000
S14	1	20'-5"	14'-9"	14'-9"	STOREFRONT W/ SWING DOOR	ALUMINUM & GLASS	31 & 30	0.29	--	OPERABLE	UTEC USE STOREFRONT & DOOR SERIES TU2-4000
D1	--	3'-0"	7'-0"	7'-0"	DOOR	ALUMINUM & GLASS	32	0.47	0.67	OPERABLE	GAMCO SERIES BD-325
D2	--	3'-0"	7'-0"	7'-0"	DOOR	ALUMINUM	--	--	--	OPERABLE	
L1	6	9'-0"	5'-8"	7'-8"	LOUVER	ALUMINUM	--	--	--	INOPERABLE	
L2	1	3'-4"	2'-0"	9'-8"	LOUVER	ALUMINUM	--	--	--	INOPERABLE	
L3	10	4'-5"	8'-0"	8'-0"	LOUVER	ALUMINUM	--	--	--	INOPERABLE	
L4	2	4'-5"	6'-8"	8'-0"	LOUVER	ALUMINUM	--	--	--	INOPERABLE	

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:
WINDOWS SCHEDULE
SCALE: 1/2" = 1'-0"

ARCH. ENGINEER:
VICTOR CESPEDES
Tel: (305) 779-0555 Fax: (800) 779-0859

STRUCTURAL ENGINEER:
YAN LEUNG NG, P.E.
Tel: (917) 519-9236 Fax: (718) 894-3016

ARCHITECTS + PLANNERS
13540 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-6800
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: DWG. No.:
PROJECT No.:
PROJECT MANAGER:
DRAWN BY:
CADD FILE No.:

A-900.00
XX-OF-XX

N.Y.C. D.O.B. NO. :
420892323

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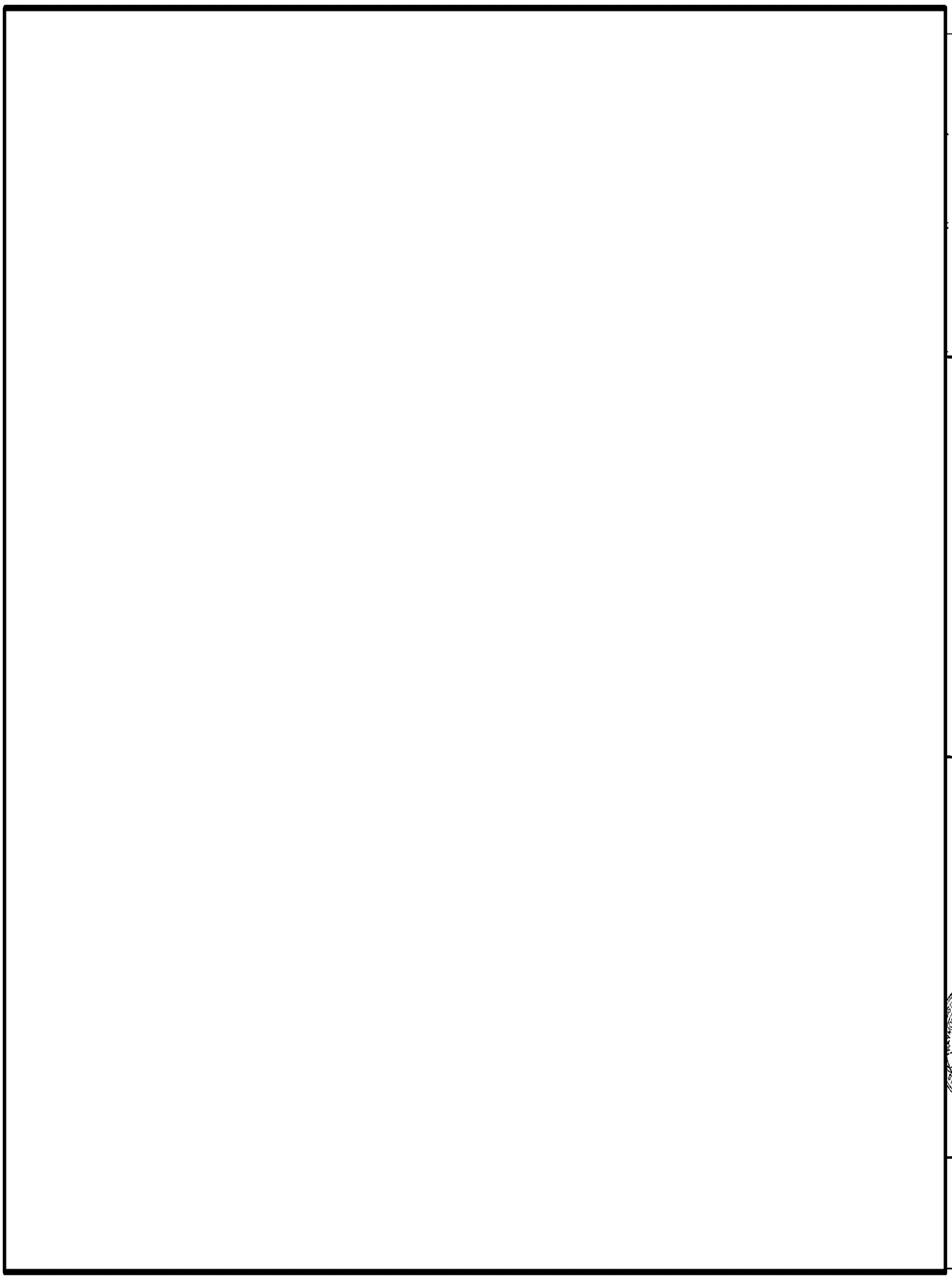

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE./FARRINGTON ST. FLUSHING

DRAWING TITLE:
WINDOWS SCHEDULE

SCALE: 1/2" = 1'-0"

M.E.P. ENGINEER:
VICTOR CESPEDES
Tel: (908) 789-0659 Fax: (908) 789-0659

STRUCTURAL ENGINEER:
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SEAL & SIGNATURE:

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Tel: (718) 445-2345 Fax: (718) 353-8899
Email: info@oyenarchitect.com
Web: www.oyenarchitect.com

DATE: 10/07/15 DWG. No.:
PROJECT No.: 1545
PROJECT MANAGER: SOA
DRAWN BY: T
CADD FILE NO.: 1-FT FARRINGTON ST.dwg

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XX-OF-XX

N.Y.C. D.O.B. NO. :
420892323

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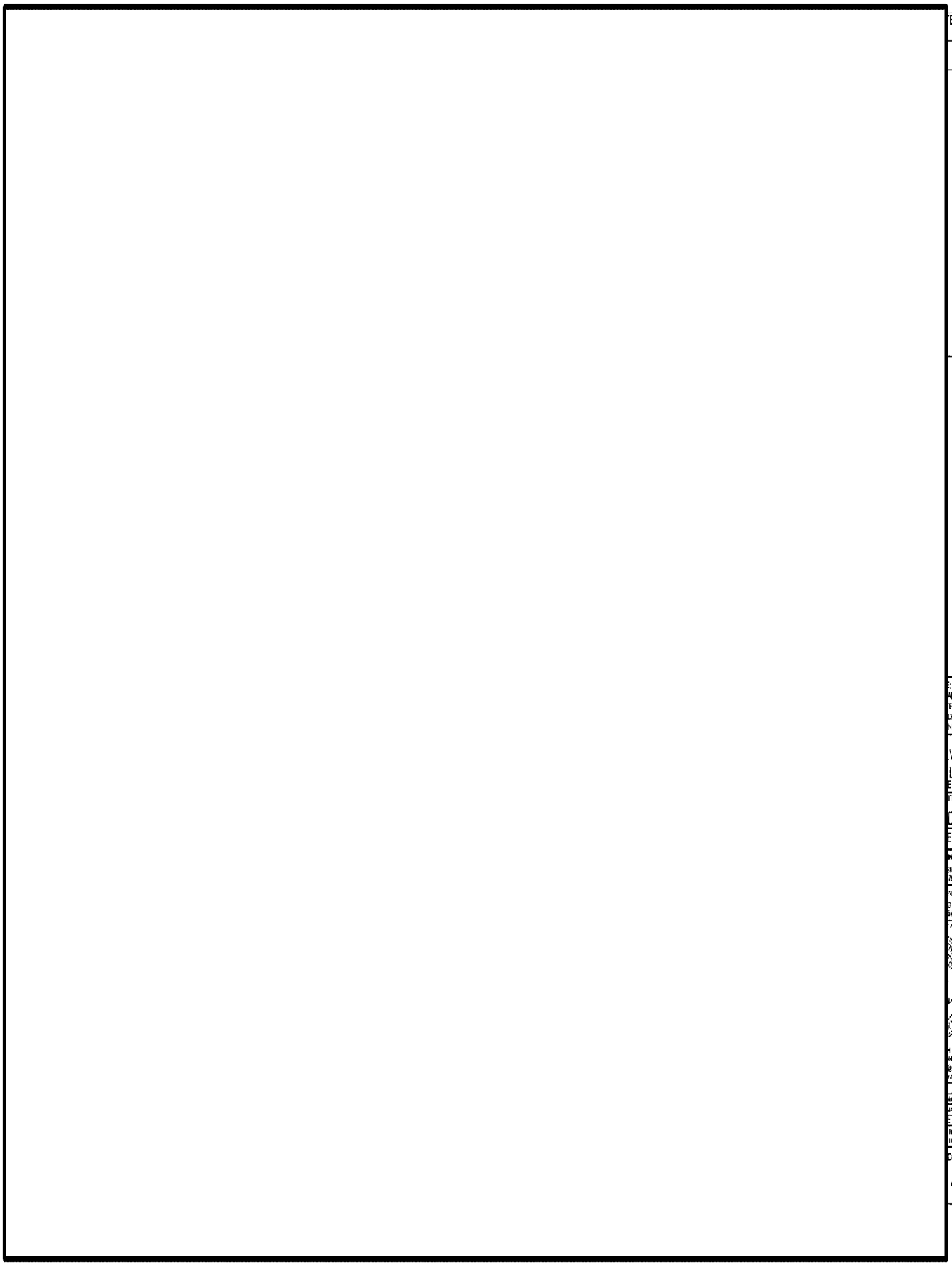

TE	DESCRIPTION

E: THIS IS A SCHEMATIC DESIGN
ALL SUBJECT TO REVIEW
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DEPT. OF BLDGS ON
NG AND BUILDING CODES.

VE./FARRINGTON ST.
L DEVELOPMENT
E./FARRINGTON ST. FLUSHING

ITLE:
DOWS SCHEDULE
E: 1/2" = 1'-0"

INEER:
ENGINEER:
G, P.E.

ARCHITECTS & PLANNERS
AVENUE FLUSHING, NEW YORK 11354

DWG. No.:
A-902.00
XX-OF-XX

D.O.B. NO. :
420892323

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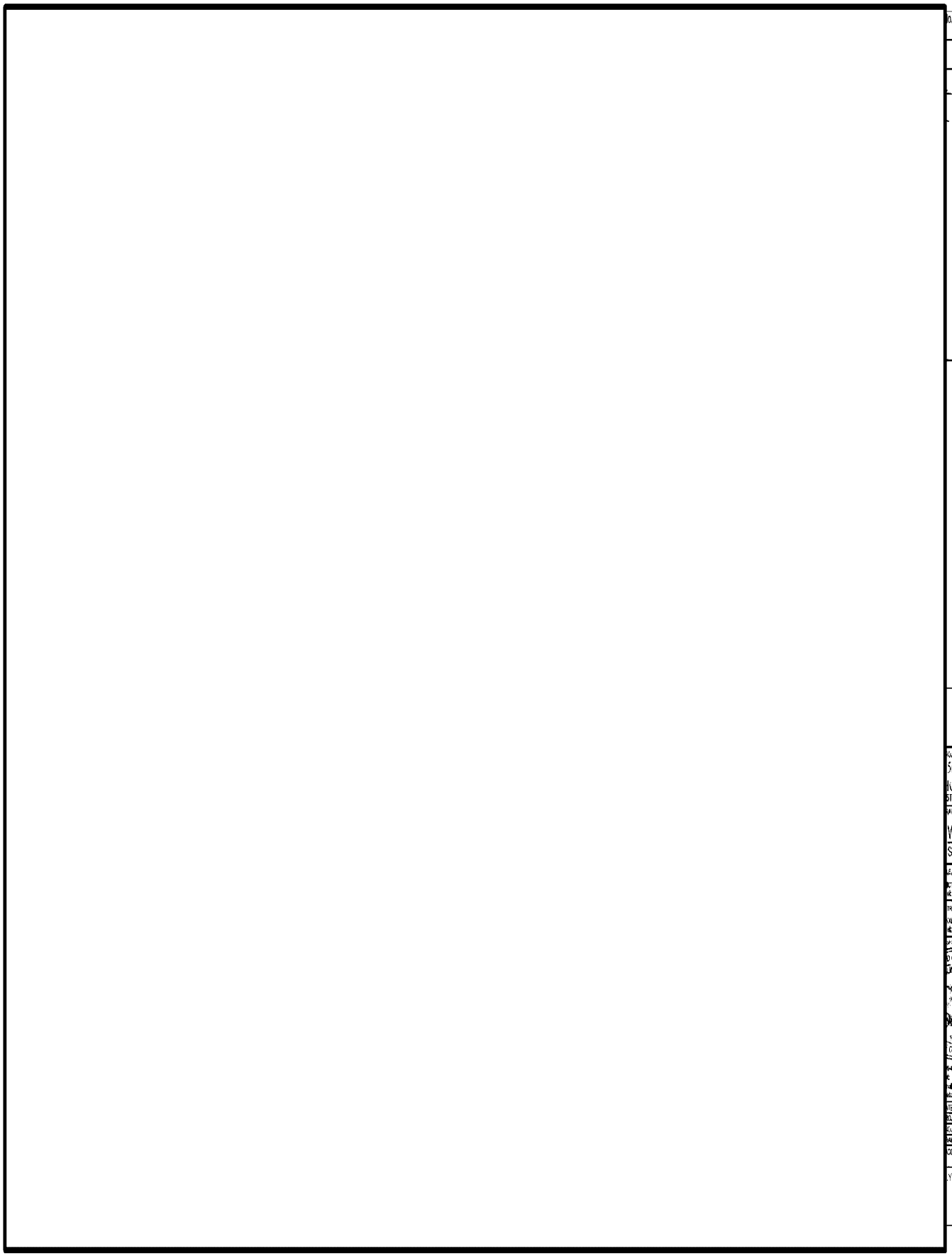

NO.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
5th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
5TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:
WINDOWS SCHEDULE

SCALE: 1/2" = 1'-0"

M.E.P. ENGINEER:
VICTOR DESPEDES
TEL: (208) 733-8535 FAX: (866) 795-0853

STRUCTURAL ENGINEER:
SAM LEUNG NO. P.E.
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DATE:	DRAWING NO.:
PROJECT NO.:	2008
PROJECT MANAGER:	RCA
DRAWN BY:	C
CAD FILE NO.:	SET PACKAGE 2008
	A-903.00
	XX-OF-XX

Y.C. D.O.B. NO. :
420892323

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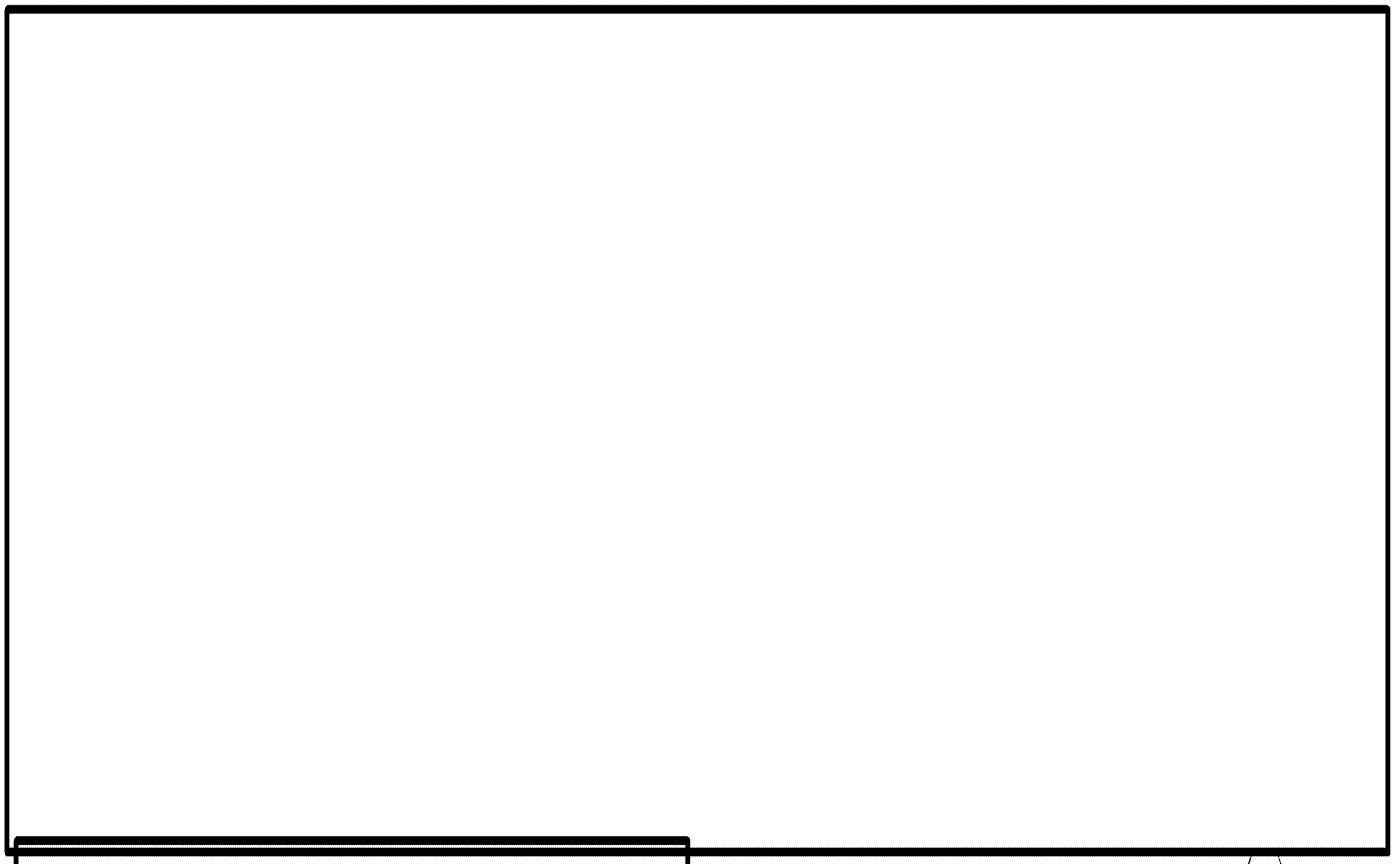
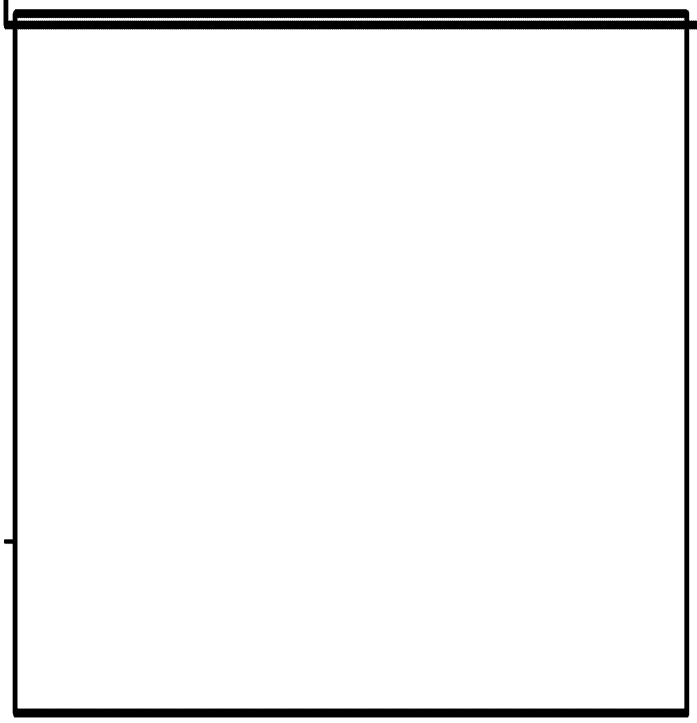
No.	DATE	DESCRIPTION





W31

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:
WINDOWS SCHEDULE
SCALE: 1/2" - 1'-0"

M.E.P. ENGINEER:
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Tel: (908) 789-8659 Fax: (908) 789-8658

STRUCTURE ENGINEER:
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ARCHITECT:

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Email: info@raymondzonarchitect.com
Web: www.raymondzonarchitect.com

DATE: 12/7/2012 DWG. No.:
PROJECT No.: 1208
PROJECT MANAGER: RZA
DRAWN BY: C
CADD FILE NO.: SET PLOTTING SCALE

A-904.00
XX-OF-XX

N.Y.C. D.O.B. NO. :
420892323

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No.	DATE	DESCRIPTION

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PROJECT:
35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE./FARRINGTON ST. FLUSHING

DRAWING TITLE:
WINDOWS SCHEDULE

SCALE: 1/2" = 1'-0"

M.E.P. ENGINEER:
VICTOR CESTEROS
Tel: (908) 756-0555 Fax: (908) 756-0559

STRUCTURAL ENGINEER:
YUAN-EUNG NG, P.E.
Tel: (917) 518-9236 Fax: (718) 554-2016

DRAWING PREPARED BY:

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Web: www.taymondsanarchitect.com

DATE: 10/10/2012	DWG. No.:
PROJECT No.: 1243	A-905.00
PROJECT MANAGER: TCS	
DRAWN BY: T	XX-OF-XX
CADD FILE NO.: 10-12-12 ARCHIVE (2010).dwg	

N.Y.C. D.O.B. NO. :

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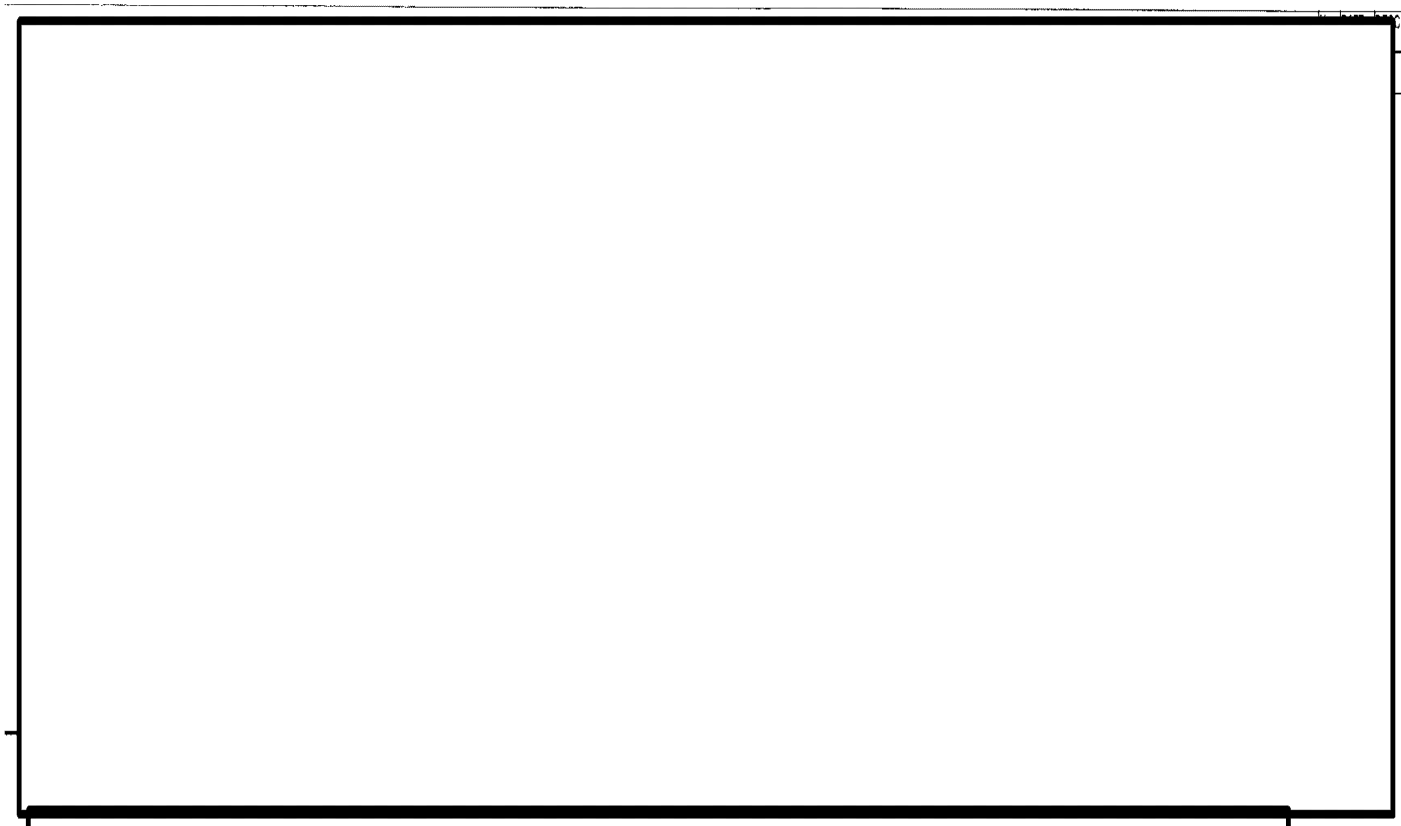

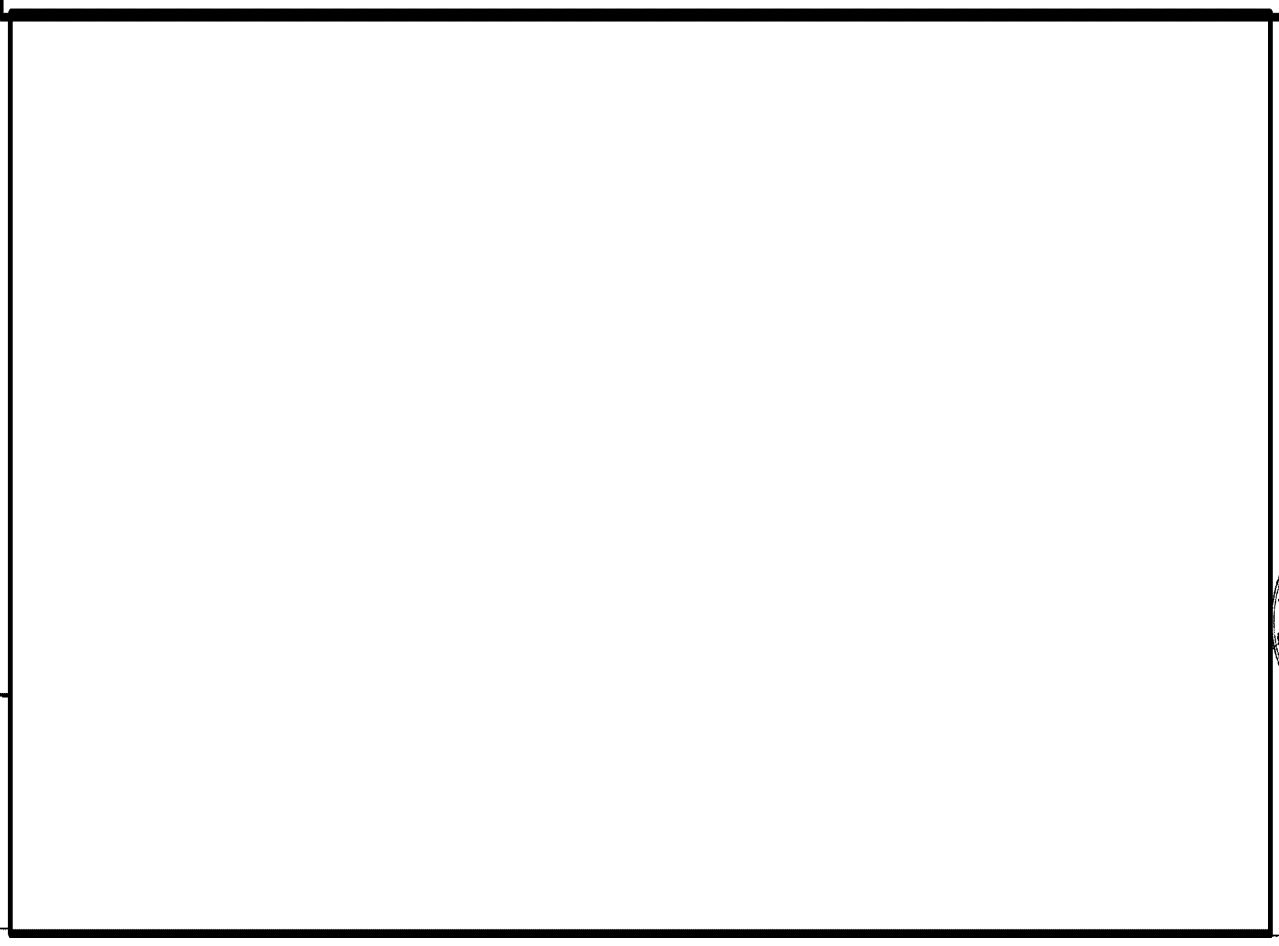

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:
WINDOWS SCHEDULE
SCALE: 1/2" = 1'-0"

M.E.P. ENGINEER:
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STRUCTURAL ENGINEER:
YANLEUNG NG, P.E.
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ARCHITECT'S SEAL

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Web: www.raymondchanarchitect.com

DATE:	DWG. No.:
PROJECT No.:	
PROJECT MANAGER:	A-906.00
DRAWN BY:	
CADD FILE NO.:	XX-OF-XX

N.Y.C. D.O.B. NO. :
420892323

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DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:

WINDOWS SCHEDULE

SCALE: 1/2" - 1'-0"

M.E.P. ENGINEER:

VICTOR CEBREROS
Tel: (908) 769-0659 Fax: (908) 769-3859

STRUCTURAL ENGINEER:

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Email: bkk@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE:	SCHEMATIC	DWG. No.:
PROJECT No.:		A-907.00
PROJECT MANAGER:		
DRAWN BY:		XX-OF-XX
CADD FILE NO.:		

N.Y.C. D.O.B. NO. :

420892323

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NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE./FARRINGTON ST.FLUSHING

DRAWING TITLE:
WINDOWS SCHEDULE
SCALE: 1/2" = 1'-0"

M.E.P. ENGINEER:
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STRUCTURAL ENGINEERS:
WANG ENG'NG P.E.
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[redacted]

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Email: info@raymondchan.net.com
Web: www.raymondchan.net

DATE: DWG. No.:
PROJECT No.:
PROJECT MANAGER:
DRAWN BY:
CADD FILE NO.:
A-908.00
XX-OF-XX

N.Y.C. D.O.B. NO.:
420892323

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No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE./FARRINGTON ST. FLUSHING

DRAWING TITLE:
WINDOWS SCHEDULE
SCALE: 1/2" = 1'-0"

M.E.P. ENGINEER:
VICTOR CESPEDES
Tel: (908) 789-0059 Fax: (908) 789-0598

STRUCTURAL ENGINEER:
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Tel: (917) 519-3236 Fax: (718) 854-0016

ARCHITECTS + PLANNERS

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Tel: (718) 445-2345 Fax: (718) 358-8600
Email: link@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

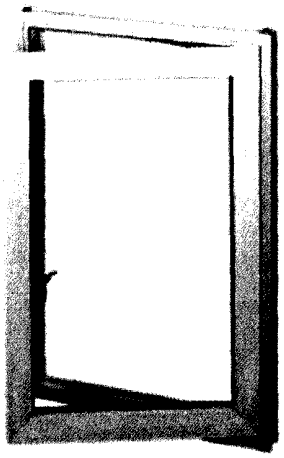
DATE: 10/17/2011 DWG. No.:
PROJECT No.: 1120
PROJECT MANAGER: RCA A-909.00
DRAWN BY: T
CADD FILE NO.: XX-OF-XX

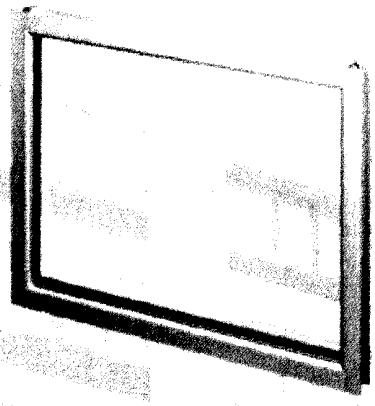
N.Y.C. D.O.B. NO. :
420892323

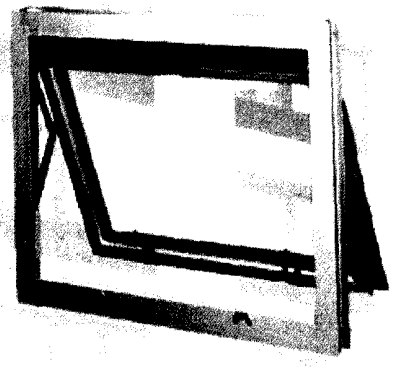
Series 8000

Heavy Commercial Projected Aluminum Windows

8000 HEAVY COMMERICAL PROJECTED ALUMINUM WINDOW







Standard & Optional Features

- 2-1/4" Frame Depth
- Heavy-Duty Extrusion: 0.125
- 1" Insulating Glass
- Double Bulb Sash Weather-stripping
- Between Glass Blinds (Option)
- Heavy-Duty Locking Handles / Keepers
- Four-Bar HS/SS Friction Hinges (Project In / Out)
- Horizontal Mull Continuous Head & Sill
- Vertical Mull Continuous Jamb
- Patented Dual Arm Operator & Crank (Casement)
- 2" Face Flange / Casement Fin (Optional Frame)
- Full Screens With Access Doors (Project Out)
- Colors: Bronze, White & Special (Option)
- Finishes: Powercoat, Anodized & Kynar (Option)

Styles

- Casement Swing-Out
- Project-In
- Project-Out
- Picture / Fixed
- Architectural Shapes
- Stacked Units

** Product photo for illustration purpose only. Please refer to manufacturer's aluminum product color chart.*

Crystal Window & Door Systems, Ltd.

NYC, NY (HQ) 31-10 Whitestone Expressway, Flushing, NY 11354 Tel: 800.472.9988/718.961.7300 Fax: 718.460.4594
ALLENTOWN, PA 868 North Gilmore St., Allentown, PA 18109 Tel: 610.437.7988 Fax: 610.437.7992
CLEVELAND, OH 29299 Clemens Rd. 1-B, Westlake, OH 44145 Tel: 440.871.8694 Fax: 440.871.8690
ST. LOUIS, MO 300 Aumiller Dr., Fenton, MO 63026 Tel: 636.305.7880 Fax: 636.305.7881
CHICAGO, IL 1300 W. 35th st. Chicago, IL 60609 Tel: 773.376.6688/888.280.3288 Fax: 773.376.6868

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WINDOW & DOOR SYSTEMS, LTD.
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Crystal Windows Affiliations: AIA

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CRYSTAL™
WINDOW & DOOR SYSTEMS, LTD.

SERIES 8000 AW-PG90-C CASEMENT OUTSWING WINDOW

SECTION 08 51 13
ALUMINUM WINDOWS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Furnish and install aluminum windows as shown in bid drawings and as per specifications stipulated in this section.

B. Factory-installed glass & glazing

1.2 ITEMS FURNISHED BUT NOT INSTALLED *(Enter description and quantity of items such as extra sash, screens, glass units, hardware, etc. for attic stock)*

1.3 ITEMS INSTALLED BUT NOT FURNISHED *(Enter description and quantity of items such as air conditioners, louvers, duct work to be installed in locations as directed by Architect)*

1.4 RELATED SECTIONS

A. Section 07 90 00 - Joint Protection.

B. Section 08 41 00 - Entrances and Storefronts.

C. Section 08 70 00 - Hardware.

1.5 REFERENCES

A. AAMA - American Architectural Manufacturers Association:
1. AAMA/WDMA/CSA 101/I.S.2/A440-08 "North American Fenestration Standard/Specification for Windows, Doors, and Skylights"
2. AAMA/WDMA/CSA 101/I.S.2/A440-05 "Standard/Specification for Windows, Doors, and Unit Skylights"
3. AAMA 502-08 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products.
4. AAMA 611-98 - Voluntary Specification for Anodized Architectural Aluminum
5. AAMA 701/702-04 - Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals.
6. AAMA 800-07 - Voluntary Specifications and Test Methods for Sealants.
7. AAMA 902-07 - Voluntary Specification for Sash Balances.
8. AAMA 910-93 - Voluntary Life Cycle' Specifications and Test Methods for Architectural Grade Windows and Sliding Glass Doors.
9. AAMA 1503-98 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections.
10. AAMA 2603-02 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
11. AAMA 2604-05 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
12. AAMA 2605-05 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

B. ASTM – American Society for Testing and Materials:
1. ASTM E 283-04 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
2. ASTM E 330-02 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Uniform Static Air Pressure Difference.

3. ASTM E 331-00 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
4. ASTM E 547-00 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Differential..
5. ASTM F 588; 1997 - Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact
6. ASTM E 2190-02 - Standard Specification for Insulating Glass Unit Performance and Evaluation.

C. NFRC - National Fenestration Rating Council.
1. NFRC 100-04 - Procedure for Determining Fenestration Product U Factors.
2. NFRC 102-04 - Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems.
3. NFRC 500-04 - Procedure for Determining Fenestration Product Condensation Resistance Values.

D. IGCC - Insulating Glass Certification Council.

E. SGCC - Safety Glazing Certification Council.
1. Z97.1-04 American National Standard for Safety Glazing Materials used in Buildings - Safety Performance Specifications and Methods of Test.
2. 16 CFR 1201 Consumer Product Safety Commission Safety Standard for Architectural Glazing Materials - codified at Title 16, Part 1201 of the Code of Federal Regulations.

F. ANSI Z97.1 - American National Standard For Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test/Consumer Products Safety Commission CPSC 16 CFR 1201.

G. LEED: The Leadership in Energy & Environmental Design; U.S. Green Building Council (USGBC).

1.6 SUBMITTALS

A. Submit administrative requirements under provisions of Section 01 30 00.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Shop Drawings:
1. Elevation for each style window specified indicating its size, glazing type, muntin type and design.
2. Manufacturer's head, jamb and sill details and section views for each window type specified.

D. Schedules:
1. Provide a window schedule indicating the type, size, color, , and operation of each unit specified. Coordinate with window mark types found in the Contract Drawings.

E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

F. Verification Samples: For each finish product specified, samples may be subsequently installed on the project.

G. Test Reports: Submit certified independent testing agency reports indicating window units meet or exceed specified performance requirements.

SERIES 8000 AW-PG90-C CASEMENT OUTSWING WINDOW

1.7 SYSTEM DESCRIPTION

A. Operation: CASEMENT OUTSWING

B. AAMA Rating: AW-PG90-C when tested according to AAMA/WDMA/CSA 101/I.S.2/A440-08 at the gateway size of 36" x 60"

C. Construction: 2 1/4 inch frame depth. Wall thickness: 0.125" frame/sill; 0.125" sash. Factory finished extruded aluminum frame and sash members with integral structural polyurethane thermal break.

D. Glazing: 1 inch insulating glass; back bedded with dual-sided adhesive butyl tape on the frame from the interior, and secured with snap-in round or square glazing beads and wedge gaskets.

1.8 HARDWARE:

A. Sash Locks: Two (or one, when window height <24") sash lock handle assemblies shall be installed

B. Hinges: Four bar HS/SS friction hinges are located at pivot end of the top and bottom rail.

C. Roto type operator assembly shall be located mid-span of interior sill leg.

1.9 WEATHERSTRIPPING:

A. Sash: Two rows of ¼" diameter hollow bulb gasket shall be used around the sash perimeter to minimize air infiltration.

B. Securely stake and join at corners. Provide drainage to exterior as necessary.

1.10 PERFORMANCE REQUIREMENTS

A. Air, Water and Structural Performance Requirements:

When tested in accordance with cited test procedures, windows shall meet or exceed the following performance criteria, as well as those indicated in AAMA 101 and 101/I.S.2/A440-08 for performance grade of unit specified unless otherwise noted herein.

1. Air Test Performance Requirements:
   a. Performance: Air infiltration maximum 0.10 cfm per square foot at 6.2 psf pressure differential when tested in accordance with ASTM E283 for sliding sealed products.
2. Water Test Performance Requirements:
   a. No uncontrolled water leakage at 12 psf static pressure differential when tested in accordance with ASTM E331 and ASTM E547.
3. Structural Test Performance Requirements:
   a. Uniform Load Deflection Test
      1) No deflection of any unsupported span L of test unit (framing rails, muntins, mullions, etc.) in excess of L/175 at both a positive and negative load of design test pressure when tested in accordance with ASTM E330.
      2) Structural reinforcing that is not standard on units being furnished is not allowed.
   b. Uniform Load Structural Test:
      1) Unit to be tested at 1.5 x design test pressure, both positive and negative, acting normal to plane of wall in accordance with ASTM E330.
      2) No glass breakage; permanent damage to fasteners, hardware parts, or

anchors; damage to make windows inoperable; or permanent deformation of any main frame or ventilator member in excess of 0.2% of its clear span.

B. Forced Entry Resistance Test: ASTM F 588, Type and Grade as indicated for each Product.

C. Thermal Performance Requirements

1. Perform thermal computer simulation in accordance with the configuration specified in NFRC 100.
2. Computed Thermal Transmittance (U-Value) shall not exceed 0.51 BTU/hr/sq.ft./°F for the whole window assembly.
3. Computed Solar Heat Gain Coefficient (SHGC) shall not exceed 0.31 for the whole window assembly.

1.11 QUALITY ASSURANCE

A. Manufacturer Qualifications: All windows specified in this section shall be supplied by a manufacturer which has been fabricating/manufacturing commercial grade aluminum windows of similar quality and performance for a minimum of ten (10) years.

B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing windows of the same type and scope as specified, preferably AAMA certified installers.

C. Provide test reports from AAMA accredited laboratory certifying that window units are found to be in compliance with AAMA/WDMA/CSA 101/I.S.2/A440-08 and performance standards listed above.
1. Test reports shall be accompanied by the window manufacturer's letter of certification stating that the tested window meets or exceeds criteria for the appropriate AAMA/WDMA/CSA 101/I.S.2/A440 test.

1.12 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation in accordance with manufacturer's recommendations.

B. Protect units against damage from the elements, construction activities and other hazards before, during, and after installation.

1.13 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.14 WARRANTY

A. *Refer to Crystal Window & Door Systems, Ltd. standard warranty.*

B. Optional Extended Warranty (contact your Crystal sales representative).

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: **Crystal Window & Door Systems, Ltd.**, which is located at: 31-10 Whitestone Expressway, Flushing, NY 11354; Tel: 718. 961.7300; Tel: 800. 472.9988; Fax:

718.460.4594; Web: www.crystalwindows.com

B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.2 Aluminum:

A. Extruded aluminum prime billet 6063-T5 or 6063-T6 alloy for primary components; 6063-T5, 6063-T6, or 6061-T6 for structural components; all meeting the requirements of ASTM B221.

B. Aluminum sheet alloy 5005 H 32 (for anodic finish), meeting the requirements of ÅSTM B209 or alloy 3003 H 14 (for painted or unfinished sheet).

2.3 Thermal Barrier:

A. Structural Thermal Barrier:
1. Structural thermal barrier shall consist of poured-in-place polyurethane polymer that shall transfer shear during bending and provide composite action between frame components.

B. Non Structural Thermal Barriers:
1. Non structural thermal barriers are used only in conjunction with structural thermal barriers. The purpose of non structural thermal barriers is to enhance thermal performance of the primary structural thermal barriers (polyamide struts) by inhibiting heat transfer through thermal radiation and convection. Non structural thermal barriers shall not be used as primary load carrying members.
2. Rigid non structural thermal barriers shall be constructed of extruded polyvinylchloride (PVC).

2.4 GLASS

A. Glazing Materials:
1. Vertical Glazing: For glass surfaces sloped 15 degrees or less from vertical. Design glass to resist design wind pressure based on glass type factors for short-duration load.
2. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.
3. Strength: Where float glass is indicated, provide annealed float glass. Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.
4. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated.
   a. U-Factors: Total-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as BTU/sq.ft x h x deg F (W/sq. m x K).
   b. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
   c. Visible Reflectance: Center-of-glazing values, according to NFRC 300.
5. Float Glass: ÅSTM C 1036, Type 1, Quality-Q3, Class 1 (clear) unless otherwise indicated.
6. Coated Glass: ASTM C 1376, Type 1, Quality-Q3, Class 1 (clear) unless otherwise indicated, of kind and condition indicated.
7. Laminated Glass: ÅSTM C 1172, Type 1, Quality-Q3, Class 1 (clear) unless otherwise indicated, of kind and condition indicated.

B. Insulating Glass Units:
1. Factory-assemble units consisting of sealed lites of glass separated by a PPG Intercept Spacer system consisting of a one-piece, metallic, U-channel design that creates an effective thermal barrier to help reduce conducted heat loss through the window.
2. Insulating glass units shall be sealed with an integral dessicant matrix and a butyl sealant extruded around the entire perimeter of the spacer to achieve a seal. The sealant applied

is to be Dual Seal Equivalent (DSE). Interspace to be filled with air or argon gas as required by thermal computer simulation.

3. Insulating Glass Types: Low-E coated, insulating glass units.
   a. Overall Unit Thickness: 1" (25.4mm)
   b. Thickness of Each Glass Lite: 3/32" , 1/8" or 1/4 inch
   c. Outdoor Lite: Class 1 (Clear) float glass, or fully tempered float glass.
   d. Interspace Content: Air or Argon Gas.
   e. Indoor Lite: Class 1 (Clear) float glass, or fully tempered float glass.
   f. Low-E Coating: Sputtered on second or third surface.
   g. Glass Winter Night time U-Value: 0.27 maximum.
   h. Solar Heat Gain Coefficient: 0.46 maximum.
   i. Provide safety glazing labeling, if necessary.

2.5 WINDOW ACCESSORIES

Provide the following accessories as specified in the contract drawings. Finish to match window frames or as selected by the Architect:

A. Wrap Around Panning

B. Preset Panning

C. Snap Trim/Clips

D. Expanders

E. Receptors

F. Subsills and Subsill Anchors

G. Mullions and Mullion Covers

H. Exterior Sills

I. Interior Stools

J. Muntins

2.6 FINISHES

A. Conforming to AAMA 2604-05 specification, finish on all extruded aluminum shall consist of zero or near-zero VOC, organic POWDER COAT with a baked on super-durable thermosetting polyester resin, electro-statically applied on five-stage pre-treated aluminum surface. Equivalent to 50% Kynar polyvinylidene fluoride liquid paint finishes. Powder coat material to be as manufactured by Sherwin Williams or PPG Powder Coatings.

B. Color to be selected from Manufacturer's Standard Color Chart (or custom-matched as required by project Architect/Owner).

2.7 Insect Screens:

A. Screen frames shall consist of tubular extruded aluminum profiles with finish to match window frames.

B. Fiberglass mesh (18 X 16) with PVC spline.

2.8 Steel components including attachment fasteners shall be 300 series stainless steel except as noted.

2.9 Thermoplastic or thermo-set plastic caps, housings and other components shall be injection-molded nylon, extruded PVC, or other suitable compound.

2.10 Sealants:

1. Sealants shall comply with applicable provisions of AAMA 800 and/or Federal Specifications FS-TT-001 and 002 Series.
2. Frame joinery sealants shall be suitable for application specified and as tested and approved by window manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

3.4 ANCHORAGE

A. Anchor window units and/or assemblies sufficiently to maintain permanent positions when subjected to normal thermal movement, specified building movement and specified wind loads.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Final operating adjustment shall be made after glazing work is complete. Operating sash and ventilator shall operate smoothly and shall be weathertight when in locked position

C. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 DISPOSAL OF DEBRIS

A.Remove all garbage off site and legally dispose of existing windows and debris generated from the installation of the new windows.

3.7 OPTIONAL FIELD TESTING

A. At the discretion and expense of Owner or Owner's representative, perform on-site testing of installed units in conformance with AAMA 502 - Voluntary Specification for Field Testing of Windows and Sliding Glass Doors. Conduct air and water infiltration testing with the window manufacturer, contractor, and owner present.

B. An AAMA accredited lab will be hired by the owner to perform the required testing.

3.8 ADJUSTMENT AND CLEAN UP

A. Adjust all products, sash, vents, and hardware after installation, as necessary to provide proper operation and a weather tight installation

B. Remove any labels and dirt from the window.

END OF SECTION

CRYSTAL™
WINDOW & DOOR SYSTEMS, LTD.

SERIES 8100 AW-PG85-FW FIXED WINDOW

SECTION 08 51 13
ALUMINUM WINDOWS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Furnish and install aluminum windows as shown in bid drawings and as per specifications stipulated in this section.

B. Factory-installed glass & glazing

1.2 ITEMS FURNISHED BUT NOT INSTALLED *(Enter description and quantity of items such as extra sash, screens, glass units, hardware, etc. for attic stock)*

1.3 ITEMS INSTALLED BUT NOT FURNISHED *(Enter description and quantity of items such as air conditioners, louvers, duct work to be installed in locations as directed by Architect)*

1.4 RELATED SECTIONS

A. Section 07 90 00 - Joint Protection.

B. Section 08 41 00 - Entrances and Storefronts.

C. Section 08 70 00 - Hardware.

1.5 REFERENCES

A. AAMA - American Architectural Manufacturers Association:
1. AAMA/WDMA/CSA 101/I.S.2/A440-08 "North American Fenestration Standard/Specification for Windows, Doors, and Skylights"
2. AAMA/WDMA/CSA 101/I.S.2/A440-05 "Standard/Specification for Windows, Doors, and Unit Skylights"
3. AAMA 502-08 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products.
4. AAMA 611-98 - Voluntary Specification for Anodized Architectural Aluminum
5. AAMA 701/702-04 - Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals.
6. AAMA 800-07 - Voluntary Specifications and Test Methods for Sealants.
7. AAMA 902-07 - Voluntary Specification for Sash Balances.
8. AAMA 910-93 - Voluntary Life Cycle' Specifications and Test Methods for Architectural Grade Windows and Sliding Glass Doors.
9. AAMA 1503-98 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections.
10. AAMA 2603-02 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
11. AAMA 2604-05 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
12. AAMA 2605-05 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

B. ASTM – American Society for Testing and Materials:
1. ASTM E 283-04 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
2. ASTM E 330-02 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Uniform Static Air Pressure Difference.
3. ASTM E 331-00 - Standard Test Method for Water Penetration of Exterior Windows,

Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
4. ASTM E 547-00 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Differential..
5. ASTM F 588; 1997 - Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact
6. ASTM E 2190-02 - Standard Specification for Insulating Glass Unit Performance and Evaluation.

C. NFRC - National Fenestration Rating Council.
1. NFRC 100-04 - Procedure for Determining Fenestration Product U Factors.
2. NFRC 102-04 - Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems.
3. NFRC 500-04 - Procedure for Determining Fenestration Product Condensation Resistance Values.

D. IGCC - Insulating Glass Certification Council.

E. SGCC - Safety Glazing Certification Council.
1. Z97.1-04 American National Standard for Safety Glazing Materials used in Buildings - Safety Performance Specifications and Methods of Test.
2. 16 CFR 1201 Consumer Product Safety Commission Safety Standard for Architectural Glazing Materials - codified at Title 16, Part 1201 of the Code of Federal Regulations.

F. ANSI Z97.1 - American National Standard For Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test/Consumer Products Safety Commission CPSC 16 CFR 1201.

G. LEED: The Leadership in Energy & Environmental Design; U.S. Green Building Council (USGBC).

1.6 SUBMITTALS

A. Submit administrative requirements under provisions of Section 01 30 00.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Shop Drawings:
1. Elevation for each style window specified indicating its size, glazing type, muntin type and design.
2. Manufacturer's head, jamb and sill details and section views for each window type specified.

D. Schedules:
1. Provide a window schedule indicating the type, size, color, , and operation of each unit specified. Coordinate with window mark types found in the Contract Drawings.

E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

F. Verification Samples: For each finish product specified, samples may be subsequently installed on the project.

G. Test Reports: Submit certified independent testing agency reports indicating window units meet or exceed specified performance requirements.

1.7 SYSTEM DESCRIPTION

A. Operation: FIXED

B. AAMA Rating: AWPG85-FW when tested according to AAMA/WDMA/CSA 101/I.S.2/A440-08 at the gateway size of 60" x 99"

C. Construction: 3 1/4 inch frame depth. Wall thickness: 0.125"/0.125" frame/sill. Factory finished extruded aluminum frame and sash members with integral structural polyurethane thermal break.

D. Glazing: 1 inch insulating glass; set on double-sided adhesive glazing foam tape on the frame glazing leg, and secured in the interior with snap-in glazing beads and bulb gaskets.

1.8 HARDWARE: (None)

1.9 WEATHERSTRIPPING:

A. Compression type bulb gasket on the interior glazing bead.

1.10 PERFORMANCE REQUIREMENTS

A. Air, Water and Structural Performance Requirements:

When tested in accordance with cited test procedures, windows shall meet or exceed the following performance criteria, as well as those indicated in AAMA 101 and 101/I.S.2/A440-08 for performance grade of unit specified unless otherwise noted herein.

1. Air Test Performance Requirements:
   a. Performance: Air infiltration maximum 0.10 cfm per square foot at 6.2 psf pressure differential when tested in accordance with ASTM E283 for sliding sealed products.
2. Water Test Performance Requirements:
   a. No uncontrolled water leakage at 12 psf static pressure differential when tested in accordance with ASTM E331 and ASTM E547.
3. Structural Test Performance Requirements:
   a. Uniform Load Deflection Test
      1) No deflection of any unsupported span L of test unit (framing rails, muntins, mullions, etc.) in excess of L/175 at both a positive and negative load of design test pressure when tested in accordance with ASTM E330.
      2) Structural reinforcing that is not standard on units being furnished is not allowed.
   b. Uniform Load Structural Test:
      1) Unit to be tested at 1.5 x design test pressure, both positive and negative, acting normal to plane of wall in accordance with ASTM E330.
      2) No glass breakage; permanent damage to fasteners, hardware parts, or anchors; damage to make windows inoperable; or permanent deformation of any main frame or ventilator member in excess of 0.2% of its clear span.

B. Forced Entry Resistance Test: ASTM F 588, Type and Grade as indicated for each Product.

C. Thermal Performance Requirements

1. Perform thermal computer simulation in accordance with the configuration specified in NFRC 100.
2. Computed Thermal Transmittance (U-Value) shall not exceed 0.36 BTU/hr/sq.ft./°F for the whole window assembly.
3. Computed Solar Heat Gain Coefficient (SHGC) shall not exceed 0.40 for the whole window

assembly.

1.11 QUALITY ASSURANCE

A. Manufacturer Qualifications: All windows specified in this section shall be supplied by a manufacturer which has been fabricating/manufacturing commercial grade aluminum windows of similar quality and performance for a minimum of ten (10) years.

B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing windows of the same type and scope as specified, preferably AAMA certified installers.

C. Provide test reports from AAMA accredited laboratory certifying that window units are found to be in compliance with AAMA/WDMA/CSA 101/I.S.2/A440-08 and performance standards listed above.
   1. Test reports shall be accompanied by the window manufacturer's letter of certification stating that the tested window meets or exceeds criteria for the appropriate AAMA/WDMA/CSA 101/I.S.2/A440 test.

1.12 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation in accordance with manufacturer's recommendations.

B. Protect units against damage from the elements, construction activities and other hazards before, during, and after installation.

1.13 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.14 WARRANTY

A. *Refer to Crystal Window & Door Systems, Ltd. standard warranty.*

B. Optional Extended Warranty (contact your Crystal sales representative).

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: **Crystal Window & Door Systems, Ltd.**, which is located at: 31-10 Whitestone Expressway, Flushing, NY 11354; Tel: 718. 961.7300; Tel: 800. 472.9988; Fax: 718.460.4594; Web: www.crystalwindows.com

B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.2 Aluminum:

A. Extruded aluminum prime billet 6063-T5 or 6063-T6 alloy for primary components; 6063-T5, 6063-T6, or 6061-T6 for structural components; all meeting the requirements of ASTM B221.

B. Aluminum sheet alloy 5005 H 32 (for anodic finish), meeting the requirements of ASTM B209 or alloy 3003 H 14 (for painted or unfinished sheet).

2.3 Thermal Barrier:

A. Structural Thermal Barrier:
1. Structural thermal barrier shall consist of poured-in-place polyurethane polymer that shall transfer shear during bending and provide composite action between frame components.

B. Non Structural Thermal Barriers:
1. Non structural thermal barriers are used only in conjunction with structural thermal barriers. The purpose of non structural thermal barriers is to enhance thermal performance of the primary structural thermal barriers (polyamide struts) by inhibiting heat transfer through thermal radiation and convection. Non structural thermal barriers shall not be used as primary load carrying members.
2. Rigid non structural thermal barriers shall be constructed of extruded polyvinylchloride (PVC).

2.4 GLASS

A. Glazing Materials:
1. Vertical Glazing: For glass surfaces sloped 15 degrees or less from vertical. Design glass to resist design wind pressure based on glass type factors for short-duration load.
2. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.
3. Strength: Where float glass is indicated, provide annealed float glass. Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.
4. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated.
   a. U-Factors: Total-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as BTU/sq.ft x h x deg F (W/sq. m x K).
   b. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
   c. Visible Reflectance: Center-of-glazing values, according to NFRC 300.
5. Float Glass: ASTM C 1036, Type 1, Quality-Q3, Class 1 (clear) unless otherwise indicated.
6. Coated Glass: ASTM C 1376, Type 1, Quality-Q3, Class 1 (clear) unless otherwise indicated, of kind and condition indicated.
7. Laminated Glass: ASTM C 1172, Type 1, Quality-Q3, Class 1 (clear) unless otherwise indicated, of kind and condition indicated.

B. Insulating Glass Units:
1. Factory-assemble units consisting of sealed lites of glass separated by a PPG Intercept Spacer system consisting of a one-piece, metallic, U-channel design that creates an effective thermal barrier to help reduce conducted heat loss through the window.
2. Insulating glass units shall be sealed with an integral dessicant matrix and a butyl sealant extruded around the entire perimeter of the spacer to achieve a seal. The sealant applied is to be Dual Seal Equivalent (DSE). Interspace to be filled with air or argon gas as required by thermal computer simulation.

3. Insulating Glass Types: Low-E coated, insulating glass units.
   a. Overall Unit Thickness: 1" (25.4mm)
   b. Thickness of Each Glass Lite: 3/32" , 1/8" or 1/4 inch
   c. Outdoor Lite: Class 1 (Clear) float glass, or fully tempered float glass.
   d. Interspace Content: Air or Argon Gas.
   e. Indoor Lite: Class 1 (Clear) float glass, or fully tempered float glass.
   f. Low-E Coating: Sputtered on second or third surface.
   g. Glass Winter Night time U-Value: 0.27 maximum.
   h. Solar Heat Gain Coefficient: 0.46 maximum.
   i. Provide safety glazing labeling, if necessary.

2.5 WINDOW ACCESSORIES

Provide the following accessories as specified in the contract drawings. Finish to match window frames or as selected by the Architect:

A. Wrap Around Panning

B. Preset Panning

C. Snap Trim/Clips

D. Expanders

E. Receptors

F. Subsills and Subsill Anchors

G. Mullions and Mullion Covers

H. Exterior Sills

I. Interior Stools

J. Muntins

2.6 FINISHES

A. Conforming to AAMA 2604-05 specification, finish on all extruded aluminum shall consist of zero or near-zero VOC, organic POWDER COAT with a baked on super-durable thermosetting polyester resin, electro-statically applied on five-stage pre-treated aluminum surface. Equivalent to 50% Kynar polyvinylidene fluoride liquid paint finishes. Powder coat material to be as manufactured by Sherwin Williams or PPG Powder Coatings.

B. Color to be selected from Manufacturer's Standard Color Chart (or custom-matched as required by project Architect/Owner).

2.7 Insect Screens:

A. Screen frames shall consist of tubular extruded aluminum profiles with finish to match window frames.

B. Fiberglass mesh (18 X 16) with PVC spline.

2.8 Steel components including attachment fasteners shall be 300 series stainless steel except as noted.

2.9 Thermoplastic or thermo-set plastic caps, housings and other components shall be injection-molded nylon, extruded PVC, or other suitable compound.

2.10 Sealants:

1. Sealants shall comply with applicable provisions of AAMA 800 and/or Federal Specifications FS-TT-001 and 002 Series.
2. Frame joinery sealants shall be suitable for application specified and as tested and approved by window manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

3.4 ANCHORAGE

A. Anchor window units and/or assemblies sufficiently to maintain permanent positions when subjected to normal thermal movement, specified building movement and specified wind loads.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Final operating adjustment shall be made after glazing work is complete. Operating sash and ventilator shall operate smoothly and shall be weathertight when in locked position

C. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 DISPOSAL OF DEBRIS

A.Remove all garbage off site and legally dispose of existing windows and debris generated from the installation of the new windows.

3.7 OPTIONAL FIELD TESTING

A. At the discretion and expense of Owner or Owner's representative, perform on-site testing of installed units in conformance with AAMA 502 - Voluntary Specification for Field Testing of Windows and Sliding Glass Doors. Conduct air and water infiltration testing with the window manufacturer, contractor, and owner present.

B. An AAMA accredited lab will be hired by the owner to perform the required testing.

3.8 ADJUSTMENT AND CLEAN UP

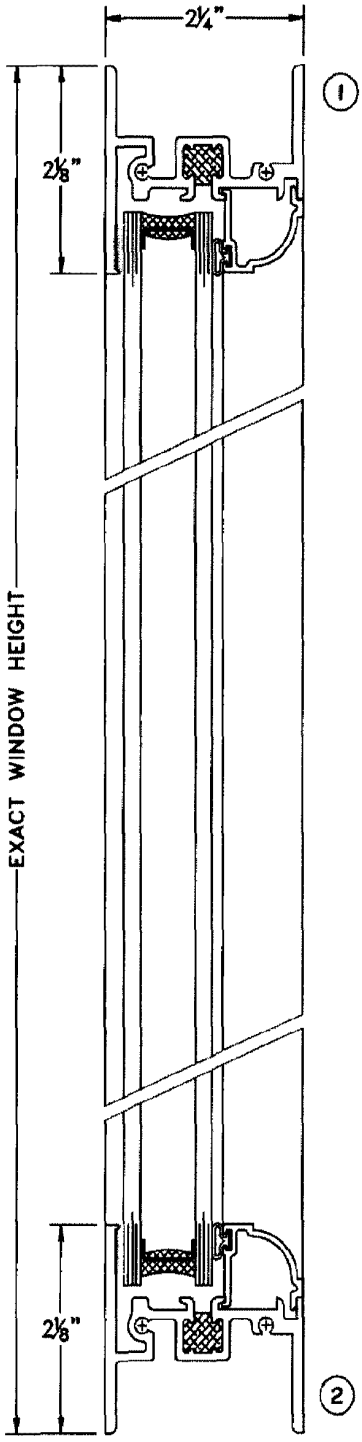
A. Adjust all products, sash, vents, and hardware after installation, as necessary to provide proper operation and a weather tight installation

B. Remove any labels and dirt from the window.

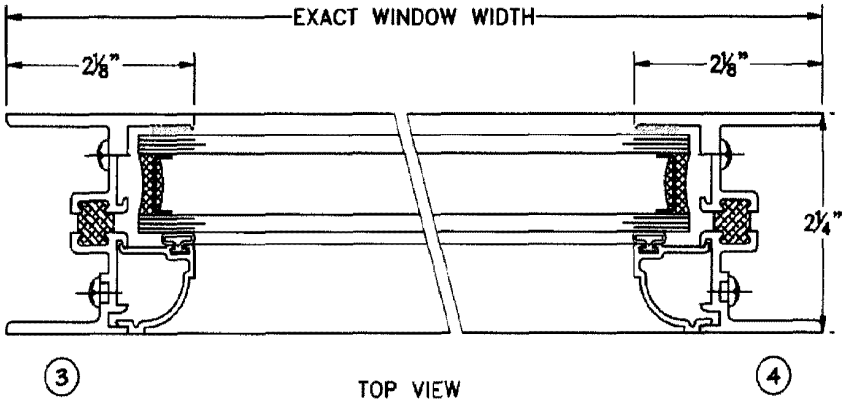
END OF SECTION

CTP-8100 PICTURE / FIXED ALUMINUM THERMAL BREAK

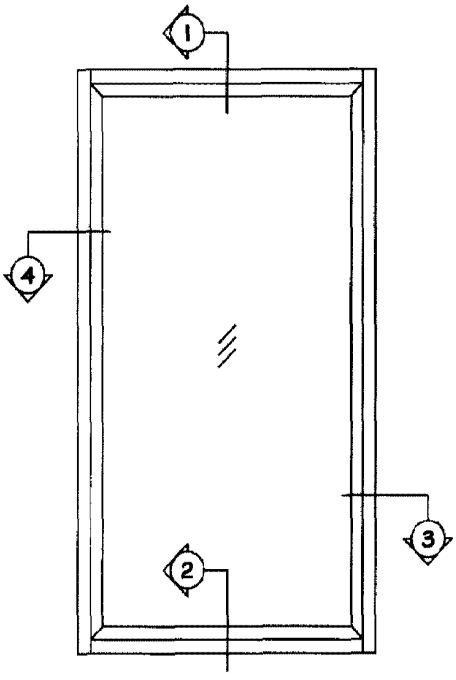
SCALE: 1:2



SIDE VIEW



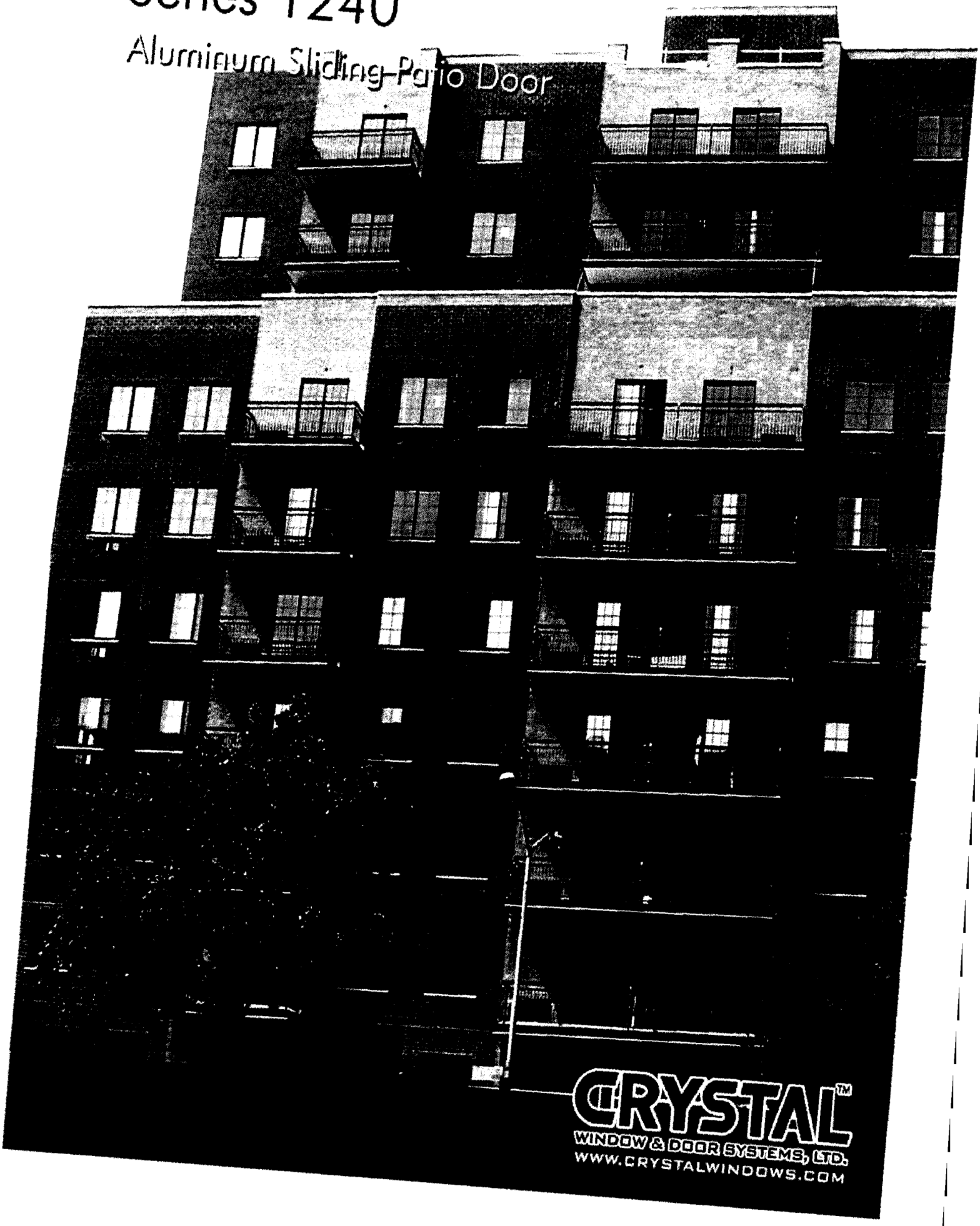
TOP VIEW



ELEVATION
SCALE: NTS

Series 1240

Aluminum Sliding Patio Door



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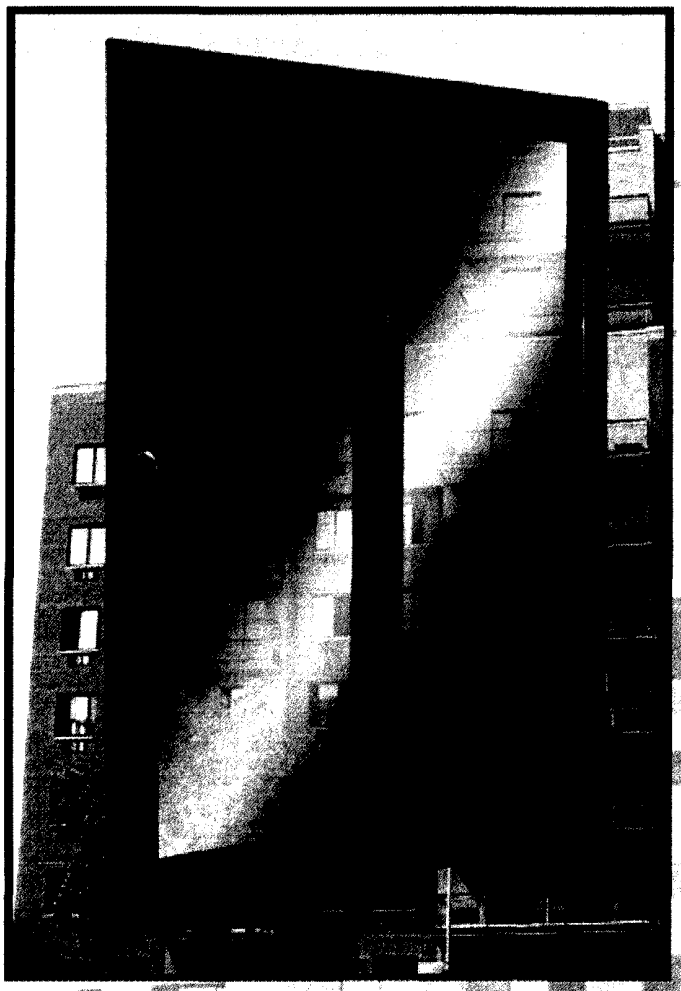
1240 COMMERCIAL THERMAL BREAK ALUMINUM SLIDING PATIO DOOR



PRODUCT FEATURES

- *2-Panel (XO/OX) or 3-Panel (OXO)*
- *AAMA Rating: SGD-C40*
- *Frame Depth: 4-1/2"*
- *Tube Sill w/ Concealed Drainage*
- *Insulating Tempered Glass Unit Size: 1"*
- *"Intercept" Warm Edge PPG Spacer*
- *Fully Reversible Panels Post-Installation*
- *Bronze or White Colors*
- *Fibermesh Locking Screen*
- *Heavy-Duty Adjustable Dual Tandem Ball Bearing Rollers*

Options

- *Low-E Tempered Glass*
- *Argon Gas Filled IGU*
- *Secondary Overhead Pin Lock w/ Open Vent Position*
- *Between Glass Grids*
- *Custom Sizes*
- *Special Colors & Finishes*

PRODUCT SPECS

SERIES	STYLES	FRAME DEPTH	IG DEPTH	AAMA RATING	AIR (cfm/ft²)	WATER (psf)	UNIFORM LOAD (psf)	WALL THICKNESS (frame sill)
1240	Patio Sliding Door	4-½"	1"	SGD-D40	0.15	6.06	60.15	0.06

Crystal Window & Door Systems, Ltd.

NYC, NY (HQ) 31-10 Whitestone Expressway, Flushing, NY 11354 Tel: 800.472.9988/718.961.7300 Fax:718.460.4594
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SERIES 1240 SD-C40 SLIDING DOOR

SECTION 08 32 13

SLIDING ALUMINUM-FRAMED GLASS DOORS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Furnish and install sliding aluminum-framed glass doors as shown in bid drawings and as per specifications stipulated in this section.

B. Factory-installed glass & glazing

1.2 ITEMS FURNISHED BUT NOT INSTALLED (Enter description and quantity of items such as extra sash, screens, glass units, hardware, etc. for attic stock)

1.3 ITEMS INSTALLED BUT NOT FURNISHED (Enter description and quantity of items such as air conditioners, louvers, duct work to be installed in locations as directed by Architect)

1.4 RELATED SECTIONS

A. Section 07 90 00 - Joint Protection.

B. Section 08 41 00 - Entrances and Storefronts.

C. Section 08 70 00 - Hardware.

1.5 REFERENCES

A. AAMA - American Architectural Manufacturers Association:
1. AAMA/WDMA/CSA 101/I.S.2/A440-05 "Standard/Specification for Windows, Doors, and Unit Skylights"
2. AAMA 502-08 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products.
3. AAMA 611-98 - Voluntary Specification for Anodized Architectural Aluminum
4. AAMA 701/702-04 - Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals.
5. AAMA 800-07 - Voluntary Specifications and Test Methods for Sealants.
6. AAMA 902-07 - Voluntary Specification for Sash Balances.
7. AAMA 910-93 - Voluntary Life Cycle' Specifications and Test Methods for Architectural Grade Windows and Sliding Glass Doors.
8. AAMA 1503-98 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections.
9. AAMA 2603-02 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
10. AAMA 2604-05 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
11. AAMA 2605-05 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

B. ASTM – American Society for Testing and Materials:
1. ASTM E 283-04 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across

the Specimen.

2. ASTM E 330-02 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Uniform Static Air Pressure Difference.
3. ASTM E 331-00 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
4. ASTM E 547-00 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Differential..
5. ASTM F 588; 1997 - Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact
6. ASTM E 2190-02 - Standard Specification for Insulating Glass Unit Performance and Evaluation.

C. NFRC - National Fenestration Rating Council.
1. NFRC 100-04 - Procedure for Determining Fenestration Product U Factors.
2. NFRC 102-04 - Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems.
3. NFRC 500-04 - Procedure for Determining Fenestration Product Condensation Resistance Values.

D. IGCC - Insulating Glass Certification Council.

E. SGCC - Safety Glazing Certification Council.
1. Z97.1-04 American National Standard for Safety Glazing Materials used in Buildings - Safety Performance Specifications and Methods of Test.
2. 16 CFR 1201 Consumer Product Safety Commission Safety Standard for Architectural Glazing Materials - codified at Title 16, Part 1201 of the Code of Federal Regulations.

F. ANSI Z97.1 - American National Standard For Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test/Consumer Products Safety Commission CPSC 16 CFR 1201.

G. LEED: The Leadership in Energy & Environmental Design; U.S. Green Building Council (USGBC).

1.6 SUBMITTALS

A. Submit administrative requirements under provisions of Section 01 30 00.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Shop Drawings:
1. Elevation for each style window specified indicating its size, glazing type, muntin type and design.
2. Manufacturer's head, jamb and sill details and section views for each window type specified.

D. Schedules:
1. Provide a window schedule indicating the type, size, color, , and operation of each unit specified. Coordinate with window mark types found in the Contract Drawings.

E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

F. Verification Samples: For each finish product specified, samples may be subsequently installed on the project.

G. Test Reports: Submit certified independent testing agency reports indicating window units meet or exceed specified performance requirements.

1.7 SYSTEM DESCRIPTION

A. Operation: HORIZONTAL SLIDING

B. AAMA Rating: SD-C40 when tested according to AAMA/WDMA/CSA 101/I.S.2/A440-05 at the gateway size of 95 x 83"

C. Construction: 4 9/16 inch frame depth. Wall thickness: 0.062"/0.062" frame/sill; 0.062" sash. Factory finished extruded aluminum frame and sash members with integral structural polyurethane thermal break. Rails shall be tubular profile.

D. Glazing: 1 inch insulating glass; black reusable flexible PVC channel gasket;

1.8 HARDWARE:

A. Handle: Each movable panel shall have a black color locking handle set at one of its stiles.

B. Rollers: Two adjustable stainless steel tandem rollers shall be recessed into the bottom rail of each movable panel.

1.9 WEATHERSTRIPPING:

A. High-density woven pile shall be used in combination with continuous polyethylene rigid seal to minimize air infiltration. Double weather-stripping at panel head.

B. Securely stake and join at corners. Provide drainage to exterior as necessary.

1.10 PERFORMANCE REQUIREMENTS

A. Air, Water and Structural Performance Requirements:

When tested in accordance with cited test procedures, windows shall meet or exceed the following performance criteria, as well as those indicated in AAMA 101 and 101/I.S.2/A440-08 for performance grade of unit specified unless otherwise noted herein.

1. Air Test Performance Requirements:
   a. Performance: Air infiltration maximum 0.30 cfm per square foot at 1.6 psf pressure differential when tested in accordance with ASTM E283 for sliding sealed products.
2. Water Test Performance Requirements:
   a. No uncontrolled water leakage at 6 psf static pressure differential when tested in accordance with ASTM E331 and ASTM E547.
3. Structural Test Performance Requirements:
   a. Uniform Load Deflection Test
      1) No deflection of any unsupported span L of test unit (framing rails, muntins, mullions, etc.) in excess of L/175 at both a positive and negative load of design test pressure when tested in accordance with ASTM E330.

2) Structural reinforcing that is not standard on units being furnished is not allowed.

b. Uniform Load Structural Test:
1) Unit to be tested at 1.5 x design test pressure, both positive and negative, acting normal to plane of wall in accordance with ASTM E330.
2) No glass breakage; permanent damage to fasteners, hardware parts, or anchors; damage to make windows inoperable; or permanent deformation of any main frame or ventilator member in excess of 0.2% of its clear span.

B. Forced Entry Resistance Test: ASTM F 588, Type and Grade as indicated for each Product.

C. Thermal Performance Requirements

1.Perform thermal computer simulation in accordance with the configuration specified in NFRC 100.
2.Computed Thermal Transmittance (U-Value) shall not exceed 0.46 BTU/hr/sq.ft./°F for the whole window assembly.
3.Computed Solar Heat Gain Coefficient (SHGC) shall not exceed 0.39 for the whole window assembly.

1.11 QUALITY ASSURANCE

A. Manufacturer Qualifications: All windows specified in this section shall be supplied by a manufacturer which has been fabricating/manufacturing commercial grade aluminum windows of similar quality and performance for a minimum of ten (10) years.

B. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing windows of the same type and scope as specified, preferably AAMA certified installers.

C. Provide test reports from AAMA accredited laboratory certifying that window units are found to be in compliance with AAMA/WDMA/CSA 101/I.S.2/A440-05 and performance standards listed above.
1. Test reports shall be accompanied by the window manufacturer's letter of certification stating that the tested window meets or exceeds criteria for the appropriate AAMA/WDMA/CSA 101/I.S.2/A440 test.

1.12 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation in accordance with manufacturer's recommendations.

B. Protect units against damage from the elements, construction activities and other hazards before, during, and after installation.

1.13 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.14 WARRANTY

A. *Refer to Crystal Window & Door Systems, Ltd. standard warranty.*

B. Optional Extended Warranty (contact your Crystal sales representative).

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: **Crystal Window & Door Systems, Ltd**., which is located at: 31-10 Whitestone Expressway, Flushing, NY 11354; Tel: 718. 961.7300; Tel: 800. 472.9988; Fax: 718.460.4594; Web: www.crystalwindows.com

B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.2 Aluminum:

A. Extruded aluminum prime billet 6063-T5 or 6063-T6 alloy for primary components; 6063-T5, 6063-T6, or 6061-T6 for structural components; all meeting the requirements of ASTM B221.

B. Aluminum sheet alloy 5005 H 32 (for anodic finish), meeting the requirements of ÅSTM B209 or alloy 3003 H 14 (for painted or unfinished sheet).

2.3 Thermal Barrier:

A. Structural Thermal Barrier:
1. Structural thermal barrier shall consist of poured-in-place polyurethane polymer that shall transfer shear during bending and provide composite action between frame components.

B. Non Structural Thermal Barriers:
1. Non structural thermal barriers are used only in conjunction with structural thermal barriers. The purpose of non structural thermal barriers is to enhance thermal performance of the primary structural thermal barriers (polyamide struts) by inhibiting heat transfer through thermal radiation and convection. Non structural thermal barriers shall not be used as primary load carrying members.
2. Rigid non structural thermal barriers shall be constructed of extruded polyvinylchloride (PVC).

2.4 GLASS

A. Glazing Materials:
1. Vertical Glazing: For glass surfaces sloped 15 degrees or less from vertical. Design glass to resist design wind pressure based on glass type factors for short-duration load.
2. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.
3. Strength: Where float glass is indicated, provide annealed float glass. Where fully tempered glass is indicated, provide Kind FT heat-treated float glass.
4. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated.
   a. U-Factors: Total-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as BTU/sq.ft x h x deg F (W/sq. m x K).
   b. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
   c. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

5. Float Glass: ÅSTM C 1036, Type 1, Quality-Q3, Class 1 (clear) unless otherwise indicated.
6. Coated Glass: ASTM C 1376, Type 1, Quality-Q3, Class 1 (clear) unless otherwise indicated, of kind and condition indicated.
7. Laminated Glass: ÅSTM C 1172, Type 1, Quality-Q3, Class 1 (clear) unless otherwise indicated, of kind and condition indicated.

B. Insulating Glass Units:
1. Factory-assemble units consisting of sealed lites of glass separated by a PPG Intercept Spacer system consisting of a one-piece, metallic, U-channel design that creates an effective thermal barrier to help reduce conducted heat loss through the window.
2. Insulating glass units shall be sealed with an integral dessicant matrix and a butyl sealant extruded around the entire perimeter of the spacer to achieve a seal. The sealant applied is to be Dual Seal Equivalent (DSE). Interspace to be filled with air or argon gas as required by thermal computer simulation.

3. Insulating Glass Types: Low-E coated, insulating glass units.
   a. Overall Unit Thickness: 1" (25.4mm)
   b. Thickness of Each Glass Lite: 1/8" , 3/16" , or 1/4 inch
   c. Outdoor Lite: Class 1 (Clear) float glass, or fully tempered float glass.
   d. Interspace Content: Air or Argon Gas.
   e. Indoor Lite: Class 1 (Clear) float glass, or fully tempered float glass.
   f. Low-E Coating: Sputtered on second or third surface.
   g. Glass Winter Night time U-Value: 0.27 maximum.
   h. Solar Heat Gain Coefficient: 0.46 maximum.
   i. Provide safety glazing labeling, if necessary.

2.5 DOOR INSTALLATION ACCESSORIES

Provide the following accessories as specified in the contract drawings. Finish to match window frames or as selected by the Architect:

A. Wrap Around Panning

B. Preset Panning

C. Snap Trim/Clips

D. Expanders

E. Receptors

F. Subsills and Subsill Anchors

G. Mullions and Mullion Covers

H. Exterior Sills

I. Interior Stools

J. Muntins

2.6 FINISHES

A. Conforming to AAMA 2604-05 specification, finish on all extruded aluminum shall consist of zero

or near-zero VOC, organic POWDER COAT with a baked on super-durable thermosetting polyester resin, electro-statically applied on five-stage pre-treated aluminum surface. Equivalent to 50% Kynar polyvinylidene fluoride liquid paint finishes. Powder coat material to be as manufactured by Sherwin Williams or PPG Powder Coatings.

B. Color to be selected from Manufacturer's Standard Color Chart (or custom-matched as required by project Architect/Owner).

2.7 Insect Screens:

A. Screen frames shall consist of tubular extruded aluminum profiles with finish to match window frames.

B. Fiberglass mesh (18 X 16) with PVC spline.

2.8 Steel components including attachment fasteners shall be 300 series stainless steel except as noted.

2.9 Thermoplastic or thermo-set plastic caps, housings and other components shall be injection-molded nylon, extruded PVC, or other suitable compound.

2.10 Sealants:

1. Sealants shall comply with applicable provisions of AAMA 800 and/or Federal Specifications FS-TT-001 and 002 Series.
2. Frame joinery sealants shall be suitable for application specified and as tested and approved by window manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

3.4 ANCHORAGE

A. Anchor window units and/or assemblies sufficiently to maintain permanent positions when subjected to normal thermal movement, specified building movement and specified wind loads.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Final operating adjustment shall be made after glazing work is complete. Operating sash and ventilator shall operate smoothly and shall be weathertight when in locked position

C. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 DISPOSAL OF DEBRIS

A.Remove all garbage off site and legally dispose of existing windows and debris generated from the installation of the new windows.

3.7 OPTIONAL FIELD TESTING

A. At the discretion and expense of Owner or Owner's representative, perform on-site testing of installed units in conformance with AAMA 502 - Voluntary Specification for Field Testing of Windows and Sliding Glass Doors. Conduct air and water infiltration testing with the window manufacturer, contractor, and owner present.

B. An AAMA accredited lab will be hired by the owner to perform the required testing.

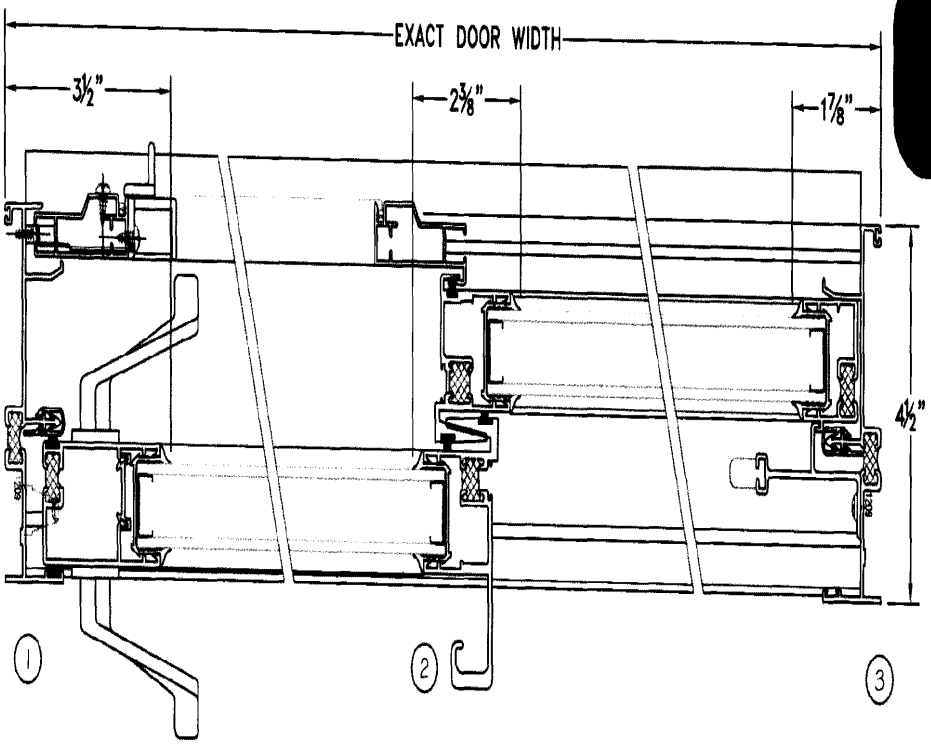
3.8 ADJUSTMENT AND CLEAN UP

A. Adjust all products, sash, vents, and hardware after installation, as necessary to provide proper operation and a weather tight installation

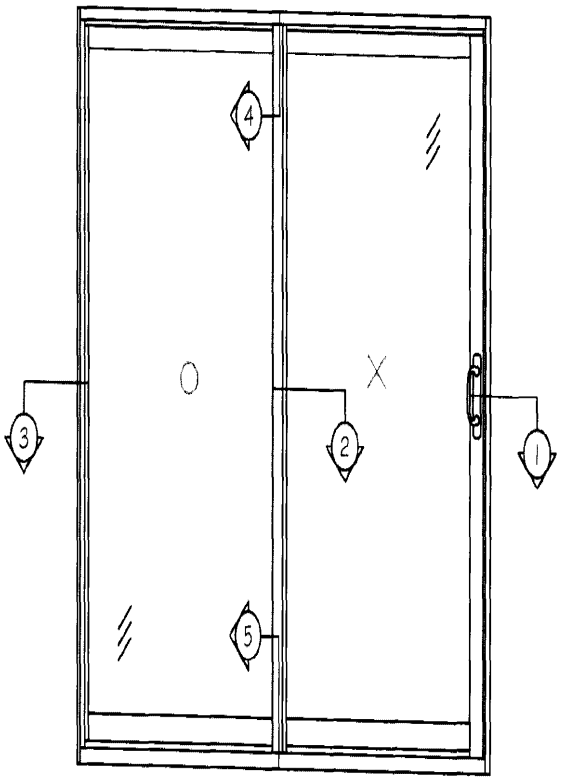
B. Remove any labels and dirt from the window.

END OF SECTION

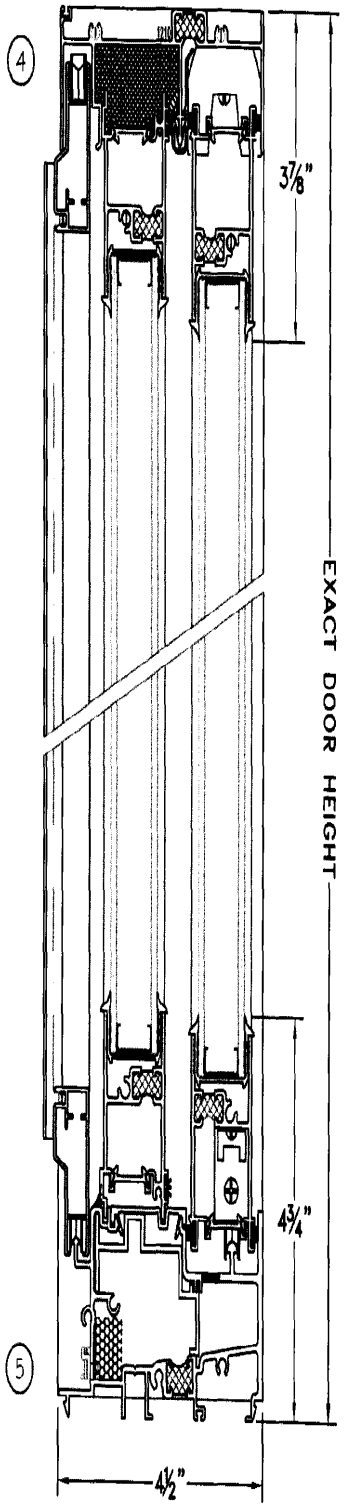
CTP-1240 TWO LITE SLIDING DOOR
ALUMINUM THERMAL BREAK



TOP VIEW



ELEVATION
SCALE: NTS



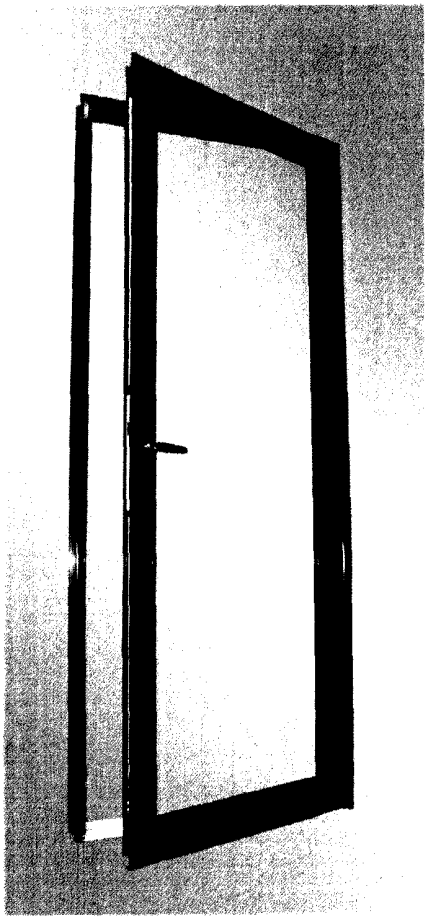
SIDE VIEW

SCALE: 1:3

www.crystalwindows.com
1.800.472.9988

Gamco Corporation
Manufacturer of IRISION™ *Products*
131-10 Maple Ave. Flushing, N.Y. 11355
Tel: (718) 359-8833 Fax (718) 359-8661

IRISION BD-325 BALCONY DOOR



AVAILABLE FINISH:

CLEAR ANODIZED

DARK BRONZE ANODIZED

WHITE PAINTED

BRONZED PAINTED

CUSTOM COLORS

ATD – AW50 RATING

3-1/4" FRAME PROFILE

1/8" WALL THICKNESS

INSUL-BAR THERMAL BREAK

1" INSULATED CLR. TEMP. GLASS

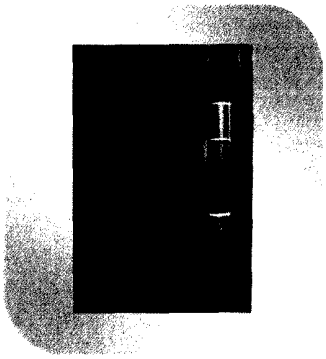
EUROPEAN LOCKET

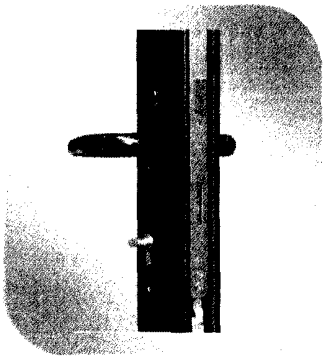
MULTI-POINT LOCK SYSTEM

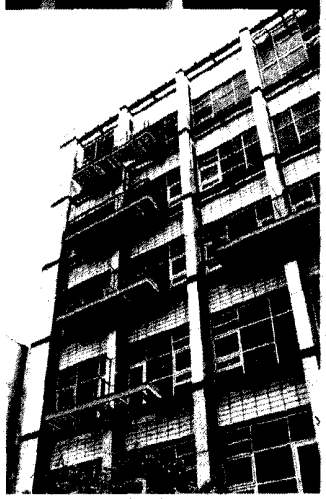
DOUBLE DOOR AVAILABLE

TRANSOM AND SIDELITE

SWING IN – SWING OUT







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(Mon. thru Sat.)

Toll Free: 1-888-359-8668
Website: www.gamcocorp.com
Email: gamco88@verizon.net

GAMCO CORPORATION

MANUFACTURERS OF QUALITY FENESTRATION PRODUCTS

131-10 Maple Avenue, Flushing, N.Y. 11355

SERIES "BD-325"
SWING-OUT BALCONY DOOR

I. GENERAL:

Scope of Work – Furnish all necessary materials, labor, and equipment for the complete installation of aluminum hinged glass doors for this project as show on the drawings and herein specified. Door shall be the "Series BD-325" as manufactured by Gamco Corporation, Flushing, New York. The "Series BD-325" is a single vent Hinged Glass Door with thermally improved main frame and vent consisting of side hinges, locking handle, and multipoint lock system. The specifications and materials for the "Series BD-325" are as follows

II. PRODUCTS:

Materials – Aluminum shall be of proper alloy for commercial window construction. All extruded sections shall be of 6063-T5 aluminum alloy.

Frame – Main frame and sash members shall be .125" nominal thickness. Main frame shall be 3.250" in depth Horizontal and vertical vent members shall be hollow extrusions. Main frames and vent members are to be extruded aluminum with a dual insulbar thermal barrier system creating a .5625" wide thermal barrier.

Sill – Threshold for the swing-out BD-325 is a .500" tall thermally broken aluminum extrusion with an EPDM weather-seal. Check codes for FHA compliance. See drawing cuts.

Hardware – Operating handle shall be lever type connecting to a multi-point lock system. Lock system engagements shall be as follows: Two (2) at handle, one (1) 2.500" from each end of lock stile and one (1) centered between handle and upper locking point.

Hinges – Shall consist of three (3) extruded aluminum butt type hinges. Hinge pins shall be .250" diameter stainless steel with hard vinyl bushings.

Weather-stripping – Door panel shall close to a full perimeter EPDM weather-seal utilizing welded corner construction.

III. CONSTRUCTION:

Assembly – Main frame and door panel corners shall be of mitered, sealed crimped and staked corner construction. Each corner shall consist of one extruded aluminum corner key held in place with two die cast retainer pins, one die cast corner key staked in place and one friction fit hard vinyl corner key. Threshold is mechanically fastened and sealed between the jambs.

Glazing – Glass in the door panel shall be factory glazed using EPDM gasket at exterior perimeter with extruded aluminum glazing bead and EPDM wedge at interior of glass. The insulated glass units shall be 1.000" overall thickness with two lites .125" Tempered glass, separated by a .750" air space for optimum insulation. All insulated glass units shall meet the requirement of the ASTM E 774 specification, Class "A".

Finish – Shall be a factory applied baked polyurethane powder coat finish meeting the requirements of AAMA 2604 for Pigmented Organic Coating on Extruded Aluminum. Standard Tier 1 colors available are bronze and white. Class 1 Clear and Dark Bronze anodizing.

Operation – The door panel is operable to the outside. Deadbolt is operable by thumb turn inside.

IV. PERFORMANCE:

Structural Performance, Air, and Water Infiltration – Shall meet the requirements of AAMA/WDMA/CSA 101/I.S.2/A440-5, ATD-AW50. Design Pressure, ±2400Pa (±50.16 psf). Air Infiltration, 0.5 L/s/m² (0.10 cfm/ft²). Water Penetration Resistance, 480Pa (10.03 psf). Uniform Load Structural, ±3600Pa (±75.24 psf).

Tel: (718) 359-8833 Fax: (718) 359-8661

info@gamcocorp.com www.gamcocorp.com

Architectural Testing

AAMA/WDMA/CSA 101/I.S.2/A440-05
TEST REPORT

Rendered to:

GAMCO CORPORATION

SERIES/MODEL: BD-325
PRODUCT TYPE: Side-Hinged Door

Title	Summary of Results
Primary Product Designator	SHD-AW50 1219 x 2438 (48 x 96)
Design Pressure	±2400 Pa (±50.16 psf)
Operating Force (in motion)	135 N (30 lbf)
Air Infiltration	0.5 L/s/m^2 (0.10 cfm/ft^2)
Water Penetration Resistance Test Pressure	480 Pa (10.03 psf)
Uniform Load Structural Test Pressure	±3600 Pa (±75.24 psf)
Forced Entry Resistance	Pass

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

Architectural Testing

AAMA/WDMA/CSA 101/I.S.2/A440-05 TEST REPORT

Rendered to:

GAMCO CORPORATION
131-10 Maple Avenue
Flushing, New York 11355

Report No.: 89801.01-109-44

Project Summary: Architectural Testing, Inc. was contracted by Gamco Corporation to perform testing on a Series/Model BD-325, side-hinged door. The sample tested successfully met the performance requirements for a SHD-AW50 1219 x 2438 (48 x 96) rating. Test specimen description and results are reported herein. The sample was provided by the client.

Test Specification: The test specimen was evaluated in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-05, *Standard/Specification for Windows, Doors, and Unit Skylights.*

Test Specimen Description:

Series/Model: BD-325

Product Type: Side-Hinged Door

Overall Size: 1219 mm (48") wide by 2438 mm (96") high

Leaf Size: 908 mm (45-3/4") wide by 2397 mm (94-3/8") high

Overall Area: 3.0 m^2 (32 ft^2)

Finish: All aluminum was painted.

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

Test Specimen Description: (Continued)

Frame Construction: The hand and jambs were constructed of dual-strutted thermally improved, extruded aluminum. The sill was constructed of poured and debridged, thermally improved extruded aluminum. The head/jamb corners were mitered, sealed with silicone, and secured with twelve #9 x 3/8" long flat head screws and two aluminum corner keys, six screws per key. The threshold/jamb corners were coped, butted, sealed with silicone, and secured with two #8 x 1-1/4" long hex head screws. An extruded aluminum sill leg extension was utilized at the interior sill leg and was secured with #10 x 1/4" long Phillips flat head screws spaced 16" on center. The joint between the sill leg and the sill leg extension was sealed with silicone. Snap-in aluminum stops were utilized at the head and jambs. An extruded aluminum piece was secured to the hinge jamb using two #9 x 3/8" long flat head screws, located 1-1/4" from each end and spaced 5" on center.

Leaf Construction: The leaf was constructed of dual-strutted thermally improved extruded aluminum members. Corners were mitered, sealed with silicone, and secured with four #9 x 3/8" long pan head screws and a 1" by 1-1/2" solid aluminum corner key.

Weatherstripping:

Description	Quantity	Location
0.187" backed, 1/4" diameter hollow vinyl bulb seal	1 Row	Sill
0.187" backed, 3/16" diameter hollow vinyl bulb seal	3 Rows	Head and jambs
0.187" backed, 3/16" diameter hollow vinyl bulb seal	3 Rows	Leaf stiles and top rail
0.187" backed, 3/16" diameter hollow vinyl bulb seal	4 Rows	Glazing beads
Kerf-mounted vinyl fin	1 Row	Bottom rail

Glazing Details: The unit was glazed with 1" thick insulating glass constructed of a sheet of 1/4" thick tempered glass inboard, a sheet of 7/16" thick laminated glass outboard and an aluminum box spacer system. The laminated glass was comprised of two sheets of 3/16" thick annealed glass and a 0.060" thick PVB interlayer. The glass was glazed from the exterior against a vinyl fin with a silicone cap bead and was secured with snap-in aluminum glazing beads with a hollow bulb seal against the glass and a silicone cap bead. A bead of silicone was utilized between the laminated glass and the leaf members.

Drainage: A sloped threshold was utilized.

Test Specimen Description: (Continued)

Hardware:

Description	Quantity	Location
Lock handle assembly with multi-point lock	1	Lock stile, 35" from bottom rail with four locking points located 6" from end and spaced 28" on center
Barrel hinges	4	Hinge stile, 6" from each end and spaced 28" on center

Reinforcement: No reinforcement was utilized.

Installation: The unit was installed into a Spruce-Pine-Fir wood buck. The frame was secured through the head, sill, and jambs using #10 x 2-1/4" long flat head screws, located 3" from each corner and spaced 12" on center. The exterior perimeter was sealed with silicone.

Test Results: The temperature during testing was 20°C (68°F). The results are tabulated as follows:

Paragraph	Title of Test - Test Method	Results	Allowed
AAMA 910 Life Cycle Testing Procedures: 2.1.1 to 2.1.12			
5.3.1.2	Force to Latch Side-Hinged Door System per ANSI/BHMA A156.2 (First Half)		
	Force to latch	156 N (35 lbf)	Report Only
	Deadbolt	36 N (8 lbf)	Report Only
2.1.2	Air Leakage Resistance per ASTM E 283 (First Half)		
	300 Pa (6.20 psf)	0.1 L/s/m^2 (0.02 cfm/ft^2)	0.5 L/s/m^2 (0.10 cfm/ft^2) max.
2.1.3	Water Penetration Resistance per ASTM E 547 and E 331 (First Half)		
	528 Pa (11.03 psf)	No leakage	No leakage

Note #1: The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-05 for air leakage resistance.

Test Results: (Continued)

Paragraph	Title of Test - Test Method	Results	Allowed
2.1.4	Leaf Cycle Testing (First Half - 1250 cycles)		
	Leaf	No damage	No damage
	Observations: *Oil dripped from hinges.*		
2.1.5	Locking Hardware Cycle Testing (First Half - 1250 cycles)		
	Lock	No damage	No damage
	Handle	No damage	No damage
	Observations: *Slight wear and shavings visible.*		
2.1.7	Misuse Testing		
2.5.2.2	Ventilator Vertical Load Test		
	445 N (100 lbf)	No damage	No damage
2.1.8	Leaf Cycle Testing (Second Half - 1250 cycles)		
	Leaf	No damage	No damage
	Observations: *Slight wear on hinges.*		
2.1.9	Locking Hardware Cycle Testing (Second Half - 1250 cycles)		
	Lock	No damage	No damage
	Handle	No damage	No damage
	Observations: *Slight wear and shavings visible.*		
5.3.1.3	Force to Latch Side-Hinged Door System per ANSI/BHMA A156.2 (Second Half)		
	Force to latch	135 N (30.0 lbf)	Report Only
	Deadbolt	33 N (7.50 lbf)	Report Only
2.1.11	Air Leakage Resistance per ASTM E 283 (Second Half)		
	300 Pa (6.2 psf)	0.5 L/s/m^2 (0.10 cfm/ft^2)	0.5 L/s/m^2 (0.10 cfm/ft^2) max.

Note #1: *The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-05 for air leakage resistance.*

Test Results: (Continued)

Paragraph	Title of Test - Test Method	Results	Allowed
2.1.12	Water Penetration Resistance per ASTM E 547 and E 331 (Second Half)		
	480 Pa (10.03 psf)	No leakage	No leakage
5.3.4.2	Uniform Load Deflection per ASTM E 330		
	(Deflections were taken on the top rail)		
	(Loads were held for 10 seconds)		
	1920 Pa (40.13 psf) (positive)	0.3 mm (0.01")	6.4 mm (0.25") max.
	1920 Pa (40.13 psf) (negative)	1.5 mm (0.06")	6.4 mm (0.25") max.
5.3.4.3	Uniform Load Structural per ASTM E 330		
	(Permanent sets were taken on the top rail)		
	(Loads were held for 10 seconds)		
	2880 Pa (60.19 psf) (positive)	0.3 mm (0.01")	2.3 mm (0.09") max.
	2880 Pa (60.19 psf) (negative)	0.3 mm (0.01")	2.3 mm (0.09") max.
5.3.5	Forced Entry Resistance per AAMA 1304		
	1330 N (300 lbf) point load		
	Top lock stile corner	No entry	No entry
	Bottom lock stile corner	No entry	No entry
	Above lock	No entry	No entry
5.3.6.10	Operation/Cycling Performance per AAMA 920		
	25,000	Meets as stated	Meets as stated
5.3.6.11	Vertical Loading Resistance per AAMA 925		
	Pre-load - 200 N (45 lbf)		
	Maximum vertical deflection	1.3 mm (0.05")	N/A
	Residual vertical deflection	0.3 mm (0.01")	N/A
	Test load - 2224 N (500 lbf)		
	Maximum vertical deflection	15.2 mm (0.60")	N/A
	Residual vertical deflection	9.1 mm (0.36")	N/A
	Diagonal deformation	<0.3 mm (<0.01")	N/A
	Force to latch	65 N (15 lbf)	65 N (15 lbf) max.
Optional Performance			
4.4.2.6	Uniform Load Deflection per ASTM E 330		
	(Deflections were taken on the top rail)		
	(Loads were held for 10 seconds)		
	2400 Pa (50.16 psf) (positive)	1.3 mm (0.05")	6.4 mm (0.25") max.
	2400 Pa (50.16 psf) (negative)	2.3 mm (0.09")	6.4 mm (0.25") max.

Test Results: (Continued)

Paragraph	Title of Test - Test Method	Results	Allowed
Optional Performance: (Continued)			
4.4.2.6	Uniform Load Structural per ASTM E 330 (Permanent sets were taken on the top rail) (Loads were held for 10 seconds)		
	3600 Pa (75.24 psf) (positive)	0.3 mm (0.01")	2.3 mm (0.09") max.
	3600 Pa (75.24 psf) (negative)	0.3 mm (0.01")	2.3 mm (0.09") max.

Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen reported herein.

List of Official Observers:

Name	Company
Charlie Chan	Gamco Corporation
John Chang	Gamco Corporation
Michael D. Stremmel, P.E.	Architectural Testing, Inc.
Emily C. Riley	Architectural Testing, Inc.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire.

Results obtained are tested values and were secured by using the designated test methods. No conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen can be made. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.

Digitally Signed by: Emily C. Riley

Emily C. Riley
Technician

Digitally Signed by: Michael D. Stremmel

Michael D. Stremmel, P.E.
Senior Project Engineer

ECR:dem

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Alteration Addendum (1)
Appendix-B: Drawings (9)

Intertek | Architectural Testing

AAMA 1503-09 THERMAL PERFORMANCE TEST REPORT

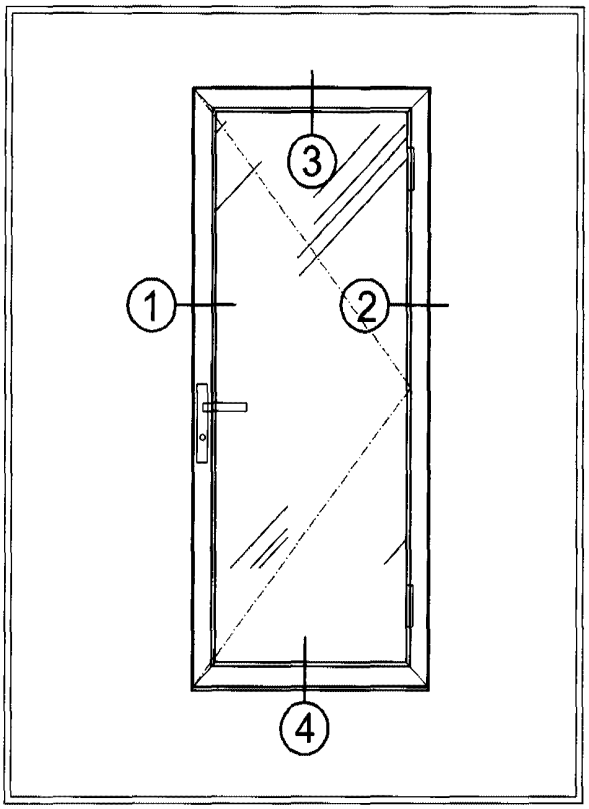
Rendered to:

GAMCO CORPORATION

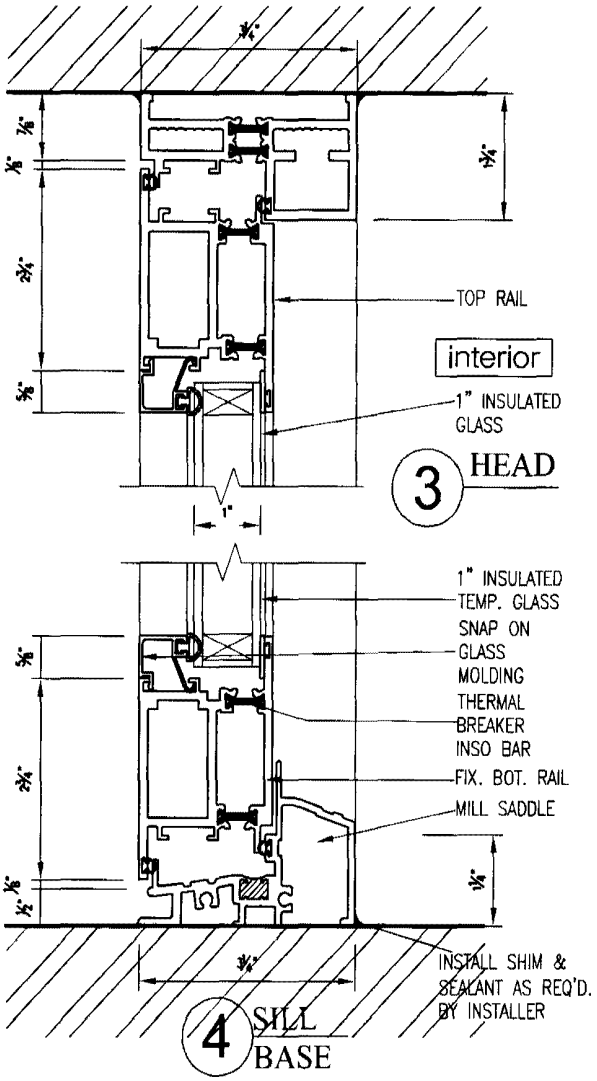
SERIES/MODEL: BD-325 Series Balcony Door
TYPE: Swinging Door with Frame

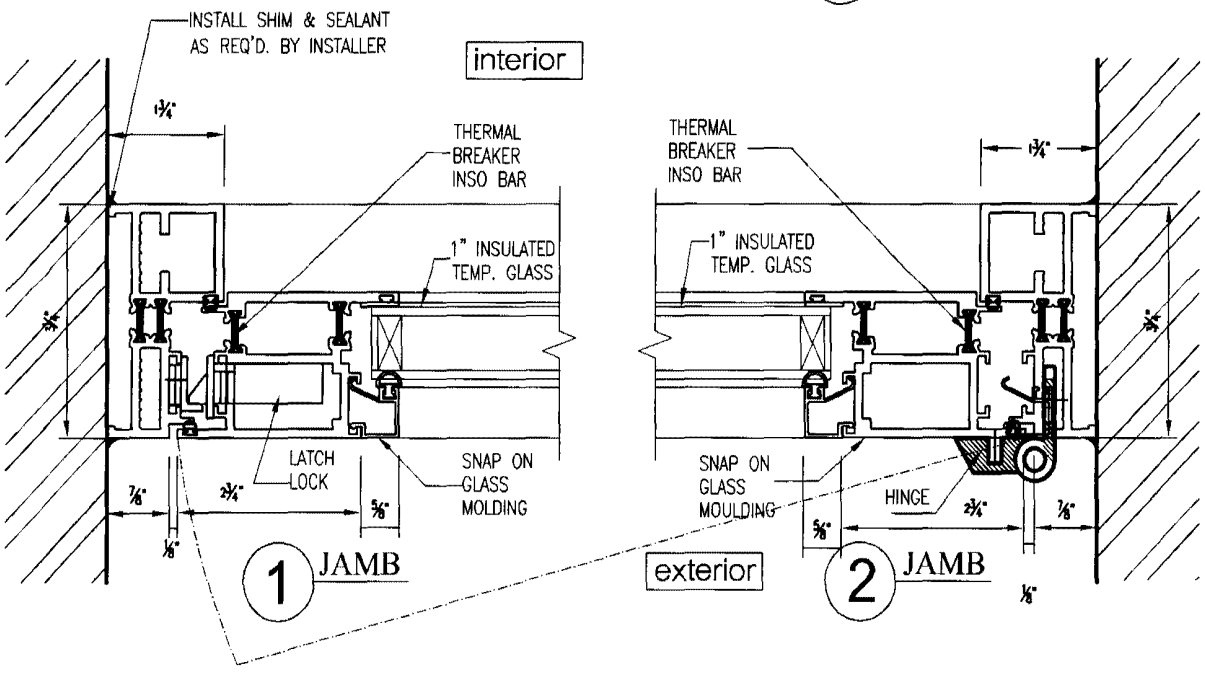
Summary of Results			
Thermal Transmittance (U-Factor)			0.43
Condensation Resistance Factor - Frame (CRF_f)			52
Condensation Resistance Factor - Glass (CRF_g)			66
Unit Size:		39-3/8" x 78-3/4"	
Layer 1:	1/4"	Clear	
Gap 1:	0.53"	A1-D: Aluminum Spacer	90% Argon*
Layer 2:	1/4"	PPG Solarban 60 (e=0.035*, #3)	

Reference must be made to Report No. E5290.01-116-46, dated 04/21/15 for complete test specimen description and data.



BD-325 SERIES BALCONY DOOR
SWING - OUT SINGLE DOOR





SHEET #	Drawn by: K. S. Lee	Customer	Revisions		
	Checked by: C.CHAN		No.	Date	Description
	Date:	Project :			
	Scale: 3/8" : 1"				

GAMCO CORPORATION
MANUFACTURERS OF FENESTRATION PRODUCTS
131-10 MAPLE AVE. FLUSHING, N.Y.11355
TEL: (718)359-8833 FAX: (718)359-8661
Info@gamcocorp.com www.gamcocorp.com

Architectural Testing

MOCK-UP PERFORMANCE TEST REPORT

Rendered to:

GAMCO CORPORATION
131-10 Maple Avenue
Flushing, New York 11355

Report No.: 64333.01-120-32

Project: Generic Curtain Wall System (250CW Series)

Project Summary: Architectural Testing, Inc. (ATI) was contracted by Gamco Corporation to conduct performance testing on a mock-up for the referenced project. All testing was performed in accordance with the attached "Curtain Wall Performance Test Procedure" dated April 18, 2006. The mock-up met all of the performance criteria outlined in the aforementioned test procedure. This report includes comprehensive written and photographic documentation of testing performed and a copy of "As-Built" mock-up drawings.

Drawing Reference: Gamco Corporation "As-Built" drawings for the Generic Curtain Wall System (250CW Series) Test Drawing numbered A-1, D-1 through D-5, last revision dated 05/30/06. A copy of these drawings is attached to this report and represents "As-Built" mock-up drawings.

Mock-up Description:

General: The mock-up was comprised of a single elevation wall system three bays wide by three lites high. The referenced drawings delineate the mock-up configuration and construction.

Overall Size: 15' 0" wide by 30' 0" high

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

Test Methods:

Air Infiltration: ASTM E 283-04, *Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*. Testing was conducted at 6.24 psf positive static air pressure difference.

Static Pressure Water Resistance: ASTM E 331-00, *Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference*. Testing was conducted at a 15.0 psf positive static air pressure difference for a 15 minute duration. Water was applied to the mock-up at a minimum rate of 5 gal/ft^2/hr.

Dynamic Pressure Water Resistance: AAMA 501.1-05, *Standard Test Method for Exterior Windows, Curtain Walls, and Doors for Water Penetration Using Dynamic Pressure*. Testing was conducted with a dynamic pressure equivalent of 15.0 psf for a 15 minute duration. Water was applied to the mock-up at a minimum rate of 5 gal/ft^2/hr.

Structural Performance: ASTM E 330-02, *Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference*. Testing was conducted at positive and negative loads as listed in the test results. Structural overloads were conducted at 1.5 times design pressures. Design loads and overloads were held for ten seconds.

Interstory Differential Movement (Horizontal Cycling): Three complete cycles shall be performed in the horizontal direction at the 17' 8-1.2" floor simulation. Horizontal movement will be 1.2" to the left, then back to zero, 1.2" to the right, and then back to zero (one cycle).

Test Witnesses: The following representatives witnessed all or part of the performance testing:

Charlie Chan	Gamco Corporation
Philip Snow	Gamco Corporation
John Chang	Gamco Corporation
Ron Wang	Gamco Corporation
Hsing Wang Chao	Gamco Corporation
Scott Kramer	Architectural Testing, Inc.
Shane Haring	Architectural Testing, Inc.

FINAL TEST RESULTS
June 1, 2006

Title of test	Measured	Allowed
Preload at 50% Design Pressure (±30.0 psf)	---	---
Static Pressure Air Infiltration @ 6.24 psf	PASSED <0.01 cfm/ft^2	0.06 cfm/ft^2 max.
Static Pressure Water Resistance @ 15.0 psf	PASSED No uncontrolled leakage	No uncontrolled leakage
Dynamic Pressure Water Resistance @ 15.0 psf	PASSED No uncontrolled leakage	No uncontrolled leakage
June 2, 2006		
Uniform Load Deflection @ Design Loads (+30.0 psf & -60.0 psf)	PASSED Reference Table #1 for results Reference Sketch #1 for indicator locations	L/240 Reference Table #1 for all other allowables
Repeat Static Pressure Air Infiltration @ 6.24 psf	PASSED <0.01 cfm/ft^2	0.06 cfm/ft^2 max.
Repeat Static Pressure Water Resistance @ 15.0 psf	PASSED No uncontrolled leakage	No uncontrolled leakage
Interstory Horizontal Displacement @ 1.200"	PASSED No visible damage	No visible damage
Repeat Static Pressure Air Infiltration @ 6.24 psf	PASSED <0.01 cfm/ft^2	0.06 cfm/ft^2 max.

FINAL TEST RESULTS
June 2, 2006
(Continued)

Title of test	Measured	Allowed
Repeat Static Pressure Water Resistance @ 15.0 psf	PASSED No uncontrolled leakage	No uncontrolled leakage
Additional Uniform Load Deflection @ Design Loads (±40.0 psf)	PASSED Reference Table #2 for results Reference Sketch #1 for indicator locations	L/240 Reference Table #2 for all other allowables
Additional Uniform Load Deflection @ Design Loads (±60.0 psf)	PASSED Reference Table #3 for results Reference Sketch #1 for indicator locations	L/240 Reference Table #3 for all other allowables
Uniform Structural Overloads @ 150% Design Loads (±60.0 psf)	PASSED Reference Table #4 for results Reference Sketch #1 for indicator locations	0.2% Span Reference Table #4
Additional Uniform Structural Overloads @ 150% Design Loads (±90.0 psf)	PASSED Reference Table #5 for results Reference Sketch #1 for indicator locations	0.2% Span Reference Table #5

Air Quality and Noise
Remedial Action Plan

35th Ave. Farrington St. Hotel Development
134-37 35th Avenue
Queens: Block 4949, Lots 31, 30

E-Designation # E-246
CEQR #04ECP013Q
Project # 14EHAN384Q

Prepared For:
Farrington Realty, LLC
35-06 Leavitt Street, Unit #CF-A,Flushing, New York 11354
718-939-1060
georgexu88@yahoo.com

Prepared By:
Raymond Chan Architect, PC
136-40 39th Avenue, Flushing, New York 11354
718-445-2345
info@raymondchanarchitect.com

May 2015

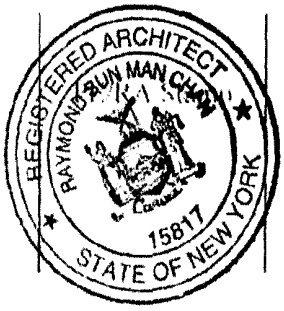
May 12, 2015

Certifications

I, Raymond Chan, am a Registered Architect, licensed in the State of New York and the R.A. of Record with the NYC Department of Buildings for the 134-37 35th Avenue Site. I certify that this Remedial Action Plan (RAP) has a plan for meeting the Air Quality and Noise E-Designation requirements. All architectural and engineering plans and specifications included in the RAP have been either personally developed by me, developed with my oversight or have been developed in collaboration with the co-signer below and they are appropriate for the intended purpose of the RAP and are consistent with industry standards.

Raymond Chan, R.A.
Name

015817
NYS P.E./R.A. License Number



Signature

5/13/15
Date

Eric Chang, P.E.
Name

073791
NYS P.E./R.A. License Number

Signature

5/12/15
Date

It is a violation of Article 130 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education Law

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List of Acronyms

Acronym	Definition
A/C	Air Conditioning
AMV	Alternate Means of Ventilation
CEQR	City Environmental Quality Review
HVAC	Heating, Ventilating and Air Conditioning
IR	Installation Report
NYC DEP	New York City Department of Environmental Protection
NYC DOB	New York City Department of Buildings
NYC OER	New York City Office of Environmental Remediation
NYC DCP	New York City Department of City Planning
OITC	Outdoor-Indoor Transmission Class
PE	Professional Engineer
PTAC	Packaged Terminal Air Conditioning
QA/QC	Quality Assurance/Quality Control
RA	Registered Architect
RAP	Remedial Action Plan
STC	Sound Transmission Class

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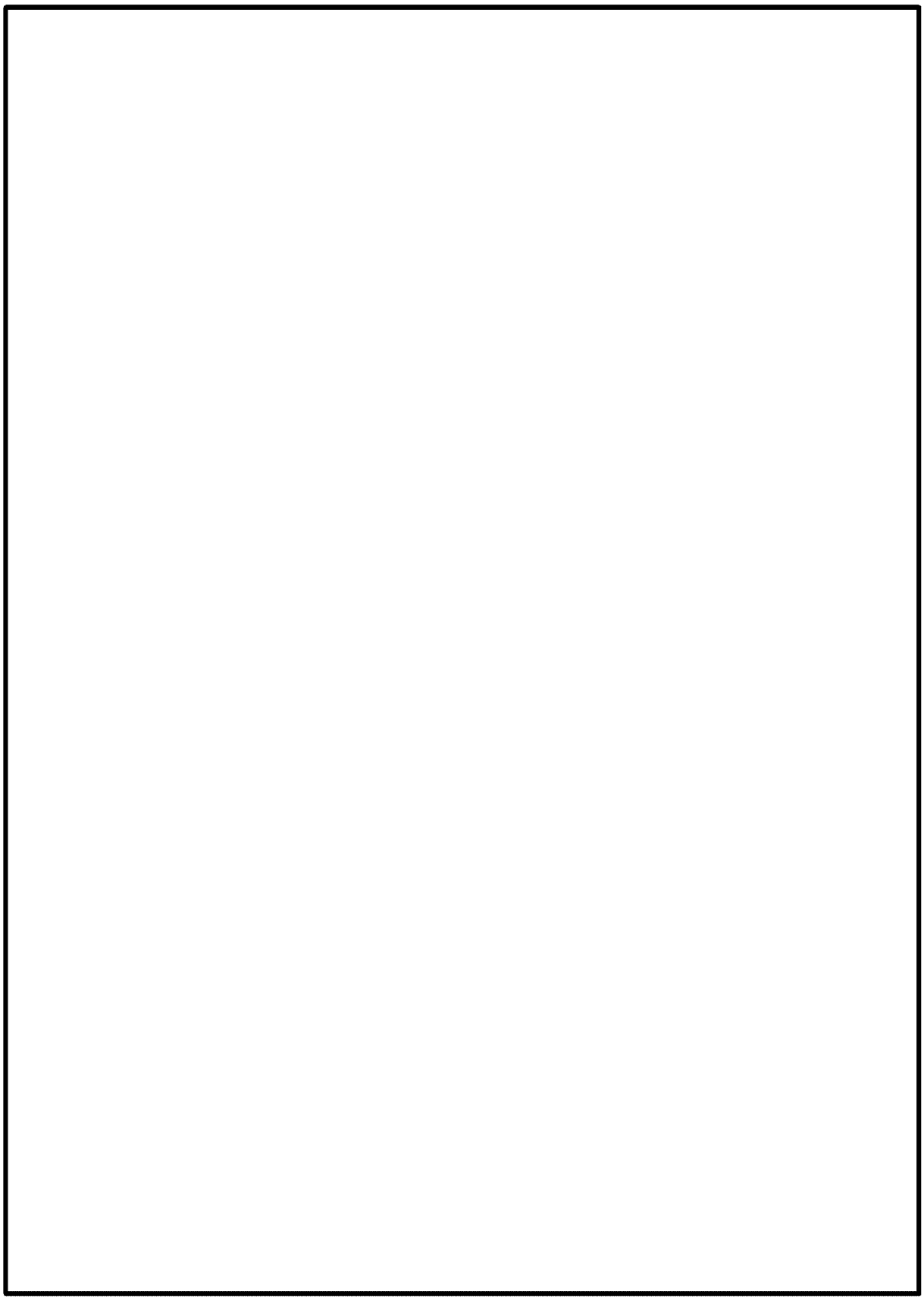
Remedial Action Plan



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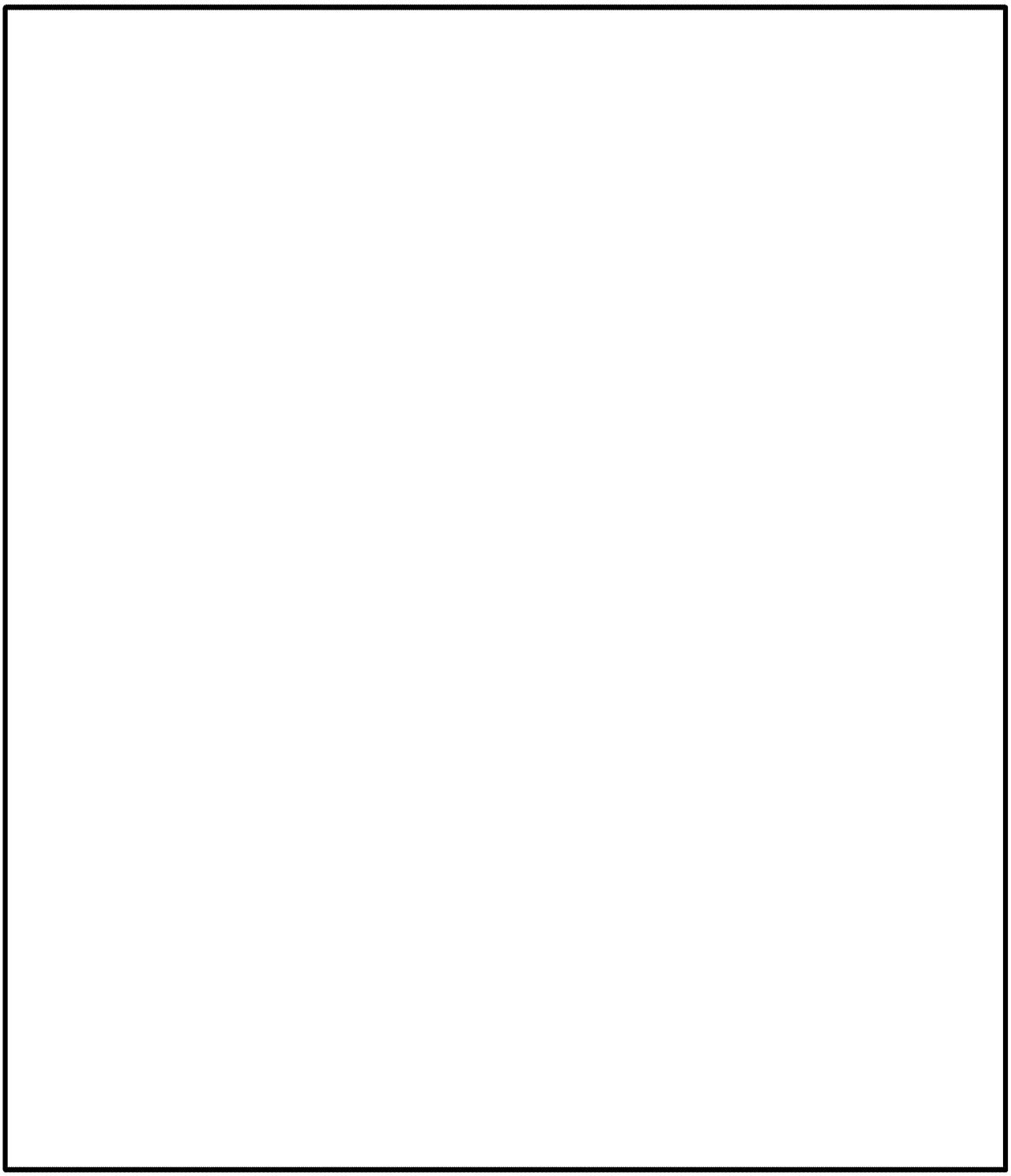

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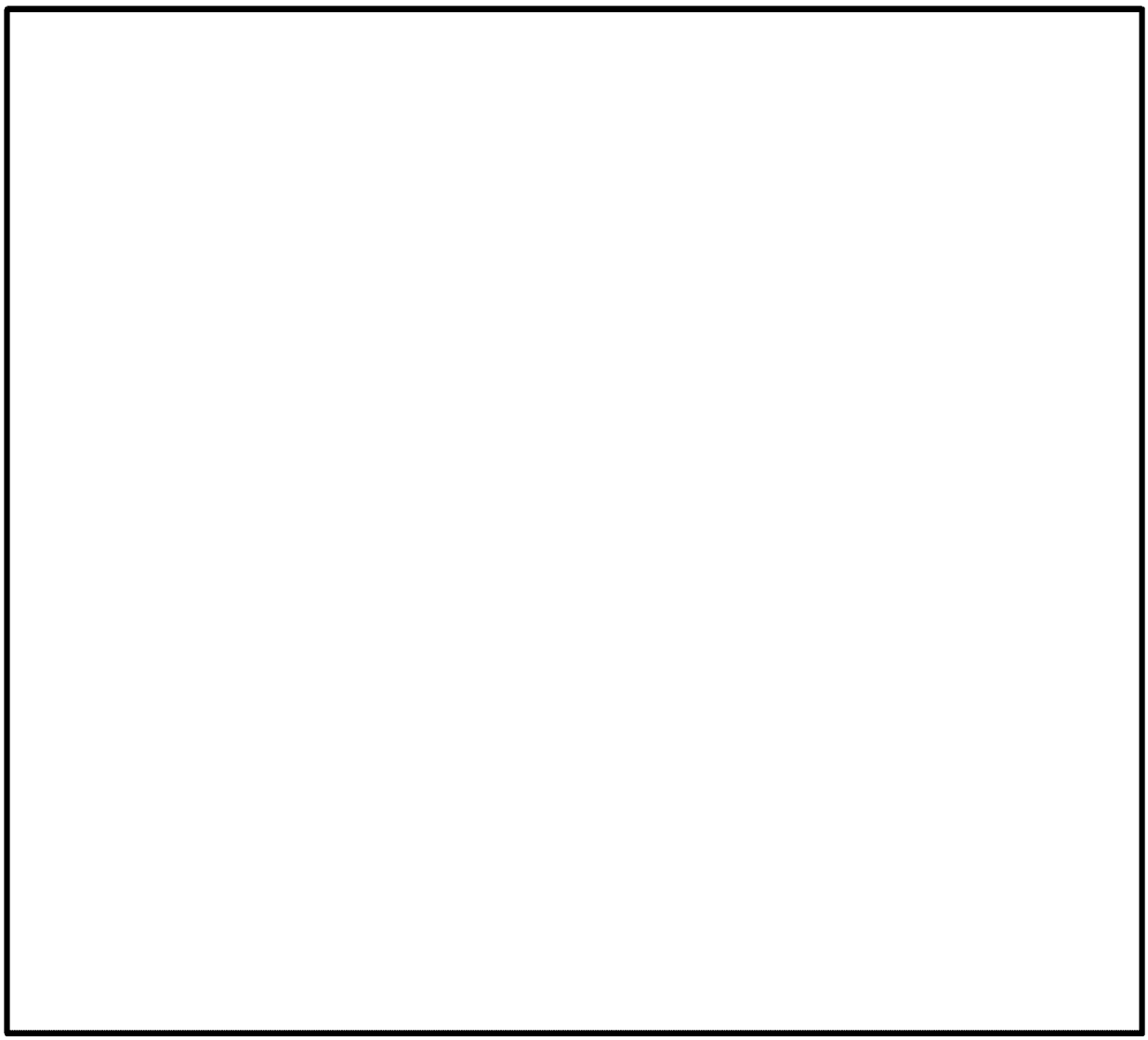

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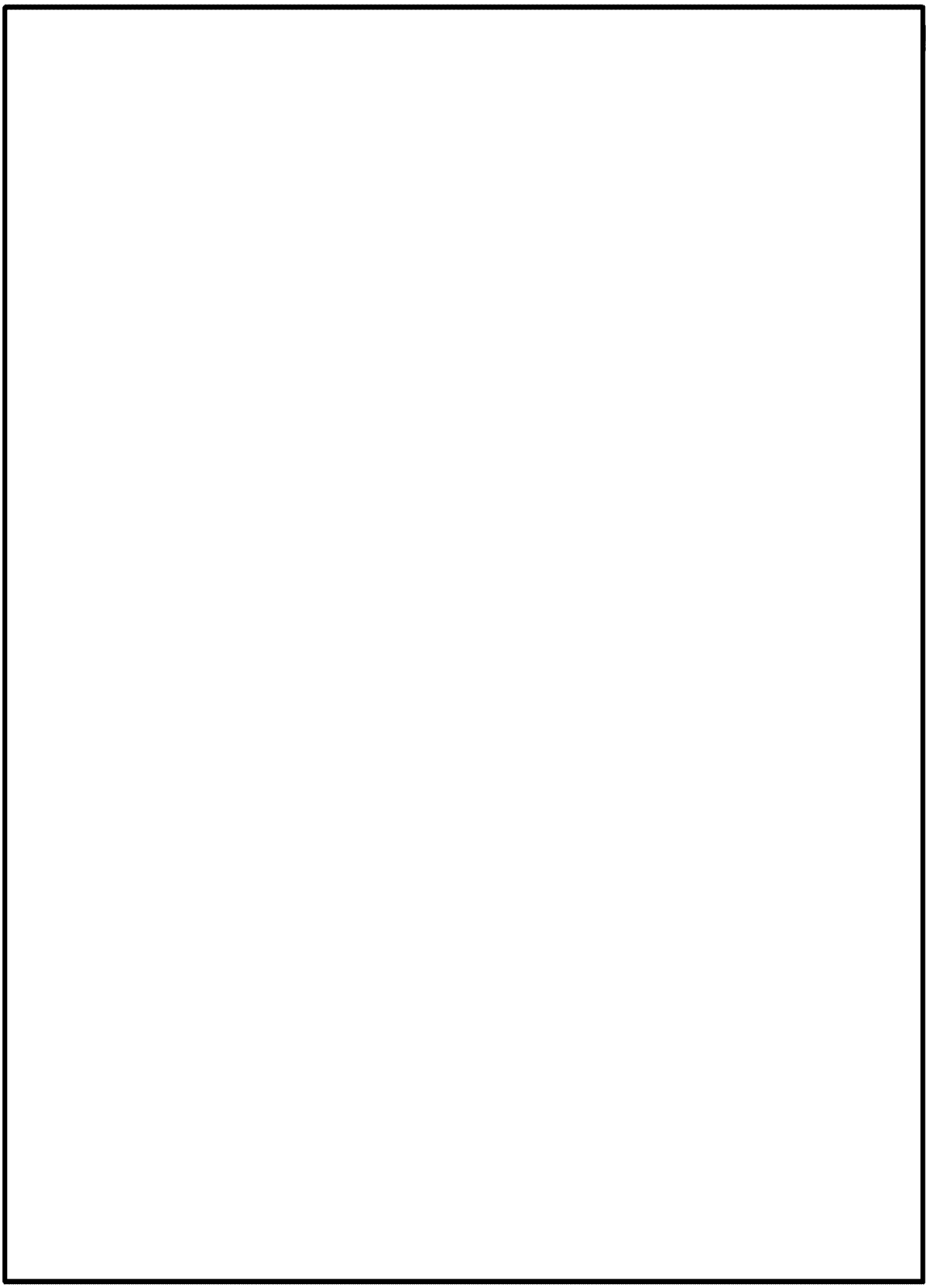
The following window(s) and door(s) will be installed:



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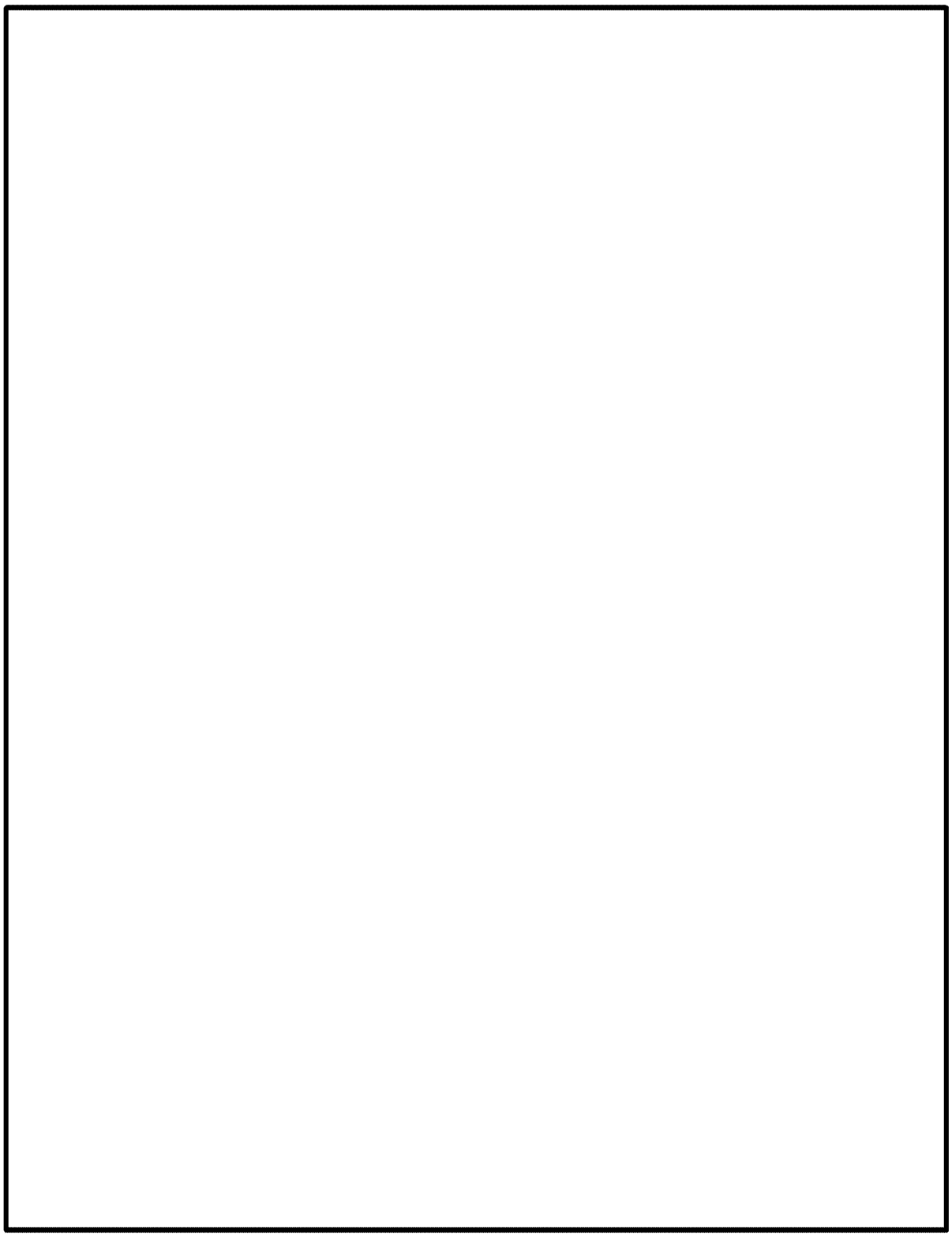

The acoustical reports described above are representative of the acoustical performance of all proposed windows/doors/curtain walls. Color coded elevations and the labeled window schedule attached in Appendix H show the locations of the window/ door types.

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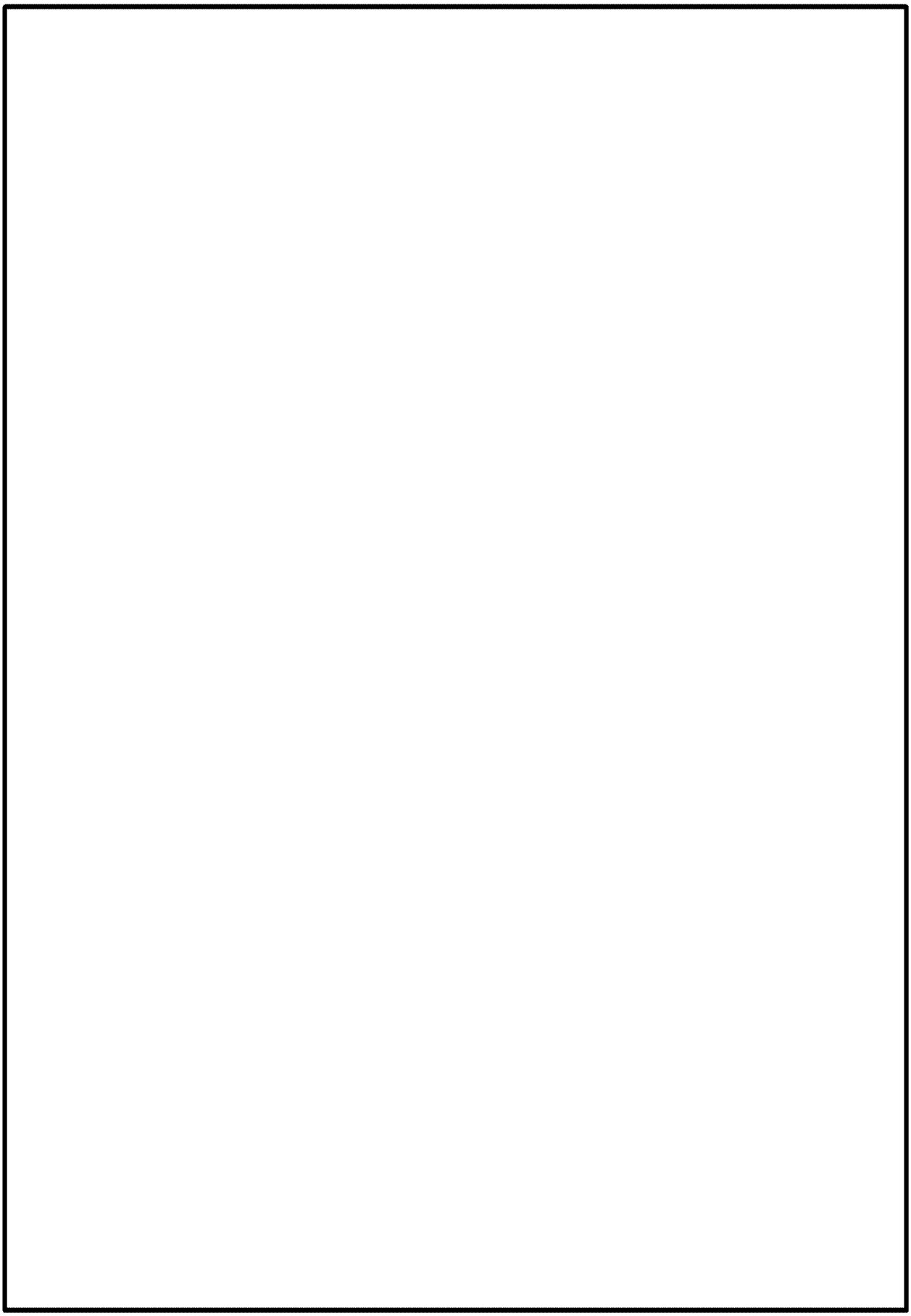

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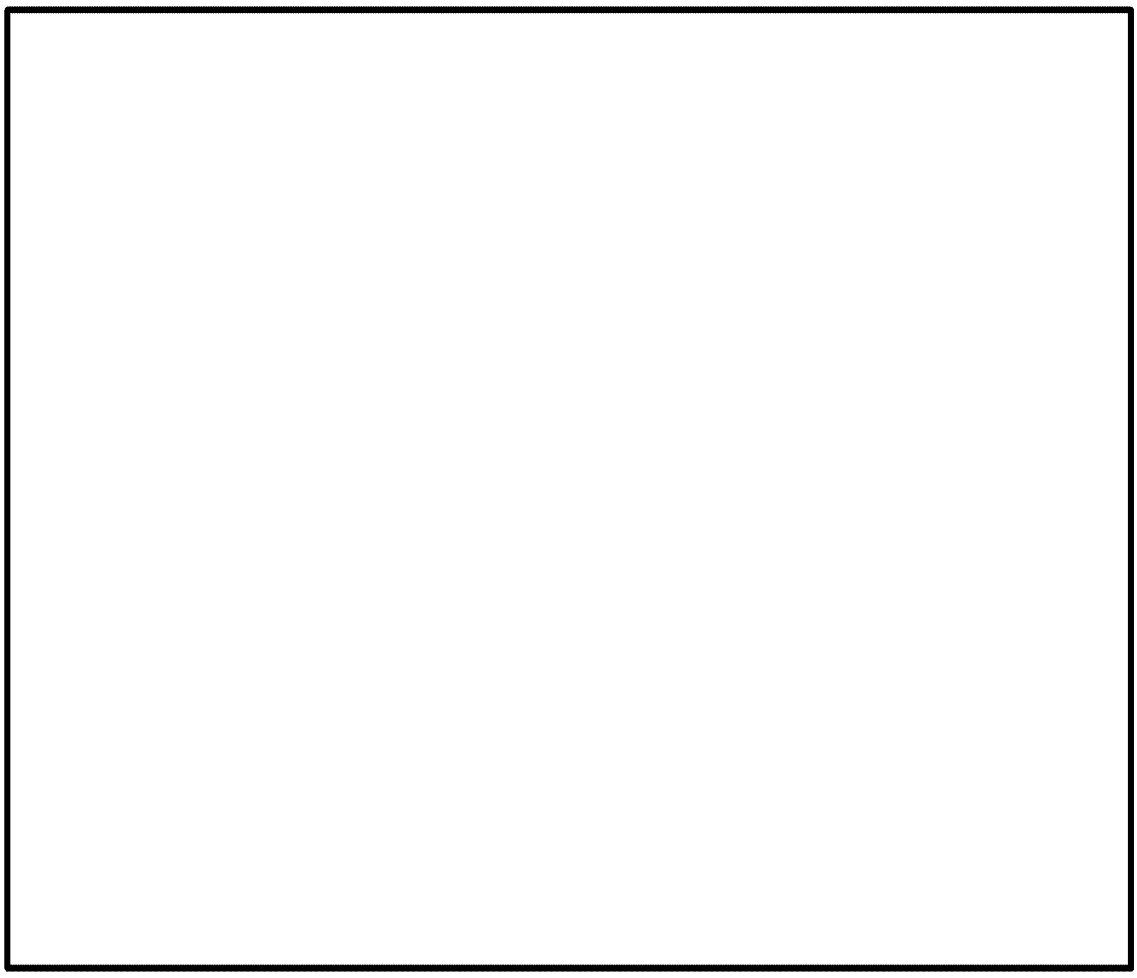

Appendix A

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M-023	Mechanical Heat Pump Condenser Water Riser Diagrams- I
M-024	Mechanical Heat Pump Condenser Water Riser Diagrams- II
M-025	Mechanical Equipment Schedule- I
M-026	Mechanical Equipment Schedule - II
M-027	Mechanical Details- I
M-028	Mechanical Details-I
EN-001	Energy Code Special Inspections- II

Plumbing Drawings

P-001	Plumbing Abbreviations, Symbol List, and Notes
P-002	Plumbing Schedules
P-003	Plumbing Schedules
P-004	Plumbing Site Plan
P-005	Plumbing Sub-Cellar 2 Plan A
P-006	Plumbing Sub-Cellar 2 Plan B
P-007	Plumbing Sub-Cellar 1 Plan A
P-008	Plumbing Sub-Cellar 1 Plan B
P-009	Plumbing Cellar Plan A
P-010	Plumbing Cellar Plan B
P-011	Plumbing 1st Floor Plan A
P-012	Plumbing 1st Floor Plan B
P-013	Plumbing 2nd Floor Plan A
P-014	Plumbing 2nd Floor Plan B
P-015	Plumbing 3rd Floor Plan A
P-016	Plumbing 3rd Floor Plan B
P-017	Plumbing 4th Floor Plan A
P-018	Plumbing 4th Floor Plan B
P-019	Plumbing 5th & 6th Floor Plan A
P-020	Plumbing 5th & 6th Floor Plan B
P-021	Plumbing 7th Floor Plan A
P-022	Plumbing 7th Floor Plan B
P-023	Plumbing 8th Floor Plan A
P-024	Plumbing 8th floor Plan B
P-025	Plumbing 9th-13th Floor Plan A
P-026	Plumbing 9th-13th Floor Plan B
P-027	Plumbing 14th Floor Plan A
P-028	Plumbing 14th Floor Plan B
P-029	Plumbing 15th Floor Plan A
P-030	Plumbing 15th Floor Plan B
P-031	Plumbing Roof Plan A
P-032	Plumbing Roof Plan B
P-033	Plumbing Part Plans-I

P-034	Plumbing Part Plans-II
P-035	Plumbing Water Riser Diagram Part A
P-036	Plumbing Water Riser Diagram Part B
P-037	Plumbing Sanitary Riser Diagram Part A
P-038	Plumbing Sanitary Riser Diagram Part B
P-039	Plumbing Sanitary Riser Diagram Part C
P-040	Plumbing Gas Riser Diagram
P-041	Plumbing Storm Riser Diagram
P-042	Plumbing Detail Sheet No.1
P-043	Plumbing Detail Sheet No.2
P-044	Plumbing Detail Sheet No.3
P-045	Plumbing Detail Sheet No.4
P-046	Plumbing Backflow Preventer Details
P-047	Plumbing Specifications

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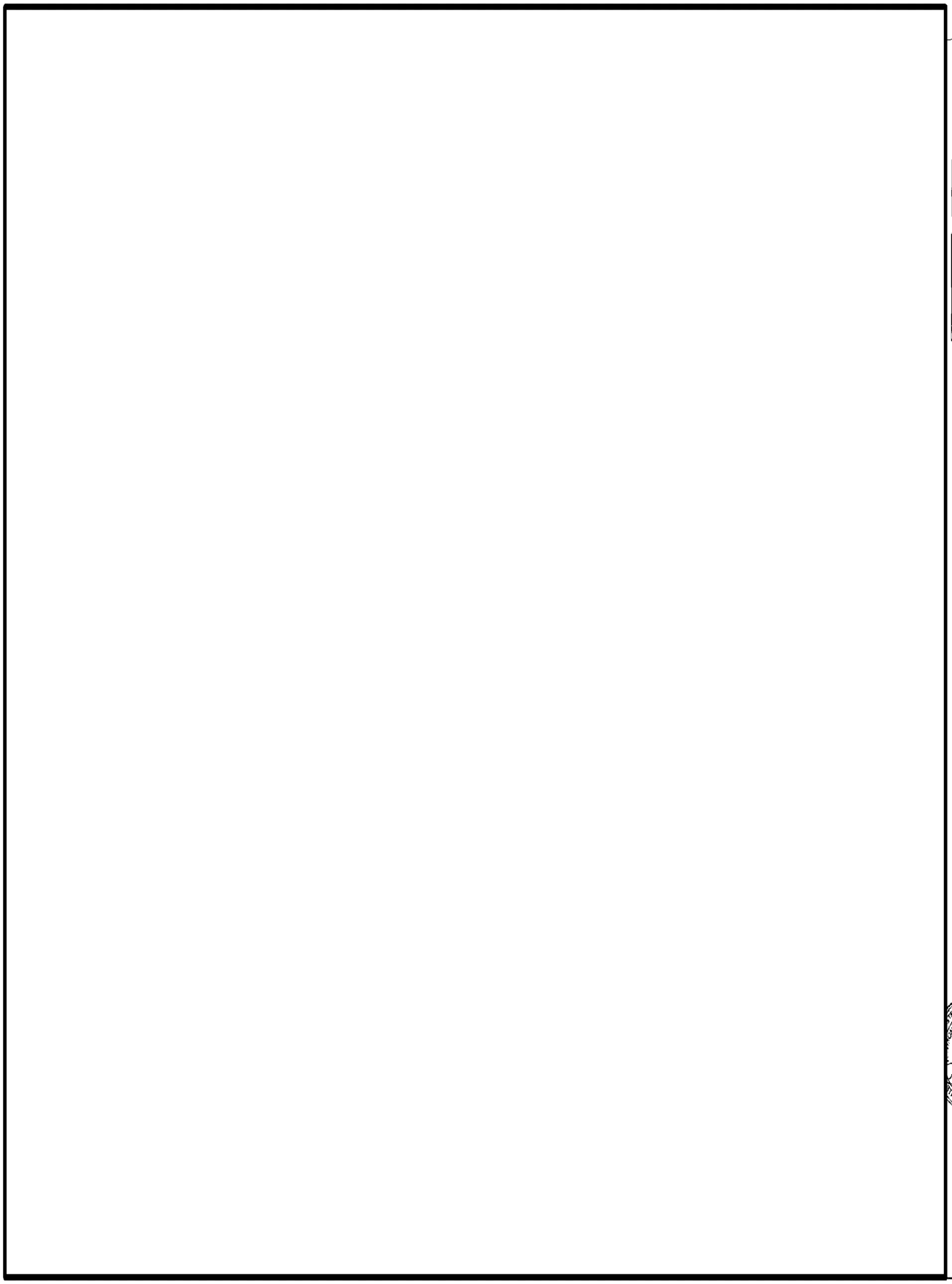

No.	DATE	DESCRIPTION

EGRESS LOAD	
USE	TOTAL OCCUPANT PROPOSED
PARKING GARAGE	141

EGRESS STAIRS TABLE		
STAIR	ACTUAL OCCUPANT PERMITTED	OCCUPANT PROPOSED
A	44'(1)= 147	36
B	44'(1)= 147	35
C	44'(1)= 147	32
D	44'(1)= 147	36
TOTAL	588	141

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE./FARRINGTON ST. FLUSHING

DRAWING TITLE:

SUB-CELLAR 2 (PARKING)

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

VICTOR GEBREGES
TEL: (908) 769-0838 Fax: (908) 769-0839

STRUCTURAL ENGINEER:

WAI-LEUNG NG P.E.
TEL: (917) 515-6216 Fax: (718) 894-6016

13-40 30TH AVENUE FLUSHING, NEW YORK 11354
TEL: (718) 445-2345 Fax: (718) 350-0605
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 10/24/2013 DWG. No.:
PROJECT No.: 0906
PROJECT MANAGER: RCA A-101.00
DRAWN BY: T
CADD FILE NO.: 13-OF-XX

N.Y.C. D.O.B. NO. :

420892323

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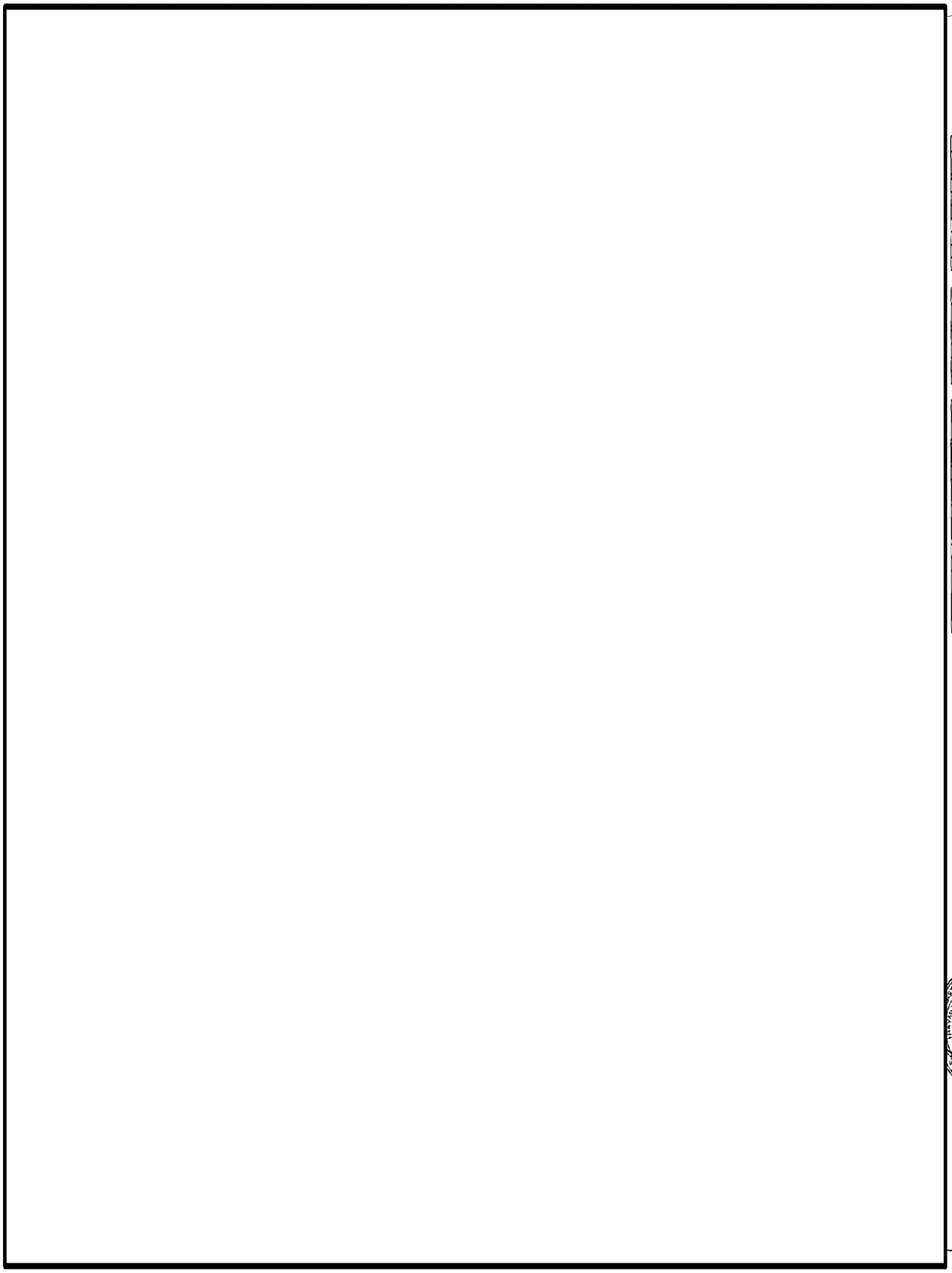

No.	DATE	DESCRIPTION

EGRESS STAIRS TABLE		
STAIR	ACTUAL OCCUPANT PERMITTED	OCCUPANTS PROPOSED
A	44"X0.3= 147	30
B	44"X0.3= 147	27+38= 80
C	44"X0.3= 147	34
D	68"X0.3= 160	102
E	44"X0.3= 147	27
F	44"X0.3= 147	147
TOTAL	985	495

EGRESS LOAD @ RES.	
USE	TOTAL OCCUPANT PROPOSED
LAUNDRY	2
FITNESS ROOM	7
COMMUNITY RM	43
TOTAL	54

EGRESS LOAD @ FOUR POINTS	
USE	TOTAL OCCUPANT PROPOSED
EATING & DRINKING: DINING	112
MEETING ROOM	37
BOARD ROOM	20
LOUNGE	4
FITNESS CENTER	20
POOL	35
GUEST LAUNDRY	4
HOTEL LAUNDRY	4
BREAK ROOM	28
ENGINEERING/ COMPUTER ROOM	-
KITCHEN	4
PARKING GARAGE	69
TOTAL	366

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST.

HOTEL DEVELOPMENT

35TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:

SUB-CELLAR 1

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

VICTOR CERPEDES

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STRUCTURAL ENGINEER:

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ARCHITECT'S + STAMP

ARCHITECTS + PLANNERS

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DATE: 10/10/12 DWG. No.:

PROJECT No.:

PROJECT MANAGER: SCA

DRAWN BY:

CADD FILE No.:

A-102.00

14-OF-XX

N.Y.C. D.O.B. NO.

420892323

(b)(4)

No	DATE	DESCRIPTION

EGRESS STAIRS TABLE		
STAIR	ACTUAL OCCUPANT PERMITTED	OCCUPANT PROPOSED
A	49*0.3= 147	35 + 61 = 96
B	49*0.3= 147	80 - 47 = 147
C	49*0.3= 147	34+61 = 95
D	49*0.3= 192	100
E	49*0.3= 147	21
F	49*0.3= 147	147
TOTAL	855	622

EGRESS LOAD @ RES.	
TYPE	TOTAL OCCUPANT PROPOSED
LOBBY	41
OFFICE	1
TOTAL	42

EGRESS LOAD @ RETAILS	
USE	TOTAL OCCUPANT PROPOSED
RETAILS (1)	50+3 = 161

EGRESS LOAD @ FOUR POINTS	
USE	TOTAL OCCUPANT PROPOSED
LOBBY	145
VAUNA (NOOM)	0
GENERAL MANAGER	3
SALES OFFICE	3
ACCOUNTING OFFICE	3
TOTAL	65

NOTE: THIS IS A SCHEMATIC DESIGN & S-HALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
35th AVE./HARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE./FARRINGTON ST. FLUSHING

DRAWING TITLE:
CELLAR PLAN (GROUND 1)
SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:
VICTOR CHIPREDES
TEL: (908) 789-0659 Fax: (908) 789-0659

STRUCTURAL ENGINEER:
WAI-LEUNG NG, P.E.
TEL: (917) 515-5226 Fax: (718) 886-0016

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DATE: DRAWING: DWG. NO:
PROJECT NO.:
PROJECT MANAGER: WNG
DRAWN BY:
CADD FILE NO.: A-103.00
15-OF-XX

N.Y.C. D.O.B. NO. :
420892323

(b)(4)

No.	DATE	DESCRIPTION

EGRESS LOAD	
USE	TOTAL OCCUPANT PROPOSED
PARKING	62

EGRESS STAIRS TABLE		
STAIR	ACTUAL OCCUPANT PERMITTED	OCCUPANT PROPOSED
A	44"@.3= 147	26
C	44"@.3= 147	26
TOTAL	294	52 < 294

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:

1ST FLOOR PLAN

SCALE: 1/32" = 1'-0"

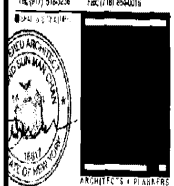
M.E.P. ENGINEER:

VICTOR DEPHOUSE
TEL (908) 789-0859 Fax: (908) 789-0859

STRUCTURAL ENGINEER:

ANNA ENG NO P.E.
TEL (917) 515-3638 Fax: (718) 8540216

SEAL & SIGNATURE:



ARCHITECTS & PLANNERS

136-40 39TH AVENUE, FLUSHING, NEW YORK 11354
TEL: (718) 445-2788 Fax: (718) 961-0889
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DATE:	DRAWING NO.:
PROJECT NO.:	A-104.00
PROJECT MANAGER:	
DRAWN BY:	
CADD FILE NO.:	16-OF-XX

N.Y.C. D.O.B. NO. :

420892323

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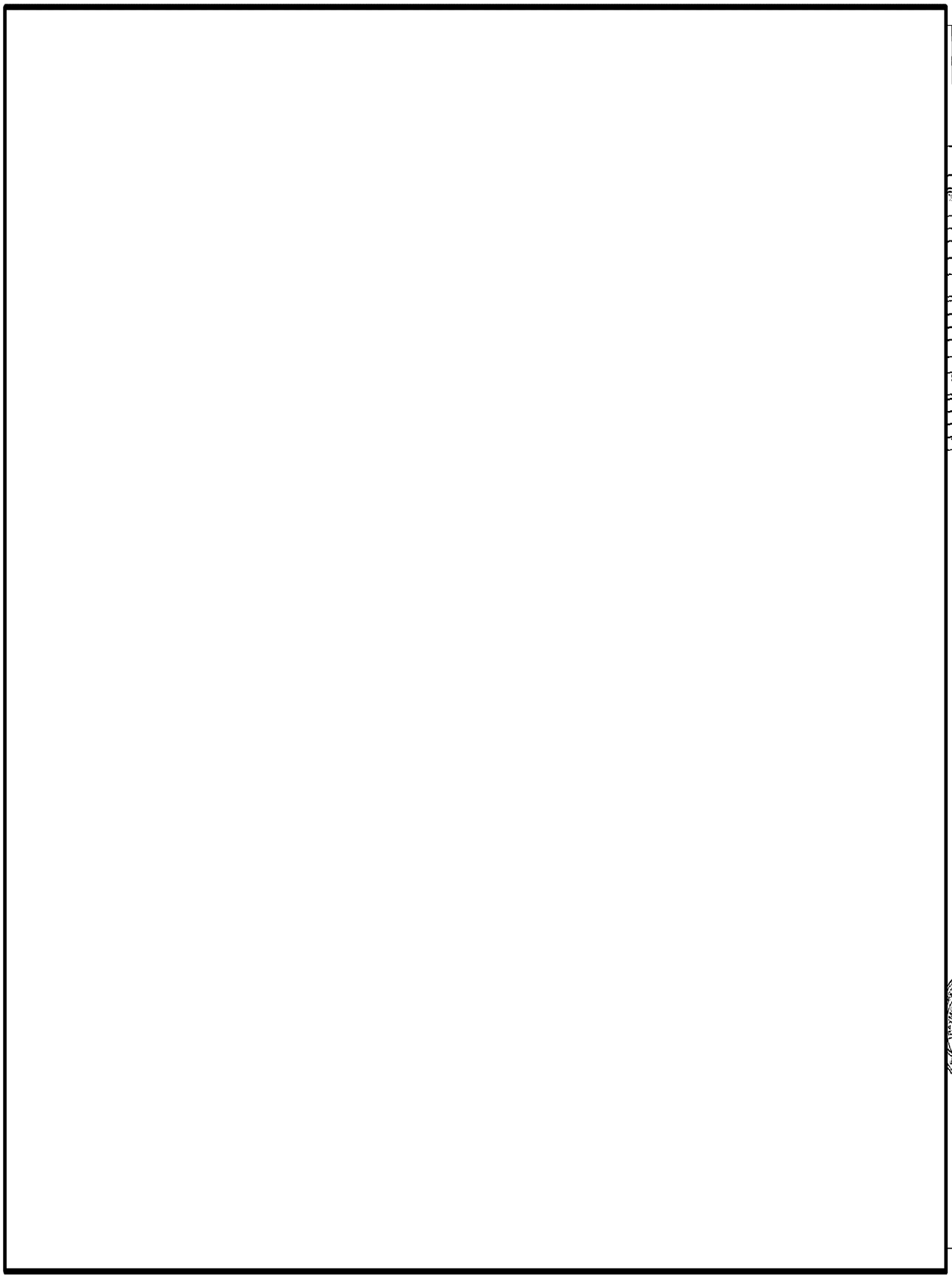

No.	DATE	DESCRIPTION

2ND FLOOR (FOUR-PLANTS)	
ROOM TYPE	NO. OF ROOM PROPOSED
DOUBLE ROOM (TWIN)	
KING (S)	12
OTHER	15

EGRESS LOAD	
USE	TOTAL OCCUPANT PROPOSED
GUESTROOMS	39
ROOM CLUB	140
TOTAL	179

EGRESS STAIRS TABLE		
STAIR	ACTUAL OCCUPANT (1st+MT 16.)	OCCUPANT PROPOSED
A	4,190.3sf / 147	14 : 47=81
B	4,190.3sf / 47	47
C	4,190.3sf / 47	14 : 47=81
TOTAL	441	80 : 441

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST. HOTEL DEVELOPMENT

35TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:

2ND FLOOR PLAN

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

VICTOR CASTELOES

Tel: (888) 758-0251 Fax: (888) 758-0818

STRUCTURAL ENGINEER:

WAH LEUNG NG, P.E.

Tel: (917) 519-3238 Fax: (718) 854-0016

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Web: www.raymondchanarchitect.com

DATE:	ISSUANCE:
PROJECT No.:	DWG. No.:
PROJECT MANAGER:	A-105.00
DRAWN BY:	
CADD FILE No.:	17-OF-XX

N.Y.C. D.O.B. NO. :

420892323

(b)(4)

No.	DATE	DESCRIPTION

3RD FLOOR (FOUR-POINTS)

ROOM TYPE	NO. OF ROOM PROPOSED
KING (KG)	18
KING (KG) (ADA)	1
QUEEN (QQ)	21
QUEEN (QQ) (ADA)	1
TOTAL	41

EGRESS LOAD

USE	TOTAL OCCUPANT PROPOSED
GUESTROOMS	122

EGRESS STAIRS TABLE

STAIR	ACTUAL OCCUPANT PERMITTED	OCCUPANT PROPOSED
A	4,490 sq.ft/ 147	41
B	4,490 sq.ft/ 147	41
C	4,490 sq.ft/ 147	40
TOTAL	441	122 441

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE./FARRINGTON ST. FLUSHING

DRAWING TITLE:

3RD FLOOR PLAN

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

VICTOR SHEPEARS
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STRUCTURAL ENGINEER:

WALBERG NG P.E.
Tel: (917) 518-5268 Fax: (718) 554-0016

ARCHITECT & PLANNERS

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Web: www.gymnastcorporation.com

DATE:	07/09/12
PROJECT NO.:	1045
PROJECT MANAGER:	T.S.
DRAWN BY:	T
CADD FILE NO.:	

DWG. NO.:

A-106.00

SHEET: 8 OF XX

N.Y.C. D.O.B. NO. :

420892323

(b)(4)

No.	DATE	DESCRIPTION

4TH FLOOR (FOUR-POINTS)	
ROOM TYPE	NO. OF ROOM PROPOSED
DOUBLE ROOM (2 BEDS)	9
TWIN ROOM (2 BEDS + KING BED)	
KING (2)	21
KING (HCAP) (2)	
TOTAL	42

EGRESS LOAD	
USE	TOTAL OCCUPANT PROPOSED
GUESTROOMS	124

EGRESS STAIRS TABLE		
STAIR	ACTUAL OCCUPANT PERMITTED	OCCUPANT PROPOSED
A	44"/0.3= 147	41
B	44"/0.3= 147	41
C	44"/0.3= 147	41
TOTAL	441	124 < 441

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE./ FARRINGTON ST. FLUSHING

DRAWING TITLE:
4TH FLOOR PLAN
SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:
VICTOR GERPEGER
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STRUCTURAL ENGINEER:
WAI LEUNG NG, P.E.
Tel: (917) 518-3258 Fax:(718) 554-2016

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136-20 38TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-4858
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Web: www.gaymondchantarchitect.com

DATE: 10/20/15 DWG. NO.:
PROJECT NO.: 1545
PROJECT MANAGER: TCA
DRAWN BY: T
CADD FILE NO.: 1545 REVIT 2015
A-107.00
19-OF-XX

N.Y.C. D.O.B. NO.:
420892323

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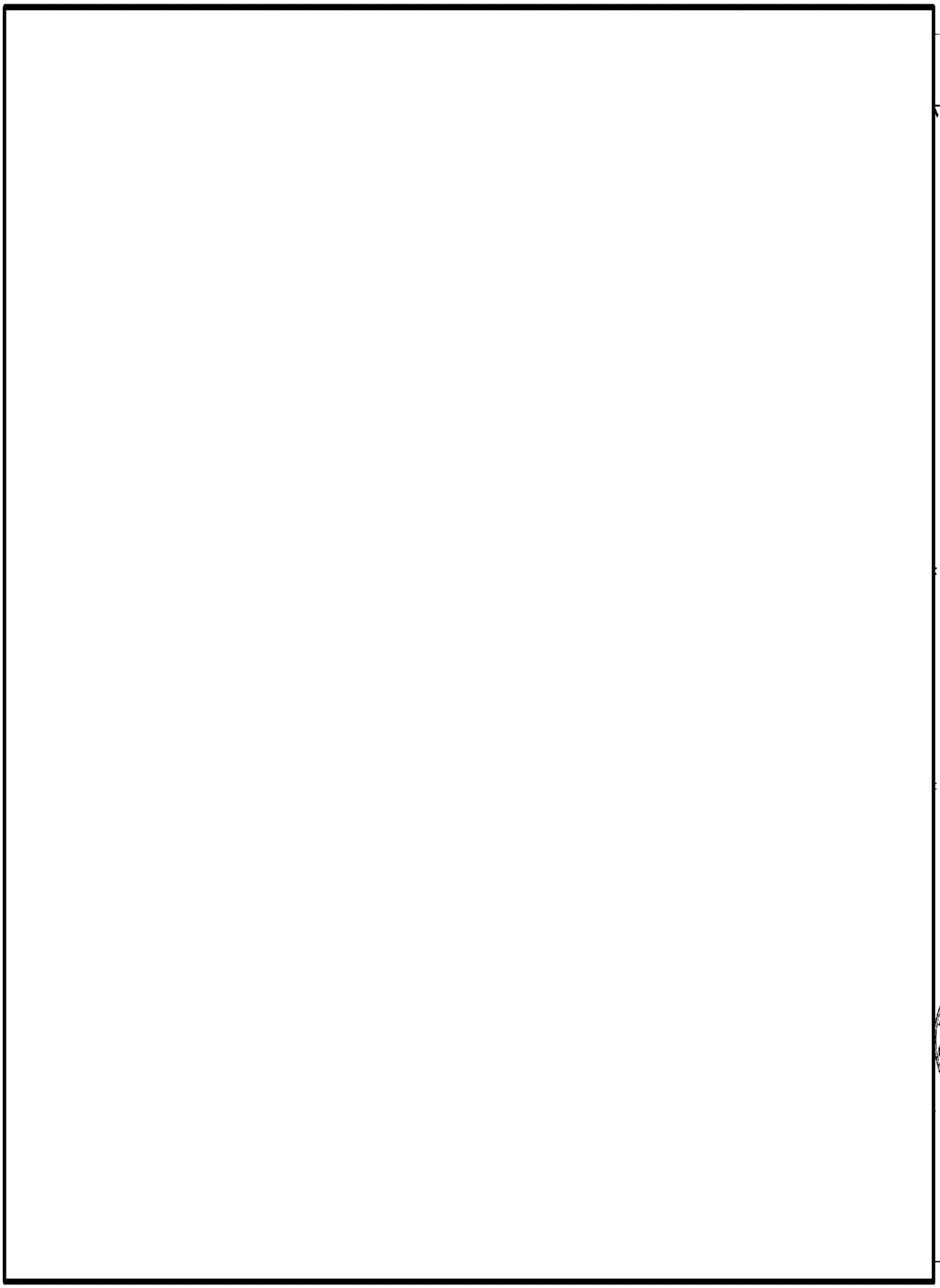


No.	DATE	DESCRIPTION

5TH & 7TH FLOOR (FOUR POINTS)	
ROOM TYPE	NO. OF ROOMS PROPOSED
DOUBLE DOUBLE (DD)	7
DOUBLE DOUBLE ACCESSIBLE (DD/A)	1
KING (K)	15
KING ACCESSIBLE (K/A)	1
TOTAL	35

EGRESS LOAD	
USE	TOTAL OCCUPANT PROPOSED
GUESTROOMS	72

EGRESS STAIRS TABLE		
STAIR	ACTUAL OCCUPANT PERMITTED	OCCUPANT PROPOSED
A	4 X 30.3m² / 4.7	38
B	4 X 30.3m² / 4.7	37
C	4 X 30.3m² / 4.7	37
OTAL	441	112 = 141

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE./ FARRINGTON ST. FLUSHING

DRAWING TITLE:

5TH & 7TH FL. PLAN

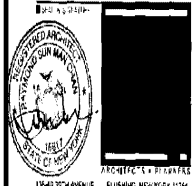
SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

VICTOR CESPEDES
Tel: (908) 788-0659 Fax: (908) 7884659

STRUCTURAL ENGINEER:

WAI-LEUNG NG, P.E.
TEL: (917) 518-5238 Fax: (718) 554-0016



ARCHITECT & PLANNER
135-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-6809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: DWG. NO.:

PROJECT NO.:

PROJECT MANAGER: RYA

DRAWN BY:

CADD FILE NO.:

A-108.00

20-OF-XX

N.Y.C. D.O.B. NO. :

420892323

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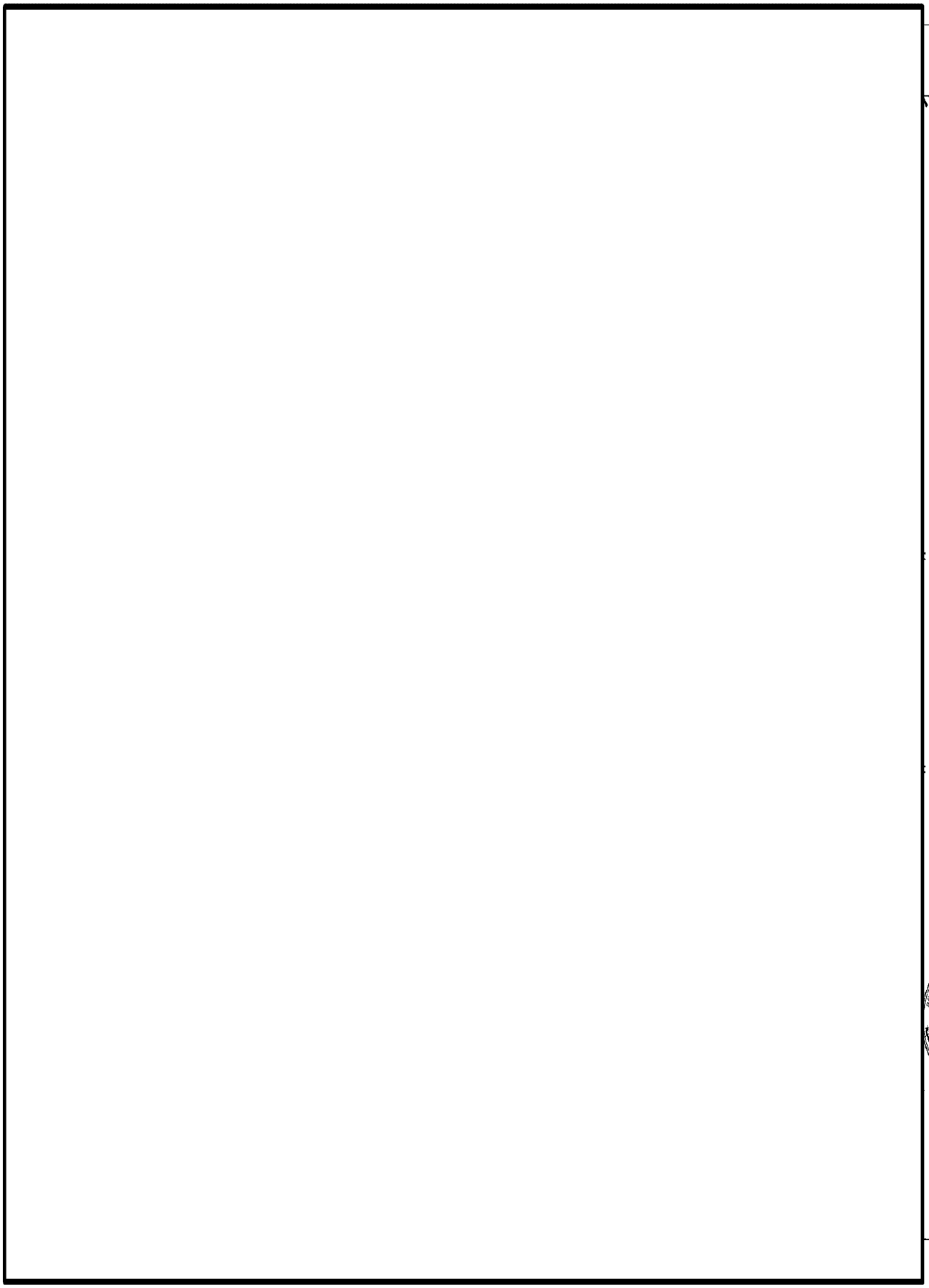

No.	DATE	DESCRIPTION

6TH FLOOR (FOUR POINTS)	
ROOM TYPE	NO. OF ROOMS PROPOSED
COURT "DOUBLE" (A)	47
COURT "DOUBLE" (ADA TA ISA)	1
KING (C)	19
KING (ADA) (CA)	1
TOTAL	68

EGRESS LOAD	
USE	TOTAL OCCUPANT PROPOSED
GUESTROOMS	112

EGRESS STAIRS TABLE		
STAIR	ACTUAL OCCUPANT PERMITTED	OCCUPANT PROPOSED
A	441/3=147	38
B	441/3=147	37
C	441/3=147	37
TOTAL	441	112 < 441

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST. HOTEL DEVELOPMENT

35TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:

6TH FLOOR PLAN

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

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DATE:	SCALE:	DWG. No.:
PROJECT MGR:		
PROJECT MANAGER:		A-109.00
DRAWN BY:		
CADD FILE NO.:		21-OF-XX

N.Y.C. D.O.B. NO. :

420892323

(b)(4)

No.	DATE	DESCRIPTION

8TH FLOOR (RESIDENTIAL)	
ROOM TYPE	NO. OF ROOM PROPOSED
1 BEDROOM (1B)	5
2 BEDROOM (2)	8
TOTAL	13

EGRESS LOAD	
USE	TOTAL OCCUPANTS PROPOSED
APARTMENTS	94

EGRESS STAIRS TABLE		
STAIR	TOTAL OCCUPANT PERMITTED	OCCUPANT PROPOSED
A	44" (1.1m) 147	47
B	44" (1.1m) 147	47
TOTAL	294	94 < 294

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST. HOTEL DEVELOPMENT

35TH AVE./FARRINGTON ST. FLUSHING

DRAWING TITLE:

8TH FLOOR PLAN

SCALE: 3/32" = 1'-0" (RES.)

M.E.P. ENGINEER:

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STRUCTURAL ENGINEER:

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DATE: MM/DD/YY DWG. No:
PROJECT No.: XXX
PROJECT MANAGER: CYR
DRAWN BY: T
CAD FILE NO.: A-110.00
22-OF-XX

N.Y.C. D.O.B. NO. :

420892323

(b)(4)

No.	DATE	DESCRIPTION

9TH~13TH FLOOR (RESIDENTIAL)	
ROOM TYPE	NO. OF ROOM PROPOSED
1 BEDROOM (B)	4
2 BEDROOM (C)	9
TOTAL	13

EGRESS LOAD	
USE	TOTAL OCCUPANT PROPOSED
APARTMENTS	94

EGRESS STAIRS TABLE		
STAIR	ACTUAL OCCUPANT PERMITTED	OCCUPANT LOAD PROPOSED
A	44ft(3)= 147	47
B	44ft(3)= 147	47
TOTAL	294	94 < 294

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE./ FARRINGTON ST. FLUSHING

DRAWING TITLE:

9TH~13TH FL. PLAN

SCALE: 3/32" = 1'-0" (RES.)

MECH. ENGINEER:

VICTOR CESPEDES
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STRUCTURAL ENGINEER:

AVAILABLE NOW P.E.
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DATE: DWG No.:
PROJECT No.:
PROJECT MANAGER:
DRAWN BY:
CADD FILE NO.:

A-111.00
23-OF-XX

N.Y.C. D.O.B. NO. :

420892323

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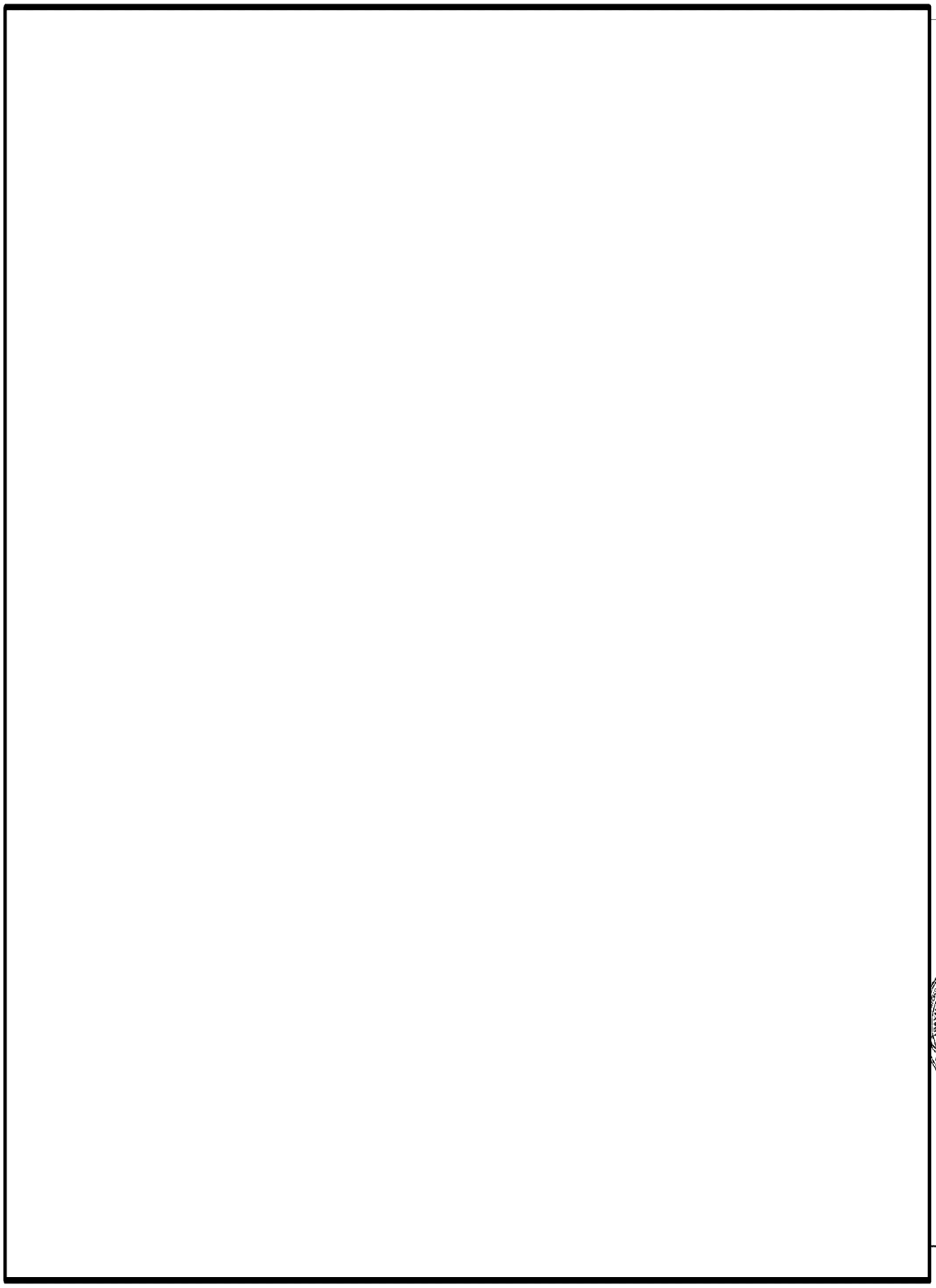


No.	DATE	DESCRIPTION

14TH FLOOR (RESIDENTIAL)	
ROOM TYPE	NO. OF ROOM PROPOSED
1 BEDROOM (A)	2
2 BEDROOM (B)	9
PENTHOUSE (E)	5
TOTAL	116

EGRESS LOAD	
USE	TOTAL OCCUPANT PROPOSED
APARTMENTS	91

EGRESS STAIRS TABLE		
STAIR	ACTUAL OCCUPANT PERMITTED	OCCUPANT PROPOSED
A	0.2*91 = 18.2	47
B	0.2*91 = 18.2	47
TOTAL	294	94 < 294

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE./ FARRINGTON ST. FLUSHING

DRAWING TITLE:

14TH FLOOR PLAN

SCALE: 3/32" = 1'-0" (RES.)

M.E.P. ENGINEER:

VICTOR OBERMEIER
Tel: (908) 789-0859 Fax: (908) 789-0859

STRUCTURAL ENGINEER:

WAI K. LUNG, P.E.
Tel: (917) 519-1258 Fax: (718) 854-600 6

ARCHITECT'S & PLANNER

136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 FAX: (718) 359-8695
E-mail: info@raymondschwartzarchitect.com
Web: www.raymondschwartzarchitect.com

DATE: DWG. No.:
PROJECT No.:
PROJECT MANAGER:
DRAWN BY:
CADD FILE NO.:

A-112.00

24-OF-XX

N.Y.C. D.O.B. NO. :

420892323

(b)(4)

No.	DATE	DESCRIPTION

15TH FLOOR (RESIDENTIAL)	
ROOM TYPE	NO. OF ROOM PROPOSED
1 BEDROOM (1B)	1
2 BEDROOM (2)	8
3 BEDROOM (3)	1
PENTHOUSE (SF)	5
TOTAL	15

EGRESS LOAD	
USE	TOTAL OCCUPANT PROPOSED
APARTMENTS	91

EGRESS STAIRS TABLE		
STAIR	42" DUAL OCCUPANT PERMITTED	OCCUPANT PROPOSED
A	44"(1.1m) x 47	47
B	44"(1.1m) x 47	47
TOTAL	794	94 < 794

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:

15TH FLOOR PLAN

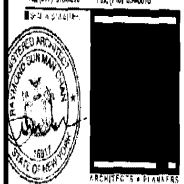
SCALE: 3/32" = 1'-0" (RES.)

M.E.P. ENGINEER:

VICTOR GEBREBES
Tel: (908) 789-0659 Fax: (908) 789-0652

STRUCTURAL ENGINEER:

WAI LEUNG P.E.
Tel: (917) 516-2236 Fax: (718) 854-0016



ARCHITECTS & PLANNERS

13042 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2945 Fax: (718) 359-5696
Email: info@raymondchanarch.com
Web: www.raymondchanarch.com

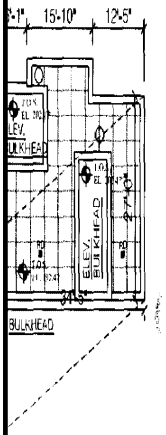
DATE:	DWG. NO.:
PROJECT NO.:	A-113.00
PROJECT MANAGER:	
DRAWN BY:	
CADD FILE NO.:	25-OF-XX

N.Y.C. D.O.B. NO. :

420892323

(b)(4)

No.	DATE	DESCRIPTION



NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:
ROOF PLAN
SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:
VICTOR GRIPPALDI
Tel: (908) 769-0059 Fax: (908) 769-0059

STRUCTURAL ENGINEER:
WAI-LEUNG NG, P.E.
Tel: (917) 515-5216 Fax: (718) 554-0016

ARCHITECTS & PLANNERS
135-40 20TH AVENUE FLUSHING, NEW YORK 11354
TEL: (718) 445-2040 Fax: (718) 554-0059
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 02/09/10 DWG. No.:
PROJECT No.: 1003
PROJECT MANAGER: RC
DRAWN BY: T
CAD FILE NO.: 1003-2010 (DH).dwg
A-114.00
26-OF-XX

N.Y.C. D.O.B. NO.:
420892323

(b)(4)

No.	DATE	DESCRIPTION

TY

LEGEND:

METAL COMPOSITE PANEL
SYSTEM W/ 1/2" JOINT COLOR I

METAL COMPOSITE PANEL
SYSTEM W/ 1/2" JOINT COLOR II

METAL COMPOSITE PANEL
SYSTEM W/ 1/2" JOINT COLOR III

1-1/4" THICK GRANITE SLAB WITH HEAVY DUTY S.S. MECHANICAL FASTENER AS PER MANUFACTURERS REQUIREMENTS(TYP.)

1" THK. INSULATED CLEAR GLASS
(SEE VISION SYSTEM SCHEDULE FOR MANUFACTURER & MODEL)

1" THK. INSULATED GLASS SPANDREL
(SEE VISION SYSTEM SCHEDULE FOR MANUFACTURER & MODEL)

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE./FARRINGTON ST. FLUSHING

DRAWING TITLE:
EAST ELEVATION
SCALE: 3/32"= 1'-0"

M.E.P. ENGINEER:
VICTOR CESPEDES
TEL: (929) 784-0859 FAX: (929) 784-0859

STRUCTURAL ENGINEER:
WAI LEUNG NG, P.E.
TEL: (917) 518-3238 Fax: (718) 854-2016

[redacted]

ARCHITECT'S & PLANNERS
136-48 39TH AVENUE FLUSHING, NEW YORK 11354
TEL: (718) 445-2745 Fax: (718) 539-3089
Email: bldg@gymondstone4@aol.com
Web: www.raymondstone4@aol.com

DATE: 10/4/2017 DWG. No.:
PROJECT No.: 1-16
PROJECT MANAGER: R.S.
DRAWN BY: F.
CAD FILE NO.: A-501.00
XX-OF-XX

N.Y.C. D.O.B. NO.:
420892323

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:

SOUTH ELEVATION

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

VICTOR DESPRADEL
Tel: (908) 789-0855 Fax: (908) 789-0859

STRUCTURAL ENGINEER:

WANLEUNG P.E.
Tel: (917) 846-5838 Fax: (718) 854-3019

ARCHITECTS + PLANNERS
138-42 35TH AVENUE FLUSHING, NEW YORK 11354
Tel: 718-445-2345 Fax: (718) 358-6696
Email: info@raymondshaw.com
Web: www.raymondshaw.com

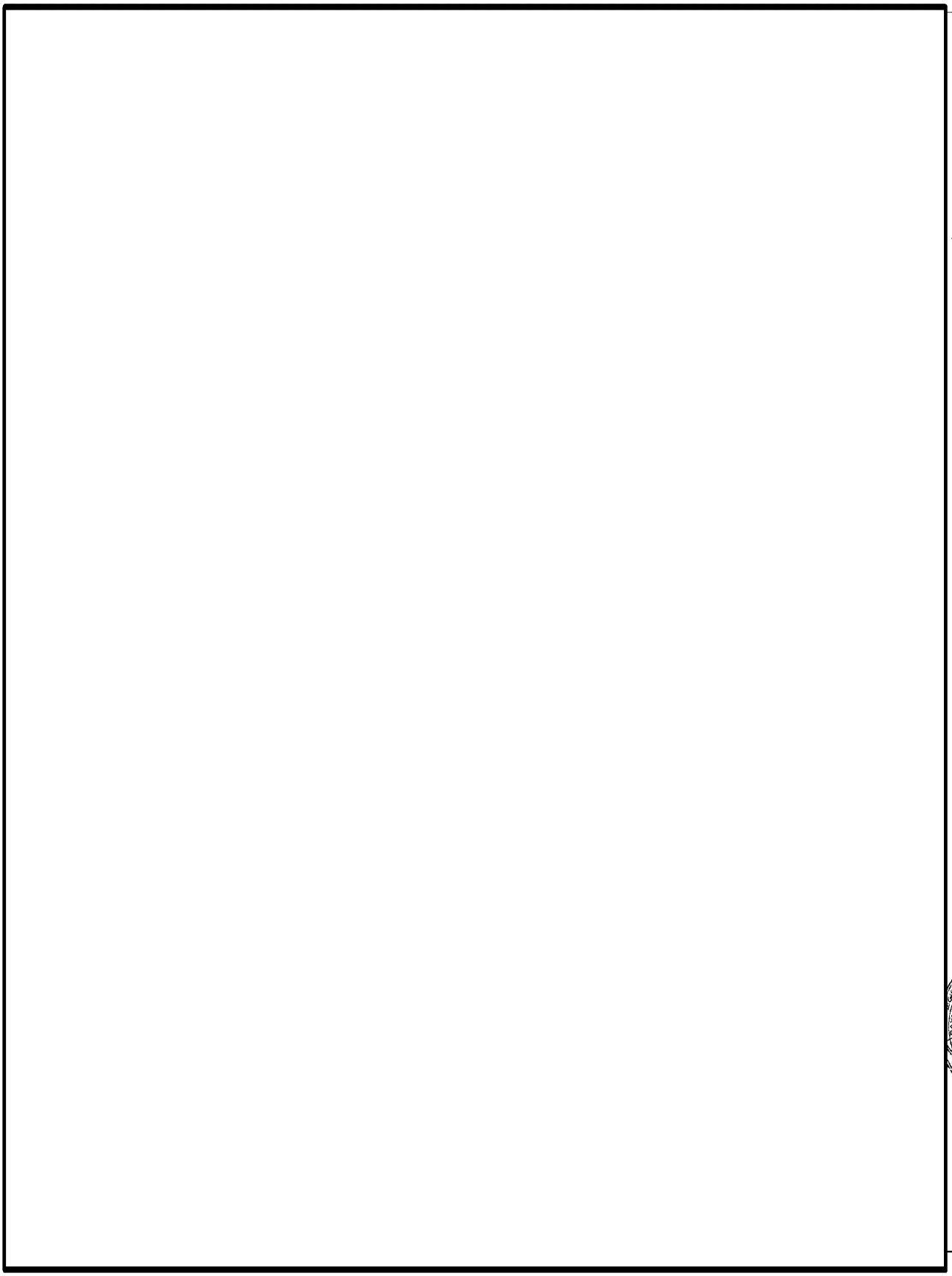
DATE: DRAWING NO: DWG. No:
PROJECT No.:
PROJECT MANAGER:
DRAWN BY:
CADD FILE NO:

A-502.00
XX-OF-XX

N.Y.C. D.O.B. NO. :

420892323

(b)(4)



No.	DATE	DESCRIPTION

LEGEND:

METAL COMPOSITE PANEL
SYSTEM W/ 1/2" JOINT, COLOR I

METAL COMPOSITE PANEL
SYSTEM W/ 1/2" JOINT, COLOR II

METAL COMPOSITE PANEL
SYSTEM W/ 1/2" JOINT, COLOR III

1-1/4" THICK GRANITE SLAB WITH
HEAVY DUTY S.S. MECHANICAL
FASTENER AS PER MANUFACTURER'S
REQUIREMENTS (TYP.)

1" THK. INSULATED
CLEAR GLASS
(SEE WINDOW SCHEDULE FOR
MANUFACTURER'S MODEL)

1" THK. INSULATED
GLASS SPANDREL
(SEE WINDOW SCHEDULE FOR
MANUFACTURER'S MODEL)

NOTE: THIS IS A SCHEMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT. OF BLDGS OR
ZONING AND BUILDING CODES.

PROJECT:
35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:
WEST ELEVATION
SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:
MILTON CARPENTER
Tel: (646) 784-0858 Fax: (866) 788-0859

STRUCTURAL ENGINEER:
WAI-LEUNG NG, P.E.
Tel: (917) 519-3436 Fax: (718) 854-0716

ARCHITECT'S & PLANNERS
13642 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2745 Fax: (718) 358-6858
Email: jsk@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE:	DWG. NO.:
PROJECT No.:	A-503.00
PROJECT MANAGER:	
DRAWN BY:	
CADD FILE NO.:	XX-OF-XX

N.Y.C. D.O.B. NO. :
420892323

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:

NORTH ELEVATION

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

VICTOR CESPEDES
Tel: (908) 789-0859 Fax: (908) 789-0859

STRUCTURAL ENGINEER:

WALEED NG, P.E.
Tel: (917) 518-3016 Fax: (718) 854-0116

SHEET WALL SYSTEM:

ARCHITECTS & PLANNERS

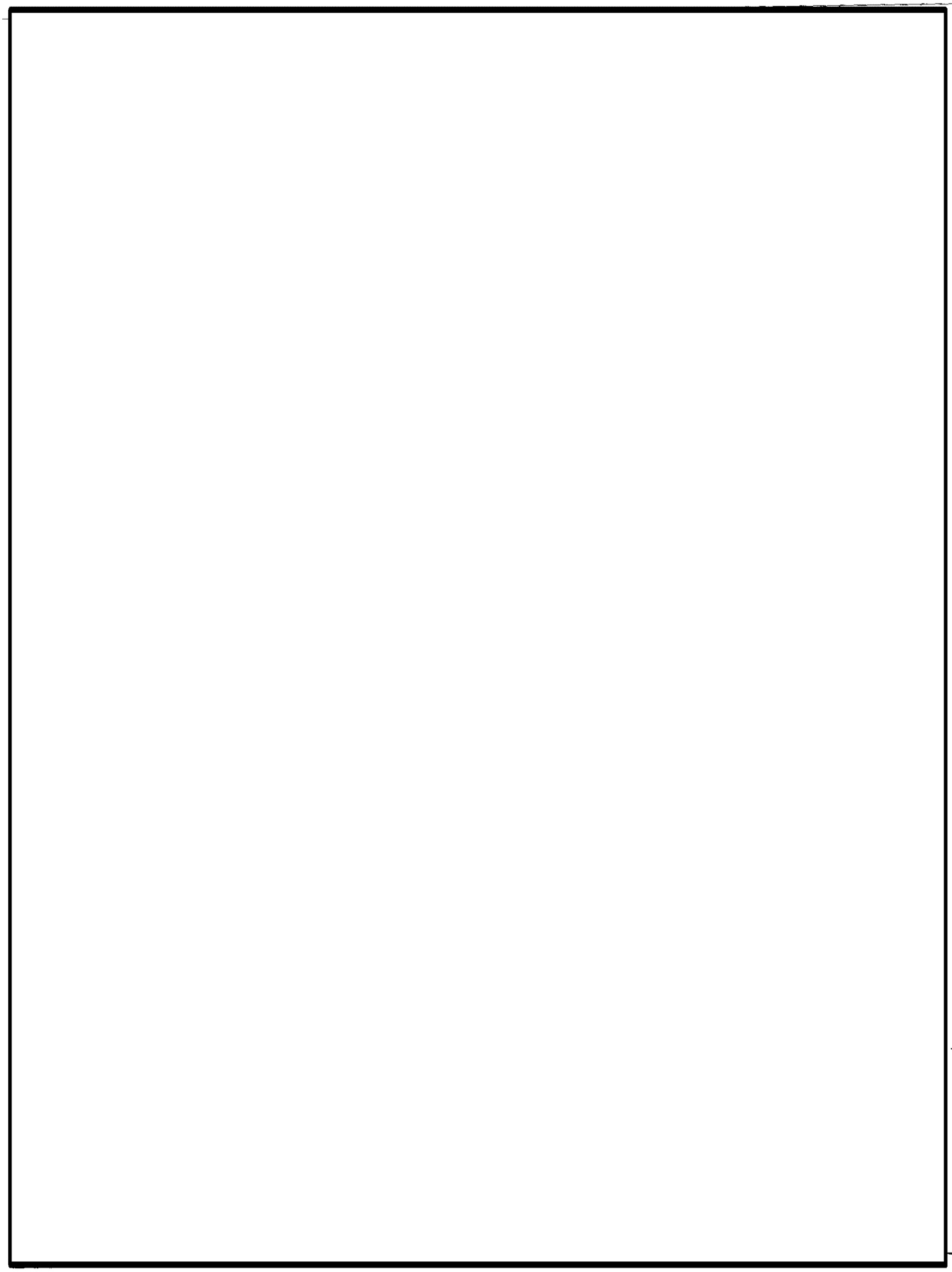
13642 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 358-6096
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE:	DRAWING NO.:
PROJECT No.:	A-504.00
PRODUCT MANAGER:	
DRAWN BY:	
CADD FILE NO.:	XX-OF-XX

N.Y.C. D.O.B. NO. :

420892323

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE./ FARRINGTON ST. FLUSHING

DRAWING TITLE:

BUILDING SECTION

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEERS:
VICTOR CEPEDES
Tel: (516) 759-0659 Fax: (631) 789-0659

STRUCTURAL ENGINEER:
WAH EUNG N.Y. P.E.
Tel: (917) 518-3218 Fax: (718) 894-0019

ARCHITECTS + PLANNERS

136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 591-0806
Email: info@raymondzarchitect.com
Web: www.raymondzarchitect.com

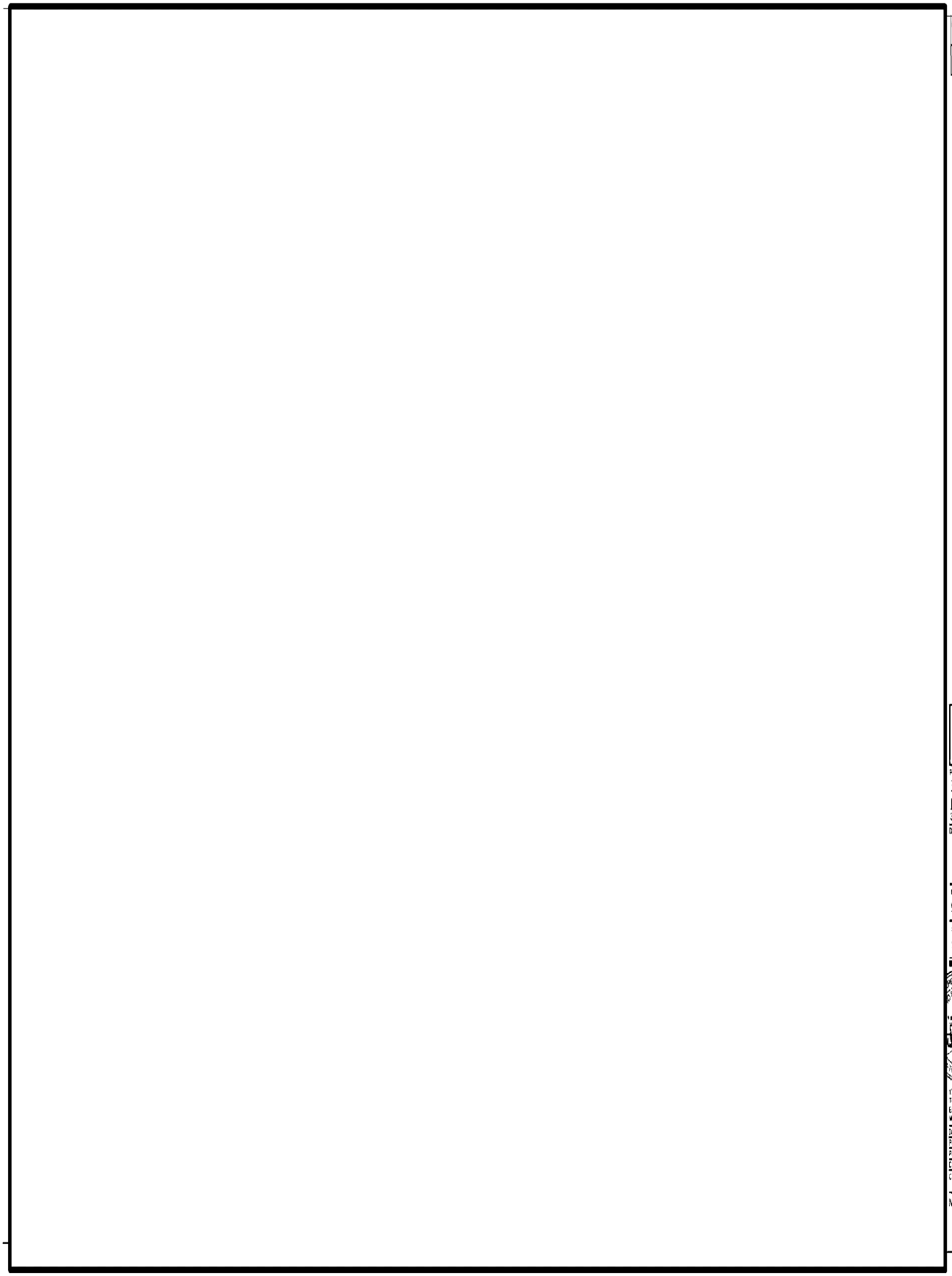
DATE: SCALE: DWG. No:
PROJECT No:
PROJECT MANAGER:
DRAWN BY:
CADD FILE No:

A-601.00
27-OF-XX

N.Y.C. D.O.B. NO. :

420892323

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE./FARRINGTON ST. FLUSHING

DRAWING TITLE:
BUILDING SECTION
SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:
VICTOR DEPRADOS
TEL: (908) 789-0659 FAX: (908) 789-0659

STRUCTURAL ENGINEER:
WAI-KEUNG NG, P.E.
TEL: (917) 519-8226 FAX: (718) 554-0016

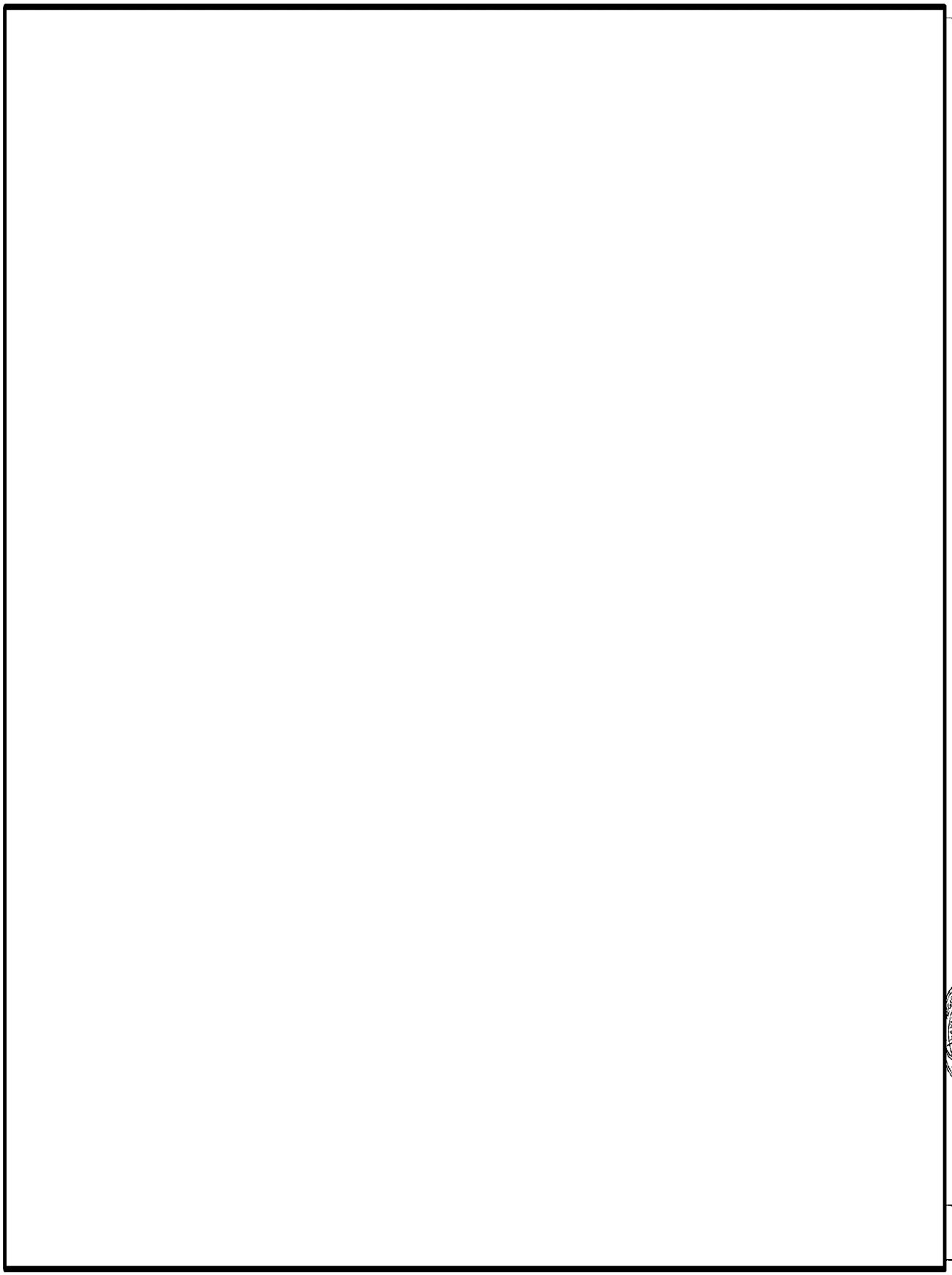
SEAL & SIGNATURE:

ARCHITECTS & PLANNERS
136-20 38TH AVENUE FLUSHING, NEW YORK 11354
TEL: (718) 445-2345 FAX: (718) 354-8855
EMAIL: INFO@ZEYNOORDARCHITECT.COM
WEBSITE: WWW.ZEYNOORDARCHITECT.COM

DATE: 10/29/12 DWG. No.:
PROJECT NO.:
PROJECT MANAGER:
DRAWN BY:
CADD FILE NO.:
A-602.00
28-OF-XX

N.Y.C. D.O.B. NO. :
420892323

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35T-H AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:

BUILDING SECTION

SCALE: 3/32" - 1'-0"

M.E.P. ENGINEER:

VICTOR CESPEDES
Tel: (908) 769-0859 Fax: (908) 769-0859

STRUCTURAL ENGINEER:

WAI-LEUNG NG P.E.
Tel: (917) 518-3269 Fax: (718) 554-0016

DRAWING COMPANY:

ARCHITECTS & PLANNERS

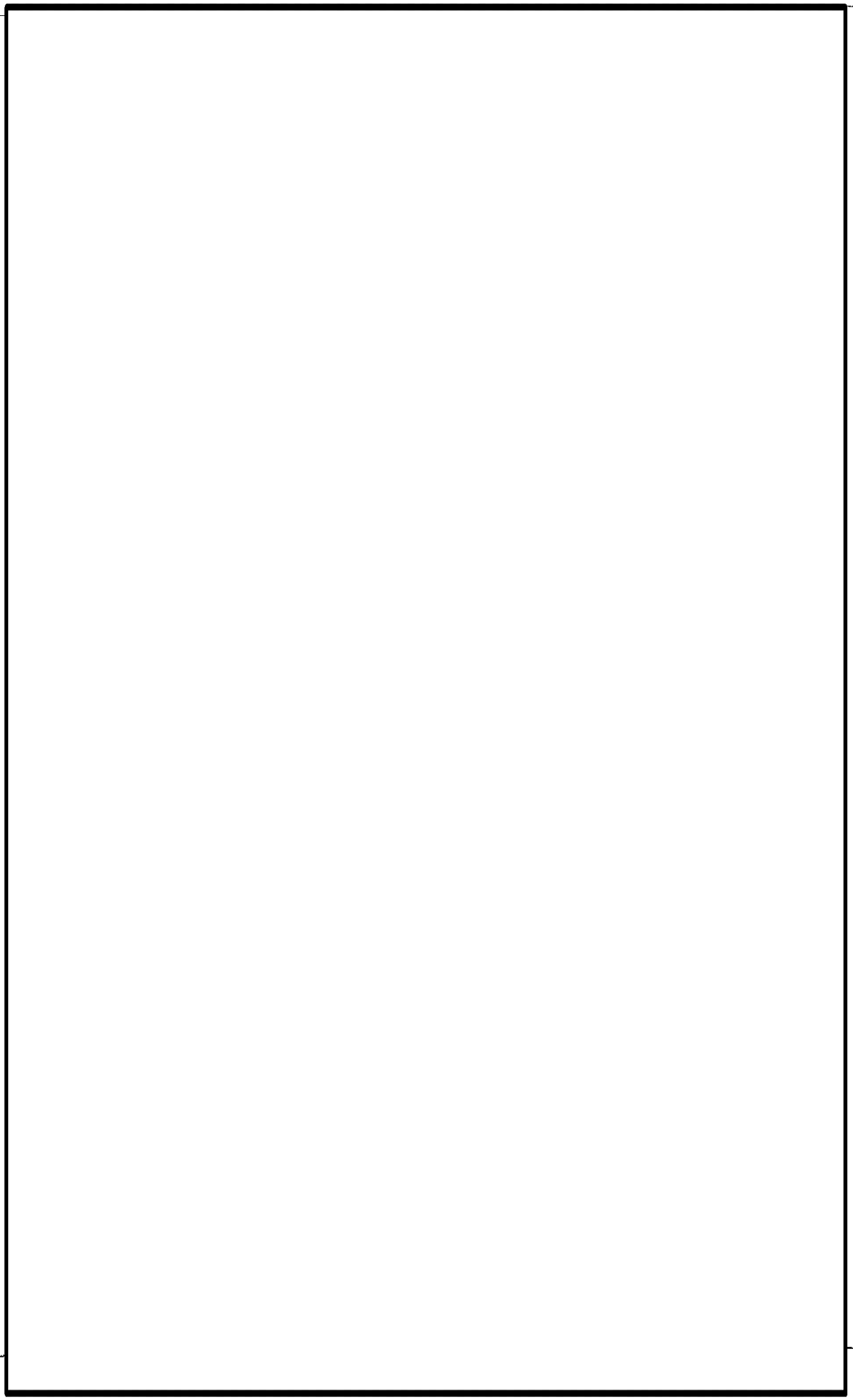
135-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8605
Email: brian@yuanvictorarch@aol.com
Web: www.yuanvictorarchitect.com

DATE:	DWG.No:
PROJECT No.:	A-603.00
PROJECT MANAGER:	
DRAWN BY:	
CADD FILE NO.:	-OF-XX

N.Y.C. D.O.B. NO. :

420892323

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
35TH AVE. / FARRINGTON ST. FLUSHING

DRAWING TITLE:
BUILDING SECTION
SCALE: 1/32" - 1'-0"

M.E.P. ENGINEERS:
VICTOR GRIFFEDES
Tel: (201) 795-0859 Fax: (908) 789-0859

STRUCTURAL ENGINEERS:
mAHLEENG N.G. P.E.
Tel: (917) 5 1-5216 Fax: (718) 894-3016

[redacted]

ARCHITECTS + PLANNERS

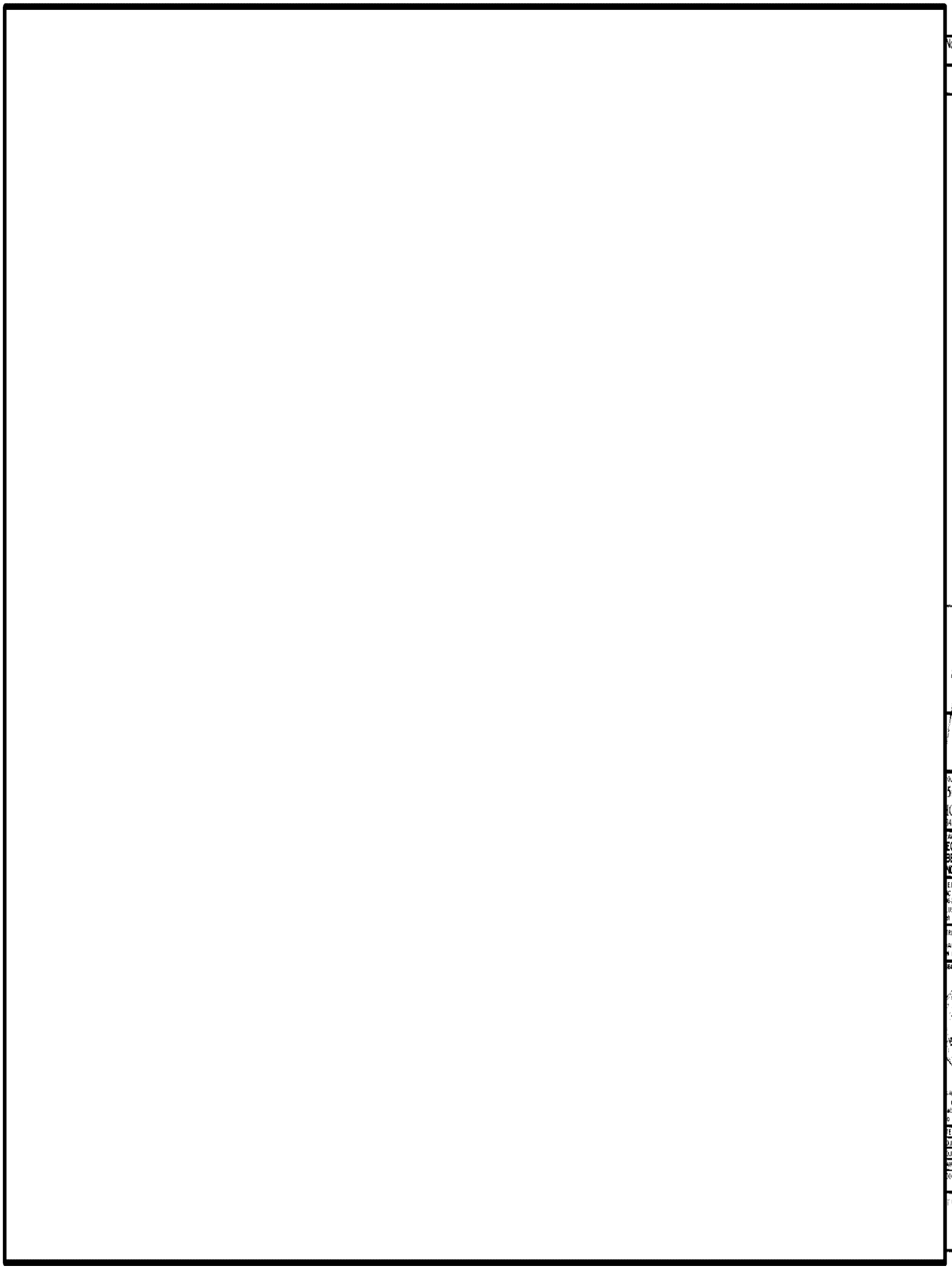
13940 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2045 Fax: (718) 359-0858
Email: lino@raymondcleonard.com
Web: www.raymondcleonard.com

DATE:	Submitted	DWG. No.:
PROJECT No.:	1045	A-604.00
PROJECT MANAGER:	RCL	
DRAWN BY:	C	-OF-XX
CADD FILE NO.:	1045 SECTION 2.dwg	

N.Y.C. D.O.B. NO. :

420892323

(b)(4)



NO.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDG'S ON ZONING AND BUILDING CODES

JECT
5th AVE /FARRINGTON ST
OTEL DEVELOPMENT
34-37 95TH AVE FLUSHING NY 11 101

AWING TITLE
ECHANICAL
BBREVIATIONS, SYMBOL LIST,
ND NOTES

E.P. ENGINEER
C ENGINEERING, PLLC
-21 ROOSEVELT AVE SUITE 211
USHING NY 11354
(718) 359-8210 Fax: (718) 353-4007

RUCTURAL ENGINEER
A-KEUNG, P.E
(917) 518-7336 Fax: (718) 554-0016

EAL & SIGNATURE

ARCH TESTS + PLANNERS
40 39TH AVENUE FLUSHING, NEW YORK 11354
(718) 445-2345 Fax: (718) 359-8695
ail: eric@archtestsandplanners.com
b: www.archtestsandplanners.com

E 06/01/14 DWG No
JECT No 236
JECT MANAGER RCA M-001.00
AWN BY EC
CK FILE NO 1
39TH AVENUE (CRK) DRAWING

C DOB NO

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN
& SHALL BE SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT. OF BLDGS ON
ZONING AND BUILDING CODES

PROJECT
35th AVE./FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
SUB-CELLAR II PLAN

M.E.P. ENGINEER
E.K. ENGINEERING, PLLC
136-18 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8800 Fax: (718) 353-8067

STRUCTURAL ENGINEER
HAN LEUNG, P.E.
Tel: (917) 548-3256 Fax: (718) 854-3016

SEAL & SIGNATURE

ARCHITECT & PLANNER
138-46 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 886-8828
Email: mail@kwongchanarchitect.com
Web: www.kwongchanarchitect.com

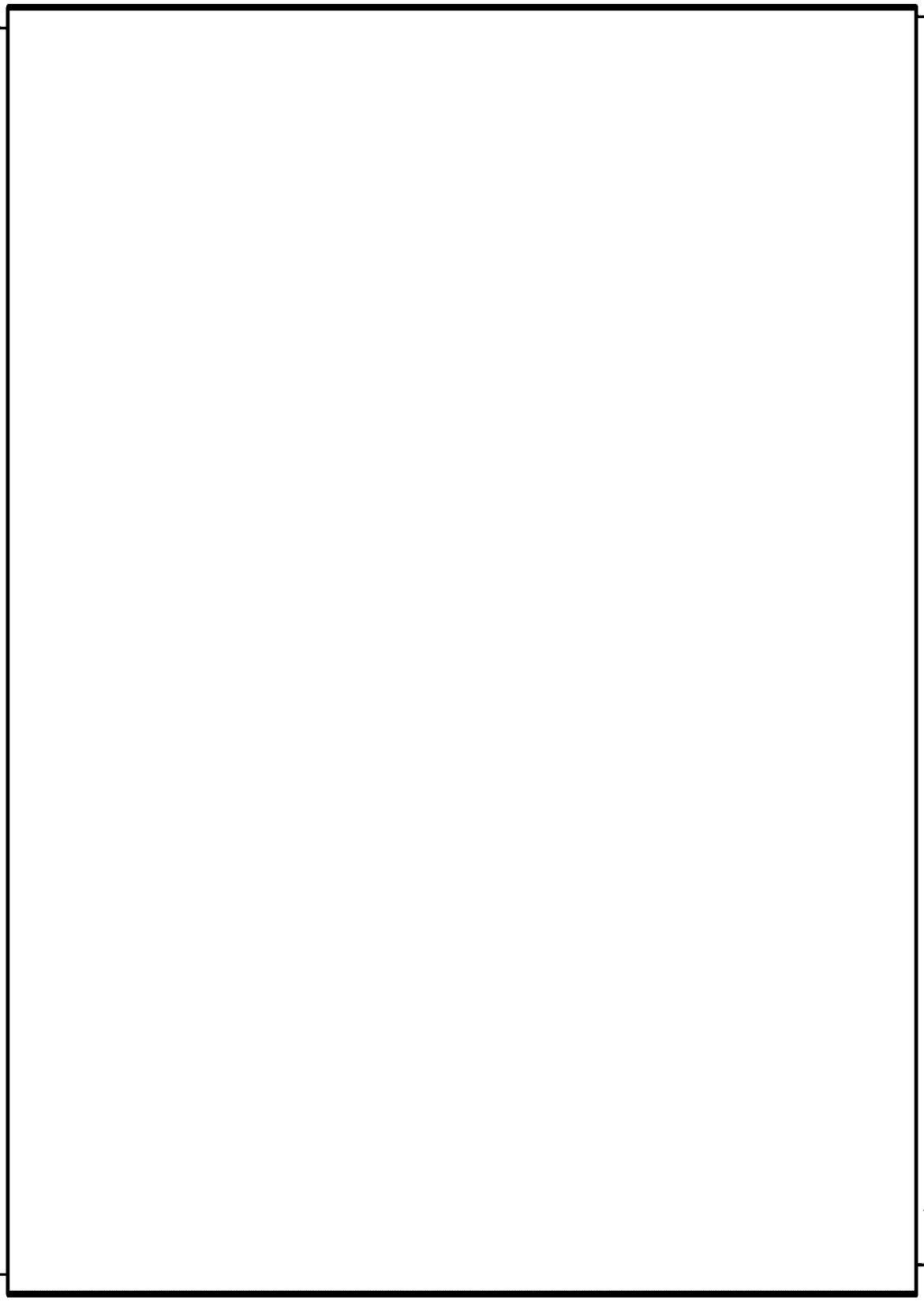
DATE	06/07/2014 DWG NO.
PROJECT No.	2006
PROJECT MANAGER	BCA
DRAWN BY	EC
CADD FILE NO.	35THAVENUE (2006)

M-002.00

2
REVISION NO.

NYC DOB NO.

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT. OF BLDGS ON
ZONING AND BUILDING CODES.

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
124-07 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
SUB-CELLAR 1 PLAN

M.E.P. ENGINEER
K.K. ENGINEERING, PLLC
136-21 ROOSEVELT AVE. SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8132 Fax: (718) 353-4307

STRUCTURAL ENGINEER
ANGLEHING NG, P.E
Tel: (917) 515-3226 Fax: (718) 354-0016

SEAL & SIGNATURE

[redacted]

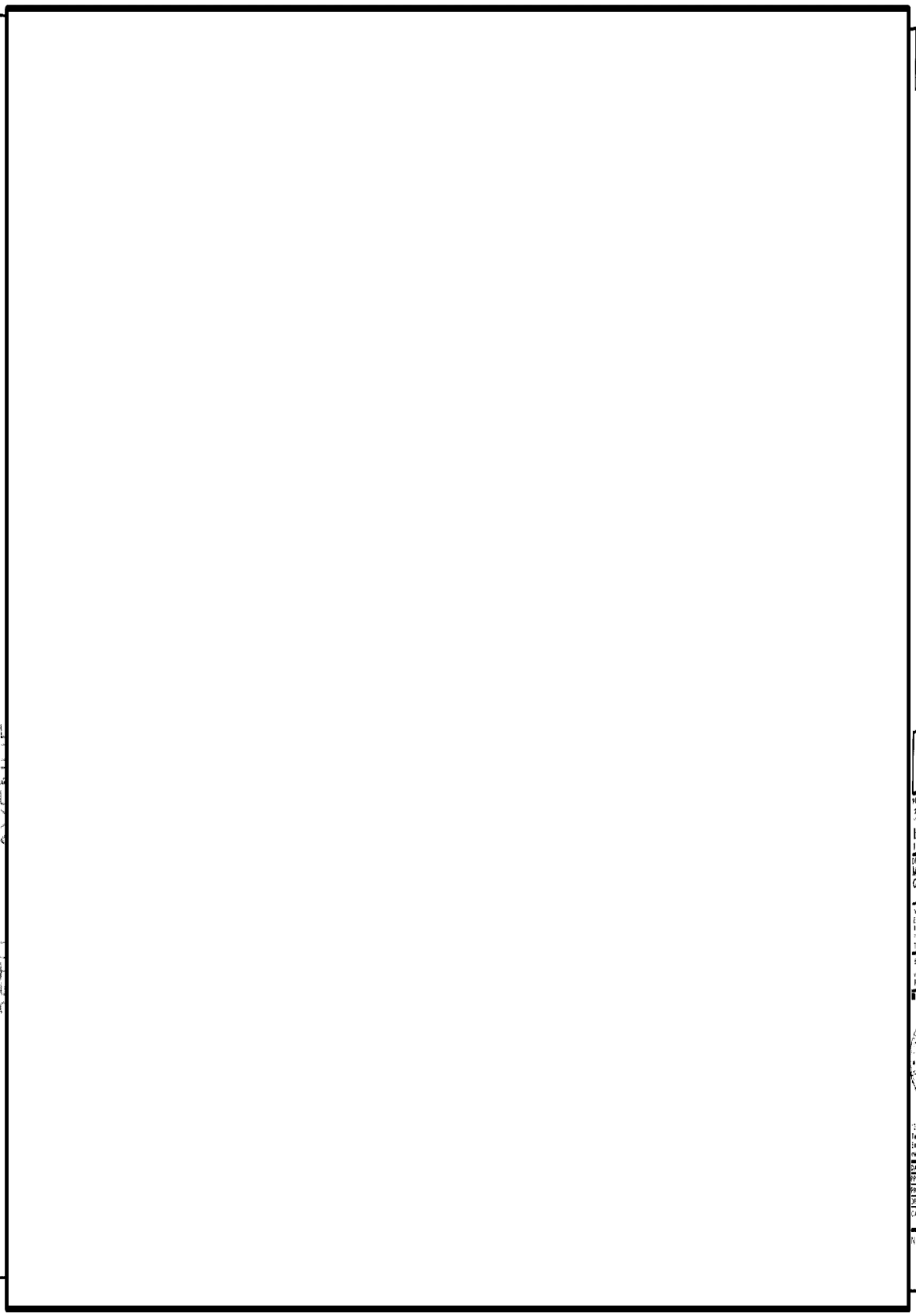
ARCHITECTS & PLANNERS
135-45 38TH AVENUE FLUSHING, NEW YORK 11354
TEL. (718) 445-2345 FAX. (718) 358-8668
EMAIL info@wongchiachang.com
WEB www.wongchiachang.com

DATE	04/01/14
PROJECT No.	2016
PROJECT MANAGER	RCA
DRAWN BY	EC
CADD FILE NO.	
ESTIMATE (70%)	

DWG No.
M-003.00
3

N.Y.C. DOB NO

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE / FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
CELLAR PLAN

M.E.P. ENGINEER
EACKNIGHT ENG. P.L.C.
138-21 ROOSEVELT AVE SUITE 211
FLUSHING NY 11354
TEL: (718) 353-8010 Fax: (718) 353-4587

STRUCTURAL ENGINEER
KWAI E.NG NG. P.E.
Tel: (917) 519-8256 Fax: (718) 854-0219

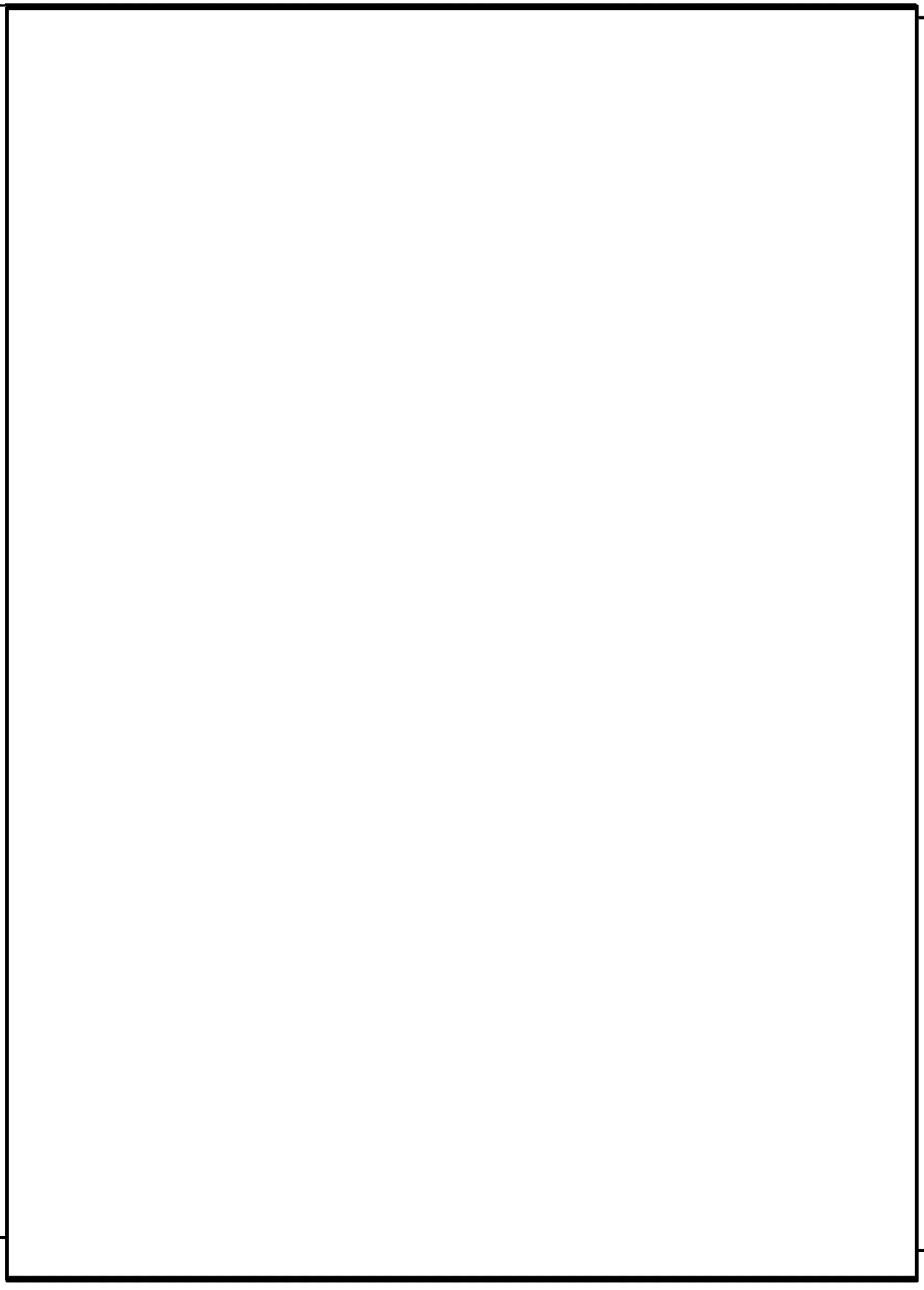
SEAL & SIGNATURE

35-40 35TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 358-9668
Email: info@hendrickssamuelsinc.com
web: www.hendrickssamuelsinc.com

DATE: 09/03/2014 DWG No:
PROJECT No: 2045
PROJECT MANAGER: RCA M-004.00
DRAWN BY: E.C.
CADD FILE NO: 4
35TH AVENUE (2045) SHEET NO.

NYC DOB NO.

(b)(4)



No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE. FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
1ST FLOOR PLAN

M.E.P. ENGINEER
EJC ENGINEERING, PLLC
136-20 ROOSEVELT AVE. SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8800 Fax: (718) 353-4027

STRUCTURAL ENGINEER
YAN LEUNG N.Y. P.E.
Tel (917) 519-3226 Fax: (718) 454-6048

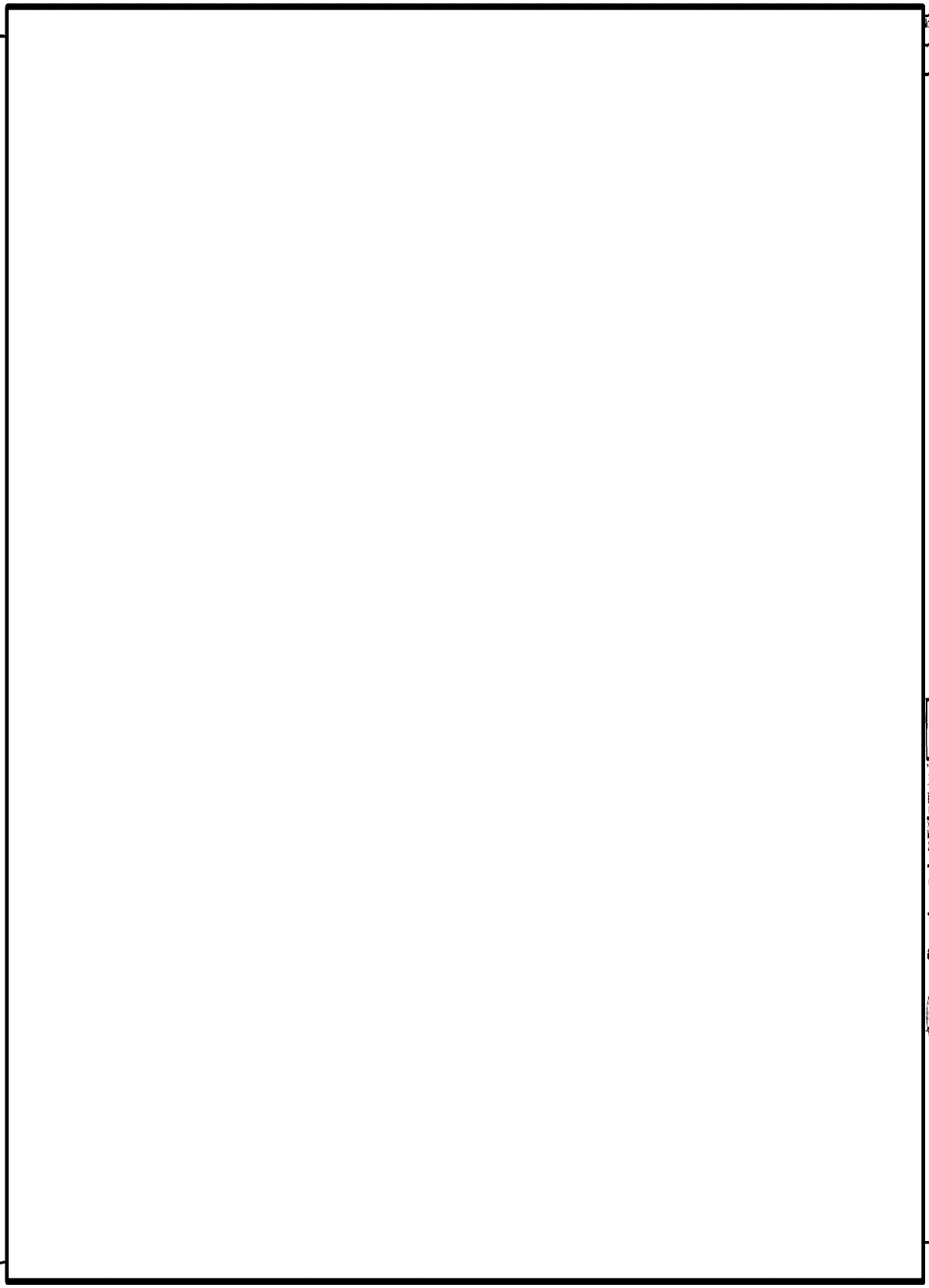
SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-20 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-9629
Email: info@nkwarchitect.com
Web: www.nkwarchitect.com

DATE	DIVISION	DWG NO.
PROJECT NO.	2015	M-005.00
PROJECT MANAGER	NGA	
DRAWN BY	E.C.	
CADD FILE NO.	35TH AVENUE (2015)	5

NYC DOB NO

(b)(4)



NO.	DATE	DESCRIPTION

NOTE "THIS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11354

DRAWING TITLE
MECHANICAL
2ND FLOOR PLAN

M.E.P. ENGINEER
EJC ENGINEERING, PLLC
136-20 ROOSEVELT AVE SUITE 2W
FLUSHING N Y 11354
Tel: (718) 353-8010 Fax: (718) 353-4007

STRUCTURAL ENGINEER
WAI-LEUNG NG P.E
Tel: (917) 514-3206 Fax: (718) 954-0018

SEAL & SIGNATURE

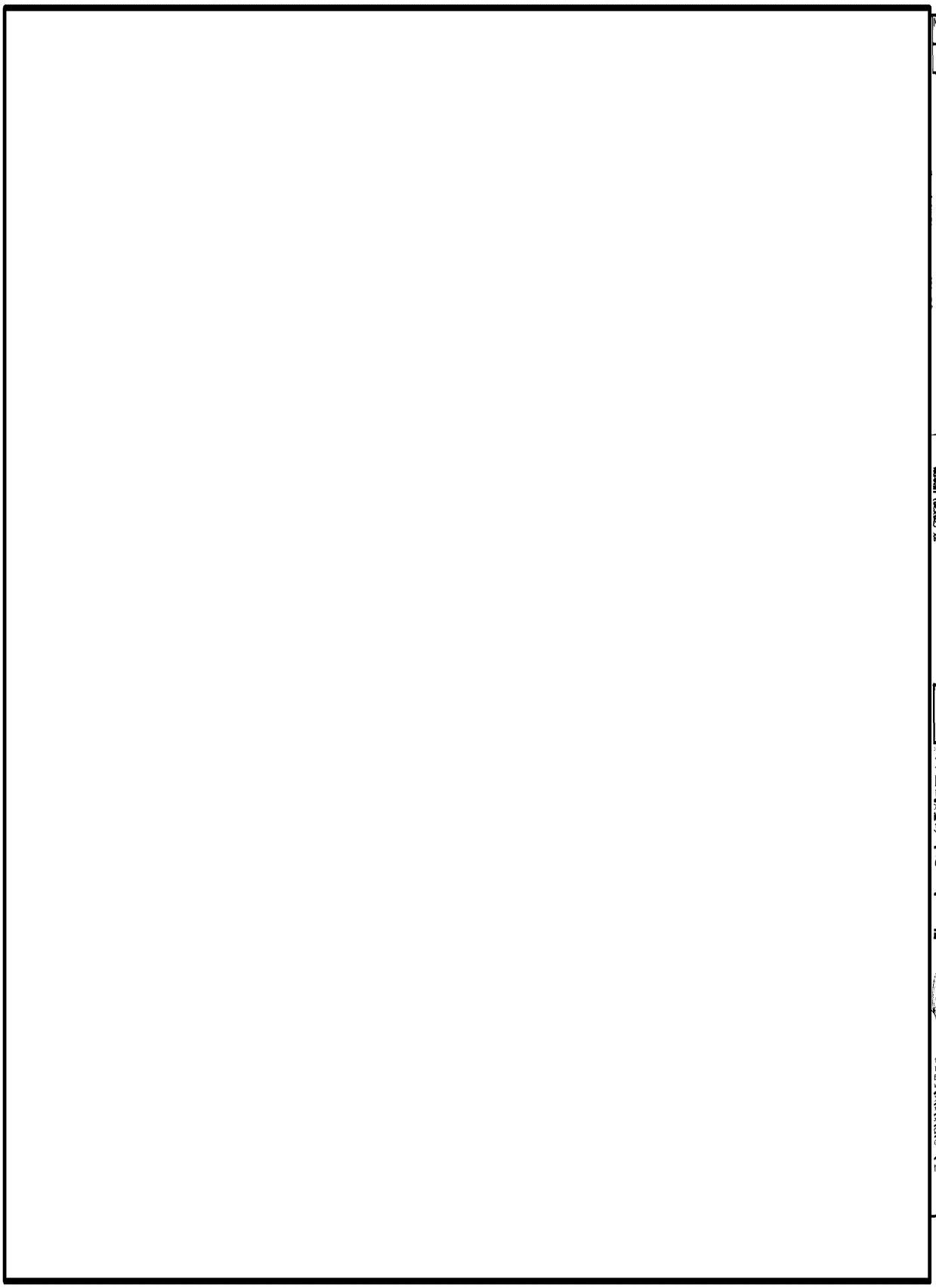
ARCHITECTS & PLANNERS
138-40 39TH AVENUE FLUSHING, NEW YORK, 11354
Tel: (718) 445-2345 Fax: (718) 359-6809
Email: www@wyandanarchitect.com
Web: www.wyandanarchitect.com

DATE	04/08/2014 COPYRIGHT
PROJECT No.	2013
PROJECT MANAGER	RCA
DRAWN BY	S.C.
CAD FILE NO	35TH AVENUE (2013)

M-006.00
6

NYC DOB NO

(b)(4)



No.	DATE	DESCRIPTION

SC CANOPY, URBAN, WOONSOCKET (Junction) & 3RD FLOOR (MEP)

3RD FLOOR PLAN
SCALE: 1/4"=1'-0"

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
154-37 35TH AVE FLUSHING NY 11354

DRAWING TITLE
MECHANICAL
3RD FLOOR PLAN

M E P ENGINEER
E.K. ENGINEERING, PLLC
136-18 39TH AVE, SUITE 211
FLUSHING, N.Y. 11354
TEL: (718) 353-8010 FAX: (718) 353-4007

STRUCTURAL ENGINEER
YAN LEUNG NG, P.E.
TEL: (917) 519-3236 FAX: 718) 854-3015

SEAL & SIGNATURE

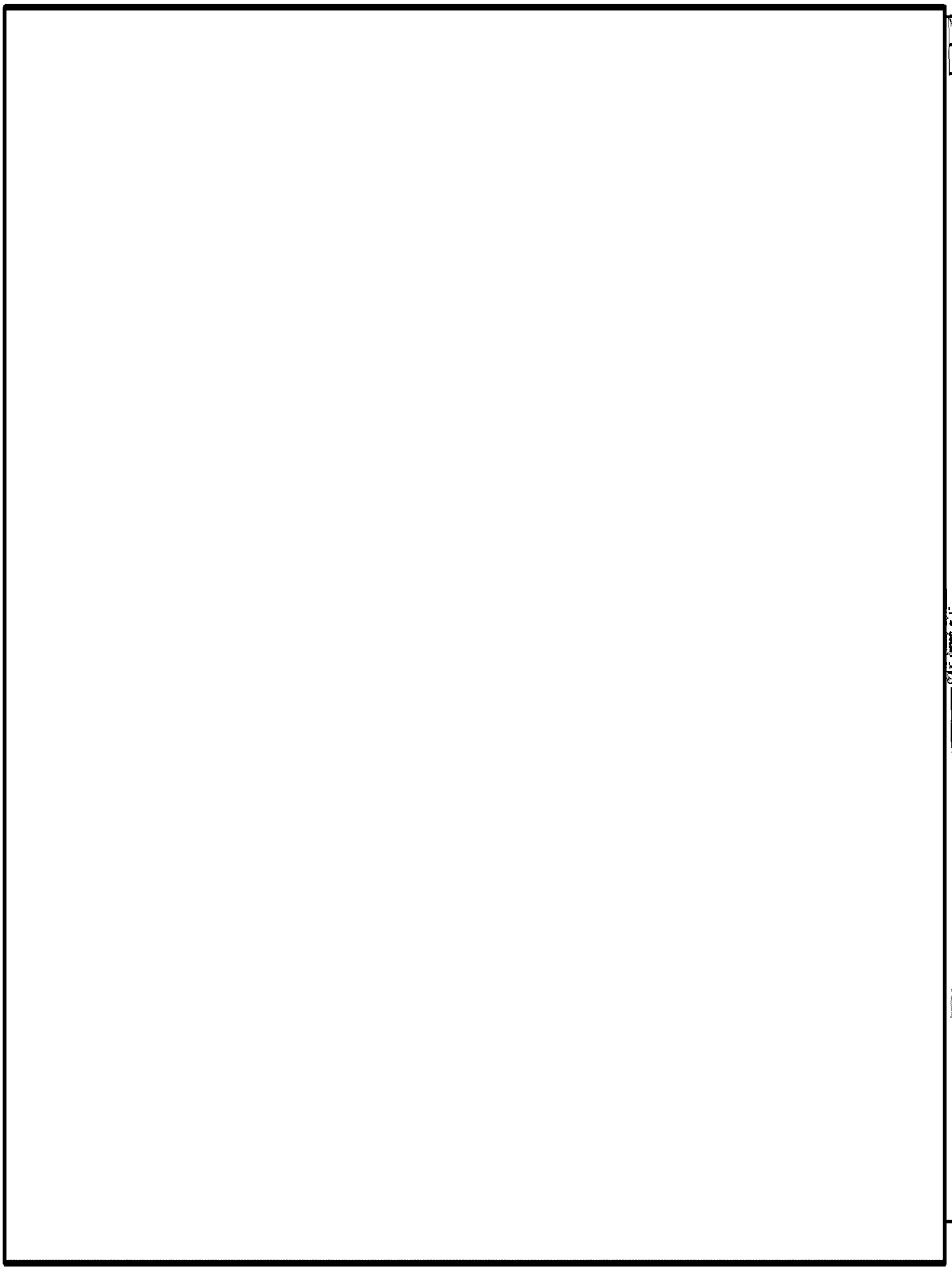
ARCHITECTS & PLANNERS
158-10 38TH AVENUE FLUSHING, NEW YORK 11354
TEL: (718) 445-2345 FAX: (718) 353-8838
EMAIL: info@kamchandaniarchitect.com
WEB: www.kamchandaniarchitect.com

DATE	09/09/2014
PROJECT NO.	2006
PROJECT MANAGER	RDA
DRAWN BY	EE
CADD FILE NO.	
35TH AVENUE ZONE	

DWG NO.
M-007.00
7

NYC DOB NO.

(b)(4)



No.	DATE	DESCRIPTION

4TH FLOOR PLAN
SCALE: 1/4"=1'-0"

1/4" Detail, 1/4" TOMORROW, MORE

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDINGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
4TH FLOOR PLAN

M.E.P. ENGINEER
EJC ENGINEERING, PLLC
133-21 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8242 Fax: (718) 353-4407

STRUCTURAL ENGINEER
ANALEJANO, P.E.
Tel: (917) 513-0256 Fax: (718) 894-0016

SEAL & SIGNATURE

ARCHITECTS & PLANNERS

136-10 39TH AVENUE FLUSHING, NEW YORK 11354
TEL: (718) 445-2345 FAX: (718) 358-8419
EMAIL: info@gruzlopkaplan.com
WEB: www.gruzlopkaplan.com

DATE	09/01/2014
PROJECT No.	2026
PROJECT MANAGER	AG
DRAWN BY	EC
CADD FILE NO.	
35TH AVENUE ZONING	

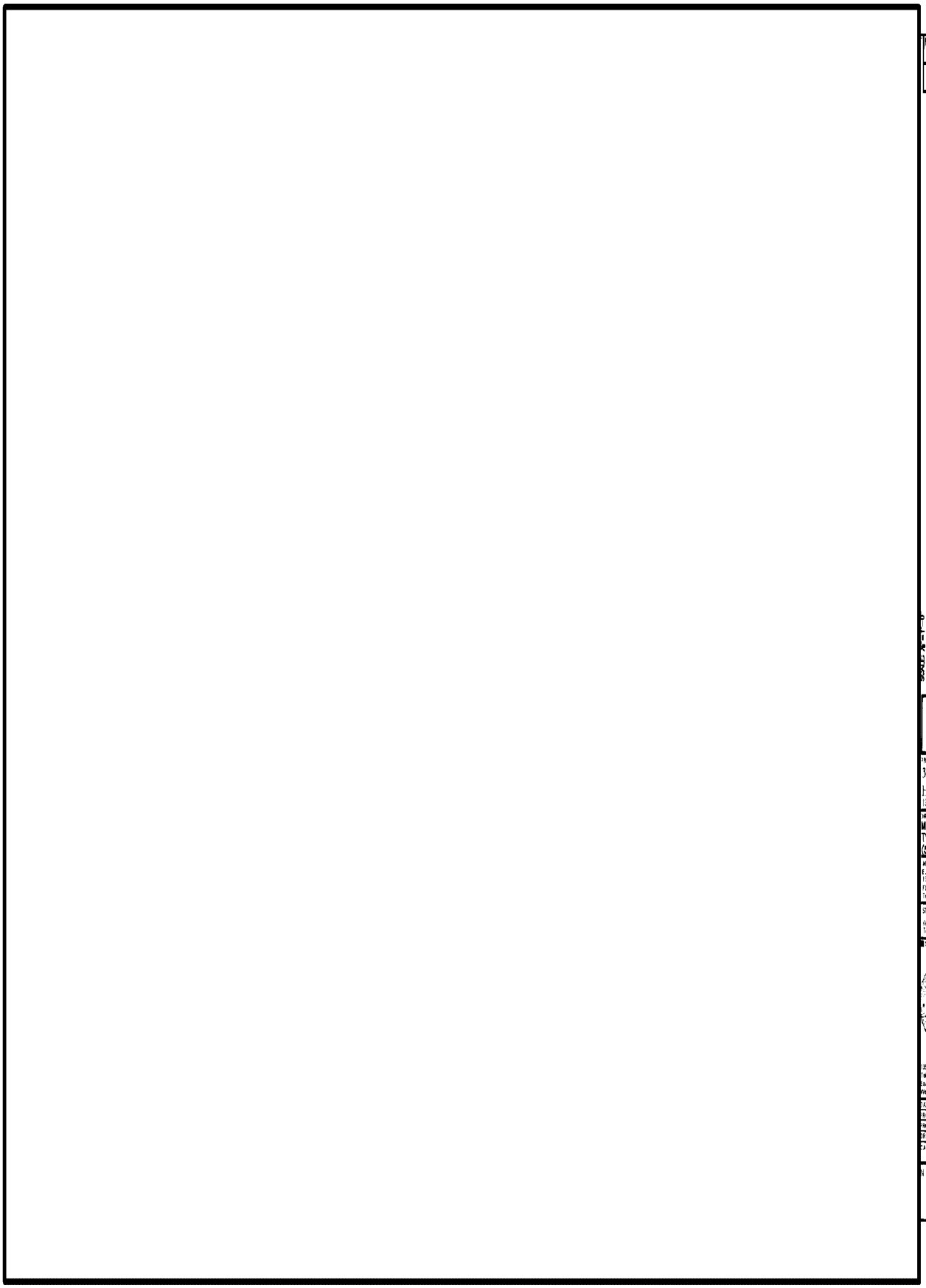
BWG. No

M-008.00

8

N.Y.C. DOB NO

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
[illegible] 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
TYPICAL FLOOR PLAN
(5TH & 8TH FLOORS)

M.E.P. ENGINEER
[illegible]
[illegible] 35-31 [illegible] 41ST AVE SUITE 211
FLUSHING N.Y. 11354
Tel: (718) 353-8400 Fax: (718) 353-4007

STRUCTURAL ENGINEER
[illegible]
Tel: (917) 518-3328 Fax: (718) 854-3416

SEAL & SIGNATURE

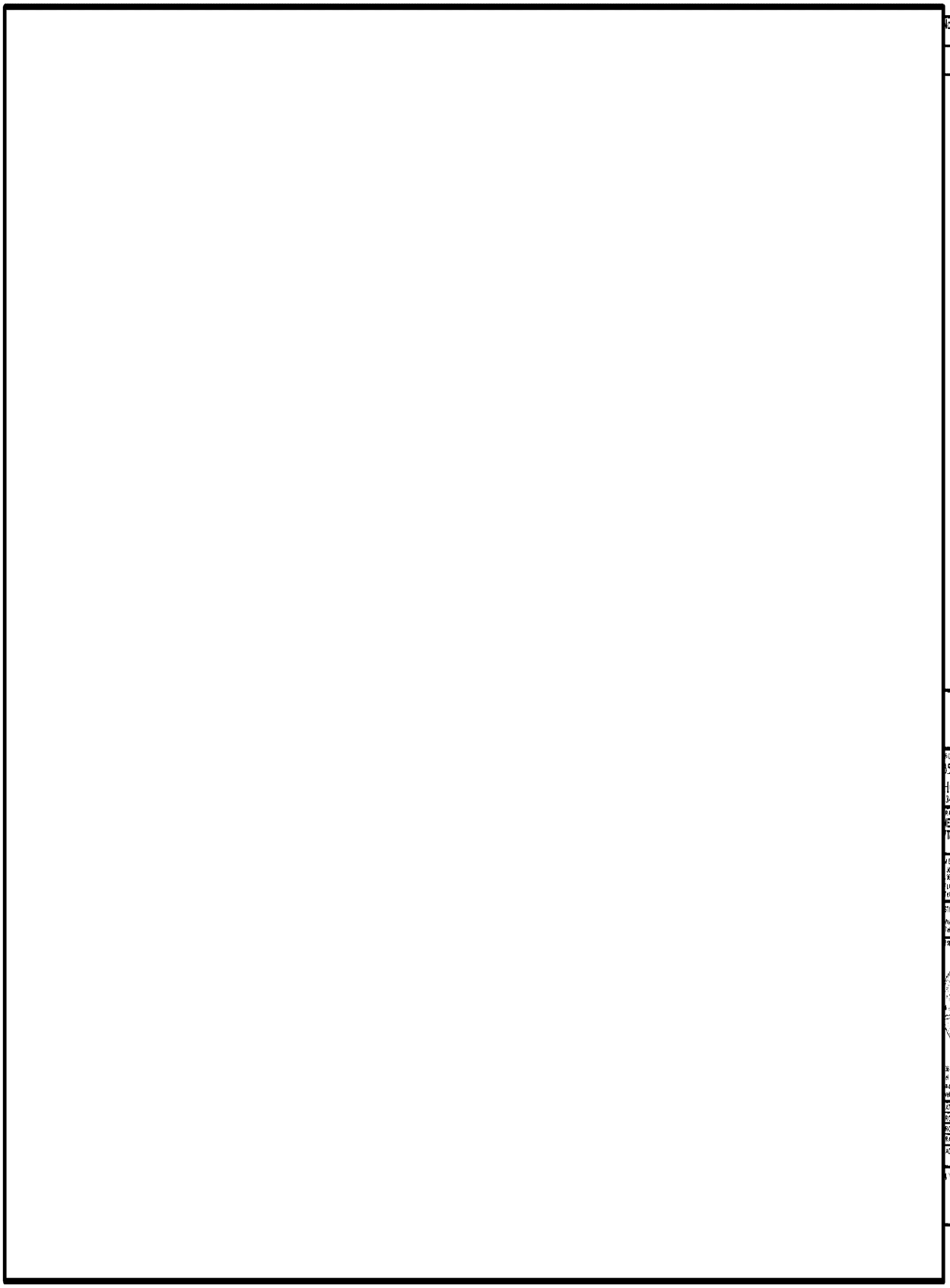
ARCHITECTS + PLANNERS
35-40 28TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 446-2345 Fax: (718) 359-8685
E-mail: [illegible]
Web: www.[illegible]

DATE	SHEET NO.
PROJECT NO.	2005
PROJECT MANAGER	RDL
DRAWN BY	EC
CAD FILE NO.	35THAVE&FARR

M-009.00

N.Y.C. DOB NO.

(b)(4)



No.	DATE	DESCRIPTION

7TH FLOOR PLAN
SCALE: 1/8"=1'-0"

NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
34-27 35TH AVE FLUSHING N.Y. 11101

DRAWING TITLE
MECHANICAL
7TH FLOOR PLAN

M.E.P. ENGINEER
J.K. ENGINEERING, PLLC
36-21 ROOSEVELT AVE SUITE 211
FLUSHING N.Y. 11354
Tel: (718) 353-8310 Fax: (718) 353-4067

STRUCTURAL ENGINEER
PARAGON ENGINEERING P.E.
Tel: (917) 518-3226 Fax: (718) 886-3416

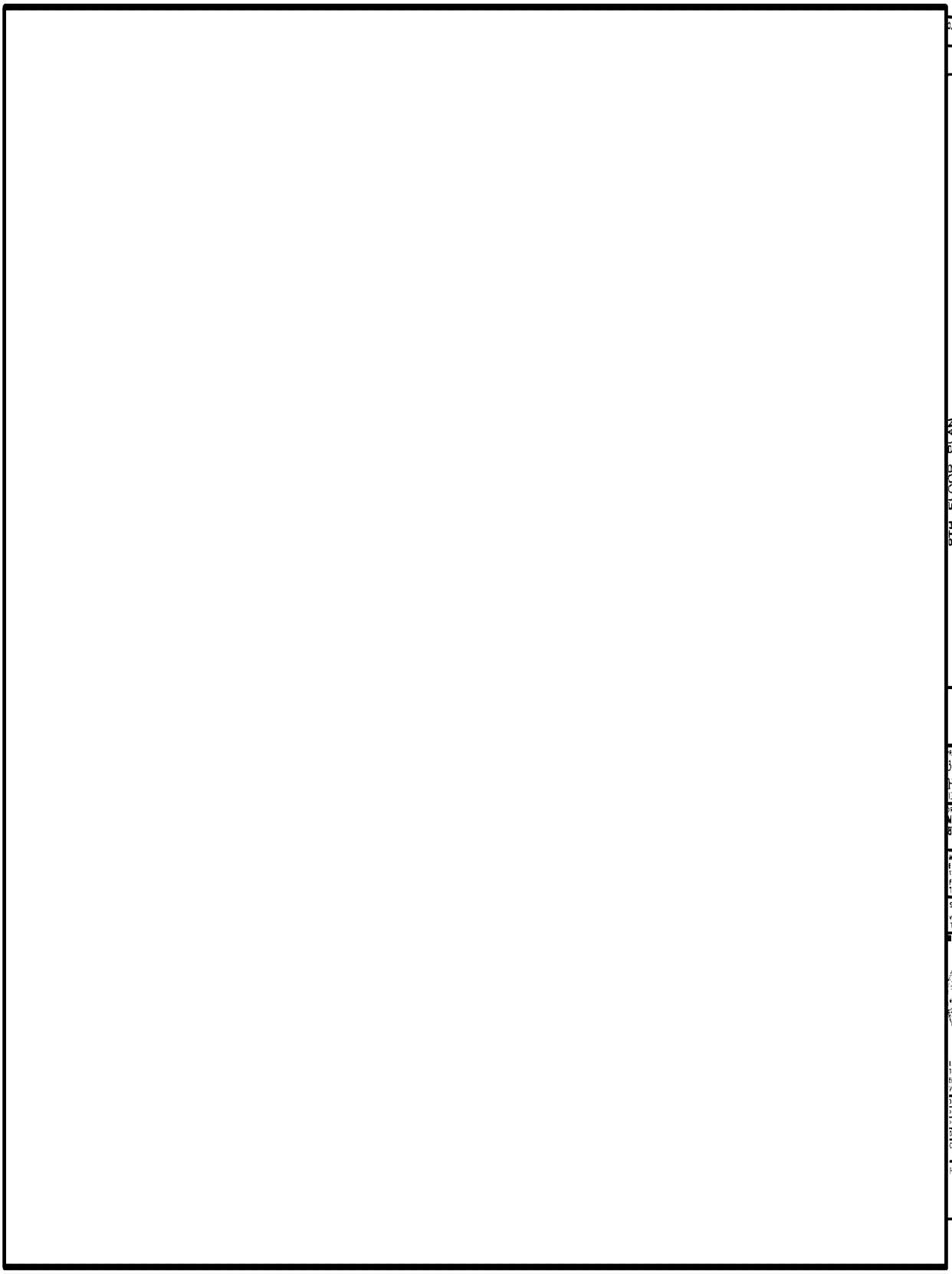
SEAL & SIGNATURE

ARCHITECTS + PLANNERS
35-42 35TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 353-8838
Email: info@grandcentralarchitect.com
Web: www.grandcentralarchitect.com

DATE	2/27/2014
PROJECT No.	2006
PROJECT MANAGER	PGA
DRAWN BY	EE
CAD FILE No.	35TH AVENUE (2006
DWG No	M-010.00
	10

NYC DOB NO

(b)(4)



NO.	DATE	DESCRIPTION

8TH FLOOR PLAN
SCALE: 1/8"=1'-0"

NOTE "THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDINGS ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
136-37 35TH AVE. FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
8TH FLOOR PLAN

M.E.P. ENGINEER
E.K.ENGINEERING, PLLC
136-20 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8010 Fax: (718) 353-4007

STRUCTURAL ENGINEER
YAN LEUNG P.E.
Tel: (917) 584-2236 Fax: (718) 854-3016

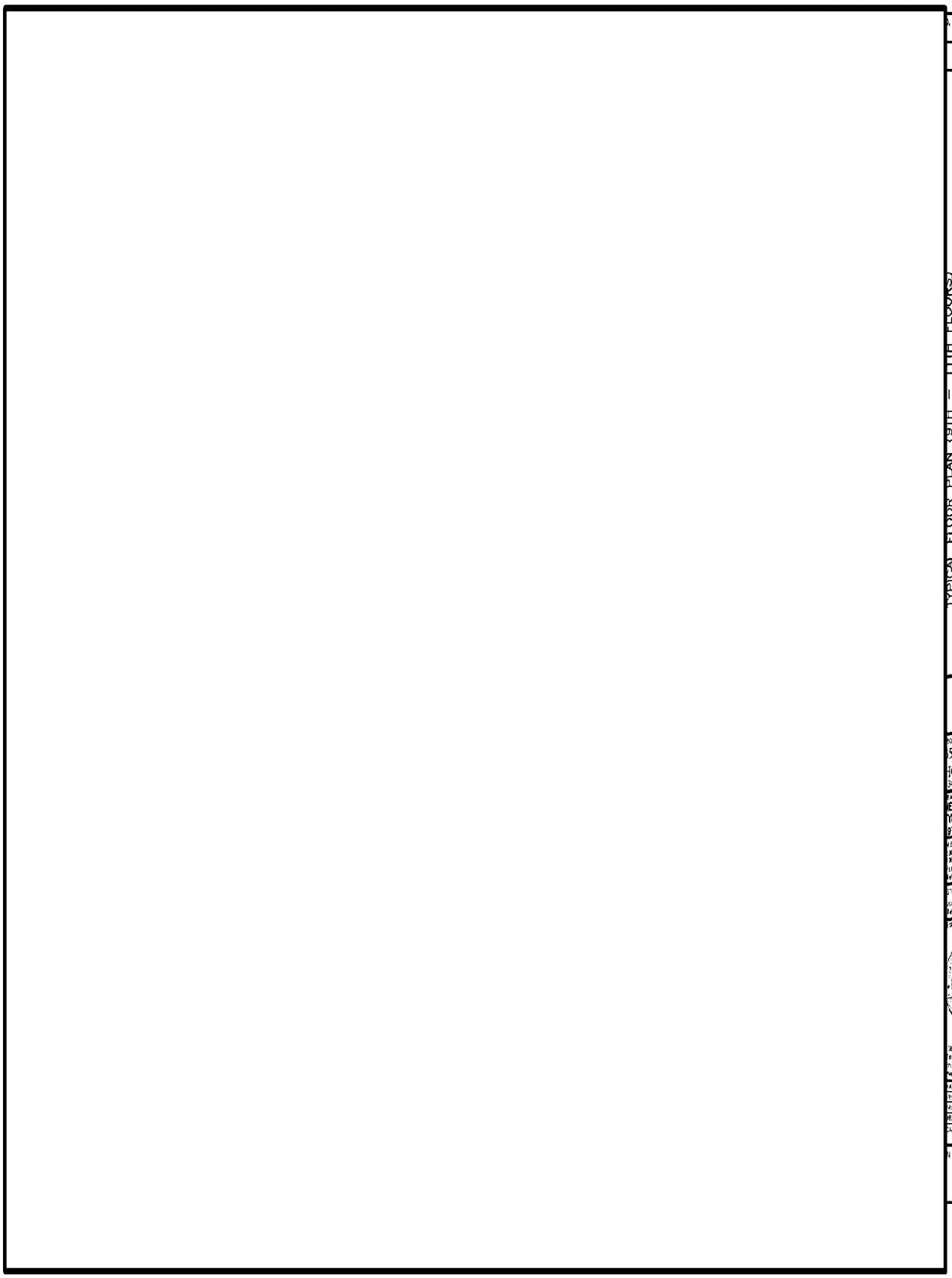
SEAL & SIGNATURE

ARCHITECTS & PLANNERS
136-46 39TH AVENUE FLUSHING NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 358-6808
Email: info@ryan-biggsassociates.com
Web: www.ryan-biggsassociates.com

DATE	04/30/11
PROJECT No.	2005
PROJECT MANAGER	RCA
DRAWN BY	EC
CADD FILE NO	8TH FLOOR.DWG
DRWG No	M-011.00
	11

NYC DOB NO

(b)(4)



NO.	DATE	DESCRIPTION

TYPICAL FLOOR PLAN (9TH - 11TH FLOORS)
SCALE: 1/4"=1'-0"

NOTE: THIS IS A SCHEMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT OF BLDG S ON
ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
34-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
TYPICAL FLOOR PLAN
(9TH - 11TH FLOORS)

M.E.P. ENGINEER
MC ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 201
FLUSHING, N.Y. 11354
Tel: (718) 359-8010 Fax: (718) 353-4062

STRUCTURAL ENGINEER
ANALYZING P.E
Tel: (917) 518-3036 Fax: (718) 864-4014

SEAL & SIGNATURE

ARCHITECTS & PLANNERS
39-40 30th AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 440-2345 Fax: (718) 358-8639
Email: info@myrondalarchitect.com
Web: www.myrondalarchitect.com

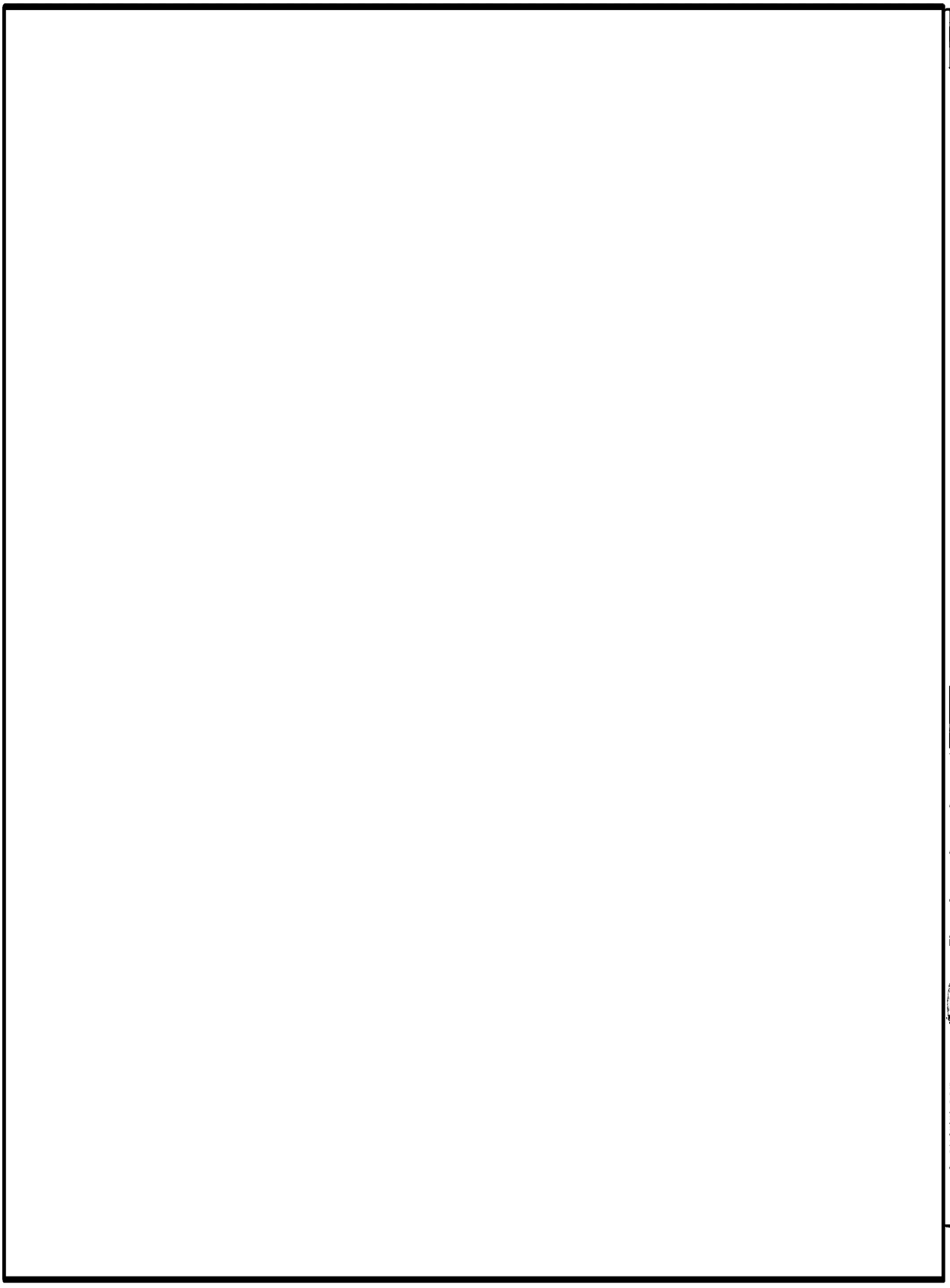
DATE: 06/01/2014 DWG NO:
PROJECT No: 295
PROJECT MANAGER: RDA
DRAWN BY: EC
CADD FILE NO: 35THAVENUE (2015)

M-012.00

12

NYC DOB NO:

(b)(4)



No.	DATE	DESCRIPTION

TYPICAL FLOOR PLAN (12TH & 13TH FLOORS)
SCALE: 3/8"=1'-0"

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT:
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
TYPICAL FLOOR PLAN
(12TH & 13TH FLOORS)

M.E.P. ENGINEER
E.K. ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8010 Fax: (718) 353-4907

STRUCTURAL ENGINEER
WAI LEUNG HO, P.E
Tel: (917) 518-2226 Fax: (718) 864-8016

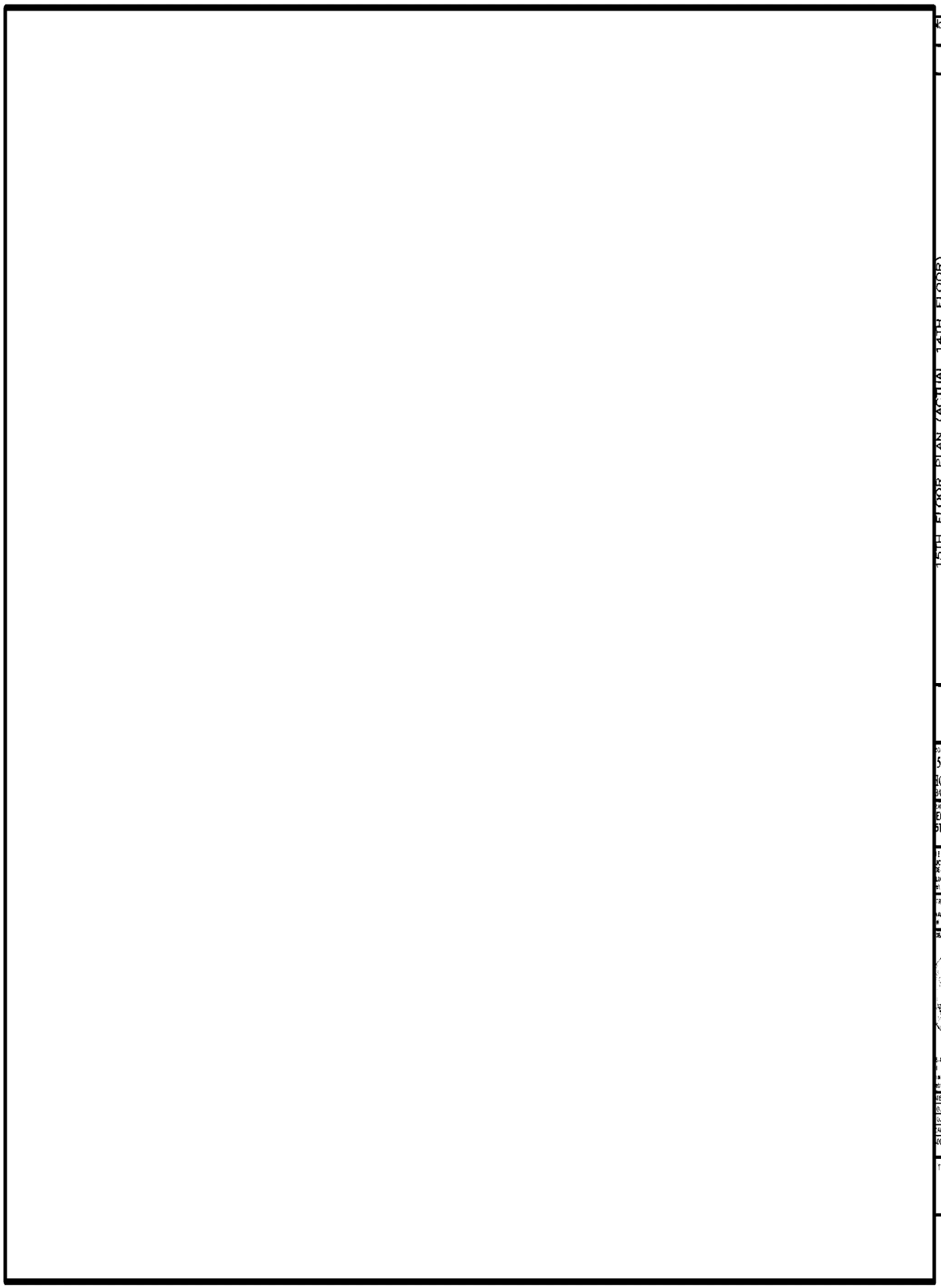
SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-46 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8809
Email: wai@wlarchitect.com
Web: www.wlarchitect.com

DATE	04/05/2014	CHG No
PROJECT No	2006	
PROJECT MANAGER	WAI	M-013.00
DRAWN BY	EC	
CADD FILE NO		13
35TH AVENUE (CORE)		MECHANICAL

NYC DOB NO

(b)(4)



No.	DATE	DESCRIPTION

15TH FLOOR PLAN (ACTUAL 14TH FLOOR)
SCALE: 1/8"=1'-0"

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
5th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
34-37 55TH AVE, FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
15TH FLOOR PLAN

M.E.P. ENGINEER
MC ENGINEERING, PLLC
136-19 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8016 Fax: (718) 353-4067

STRUCTURAL ENGINEER
DAVID JING NG, P.E.
Tel: (917) 518-9238 Fax: (718) 854-2018

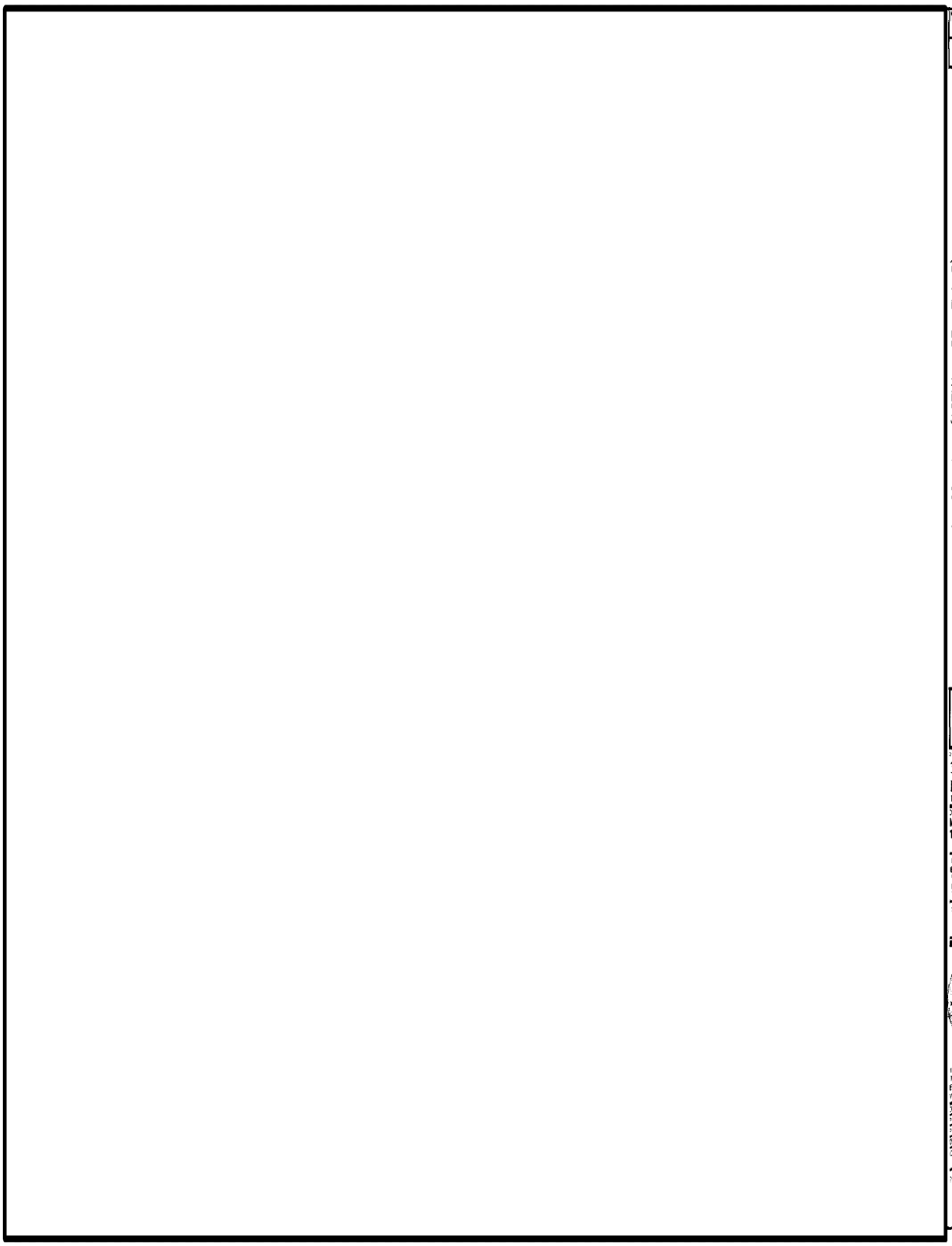
SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
T (718) 445-2345 Fax (718) 359-9876
Email: info@shidaarchitect.com
WEB: www.shidaarchitect.com

DATE	06/01/2014 DWG No
PROJECT No	206 M-014.00
PROJECT MANAGER	RSA
DRAWN BY	EC
CAD FILE No.	16
SCHEMATIC (DOB)	

T.C. DOB NO

(b)(4)



No.	DATE	DESCRIPTION

16TH FLOOR PLAN (ACTUAL 15TH FLOOR)
SCALE: 3/8"=1'-0"

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
16TH FLOOR PLAN

M.E.P. ENGINEER
E.K. ENGINEERING, PLLC
136-41 ROOSEVELT AVE SUITE 311
FLUSHING, N.Y. 11354
Tel: (718) 359-8222 Fax: (718) 321-4907

STRUCTURAL ENGINEER
HANJEUNG NG, P.E.
Tel: (917) 519-3225 Fax: (718) 354-0018

SEAL & SIGNATURE

ARCHITECTS & PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-3345 Fax: (718) 359-0469
E-mail: info@myrtaylorarchitect.com
Web: www.myrtaylorarchitect.com

DATE	09/01/2014
PROJECT NO	2026
PROJECT MANAGER	FCA
DRAWN BY	EE
CADD FILE NO	35TH AVENUE (2026)

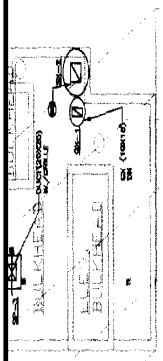
DWG NO
M-015.00
1E

NYC DOB NO

(b)(4)

[redacted]

No.	DATE	DESCRIPTION



NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVISION & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
104-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
ROOF PLAN

M.E.P. ENGINEER
[redacted]

STRUCTURAL ENGINEER
[redacted]

SEAL & SIGNATURE

[redacted]

ARCHITECTS + PLANNERS

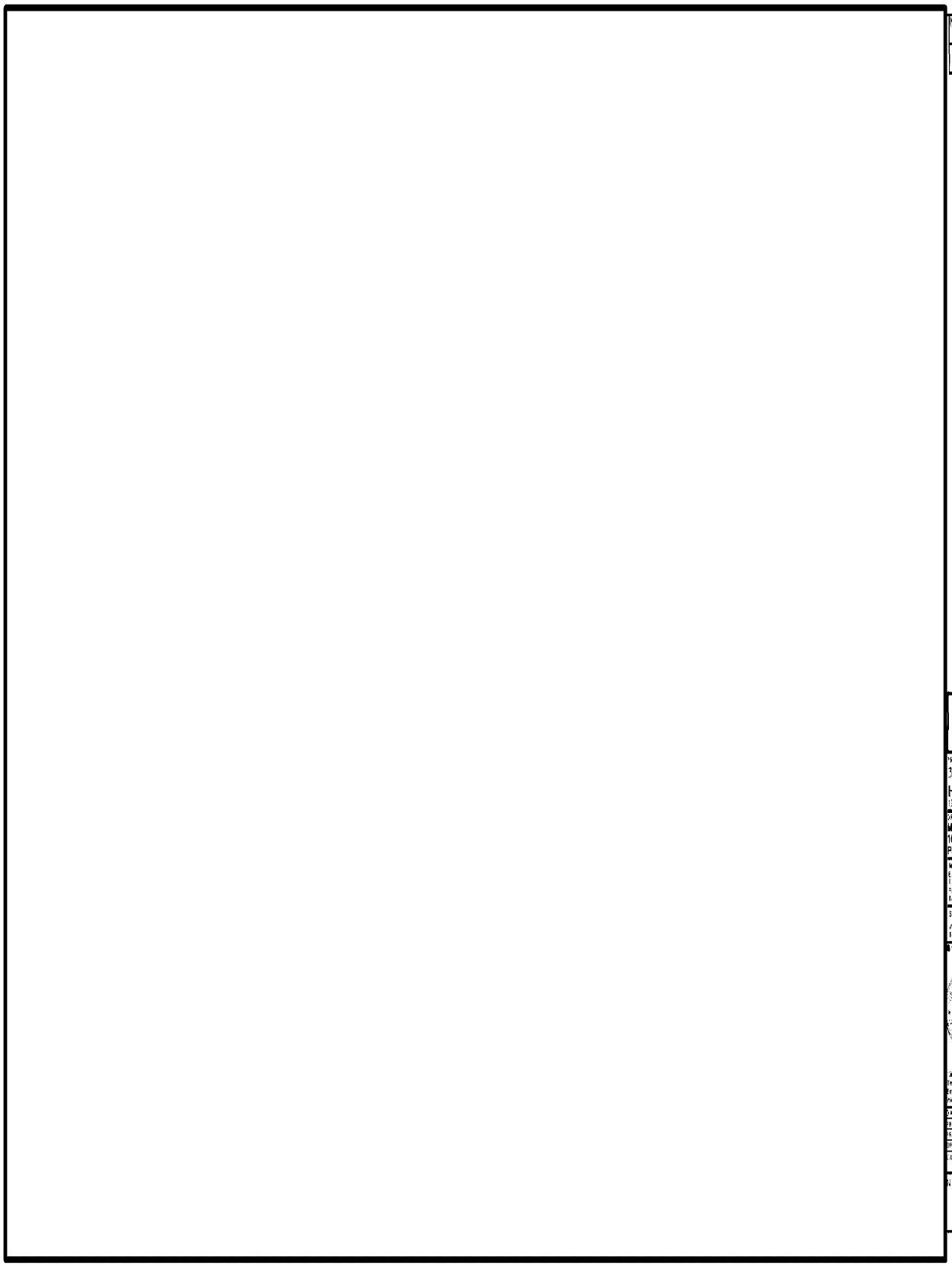
[redacted]

DATE	06/08/2011 EWNG INC
PROJECT NO	2006
PROJECT MANAGER	RCS
DRAWN BY	E.C.
CADD FILE NO	
35TH AVENUE (2006)	

M-016.00

N.Y.C. DOB NO

(b)(4)



No.	DATE	DESCRIPTION

NOTE " THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION By NYC DEPT OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
16TH FLOOR CONDENSER WATER PIPING LAYOUT

M E P ENGINEER
E/C ENGINEERING, PLLC
136-20 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8272 Fax: (718) 353-4027

STRUCTURAL ENGINEER
AVAILENG NY P.E.
Tel: (917) 518-3236 Fax: (718) 554-3016

SEAL & SIGNATURE

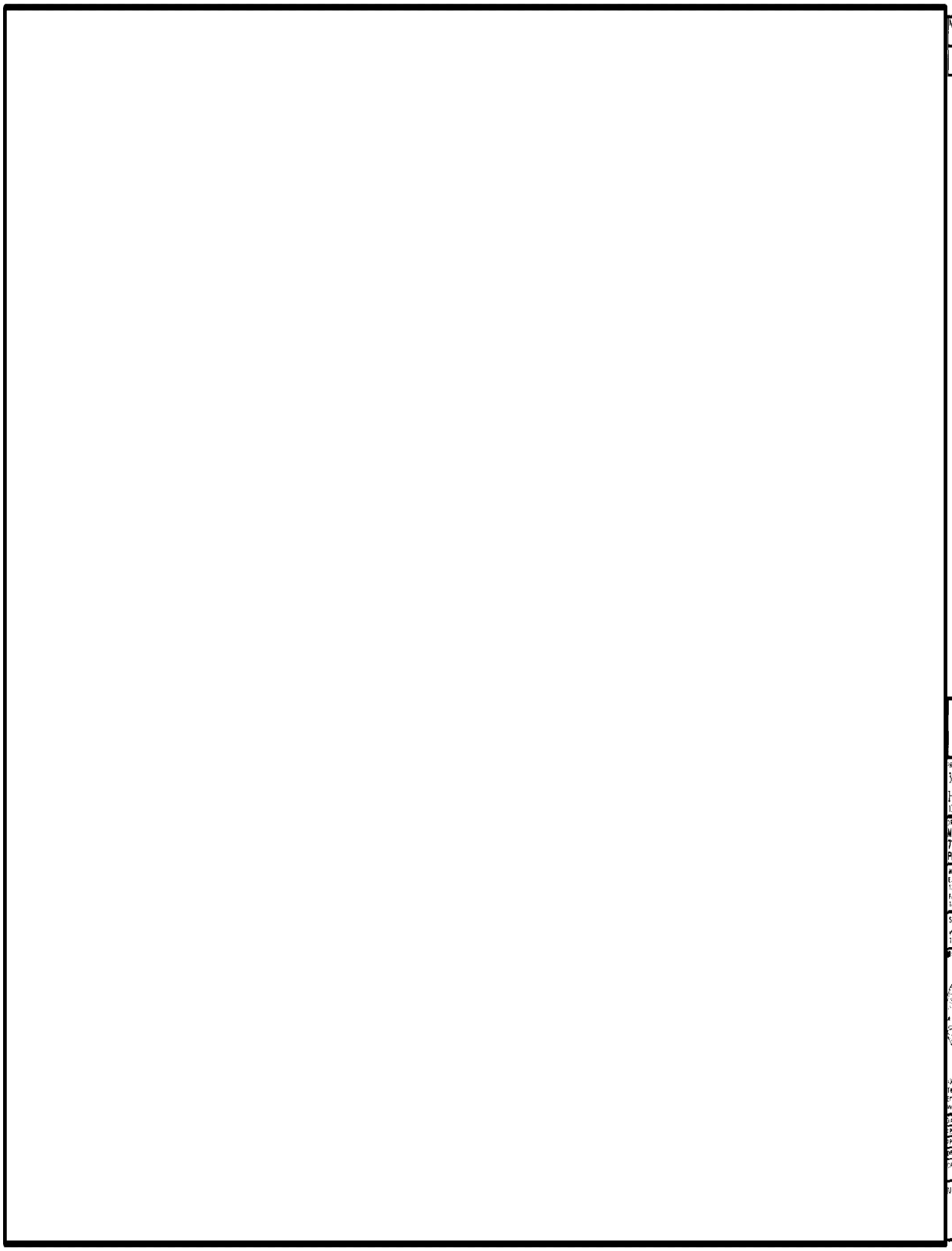
ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING NEW YORK 11354
PH (718) 445-2345 Fax: (718) 358-8696
Email: vkk@queensarchitect.com
Web: queensarchitectsandplanners.com

DATE	06/01/2016
PROJECT No	2-06
PROJECT MANAGER	VKK
DRAWN BY	E.C.
CAD FILE NO.	
SUBMISSION (DOB)	

DAWG No
M-017.00
17
SUBMISSION

NYC DOB NO

(b)(4)



No.	DATE	DESCRIPTION

7TH FLOOR PLAN – CONDENSER WATER PIPING

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
7TH FLOOR CONDENSER WATER PIPING LAYOUT

MEP ENGINEER
K.E.ENGINEERING, PLLC
136-20 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-9088 Fax: (718) 353-4007

STRUCTURAL ENGINEER
HALLELUJAH P.E.
Tel: (917) 518-3236 Fax: (718) 854-0016

SEAL & SIGNATURE

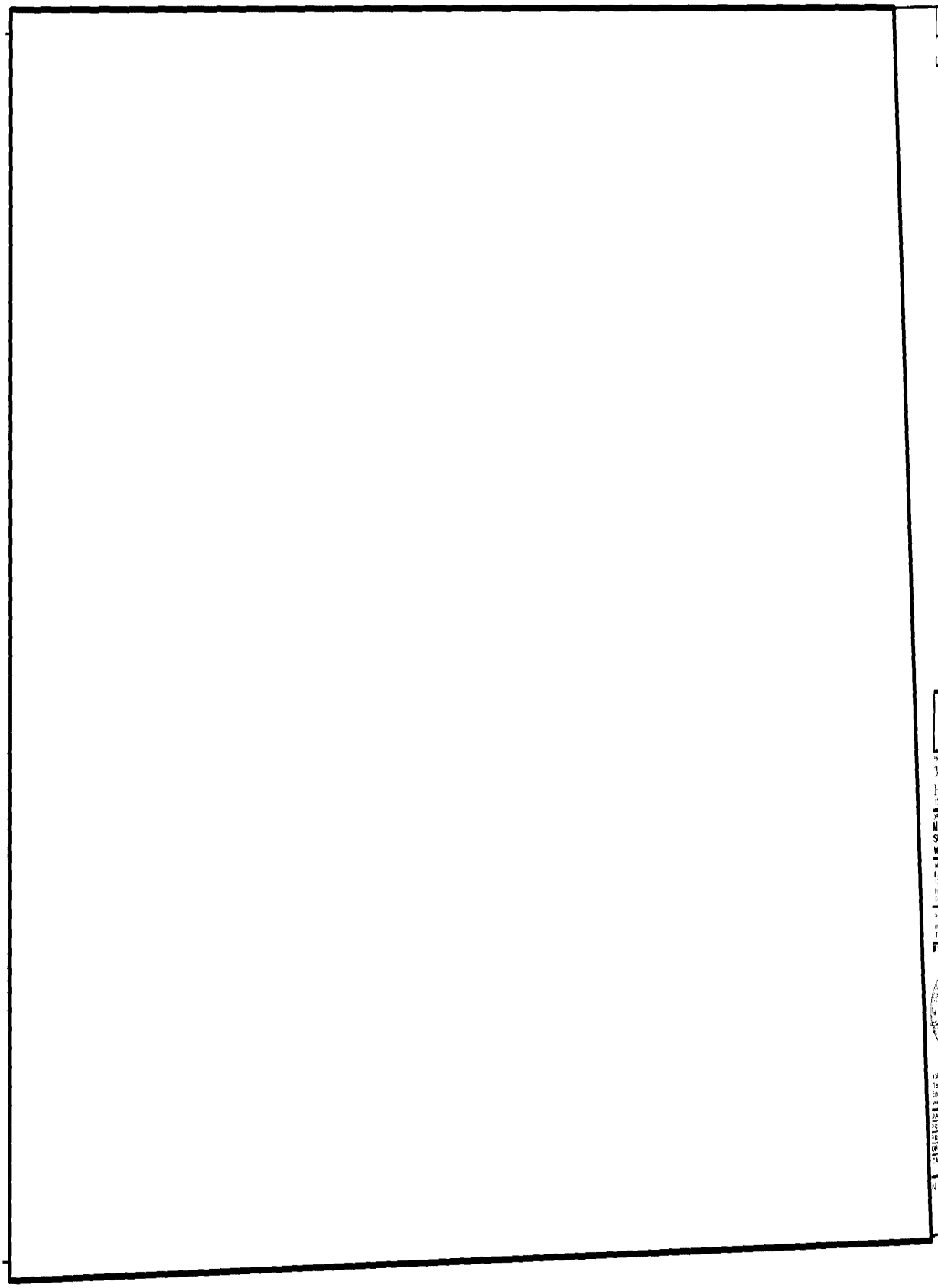
ARCHITECTS & PLANNERS
138-46 35TH AVENUE FLUSHING NEW YORK 11354
TEL: (718) 445-2345 Fax: (718) 353-8676
E-MAIL: YMG@YMGARCHITECT.COM
WEB: WWW.YMGARCHITECT.COM

DATE 09/28/14 SWS No
PROJECT No. 3045
PROJECT MANAGER RGA
DRAWN KEY EC
CADD FILE NO 18
35TH AVENUE (2005)

M-018.00

NYC DOB NO

(b)(4)



No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDING ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE. FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
SUB-CELLAR I CONDENSER WATER PIPING LAYOUT

M.E.P. ENGINEER
R.K. ENGINEERING, PLLC
136-21 ROOSEVELT AVE. SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8010 Fax: (718) 353-4087

STRUCTURAL ENGINEER
WAN LEUNG ING, P.E.
Tel: (917) 510-3256 Fax: (718) 894-0016

SEAL & SIGNATURE

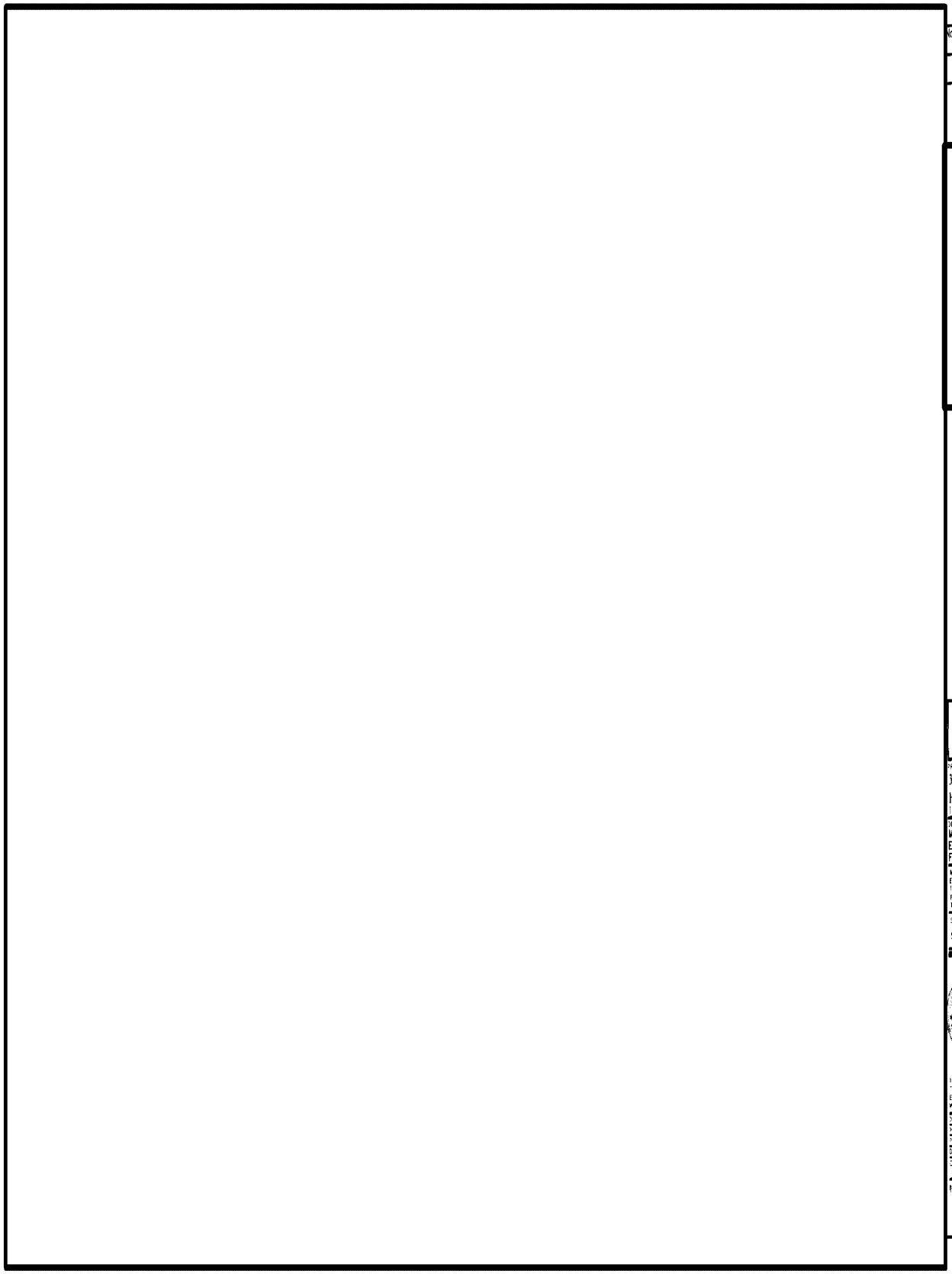
ARCHITECTS • PLANNERS
138-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 353-8675
Email: RTA@rtaarchitect.com
Web: www.rtaarchitect.com

DATE	09/03/2014
PROJECT No.	2095
PROJECT MANAGER	RTA
DRAWN BY	T.C.
CADD FILE NO.	35TH AVENUE (2095)

M-019.00

NYC DOB NO

(b)(4)



No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDING ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
EMERGENCY GENERATOR &
FUEL OIL STORAGE

M.E.P. ENGINEER
EJC ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 211
FLUSHING NY 11354
Tel: (718) 353-8388 Fax: (718) 353-4067

STRUCTURAL ENGINEER
AVA LEUNG NG, P.E.
Tel: (917) 519-3216 Fax: (718) 854-3015

SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-0809
Email: info@gluckmanmayner.com
Web: www.gluckmanmayner.com

DATE	04/21/2014
DRAWING No.	
PROJECT No.	3076
PROJECT MANAGER	RDA
DRAWN BY	EC
CAD FILE NO.	35TH AVENUE (2076)

M-020.00

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NYC DOB NO.

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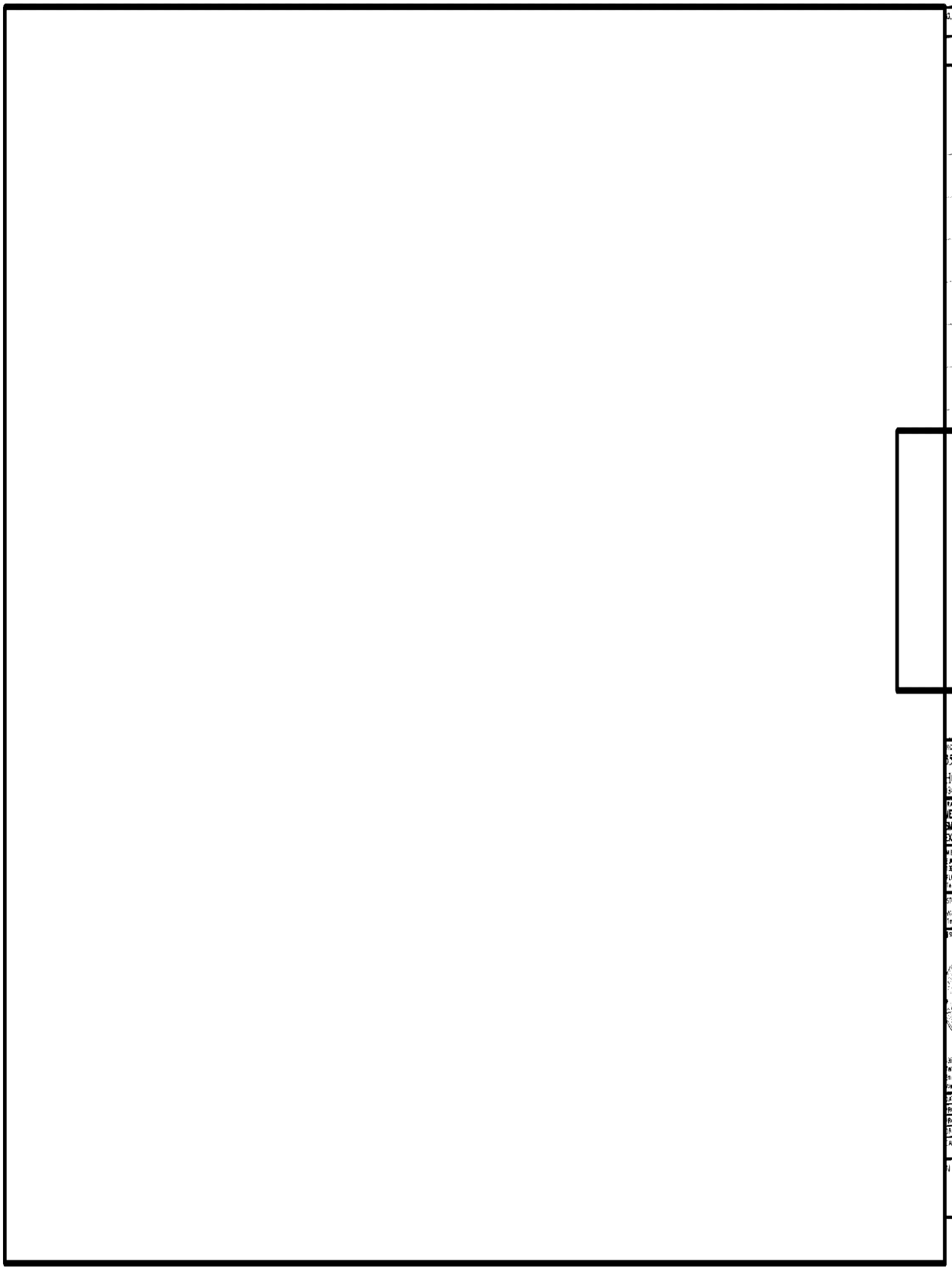

NO.	DATE	DESCRIPTION

& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT OF BUILDINGS
ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
34-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
SMOKE EXHAUST AND TOILET
EXHAUST RISER DIAGRAMS – I

M.E.P. ENGINEER
J.K. ENGINEERING, PLLC
136-20 ROOSEVELT AVE SUITE 211
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DATE	06/07/2014 DWG No.
PROJECT No.	2026 M-021.00
PROJECT MANAGER	BCP
DRAWN BY	D.C.
ADD FILING	21
(STANDARD (DOB))	(DOB/HPD ONLY)

NYC DOB NO

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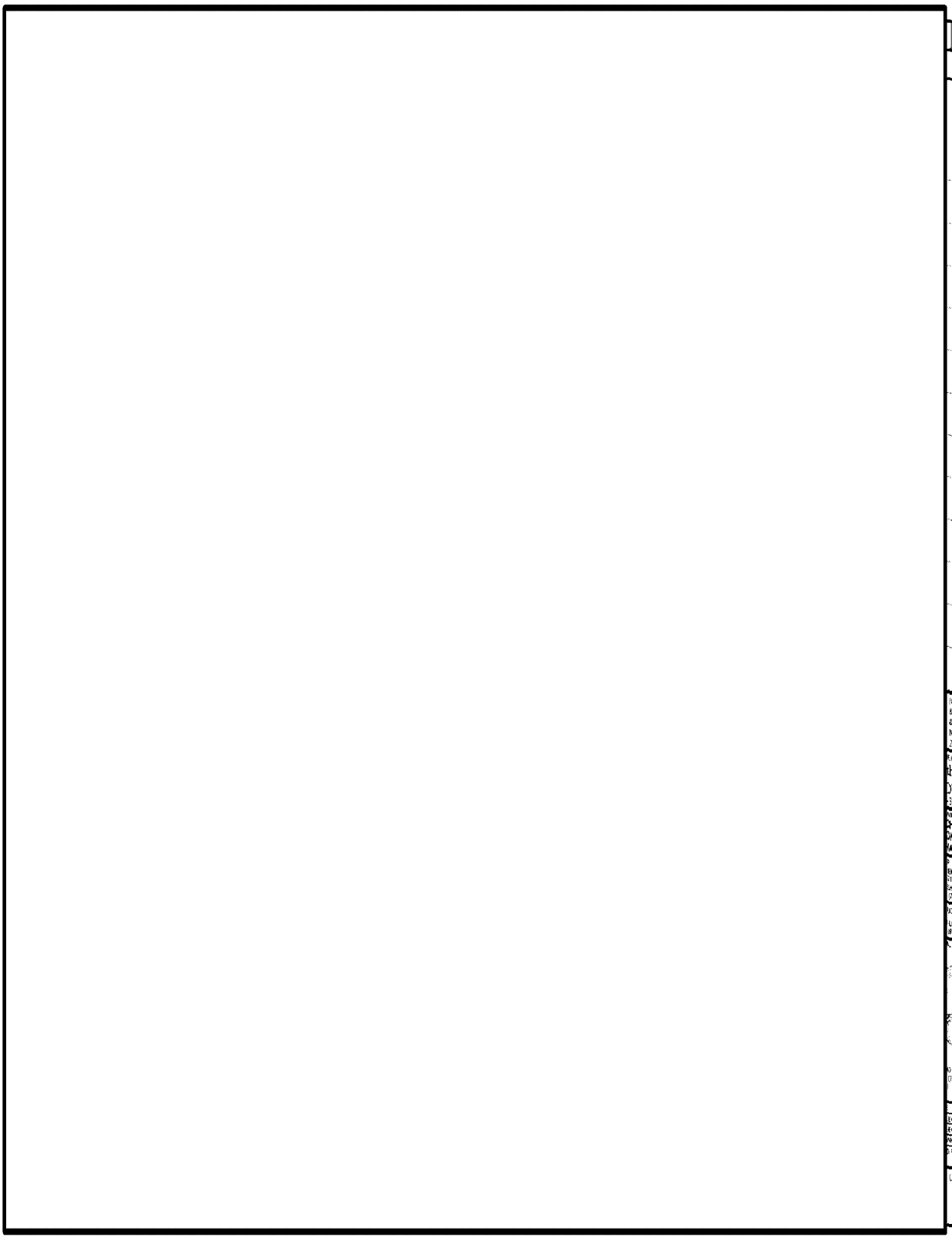

DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDINGS ZONING AND BUILDING CODES

PROJECT
th AVE./FARRINGTON ST
OTEL DEVELOPMENT
-37 35TH AVE. FLUSHING NY 11101

DRAWING TITLE
CHANICAL
AKE EXHAUST AND TOILET
AUST RISER DIAGRAMS – II

P ENGINEER
ENGINEERING PLLC
41 ROCKWELL AVE SUITE 211
[illegible] NY 11354
(718) 355-8900 Fax: (718) 353-4067

CTURAL ENGINEER
LEUNG N.Y.P.E
(917) 518-2208 Fax: (718) 354-6016

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DRAWING NO.
SECTION 2906
SECT MANAGER NO. M-022.00
FAMILY D.C.
FILE NO. 22
SCHEMATIC (CPS)

L DOE NO

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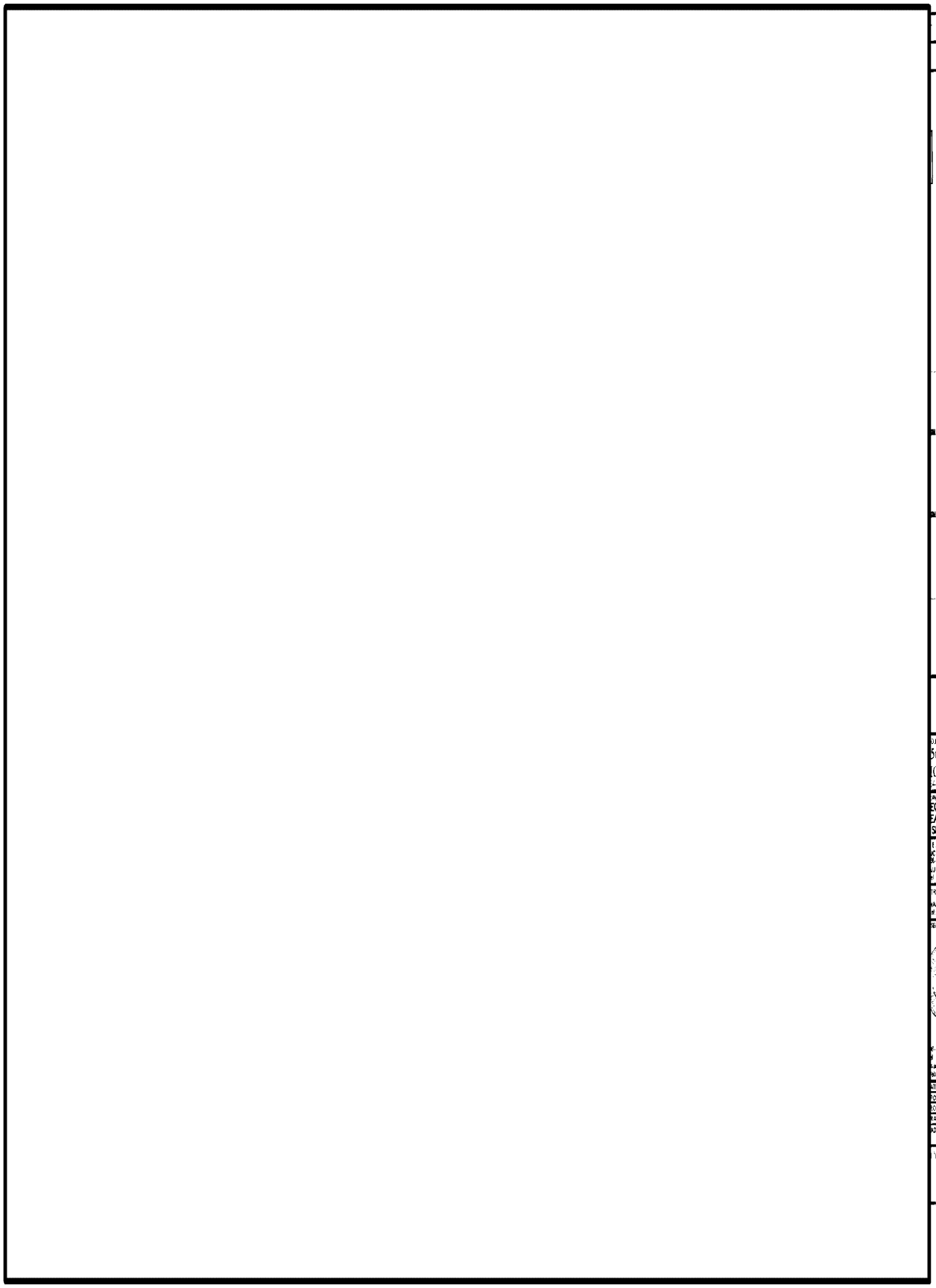

	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT. OF BUILDING
ZONING AND BUILDING CODES

PROJECT
5th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
[illegible]-37 95TH AVE, E...SHING NY 11101

DRAWING TITLE
MECHANICAL
HEAT PUMP CONDENSER WATER
LOOP DIAGRAMS - 1

MEP ENGINEER
[illegible] ENGINEERING, PLLC
[illegible]-21 ROOSEVELT AVE SUITE 2[illegible]
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HAILEUNG PIE
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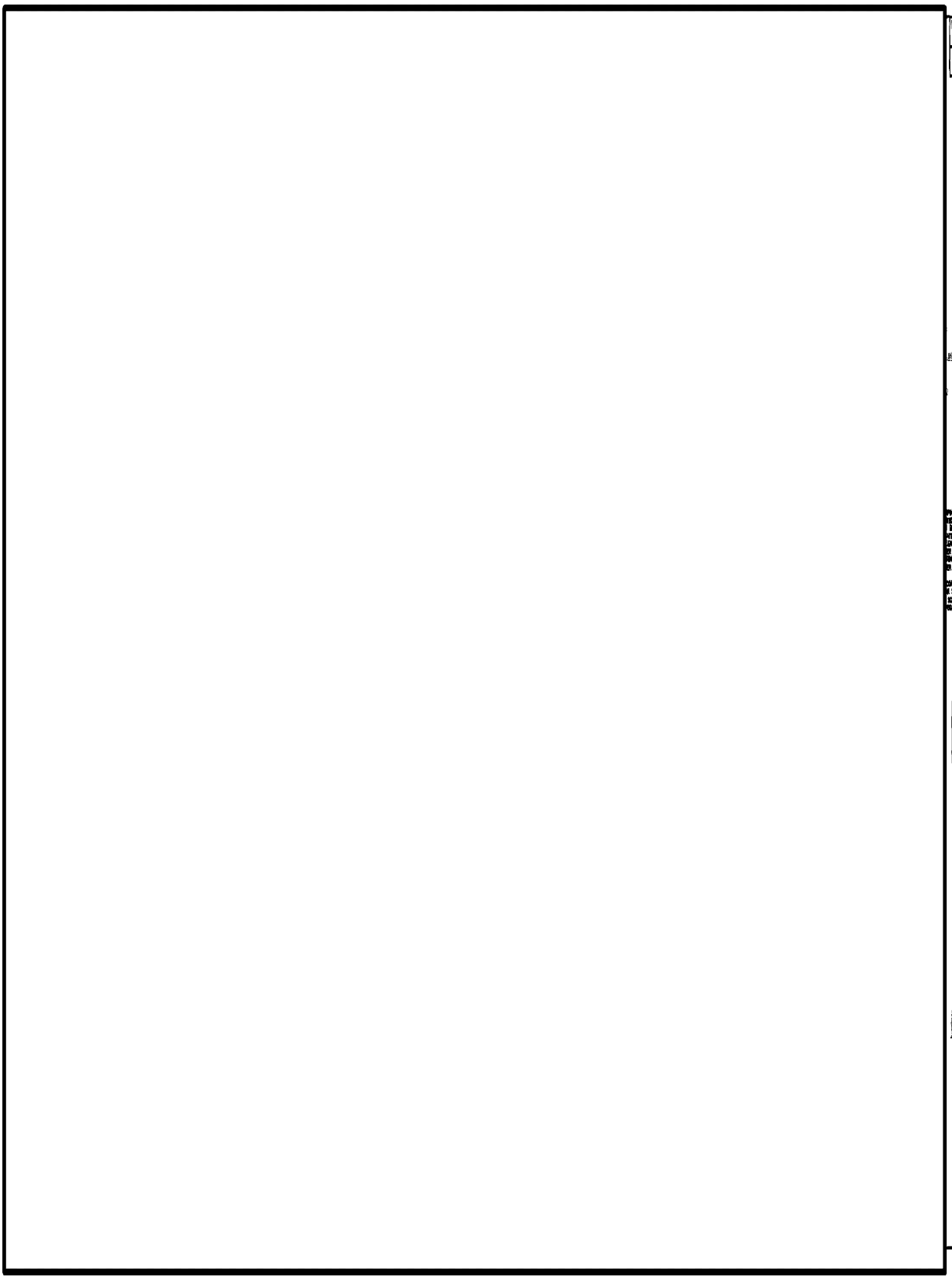
DATE	04/01/2014
PROJECT No.	2006
PROJECT MANAGER	[illegible]
DRAWN BY	[illegible]
CAD FILE NO.	[illegible]

DRG. No.
M-023.00

NYC DOB NO.

(b)(4)



No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BUILDING ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
HEAT PUMP CONDENSER WATER RISER DIAGRAMS – II

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DATE	04/01/2011	DWG No
PROJECT NO	2045	M-024.00
PROJECT MANAGER	KPA	
DRAWN BY	E.E.	
CADD FILE NO		24
35TH AVENUE (2045)		

NYC DOE NO

SEQUENCE OF OPERATION

HVAC INSTRUMENTATION AND CONTROL SYSTEM SPECIFICATION

A. THIS HVAC INSTRUMENTATION AND CONTROL SYSTEM SPECIFICATION MUST BE CONFORMED TO IN ITS ENTIRETY TO ENSURE THAT THE INSTALLED AND PROGRAMMED SYSTEM WILL ACCOMMODATE ALL OF THE CURRENT AND FUTURE REQUIREMENTS OF THE BUILDING OWNER. ANY SPECIFIED HEW OR OPERATIONAL FEATURE NOT SPECIFICALLY ADDRESSED HEREIN TO BE DONE WILL BE INCLUDED TO BE HOT WRONT EXCEPTION.

B. THE INITIAL CHECKOUT AND VERIFICATION OF COMPLETE AND PROPER SYSTEM OPERATION SHALL BE PERFORMED BY PERSONNEL EMPLOYED BY THE AUTOMATIC CONTROL CONTRACTOR, TO BE FULLY TRAINED IN THE SYSTEMS OPERATION, INSTALLATION, CHECK-OUT, AND MAINTENANCE. DETAILED RECORDS OF THE CHECK-OUT AND VERIFICATION PROCEDURES SHALL BE MAINTAINED AND SUBMITTED TO OWNER'S REPRESENTATIVE WEEKLY. THESE RECORDS SHALL INCLUDE THE PROCEDURES USED, THE INDIVIDUALS PERFORMING THE PROCEDURES, THE DATES AND TIMES, AND THE RESULTS. THE FINAL CHECKOUT AND VERIFICATION OF COMPLETE AND PROPER SYSTEM OPERATION SHALL BE PERFORMED BY AIR CONTRACTOR PROJECT MANAGER AND OWNER.

C. CONTROL VALVE
1. PROVIDE AUTOMATIC CONTROL VALVE REQUIRED BY SEQUENCE OF OPERATIONS. PROVIDE NORMALLY OPEN OR NORMALLY CLOSED AUTOMATIC CONTROL VALVE AS REQUIRED BY SEQUENCE OF OPERATIONS. AUTOMATIC CONTROL VALVE SHALL BE BAL, OR BUTTERFLY VALVE.

2. AUTOMATIC CONTROL VALVES 3" AND SMALLER SHALL BE SCREWED TYPE, AND VALVES 2½" AND LARGER SHALL BE FLANGED. VALVES SHALL BE MULTI-PORED TO MINIMIZE THE PRESSURES AND TEMPERATURES ENCOUNTERED. VALVES SHALL HAVE STAINLESS-STEEL STEMS AND SPRING LOADED TEFLON PACKINGS WITH REPLACEABLE DISCS.

3. VALVE SHALL BE SIZED FOR A PRESSURE DROP EQUAL TO THE COIL THEY SERVE BUT NOT TO EXCEED 5 PSI. PROVIDE CONTROL VALVE CAPABLE OF CLOSING OFF AGAINST 150 PSI DIFFERENTIAL PRESSURE. PROVIDE CONTROL VALVE WITH 125 LB FLANGE.

4. BUTTERFLY VALVES SHALL BE SOLID RING TYPE SUITABLE FOR FLANGE MOUNTING WITH FULL LUG.
TYPE DISCBE, DRILLED AND TAPPED IRON BODY, STAINLESS STEEL DISK AND SHAFT.

B. SEQUENCE OF OPERATION OF CONDENSER WATER SYSTEM

1. AUTOMATIC CONTROL SYSTEM (ICS) SHALL CONTROL THE HEAT PUMP CONDENSER WATER LOOP SUPPLY TEMPERATURE BETWEEN A MINIMUM OF 60°F (ADJUSTABLE) IN THE WINTER AND A MAXIMUM OF 80°F (ADJUSTABLE) IN THE SUMMER.

2. ICS SHALL CONTROL THE COOLING TOWER CONDENSER WATER LOOP SUPPLY TEMPERATURE AT 85°F (ADJUSTABLE) WHENEVER THE HEAT PUMP CONDENSER WATER LOOP RETURN TEMPERATURE IS AT 90°F (ADJUSTABLE) AS THE FOLLOWING:
- COOLING TOWERS SHALL BE STARTED VIA ICS CONTROL PANEL, OR MANUALLY THROUGH LAG/ JAG SWITCH AT LEAD/ LAG CONTROL PANEL. THE CONDENSER WATER PUMP (CWP-1 OR CWP-2, CWP-3 OR CWP-4) SHALL BE STARTED AND RUN CONTINUOUS.
- IF LEAD COOLING TOWER FAILS TO START, THE ICS SHALL AUTOMATICALLY BRING LAG COOLING TOWER ON LINE.
- PRIOR TO LEAD OR LAG COOLING TOWER START, DEDICATED ISOLATION CONTROL VALVE SHALL OPEN AND RESPECTIVE COOLING TOWER CONDENSER WATER PUMP SHALL START.
- ICS SHALL MODULATE SPEED OF COOLING TOWER FAN TO MAINTAIN COOLING TOWER CONDENSER WATER LOOP SUPPLY TEMPERATURE SET POINT AFTER TWO MINUTES (ADJUSTABLE). ICS SHALL BRING LAG COOLING TOWER ON LINE AND SHALL RUN BOTH COOLING TOWERS AS NEEDED TO MAINTAIN COOLING TOWER CONDENSER WATER LOOP SUPPLY TEMPERATURE AT SET POINT. WHEN COOLING TOWER CONDENSER WATER LOOP SUPPLY TEMPERATURE IS AT SET POINT FOR 30 MINUTES (ADJUSTABLE), ICS SHALL MODULATE SPEED OF LAG COOLING TOWER FAN TO MAINTAIN SPEED THEN SHUT DOWN LAG COOLING TOWER, THE ONE WITH THE MOST RUN TIME), SHUT DOWN RESPECTIVE COOLING TOWER CONDENSER WATER PUMP AND CLOSE ISOLATION CONTROL VALVE. LAG COOLING TOWER SHALL REMAIN ON LINE. LEAD/ LAG COOLING TOWERS AND RESPECTIVE COOLING TOWERS WATER PUMPS OPERATIONS SHALL BE ROTATED ON A BIWEEKLY BASIS TO EQUALIZE COOLING TOWERS AND PUMPS RUN TIME.
- ICS SHALL OVERRIDE COOLING TOWER SUMP HEATER WHENEVER SUMP WATER TEMPERATURE IS AT 35°F (ADJUSTABLE) UNTIL SUMP WATER TEMPERATURE RISES ABOVE 40°F (ADJUSTABLE), EACH SUMP HEATER SHALL BE INTERLOCKED.
- LOAD LEVEL CONTROLLER SHALL MODULATE COLD WATER CONTROL VALVE TO MAINTAIN CONDENSER COOLING TOWERS SUMP WATER LEVEL.
- FAIL SAFE OPERATION - IF CONTROLS SYSTEM FAILS, COOLING TOWERS AND COOLING TOWERS WATER PUMPS SHALL REMAIN ON.
- PROVIDE ALARMS AS FOLLOWING:
  - COOLING TOWERS FAILED TO START/ STOP
  - COOLING TOWERS CONDENSER WATER PUMPS FAILED TO START/ STOP
  - COOLING TOWERS SUMP HEATERS FAILED TO ENERGIZE/ DEENERGIZE
  - COOLING TOWERS SUMP WATER TEMPERATURE IS BELOW 40°F (ADJUSTABLE).
  - THE COOLING TOWER CONDENSER WATER PUMPS SHALL BE CONTROLLED BY A PANEL FURNISHED AND INSTALLED BY ICS CONTRACTOR.

  COOLING TOWER CONDENSER WATER PUMPS H-O-A SWITCH:
  WHEN PUMP'S H-O-A SWITCH IS ROTATED IN "OFF" POSITION, THE RESPECTIVE PUMP SHALL BE OFF AND ICS SYSTEM SHALL GENERATE AN ALARM.
  WHEN PUMP'S H-O-A SWITCH IS IN "HAND" POSITION, THE RESPECTIVE PUMP SHALL START AND RUN CONTINUOUSLY.
  WHEN PUMP'S H-O-A SWITCH IS ROTATED IN "AUTO" POSITION, THE RESPECTIVE PUMP SHALL BE CONTROLLED BY THE ICS.

3. THE HEAT PUMP CONDENSER WATER LOOP
- THE HEAT PUMP CONDENSER WATER LOOP PUMPS (HP-1 OR P-2, HP-3 OR HP-4) THE PUMPS SHALL BE CONTROLLED BY A PANEL FURNISHED AND INSTALLED BY ICS CONTRACTOR. EACH PUMP SHALL BE CONTROLLED BY A VARIABLE FREQUENCY DRIVE (VFD), MODULATE THE PUMP SPEED TO MAINTAIN THE SYSTEM PRESSURE DIFFERENTIAL. IN AN A (LEAD)/ STANDBY (BACKUP) THE PUMPS SHALL BE STARTED/STOPPED BY ICS CONTROL PANEL IF, AFTER 15 SECONDS, FLOW HAS NOT BEEN PROVEN VIA DIFFERENTIAL PRESSURE SWITCH, AN ALARM SHALL BE GENERATED AND THE STANDBY PUMP SHALL BE STARTED. THE PUMP SHALL RUN CONTINUOUSLY. LEAD/ STANDBY DESIGNATIONS OF PUMPS SHALL BE ROTATED ON A BI-WEEKLY BASIS TO EQUALIZE PUMPS RUN TIME.

  THE CONDENSER WATER LOOP PUMPS H-O-A SWITCH:
  WHEN PUMP'S H-O-A SWITCH IS ROTATED IN "OFF" POSITION, THE RESPECTIVE PUMP SHALL BE OFF AND BOC SYSTEM SHALL GENERATE AN ALARM.
  WHEN PUMP'S H-O-A SWITCH IS IN "HAND" POSITION, THE RESPECTIVE PUMP SHALL START AND RUN CONTINUOUSLY.
  WHEN PUMP'S H-O-A SWITCH IS ROTATED IN "AUTO" POSITION, THE RESPECTIVE PUMP SHALL BE CONTROLLED BY THE ICS.
  FAIL SAFE OPERATION -IF CONTROLS SYSTEM FAILS, SYSTEM PRIMARY HEAT PUMP CONDENSER WATER LOOP PUMPS HP-1 OR HP-2, HP-3 OR HP-4 SHALL REMAIN ON.
- CONTROL VALVES (CV-1 OR CV-2)
  THE CONTROL VALVE CV-1 OR CV-2 SHALL BE NORMALLY OPENED THROUGH HEAT EXCHANGER. THE CONTROL VALVES CV-1 OR CV-2 SHALL CLOSE DURING HEAT EXCHANGER WHENEVER THE PRIMARY HEAT PUMP CONDENSER WATER LOOP SUPPLY WATER TEMPERATURE DROPS TO 60°F (ADJUSTABLE) AND/ OR ANY OF BOILERS IS ENABLED.
- WHEN HEAT PUMP CONDENSER WATER RETURN TEMPERATURE DROPS BELOW 60°F, THE BOILER CONTROL PANEL SHALL ENABLE AND STAGE THE BOILERS (B-1 & B-2, OR B-3 & B-4), THE BOILER SECONDARY CIRCULATING PUMPS (SUPPLIED BY THE BOILER MANUFACTURER) SHALL BE ENERGIZED TO CIRCULATE THE WATER TO MAINTAIN THE HEAT PUMP CONDENSER WATER LOOP SUPPLY WATER TEMPERATURE AT 70°F (ADJUSTABLE).
- ICS SHALL MONITOR THE PRIMARY HEAT PUMP CONDENSER WATER LOOP SUPPLY AND RETURN WATER TEMPERATURES AND GENERATE AN ALARM WHENEVER SUPPLY WATER TEMPERATURE IS 60°F (ADJUSTABLE) AND RETURN WATER TEMPERATURE IS 60°F (ADJUSTABLE). LEAD/ LAG BOILERS DESIGNATIONS SHALL BE ROTATED ON A BIWEEKLY BASIS TO EQUALIZE BOILERS RUN TIME. IF THE HEAT PUMP CONDENSER WATER LOOP RETURN WATER TEMPERATURE DROPS TO 40°F (ADJUSTABLE) THEN THE MANUFACTURER-PROVIDED BOILERS CONTROL PANEL SHALL ENABLE ALL BOILERS UNTIL RETURN WATER TEMPERATURE RISES ABOVE 60°F (ADJUSTABLE).
  ICS SHALL GENERATE AN ALARM IF ANY BOILER FAILS TO START.
  BOILER ROOM EMERGENCY SHUT-OFF SWITCHING GLASS SWITCH SHALL DE-ENERGIZE BOILERS UPON ACTIVATION AND ICS SHALL GENERATE AN ALARM.
  FAIL SAFE OPERATION - IF ICS CONTROLS FAIL, BOILERS SHALL REMAIN ON SUBJECT TO BOILERS SAFETIES.

COOLING TOWER SUMP HEATER

EACH SUMP CONTROLLED BY RTD TO MAINTAIN WATER TEMPERATURE. MAKEUP WATER SOLENOID VALVE AT EACH TOWER SUMP SHALL OPEN AND CLOSE TO MAINTAIN WATER LEVEL IN RESPECTIVE SUMP IN ACCORDANCE WITH FLOAT LEVEL SENSOR.

HEATING COIL AT EACH TOWER SUMP SHALL BE ACTIVATED WHEN SUMP TEMPERATURE IS BELOW 35 DEGREES F.

HEATER SHALL NOT BE ACTIVATED IF THE WATER LEVEL IN RESPECTIVE SUMP IS BELOW LEVEL SENSOR'S SETPOINT. HEAT TRACING AT EXTERIOR PIPING SERVING EACH TOWER SUMP SHALL BE ACTIVATED IF TEMPERATURE IS BELOW SETPOINT 35 DEGREES F.

STAIR PRESSURIZATION FAN SCHEDULE

SP-1, SP-2, SP-3
SERVING STAIR PRESSURIZATION SYSTEMS IN STAIRCASES

QUANTITIES: 3

GREENHECK MODEL SWSI-24, 0.25" S.P., 3,500 CFM,
FAN MOTOR: ½ HP, 120P/1P/60H
WEIGHT 60 LBS

1. FANS SHALL BE CONTROLLED VIA BASE BUILDING FIRE ALARM SYSTEM, WITH A CONTROL PANEL LOCATED IN HOTEL LOBBY.
2. FANS SHALL BE STARTED TO RUN CONTINUOUS TO PRESSURIZE THE STAIRCASE SERVED, WHEN THE BUILDING FIRE ALARM IS ACTIVATED.
3. WHEN THE STAIRWELL PRESSURE IS 0.15"± (ADJUSTABLE), THE BAROMETRIC RELIEF DAMPERS WILL BE OPENED TO RELIEF THE AIR FROM STAIRWELL, TO MAINTAIN THE STAIRWELL PRESSURE NOT TO EXCEED 0.15"± S.P.
4. PROVIDE DISCONNECT SWITCH AND VIBRATION ISOLATORS.
5. MOTORIZED DAMPER W/END SWITCH, SHALL BE INTERLOCKED WITH FAN DAMPER TO BE OPENED WHEN FAN IS STARTED, AND TO BE CLOSED WHEN FAN IS OFF.
6. FAN MOTOR SHALL BE CONNECTED TO BUILDING EMERGENCY POWER.

SP-4, SP-5 & SP-6
SERVING STAIR PRESSURIZATION SYSTEMS IN STAIRCASES

QUANTITIES: 3

GREENHECK MODEL SWSI-24, 0.25" S.P., 3,500 CFM,
FAN MOTOR: ½ HP, 120P/1P/60H
WEIGHT 60 LBS

1. FANS SHALL BE CONTROLLED VIA BASE BUILDING FIRE ALARM SYSTEM, WITH A CONTROL PANEL LOCATED IN HOTEL LOBBY.
2. FANS SHALL BE STARTED TO RUN CONTINUOUS TO PRESSURIZE THE STAIRCASE SERVED, WHEN THE BUILDING FIRE ALARM IS ACTIVATED.
3. WHEN THE STAIRWELL PRESSURE IS 0.15"± (ADJUSTABLE), THE BAROMETRIC RELIEF DAMPERS WILL BE OPENED TO RELIEF THE AIR FROM STAIRWELL, TO MAINTAIN THE STAIRWELL PRESSURE NOT TO EXCEED 0.15"± S.P.
4. PROVIDE DISCONNECT SWITCH AND VIBRATION ISOLATORS.
5. MOTORIZED DAMPER W/END SWITCH, SHALL BE INTERLOCKED WITH FAN DAMPER TO BE OPENED WHEN FAN IS STARTED, AND TO BE CLOSED WHEN FAN IS OFF.
6. FAN MOTOR SHALL BE CONNECTED TO BUILDING EMERGENCY POWER.

SMOKE EXHAUST FAN SCHEDULE

SE-1 & SE-2
SERVING BUILDING SMOKE EXHAUST SYSTEMS
QUANTITIES: 2

GREENHECK MODEL CUBE-300, 2.5" EXT. S.P., 6,000 CFM,
FAN MOTOR: 5 HP, 208P/3P/60H
WEIGHT 340 LBS

SE-3
SERVING BUILDING SMOKE EXHAUST SYSTEM IN HOTEL AND RETAIL SPACE
QUANTITY: 1

GREENHECK MODEL CUBE-300, 1.5" EXT. S.P., 8,000 CFM,
FAN MOTOR: 5 HP, 208P/3P/60H
WEIGHT 340 LBS

1. FANS SHALL BE CONTROLLED VIA BASE BUILDING FIRE ALARM SYSTEM, WITH A CONTROL PANEL LOCATED IN HOTEL LOBBY.
2. FANS SHALL BE STARTED TO EXHAUST SMOKE FROM ONE FLOOR AT ONE TIME.
3. DURING NORMAL CONDITION, ALL FANS (SE-1, SE-2 & SE-3) SHALL BE OFF, ALL FIRE SMOKE DAMPERS (FSD'S) AT THE SMOKE EXHAUST RISERS SHALL BE CLOSED (N.C.).
4. THE FANS BEING ACTIVATED EXHAUST THE SMOKE, ONLY FSD'S AT THE SMOKE EXHAUSTED FLOOR SHALL BE OPENED THRU THE SMOKE EXHAUST CONTROL PANEL AT LOBBY, ALL OTHER FSD'S AT THE RISERS SHALL REMAIN CLOSURE.
5. PROVIDE DISCONNECT SWITCH.
6. FAN MOTORS SHALL BE CONNECTED TO BUILDING EMERGENCY POWER.

AIR-COOLED ROOFTOP PACKAGE AIR CONDITIONING UNIT SCHEDULE

AC-1
SERVING OUTDOOR AIR TO SUB-CELLAR I HOTEL ACCESS SPACE

QUANTITY: 1

AAON MODEL RN-015-A-0-0808-308
NOMINAL 15 TONS COOLING.

SUPPLY FAN: 5,000 CFM (100% OUTDOOR AIR)
FAN MOTOR: 2 HP, 1.0" EXT. S.P.

COOLING PERFORMANCE:
TOTAL COOLING CAPACITY: 197.8 MBH
SENSIBLE COOLING CAPACITY: 134.4 MBH
ENTERING AIR TEMP.: 80°F(DB) / 74°F(WB)
LEAVING AIR TEMP.: 56.7°F(DB) / 55.8°F(WB)

HEATING PERFORMANCE:
HEATING CAPACITY: 234.0 MBH
ENTERING AIR TEMP.: 11°F, LEAVING AIR TEMP.: 78.0°F(DB)
GAS INPUT: 300.0 MBH

ELECTRICAL DATA: UNIT FLA: 43A, MCA: 70A, MFS: 90A, 208V/3P/60H

REFRIGERANT: R410A, OPERATING WEIGHT: 1,650 LBS.
UNIT SIZE: 111.3, THERMAL EFFICIENCY: 80%

PROVIDE:
1. 5-YEAR WARRANTY FOR COMPRESSORS AND FANS, AND ONE YEAR WARRANTY FOR LABOR, FACTORY STAR-UP.
2. AIR-SIDE ECONOMIZER, OUTDOOR AIR INLET HOOD, AND ALL FACTORY RECOMMENDED ACCESSORIES.
3. DURABLE STEEL TO SUPPORT THE UNIT, DESIGNED BY A STRUCTURAL ENGINEER.
4. VIBRATION ISOLATORS.
5. DISCONNECT SWITCH.
6. DUCT MOUNTED SMOKE DETECTOR.
7. DUCT MOUNTED TEMP. SENSORS SHALL CONTROL THE UNIT COMPRESSORS, ECONOMIZER AND GAS FURNACE, TO MAINTAIN THE UNIT DISCHARGE AIR TEMPERATURE AS SHOWN ABOVE.
8. A 7-DAYS, PROGRAMMABLE TIME CLOCK SHALL BE LOCATED IN SUB-CELLAR I DRAWING AREA.

EXHAUST AND OUTDOOR AIR FAN SCHEDULE

EF-1
SERVING SUB-CELLAR HOTEL LAUNDRY DRYER EXHAUST
QUANTITY: 1

GREENHECK MODEL SWSI-90, 0.75" EXT. S.P., 400 CFM,
FAN MOTOR: ¾ HP, 120P/1P/60H
WEIGHT 70 LBS

1. FANS SHALL BE STARTED BY A WALL MOUNTED SWITCH LOCATED IN LAUNDRY ROOM SERVED.
2. PROVIDE DISCONNECT SWITCH AND SPRING VIBRATION ISOLATORS.

EF-2
SERVING SUB-CELLAR HOTEL GUEST LAUNDRY DRYER EXHAUST
QUANTITY: 1

GREENHECK MODEL SWSI-90, 0.75" EXT. S.P., 400 CFM,
FAN MOTOR: ¾ HP, 120P/1P/60H
WEIGHT 70 LBS

1. FANS SHALL BE STARTED BY A WALL MOUNTED SWITCH LOCATED IN LAUNDRY ROOM SERVED.
2. PROVIDE DISCONNECT SWITCH AND SPRING VIBRATION ISOLATORS.

EF-3
SERVING SUB-CELLAR RESIDENTIAL LAUNDRY DRYER EXHAUST
QUANTITY: 1

GREENHECK MODEL SWSI-90, 0.75" EXT. S.P., 300 CFM,
FAN MOTOR: ¾ HP, 120P/1P/60H
WEIGHT 70 LBS

1. FANS SHALL BE STARTED BY A WALL MOUNTED SWITCH LOCATED IN LAUNDRY ROOM SERVED.
2. PROVIDE DISCONNECT SWITCH AND SPRING VIBRATION ISOLATORS.

EF-4
SERVING SUB-CELLAR HOTEL FITNESS ROOM EXHAUST
QUANTITY: 1

GREENHECK MODEL SQ-97-VG, 0.75" EXT. S.P., 300 CFM,
FAN MOTOR: ¾ HP, 120P/1P/60H
WEIGHT 90 LBS

1. FANS SHALL BE STARTED BY A WALL MOUNTED SWITCH LOCATED IN FITNESS ROOM.
2. PROVIDE DISCONNECT SWITCH AND SPRING VIBRATION ISOLATORS.

EF-5
SERVING SUB-CELLAR COMPACTOR ROOM EXHAUST
QUANTITY: 1

GREENHECK MODEL SQ-97-VG, 0.75" EXT. S.P., 300 CFM,
FAN MOTOR: ¾ HP, 120P/1P/60H
WEIGHT 90 LBS

1. FANS SHALL BE STARTED BY A WALL MOUNTED SWITCH LOCATED IN FITNESS ROOM.
2. PROVIDE DISCONNECT SWITCH AND SPRING VIBRATION ISOLATORS.

EF-6
SERVING SUB-CELLAR TOILET EXHAUST
QUANTITY: 1

GREENHECK MODEL SQ-120-VG, 1.0" EXT. S.P., 1,400 CFM,
FAN MOTOR: ¾ HP, 120P/1P/60H
WEIGHT 97 LBS

1. FANS SHALL BE STARTED BY A PROGRAMMABLE TIME CLOCK LOCATED AT FAN.
2. PROVIDE DISCONNECT SWITCH, SPRING VIBRATION ISOLATORS AND MOTORIZED DAMPER.

EF-7
SERVING 2ND FLOOR COMMUNITY FACILITY EXHAUST
QUANTITY: 1

GREENHECK MODEL SQ-109, 0.75" EXT. S.P., 800 CFM,
FAN MOTOR: ¾ HP, 120P/1P/60H
WEIGHT 91 LBS

1. FANS SHALL BE STARTED BY A PROGRAMMABLE TIME CLOCK LOCATED IN 2ND FLOOR TOILET.
2. PROVIDE DISCONNECT SWITCH, SPRING VIBRATION ISOLATORS AND MOTORIZED DAMPER IN 12" ROOFCURB.

EF-8
SERVING 1ST FLOOR RETAIL & HOTEL LOBBY TOILET EXHAUST
QUANTITY: 1

GREENHECK MODEL SQ-101, 1.0" EXT. S.P., 800 CFM,
FAN MOTOR: ¾ HP, 120P/1P/60H
WEIGHT 94 LBS

1. FANS SHALL BE STARTED BY A PROGRAMMABLE TIME CLOCK LOCATED AT FAN.
2. PROVIDE DISCONNECT SWITCH, 12" ROOFCURB AND MOTORIZED DAMPER.

EF-9
SERVING HOTEL TOILET EXHAUST
QUANTITY: 1

GREENHECK MODEL SQ-109HP, 0.5" EXT. S.P., 260 CFM,
FAN MOTOR: ¾ HP, 120P/1P/60H
WEIGHT 94 LBS

1. FANS SHALL BE STARTED BY A PROGRAMMABLE TIME CLOCK LOCATED AT FAN.
2. PROVIDE DISCONNECT SWITCH, 12" ROOFCURB AND MOTORIZED DAMPER.
3. PROVIDE VARI-GREEN MOTOR FOR FAN, MOTOR SHALL BE CONTROLLED BY ONE PRESSURE SENSOR LOCATED IN DUCT.

EF-10
SERVING HOTEL TOILET EXHAUST
QUANTITY: 1

GREENHECK MODEL SQ-141, 1.0" EXT. S.P., 1,900 CFM,
FAN MOTOR: 1½ HP, 120P/1P/60H
WEIGHT 94 LBS

1. FANS SHALL BE STARTED BY A PROGRAMMABLE TIME CLOCK LOCATED AT FAN.
2. PROVIDE DISCONNECT SWITCH, 12" ROOFCURB AND MOTORIZED DAMPER.
3. PROVIDE VARI-GREEN MOTOR FOR FAN, MOTOR SHALL BE CONTROLLED BY ONE PRESSURE SENSOR LOCATED IN DUCT.

EF-11
SERVING HOTEL TOILET EXHAUST
QUANTITY: 1

EF-12
SERVING HOTEL TOILET EXHAUST
QUANTITY: 1

GREENHECK MODEL SQ-109, 0.75" EXT. S.P., 2,200 CFM,
FAN MOTOR: 1" HP, 208P/3P/60H
WEIGHT 100 LBS

1. FANS SHALL BE STARTED BY A PROGRAMMABLE TIME CLOCK LOCATED AT FAN.
2. PROVIDE DISCONNECT SWITCH, 12" ROOFCURB AND MOTORIZED DAMPER.
3. PROVIDE VARI-GREEN MOTOR FOR FAN, MOTOR SHALL BE CONTROLLED BY ONE PRESSURE SENSOR LOCATED IN DUCT.

EF-13
SERVING SUB-CELLAR KITCHEN EXHAUST
QUANTITY: 1

GREENHECK MODEL SWSI-18, 2.5" EXT. S.P., 5,000 CFM,
FAN MOTOR: 5 HP, 208P/3P/60H
WEIGHT 280 LBS

1. FANS SHALL BE STARTED BY A WALL MOUNTED SWITCH LOCATED AT KITCHEN SERVED.
2. PROVIDE DISCONNECT SWITCH & SPRING VIBRATION ISOLATORS.

EF-14
SERVING SUB-CELLAR POOL EXHAUST
QUANTITY: 1

GREENHECK MODEL SWSI-135, 0.75" EXT. S.P., 800 CFM,
FAN MOTOR: ¾ HP, 120P/1P/60H
WEIGHT 97 LBS

1. FANS SHALL BE INTERLOCKED WITH AC UNIT (AC-4), STARTED BY A WALL MOUNTED T-STAT PROGRAMMABLE THERMOSTAT LOCATED IN POOL AREA.
2. PROVIDE DISCONNECT SWITCH, MOTORIZED DAMPER & SPRING VIBRATION ISOLATORS.

AC-5
SERVING SUB-CELLAR II PARKING OUTDOOR AIR
QUANTITY: 1

GREENHECK MODEL AV-40-275-8X13, 1.0" S.P., 30,000 CFM,
FAN MOTOR: 15 HP, 208P/3P/60H
WEIGHT 536 LBS

1. FANS SHALL BE INTERLOCKED WITH FAN EF-5C, ACTIVATED THRU CO SENSORS LOCATED IN SUB-CELLAR PARKING SPACE.
2. PROVIDE DISCONNECT SWITCH AND SPRING VIBRATION ISOLATORS.
3. PROVIDE FAN WITH A CONTROL SWITCH LOCATED IN PARKING ATTENDANT OFFICE TO START FAN BY MANUAL.

EF-5C
SERVING SUB-CELLAR I PARKING EXHAUST
QUANTITY: 1

GREENHECK MODEL AV-40-270-8X17, 1.25" S.P., 16,000 CFM,
FAN MOTOR: 7.5 HP, 208P/3P/60H
WEIGHT 536 LBS

1. FANS SHALL BE ACTIVATED THRU CO SENSORS LOCATED IN PARKING SPACE SERVED.
2. PROVIDE DISCONNECT SWITCH AND SPRING VIBRATION ISOLATORS.
3. MOTORIZED DAMPER W/END SWITCH, SHALL BE INTERLOCKED WITH FAN DAMPER TO BE OPENED WHEN FAN IS STARTED, AND TO BE CLOSED WHEN FAN IS OFF.
4. PROVIDE FAN WITH A CONTROL SWITCH LOCATED IN PARKING ATTENDANT OFFICE TO START FAN BY MANUAL.

EF-5C-1
SERVING SUB-CELLAR I PARKING EXHAUST
QUANTITY: 1

GREENHECK MODEL AV-40-270-8X22, 1.0" S.P., 30,000 CFM,
FAN MOTOR: 15 HP, 208P/3P/60H
WEIGHT 536 LBS

1. FANS SHALL BE ACTIVATED THRU CO SENSORS LOCATED IN PARKING SPACE SERVED.
2. PROVIDE DISCONNECT SWITCH AND SPRING VIBRATION ISOLATORS.
3. MOTORIZED DAMPER W/END SWITCH, SHALL BE INTERLOCKED WITH FAN DAMPER TO BE OPENED WHEN FAN IS STARTED, AND TO BE CLOSED WHEN FAN IS OFF.
4. PROVIDE FAN WITH A CONTROL SWITCH LOCATED IN PARKING ATTENDANT OFFICE TO START FAN BY MANUAL.

EF-RM
SERVING RESIDENTIAL DWELLING UNIT TOILET AND KITCHEN EXHAUST (7TH ~ 10TH FLOORS)
QUANTITIES:

GREENHECK MODEL SQ-70-VG, 0.25" EX. S.P., 300 CFM,
FAN MOTOR: ¾ HP, 120P/1P/60H
WEIGHT 44 LBS

1. FANS SHALL BE CONTROLLED BY WALL-MOUNTED 3-WAY CONTROL SWITCHES WITH PILOT LIGHT, LOCATED IN EACH TOILET, KITCHEN WITHIN DWELLING UNIT.
2. PROVIDE DISCONNECT SWITCH, FLEXIBLE CONNECTION AND VIBRATION ISOLATORS.
3. MOTORIZED DAMPER W/END SWITCH, SHALL BE INTERLOCKED WITH FAN DAMPER TO BE OPENED WHEN FAN IS STARTED, AND TO BE CLOSED WHEN FAN IS OFF.
4. EXHAUST LOUVER SHALL BE MIN. 3 FT FROM ANY OPERABLE WINDOWS IN THE SAME DWELLING UNIT, MIN. 3 FT FROM ANY OPERABLE WINDOWS IN ADJOINING DWELLING UNIT, MIN. 10 FT FROM ANY OUTDOOR INTAKE OPENING, IN COMPLIANCE WITH MC 501.2.1, 2.

OA-RM
SERVING RESIDENTIAL DWELLING UNIT OUTDOOR AIR INTAKE (7TH ~ 10TH FLOORS)
QUANTITIES:

GREENHECK MODEL SQ-70-VG, 0.25" EXT. S.P., 250 CFM
FAN MOTOR: ¾ HP, 120P/1P/60H, WEIGHT 44 LBS

FAN DESIGNED AIR DESIGN CONDITION:
75 CFM (OUTDOOR AIR @ 17°F OUTDOOR AIR TEMPERATURE)
170 CFM (RETURN AIR @ 65°F INDOOR AIR TEMPERATURE)
TOTAL 255 CFM (FAN DISCHARGE AIR @ 51.0°F MIXING AIR TEMPERATURE)

1. FANS SHALL BE CONTROLLED BY A WALL-MOUNTED CONTROL SWITCH WITH PILOT LIGHT, LOCATED IN LIVING ROOM NEXT TO AC THERMOSTAT.
2. PROVIDE DISCONNECT SWITCH, FLEXIBLE CONNECTION AND VIBRATION ISOLATORS.
3. MOTORIZED DAMPER W/END SWITCH, SHALL BE INTERLOCKED WITH FAN DAMPER TO BE OPENED WHEN FAN IS STARTED, AND TO BE CLOSED WHEN FAN IS OFF.
4. A 7/8 CFM OUTDOOR AIR SHALL BE DUCTED INTO EACH DWELLING UNIT, IN [illegible]

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN, & SHALL BE SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BUILDINGS ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
124-37 35TH AVE, FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
EQUIPMENT SCHEDULE - 1

M.E.P. ENGINEER
P.C. ENGINEERING PLLC
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FLUSHING, N.Y. 11354
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DATE	09/09/14 EURO NO
PROJECT NO	2096
PROJECT MANAGER	RCA
DRAWN BY	P.C.
CADD FILE NO	DE
35TH AVE-LIE 2096	

M-025.00

NYC DOB NO

No.	DATE	DESCRIPTION

HEATING HOT WATER BOILER SCHEDULE

B-1-1, B-1-2, B-2-1 & B-2-2
QUANTITIES: 4

B-1-1 & B-1-2 SERVING HEATING TO THE BUILDING RESIDENTIAL FLOORS FROM 6TH THRU 16TH FLOORS.

B-2-1 & B-2-2 SERVING HEATING TO THE BUILDING COMMERCIAL & HOTEL FLOORS FROM SUB-CELLAR THRU 7TH FLOORS.

LAARS MODEL MIGHTYTEN SIZE 2500

NATURAL GAS INPUT: 2,499.0 MBH
HEATING OUTPUT: 2,374.0 MBH

HOT WATER ENTERING TEMPERATURE: 60°F
HOT WATER LEAVING TEMPERATURE: 75°F

OPERATING PRESSURE: 50 PSIG
RELIEF PRESSURE: 75 PSIG

ELECTRICAL: 120V/1P, 20A (BOILER); 208V/3P, 20A (SECONDARY PUMP)
THERMAL EFFICIENCY: 95.2%
WEIGHT: 2,039 LBS
ASME & AHRI CERTIFIED

PROVIDE WITH FOLLOWINGS:
CONDENSING OUT N' VENTING
HEATINGLER KIT & CONDENSATE DRAIN.
DRAIN VALVE, 24 V CONTROL SYSTEM,
LOW GAS PRESSURE SWITCH, MAIN GAS PRESSURE REGULATOR,
WATER FLOW SWITCH, LOW WATER CUT-OFF.
VARI-FRAME FLOW CONTROL.
INDOOR/OUTDOOR CONTROLLER.
SECONDARY CIRCULATING PUMP.
MIN. 4" CONCRETE PAD AND VIBRATION ISOLATORS.

PLATE AND FRAME HEAT EXCHANGER SCHEDULE

HX-1 & HX-2
QUANTITY: 2

HX-1: SERVING HEAT PUMP CONDENSER WATER SYSTEM FOR THE BUILDING RESIDENTIAL FLOORS FROM 6TH THRU 16TH FLOORS.

HX-2 SERVING HEAT PUMP CONDENSER WATER SYSTEM FOR THE BUILDING COMMERCIAL, COMMUNITY FACILITY & HOTEL FLOORS FROM SUB-CELLAR THRU 7TH FLOORS.

ALFA LAVAL MODEL M15-BFG

TOTAL HEAT LOAD: 6,818.0 MBH

HOT SIDE WATER:
FLOW RATE: 1,250 GPM
ENT. WPT: LVE. 67°F.
WATER PRESSURE DROP: 8.92 PSI

COLD SIDE WATER:
FLOW RATE: 1,250 GPM
ENT. WPT: LVE. 94°F
WATER PRESSURE DROP: 8.87 PSI

DESIGN WATER PRESSURE: 150 PSIG.

OPERATING WEIGHT: 5,670 LBS

EXPANSION TANK SCHEDULE

T-1 & T-2
QUANTITIES: 2

T-1 SERVING RESIDENTIAL HEAT PUMP SYSTEM
T-2 SERVING HOTEL/RETAIL/COMMUNITY FACILITY HEAT PUMP SYSTEM

BELL & GOSSETT MODEL B-300

TANK CAPACITIES: 83 GALLONS
ACCEPTANCE CAPACITIES: 53 GALLONS
WEIGHT: 192 LBS

DIFFUSER SCHEDULE (SELECTION BASED ON MANUFACTURER)

UNIT NO.	CFM	SERVICE	TYPE	NECK SIZE (IN.)	FACE OVERALL (IN.)	REMARKS
CD-A	0-300	SUPPLY	SQUARE	8"Ø	12x12	SIMILAR TO EPA
CD-B	0-400	SUPPLY	SQUARE	10"Ø	24x24	SIMILAR TO EPA
CD-A	0-300	RETURN	SQUARE	-	12x12	SIMILAR TO S24D
CD-B	0-1000	RETURN	SQUARE	-	24x24	SIMILAR TO S24D
TR	SEE PLAN	SUPPLY	REGISTER	-	SEE PLAN	SIMILAR TO S25HD
CR-A	0-300	RETURN	SQUARE	10"Ø	12x12	SIMILAR TO AC5JD
SLD-A	0-40 CFM/LF	SUPPLY	LINEAR 1-SLOT	-	36"	SIMILAR TO SLXD-100
SLD-B	0-70 CFM/LF	SUPPLY	LINEAR 2-SLOT	-	48"	SIMILAR TO SLXD-100
SLD-C	0-130 CFM/LF	SUPPLY	VERTICAL LINEAR	8"	8"	SIMILAR TO AL-1E
RLD-A	0-40 CFM/LF	RETURN	LINEAR 1-SLOT	-	36"	SIMILAR TO RLXR-100
RLD-B	0-130 CFM/LF	RETURN	LINEAR 2-SLOT	-	60"	SIMILAR TO RLXR-100
RLD-C	0-130 CFM/LF	RETURN	VERTICAL LINEAR	8"	8"	SIMILAR TO AL-1E

NOTES:
1. ARCHITECT SHALL SELECT COLOR, BORDER AND FRAME TYPE.
2. COORDINATE DIFFUSER AND GRILLE BORDER TYPE WITH THE LATEST ARCHITECTURAL CEILING TYPE TO ENSURE MOUNTING CAPABILITY.
3. REFER TO FLOOR PLANS FOR CFM QUANTITIES.
4. PROVIDE OPPOSED BLADE DAMPER FOR ALL AIR OUTLETS.
5. PROVIDE CABLE OPERATED VOLUME DAMPER FOR DIFFUSERS IF REQUIRED, SEE DETAIL.

COOLING TOWER SCHEDULE

CT-1-1 AND CT-1-2
QUANTITIES: 2

SERVING RESIDENTIAL FLOORS FROM 6TH - 16TH FLOORS

BALTIMORE AIR COIL SERIES 1800, MODEL 018E-12R6-07U4
DOUBLE CELL, NOMINAL 217 TONS COOLING

WHEN OUTDOOR WPT DB & 78°F WB.
ENTERING WATER TEMPERATURE: 95°F
LEAVING WATER TEMPERATURE: 85°F
CONDENSER WATER: 840 GPM

FAN: 15 HP MOTOR, 50,130 CFM, 208V/3P,

UNIT OPERATING WEIGHT: 9,700 LBS
UNIT DIMENSION: 6'-0"(L) X 11'-4"(W) X 11-1"(H)

PROVIDE FOLLOWINGS:
1. STRUCTURAL SUPPORT WITH SPRING VIBRATION ISOLATORS, SEE STRUCTURAL DRAWINGS FOR DETAILS.
2. FACTORY-SUPPLIED VARIABLE FREQUENCY DRIVE (VDF) FOR FAN MOTOR, BASED ON THE CONDENSER WATER ENTERING AND LEAVING TEMPERATURE.
3. FACTORY-SUPPLIED CONTROL PANEL.
4. FACTORY-INSTALLED ELECTRIC HEATER (8 KW EACH, 208V/3P) FOR BASIN.
5. LOW AND HIGH ALARM FLOAT SWITCHES.
6. BYPASS VALVE.
7. SEMIBRAND MECHANICAL WATER LEVEL CONTROL.
8. ENCLOSED CONTROLS WITH FACTORY PROVIDED PROGRAMMABLE LOGIC CONTROLLERS.
9. DISCONNECT SWITCHES.

CT-1-1 & CT-1-2
QUANTITIES: 2
SERVING SERVING HOTEL, RETAIL & COMMUNITY FACILITIES (SUB-CELLAR 1 ~ 7TH FLOORS)

BALTIMORE AIR COIL SERIES 1800, MODEL 018E-12R6-07U4
DOUBLE CELL, NOMINAL 217 TONS COOLING

WHEN OUTDOOR WPT DB & 78°F WB.
ENTERING WATER TEMPERATURE: 95°F
LEAVING WATER TEMPERATURE: 85°F
CONDENSER WATER: 840 GPM

FAN: 15 HP MOTOR, 50,130 CFM, 208V/3P,

UNIT OPERATING WEIGHT: 9,700 LBS
UNIT DIMENSION: 6'-0"(L) X 11'-4"(W) X 11-1"(H)

PROVIDE FOLLOWINGS:
1. STRUCTURAL SUPPORT WITH SPRING VIBRATION ISOLATORS, SEE STRUCTURAL DRAWINGS FOR DETAILS.
2. FACTORY-SUPPLIED VARIABLE FREQUENCY DRIVE (VDF) FOR FAN MOTOR, BASED ON THE CONDENSER WATER ENTERING AND LEAVING TEMPERATURE.
3. FACTORY-SUPPLIED CONTROL PANEL.
4. FACTORY-INSTALLED ELECTRIC HEATER (8 KW EACH, 208V/3P) FOR BASIN.
5. LOW AND HIGH ALARM FLOAT SWITCHES.
6. BYPASS VALVE.
7. SEMIBRAND MECHANICAL WATER LEVEL CONTROL.
8. ENCLOSED CONTROLS WITH FACTORY PROVIDED PROGRAMMABLE LOGIC CONTROLLERS.
9. DISCONNECT SWITCHES.

PUMP SCHEDULE

CWP-1-1 & CWP-1-2
QUANTITIES: 2 (ONE STANDBY)

SERVING COOLING TOWERS (CT-1 & CT-2) FOR RESIDENTIAL FLOORS (6TH ~ 16TH FLOORS)

BELL & GOSSETT SERIES VSX-HSC, MODEL 6AMV10-1/2A, 1,250 GPM, @ 80 FT PUMP HEAD.
MOTOR 1,750 RPM, 80.7% EFFICIENCY, 8.625" IMPELLER, 30 HP, BREAK HP 23.88 HP, 208V/3P,
WEIGHT 1,425 LBS

PROVIDE PUMP WITH FOLLOWING:
VARIABLE FREQUENCY DRIVE (VFD), SIMILAR TO ABB ACH550, CONTROL PUMP BASED ON WATER PRESSURE.
SPRING VIBRATION ISOLATORS, CHECK VALVE AND SHUT-OFF VALVES.
PUMP CONTROL PANEL WITH AUTOMATIC CHANGEOVER AND ALARM WHEN PUMP FAILURE.

CWP-1-1 & CWP-1-2
QUANTITIES: 2 (ONE STANDBY)

SERVING COOLING TOWERS (CT-3 & CT-4) FOR HOTEL, RETAIL & COMMUNITY FACILITY HEAT PUMP SYSTEM (SUB-CELLAR 1 ~ 7TH FLOORS)

BELL & GOSSETT SERIES VSX-HSC, MODEL 6AMV10-1/2A, 1,250 GPM, @ 80 FT PUMP HEAD.
MOTOR 1,750 RPM, 80.7% EFFICIENCY, 8.625" IMPELLER, 30 HP, BREAK HP 23.88 HP, 208V/3P,
WEIGHT 1,425 LBS

PROVIDE PUMP WITH FOLLOWING:
VARIABLE FREQUENCY DRIVE (VFD), SIMILAR TO ABB ACH550, CONTROL PUMP BASED ON WATER PRESSURE.
SPRING VIBRATION ISOLATORS, CHECK VALVE AND SHUT-OFF VALVES.
PUMP CONTROL PANEL WITH AUTOMATIC CHANGEOVER AND ALARM WHEN PUMP FAILURE.

HWP-1-1 & HWP-1-2
QUANTITIES: 2 (ONE STANDBY)

SERVING RESIDENTIAL FLOOR (6TH ~ 16TH FLOORS) HEAT PUMP SYSTEM

BELL & GOSSETT SERIES VSX-HSC, MODEL 5AMV13-1/2A, 1,250 GPM, @ 130 FT PUMP HEAD
MOTOR 1,770 RPM, IMPLLER EFFICIENCY, 12.875" IMPELLER, 60 HP, BREAK HP 51.88 HP, 208V/3P,
WEIGHT 2,497 LBS

PROVIDE PUMP WITH FOLLOWING:
VARIABLE FREQUENCY DRIVE (VFD), SIMILAR TO ABB ACH550, CONTROL PUMP BASED ON WATER PRESSURE.
SPRING VIBRATION ISOLATORS, CHECK VALVE AND SHUT-OFF VALVES.
PUMP CONTROL PANEL WITH AUTOMATIC CHANGEOVER AND ALARM WHEN PUMP FAILURE.

HWP-1-1 & HWP-1-2
QUANTITIES: 2 (ONE STANDBY)

SERVING HOTEL, RETAIL & COMMUNITY FACILITY HEAT PUMP SYSTEM

BELL & GOSSETT SERIES VSX-HSC, MODEL 5AMV13-1/2A, 1,250 GPM, @ 130 FT PUMP HEAD
MOTOR 1,770 RPM, IMPLLER EFFICIENCY, 12.875" IMPELLER, 60 HP, BREAK HP 51.88 HP, 208V/3P,
WEIGHT 2,497 LBS

PROVIDE PUMP WITH FOLLOWING:
VARIABLE FREQUENCY DRIVE (VFD), SIMILAR TO ABB ACH550, CONTROL PUMP BASED ON WATER PRESSURE.
SPRING VIBRATION ISOLATORS, CHECK VALVE AND SHUT-OFF VALVES.
PUMP CONTROL PANEL WITH AUTOMATIC CHANGEOVER AND ALARM WHEN PUMP FAILURE.

PTAC UNIT SCHEDULE

PACKAGED TERMINAL AIR CONDITIONING UNIT WITH ELECTRIC HEAT SERVING ROOF, ELEVATOR MACHINE ROOM AND CORRIDOR

LG PTAC UNIT

PTAC-1(2)-1
QUANTITIES: 2

MODEL: LP1419GSSM
COOLING CAPACITY: 9,000 BTUH
ELECTRICAL: 208V/1/60, MAC 10.0, MCP 20.
AIR FLOW CFM: 280
ELECTRIC HEATER: 3.1 KW, HEATING CAPACITY: 10,571 BTUH
UNIT EER: 12.7

WATER-COOLD HEAT PUMP AC UNIT SCHEDULE

HORIZONTAL UNITS

HP-TYP-1

QUANTITIES: 16

FHP MODEL LV013
FAN 800 CFM @ 0.5" EXT. S.P., 1/2 HP MOTOR

COOLING CAPACITY: TOTAL 14.4 MBH, SENSIBLE 11.2 MBH
ENT 80°F, LVT 66°F
EAT: 80.0°F DB / 67.0°F WB.

HEATING CAPACITY: 15.0 MBH, WHEN EAT 70.0°F, ENT 70°F.

CONDENSER WATER: 3.0 GPM @ 8.7 FT PD

ELECTRICAL: POWER INPUT 1.01 KW, 208V/1P/60H, MCA 8.8, MFS 15.
WEIGHT: 103 LBS
UNIT EER 14.3, UNIT COP 5.2

HP-TYP-2

QUANTITIES: 200

FHP MODEL LV020,
FAN 350 CFM @ 0.5" EXT. S.P., 1/2 HP MOTOR

COOLING CAPACITY: TOTAL 8.8 MBH, SENSIBLE 7.3 MBH
ENT 80°F, LVT 59°F.
EAT: 80.0°F DB / 67.0°F WB.

HEATING CAPACITY: 11.0 MBH, WHEN EAT 60.0°F, ENT 70°F.

CONDENSER WATER: 2.0 GPM @ 3.7 FT PD

ELECTRICAL: POWER INPUT 0.65 KW, 208V/1P/60H, MCA 5.2, MFS 15.
WEIGHT: 103 LBS
UNIT EER 14.1, UNIT COP 5.8

HP-TYP-3

QUANTITIES: 8

FHP MODEL LV036, NOMINAL 3 TON COOLING
FAN 1,200 CFM @ 0.5" EXT. S.P., 1 HP MOTOR

COOLING CAPACITY: TOTAL 36.0 MBH, SENSIBLE 28.4 MBH
ENT 80°F, LVT 64°F.
EAT: 80.0°F DB / 67.2°F WB.

HEATING CAPACITY 48.0 MBH, EAT 60.0°F, ENT 70°F.

CONDENSER WATER: 7.5 GPM @ 8.5 FT PD

WEIGHT 227 LBS
ELECTRICAL: POWER INPUT 2.54 KW, 208V/3P/60H, MCA 14.2, MFS 20
UNIT EER 14.4 UNIT COP 5.1

HP-TYP-4

QUANTITIES: 1

FHP MODEL LV048, NOMINAL 4 TON COOLING
FAN 1,600 CFM @ 0.5" EXT. S.P., 1 HP MOTOR

COOLING CAPACITY: TOTAL 48.7 MBH, SENSIBLE 35.8 MBH
ENT 80°F, LVT 54°F.
EAT: 80.0°F DB / 67.2°F WB.

HEATING CAPACITY: 60.3 MBH, EAT 60.0°F, ENT 70°F.

CONDENSER WATER: 10 GPM @ 8.3 FT PD

WEIGHT: 296 LBS
ELECTRICAL: POWER INPUT 3.81 KW, 208V/3P/60H, MCA 18.2, MFS 25.
UNIT EER 13.8 UNIT COP 5.0

HP-TYP-5

QUANTITIES: 6

FHP MODEL LV060, NOMINAL 5 TON COOLING
FAN 1,980 CFM @ 0.75" EXT. S.P., 1 HP MOTOR

COOLING CAPACITY: TOTAL 60.0 MBH, SENSIBLE 44.5 MBH,
ENT 80°F, LVT 59°F
EAT: 80.0°F DB / 67.0°F WB

HEATING CAPACITY 76.3 MBH, EAT 60°F, ENT 70°F.

CONDENSER WATER: 13 GPM @ 8.0 FT PD

WEIGHT: 327 LBS
ELECTRICAL: POWER INPUT 4.58, 208V/3P/60H, MCA 25.6, MFS 40.

UNIT EER 13.6 UNIT COP 4.8
PROVIDE WATERSIDE ECONOMIZER.

HP-TYP-6

QUANTITIES: 8

FHP MODEL LV090, NOMINAL 7.5 TON COOLING
FAN: 2,200 CFM @ 1.0" EXT. S.P., 1 HP MOTOR

COOLING CAPACITY: TOTAL 87.5 MBH, SENSIBLE 61.4 MBH,
ENT 80°F, LVT 54°F
EAT: 80.0°F DB / 67°F WB

HEATING CAPACITY: 82.7 MBH, EAT 60°F, ENT 70°F.

CONDENSER WATER: 15 GPM @ 11.0 FT PD

WEIGHT 720 LBS
ELECTRICAL: POWER INPUT 5.1 KW, 208V/3P/60H, MCA 28.6, MFS 45.

UNIT EER 13.2 UNIT COP 5.1
PROVIDE WATERSIDE ECONOMIZER & DUCT MOUNTED SMOKE DETECTORS.

HP-TYP-7

QUANTITIES: 1

FHP MODEL LV-024, NOMINAL 2 TON COOLING
@60
COOLING CAPACITY: TOTAL 24.1 MBH, SENSIBLE 17.7 MBH,
ENT 80°F, LVT 54°F
EAT: 80°F DB / 67°F WB

HEATING CAPACITY: 30.4 MBH, EAT 60°F, ENT 70°F.

CONDENSER WATER: 7.0 GPM @ 10.8 FT PD

WEIGHT 181 LBS
ELECTRICAL: POWER INPUT 1.73 KW, 208V/3P/60H, MCA 10.2 A, MFS 15.

UNIT EER 13.9 UNIT COP 4.8
PROVIDE WATERSIDE ECONOMIZER & DUCT MOUNTED SMOKE DETECTORS.

PROVIDE EACH UNIT WITH:
1. DISCONNECT SWITCH.
2. SPRING VIBRATION ISOLATORS WITH STRUCTURAL STEEL TO SUPPORT UNITS.
3. 7-DAY PROGRAMMABLE TIME CLOCK, LOCATED IN AREA SERVED.
4. TWO-WAY WATER REGULATING VALVES WITH ACTUATORS.
5. EXTRA QUIET SOUND PACKAGE.
6. WATER SIDE ECONOMIZER FOR HP-TYP-5 & HP-TYP-6.
7. DUCT SMOKE DETECTORS FOR HP-TYP-5
8. CONDENSATE PUMP & DRAIN PAN W/LEAK DETECTOR.
9. FILTERS

WATER-COOLD SWIMMING POOL AC UNIT SCHEDULE

SP-1
SERVING SUB-CELLAR 1 SWIMMING POOL

QUANTITY: 1

DESTINYON MODEL DSH-092, NOMINAL 13 TON COOLING
FAN 3,800 CFM @ 1.0" EXT. S.P., SUPPLY MOTOR 3 HP

COOLING CAPACITY: TOTAL 155.3 MBH, SENSIBLE 88.1 MBH
MOISTURE REMOVAL CAPACITY: 19.7 LBS/HR

ENT WPT, LVT 59°F
EAT: 84.0°F DB @ 52% RH.

HEATING CAPACITY: 88.3 MBH, EAT 60.0°F, ENT 70°F.

CONDENSER WATER: 27 GPM @ 23.1 FT PD

POOL WATER HEATER CONDENSER WATER: 17 GPM @ CAPACITY OF 99.1 MBH

ELECTRICAL: POWER INPUT 51.0 KW, 208V/3P/60H, MCA 167, MFS 200,
UNIT EER 13.1

PROVIDE:
1. DISCONNECT SWITCH.
2. VIBRATION ISOLATORS.
3. VARIABLE FREQUENCY DRIVE.
4. 7-DAY PROGRAMMABLE THERMOSTAT / HUMIDISTAT.
5. REFRIGERANT HOT-GAS MAIN POOL WATER HEATER EXCHANGER.
6. 5-YEAR COMPRESSOR WARRANTY AND 2-YEAR COIL/LABOR WARRANTY.

ELECTRICAL UNIT HEATER SCHEDULE

EHU-TYP-1
QUANTITIES: 42
RECESS MA SERIES WALL HEATER, POWER: 1,715 WATT, 208V/1P, 8.7 AMPS. 40 CFM, HEATING 3,414BTUH.
WEIGHT 6 LBS.
PROVIDE: DISCONNECT SWITCH, BUILT-IN THERMOSTAT, COORDINATE EXACT LOCATION WITH ARCHITECT.

EHU-TYP-2
QUANTITIES: 8
RECESS MA SERIES WALL HEATER, POWER: 1,500 WATT, 120V/1P, 12.5 AMPS. 100 CFM, HEATING 5,110 BTUH.
WEIGHT 6 LBS.
PROVIDE: DISCONNECT SWITCH, BUILT-IN THERMOSTAT, COORDINATE EXACT LOCATION WITH ARCHITECT.

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL BE SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT
35th AVE./FARRINGTON ST.
HOTEL DEVELOPMENT
194-37 35TH AVE., FLUSHING NY 11101

DRAWING TITLE
MECHANICAL EQUIPMENT SCHEDULE - II

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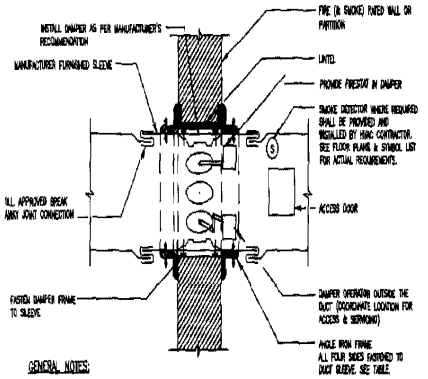
DATE: 06/15/11 DWG. NO.:
PROJECT NO.: 2010-10
PROJECT MANAGER: MY M-026.00
DRAWN BY:
CAD FILE NO.: 26 OF 29

N.Y.C. D.O.B. NO. :



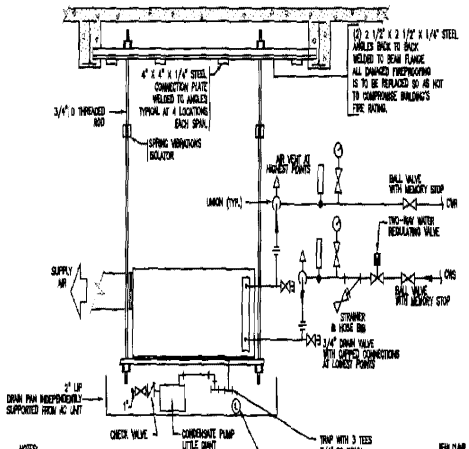
GENERAL NOTES:

1. DAMPER TO BE U.L. LABELED N.F.P.A. 90A AND 96A APPROVED
2. N.F.P.A. APPROVED INSTALLATION DETAILS TO BE PART OF SUBMISSION OF COMBINATION FIRE & SMOKE DAMPER FOR APPROVAL, WHICH SHALL MEET N.F.P.A. STANDARD 90A AND 96A APPROVED.
3. DETAILS SHOWN ARE FOR COMBINATION FIRE AND SMOKE DAMPERS IN HORIZONTAL DUCTWORK. FOR DAMPERS IN VERTICAL DUCTWORK, DETAIL IS SIMILAR.
4. ACCESS DOOR IS SHOWN IN SIDE OF DUCT.
5. DETAIL FOR SMOKE DAMPER SHALL BE SIMILAR TO COMBINATION DAMPER EXCEPT DELETE FUSIBLE LINK IN DAMPER.
6. THIS DETAIL IS FOR GUIDE ONLY. INSTALL DAMPER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

ANGLE IRON TABLE	
WALL OPENING	ANGLE SIZE
UP TO 24"	1 1/2"x1 1/2"x1/8"
24" TO 84"	2"x2"x 3/16"
85" TO 120"	3"x3"x 3/16"

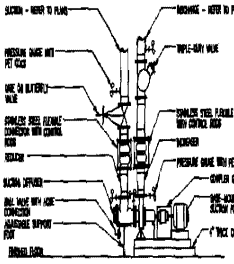
NOTE: RETAINING ANGLES MUST LAP STRUCTURAL OPENING 1" MIN. AND COVER CORNERS OF OPENINGS

COMBINATION FIRE AND SMOKE DAMPER DETAIL



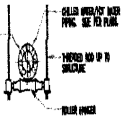
NOTES:
COND. PUMP FLOAT SWITCH TO SHUT DOWN AC UNIT IF WATER IN THE TANK RISES TO A DANGEROUS LEVEL.

AC UNIT PIPING DIAGRAM



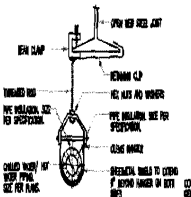
BASE MOUNTED PUMP DETAIL

SPLIT RING HANGER DETAIL

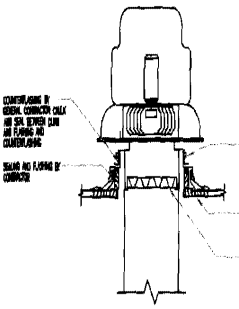


NOTE: REFER TO DIVISION 15 SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

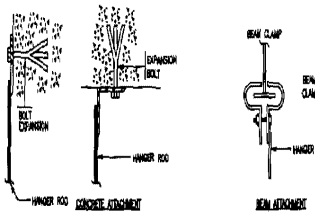
TWO ROD ROLLER HANGER DETAIL

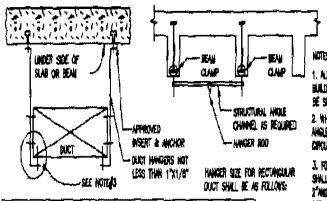


CLEVIS HANGER DETAIL



ROOF MOUNTED EXHAUST FAN DETAIL



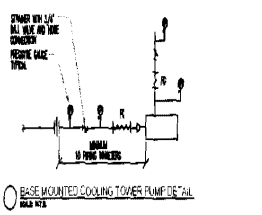


NOTES:
1. ALL DUCT TO BE HUNG FROM BUILDING CONSTRUCTION. NOT TO BE SUPPORTED FROM PIPING CEILING.
2. WHEN DUCT AREA EXCEEDS 5 SQ.FT. ANGLE STIFFENERS REQUIRED AROUND CIRCUMFERENCE EVERY 4'-0".
3. FOR DUCT OVER 42" WIDE HANGERS SHALL TURN UNDER DUCT AT LEAST 2" AND SHALL BE FASTENED TO THE BOTTOM AS WELL AS TO THE SIDES OF THE DUCT.
4. FOR DUCTS WITH A CROSS SECTIONAL AREA OF 4 SQ.FT. OR LESS, HANGERS SHALL BE NO MORE THAN 8'-0" A PART. FOR DUCTS WITH A CROSS SECTIONAL AREA OF MORE THAN 4 SQ.FT. BUT NOT OVER 8 SQ.FT. HANGERS SHALL BE NOT MORE THAN 6 FT. A PART. AND FOR DUCTS WITH A CROSS SECTIONAL AREA OF MORE THAN 8 SQ.FT. HANGERS SHALL BE NOT MORE THAN 4 FT. A PART. THE DISTANCES BETWEEN SHALL BE MEASURED LINEARLY ALONG THE DUCT.

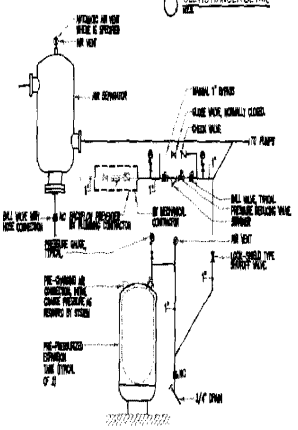
HANGER SIZE FOR RECTANGULAR DUCT SHALL BE AS FOLLOWS:

LONGEST DIMENSION OF DUCT	ROUND HANGERS	MAX SPACING SEE NOTE #4	STRAP HANGERS	TRAPEZE SHELF ANGLES
UP TO 18"	Ø DIA WIRE	8'-0"	1"X1/8"	1"X1" X 1/8"
19" TO 30"	1/4" ROD	8'-0"	1"X1/8"	1"X1" X 1/8"
31" TO 42"	1/4" ROD	8'-0"	1"X1/8"SGL	1 1/2"X 1 1/2"X 1/8"
43" TO 60"	3/8" ROD	4'-0"	——	1 1/2"X 1 1/2"X 1/8"
61" TO 84"	3/8" ROD	4'-0"	——	2"X2"X1/8"
85" TO 96"	3/8" ROD	4'-0"	——	2"X2"X 3/16"
OVER 97"	3/8" ROD	4'-0"	——	2"X2"X 1/4"

DUCT SUPPORT DETAIL



BASE MOUNTED COOLING TOWER PUMP DETAIL



EXPANSION TANK PIPING DIAGRAM

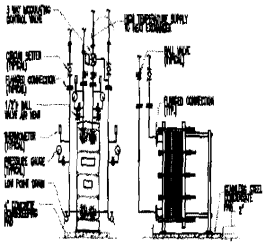
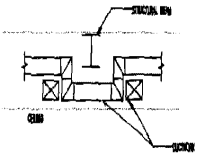
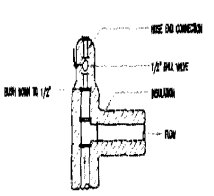


PLATE AND FRAME HEAT EXCHANGER DETAIL

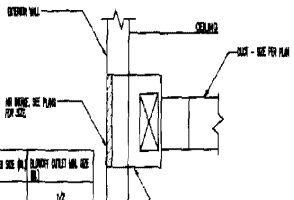


TYPICAL CROSSOVER AT ALL LOCATIONS DETAIL



MANUAL AIR VENT TYPICAL

TYPICAL STRAINER ASSEMBLY DETAIL



STRAINER SIZE IN	BLOWOFF OUTLET MIN. SIZE IN
3/4	1/2
1 TO 2 1/2	3/4
3 & 4	1
5 & ABOVE	2

AIR INTAKE DETAIL

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL DETAILS - 1

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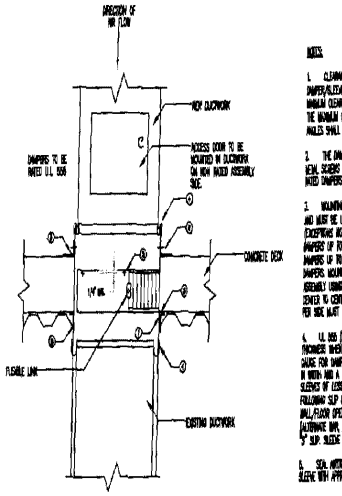
DATE	01/31/2011 ONG No
PROJECT #	2095
PROJECT MANAGER	RGA
DRAWN BY	EC
CAD FILE NO	27
35TH AVENUE (2095)	

M-027.00

NYC DOE NC



NOTES:

1. CLEARANCE BETWEEN THE FLOOR/DECK OPENING AND THE DAMPER/SLEEVE ASSEMBLY SHALL BE 1/8" PER FOOT OF WIDTH AND HEIGHT. MINIMUM CLEARANCE SHALL BE 1/4" FOR ANY SIZE DAMPER/SLEEVE ASSEMBLY. THE MAXIMUM OPENING SHALL NOT EXCEED 1/8" PER FOOT PLUS 1". MOUNTING ANGLES SHALL OVERLAP FLOOR/DECK 1" MINIMUM ON ALL SIDES.

2. THE DAMPER FRAME MAY BE FASTENED TO THE SLEEVE USING #14 SHEET METAL SCREWS SPACED AT A MINIMUM OF 6" CENTER TO CENTER FOR 3 HR RATED DAMPERS. A MINIMUM OF ONE FASTENER PER SIDE MUST BE USED.

3. MOUNTING ANGLES MUST BE INSTALLED ON BOTH SIDES OF THE FLOOR/DECK OPENING AND MUST BE USED ON ALL 4 SIDES OF THE DAMPER/SLEEVE ASSEMBLY (EXCEPTING BOTTOM). MINIMUM MOUNTING ANGLE SIZE IS 1"X1"X1/8" GAUGE FOR DAMPERS UP TO 12" IN WIDTH OR HEIGHT. 1-1/2"X1-1/2"X1/8" GAUGE FOR DAMPERS UP TO 72" WIDTH OR HEIGHT, AND 2"X2"X1/8" GAUGE FOR LARGER DAMPERS. MOUNTING ANGLES ARE TO BE ATTACHED TO DAMPER/SLEEVE ASSEMBLY USING #14 SHEET METAL SCREWS SPACED AT A MAXIMUM OF 6" CENTER TO CENTER FOR 3 HR RATED DAMPERS. A MINIMUM OF ONE FASTENER PER SIDE MUST BE USED.

4. UL 555 (FOR 1-1/2) SLEEVE THICKNESS REQUIREMENT: SLEEVE THICKNESS WHEN USED WITHOUT SLIP CONNECTION SHALL BE A MINIMUM OF 18 GAUGE FOR DAMPERS WITH DIMENSIONS NOT EXCEEDING 24" IN HEIGHT OR 30" IN WIDTH AND A MINIMUM OF 16 GAUGE FOR LARGER DAMPERS. EXCEPTION: SLEEVES OF LESSER THICKNESS MAY BE USED IF ONE OF NONE OF THE FOLLOWING SLIP CONNECTIONS IS LOCATED WITHIN THE 12" FROM THE WALL/FLOOR OPENING: PLAIN "S" SLIP, REVERSE "S" SLIP, STANDING "S" SLIP, ALTERNATE BAR, ANGLE, OR BAR REINFORCED, HEMMED "S" SLIP. SLEEVE GAUGE MAY NOT BE LESS THAN DUCT GAUGE.

5. SEAL AROUND THE COMPLETE PERIMETER OF DAMPER FRAME WITHIN ITS SLEEVE WITH APPROVED FIRE RESISTANT MATERIAL.

6. SEAL AROUND THE COMPLETE PERIMETER OF THE REMAINING OPENING IN SLEEVE WITHIN WHICH DAMPER INSTALLATION WAS APPROVED FOR RESISTANT MATERIAL.

7. WHEN AIR MOVE DIRECTION IS ACHIEVED THE FIRE DAMPER THE ARROW SHALL BE SENT DOWN AIRWAYS.

FIRE DAMPER DETAIL

FIRE DAMPER IN FLOOR DETAIL

TYPICAL HORIZONTAL PIPE HANGER DETAIL

ROOF MOUNTED UTILITY FAN DETAIL

SIDEWALL MOUNTED FAN DETAIL

SQUARE ELBOW

TYPICAL TURNING VANE

FULL RADIUS ELBOW

BATHROOM CEILING EXHAUST DETAIL

TAKE-OFF

LONG RADIUS TEE

PIPE HANGER DETAILS

TYPICAL DUCT DETAILS

AUTOMATIC AIR VENT (TYPICAL) DETAIL

TOILET EXHAUST RISER
INTERNAL BOOT INSTALLATION

NOTES:
1. INTERNAL BOOTS SHALL BE SIZED WITH CROSS-SECTION AREA THAT ARE PROPORTIONED TO ASSIST DUCT WORK AND AIR VOLUME AND SHALL BE OF STEPPED SIZES WHERE SHOWN ON PROJECT PLANS.
2. BOOTS MAY BE SHOP OR FIELD INSTALLED WITH SCREWS OR SPOT WELDED.
3. FOR APPLICATIONS REQUIRING CEILING REGISTERS DUCT COLLAR TO BE EXTENDED FOR THEIR CONNECTION.
4. SINGLE ROOM EXHAUST RISER SHOWN, BACK TO BACK ROOM EXHAUST RISERS TO HAVE BOOT TYPE CONNECTIONS FOR EACH ROOM.
5. WHEN BOOT TYPE CONNECTION CAN NOT BE ACHIEVED, PROVIDE FIRE DAMPER WITH ACCESS DOOR AS REQUIRED.

No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BUILDING ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 36TH AVE FLUSHING NY 11101

DRAWING TITLE
MECHANICAL
DETAILS - 1

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DATE	04/01/2016 DWG NO.
PROJECT No.	2006
PROJECT MANAGER	RCS
DRAWN BY	EC
DWG FILE NO.	28
35TH AVENUE (2006)	

M-028.00

NYC DOB NO.

No.	DATE	DESCRIPTION

MARKING OF MECHANICAL SYSTEMS IN COMPLIANCE WITH 2011 NYC ENERGY CONSERVATION CODE:

1. ALL OUTDOOR AIR INTAKE AND EXHAUST OPENINGS SHALL HAVE AUTOMATED DAMPERS WITH MAXIMUM LEAKAGE RATE OF 4 CFM PER SQ. FT. AT 1.0" W.G. WHEN TESTED IN ACCORDANCE WITH AMCA 5000, AS PER 502.4.5
2. THE COOLING AND HEATING LOAD CALCULATION METHOD IS AS PER ASHRAE/ACCA MEL 8/8/10 - COOLING LOAD TEMPERATURE DIFFERENT / COOLING LOAD FACTOR METHODS, IN COMPLIANCE WITH 302.1
3. 7-DAY PROGRAMMABLE THERMOSTATS SHALL BE USED FOR ALL AIR-COOLED (BUT NOT HANDLE REFRIGERANT FLOW) AIR CONDITIONING UNITS AND ALL HEATING AIR HANDLERS OF PER SECTION 403.1. SUCH THERMOSTAT HAS CAPABILITIES FOR SET POINT OVERLAP RESTRICTION, OFF-HOUR CHANGEOVER DELAYS AND SEASONAL ZONE TO SHIFT UP UP TO 5DEG. 7-HOUR OCCUPIED PERIODS, 10-HOUR MINIMUM, AND SHUNT DAMPER CONTROLS.
4. UPON HVAC INSTALLATION COMPLETION, CONTRACTOR SHALL PROVIDE IN AIR AND WATER BALANCING REPORTS FOR ENGINEER'S REVIEW AND APPROVAL, AND PROVIDE AN OPERATING AND MAINTENANCE MANUAL OF ALL MECHANICAL EQUIPMENT INSTALLED, TO THE BUILDING OWNER, IN COMPLIANCE WITH 603.3.3.
5. EACH HVAC SYSTEM HAVING A TOTAL FAN MOTOR HORSEPOWER (HORSE POWER PLUS ANY OTHER DEVICES) WHICH EXCEEDS MAXIMUM ALLOWABLE HORSEPOWER (ALLOWABLE BRAKE HORSEPOWER) SHALL NOT EXCEED ALLOWABLE HORSEPOWER (ALLOWABLE BRAKE HORSEPOWER) SHOWN IN TABLE 503.2.10.1 (1).
6. FOR BUILDINGS GREATER THAN 2 STORIES AND GREATER OR EQUAL 40 STORIES OR EXHAUST AIR FLOWS OF 200 CFM OR LESS, NON-DIRECTIONAL AIR SUPPLY AND EXHAUST DEVICES SHALL BE EQUIPPED WITH MOTORIZED DAMPERS THAT WILL AUTOMATICALLY SHUT WHEN THE SYSTEMS OR SPACES SERVED ARE NOT IN USE, IN COMPLIANCE WITH 503.4.4.
7. ENERGY RECOVERY SYSTEMS SHALL BE PROVIDED FOR RESIDENTIAL FAN SYSTEMS THAT HAVE BOTH A DESIGN SUPPLY AIR CAPACITY OF 5000 CFM OR GREATER AND A MINIMUM OUTDOOR AIR SUPPLY OF 70 PERCENT OR GREATER OF THE DESIGN SUPPLY AIR QUANTITY, IN COMPLIANCE WITH 503.5.6.

TABLE II – PROGRESS INSPECTIONS FOR ENERGY CODE COMPLIANCE

	INSPECTION/TEST	FREQUENCY (MINIMUM)	REFERENCE STANDARD (SEE ECC CHAPTER 8 OR OTHER CRITERIA)	ECC OR OTHER CITATION
MB	MECHANICAL AND SERVICE WATER HEATING INSPECTIONS			
MB2	OUTDOOR AIR INTAKES AND EXHAUST OPENINGS: DAMPERS FOR STAIR AND ELEVATOR SHAFT VENTS AND OTHER OUTDOOR AIR INTAKES AND EXHAUST OPENINGS INTEGRAL TO THE BUILDING ENVELOPE SHALL BE VISUALLY INSPECTED TO VERIFY THAT SUCH DAMPERS, EXCEPT WHERE PERMITTED TO BE GRAVITY DAMPERS, COMPLY WITH APPROVED CONSTRUCTION DRAWINGS. MANUFACTURER'S LITERATURE SHALL BE REVIEWED TO VERIFY THAT THE PRODUCT HAS BEEN TESTED AND FOUND TO MEET THE STANDARD.	AS REQUIRED DURING INSTALLATION	APPROVED CONSTRUCTION DOCUMENTS; AMCA 5000	502.4.4; ASHRAE 90.1-6.4.3.4
MB4	HVAC, SERVICE WATER HEATING AND POOL EQUIPMENT SIZING AND PERFORMANCE: EQUIPMENT SIZING, EFFICIENCIES AND OTHER PERFORMANCE FACTORS OF ALL MAJOR EQUIPMENT UNITS, AS DETERMINED BY THE APPLICANT OF RECORD, AND NO LESS THAN 15% OF MINOR EQUIPMENT UNITS, SHALL BE VERIFIED BY VISUAL INSPECTION AND, WHERE NECESSARY, REVIEW OF MANUFACTURER'S DATA. POOL HEATERS AND COVERS SHALL BE VERIFIED BY VISUAL INSPECTION.	PRIOR TO FINAL PLUMBING AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	503.2, 504.2, 504.7; ASHRAE 90.1-6.3, 6.4.1, 6.4.2, 6.8.7.4, 7.8
MB5	HVAC SYSTEM CONTROLS AND ECONOMIZERS AND SERVICE HOT WATER SYSTEM CONTROLS: NO LESS THAN 20% OF EACH TYPE OF REQUIRED CONTROLS AND ECONOMIZERS SHALL BE VERIFIED BY VISUAL INSPECTION AND TESTED FOR FUNCTIONALITY AND PROPER OPERATION. SUCH CONTROLS SHALL INCLUDE, BUT ARE NOT LIMITED TO THERMOSTATIC SET POINT OVERLAP RESTRICTION, OFF-HOUR, SHUTOFF DAMPER, SNOW-MELT SYSTEM, DEMAND CONTROL SYSTEMS, OUTDOOR HEATING SYSTEMS, ZONES, ECONOMIZERS, AIR SYSTEMS, VARIABLE AIR VOLUME FAN, HYDRONIC SYSTEMS, HEAT REJECTION EQUIPMENT FAN SPEED, COMPLEX MECHANICAL SYSTEMS SERVING MULTIPLE ZONES, VENTILATION, ENERGY RECOVERY SYSTEMS, HOT GAS BYPASS LIMITATION, TEMPERATURE, SERVICE WATER HEATING, HOT WATER SYSTEM, POOL HEATER AND TIME SWITCHES, EXHAUST HOODS, RADIANT HEATING SYSTEMS. CONTROLS WITH SEASONALLY DEPENDENT FUNCTIONALITY: CONTROLS WHOSE COMPLETE OPERATION CANNOT BE DEMONSTRATED DUE TO PREVAILING WEATHER CONDITIONS TYPICAL OF THE SEASON DURING WHICH PROGRESS INSPECTIONS WILL BE PERFORMED SHALL BE PERMITTED TO BE SIGNED OFF FOR THE PURPOSE OF A TEMPORARY CERTIFICATE OF OCCUPANCY WITH ONLY A VISUAL INSPECTION, PROVIDED, HOWEVER, THAT THE PROGRESS INSPECTOR SHALL PERFORM A SUPPLEMENTAL INSPECTION WHERE THE CONTROLS ARE VISUALLY INSPECTED AND TESTED FOR FUNCTIONALITY AND PROPER OPERATION DURING THE NEXT IMMEDIATE SEASON THEREAFTER. THE OWNER SHALL PROVIDE FULL ACCESS TO THE PROGRESS INSPECTOR WITHIN TWO WEEKS OF THE PROGRESS INSPECTOR'S REQUEST FOR SUCH ACCESS TO PERFORM THE PROGRESS INSPECTION. FOR SUCH SUPPLEMENTAL INSPECTIONS, THE DEPARTMENT SHALL BE NOTIFIED BY THE APPROVED PROGRESS INSPECTION AGENCY OF ANY UNRESOLVED DEFICIENCIES IN THE INSTALLED WORK WITHIN 180 DAYS OF SUCH SUPPLEMENTAL INSPECTION.	AFTER INSTALLATION AND PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION, EXCEPT THAT FOR CONTROL WITH SEASONALLY DEPENDENT FUNCTIONALITY, SUCH TESTING SHALL BE PERFORMED BEFORE SIGN-OFF FOR ISSUANCE OF A FINAL CERTIFICATE OF OCCUPANCY	APPROVED CONSTRUCTION DOCUMENTS, INCLUDING CONTROL SYSTEM NARRATIVES; ASHRAE GUIDELINE 1: THE HVAC COMMISSIONING PROCESS WHERE APPLICABLE	503.2.4, 503.2.5.1, 503.2.11, 503.3, 503.4, 504.3, 504.6, 504.7; ASHRAE 90.1-6.3, 6.4, 6.5, 6.7.2.4, 7.4.4, 7.4.5
MB6	AIR LEAKAGE TESTING FOR HIGH PRESSURE DUCT SYSTEMS: FOR DUCT SYSTEMS DESIGNED TO OPERATE STATIC PRESSURES IN EXCESS OF 3 INCHES W.G. (746 PA), REPRESENTATIVE SECTIONS, AS DETERMINED BY THE PROGRESS INSPECTOR, TOTALING AT LEAST 25% OF THE DUCT AREA, PER ECC 503.7.1.3, SHALL BE TESTED TO VERIFY THAT ACTUAL AIR LEAKAGE IS BELOW ALLOWABLE AMOUNTS.	AFTER INSTALLATION AND PRIOR TO CLOSING SHAFTS, CEILINGS AND WALLS	APPROVED CONSTRUCTION DOCUMENTS; SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL	503.2.7.1.3; ASHRAE 90.1-6.4.4.2

	ELECTRICAL POWER AND LIGHTING SYSTEMS			
MC				
MC1	ELECTRICAL METERING: THE PRESENCE AND OPERATION OF INDIVIDUAL METERS OR OTHER MEANS OF MONITORING INDIVIDUAL APARTMENTS SHALL BE VERIFIED BY VISUAL INSPECTION FOR AL APARTMENTS.	PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	508.7
MC3	INTERIOR LIGHTING POWER: INSTALLED LIGHTING SHALL BE VERIFIED FOR COMPLIANCE WITH THE LIGHTING POWER ALLOWANCE BY VISUAL INSPECTION OF FIXTURES, LAMPS, BALLASTS AND TRANSFORMERS.	PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	505.5; ASHRAE 90.1-9.1, 9.2, 9.5, 9.6; (FROM 2010)1-07(9)(9)(9)(4)
MC4	EXTERIOR LIGHTING: INSTALLED LIGHTING SHALL BE VERIFIED FOR COMPLIANCE WITH SOURCE EFFICACY AND/OR THE LIGHTING POWER ALLOWANCE BY VISUAL INSPECTION OF FIXTURES, LAMPS, BALLASTS AND RELEVANT TRANSFORMERS.	PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	505.6; ASHRAE 90.1-9.4.4, 9.4.5; (FROM 2010)1-07(9)(9)(9)(4)
MC5	LIGHTING CONTROLS: EACH TYPE OF REQUIRED LIGHTING CONTROLS, INCLUDING OCCUPANT SENSORS, MANUAL INTERIOR LIGHTING CONTROLS, LIGHT-REDUCTION CONTROLS, AUTOMATIC LIGHTING LIGHTING SHUT-OFF, DAYLIGHT ZONE CONTROLS, SLEEPING UNIT CONTROLS, EXTERIOR LIGHTING CONTROLS SHALL BE VERIFIED BY VISUAL INSPECTION AND TESTED FOR FUNCTIONALITY AND PROPER OPERATION.	PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS, INCLUDING CONTROL SYSTEM NARRATIVES	505.2, 505.2.2.2; ASHRAE 90.1-9.4.1, 9.4.1.2 (AS MODIFIED BY SECTION ECC A102)
MC6	EXIT SIGNS: INSTALLED EXIT SIGNS SHALL BE VISUALLY INSPECTED TO VERIFY THAT THE LABEL INDICATED THAT THEY DO NOT EXCEED MAXIMUM PERMITTED WATTAGE.	PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	505.4 ASHRAE 90.1-9.4.3
MC7	TANDEM WIRING: TANDEM WIRING SHALL BE TESTED FOR FUNCTIONALITY.	PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	505.3 ASHRAE 90.1-9.4.2
MC8	ELECTRIC MOTORS (INCLUDING BUT NOT LIMITED TO FAN MOTORS): WHERE REQUIRED BY THE CONSTRUCTION DOCUMENTS FOR ENERGY CODE COMPLIANCE, MOTOR LISTING OR LABELS SHALL BE VISUALLY INSPECTED TO VERIFY THAT THEY COMPLY WITH THE RESPECTIVE ENERGY REQUIREMENTS IN THE CONSTRUCTION DOCUMENT.	PRIOR TO FINAL ELECTRICAL AND CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	606.2.10 ASHRAE 90.1-10.4
MD	OTHER			
MD1	MAINTENANCE INFORMATION: MAINTENANCE MANUALS FOR MECHANICAL, SERVICE HOT WATER AND ELECTRICAL EQUIPMENT AND SYSTEMS REQUIRING PREVENTIVE MAINTENANCE SHALL BE REVIEWED FOR APPLICABILITY TO INSTALLED EQUIPMENT AND SYSTEMS BEFORE SUCH MANUALS ARE PROVIDED TO THE OWNER. LABELS REQUIRED FOR SUCH EQUIPMENT OF SYSTEMS SHALL BE INSPECTED FOR ACCURACY AND COMPLETENESS.	PRIOR TO SIGN-OFF OR ISSUANCE OF FINAL CERTIFICATE OF OCCUPANCY	APPROVED CONSTRUCTION DOCUMENTS, INCLUDING ELECTRICAL DRAWINGS WHERE APPLICABLE; ASHRAE GUIDELINE 4; PREPARATION OF OPERATING AND MAINTENANCE DOCUMENTATION FOR BUILDING SYSTEMS	303.3, 503.2.9.3; ASHRAE 90.1-4.2.2.3, 6.4.2.2, 6.7.2

ENERGY ANALYSIS
COMMERCIAL BUILDING
ASHRAE 2009 - 90
2009 NYC NEW YORK ENERGY CONSERVATION CODE
ASHRAE 62.1/2004, AND 2009 (ADD.7)

ITEM DESCRIPTION	PROPOSED DESIGN VALUE	CODE PRESCRIPTIVE VALUE AND CITATION
(B1) WATER SOURCE HEAT PUMPS WITH COOLING CAPACITY OF 14.4 & HEATING CAPACITY 16.2 MBH EACH	COOLING EFFICIENCY EER: 14.2 HEATING EFFICIENCY COP: 4.2	MINIMUM EFFICIENCY EER: 11.2 MINIMUM EFFICIENCY COP: 4.2
(C&D) WATER SOURCE HEAT PUMPS WITH COOLING CAPACITY OF 8.8 & HEATING CAPACITY OF 11.0 MBH EACH	COOLING EFFICIENCY EER: 14.2 HEATING EFFICIENCY COP: 4.2	MINIMUM EFFICIENCY EER: 11.2 MINIMUM EFFICIENCY COP: 4.2
(E) WATER SOURCE HEAT PUMPS WITH COOLING CAPACITY OF 28.2 & HEATING CAPACITY OF 44.0 MBH EACH	COOLING EFFICIENCY EER: 14.4 HEATING EFFICIENCY COP: 4.4	MINIMUM EFFICIENCY EER: 12.0 MINIMUM EFFICIENCY COP: 4.2
(J) WATER SOURCE HEAT PUMPS WITH COOLING CAPACITY OF 48.7 & HEATING CAPACITY 60.3 MBH EACH	COOLING EFFICIENCY EER: 13.2 HEATING EFFICIENCY COP: 4.0	MINIMUM EFFICIENCY EER: 12.0 MINIMUM EFFICIENCY COP: 4.2
(K) WATER SOURCE HEAT PUMPS WITH COOLING CAPACITY OF 62.2 & HEATING CAPACITY OF 75.3 MBH EACH	COOLING EFFICIENCY EER: 13.6 HEATING EFFICIENCY COP: 4.0	MINIMUM EFFICIENCY EER: 11.0 MINIMUM EFFICIENCY COP: 4.2
(L) WATER SOURCE HEAT PUMPS WITH COOLING CAPACITY OF 87.2 & HEATING CAPACITY OF 105.7 MBH EACH	COOLING EFFICIENCY EER: 13.2 HEATING EFFICIENCY COP: 4.1	MINIMUM EFFICIENCY EER: 10.6 MINIMUM EFFICIENCY COP: 4.2
(O) WATER SOURCE HEAT PUMPS WITH COOLING CAPACITY OF 24.1 & HEATING CAPACITY OF 30.4 MBH EACH	COOLING EFFICIENCY EER: 13.6 HEATING EFFICIENCY COP: 4.0	MINIMUM EFFICIENCY EER: 12.0 MINIMUM EFFICIENCY COP: 4.2
(Y) AIR SOURCE HEAT PUMPS WITH COOLING CAPACITY OF 108.0	COOLING EFFICIENCY EER: 11.1	MINIMUM EFFICIENCY EER: 13.0
(Z) ROOFTOP AC UNIT WITH GAS FIRED HEATING, WITH COOLING CAPACITY OF 270.01 MBH, AND GAS INPUT OF 324.0 MBH	COOLING EFFICIENCY EER: 11.2 HEATING EFFICIENCY: 80% EC.	MINIMUM EFFICIENCY EER: 10.8 MINIMUM EFFICIENCY: 80% EC.
(A) GAS-FIRED WATER HEATING BOILER, TOTAL CAPACITY 2000.0 MBH EACH	THERMAL EFFICIENCY: 80% EC.	MINIMUM EFFICIENCY: 80% EC.
(B) GAS-FIRED HOT WATER HEATING BOILER WITH GAS INPUT OF 750.0 MBH EACH	THERMAL EFFICIENCY: 81% EC.	MINIMUM EFFICIENCY: 80% EC.
GAS-FIRED HOT WATER HEATER WITH GAS INPUT OF 199.9 MBH EACH	THERMAL EFFICIENCY: 80% EC.	MINIMUM EFFICIENCY: 80% EC.
GAS-FIRED HOT WATER HEATER WITH GAS INPUT OF 399.9 MBH EACH	THERMAL EFFICIENCY: 80% EC.	MINIMUM EFFICIENCY: 80% EC.
(J) PTAC WITH 7000 BTU ELECTRIC HEATING, TOTAL COOLING CAPACITY OF 9.5 MBH EACH	COOLING EFFICIENCY EER: 12.7	MINIMUM EFFICIENCY EER: 11.2
SUPPLY, EXHAUSTION AND PLENUM FAN SYSTEMS	MIN. 1" 2-LB INSULATION TO BE USED FOR ALL SUPPLY DUCTWORK AND PLENUM	1-1/2 INSULATION FOR DUCTS IN UNCONDITIONED SPACES, 1-LB INSULATION FOR SUPPLY DUCTWORK
SUPPLY AIR RETURN AIR ELECTRICAL TO BE INSTALLED	CONVENTIONAL SPACES OR SEMI-DUCTED ENVIRONMENT BASED ON AN EXCESS CLIMATE OF 10000 BTU/H OR 3000 WATTS	CONVENTIONAL SPACES OR SEMI-DUCTED ENVIRONMENT BASED ON ALL EXCESS CLIMATE OF 10000 BTU/H OR 3000 WATTS
HOT WATER PIPING TO BE INSULATED (EXCEPT BETWEEN TEMP. CUT AND VALVE)	1/2" INSULATION FOR PIPES < 1.5" AND 1" INSULATION FOR PIPES > 1.5"	1/2" INSULATION FOR PIPES < 1.5" AND 1" INSULATION FOR PIPES > 1.5"

ENERGY CODE CONFORMANCE – TABULAR ANALYSIS

ENERGY ANALYSIS NEW YORK CITY ENERGY CONSERVATION CODE – 2011

ITEM DESCRIPTION	PROPOSED DESIGN VALUE	CODE PRESCRIPTIVE VALUE AND CITATION
604.2: SERVICE WATER HEATING EQUIPMENT PERFORMANCE EFFICIENCY	COMMERCIAL WATER HEATER HAS A MINIMUM THERMAL EFFICIENCY OF 82%.	WATER HEATING EQUIPMENT REQUIREMENTS PER TABLE 604.2. THE EFFICIENCY SHALL BE VERIFIED THROUGH DATA FURNISHED BY THE MANUFACTURER
604.3: TEMPERATURE CONTROLS	HOT WATER HEATERS SERVING THE RESIDENTIAL UNITS HAVE A THERMOSTAT CONTROL W/ A SET POINT OF 110°F. HOT WATER HEATER SERVING THE FUTURE TENANT SPACE PROVIDE HEAT TO FOOD RELATED EQUIPMENT AND HAS A THERMOSTAT CONTROL W/ A SET POINT OF 90°F FOR ALL NON-FOOD RELATED EQUIPMENT	SERVICE WATER HEATING EQUIPMENT SHALL BE PROVIDED WITH CONTROLS TO ALLOW A SET POINT OF 110°F FOR EQUIPMENT SERVING DWELLING UNITS AND 90°F FOR EQUIPMENT SERVING OTHER OCCUPANCIES. THE OUTLET TEMPERATURE OF LAVATORIES IN PUBLIC FACILITY REST ROOMS SHALL BE LIMITED TO 110°F.
604.4: HEAT TRAPS	N/A (ALL DOMESTIC HOT WATER HEATERS ARE SERVING CIRCULATING SYSTEMS)	WATER-HEATING EQUIPMENT NOT SUPPLIED WITH INTEGRAL HEAT TRAPS AND SERVING NONRECIRCULATING SYSTEMS SHALL BE PROVIDED WITH HEAT TRAPS ON THE SUPPLY AND DISCHARGE PIPING ASSOCIATED WITH THE EQUIPMENT.
604.5: PIPE INSULATION	DOMESTIC HOT WATER PIPING INSULATION IS SPECIFIED AS FOLLOWS: PIPING DIA. LESS THAN 1¼"=1.0" PIPING DIA. 1¼" AND GREATER=1.0"	FOR AUTOMATIC CIRCULATING HOT WATER SYSTEM PIPING SHALL BE INSULATED WITH 1" OF INSULATION HAVING A CONDUCTIVITY NOT EXCEEDING 0.27BTU PER inch/h x ft x °F.
604.6: HOT WATER SYSTEM CONTROLS	SPECIFIED CIRCULATING HOT WATER SYSTEM SERVING THE RESIDENTIAL UNITS IS PROVIDED WITH MANUALLY CONTROL TO TURN IT OFF WHEN THE HOT WATER SYSTEM IS NOT IN OPERATION. SPECIFIED CIRCULATING HOT WATER SYSTEM SERVING THE TENANT SPACES IS PROVIDED WITH AN AUTOMATIC CONTROL (TIME CLOCK) TO TURN IT OFF WHEN THE HOT WATER SYSTEM IS NOT IN OPERATION.	AUTOMATIC CIRCULATING HOT WATER SYSTEM PUMPS OR HEAT TRACE SHALL BE ARRANGED TO BE TURNED OFF AUTOMATICALLY OR MANUALLY WHEN THE HOT WATER SYSTEM IS NOT IN OPERATION.

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL BE SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
ENERGY CODE SPECIAL INSPECTIONS-II

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DATE	DRAWING SHEET NO.
PROJECT No.	3295
PROJECT MANAGER	KCA
DRAWN BY	EC
CADD FILE NO.	29

EN-001.00

35TH AVENUE STORE

NYC DOB NO

PLUMBING SYMBOLS
(NOT ALL SYMBOLS ARE NECESSARILY USED ON THIS PROJECT)

SYMBOL	DESCRIPTION
———	NEW SOIL, WASTE OR SANITARY PIPING
—ST—	STORM WATER DRAINAGE PIPING
- - - -	VENT PIPING (SANITARY)
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING (130°)
———	DOMESTIC HOT WATER CIRCULATION PIPING
∿∿∿∿	PIPING w/FREEZE PROTECTION CABLE & INSULATION
—G—	GAS PIPING
—ED—	EJECTOR DISCHARGE PIPING
—PD—	SUMP PUMP DISCHARGE PIPING
—OOOO—	FLEXIBLE CONNECTION
	HOSE BIBB
	WALL HYDRANT (CDSR./NDH)
	FRESH AIR INLET
	CLEAN OUT/PLUGGED OUTLET
	CAPPED OUTLET
	CLEAN-OUT ROOF PLATE
—P—	P-TRAP
	VACUUM BREAKER
	BUTTON PIPE CONNECTION
	TOP PIPE CONNECTION
	SIDE CONNECTION
	PIPE DOWN/DROP
	PIPE RISE/UP
	PIPE SLOPE
	VALVE IN VERTICAL
	UNION
	REDUCER
	WATER PROOF SLEEVE
	SLEEVE
	PRESSURE GAUGE w/GAUGE COCK
	TEMPERATURE GAUGE
	ROOF DRAIN / FLOOR DRAIN
	PUMP

SYMBOL	DESCRIPTION
	WATER METER
AAD	AUTOMATIC AIR DRAIN
	VENT THRU ROOF
	WYE
	DAMPER SWITCH
	PRESSURE SWITCH w/GAUGE COCK
	WATERFLOW SWITCH w/GAUGE COCK
	TEMPERATURE AND PRESSURE RELIEF VALVE
	PLUG VALVE
	MIXING VALVE
	VACUUM VALVE
	BALL VALVE
	GATE VALVE
	GLOBE VALVE
	OUTSIDE SCREW & YOKE (OS & Y) VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE (PRV)
	SOLENOID VALVE
	FLOAT VALVE
	INVERTED BUCKET
	BACKWATER VALVE
	Y STRAINER w/BLOW-OFF VALVE
	RISER DESIGNATION — RISER REFERENCE / RISER NUMBER

ABBREVIATIONS
(NOT ALL ABBREVIATIONS ARE NECESSARILY USED ON THIS PROJECT)

A.D.	AREA DRAIN	L.D.	NOISE DAMPER
A.F.C.	ACCESS DOOR	LR.	NEAREST INSIDE
A.F.F.	ABOVE FINISHED FLOOR	M.	MAIN
BLDG.	BUILDING	M.S.	JANITOR'S SINK
B.O.P.	BOTTOM OF PIPE	LAV.	LAVATORY
CPRD	CONTROLLED FLOW ROOF DRAIN	MEC.	MOP SINK
C.O.	CLEANOUT/LAVATORY	MEN.	MENSMAN
C.O.D.P.	CLEANOUT DECK PLATE	MIN.	MINIMUM
C.W.	COFFEE MAKER	MCV	MIXER INLET CONTROL VALVE
C.V.	CHECK VALVE	MOCV	MIXER OUTLET CONTROL VALVE
C.V.O.	CAPPED AND VALVED OUTLET	(N)	NEW
C.W.	COLD WATER	N.C.	NORMALLY CLOSED
CLG.	CEILING	N.I.C.	NOT IN SAME CONTRACT
CONN.	CONNECT	N.O.	NORMALLY OPEN
COORD.	COORDINATION	N.T.S.	NOT TO SCALE
DCDV	DOUBLE CHECK DETECTOR ASSE	OF	OVERFLOW DRAIN
DN.	DOWN (PENETRATES FLOOR SLAB)	OSWY	OUTSIDE SCREW & YOKE GATE VALVE
DFU	DRAINAGE FIXTURE UNITS	PC	PUMP DISCHARGE
DRG.	DRAWING	P.A.	POST MOUNT
(E)	EXIST EXISTING	P.O.	PLUGGED OUTLET
(CX)	EXISTING TO BE REMOVED	P.R.V.	PRESSURE REDUCING VALVE
(ERM)	EXISTING TO BE RELOCATED & REUSED	P.S.I.	POUNDS PER SQUARE INCH (GAUGE)
EJ	EJECTOR DISCHARGE	RD.	ROOF DRAIN
EL.	ELEVATION	S.A.	SHOCK ABSORBER
E.W.C.	ELECTRIC WATER COOLER	SNK.	SANITARY
F.A.I.	FRESH AIR INLET	P.D.	SUMP PUMP DISCHARGE
F.D.	FLOOR DRAIN	SH.	SHOWER
FIX.	FIXTURE UNIT	SK.	SINK
FL.	FLOOR	SF.	SQUARE FOOT
F. H.	FLOOR HYDRANT	ST.	STORM
FT.	FEET	TYP.	TYPICAL
G.C.	GENERAL CONTRACTOR	U.O.N.	UNLESS OTHERWISE NOTED
GD.	GARAGE DRAIN	UP	UP (PENETRATES FLOOR SLAB)
G.P.M.	GALLONS PER MINUTE	URI.	URINAL
H.B.	HOSE BIBB	V.	VENT
H.C.D.	HUNG CEILING	V.B.	VACUUM BREAKER
HCV	HEASE CONTROL VALVE	V.T.R.	VENT THROUGH ROOF
H.H.	HAT WASHER	W.	WASTE
H.W.C.	HOT WATER CIRCULATION	W.C.	WATER CLOSET
		W.F.U.	WATER FIXTURE UNITS
		W.H.	WALL HYDRANT

PLUMBING GENERAL NOTES

ALL PLUMBING WORK SHALL MEET THE REQUIREMENTS OF THE NEW YORK CITY PLUMBING CODE (NYCPC), 2008 EDITION.

1. TRENCHING, EXCAVATION AND BACKFILL FOR PIPING INSTALLATION IN ACCORDANCE WITH PC 306.
2. THE WORK INDICATED ON THESE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO INDICATE GENERAL ARRANGEMENT OF EQUIPMENT AND PIPING. THE CONTRACTOR MAY MAKE CHANGES/NEW APPROACH IN WRITING BY THE ARCHITECT/ENGINEER WITH NO ADDITIONAL COST.
3. THE CONTRACTOR SHALL PROVIDE NEW PLUMBING FIXTURES, PIPING, INSULATION, VALVES AND APPURTENANCES AS SHOWN ON THE DRAWINGS AND AS REQUIRED FOR A COMPLETE SYSTEM.
4. DURING CONSTRUCTION ALL OPEN ENDS OF EXISTING PIPING SHALL BE PLUGGED AND CAPPED WITH PLASTIC OR METAL CAPS TO KEEP DIRT OUT OF THE SYSTEM.
5. NO LEAD ENDS SHALL BE LEFT ON ANY DRAINAGE PIPING UPON COMPLETION OF WORK.
6. UPON COMPLETION OF WORK THE ENTIRE SYSTEM SHALL BE LEFT IN PERFECT WORKING ORDER.
7. ENGINE SHOP DRAWINGS SUFFICIENTLY IN ADVANCE OF THE WORK TO ALLOW PROPER TIME FOR REVIEW. MATERIALS SHALL NOT BE FABRICATED OR DELIVERED TO THE SITE BEFORE THE SHOP DRAWINGS HAVE BEEN APPROVED.
8. NEW SHUT-OFF VALVES SHALL BE PROVIDED AS REQUIRED TO ISOLATE DIFFERENT AREAS OF THE PLUMBING SYSTEM.
9. VENT PIPE SHALL BE GRADED TO DRAIN OUT ALL MOISTURE AND PROVIDE SOLID INSTALLATION.
10. ALL VALVES AND SPECIALTIES SHALL BE SO PLACED AS TO PERMIT EASY OPERATION AND ACCESS.
11. PROVIDE CALKING BETWEEN WALL HUNG WATER CLOSETS AND WALL AS REQUIRED.
12. FINAL INSPECTION AND TEST OF COMPLETED SYSTEM SHALL BE MADE IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE.
13. THE CONTRACTOR SHALL INSULATE ALL HOT AND COLD DOMESTIC WATER PIPING LOCATED ABOVE HUNG CEILING AFTER TESTING THE SYSTEM.
14. BEFORE BEING PLACED IN SERVICE ALL POTABLE WATER PIPING SHALL BE CLEANED, FLUSHED AND DISINFECTED.
15. UPON COMPLETION OF WORK ALL EXCESS MATERIAL, DEBRIS, ETC. SHALL BE REMOVED AND WORK AREA LEFT CLEAN TO THE OWNER'S SATISFACTION.
16. INSTALL ANCHORS ON PIPING ABOVE HUNG CEILING TO INDICATE DIRECTION OF FLOW.
17. ALL ACOUSTIC CEILING MATERIALS DISTURBED BY THE CONSTRUCTION TO BE REPLACED WITH NEW MATERIAL TO MATCH EXISTING.
18. WHEN THE NEW EQUIPMENT IS INSTALLED BY OTHERS, THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR PLUMBING ALL NEW APPROPRIATE FITTINGS AND MAKING FINAL CONNECTIONS SUCH AS COLD AND HOT WATER, VENTS, GAS, ETC.
19. SEISMIC OF COMPLETE SYSTEM SHALL BE MADE IN THE PRESENCE OF OWNER'S REPRESENTATIVE AND THE AUTHORITIES HAVING JURISDICTION, AS REQUIRED BY LOCAL CODE.
20. IF INSPECTION OR TEST SHOW DEFECTS, SUCH DEFECTIVE WORK OR MATERIAL SHALL BE REPLACED AND INSPECTION AND TEST SHALL BE REPEATED. REPAIR TO PIPING SHALL BE MADE WITH NEW MATERIAL.
21. STANDARD FOR EQUIPMENT MANUFACTURER, MODEL AND CAPACITY OF EQUIPMENT OR FIXTURES ARE LISTED ON THE DRAWINGS OR IN SPECIFICATIONS. ANY OTHER MANUFACTURER OR MODELS ARE CONSIDERED THE SUBSTITUTION.
22. SUBSTITUTIONS ARE SUBJECT TO THE APPROVAL OF THE ENGINEER. IF A SUBSTITUTION IS SUBMITTED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO EVALUATE IT AND CERTIFY THAT THE SUBSTITUTION IS EQUIVALENT IN ALL RESPECTS TO THE BASE SPECIFICATIONS.
23. IF SUBSTITUTIONS ARE APPROVED, NOTIFY ALL OTHER CONTRACTORS OR TRADES AFFECTED BY THE SUBSTITUTION AND FULLY COORDINATE ANY COST RESULTING FROM SUBSTITUTION AND MAKEUP OF CONTRACTOR OR CONTROL SHALL BE RESPONSIBILITY OF AND PAID FOR BY SUBSTITUTION CONTRACTOR.
24. FIRE STOP ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER IN ORDER TO MAINTAIN FIRE RATING. PROVIDE UL LISTED FIRE STOPPING.
25. FULLY WARRANTY ALL MATERIALS, EQUIPMENT AND WORKMANSHIP FOR ONE YEAR FROM DATE OF ACCEPTANCE.
26. REPAIR OR REPLACE WITHOUT CHARGE TO THE OWNER ALL ITEMS FOUND DEFECTIVE DURING THE WARRANTY PERIOD.
27. PIPING INSTALLED UNDER SLAB SHALL BE CAREFULLY LAID OR PLACED ON BED PREPARED, UNDER SOIL BED OF FINE CRUSHED STONE OR SAND TO FIT THE PIPE CONTOUR, WITH ALL PIPE UNDER PIPE FILLED AND THOROUGHLY TAMPED FOR THE FULL RUNNING LENGTH SUPPORT.
28. INSTALL PIPE TO UNIFORM PITCHES BETWEEN POINTS FOR WHICH ELEVATIONS ARE ESTABLISHED OR SHALL BE VERIFIED BY USE OF LEVEL OR OTHER APPROVED METHOD. PIPE GRADE SHALL BE ADJUSTED BY THE ADDITION OR SUBTRACTION OF FULL BEDDING AND NOT BY WEDGING OR BLOCKING.
29. ACCESS DOORS SHALL BE PROVIDED, AS MINIMUM FOR:
    1. CONCEALED VALVES.
    2. CONCEALED SHOCK ABSORBERS.
    3. CONCEALED AIR-VENT CONNECTIONS.
    4. CONCEALED SUMP PUMPS/ TANKS.

    ACCESS DOOR SHALL BE FURNISHED BY THIS CONTRACTOR AND INSTALLED BY GENERAL CONTRACTOR.
30. CONTRACTOR SHALL SIZE DOOR TO PERMIT REMOVAL AND REPACKING OF ALL EQUIPMENT, BUT IN ANY CASE, SHALL BE NOT LESS THAN 12"X16".
31. NOTED ON ANY DRAWING SHALL ALSO APPLY TO ALL OTHER CONTRACT DRAWINGS UNLESS OTHERWISE SPECIFIED.
32. ALL BRACKETS, PLATES, CHANNELS, ETC. SHALL BE GALVANIZED UNLESS OTHERWISE SPECIFIED.
33. ALL SURFACES DAMAGED IN THE COURSE OF THE WORK SHALL BE RESTORED TO THE ORIGINAL CONDITION AND ON MATCHING LIKE MANNER.
34. COORDINATE AND SCHEDULE ALL WORK TO MEET THE OVERALL DESIGN OBJECTIVE.
35. PIPE, ALL PIPES AND CONDUIT PASSING THROUGH WALL OR FLOORS, PROVIDE PIPE SLEEVES.
36. PROVIDE DRAIN VALVES AT ALL LOW POINTS.
37. CHANGES IN DIRECTION IN DRAINAGE PIPING SHALL BE MADE WITH APPROPRIATE USE OF 45 DEGREE WYES, LONG SWEEPS, QUARTER, EIGHTH, OR SIXTEENTH BENDS.
38. PROVIDE CLEANOUTS ON DRAIN LINES AS SHOWN ON DRAWINGS AND AS REQUIRED BY CODE.
39. CORE DRILLING FOR PENETRATION THROUGH FOUNDATION WALLS SHALL BE DONE BY PLUMBING CONTRACTOR.
40. CONTRACTOR SHALL NOT FINISH ANY EQUIPMENT AND MATERIAL FROM ROOF INCLUDE. CONTRACTOR SHALL SUPPORT EQUIPMENT AND MATERIAL FROM BEAMS, IF NEED TO CONTRACTOR SHALL PROVIDE ADDITIONAL SUPPORT STEEL OR METAL TO ATTACH TO BEAMS.
41. ALL PLUMBING EQUIPMENT SHALL BE INSTALLED AND ADJUSTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION UNLESS OTHERWISE SHOWN.
42. ALL DIMENSIONS PRIOR SHALL BE PRINTED PER SPECIFICATIONS BY THE PLUMBING CONTRACTOR.
43. ALL EXPOSED PIPES SHALL BE ARRANGED TO PERMIT ACCESS FOR MAINTENANCE.
44. ALL DRAIN AND VENT PIPES SHALL HAVE A MINIMUM SLOPE OF 1/8" PER FOOT.
45. ALL COLD WATER PIPES OUTSIDE THE HEATED STRUCTURES LESS THAN 4'-6" BELOW GRADE OR SUBJECT TO FREEZING SHALL BE INSULATED AND HEAT TRACED. COORDINATE WITH ELECTRICAL CONTRACTOR FOR POWER SUPPLY.
46. COORDINATE WORK WITH OF THOSE DRAWINGS WITH OTHER DRAWINGS.
47. COORDINATE SLOPING OF FLOORS TO FLOOR DRAINS.
48. THE CONTRACTOR SHALL FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF THE OTHER TRADES TO VERIFY WHICH WORK SHALL BE INSTALLED FIRST BEFORE PROCEEDING
49. THE CONTRACTOR SHALL DURING THE PERIOD OF THE GUARANTEE REPLACE OR REPAIR AS OWN EXPENSE ANY PIECE OF EQUIPMENT AND FOR MATERIAL WHICH IS FOUND TO BE DEFECTIVE. ANY REPLACEMENT OR REPAIR SHALL BE DONE AS SOON AS NOTIFIED. THE CONTRACTOR SHALL ALSO REPAIR ALL DAMAGES TO SURROUNDING WORK CAUSED BY FAILURE OF REPAIR OR REPLACEMENT OF THE DEFECTED EQUIPMENT OR MATERIAL.
50. DRAIN PIPES 2½" AND SMALLER SHALL HAVE A MINIMUM SLOPE OF ¼" PER FOOT. ALL DRAIN PIPES LARGER THAN 2½" SHALL HAVE A MINIMUM SLOPE OF ⅛" PER FOOT.
51. RECORD DRAWINGS SHALL BE PREPARED BY CONTRACTOR AND SHALL INDICATE THE ACTUAL INSTALLED LOCATION OF ALL PIPING AND VALVES INCLUDING INVERT ELEVATION FOR UNDERSLAB PIPING.
52. THE CONTRACTOR SHALL MAKE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS AND PAY ALL GOVERNMENT SALES TAXES, FEES AND OTHER COST INCLUDING UTILITY CONNECTIONS COST.
53. IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES THAT MAY BE REQUIRED. CONTRACTOR SHALL MAKE ALL NECESSARY OFFSETS, FITTINGS AND ACCESSORIES AS REQUIRED WITH NO ADDITIONAL COST TO THE OWNER.
54. GAS PIPING MUST MEET THE REQUIREMENTS OF NYC BUILDING CODE AND OTHER REQUIREMENTS OF THE UTILITY COMPANY
55. A LINE AND PRESSURE REGULATOR SHALL BE INSTALLED WHERE THE EQUIPMENT / APPLIANCE IS DESIGNED TO OPERATE AT A LOWER PRESSURE THAN THE SUPPLY PRESSURE.
56. GAS PIPING SHALL BE INSPECTED AND TESTED AS PER NYC BUILDING CODE
57. PROVIDE AND INSTALL NEW WATER HAMMER ARRESTERS IN ALL BRANCH LINES SERVING FIXTURES WITH QUICK CLOSURE VALVES IN ACCORDANCE WITH STANDARD PDI-WH-201. SIZE SHALL BE DETERMINED BY THE FOLLOWING TABLE

FLOW RATE (GPM)	FIXTURE UNITS
A (3/4")	1-11
B (1")	12-32
C (1")	33-60
D (1¼")	61-113
E (1½")	114-154
F (2")	155-330

SPECIAL INSPECTIONS

1. SPECIAL INSPECTIONS REQUIRED IN ACCORDANCE WITH NYC BC SECTION 1704 AND THE APPLICABLE SECTIONS OF THE NYC BC
   FULL PLASHBOIL _____ 2008 CODE REFERENCE BC 1705.22 & BC 1704.7.3
   HIGH PRESSURE GAS PIPING _____ 2008 CODE REFERENCE BC 1704.10
   PIPING _____ 2008 CODE REFERENCE BC 1704.7.3 & BC 3304.6.1
   SEWER WATER EXTENSION _____ 2008 CODE REFERENCE BC 1704.20
   PENETRATION _____ 2008 CODE REFERENCE BC 1704.25
2. SPECIAL INSPECTIONS SHALL BE EMPLOYED BY THE OWNER TO PROVIDE INSPECTIONS DURING CONSTRUCTION AS REQUIRED UNDER SECTION BC 1704 OF THE NYC BUILDING CODE, SUCH CONTROL THE SPECIAL INSPECTOR SHALL BE ACCEPTABLE TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE.

BUILDING DEPARTMENT PLUMBING NOTES

NEW YORK CITY PLUMBING NOTES

ALL PLUMBING WORK SHALL MEET THE REQUIREMENTS OF THE NEW YORK CITY PLUMBING CODE (NYCPC), 2008 EDITION.

1. TRENCHING, EXCAVATION AND BACKFILL FOR PIPING INSTALLATION IN ACCORDANCE WITH PC 306.
2. ALL PLUMBING PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH SECTION PC 308 AND TABLE 308.5.
3. ALL TESTS AND INSPECTIONS SHALL BE MADE AS DIRECTED IN SECTION PC 312.
4. CONDENSATE DRAIN SHALL COMPLY WITH PC 314.
5. MATERIALS, DESIGN AND INSTALLATION OF PLUMBING FIXTURES, FAUCETS AND PIPING FITTINGS SHALL BE IN ACCORDANCE WITH CHAPTER 4 OF NYCPC.
6. ACCESSIBLE PLUMBING FIXTURES AND FEATURES SHALL BE PROVIDED IN ACCORDANCE WITH 29 ADA.
7. MATERIALS, DESIGN AND INSTALLATION OF WATER HEATERS AND THE RELATED SAFETY DEVICES AND APPURTENANCES SHALL BE AS OUTLINED IN CHAPTER 5 OF NYCPC.
8. MATERIALS, DESIGN AND INSTALLATION OF WATER SUPPLY SYSTEMS SHALL BE AS OUTLINED IN CHAPTER 6 OF NYCPC.
9. WATER SERVICE PIPE SHALL CONFORM TO ONE OF THE STANDARDS LISTED IN TABLE 605.3.
10. WATER DISTRIBUTION PIPE SHALL CONFORM TO ONE OF THE STANDARDS LISTED IN TABLE 605.4.
11. WATER PIPE FITTINGS SHALL CONFORM TO THE RESPECTIVE PIPE STANDARDS OR ONE OF THE STANDARDS LISTED IN TABLE 605.5.
12. HOT WATER SUPPLY SYSTEMS SHALL COMPLY WITH PC 607.
13. PROTECTION OF POTABLE WATER SUPPLY SHALL BE IN ACCORDANCE WITH PC 608.
14. MATERIALS, DESIGN, CONSTRUCTION AND INSTALLATION OF SANITARY DRAINAGE SYSTEMS SHALL BE AS OUTLINED IN CHAPTER 7 NYCPC.
15. SANITARY DRAINAGE AND VENT PIPE SHALL CONFORM TO ONE OF THE STANDARDS LISTED IN TABLE 702.1 AND 702.2. BUILDING SEWER PIPE SHALL CONFORM TO ONE OF THE STANDARDS LISTED IN TABLE 702.3
16. SANITARY BUILDING HOUSE PIPING SHALL BE LOCATED AS SET FORTH IN PC 708.0. CLEANOUTS ON BUILDING SEWERS SHALL BE LOCATED IN ACCORDANCE WITH SECTION PC 708.
17. THE MINIMUM SLOPE OF A HORIZONTAL DRAINAGE PIPE SHALL BE IN ACCORDANCE WITH TABLE 704.1.
18. DRAINAGE FIXTURE UNIT VALUES SHALL BE AS SET FORTH IN TABLE 709.1.
19. DRAINAGE PIPING SIZING IN ACCORDANCE WITH PC 710.
20. INDIRECT / SPECIAL WASTE PIPING SHALL COMPLY WITH CHAPTER 8 NYCPC.
21. MATERIALS, DESIGN, CONSTRUCTION AND INSTALLATION OF VENT SYSTEMS SHALL BE IN ACCORDANCE WITH CHAPTER 9 NYCPC.
22. VENT PIPE SIZING IN ACCORDANCE WITH PC 916.
23. FIXTURE TRAP REQUIREMENTS AS SET FORTH IN PC 1002.
24. MATERIALS, DESIGN, CONSTRUCTION AND INSTALLATION OF STORM DRAINAGE SYSTEMS SHALL BE AS OUTLINED IN CHAPTER 11 NYCPC.
25. STORM DRAINAGE PIPE MATERIALS SHALL BE IN ACCORDANCE WITH PC 1102.
26. SIZE OF CONDUCTORS, LEADERS AND STORM DRAINS SHALL BE AS OUTLINED IN PC 1106. (TABLES 1106.2, TABLE 1106.3, TABLE 1106.4).
27. SECONDARY (EMERGENCY) ROOF DRAINS SHALL BE AS DIRECTED IN PC 1107.
28. ESCAPE PERMIT FROM DOT FOR STREET TRENCHING AND UTILITIES CONNECTION.
29. NEW UTILITIES CONNECTIONS, SANITARY STORM AND WATER MUST BE APPROVED BY DEP.

NEW YORK CITY FUEL GAS NOTES

ALL WORK SHALL MEET THE REQUIREMENTS OF THE NEW YORK CITY FUEL GAS CODE (NYCFGC), 2008 EDITION.

1. EQUIPMENT AND APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH FGC 303.
2. CLEARANCES AROUND EQUIPMENT AND APPLIANCES SHALL BE IN ACCORDANCE WITH FGC 308.
3. DESIGN, AND INSTALLATION OF FUEL-GAS PIPING SYSTEM SHALL BE MADE AS DIRECTED IN CHAPTER 4 OF NYCFGC.
4. FUEL-GAS PIPE SIZING SHALL BE IN ACCORDANCE WITH FGC 402.
5. MATERIAL USED FOR FUEL-GAS PIPING SHALL COMPLY WITH THE REQUIREMENTS OF FGC 403.
6. GAS PIPING INSTALLATION SHALL BE IN ACCORDANCE WITH FGC 404.
7. ALL INSPECTIONS, TESTING AND PURGING SHALL BE MADE AS DIRECTED IN SECTION FGC 406.
8. GAS PIPING SHALL BE PROVIDED WITH SUPPORT IN ACCORDANCE WITH FGC 407.
9. GAS PIPING SYSTEMS SHALL BE PROVIDED WITH SHUTOFF VALVES IN ACCORDANCE WITH FGC 409.
10. FLOW CONTROLS SHALL BE INSTALLED AS DIRECTED IN SECTION FGC 410.
11. ALL APPLIANCE CONNECTIONS SHALL COMPLY WITH FGC 411.

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BUILDINGS ZONING AND BUILDING CODES

PROJECT
35th AVE / FARRINGTON ST
HOTEL DEVELOPMENT
134-27 35TH AVE - FLUSHING NY 11101

DRAWING TITLE
PLUMBING
ABBREVIATIONS, SYMBOL LIST, AND NOTES

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PROJECT No.	206
PROJECT MANAGER	EKA
DRAWN BY	EC
CAD FILE NO.	35THFARRINGTON

P-001.00

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NYC DOB AO

PLUMBING FIXTURE SCHEDULE

LEGEND	PLUMBING FIXTURE	MANUFACTURER OR APPROVED EQUAL	SPECIFICATIONS	TRAP (TY)	WASTE (G/M)	VENT (V)	COLD WATER (CW)	HOT WATER (HW)
P-1	WATER CLOSET	1. AMERICAN STANDARD INC. 2. KOHLER CO.	AMERICAN STANDARD, "CADET SPECIMEN" 2886.016 ELONGATED BOWL, VITREOUS CHINA, LOW CONSUMPTION 1.6 GPF, FLOOR MOUNTED, FLOOR OUTLET SEAT: AMERICAN STANDARD #5738.019 "SLAM AND SHINE"	-	4"	2"	½"	-
P-1A	WATER CLOSET (BARRIER FREE)	1. AMERICAN STANDARD INC. 2. KOHLER CO.	AMERICAN STANDARD, "CADET" ADA 2886.014 ELONGATED BOWL, VITREOUS CHINA, LOW CONSUMPTION 1.6 GPF, FLOOR MOUNTED, FLOOR OUTLET, BARRIER FREE (ANSI A117.1) SEAT: AMERICAN STANDARD #5738.019 "SLAM AND SHINE"	-	4"	2"	½"	-
P-1B	WATER CLOSET (FLUSH VALVE)	1. AMERICAN STANDARD INC. 2. KOHLER CO.	AMERICAN STANDARD, "MYNAL" 3257.105 ELONGATED, VITREOUS CHINA, LOW CONSUMPTION, WALL MOUNTED, 1 1/2" TOP SPUD. SEAT: OLSONITE, OPEN FRONT SEAT LESS COVER. SUPPORT: J.R. SMITH	-	4"	2"	1½"	-
	FLUSH VALVE	1. SLOAN CO. 2. ZURN CO. 3. CRANE & DELAVAN CO.	SLOAN "ROYAL" MODEL 153-1.6 EB-S CONCEALED SENSOR OPERATED,					
P-1C	SAME AS P-1B (ADA ELEVATION)			-	4"	2"	1½"	-
P-2	LAVATORY	1. AMERICAN STANDARD INC. 2. KOHLER CO.	AMERICAN STANDARD, "LUCC" 0418.444, SELF RIMMING OVAL COUNTERTOP, VITREOUS CHINA, FRONT OVERFLOW, FAUCET HOLES ON 4" CENTERS	1¼"	1½"	1½"	½"	½"
	FAUCET	1. DELTA FAUCET CO. 2. AMERICAN STANDARD INC. 3. MOEN CO.	DELTA MODEL "2522", STAND HANDLE, 4" CENTERSET, SOLID BRASS BODY.					
P-2A	LAVATORY (BARRIER FREE)	1. AMERICAN STANDARD INC. 2. KOHLER CO.	AMERICAN STANDARD, WHEELCHAIR LUCID LAVATORY 0146.201.11, WALL MOUNTED, VITREOUS CHINA, FRONT OVERFLOW, CONCEALED ARMS SUPPORT, FAUCET HOLES ON 4" CENTERS. SUPPORT: J.R. SMITH	1¼"	1½"	1½"	½"	½"
	FAUCET	1. DELTA FAUCET CO. 2. AMERICAN STANDARD INC. 3. MOEN CO.	DELTA MODEL "2522", STAND HANDLE, 4" CENTERSET, SOLID BRASS BODY. ADA COMPLIANCE TO ANSI A117.1					
P-3	BATHTUB	1. AMERICAN STANDARD INC. 2. ELJER CO. 3. KOHLER CO.	AMERICAN STANDARD, "PRINCETON" 2391.202 (RIGHT HAND OUTLET) & 2391.203 (LEFT HAND OUTLET) RECESS BATH, ACID RESISTING PORCELAIN FINISH, 60"L x 32"W x 14"H (17-3/4" FOR ABOVE FLOOR INSTALLATION)	2"	2"	2"	½"	½"
	SHOWER HEAD AND MIXING VALVE	1. DELTA FAUCET CO. 2. AMERICAN STANDARD INC. 3. SYMMONS INDUSTRIES	DELTA MODEL "1340" PRESSURE BALANCED MIXING VALVE FOR USE ON SHOWER & TUB/SHOWER INSTALLATION, BUILT-IN ADJUSTABLE TEMPERATURE LIMIT STOP INCLUDES CHANGES IF ACCIDENTAL SCALDING, DIECAST-BRASS BODY, STAINLESS STEEL FACEPLATE & TRIM, COMPENSATE FOR BOTH TEMPERATURE & PRESSURE FLUCTUATION.					
P-3A	SHOWER MODULE	1. CRANE PLUMBING/TYAC 2. STERN-WILLIAMS CO. 3. ZURN CO.	PVC, MODEL A 6048APTS, 30" X 48" SINGLE THRESHOLD, TEXTURED SHOWER FLOOR WITH STAINLESS STEEL STRAINER PLATE.	2"	2"	2"	½"	½"
	SHOWER SYSTEM	1. SYMMONS INDUSTRIES 2. AMERICAN STANDARD INC. 3. ZURN CO.	SYMMONS MODEL "TEMPTROL I" SH-4N-XXX-XXX-V, PRESSURE BALANCING MIXING VALVE WITH ADJUSTABLE STOP SCREW, SHOWER HEAD WITH ARM AND FLANGE.					
P-3B	SHOWER MODULE (BARRIER FREE)	1. CRANE PLUMBING/TYAC 2. STERN-WILLIAMS CO. 3. ZURN CO.	PVC, MODEL A 4836ATF, ONE PIECE SHOWER MODULE, CAST ACRYLIC, ANTI-SKID FLOOR TREATMENT, PRE-DRILLED, 2" DRAIN, THE SHOWER UNIT SHALL CONFORM TO ANSI A117.1. OUTSIDE DIMENSIONS: 36-½" x 36-½"	2"	2"	2"	½"	½"
	SHOWER SYSTEM (BARRIER FREE)	1. SYMMONS INDUSTRIES 2. AMERICAN STANDARD INC. 3. ZURN CO.	SYMMONS MODEL "TEMPTROL I" SH-4N-XXX-XXX-V, PRESSURE BALANCING MIXING VALVE WITH ADJUSTABLE STOP SCREW, SHOWER HEAD WITH ARM AND FLANGE. INSTALLATION SHALL CONFORM TO ANSI A117.1					
P-3C	SHOWER MODULE (BARRIER FREE)	1. CRANE PLUMBING/TYAC 2. STERN-WILLIAMS CO. 3. ZURN CO.		2"	2"	2"	½"	½"
	SHOWER SYSTEM (BARRIER FREE)	1. SYMMONS INDUSTRIES 2. AMERICAN STANDARD INC. 3. ZURN CO.						
P-4	KITCHEN SINK	1. ELJER CO. 2. JUST MANUF. CO. 3. ACORN CO.	ELJER, LR2532, STAINLESS STEEL SINGLE BOWL, 18 GAUGE-TYPE 302 SELF FRAMING 25"x32" MITTER CORNER TOP.	2"	2"	1½"	½"	½"
	FAUCET	1. DELTA FAUCET CO. 2. AMERICAN STANDARD INC. 3. MOEN CO.	DELTA MODEL 2102 SINGLE LEVER KITCHEN FAUCET, CHROME FINISH, SPRAY REMOVABLE HOSE, SWING ADAPTER.					
P-5	URINAL	1. AMERICAN STANDARD INC. 2. ELJER CO. 3. KOHLER CO.	AMERICAN STANDARD, "WASHBROOK" MODEL 6020.210, VITREOUS CHINA, LOW CONSUMPTION ELONGATED 14" RIM FROM WHEN WALL, WASHOUT FLUSH ACTION, EXTENDED HOOD, ¾" TOP SPUD. FLUSH VALVE: SLOAN, MODEL 186-1.0 EB-S CONCEALED SENSOR OPERATED FLUSHOMETER J.R. SMITH	1½"	2"	1½"	1"	-
P-6	SERVICE SINK / LAUNDRY SINK	1. AMERICAN STANDARD INC. 2. ELJER CO. 3. KOHLER CO.	AMERICAN STANDARD, SERVICE SINK "LANCELOT" WALL MOUNTED, 22x18x10, CAST IRON. FAUCET: AMERICAN STANDARD WITH WORKM MANAGER, 3340.145 SUPPORT: J.R. SMITH	3"	3"	2"	½"	½"
P-7	DOUBLE BAR	1. ELJER CO. 2. JUST MANUF. CO. 3. ACORN CO.		3"	3"	2"	½"	½"
WHA	AUTOMATIC DRAINING PRESSURIZING WALL HYDRANT	1. WOODFORD CO. 2. ZURN CO. 3. AMERICAN STANDARD INC.	WOODFORD MODEL 65 WALL HYDRANT EXPOSED TYPE W/ VACUUM BREAKER-BACKFLOW PREVENTER, VALVE PLUNGER CONTROLS FLOW AND DRAIN, STAINLESS STEEL BOX, CHROME FINISH AND LOCKABLE KEY.	-	-	-	½"	-

GAS BOOSTER SYSTEM

DESIGNATION	LOCATION	QTY.	INLET	OUTLET	FLOW CAPACITY (GPH)	AGED PRESS. WC (IN)	MOTOR DATA HP	VOLT	PH	MODEL NO.	REMARKS
GBS-M	ENG METER RM (SUB-CELLAR 1)	1	5"	5"	17,000	8	1	208	3	ECLIPSE HOWDEN GAS BOOSTER MODEL HB-4014-1	FACTORY BUILT, PACKAGED, SIMPLEX HORIZONTALLY SEALED GAS BOOSTER PUMP, WITH MINIMUM PRESSURE REGULATOR MODEL: 310GT/F, SET TO 12" WC MAX.
GBS-H	GAS METER RM (SUB-CELLAR 1)	1	5"	5"	17,000	8	1	208	3	ECLIPSE HOWDEN GAS BOOSTER MODEL HB-4014-1	FACTORY BUILT, PACKAGED, SIMPLEX HORIZONTALLY SEALED GAS BOOSTER PUMP, WITH MINIMUM PRESSURE REGULATOR MODEL: 310GT/F, SET TO 12" WC MAX.

DRAIN SCHEDULE

TAG NO.	FIXTURE	FUNCTION	BODY: CAST IRON	BODY: STAINLESS STEEL	BODY: BRONZE	TOP & TRIM: CAST IRON	TOP & TRIM: STAINLESS STEEL	TOP & TRIM: POLISHED BRONZE	TOP & TRIM: NICKEL BRONZE	MODEL & MANUFACTURER	COMMENTS
FD (TYPE 1)	FLOOR DRAIN	RESTAURANT, KITCHEN AND SERVICE AREAS	YES	-	-	YES	-	-		Z-540-HP ZURN 2530 J.R. SMITH	CAST IRON BODY W/ FLASHING COLLAR, CAST IRON GRATE AND SLOTTED SEDIMENT BUCKET, AND "P" TRAP DEEP SEAL MODEL (7721).
FD (TYPE 2)	SHOWER DRAIN	SHOWER COMPARTMENT DRAINS AND TOILET AREAS	YES	-	-	-	-	-	YES	2010 J.R. SMITH Z-415-NP ZURN	CAST IRON BODY W/ FLASHING COLLAR AND ADJUSTABLE STRAINER, "P" TRAP DEEP SEAL MODEL (7721). WHERE NOTED, FLOOR DRAIN TO BE USE IN TOILETS AND SHOWERS
FD (TYPE 3)	FLOOR DRAIN	SWIMMING POOL AREA	(BY OTHERS)								
FS	FLOOR SINK	FLOOR SINKS FOR INDIRECT DRAIN BELOW KITCHEN SINKS	YES	-	-	-	-	-	YES	Z-1002 ZURN 3140 J.R. SMITH	PRIMER VARNISH, SUMP, POLISHED ALUMINUM DOME STRAINER, AND LESS DRAIN AND GRATE
FUNNEL	FUNNEL DRAIN	WHERE INDICATED AS PER DRAWINGS	YES	-	-	-	-	-	-	Z-542 ZURN 3760 J.R. SMITH	CAST IRON FLANGED RECEPTOR WITH DAM GRATE, FUNNEL AND SEDIMENT BUCKET
RD	ROOF DRAIN	ROOF AREA	YES	-	-	YES	-	-	-	Z-105 ZURN 1010 J.R. SMITH	
RD	ROOF DRAIN	ROOF OVERHANGS	YES	-	-	YES	-	-	-	Z-163 ZURN 1416 SERIES J.R. SMITH	CAST IRON BODY AND FLASHING CLAMP WITH SECONDARY OPENINGS AND SECURE SQUARE HOLE HEAVY DUTY GRATE
AD / ID	AREA/AIR DRAIN	OUTDOOR AREAS	YES	-	-	YES	-	-	-	Z-543 ZURN 2253 J.R. SMITH	
TRENCH DRAIN	TRENCH DRAIN	WHERE REQUIRED AS PER DRAWINGS	YES	-	-	-	-	-	YES	Z-886 / Z- 6472 ZURN 2700 SERIES J.R. SMITH	MODULAR TRENCH DRAIN, IRON-GRADE CAST IRON DEEP SUMP BODY WITH BOTTOM OUTLET, HEAVY-DUTY DRAIN WITH TENSION LOCKS SLOTTED GRATE.

GAS-FIRED WATER HEATER SCHEDULE

DESIGNATION	LOCATION	QTY	STORAGE CAPACITY (GALLONS)	RECOVERY RATE (GPH) @ 100°F RISE	INPUT RATE GAS (MBTU)	MIN./MAX. SUPPLY PRESSURE (IN. W.C.)	THERMAL EFFICIENCY (%)	ELECTRICAL: VOLT	PH	AMPS	VENT & AIR INLET SIZE	DIMENSIONS (H x ø)	OPERATING WEIGHT (LBS.)	MODEL NO.	MANUFACTURER OR APPROVED EQUAL	REMARKS
HWH-B-1 HWH-B-2 HWH-B-3	MER (ROOF)	3	120	471	399	3.5 / 14	97%	120	1	11 MAX	4"	85.25" x 33.75"	1,800	CONSULIET CONDENSING HEATER 90 L 1200-402L	PVI	ASHRAE HOME TANK, 10 YEAR TANK WARRANTY, CATEGORY IV VENT, PREMIER CONDENSATE NEUTRALIZATION SYSTEM AND FACTORY-AUTHORIZED STARTUP
HWH-B-1 HWH-B-2 HWH-B-3	BOILER RM (3RD FL.)	3	120	399	800	3.5 / 14	97%	120	1	11 MAX	6"	85.25" x 33.75"	1,800	CONSULIET CONDENSING HEATER 90 L 1200-402L	PVI	ASHRAE HOME TANK, 10 YEAR TANK WARRANTY, CATEGORY IV VENT, PREMIER CONDENSATE NEUTRALIZATION SYSTEM AND FACTORY-AUTHORIZED STARTUP
HWH-B-4	BOILER RM (3RD FL.)	1	160	333	350	3.5 / 14	92%	120	1	11 MAX	6"	73.75" x 33.75"	1,555	CONSULIET CONDENSING HEATER 90 L 1200-402L	PVI	ASHRAE HOME TANK, 10 YEAR TANK WARRANTY, CATEGORY IV VENT, PREMIER CONDENSATE NEUTRALIZATION SYSTEM AND FACTORY-AUTHORIZED STARTUP
HWH-B-4 HWH-B-5	BOILER RM (3RD FL.)	2	120	800	800	3.5 / 14	97%	120	1	11 MAX	6"	85.25" x 33.75"	1,800	CONSULIET CONDENSING HEATER 90 L 1200-402L	PVI	ASHRAE HOME TANK, 10 YEAR TANK WARRANTY, CATEGORY IV VENT, PREMIER CONDENSATE NEUTRALIZATION SYSTEM AND FACTORY-AUTHORIZED STARTUP

HOT WATER CIRCULATOR PUMP SCHEDULE

DESIGNATION	LOCATION	QTY.	SERVING	CAPACITY (GPM)	DESIGN HEAD (FT.)	DESIGN BOIL. TEMP. (DEG.)	MOTOR DATA: HP	VOLT	PH	RPM	MODEL NO.	MANUFACTURER OF APPROVED EQUAL	REMARKS
CP-B-1	MER (ROOF)	1	RESIDENTIAL (1167 F)	18	18	194°	1/6	460	1	1,710	SERIES PR	BELL & GOSSETT BY FLUID TECHNOLOGY CO.	PUMP SHALL BE CONTROLLED FROM ON/OFF ADJUNCTS LOCATED AT PUMP. IN ADDITION THE PUMP SHALL BE PROVIDED WITH "ON-OFF" SWITCH FOR MANUAL SHUT DOWN WHEN THE HOT WATER SYSTEM IS NOT IN OPERATION.
CP-B-2	BOILER RM (3RD FL)	1	RESIDENTIAL LAUNDRY (1167 F)	10	10	1"	1/6	460	1	1,710	SERIES PR	BELL & GOSSETT BY FLUID TECHNOLOGY CO.	PUMP SHALL BE CONTROLLED FROM A COMBINATION TIME CLOCK AND ADJUNCTS. IN ADDITION THE PUMP SHALL BE PROVIDED WITH "ON-OFF" SWITCH FOR MANUAL SHUT DOWN WHEN THE HOT WATER SYSTEM IS NOT IN OPERATION. THE TIME CLOCK AUTOMATIC CONTROL SHALL TURN OFF THE CIRCULATING SYSTEM WHEN THE HOT WATER SYSTEM IS NOT IN OPERATION. THE CLOCK SHALL BE SIMILAR TO BELL & GOSSET E3-TIMER.
CP-B-3	BOILER RM (3RD FL)	1	RESIDENTIAL LAUNDRY (1167 F)	10	10	1"	1/6	460	1	1,710	SERIES PR	BELL & GOSSETT BY FLUID TECHNOLOGY CO.	PUMP SHALL BE CONTROLLED FROM A COMBINATION TIME CLOCK AND ADJUNCTS. IN ADDITION THE PUMP SHALL BE PROVIDED WITH "ON-OFF" SWITCH FOR MANUAL SHUT DOWN WHEN THE HOT WATER SYSTEM IS NOT IN OPERATION. THE TIME CLOCK AUTOMATIC CONTROL SHALL TURN OFF THE CIRCULATING SYSTEM WHEN THE HOT WATER SYSTEM IS NOT IN OPERATION. THE CLOCK SHALL BE SIMILAR TO BELL & GOSSET E3-TIMER.
CP-H-1	BOILER RM (3RD FL)	1	HOTEL (1167 F)	15	15	194°	1/6	460	1	1,710	SERIES PR	BELL & GOSSETT BY FLUID TECHNOLOGY CO.	PUMP SHALL BE CONTROLLED FROM ON/OFF ADJUNCTS LOCATED AT PUMP. IN ADDITION THE PUMP SHALL BE PROVIDED WITH "ON-OFF" SWITCH FOR MANUAL SHUT DOWN WHEN THE HOT WATER SYSTEM IS NOT IN OPERATION.
CP-H-2	BOILER RM (3RD FL)	1	HOTEL COMMON AREAS (1167 F)	10	10	1"	1/6	460	1	1,710	SERIES PR	BELL & GOSSETT BY FLUID TECHNOLOGY CO.	PUMP SHALL BE CONTROLLED FROM A COMBINATION TIME CLOCK AND ADJUNCTS. IN ADDITION THE PUMP SHALL BE PROVIDED WITH "ON-OFF" SWITCH FOR MANUAL SHUT DOWN WHEN THE HOT WATER SYSTEM IS NOT IN OPERATION. THE TIME CLOCK AUTOMATIC CONTROL SHALL TURN OFF THE CIRCULATING SYSTEM WHEN THE HOT WATER SYSTEM IS NOT IN OPERATION. THE CLOCK SHALL BE SIMILAR TO BELL & GOSSET E3-TIMER.

THERMAL EXPANSION TANK SCHEDULE

DESIGNATION	LOCATION	QTY	TANK VOLUME (GALLONS)	MAX. WORKING PRESSURE (PSI)	FACTORY PRECHARGE* (PSI)	SYSTEM CONNECTIONS (NO.)	APPROX. WEIGHT (LBS.)	DIMENSIONS	MODEL NO.	MANUFACTURER OR APPROVED EQUAL
ET-B-1	MER (ROOF)	1	32	150	60	1"	88	61"Dia x 36"H	WTH-42	WILKINS - ZURN CO.
ET-H-1	BOILER RM (3RD FL)	1	32	150	60	1"	88	61"Dia x 36"H	WTH-42	WILKINS - ZURN CO.
ET-B-2	BOILER RM (3RD FL)	1	8	150	60	¾"	34	61"Dia x 20"H	WTH-20	WILKINS - ZURN CO.
ET-H-2	BOILER RM (3RD FL)	1	18	150	60	1"	64	61"Dia x 24"H	WTH-30	WILKINS - ZURN CO.

* PRECHARGE SHOULD BE ADJUSTED TO MATCH INCOMING WATER PRESSURE AFTER INSTALLATION

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL BE SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BLDGS ON ZONING AND BUILDING CODES

PROJECT:
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
136-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE:
PLUMBING SCHEDULES

MEP ENGINEER:
E.K.C ENGINEERING, PLLC
136-20 NORTHERN BLVD SUITE 211
FLUSHING, N.Y. 11354
TEL: (718) 539-8990 FAX: (718) 353-4067

STRUCTURAL ENGINEER:
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SEAL & SIGNATURE

ARCHITECTS + PLANNERS

136-40 39TH AVENUE FLUSHING, NEW YORK 11354
TEL: (718) 445-2345 FAX: (718) 359-6836
EMAIL: mail@nishimurahatsuki.com
WEB: www.nishimurahatsuki.com

DATE	DRAWING NO.
PROJECT NO.	2016
PROJECT MANAGER	RSH
DRAWN BY	E.C.
CADD FILE NO.	2
35TH AVENUE.DWG	

P-002.00

NYC DOB NO.

No.	DATE	DESCRIPTION

SUBMERSIBLE SIMPLEX SUMP PUMP SCHEDULE

DESIGNATION	LOCATION	QTY	CAPACITY (GPM)	DESIGN. HEAD (FT.)	DISCH. SIZE (INCH.)	MOTOR DATA				MODEL NO.	MANUFACTURER OR APPROVED EQUAL	REMARKS
						HP	VOLT	PH	RPM			
SP-1 SP-2	ELEVATOR PIT (SUB-CELLAR 2)	2	15	24	2"	1/2	120	1	1,720	MODEL SP-1/2-4	"FEDERAL PUMP"	SUBMERSIBLE SUMP PUMP

DUPLEX SEWAGE EJECTOR SCHEDULE

DESIGNATION	LOCATION	PUMP CAPACITY (GPM)	DESIGN. HEAD (FEET)	DISCHARGE SIZE (INCHES)	VENT SIZE	MOTOR DATA				MODEL NO.	MANUFACTURER OR APPROVED EQUAL	CONCRETE PIT SIZE (L x W x H)	REMARKS
						HP	VOLT	PH	RPM				
DSE-1	BASEMENT RM (SUB-CELLAR 3)	120.00	48	4"	3"	(2)7.5	208	3	1,750	VSK-4K-7.6-4	FEDERAL PUMP 3XL	6' x 5.5' x 8.5'	DUPLEX SUSPENDED 90°C-PIT TYPE NON-CLOG IMPELLER BASIN 5'6" x 4.5' DEEP

THERMOSTATIC MASTER MIXING CONTROL VALVE

DESIGNATION	LOCATION	QTY.	MAX. CAPACITY (GPM)	PRESSURE DROP	CW INLET	HIGH TEMP. INLET	LOW TEMP. OUTLET	MODEL NO.	MANUFACTURER OR APPROVED EQUAL	REMARKS
TMV-B-1	MEP. (ROOF)	1	100	10 PSI AT 113 GPM	2"	2" (140°F)	2" (110°F)	ESS-SXT VIBRATION LEAD FREE ASSEE. ONLY	LEONARD CO.	COMPLETE WATER TEMPERATURE CONTROL STATION, LARGE CAPACITY APPLICATIONS
TMV-B-1	BOILER RM (2ND FL.)	1	100	10 PSI AT 113 GPM	2"	2" (140°F)	2" (110°F)	ESS-SXT VIBRATION LEAD FREE ASSEE. ONLY	LEONARD CO.	COMPLETE WATER TEMPERATURE CONTROL STATION, LARGE CAPACITY APPLICATIONS
TMV-B-2	BOILER RM (2ND FL)	1	35	10 PSI AT 10 GPM	1"	1" (140°F)	1" (110°F)	ESS-MIX VIBRATION LEAD FREE MODEL 1-B-1"	LEONARD CO.	COMPLETE WATER TEMPERATURE CONTROL STATION, LARGE CAPACITY APPLICATIONS
TMV-B-1	BOILER RM (2ND FL)	1	100	10 PSI AT 113 GPM	2"	2" (140°F)	2" (110°F)	ESS-MIX VIBRATION LEAD FREE MODEL ONLY	LEONARD CO.	COMPLETE WATER TEMPERATURE CONTROL STATION, LARGE CAPACITY APPLICATIONS

DOMESTIC WATER DUPLEX BOOSTER PUMP SCHEDULE

DESIGNATION	LOCATION	QTY	CAPACITY (GPM)	RATED PRESSURE (PSI)	MOTOR DATA				MODEL NO.	MANUFACTURER OR APPROVED EQUAL	REMARKS
					HP	VOLT	PH	RPM			
WP-1	BASEMENT WATER RM (SUB-CELLAR 1)	1	120/60	80	(2)15	460	3	1,754	SP-3606B-2	FEDCOM, PUMP CO.	PRE-ASSEMBLED AND PRE-WIRED UNIT W/ DUPLEX CONTROL-DISP. PANEL, 24 HOUR AUTOMATIC ALTERNATION OF LEAD PUMP.

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDING ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING SCHEDULES

M.E.P. ENGINEER
E.K.G. ENGINEERING, PLLC
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SEAL & SIGNATURE

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138-40 35TH AVENUE FLUSHING, NEW YORK 11354
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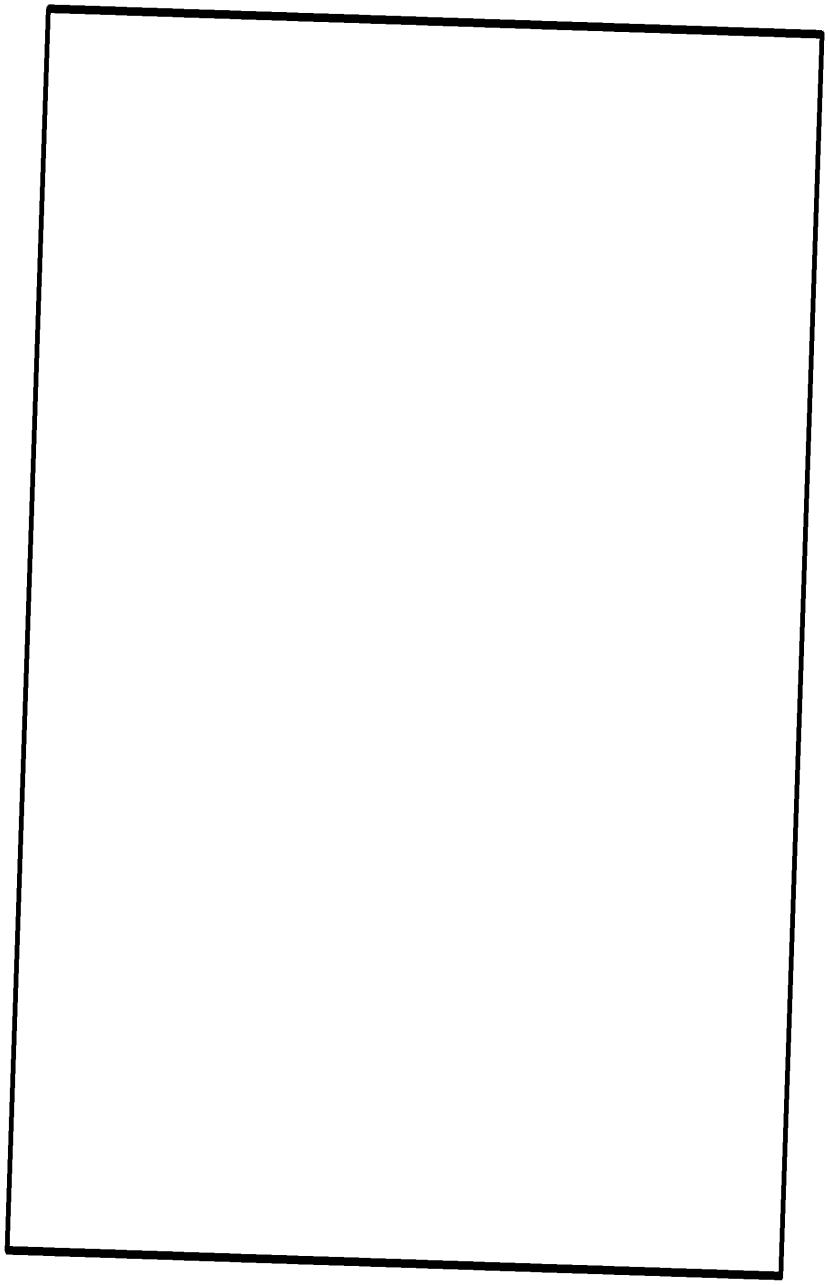
Web: www.vukidesign.com

DATE	SHEET NO. DWG No.
PROJECT No.	2045
PROJECT MANAGER	MCA P-003.00
DRAWN BY	EC
CHECKED BY	3
35TH AVENUE (2045)	LAST DWG

NYC DOB NO

(b)(4)

No.	DATE	DESCRIPTION



NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BUILDSON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
SITE PLAN

M E P ENGINEER
KJC ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 211
FLUSHING N.Y. 11354
Tel (718) 353-5070 Fax (718) 353-4007

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WAI LEUNG, P.E.
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SEAL & SIGNATURE

136-41 38th AVENUE FLUSHING, NEW YORK 11354
Tel (718) 445-2345 Fax (718) 359-0069
Email info@evmorphanarchitect.com
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DATE 3/6/2014 DWG No
PROJECT No 2015
PROJECT MANAGER YGA
DRAWN BY E.C.
CADD FILE NO 35THAVENUE (2015)

P-004.00

4

NYC 908 NC

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BUILDINGS ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-97 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
SUB-CELLAR 2 PLAN A

M.E.P. ENGINEER
K.K.F. ENGINEERING, PLLC
136-20 38TH AVENUE, SUITE 3W
FLUSHING, N.Y. 11354
TEL: (718) 353-8012 Fax: (718) 353-8017

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YAN ZHANG, P.E.
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SEAL & SIGNATURE

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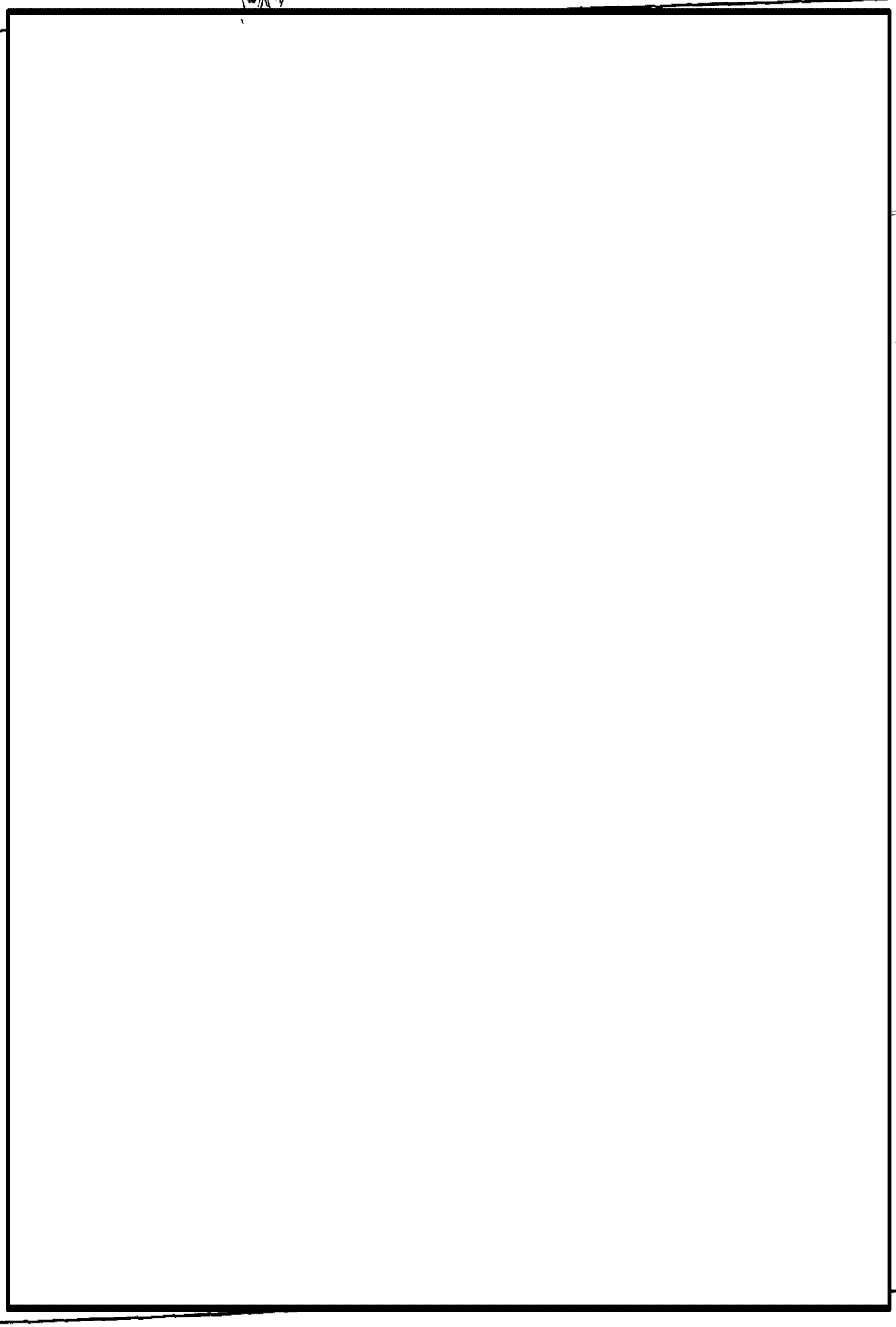
136-40 38TH AVENUE FLUSHING, NEW YORK 11354
TEL: (718) 445-2345 Fax: (718) 359-8678
Email: info@gaviria&associates.com
WEB: www.gaviria&associates.com

DATE	DRAWN	DWG NO
PROJECT No.	2016	P-005.00
PROJECT MANAGER	RGA	
DRAWN BY	S.C.	
CADD FILE NO.		5

N.Y.C. D.O.B. NO.

(b)(4)

No.	DATE	DESCRIPTION



NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
194-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
SUB-CELLAR 2 PLAN B

M.E.P. ENGINEER
E.K. ENGINEERING, P.L.L.C.
136-21 ROOSEVELT AVE SUITE 211
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STRUCTURAL ENGINEER
WAI LEUNG NG, P.E.
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SEAL & SIGNATURE

ARCHITECTS & PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel 718 445-2345 Fax (718) 353-8979
Email info@raymondchanarchitect.com
Web www.raymondchanarchitect.com

DATE	04/02/2014
PROJECT No.	2005
PROJECT MANAGER	RC/A
DRAWN BY	E.C.
CADD FILE NO.	35TH AVENUE (2005)
DWG No.	P-006.00
	6

NYC DOB NO

(b)(4)

No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BLDGS ON ZONING AND BUILDING CODES

PROJECT

35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-27 35TH AVE FLUSHING NY 11101

DRAWING TITLE

PLUMBING
SUB-CELLAR 1 PLAN A

M E P ENGINEER
K.J.C ENGINEERING PLLC
136-20 NORTHERN BLVD SUITE 2H
FLUSHING N Y 11354
Tel: (718) 353-8010 Fax: (718) 353-8007

STRUCTURAL ENGINEER

HVAC ENGINEERING P.E
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SEAL & SIGNATURE

136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel (718) 445-2345 Fax (718) 353-8599
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DATE	04/01/2014 DWG No
PROJECT No.	2096
PROJECT MANAGER	KCA
DRAWN BY	E.C
CAD FILE NO	35TH AVENUE (2096)

P-007.00

1

NYC DOB NO

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-32 35TH AVE FLUSHING NY 11354

DRAWING TITLE
PLUMBING
SUB--CELLAR 1 PLAN B

M.E.P. ENGINEER
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136-20 ROOSEVELT AVE SUITE 2H
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Tel (718) 445-2345 Fax (718) 359-5806
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Web www.mytutorialarchitect.com

DATE	05/01/2014 DWG No.
PROJECT No.	2098
PROJECT MANAGER	RDA
DRAWN BY:	S.C.
CADD FILE NO.	35TH AVENUE 2098

P-008.00
8

NYC D.O.B. NO.

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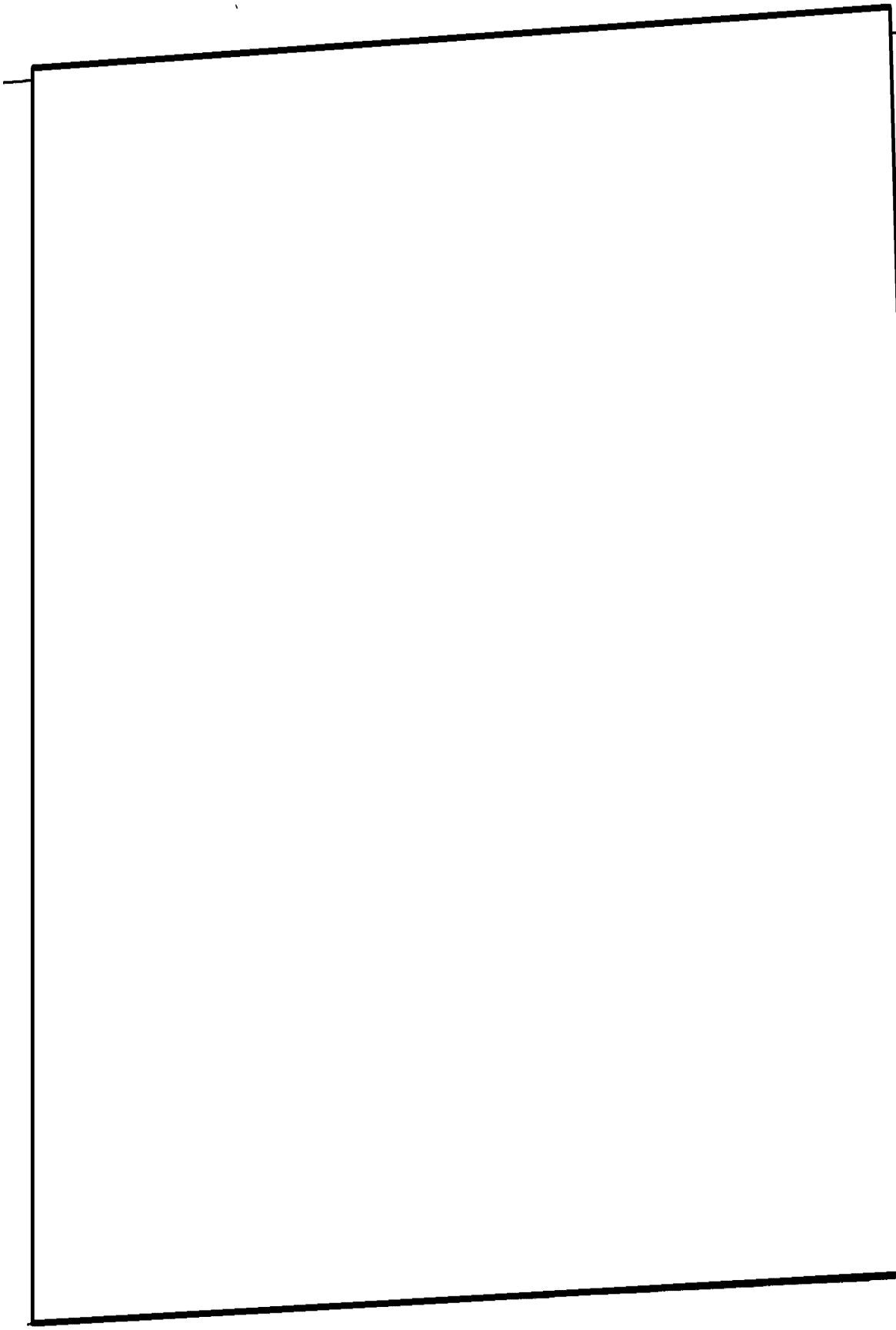

No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT OF BLDGS ON
ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
CELLAR PLAN A

M.E.P. ENGINEER
K.K. ENGINEERING, PLLC
136-20 ROOSEVELT AVE SUITE 211
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SEAL & SIGNATURE

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Web: www.raymondzenarchitect.com

DATE	09/01/2011 DWG No
PROJECT No.	2045 P-009.00
PROJECT MANAGER	RCA
DRAWN BY	E.C. 9
CADD FILE NO.	
35th AVENUE (2045)	(REVISION)

NYC DOB NO

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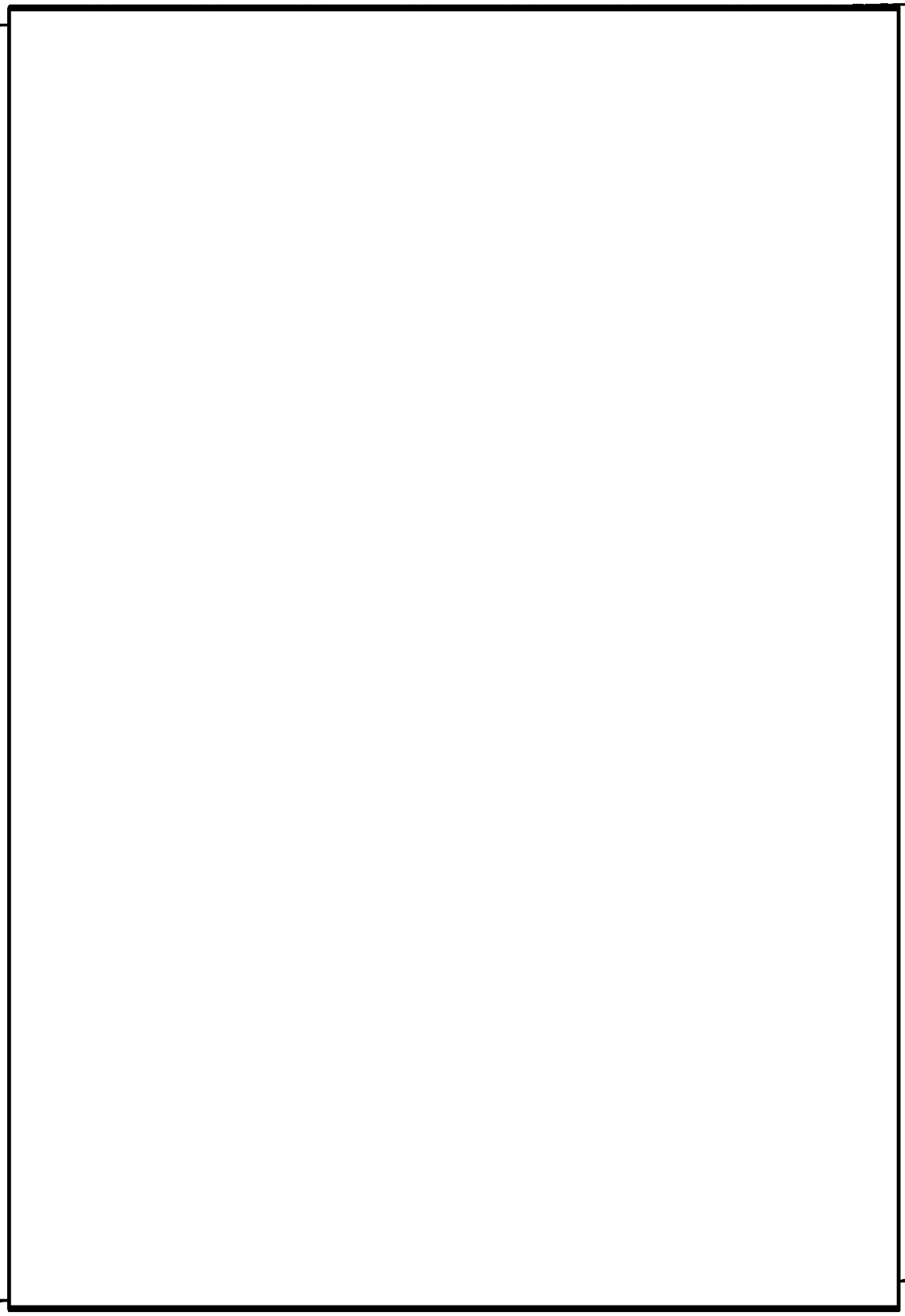

No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
CELLAR PLAN B

M.E.P. ENGINEER
E.K.E ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 211
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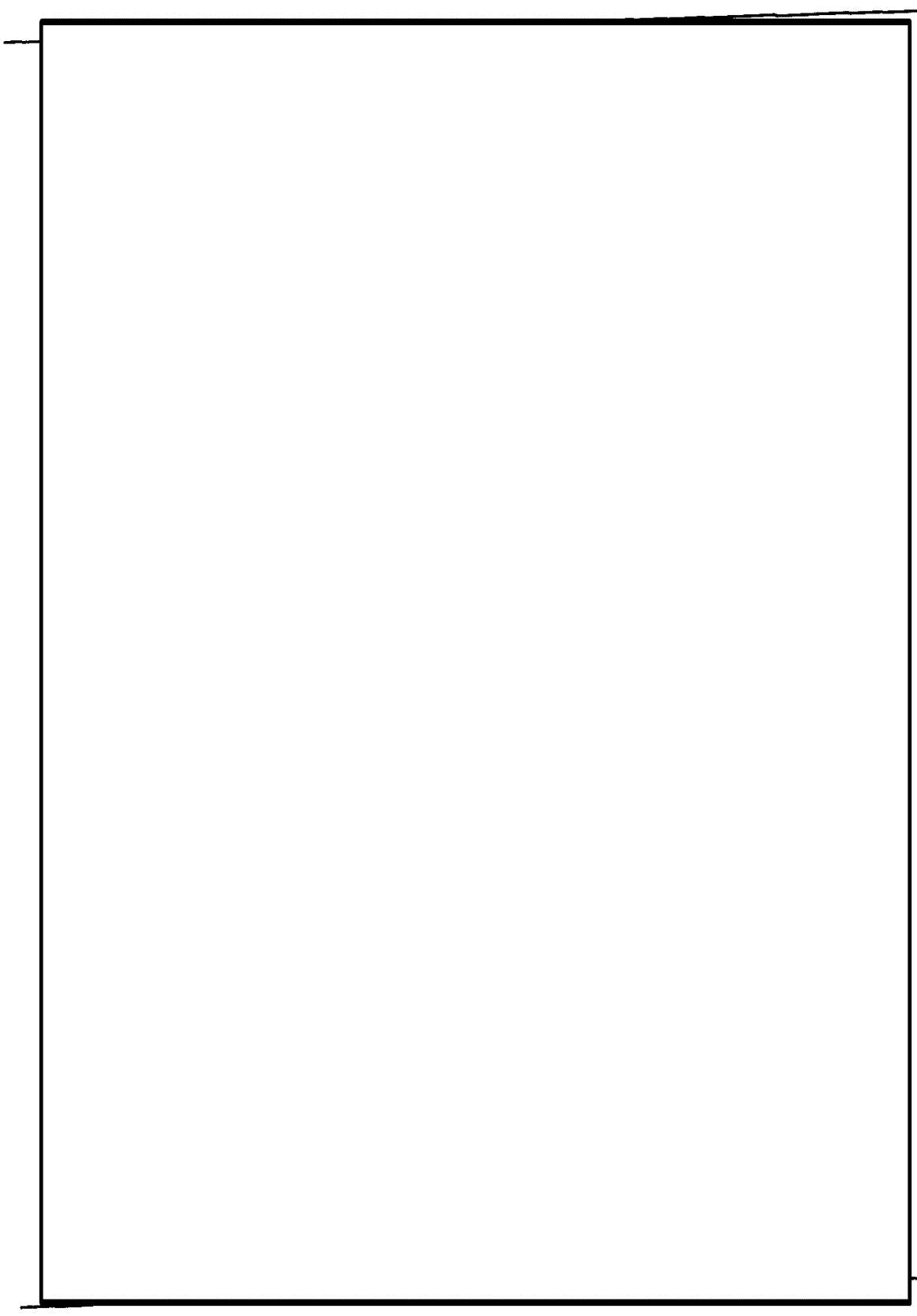
WEB: www.penn-associatesarchitect.com

DATE 09/02/2014 DWG No
PROJECT No 3996
PROJECT MANAGER RCA P-010.00
DRAWN BY EC
CADD FILE NO 10
35TH AVENUE (2009).dwg

NYC DOB NO

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
133-37 35TH AVE FLUSHING NY 11354

DRAWING TITLE
PLUMBING
1ST FLOOR PLAN A

M.E.P. ENGINEER
E.J.C. ENGINEERING, P.L.L.C.
136-20 NORTHERN BLVD SUITE 211
FLUSHING, N.Y. 11354
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STRUCTURAL ENGINEER
YVM_LEUNG, P.E.
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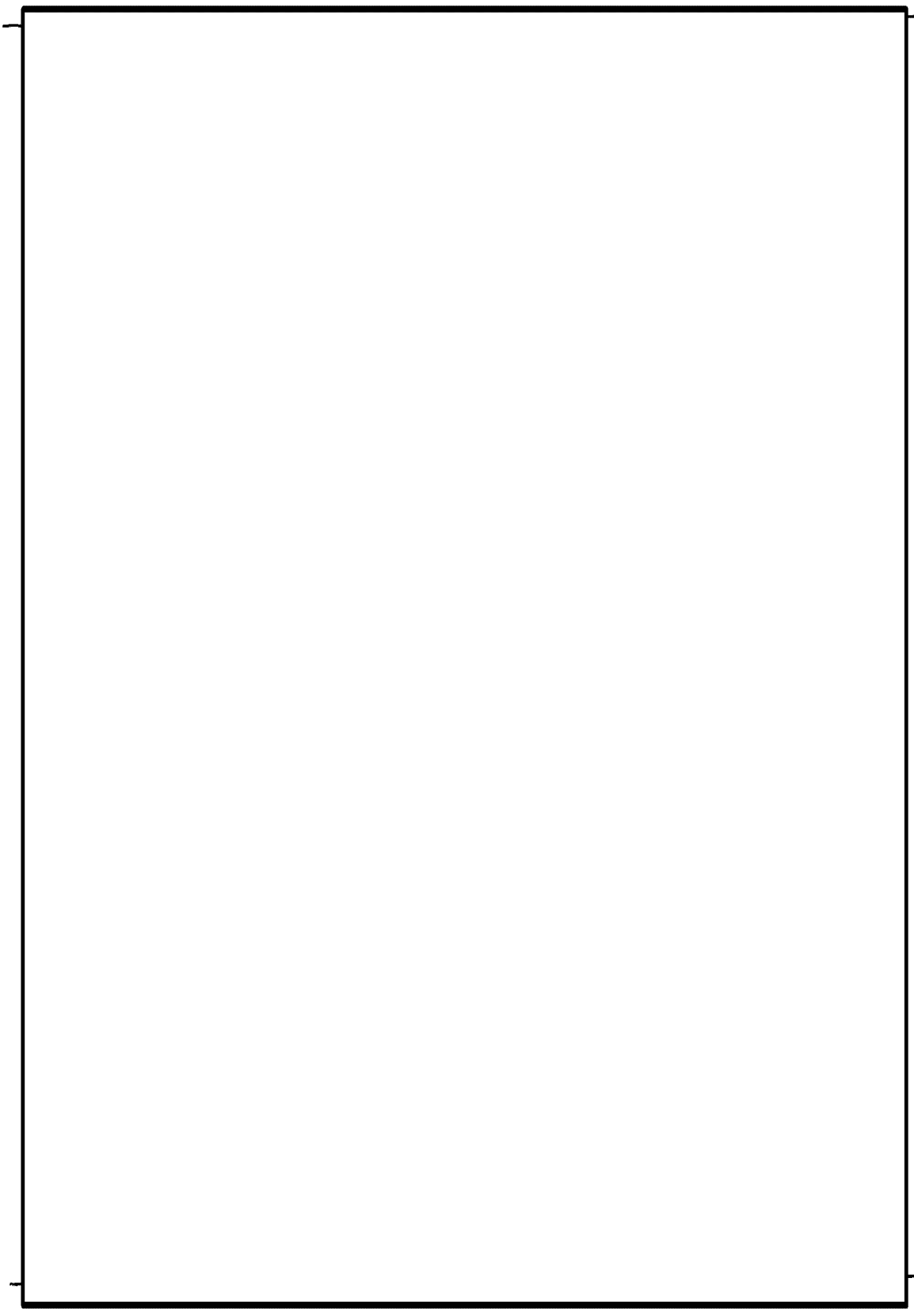
SEAL & SIGNATURE

136-20 38TH AVENUE FLUSHING NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 358-4016
Email: info@gryphonarchitect.com
Web: www.gryphonarchitect.com

DATE	DESCRIPTION	DWG NO
PROJECT NO.	2006	P-011.00
PROJECT MANAGER	REG.	
DRAWN BY	E.C.	
CADD FILE NO	35TH AVENUE (2006)	11

NYC DOB NO

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT. OF BLDGS ON
ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11354

DRAWING TITLE
PLUMBING
1ST FLOOR PLAN B

M E P ENGINEER
MC ENGINEERING PLLC
136-20 ROOSEVELT AVE SUITE 211
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DATE	04/02/14 DWG No
PROJECT No.	2045 P-012.00
PROJECT MANAGER	RCA
DRAWN BY	K.C.
CADD FILE NO.	35TH AVENUE (2045) 12

N.Y.C. DOB NO

(b)(4)

No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDG'S ON ZONING AND BUILDING CODES

PROJECT

35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE, FLUSHING NY 11354

DRAWING TITLE

PLUMBING
2ND FLOOR PLAN A

M.E.P. ENGINEER
E.K. ENGINEERING, PLLC
136-21 NORTHERN BLVD, SUITE 2H
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STRUCTURAL ENGINEER
YANG LEUNG NG, P.E.
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SEAL & SIGNATURE

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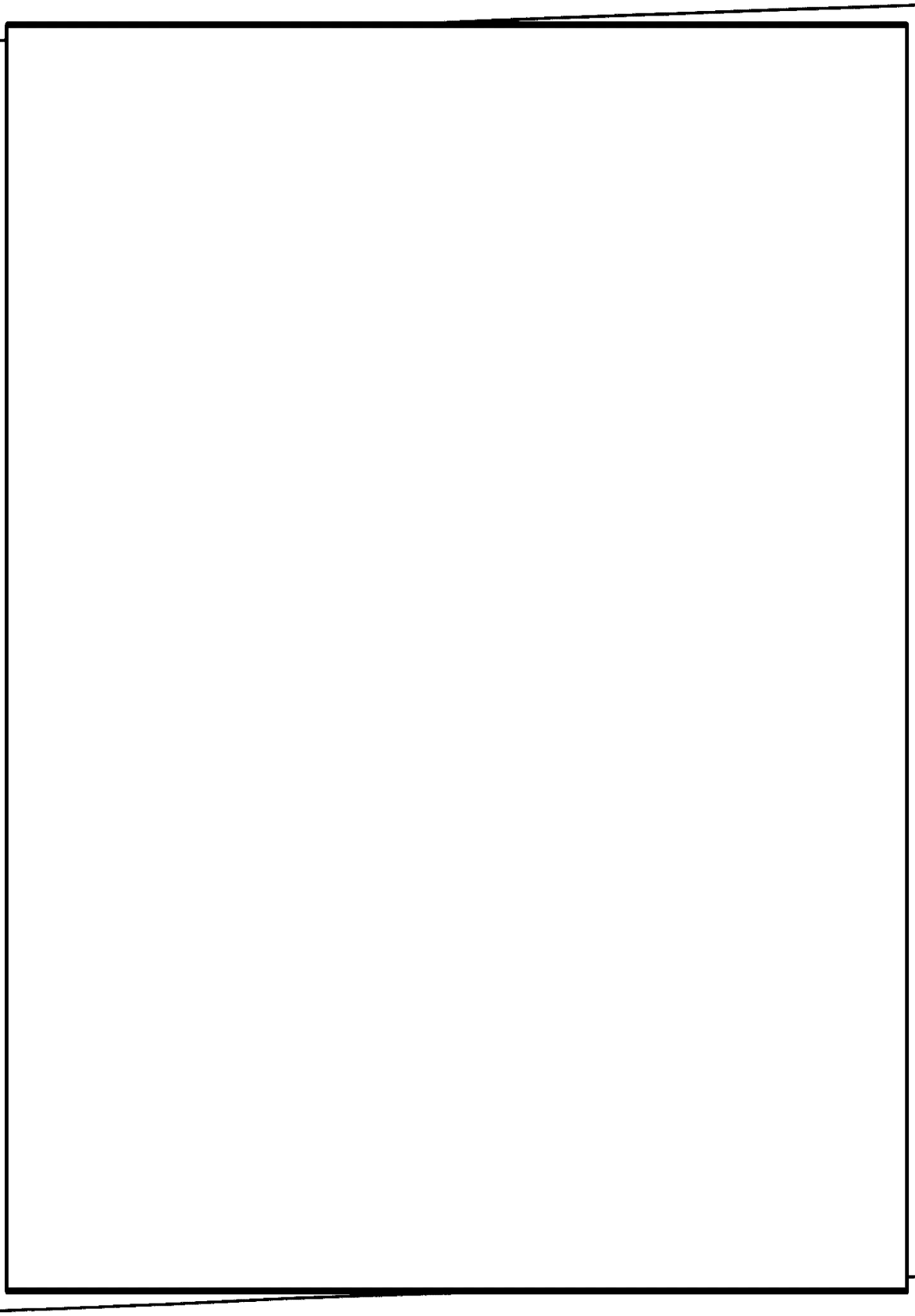
Tel: (718) 445-2345 Fax: (718) 359-8836
Email: info@yyarchitect.com
Web: www.yyarchitect.com

DATE	04/01/2014
PROJECT No.	2295
PROJECT MANAGER	YGA
DRAWN BY	EC
CADD FILE NO.	35TH AVENUE (2295)

DWG No.
P-013.00
13
DRAWING ONLY

NYC DOB NO.

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDING ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE. FLUSHING NY. 11101

DRAWING TITLE
PLUMBING
2ND FLOOR PLAN B

M.E.P. ENGINEER
E.K. ENGINEERING, PLLC
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SEAL & SIGNATURE:

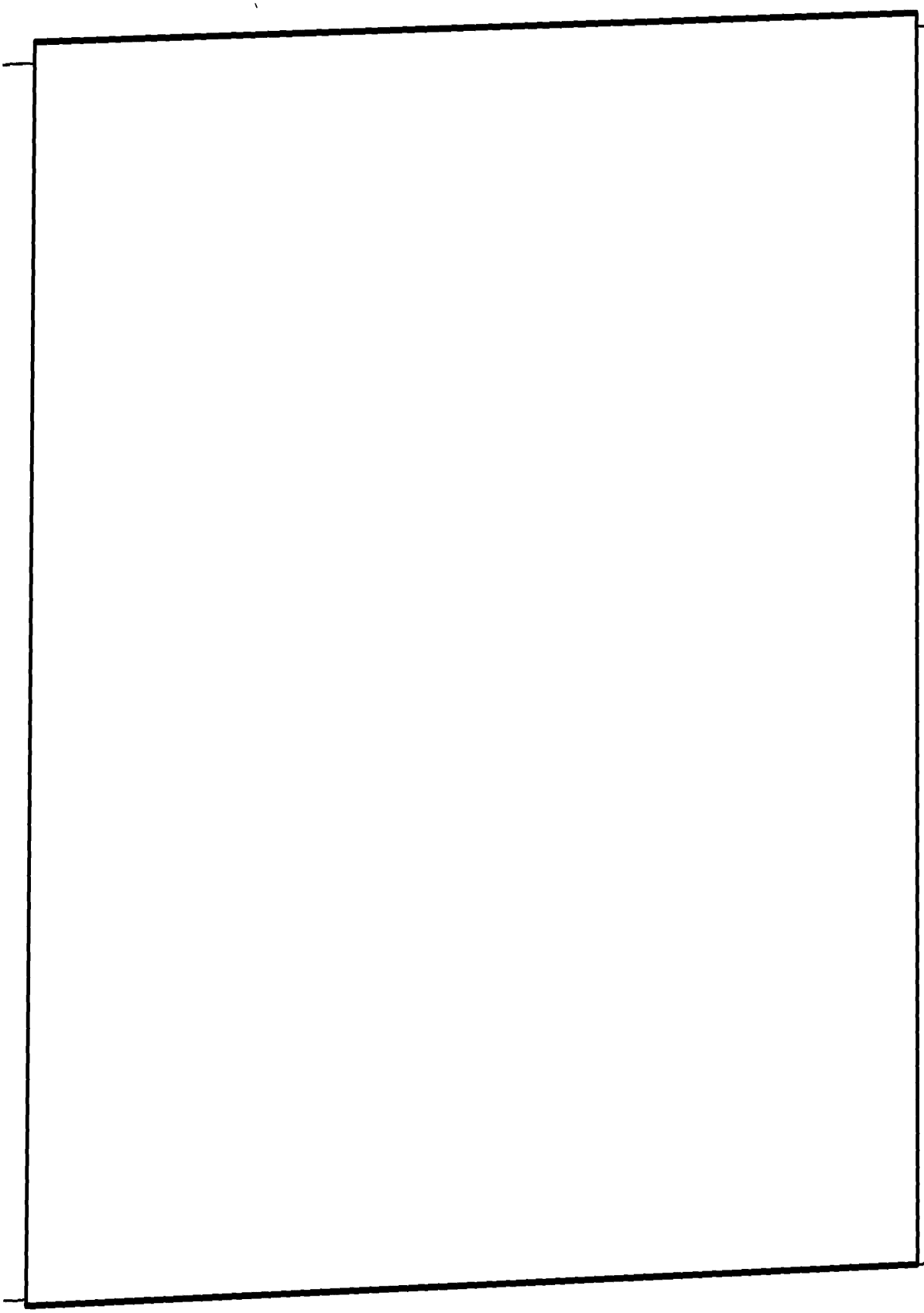
ARCHITECTS + PLANNERS
135-40 35TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 358-8029
Email: mail@gmanddassociates.com
Web: www.gmanddassociates.com

DATE	09/20/2011
PROJECT NO.	2095
PROJECT MANAGER	RCA
DRAWN BY	EC
CADD FILE NO.	35TH AVENUE (2095)

DWG No
P-014.00
14

NYC DOB NO

(b)(4)



No.	DATE	DESCRIPTION
1		

NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
158-37 35TH AVE. FLUSHING NY 11101

DRAWING TITLE
PLUMBING
3RD FLOOR PLAN A

M.E.P ENGINEER
E.K.ENGINEERING, PLLC
136-21 ROOSEVELT AVE. SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8310 Fax: (718) 353-4007

STRUCTURAL ENGINEER
WALLE ENG. ASS. P.E
Tel (917) 519-3226 Fax: (718) 664-0016

SEAL & SIGNATURE

[redacted]

ARCHITECTS + PLANNERS
135-49 39TH AVE #1E FLUSHING, NEW YORK 11354
Tel (718) 445-2345 Fax (718) 359-0809
Email
Web

DATE	06/28/18
PROJECT No	2046
PROJECT MANAGER	PSA
DRAWN BY	EC
CADD FILE NO	35TH AVENUE (2018)

DWG No
P-015.00
15

NYC DOB NO

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDG'S ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
(34-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
3RD FLOOR PLAN B

M E P ENGINEER
E.K. ENGINEERING, PLLC
136-21 ROOSEVELT AVE. SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-4010 Fax: (718) 353-4007

STRUCTURAL ENGINEER
WAN-LEUNG MO, P.E.
Tel: (917) 548-3226 Fax: (718) 864-0616

SEAL & SIGNATURE

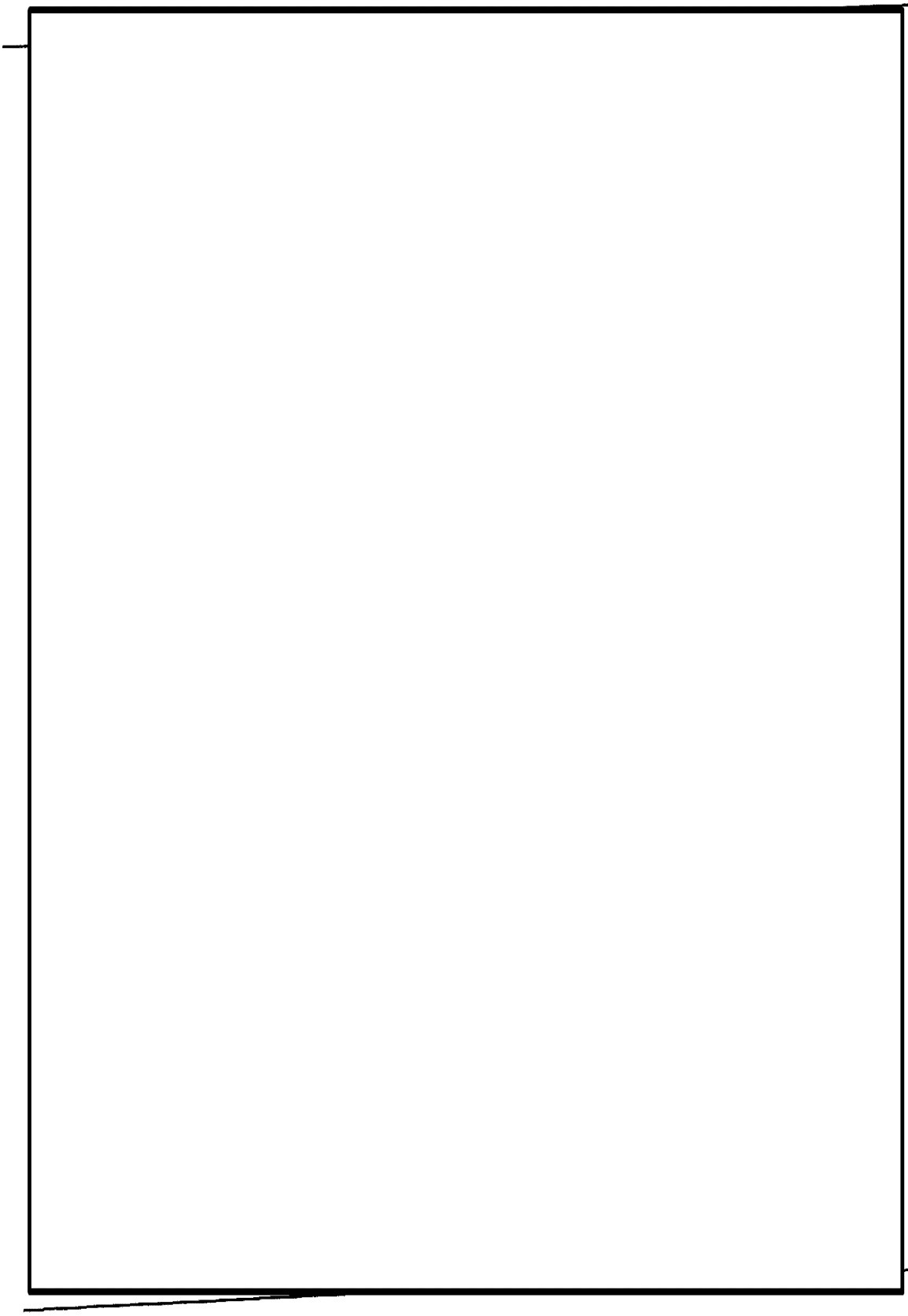
ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8809
Email: info@ryanandchanarchitect.com
Web: www.ryanandchanarchitect.com

DATE	04/01/2014
PROJECT No.	2006
PROJECT MANAGER	RC
DRAWN BY	EC
CADD FILE NO.	35TH AVENUE (2006)

DWG No.
P-016.00
16
108/08 2ND

NYC DOB NO

(b)(4)



No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT. OF BUILDINGS ON
ZONING AND BUILDING CODES

PROJECT
35th AVE./FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11131

DRAWING TITLE
PLUMBING
4TH FLOOR PLAN A

M.E.P. ENGINEER
J.K. ENGINEERING, PLLC
36-21 ROOSEVELT AVE SUITE 201
FLUSHING N.Y. 11354
Tel: (718) 353-8010 Fax: (718) 353-4301

STRUCTURAL ENGINEER
WAI LEUNG P.E.
Tel (917) 5 6-3226 Fax: (718) 894-3016

SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-46 38TH AVENUE FLUSHING, NEW YORK 11354
Tel (718) 445-2345 Fax (718) 359-8696
Email info@parthenonarchitect.com
Web www.parthenonarchitect.com

DATE	06/01/2019 DWG No.
PROJECT No.	2095
PROJECT MANAGER	HC
DRAWN BY	EC
CADD FILE NO.	35th AVENUE 2095

P-017.00
17

N.Y.C. D.O.B. NO

(b)(4)

No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT. OF BLDGS ON
ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
4TH FLOOR PLAN B

M.E.P ENGINEER
EJC ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel. (718) 353-6810 Fax (718) 353-4907

STRUCTURAL ENGINEER
YAU LEUNG W.O.P.E.
Tel (917) 518-0236 Fax (718) 854-0016

SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-46 38th AVENUE FLUSHING, NEW YORK 11354
Tel (718) 445-2345 Fax (718) 358-8659
Email info@genovesebenedetto.com
Web www.genovesebenedetto.com

DATE	04/01/2014 DWG NO
PROJECT No.	2106
PROJECT MANAGER	RG
DRAWN BY	EC
CAD0 FILE NO	35THAVENUE (2106)

P-018.00
18

N.Y.C. DOB NO

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
5TH & 6TH FLOOR PLAN A

M.E.P. ENGINEER
E.I.C. ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8010 Fax: (718) 353-4007

STRUCTURAL ENGINEER

PLAN EXAMINING P.E.
Tel: (917) 515-2259 Fax: (718) 554-4016

SEAL & SIGNATURE

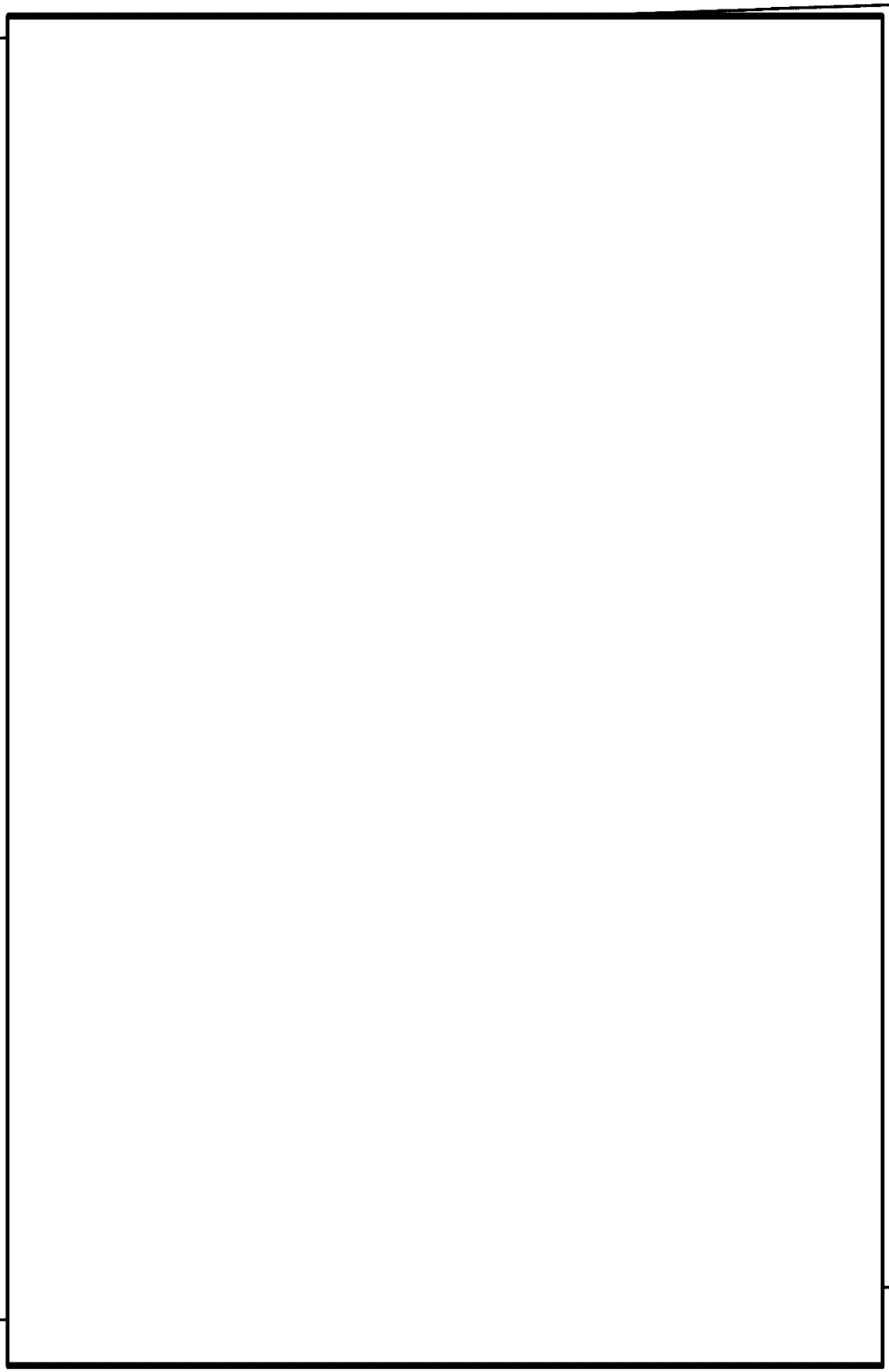
ARCHITECT + PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-9876
Email: mail@oscarchitectsplanners.com
Web: www.oscarchitectsplanners.com

SCALE	DWG NO
PROJECT NO	2006
PROJECT MANAGER	AG
DRAWN BY	EC
CAD FILE NO	19
35TH AVENUE (2006)	

P-019.00

N.Y.C. D.O.B. NO

(b)(4)



NO.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDS ION ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE. FLUSHING NY 11101

DRAWING TITLE
PLUMBING
5TH & 6TH FLOOR PLAN B

M.E.P. ENGINEER
E.K. ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8000 Fax: (718) 353-4007

STRUCTURAL ENGINEER
KWAI LEUNG NG, P.E.
Tel: (917) 519-3226 Fax: (718) 854-0016

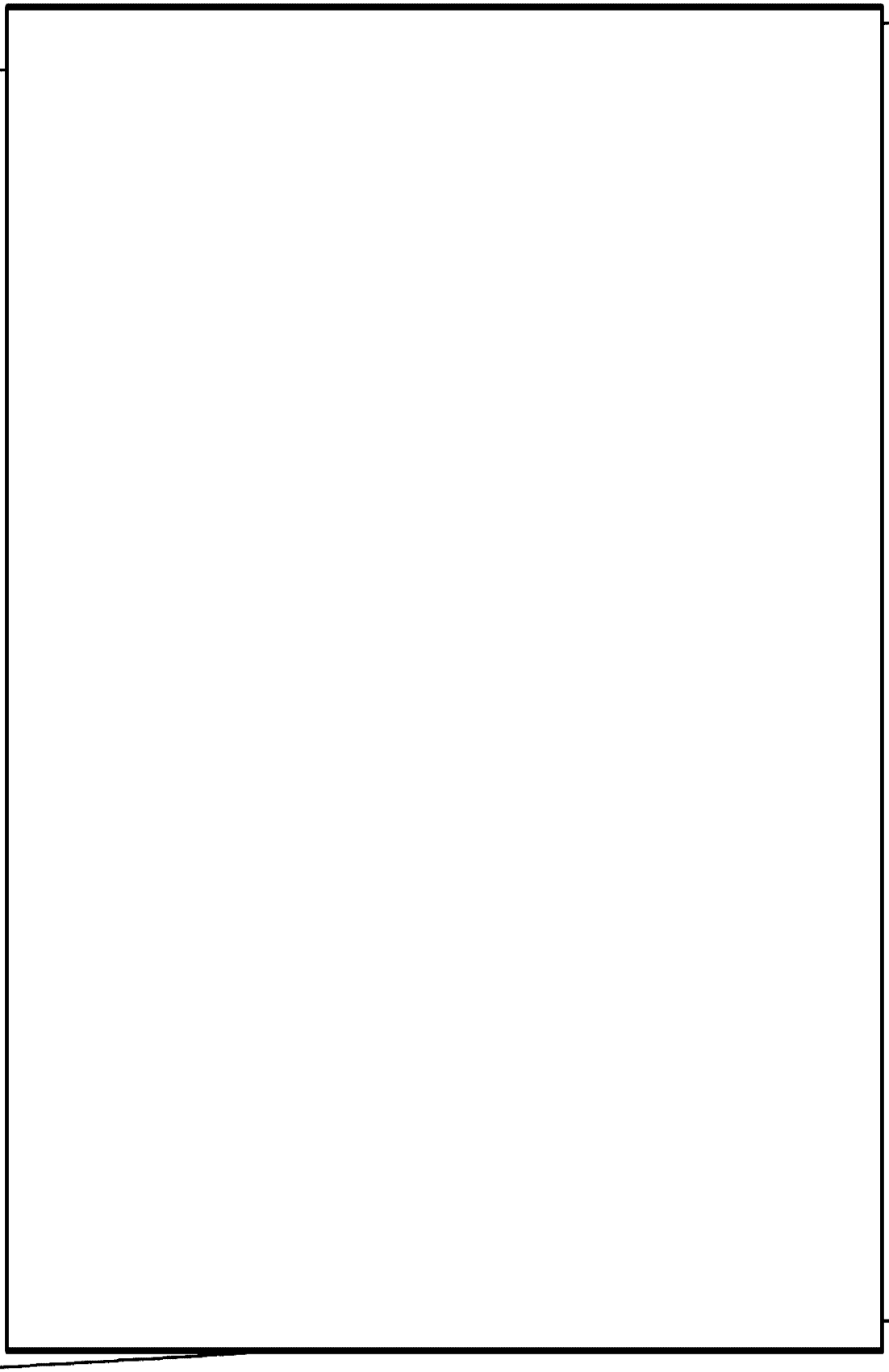
SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8809
Email: info@sanyuldavarchitect.com
WEB: www.sanyuldavarchitect.com

DATE	04/27/2011
PROJECT No.	2045
PROJECT MANAGER	RCA
DRAWN BY	E.C.
CADD FILE NO	35TH AVENUE (2009)
DWG No	P-020.00
	20

N.Y.C. D.O.B. NO.

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
7TH FLOOR PLAN A

M.E.P. ENGINEER
EJK ENGINEERING, PLLC
36-21 ROOSEVELT AVE SUITE 2H
FLUSHING, N.Y. 11 354
Tel: (718) 353-8310 Fax: (718) 353-4301

STRUCTURAL ENGINEER
WAI-LEUNG N.G. P.E.
Tel: (917) 518-3226 Fax: (718) 554-0006

SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-49 39th AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2240 Fax: (718) 353-8695
Email: vk@pranchakornarchitect.com
Web: www.pranchakornarchitect.com

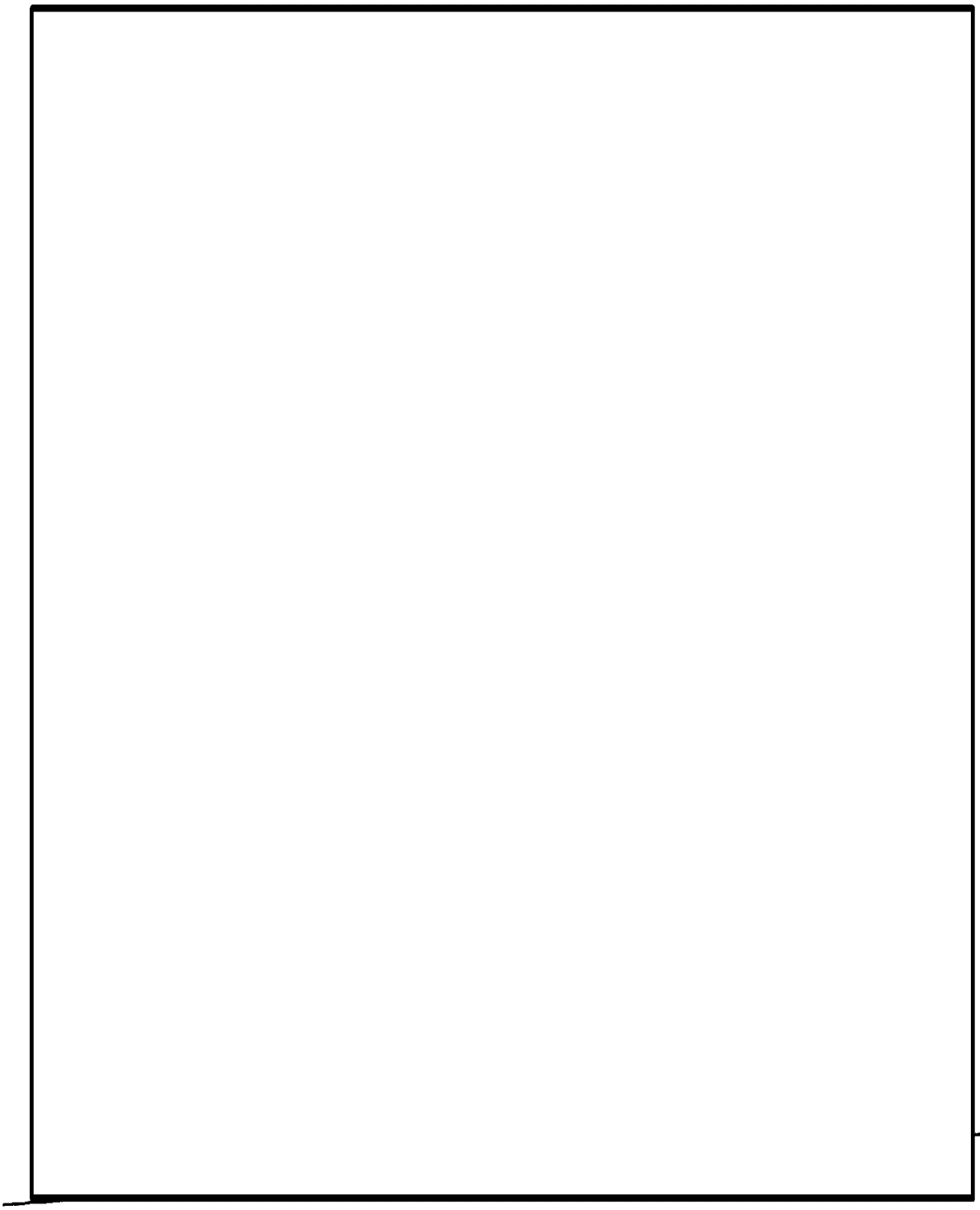
DATE	04/01/2015 DWG No.
PROJECT No.	2015
PROJECT MANAGER	AGA
DRAWN BY	E.S.
CHECKED BY	

P-021.00
21

NYC DOB NO

(b)(4)

No.	DATE	DESCRIPTION



NOTE: THIS IS A SCHEMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT. OF BUILDING
ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
154-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
7TH FLOOR PLAN B

M E P ENGINEER
K.K. ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-5880 Fax: (718) 353-4067

STRUCTURAL ENGINEER
WAI-LEUNG YIU, P.E.
Tel: (917) 518-0255 Fax: (718) 554-0016

SEAL & SIGNATURE

ARCHITECTS & PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-0079
Email: info@grubbarchitect.com
Web: www.grubbarchitect.com

DATE	04/08/14 DWG No.
PROJECT No.	2005 P-022.00
PROJECT MANAGER	RCA
DRAWN BY	E.C.
CAD FILE NO.	22
35TH AVENUE (2005)	SQUARE UNIT

N.Y.C. DOB NO.

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
6TH FLOOR PLAN A

M.E.P. ENGINEER
E.K. ENGINEERING, PLLC
136-31 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8310 FAX: (718) 353-4087

STRUCTURAL ENGINEER
WANG LEUNG KO P.E.
Tel: (917) 545-3226 Fax: (718) 664-3946

SEAL & SIGNATURE

ARCHITECTS • PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK, NY 11354
Tel: (718) 445-2345 Fax: (718) 359-0809
Email: info@wmarchitectsplanners.com
Web: www.wmarchitectsplanners.com

DATE	04/01/2014 DWG NO
PROJECT No.	2005
PROJECT NUMBER BOA	P-023.00
DRAWN BY	EC
CADD FILE NO	23
SET/HANDRUE (DWG)	(SCALE ON)

NYC DOB NO

(b)(4)

No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT. OF BLDGS ON
ZONING AND BUILDING CODES

PROJECT
35th AVE./FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
6TH FLOOR PLAN B

M E P ENGINEER
E.J.C ENGINEERING, PLLC
136-51 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8010 Fax: (718) 353-4027

STRUCTURAL ENGINEER
WANLEUNG NG, P.E
Tel: (917) 518-2224 Fax: (718) 354-8018

SEAL & SIGNATURE

ARCHITECTS & PLANNERS
136-40 39th AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-1945 Fax: (718) 359-8650
Email: info@wyhsiao-architect.com
Web: www.wyhsiao-architect.com

DATE	2/8/2014 DWG No
PROJECT No.	2046
PROJECT MANAGER	RC P-024.00
DRAWN BY	EC
CADD FILE NO	24
RE-SUBMISSION (DOB)	ADDENDUM

NYC DOB NO

(b)(4)

No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT OF BLDGS ON
ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
9TH ~ 13TH FLOOR PLAN A

M.E.P. ENGINEER
E.K. ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 2H
FLUSHING, N.Y. 11354
TEL: (718) 353-8066 Fax: (718) 353-4007

STRUCTURAL ENGINEER
YUAN LEUNG M.E. P.E
Tel: (917) 518-3228 Fax: (718) 894-0018

SEAL & SIGNATURE

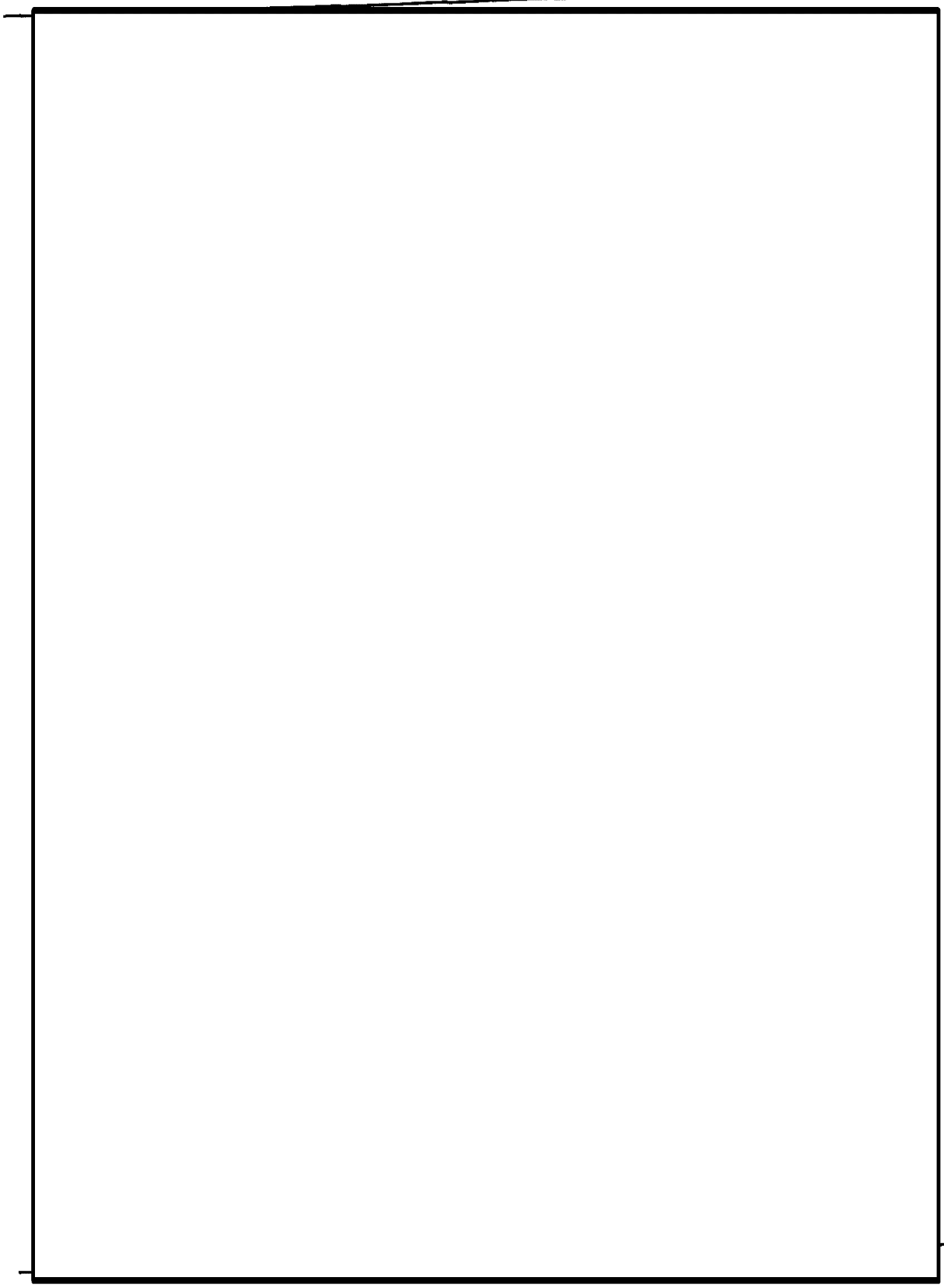
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 353-9889
Email: info@yuandonarchitect.com
Web: www.yuandonarchitect.com

DATE	09/03/2014 DWG NO
PROJECT No.	2006
PROJECT MANAGER	RC
DRAWN BY	EC
CAD FILE NO	
35TH AVENUE (2006)	

P-025.00
25

N/C JOB NO

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDING ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
9TH ~ 13TH FLOOR PLAN B

M E P ENGINEER
E.K. ENGINEERING, PLLC
138-31 ROOSEVELT AVE SUITE 2H
FLUSHING, N.Y. 11354
Tel: (718) 353-8010 Fax: (718) 353-4007

STRUCTURAL ENGINEER
KAI LEUNG NG, P.E.
Tel: (917) 519-3234 Fax: (718) 854-0015

SEAL & SIGNATURE

ARCHITECTS + PLANNERS
138-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8838
Email: mc@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE	04/17/2014 DWG No.
PROJECT No.	2005
PROJECT MANAGER	RCA
DRAWN BY	EC
CAD FILE NO.	35TH AVENUE (2014)

P-026.00
26

NYC DOB NO

(b)(4)

No.	DATE	DESCRIPTION

NOTE THIS S/A SCHEMATIC DESIGN IS SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDINGS ZONING AND BUILDING CODES

PROJECT
35th AVE./FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11354

DRAWING TITLE
PLUMBING
15TH (ACTUAL 14TH) FLOOR PLAN A

M.E.P. ENGINEER
E.N.G. ENGINEERING, PLLC
136-20 ROOSEVELT AVE S.STE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8010 Fax: (718) 353-4307

STRUCTURAL ENGINEER
YU KEUNG NG, P.E.
Tel: (917) 518-2258 Fax: (718) 358-9015

SEAL & SIGNATURE

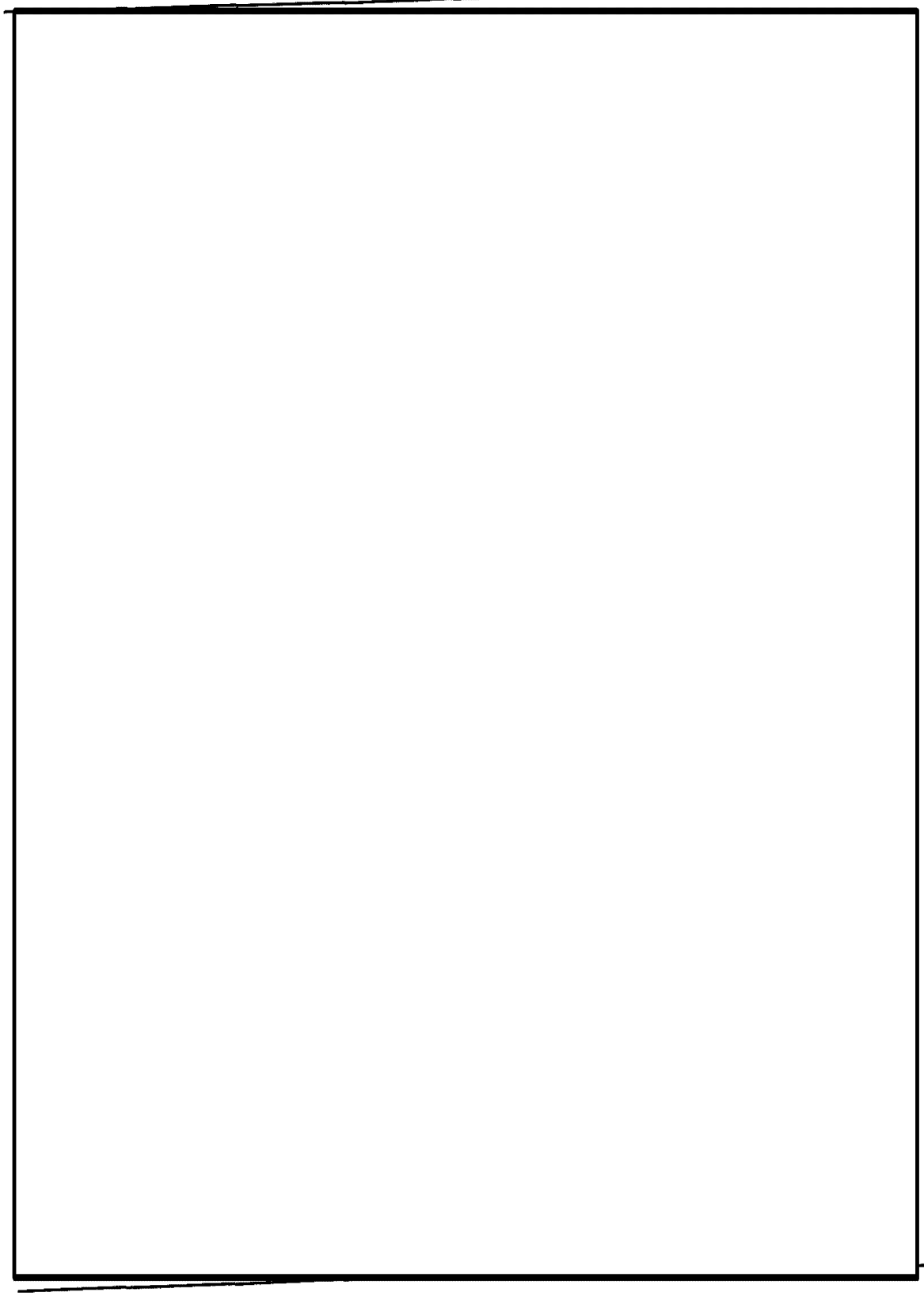
ARCHITECTS + PLANNERS
136-46 38TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2360 Fax: (718) 358-8689
Email: JTC@jtcarchitectsandplanners.com
Web: www.jtcarchitectsandplanners.com

DATE	08/01/2014
PROJECT No.	2006
PROJECT MANAGER	P.C.
DRAWN BY	E.C.
CADD FILE NO.	

DWG No.
P-027.00
27
ISSUE DAY

N.Y.C. DOB NO

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDING ZONING AND BUILDING CODES

PROJECT
35th AVE / FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11 01

DRAWING TITLE
PLUMBING
15TH (ACTUAL 14TH) FLOOR PLAN B

M.E.P. ENGINEER
EJC ENGINEERING, PLLC
135-21 ROOSEVELT AVE SUITE 311
FLUSHING N.Y. 11354
Tel: (718) 353-8413 Fax: (718) 357-4907

STRUCTURAL ENGINEER
YAN LEUNG NG, P.E.
Tel: (917) 518-3228 Fax: (718) 854-3018

SEAL & SIGNATURE

ARCHITECTS & PLANNERS
135-40 38TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-3345 Fax: (718) 359-8838
Email: rna@rennandassociates.com
Web: www.rennandassociates.com

DATE: 04/01/2014 DWG No:
PROJECT No: 2105
PROJECT MANAGER: RCA P-028.00
DRAWN BY: EC
CADD FILE NO: 35THAVENUE (2105) 28

N.Y.C. DOE NO:

(b)(4)

No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN
& SHALL BE SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT OF BLDGS ON
ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
133-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
16TH (ACTUAL 15TH) FLOOR PLAN A

M.E.P. ENGINEER
E&C ENGINEERING, PLLC
136-20 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8012 Fax: (718) 353-4067

STRUCTURAL ENGINEER
PLUMBING, P.E.
Tel: (917) 514-2206 Fax: (718) 854-0018

SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-18 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 358-9876
Email: info@gruzensamton-architect.com
Web: www.gruzensamton-architect.com

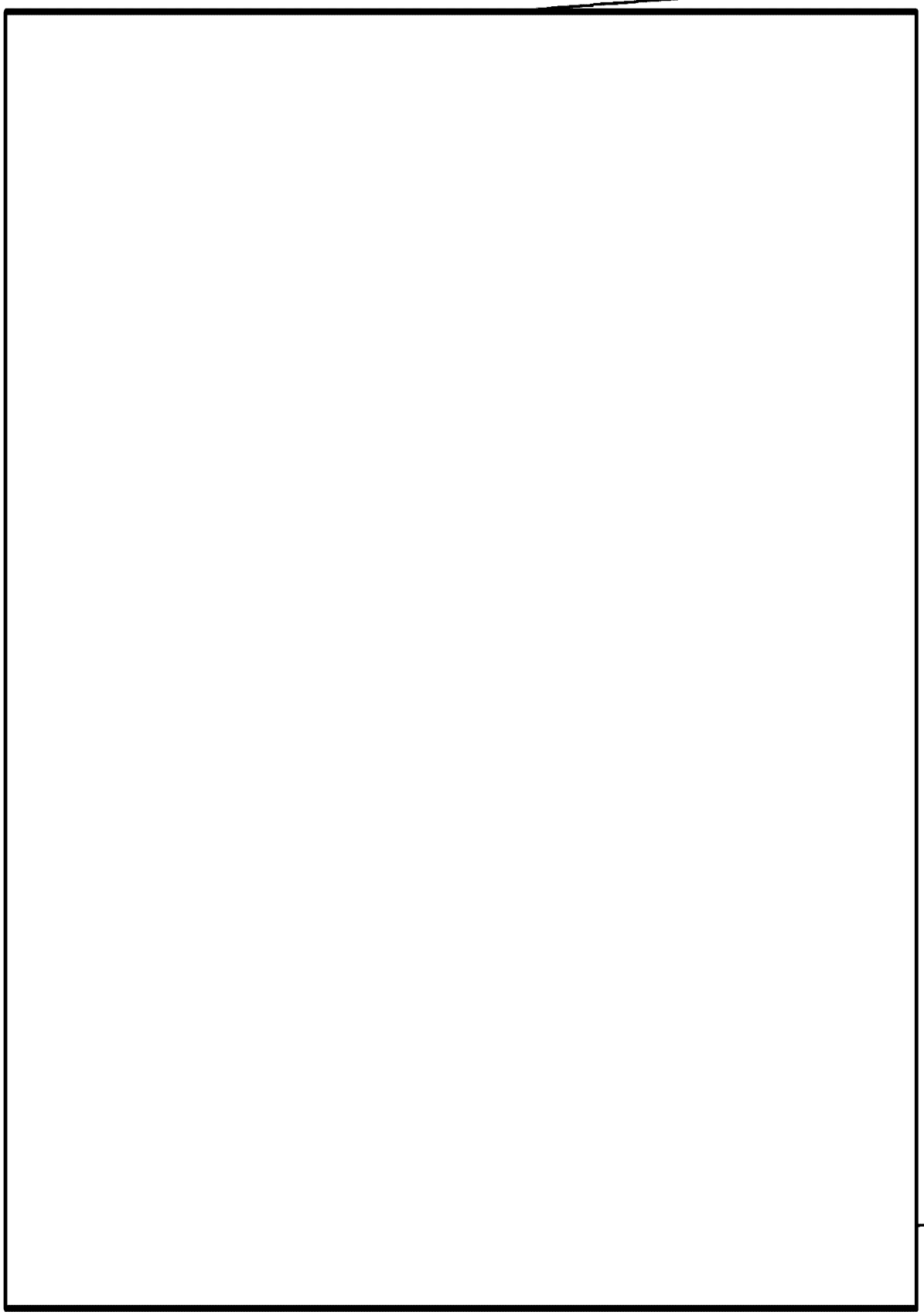
DATE	06/01/2014
PROJECT No.	2046
PROJECT MANAGER	RCA
DRAWN BY	E.C.
CADD FILE NO.	
35THAVENUE (ZONE)	

DWG No
P-029.00
29

NYC DOB NO

(b)(4)

No.	DATE	DESCRIPTION



NOTE THIS IS A SCHEMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT OF BLDGS ON
ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11 101

DRAWING TITLE
PLUMBING
16TH (ACTUAL 15TH) FLOOR PLAN B

M.E.P. ENGINEER
K.K.ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 211
FLUSHING N.Y. 11354
Tel: (718) 353-8040 Fax: (718) 353-4047

STRUCTURAL ENGINEER
YANJUN NG, P.E
Tel: (917) 518-3288 Fax: (718) 554-9076

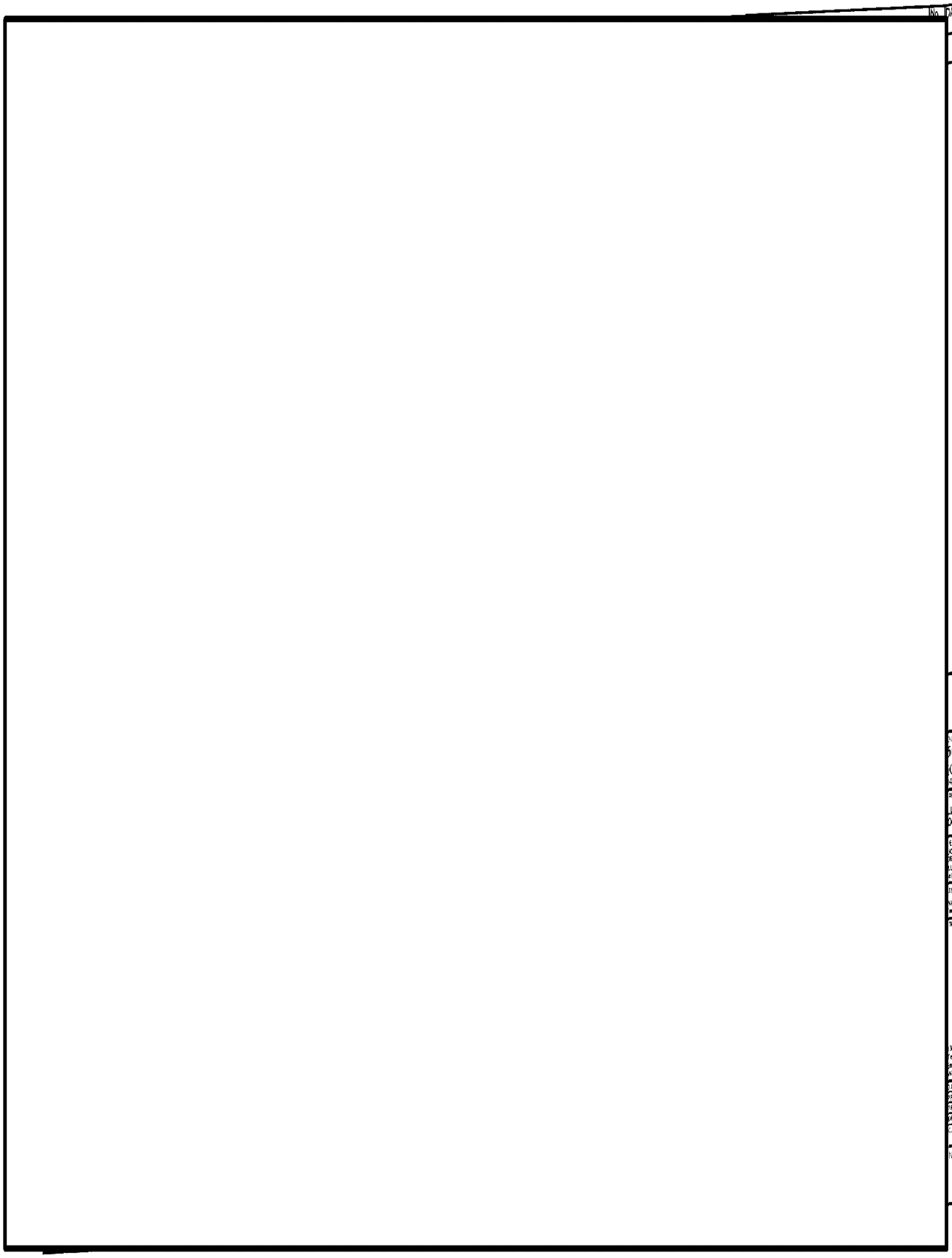
SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-43 39TH AVENUE FLUSHING NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-9876
Email: vk@vkan-architectural.com
Web: www.vkandarchitectural.com

DATE	08/01/2014	DWG No
PROJECT No.	2045	P-030.00
PROJECT MANAGER	RCA	
DRAWN BY	E.C.	30
CADD FILE NO.	2014-08-08 (2045)	SHEET NO.

NYC DOB NO

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
5th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
43-37 58TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
ROOF PLAN A

M.E.P. ENGINEER
M.E. ENGINEERING, PLLC
35-41 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
tel: (718) 353-5200 Fax: (718) 353-4307

STRUCTURAL ENGINEER
KAILEUNG WAI, P.E.
tel: (917) 519-0238 Fax: (718) 664-0016

SEAL & SIGNATURE

ARCHITECTS & PLANNERS
35-41 58th AVENUE FLUSHING NEW YORK 11354
Tel (718) 445-2345 Fax (718) 359-8058
email mail@sylvanbarnard.com
Web www.sylvanbarnard.com

DATE	2/20/2014 DWG No
PROJECT No.	2006
PROJECT MANAGER	RDA P-031.00
DRAWN BY	EC
CADD FILE NO	31
1ST SUBMISSION (ZONE)	SUBMISSION

NYC DOB NO

(b)(4)

No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETAT ON BY NYC DEPT OF BLDG S ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
104-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
ROOF PLAN B

M.E.P. ENGINEER
BJC ENGINEERING, PLLC
136-24 ROOSEVELT AVE. SUITE 2H
FLUSHING, N.Y. 11354
Tel: (718) 353-6310 Fax: (718) 353-4067

STRUCTURAL ENGINEER
KAMLESH NG, P.E
Tel: (917) 518-3236 Fax: (718) 664-3018

SEAL & SIGNATURE

ARCHITECTS & PLANNERS
146-46 10TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 353-8586
Email: nyc@nyndmarchitect.com
Web: www.nyndmarchitect.com

DATE	04/01/2014
PROJECT No.	2106
PROJECT MANAGER	RCA
DRAWN BY	E.C.
CADD FILE NO.	
15TH AVENUE (ZONE)	

DWG No
P-032.00
32

NYC DOB NO

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
104-37 36TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
PART PLANS-I

M.E.P. ENGINEER
E.K.ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 2H
FLUSHING, N.Y. 11354
Tel: (718) 353-6010 Fax: (718) 353-4007

STRUCTURAL ENGINEER
WAI-LEUNG, P.E
Tel: (917) 518-1226 Fax: (718) 854-0816

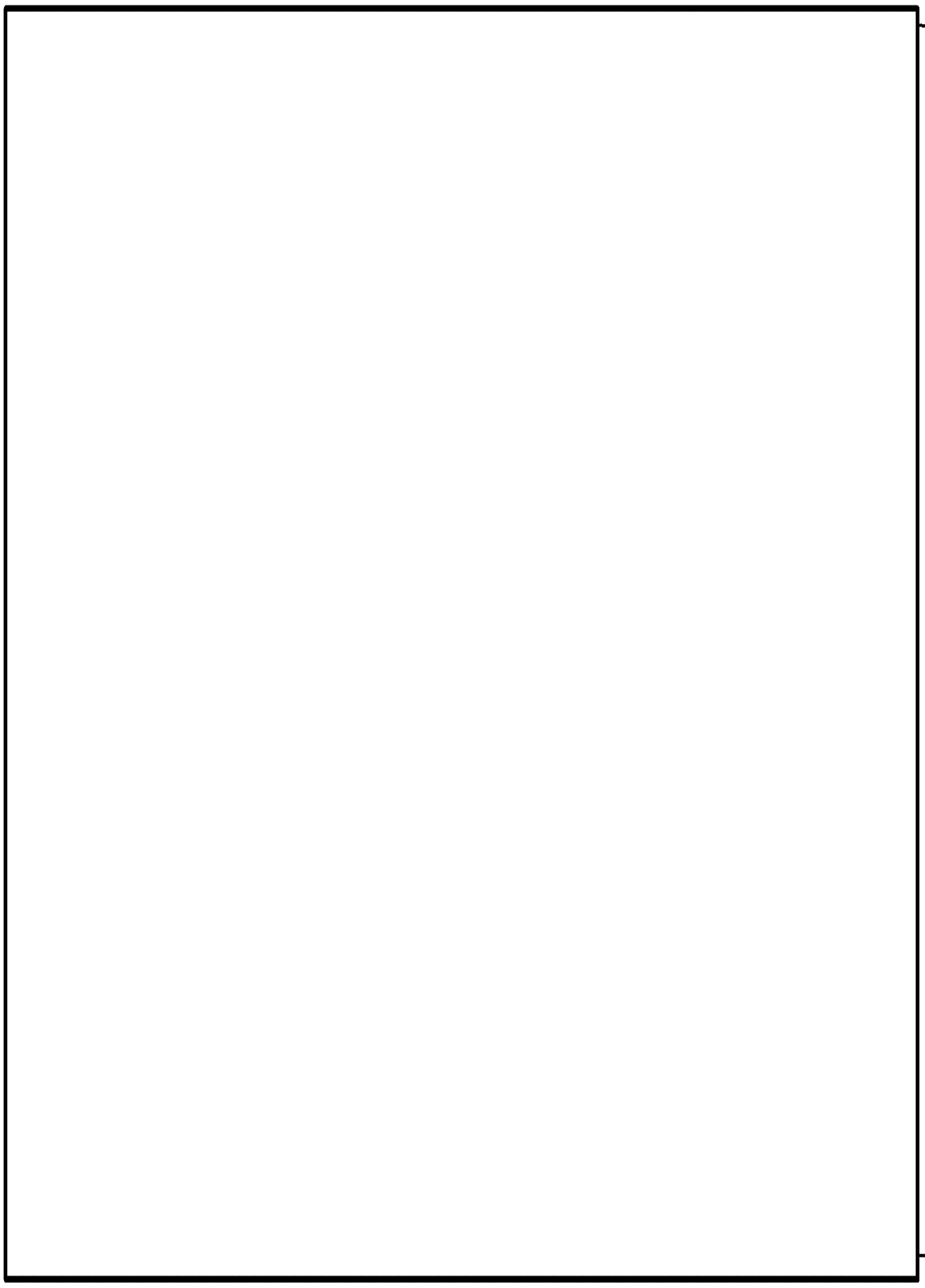
SEAL & SIGNATURE

ARCHITECTS + PLANNERS
108-41 38TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-9826
Email: ltl@yuandtanarchitect.com
Web: www.yuandtanarchitect.com

DATE	06/07/21 DWG NO
PROJECT No.	2006 P-033.00
PROJECT MANAGER	KC
DRAWN BY	EC
CADD FILE NO	33
35TH AVENUE (2006)	

NYC DOB NO

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDING ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-51 35TH AVE, FLUSHING NY 11101

DRAWING TITLE
PLUMBING
PART PLAN-II

M E P ENGINEER
E.K.ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-8810 Fax: (718) 353-4667

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WAI LEUNG NG, P.E.
Tel: (917) 518-3328 Fax: (718) 854-0076

SEAL & SIGNATURE

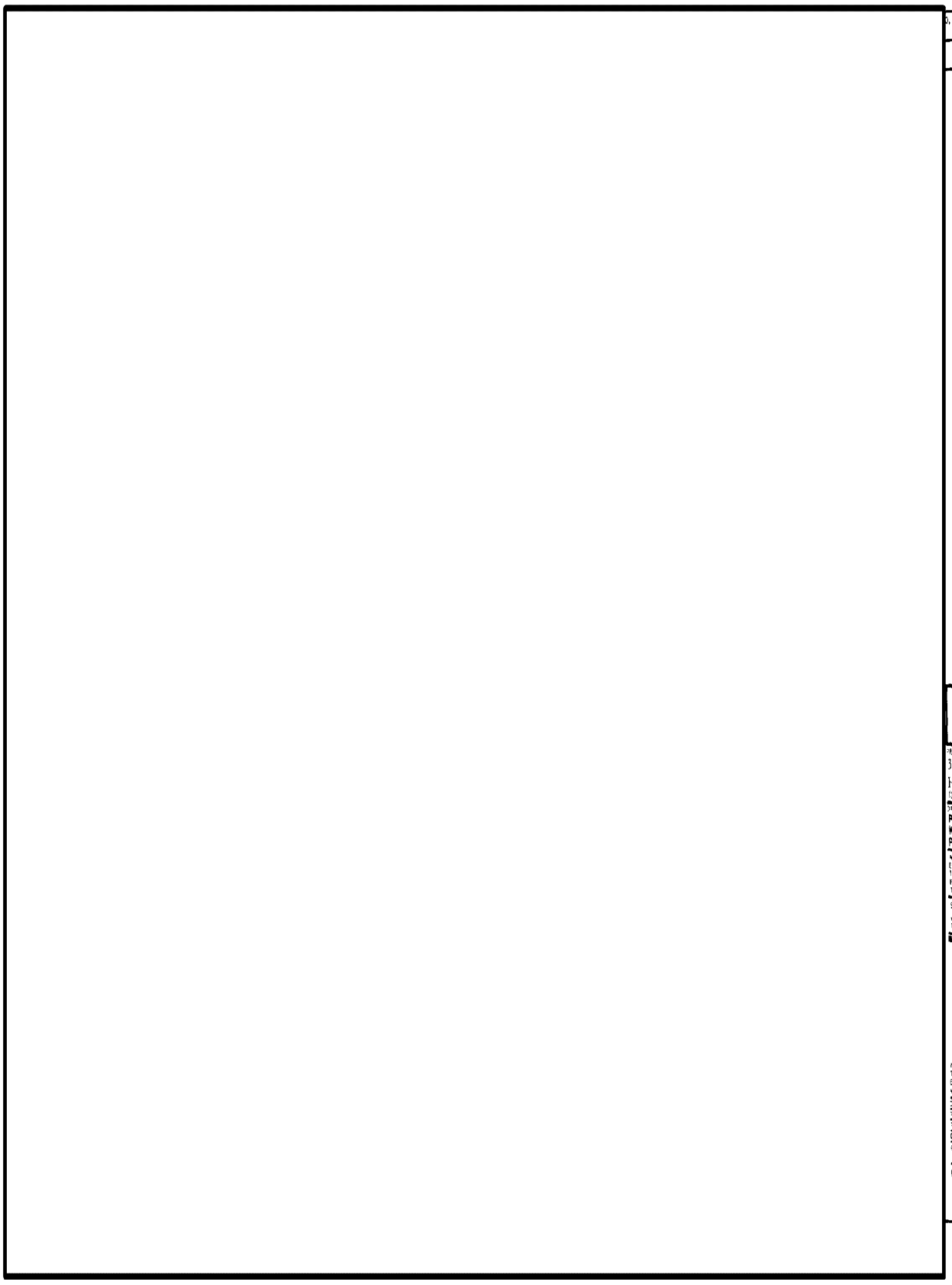
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (212) 359-0999
Email: info@yyarchitects.com
www.yyarchitects.com

DATE	04/02/2014
PROJECT No.	2045
PROJECT MANAGER	MCA
DRAWN BY	E.C.
CAD FILE NO.	35th AVENUE (2045)

DWG No.
P-034.00
34

NYC DOB NO.

(b)(4)



NO.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BUILDING ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
WATER RISER DIAGRAM
PART A

M.E.P. ENGINEER
PJC ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 211
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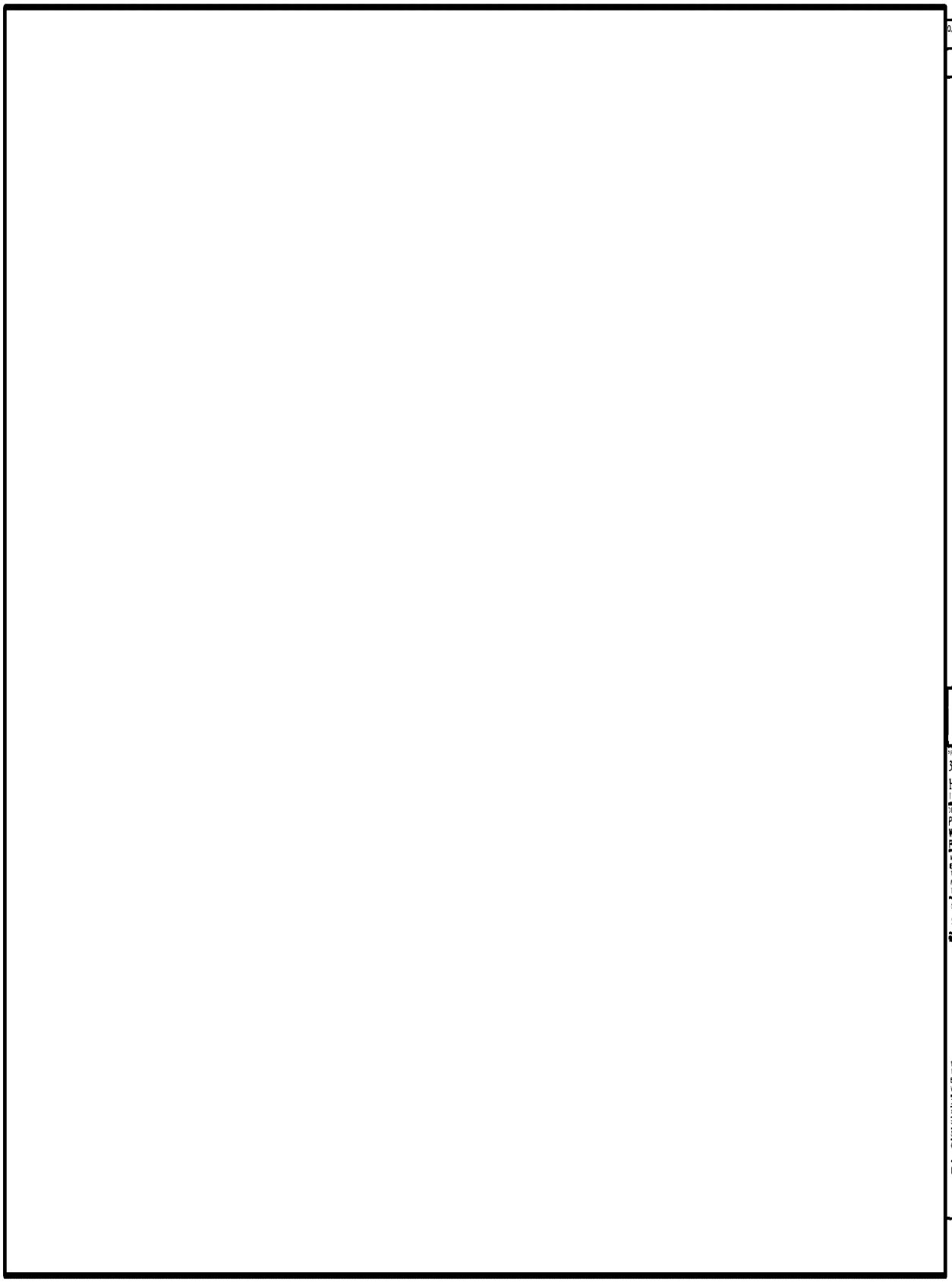
SEAL & SIGNATURE

ARCHITECT & PLANNER
138-40 39th AVENUE FLUSHING NEW YORK 11354
Tel (718) 445-2345 Fax (718) 359-9899
Email raj@ajmarchitect.com
web www.rajmarchitect.com

DATE	05/01/2014 DWG NO
PROJECT No.	2005 P-035.00
PROJECT MANAGER	RCA
DRAWN BY	EC
CAD FILE NO.	35
35TH SHEALE (2005)	

NYC DOB NO

(b)(4)



NO.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT. OF BUILDINGS
ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35th AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
WATER RISER DIAGRAM
PART B

M.E.P. ENGINEER
E.K. ENGINEERING, PLLC
136-21 NORTHERN BLVD SUITE 2H
FLUSHING, N.Y. 11354
Tel: (718) 353-8000 Fax: (718) 353-8007

STRUCTURAL ENGINEER
ANA LELING NG, P.E.
Tel: (917) 519-5226 Fax: (718) 854-6014

SEAL & SIGNATURE

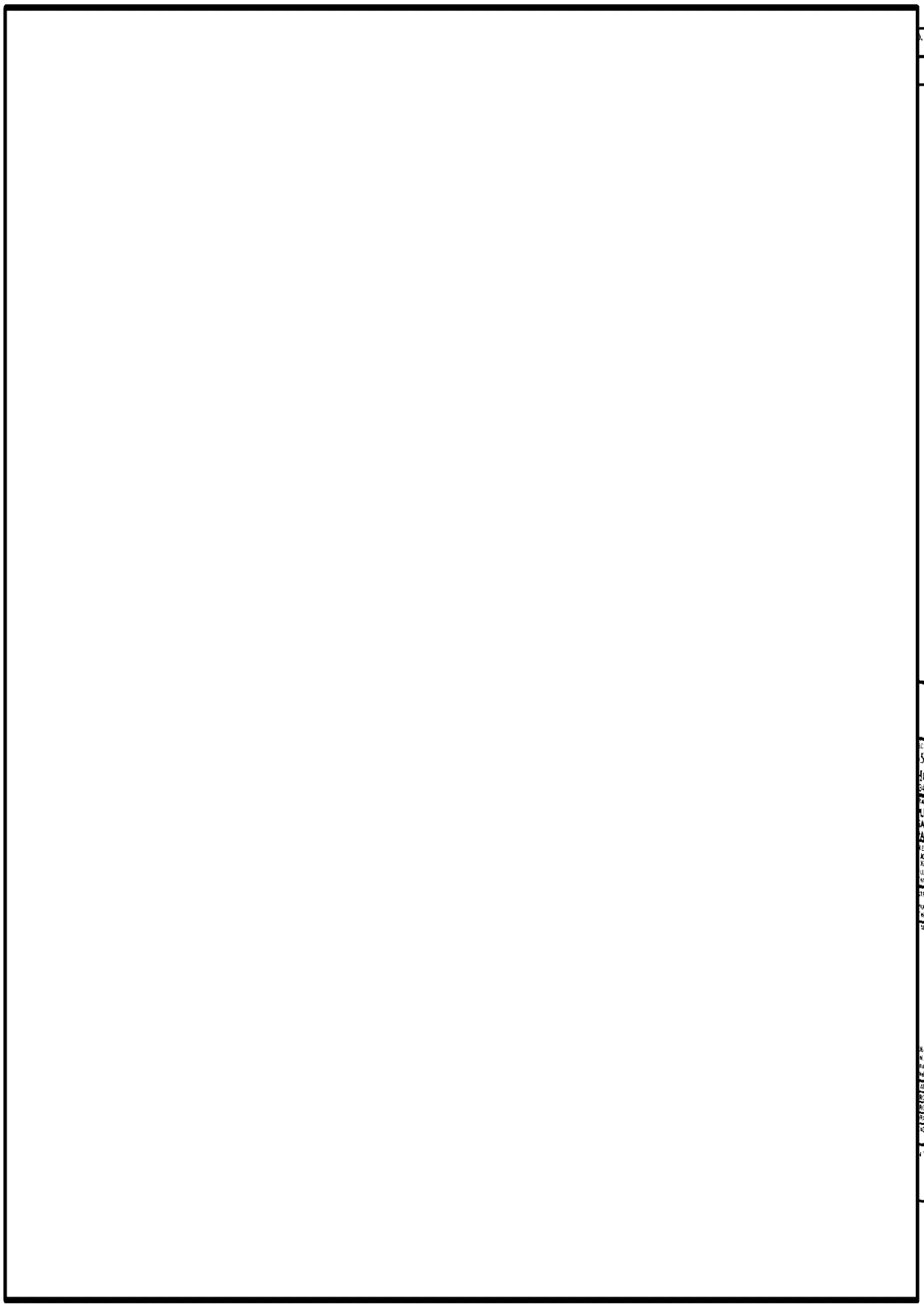
ARCHITECTS & PLANNERS
136-40 39th AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8859
Email: info@jhyconstantarchitect.com
Web: www.jhyconstantarchitect.com

DATE	04/08/2014
PROJECT No.	2086
PROJECT MANAGER	JC
DRAWN BY	E.C
CADD FILE NO.	35TH AVENUE (2086)

DWG NO.
P-036.00
36
SCALE: NONE

N.Y.C. DOB NO.

(b)(4)



NO.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDING ZONING AND BUILDING CODES

SUBJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
34-37 35TH AVE FLUSHING NY 11110

DRAWING TITLE
PLUMBING
SANITARY RISER DIAGRAM
PART A

M.E.P. ENGINEER
JC ENGINEERING, PLLC
[illegible]
FLUSHING, N.Y. 11354
Tel: (718) 353-4010 Fax: (718) 353-4007

STRUCTURAL ENGINEER
[illegible]
Tel: (917) 518-3235 Fax: (718) 854-3019

SEAL & SIGNATURE

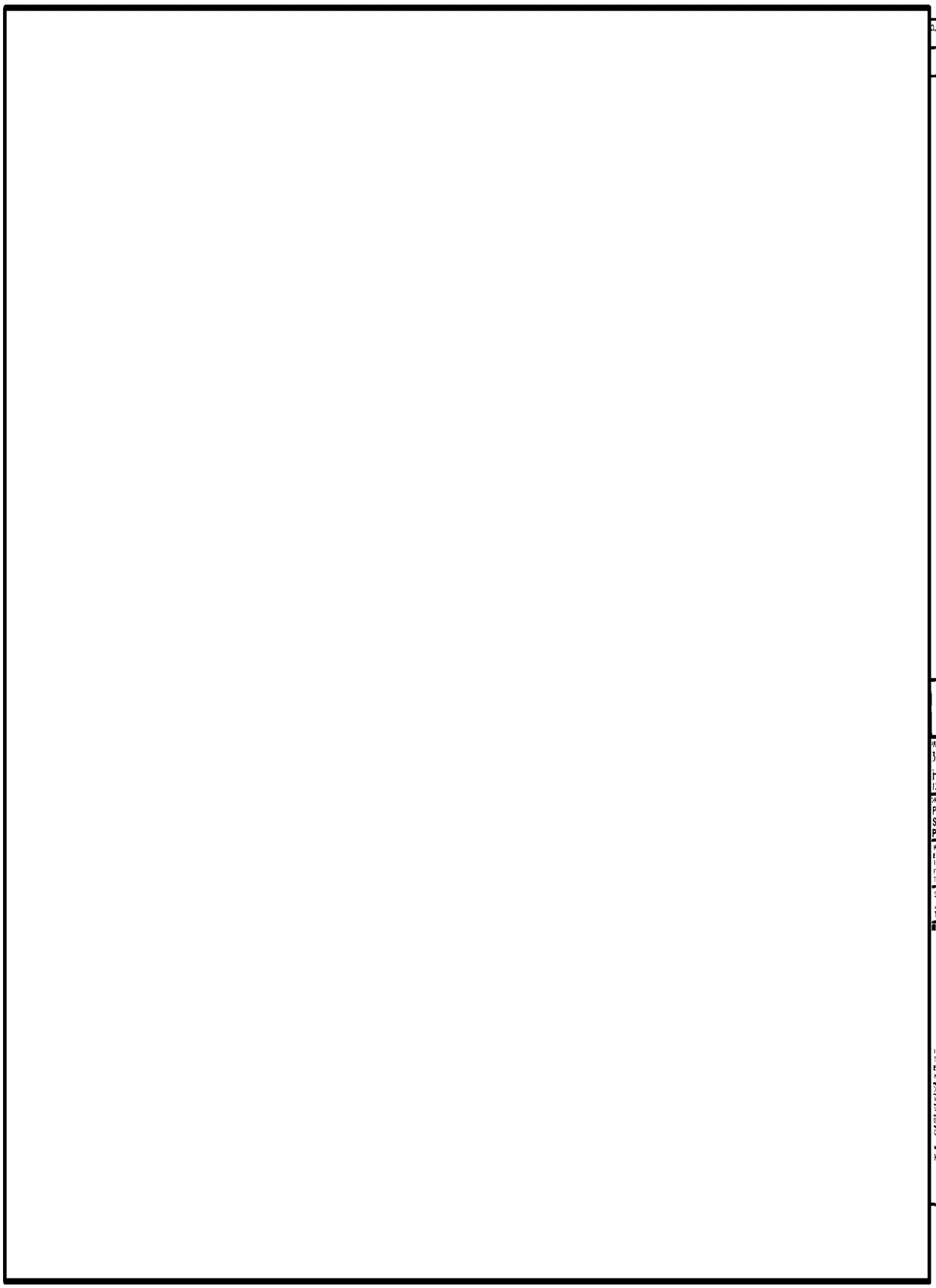
[illegible]
FLUSHING, NEW YORK 11354
Tel: (718) 445-5745 Fax: (718) 359-6686
Email: [illegible]
Web: [illegible]

DATE	05/01/2014
PROJECT No.	2014
PROJECT MANAGER	JC
DRAWN BY	K.C.
ADD FILE NO	35TH AVENUE (2014)

DWG No.
P-037.00
37

NYC DOB NO.

(b)(4)



NO.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE, FLUSHING NY 1110

DRAWING TITLE
PLUMBING
SANITARY RISER DIAGRAM
PART B

M E P ENGINEER
K.K. ENGINEERING, PLLC
136-21 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 395-8003 Fax: (718) 353-4807

STRUCTURAL ENGINEER
ANJUELING NG, P.E
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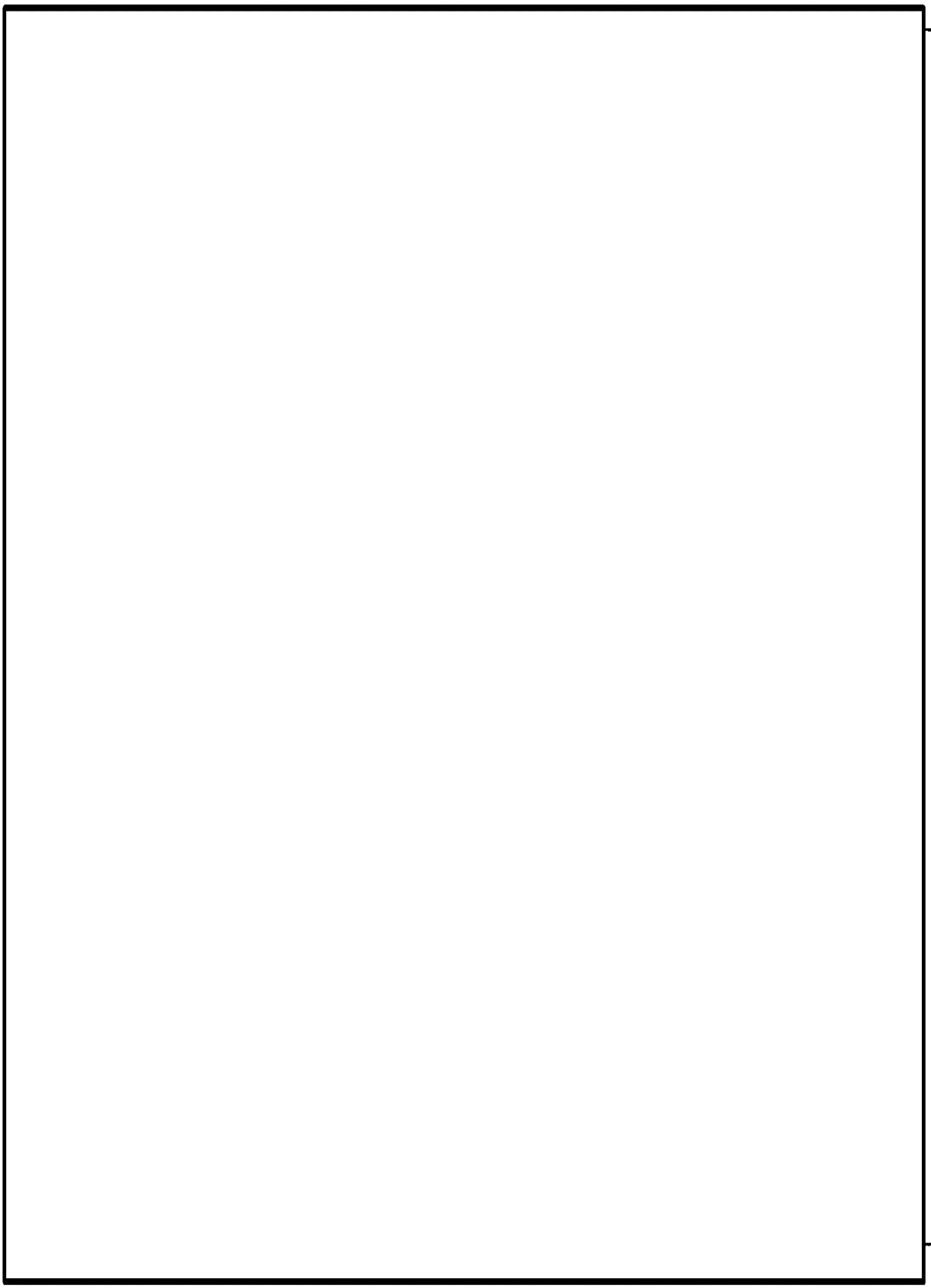
SEAL & SIGNATURE

ARCHITECTS + PLANNERS
138-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-6909
Email: info@jasonchanarchitect.com
Web: www.jasonchanarchitect.com

DATE	04/01/2014 DWG No
PROJECT NO.	2045 P-038.00
PROJECT MANAGER	MA
DRAWN BY	S.C
CAD FILE NO.	38
35TH AVENUE (2045)	

NYC DOB NO

(b)(4)



No.	DATE	DESCRIPTION

NOTE THIS IS A SCHEMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT. OF BLDGS ON
ZONING AND BUILDING CODES

PROJECT
35th AVE./FARRINGTON ST
HOTEL DEVELOPMENT
154-37 35TH AVE FLUSHING NY 11701

DRAWING TITLE
PLUMBING
SANITARY RISER DIAGRAM
PART C

M.E.P. ENGINEER
EJC ENGINEERING, PLLC
136-24 ROOSEVELT AVE SUITE 207
FLUSHING, N.Y. 11354
Tel: (718) 353-1388 Fax: (718) 353-4017

STRUCTURAL ENGINEER
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SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-42 38th AVENUE FLUSHING NEW YORK, NY 354
Tel: (718) 445-2345 Fax: (718) 353-6008
Email: wai@yyai-sangarchitect.com
Web: www.yyai-sangarchitect.com

DATE	09/17/2014
PROJECT No.	2014
PROJECT MANAGER	AGA
DRAWN BY	EC
CAD FILE NO	35THAVENUE (2014)

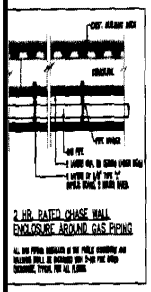
DWG. NO
P-039.00

39
SHEET NO.

NYC DOB NO

(b)(4)

No.	DATE	DESCRIPTION



2 HR. RATED CHASE WALL ENCLOSURE AROUND GAS PIPING

GAS SERVICE NOTES:

GAS PIPING SIZING NOTES:

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS O/V ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
136-37 35TH AVE FLUSHING NY 11107

DRAWING TITLE
PLUMBING
GAS RISER DIAGRAM

M E P ENGINEER
EJC ENGINEERING, PLLC
136-24 ROOSEVELT AVE SUITE 211
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STRUCTURAL ENGINEER
ANALEDNO, P.E.
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SEAL & SIGNATURE

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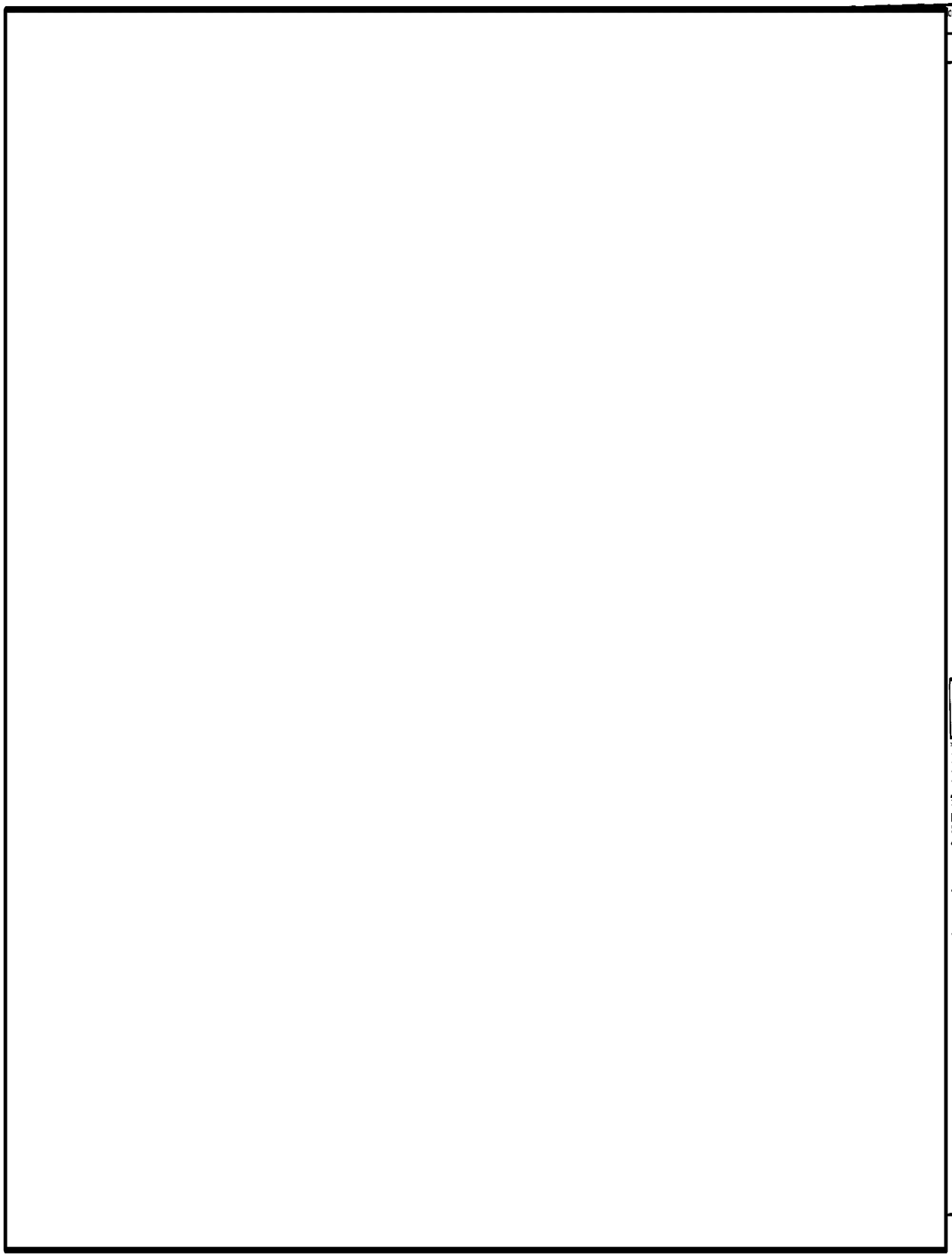
136-41 35TH AVENUE FLUSHING, NEW YORK 11354
TEL (718) 445-2745 FAX (718) 353-8039
E-mail xxx@xxx.xxxxxxxxxx.com
Web www.xxxxxxxxxxxxx.com

DATE	DRAWING No
PROJECT No.	2016 P-040.00
PROJECT MANAGER	FCA
DRAWN BY	EC
CADD FILE NO.	40
SET ISSUE/WORK	SHEET NO.

NYC DOB NO

(b)(4)



NO.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BUILDS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
34-ST 35TH AVE -FLUSHING NY 11101

DRAWING TITLE
PLUMBING
STORM RISER DIAGRAM

M.E.P. ENGINEER
R.K. ENGINEERING PLLC
136-71 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
Tel: (718) 353-6810 Fax: (718) 561-4067

STRUCTURAL ENGINEER
H.M. LEUNG P.E
Tel: (917) 548-5235 Fax: (718) 854-2018

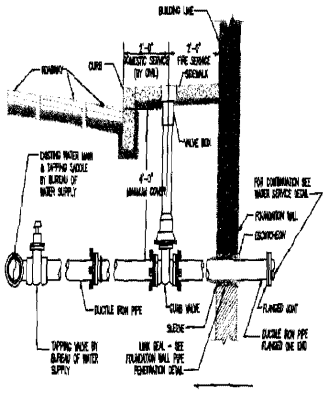
SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8696
Email: rob@oshinvocational-architect.com
Web: www.oshinvocational-architect.com

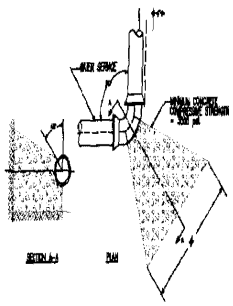
DATE	09/01/2014 DWG. No.
PROJECT No.	2045 P-041.00
PROJECT MANAGER	ROA
DRAWN BY	E.C.
CADD FILE NO.	35TH AVENUE (2045) 41

N.T.C. DOB NO.

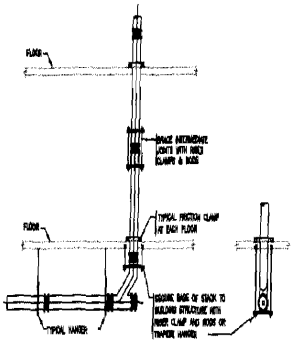
No.	DATE	DESCRIPTION



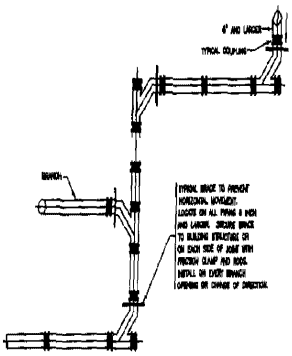
1 DOMESTIC/FIRE SERVICE DETAIL
N.T.S.



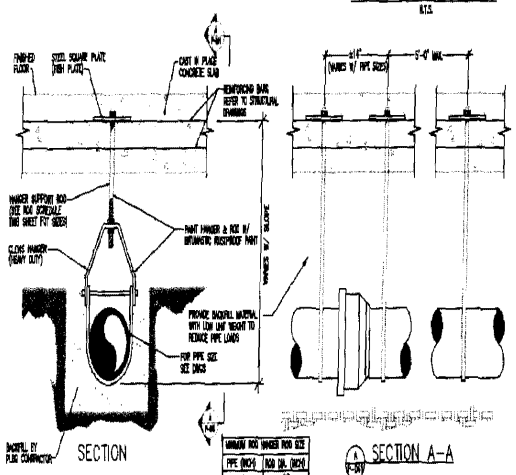
2 WATER SERVICE CONCRETE THRUST BLOCK DETAILS
N.T.S.



3 HUBLESS PIPE BRACING FOR VERTICAL PIPING
N.T.S.

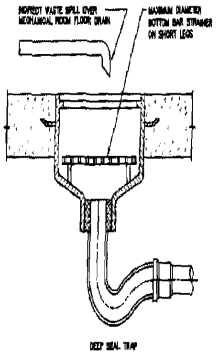


4 HUBLESS PIPE BRACING LOCATION FOR HORIZONTAL PIPING
N.T.S.

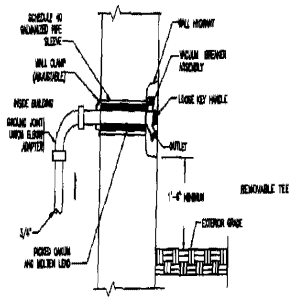


MINIMUM ROD HANGER ROD SIZE	
PIPE (INCH)	ROD DIA. (INCH)
2"	1/2"
3"	1/2"
4"	5/8"
6"	3/4"
10"	7/8"
12"	7/8"
16"	1"

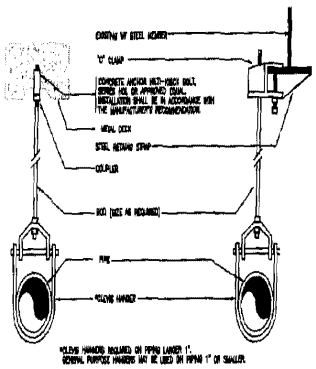
5 TYPICAL UNDERGROUND PIPE SUPPORT DETAIL
N.T.S.



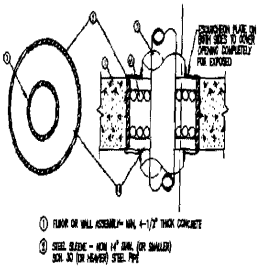
6 TYPICAL MECHANICAL ROOM FLOOR DRAIN FOR INDIRECT WASTE
N.T.S.



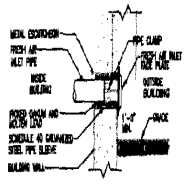
7 WALL HYDRANT DETAIL
N.T.S.



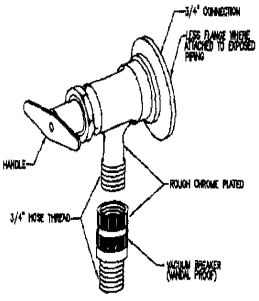
8 TYPICAL HANGER DETAIL
N.T.S.



9 PIPE SLEEVE THRU RATED WALL
N.T.S.



10 FRESH AIR INLET
N.T.S.



11 HOSE BIBB DETAIL
N.T.S.

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BUILDINGS ZONING AND BUILDING CODES

PROJECT:
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
DETAIL SHEET NO. 1

M.E.P. ENGINEER
B.K. ENGINEERING, PLLC
160-11 ROOSEVELT AVE SUITE 211
FLUSHING, N.Y. 11354
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STRUCTURAL ENGINEER
WHALEN ING. P.E.
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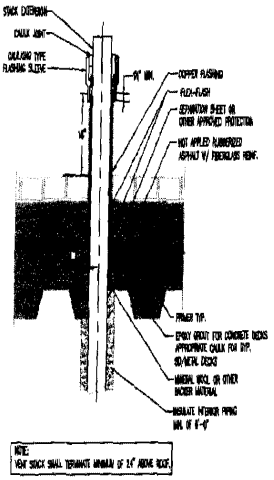
SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-49 39TH AVENUE FLUSHING, NEW YORK 11354
Tel. (718) 445-2345 Fax. (718) 359-8836
Email: mail@cybulskiarchitect.com
Web: www.cybulskiarchitect.com

DATE	04/17/2014
PROJECT No.	2016
PROJECT MANAGER	RCA
DRAWN BY	S.C.
CAD FILE NO.	P-042.00
SHEET NO.	42

NYC DOB NO.

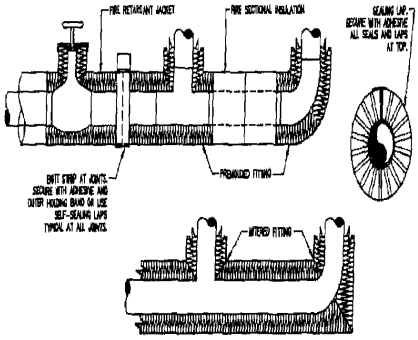
NO.	DATE	DESCRIPTION



1 TYPICAL DETAIL OF PIPE THRU ROOF
N.T.S.

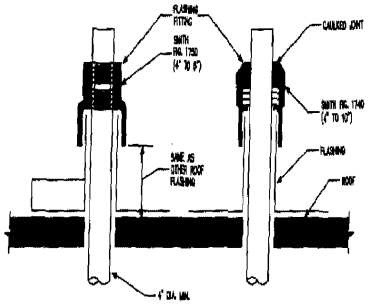
CONCEALED VALVES AND FITTINGS
- WRAP WITH 1 INCH THICK, 1 POUND DENSITY TO REQUIRED PIPE INSULATION THICKNESS.
- SECURE WITH WIRE OR TAPE.
- VAPOR SEAL COLD WATER AND STORM.

EXPOSED VALVES AND FITTINGS
- PREMOLDED FIBERGLASS OR RADIAL MITERED PIPE INSULATION.
- SKIM COAT OF INSULATION CEMENT.
- COAT OF MASTIC.
- WRAP WITH FIBERGLASS REINFORCING CLOTH.
- FINISH COAT OF MASTIC.
- OVERLAP 2 INCHES ON PIPE INSULATION.

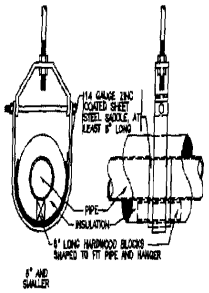


2 INSULATION OF PIPING VALVE AND FITTINGS DETAIL
N.T.S.

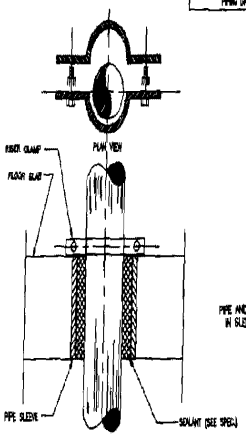
DOMESTIC HOT WATER PIPING INSULATION SHALL BE AS FOLLOWS:
PIPING DIA. LESS THAN 1¼" = 1.0"
PIPING DIA. 1¼" AND GREATER = 1.5"



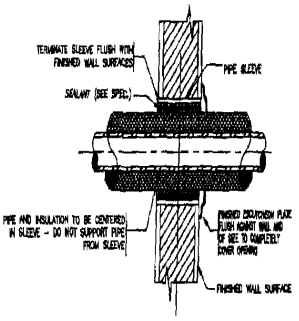
3 DETAIL OF FLASHING FITTINGS FOR PIPES THRU ROOF
N.T.S.



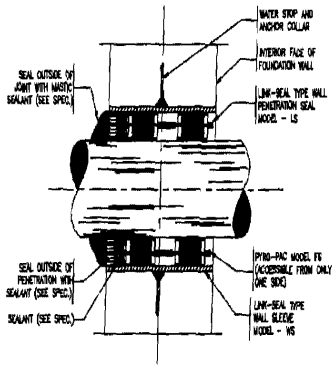
4 INSTALLATION DETAIL AT HANGER
N.T.S.



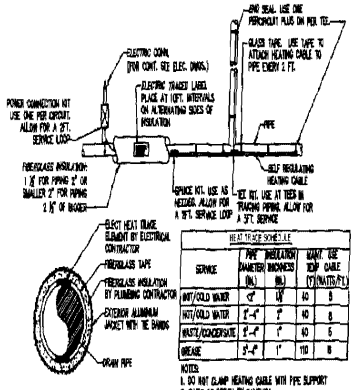
5 PIPE SLEEVE THRU FLOOR SLAB
N.T.S.



6 PIPING SLEEVE THRU INTERIOR WALL
N.T.S.



7 PIPING SLEEVE THRU EXTERIOR FOUNDATION WALL DETAIL
N.T.S.



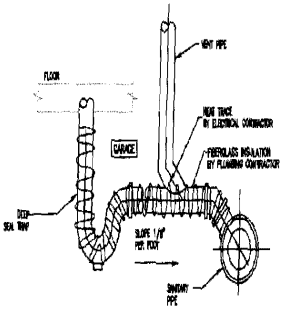
HEAT TRACE SCHEDULE

SERVICE	PIPE DIAMETER (IN.)	INSULATION THICKNESS (IN.)	WATT SELF TEMP CABLE (T) (WATTS/FT.)	
DOT/COLD WATER	4"	1½"	40	8
HOT/COLD WATER	2"-4"	2"	40	8
WASTE/CONDENSATE	2"-4"	1"	40	8
GREASE	2"-4"	1"	110	8

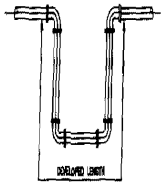
NOTES:
1. DO NOT CLAMP HEATING CABLE WITH PIPE SUPPORT
2. BASIS OF DESIGN BY RAYCHEM

8 TYPICAL DETAIL OF HEAT TRACE INSTALLATION
NTS

NOTE:
HEAT TRACING SHALL BE CONNECTED TO GFI CIRCUIT. COORDINATE WITH ELECTRICAL FOR CONNECTION



9 TYPICAL FIXTURE TRAP WITH HEAT TRACING (PARKING GARAGE AREA)
NTS



PIPE SIZE	DEVELOPED LENGTH	PIPE SIZE	DEVELOPED LENGTH
½"	8.3 FT.	2"	13.8 FT.
¾"	8.35 FT.	2 ½"	16.4 FT.
1"	10.4 FT.	3"	17.2 FT.
1 ¼"	11.7 FT.	4"	18.2 FT.
1 ½"	12.5 FT.		

10 DETAIL OF EXPANSION LOOP ON HORIZONTAL HOT WATER MAINS.
NTS

NOTE: FOR VERTICAL RISERS PROVIDE 4 ELBOW SWING JOINTS WITH EQUALIZED DEVELOPED LENGTH.

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE/FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
DETAIL SHEET NO. 2

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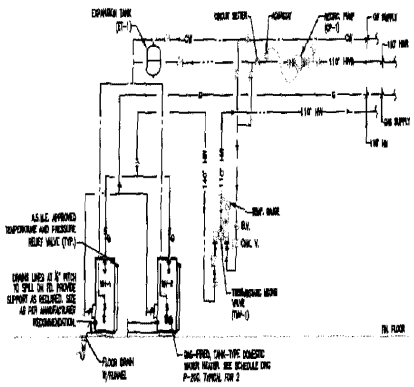
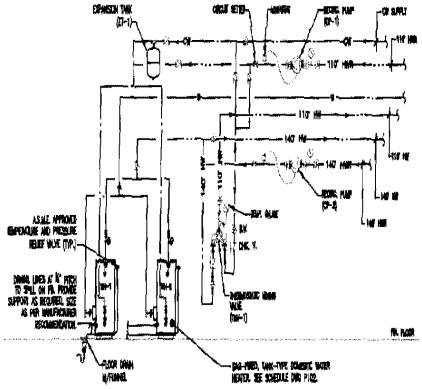
DATE: 04/01/2014 SWIS No:
PROJECT NO.: 13MS
PROJECT MANAGER: RCK P-043.00
DRAWN BY: E.C.
CADD FILE NO: 43
SEPARATE LOADS:

NYC DOB NO

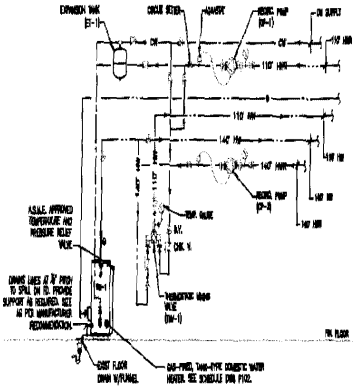
No.	DATE	DESCRIPTION



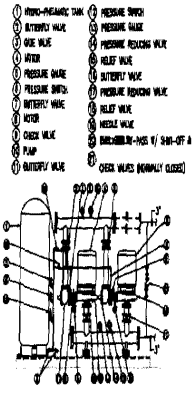
1 GAS FIRED DOMESTIC WATER HEATER DETAIL
(MULTIPLE HEATERS ONE TEMPERATURE)
N.T.S.



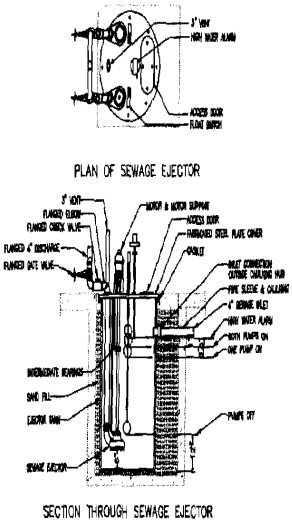
2 GAS FIRED DOMESTIC WATER HEATER DETAIL
(TWO HEATERS DUAL TEMPERATURE)
N.T.S.



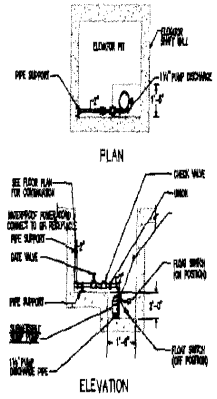
3 GAS FIRED DOMESTIC WATER HEATER DETAIL
(ONE HEATER DUAL TEMPERATURE)
N.T.S.



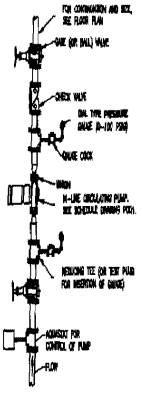
4 DETAIL OF DUPLEX
BOOSTER PUMPS
N.T.S.



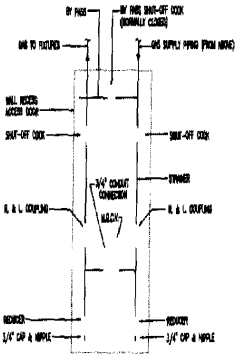
5 DUPLEX SEWAGE EJECTOR DETAILS
N.T.S.



6 ELEVATOR SUMP PUMP DETAILS
N.T.S.



7 CIRCULATING PUMP DETAIL
N.T.S.



8 MASTER GAS CONTROL VALVE
N.T.S.

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING
DETAIL SHEET NO. 3

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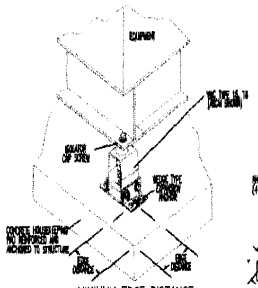
DATE	04/01/2014
PROJECT No.	2045
PROJECT MANAGER, PCA	
DRAWN BY	C.C.
CADD FILE NO.	44
35TH AVENUE STORE	

DWG No.
P-044.00

NTC DOB NO

No.	DATE	DESCRIPTION

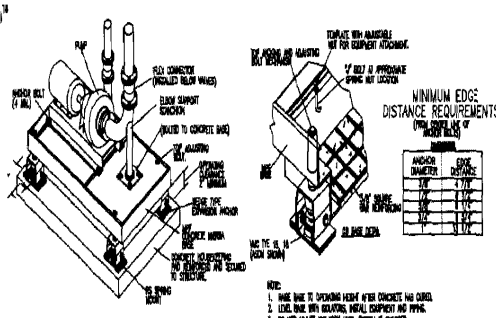


MINIMUM EDGE DISTANCE REQUIREMENTS TO Ø OF ANCHOR BOLT

ANCHOR DIAMETER	MIN. EDGE DISTANCE
1/4"	1 1/2"
3/8"	1 7/8"
1/2"	2 1/2"
5/8"	3 1/8"
3/4"	3 3/4"
1"	5"
1 1/4"	6 1/4"

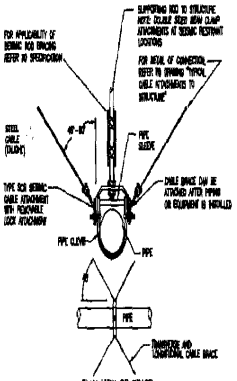
NOTE:
1. # OF ISOLATION POINTS IN ACCORDANCE WITH EQUIPMENT MANUF. SPEC.
2. IF UNIT BASE FRAME CANNOT ACCEPT POINT LOADING, PROVIDE BASE BY ISOLATION CONTROL MANUFACTURER.

1 TYPICAL INSTALLATION OF FLOOR MOUNTED EQUIPMENT
N.T.S.



NOTE:
1. BASE MAY BE OPTIONALLY WELDED AFTER CONCRETE HAS CURED.
2. LEVEL BASE WITH ISOLATORS, INSTALL EQUIPMENT AND PIPING.
3. DO NOT ADJUST ISOLATION UNIT, SYSTEM IS CHARGED.

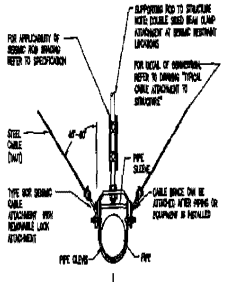
2 TYPICAL INSTALLATION PUMP CONCRETE BASE
N.T.S.



PLAN VIEW OF BRACE

NOTE: 1. SEE SPECIFICATION FOR CABLE BRACING DISTANCE REQUIREMENTS.
2. SLACK CABLE 1/2" IN CENTER IF ISOLATED.

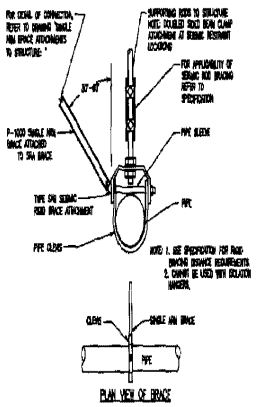
3 TRANSVERSE & LONGITUDINAL CABLE BRACE FOR CLEVIS HUNG PIPING
N.T.S.



PLAN VIEW OF BRACE

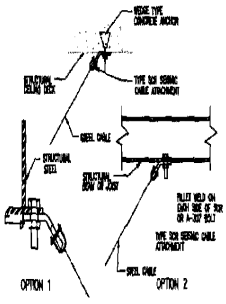
NOTE: 1. SEE SPECIFICATION FOR CABLE BRACING DISTANCE REQUIREMENTS.
2. SLACK CABLE 1/2" IN CENTER IF ISOLATED.

4 TYPICAL TRANSVERSE CABLE BRACE FOR CLEVIS HUNG PIPING
N.T.S.



PLAN VIEW OF BRACE

5 TRANSVERSE ARM BRACE FOR CLEVIS HUNG PIPING
N.T.S.



6 TYPICAL CABLE OR UNISTRUT
N.T.S.

COMPONENT SEISMIC IMPORTANCE FACTORS I_p		
COMPONENT	TAG NO.	I_p
GAS BOOSTER PUMP		1.5
GAS PIPING		1.5
WATER HEATERS – GAS FIRED		1.5
APPLIANCES – GAS FIRED		1.5
CONTROL SYSTEMS SERVING EQUIPMENT WITH I_p=1.5		1.5
COMPONENTS CONTAINING HAZARDOUS OR FLAMMABLE MATERIAL IN EXCESS OF MAXIMUM ALLOWABLE QUANTITIES LISTED IN SECTION NO. 307		1.5
COMPONENTS WITH I_p=1.0 LOCATED ABOVE OR IN PROXIMITY TO COMPONENTS WITH I_p=1.5 WHICH COULD DAMAGE COMPONENTS WITH I_p=1.5 REMARKS:	NOTE #5	1.5

NOTES:
1. THE DEFAULT FOR TYPICAL COMPONENTS IN NORMAL SERVICE IS I_p=1.0
2. REFER TO STRUCTURAL DRAWINGS FOR SEISMIC DESIGN CRITERIA INCLUDING SEISMIC DESIGN CATEGORY.
3. REFER TO DETAIL DRAWINGS FOR TYPICAL SEISMIC BRACING.
4. HATCHED CRACKED EQUIPMENT ROOF NOT REQUIRE SEISMIC BRACING.
5. ALL PLUMBING CONTRACTORS IN SEISMIC DESIGN CATEGORY C AND D BUILDING TRADE WITH I_p=1.5 SHALL BE SEISMICALLY BRACED.
6. PERSONS SUPPORTED EQUIPMENT SHALL NOT CONTACT ANY OTHER OBJECT AT A 45° ANGLE TO VERTICAL.

FOR ALL ITEMS THAT ARE REQUIRED TO HAVE SEISMIC BRACING OR RESTRAINTS, SEISMIC PLANS AND SEISMIC BRACING CALCULATIONS SHALL BE PREPARED, SEALED, AND SUBMITTED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK ENGAGED BY THE CONTRACTOR. THE ENGINEER SHALL PROVIDE INSTALLATION SUPERVISION OF ALL SEISMIC BRACING AND RESTRAINTS. THE CONTRACTOR'S REGISTERED PROFESSIONAL ENGINEER SHALL SUBMIT SIGNED AND SEALED AFFIDAVIT AND AS BUILTS STATING THAT THE INSTALLATION IS IN FULL COMPLIANCE WITH THE SIGNED/SEALED SHOP DRAWINGS.

NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
136-37 35TH AVE FLUSHING NY 11331

DRAWING TITLE
PLUMBING
DETAIL SHEET NO. 4

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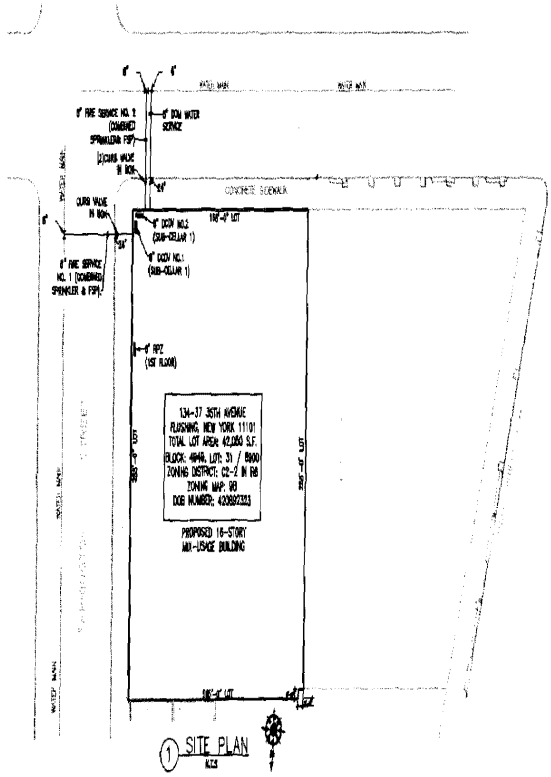
DATE	04/01/2014
PROJECT No.	2046
PROJECT MANAGER	AGA
DRAWN BY	EC
CAD FILE NO. (35THAVENUE 2046)	45

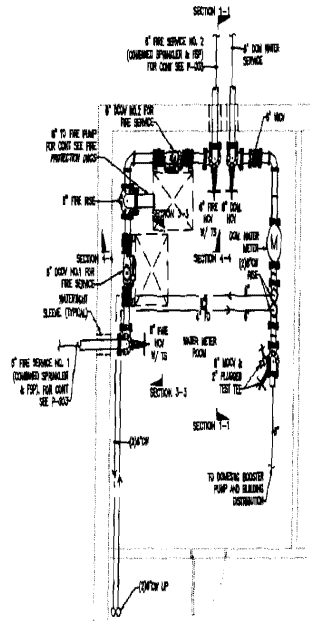
P-045.00

NYC DOB NO.

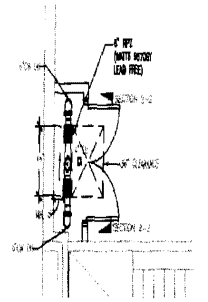
No.	DATE	DESCRIPTION



1 SITE PLAN
N.T.S.



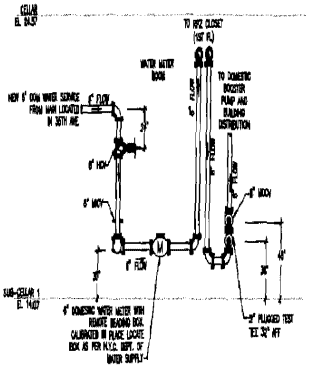
2 WATER METER ROOM (SUB-CELLAR 1) PART PLAN
N.T.S.



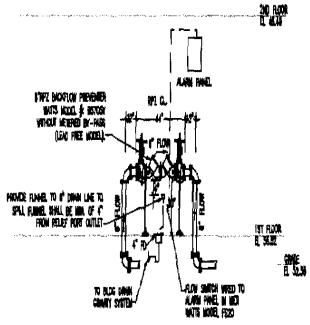
3 RPZ CL. (1ST FL) PART PLAN
N.T.S.

REDUCTION OF LEAD IN DRINKING WATER ACT OF 2014

ALL BACKFLOW PREVENTION DEVICES, ETC. THAT CONVEY DRINKING WATER FOR HUMAN CONSUMPTION MUST BE CERTIFIED FOR MEETING THE REQUIREMENTS OF THE FEDERALLY MANDATED REDUCTION OF LEAD IN DRINKING WATER ACT OF 2014 (NOT MORE THAN 0.25% LEAD). CONTRACTOR SHALL PURCHASE EQUIPMENT MODELS THAT MEET THE REQUIREMENTS OF THE ACT. ALL SOLDER USED DURING INSTALLATION OF VALVES, BACKFLOW PREVENTION ETC. ASSOCIATED WITH THE POTABLE WATER SYSTEM DESIGNED FOR HUMAN CONSUMPTION MUST ALSO MEET THE REQUIREMENTS.



4 DOMESTIC WATER SERVICE ELEVATION 1-1
N.T.S.



5 DOMESTIC RPZ ELEVATION 2-2
N.T.S.

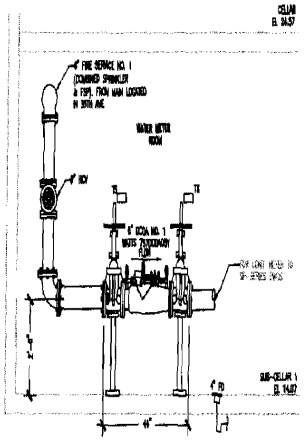
NOTE:
THE RPZ IS INSTALLED MIN. 6" FROM THE WALL AND 36" ABOVE FINISHED FLOOR.

GENERAL NOTES:

1. THE PROPOSED WORK SHALL BE CONSTRUCTED IN STRICT CONFORMITY WITH THE PLANS AND SPECIFICATIONS AS NOTED THIS DAY OR APPROVED AMENDMENTS.
2. DEVICE MUST BE TESTED BY A CERTIFIED BACKFLOW PREVENTION DEVICE TESTER WHO IS EMPLOYED BY A LICENSED PLUMBER.
3. THE INSTALLATION MUST BE INSPECTED BY AN ENGINEER OR ARCHITECT, EMPLOYED BY THE CONTRACTOR, WHO CERTIFIES THAT THE INSTALLATION IS IN ACCORDANCE WITH APPROVED PLANS.
4. THE INSTALLATION MUST BE CHECKED BY A LICENSED PLUMBER WHO CERTIFIES THAT THE INSTALLATION MEETS BUILDING DEPARTMENT REQUIREMENTS.
5. DEVICES MUST NOT BE SUBJECT TO FLOODING OR FREEZING
6. PIPING TO BE UNDISTURBED AND UNOBSTRUCTED FROM MAIN TO DEVICE EXCEPT FOR METER.
7. DEVICE MUST BE TESTED AT LEAST ANNUALLY BY A CERTIFIED TESTER.

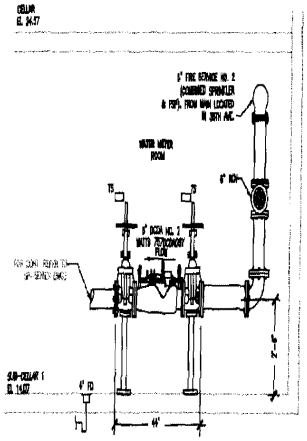
BFP NOTES:

1. NO TAKE-OFF OR TAPS ARE ALLOWED ON STREET SIDE OF BACKFLOW PREVENTER DEVICE.
2. BFP SHALL BE INSTALLED IN HORIZONTAL POSITION. UNLESS THEY ARE SPECIFICALLY APPROVED FOR VERTICAL INSTALLATION.
3. BETWEEN THE POINT OF ENTRY & BACKFLOW PREVENTER THE PIPE MUST BE STENCILED "FEED TO BACKFLOW PREVENTER, DO NOT TAP OR CONNECT TO THIS LINE" AT 5 FT. INTERVAL.
4. LETTERS SHALL BE COLORED RED, 1" HIGH ON WHITE BACKGROUND.
5. ALL ASSEMBLIES SHALL BE ADEQUATELY SUPPORTED AND/OR RESTRAINED TO PREVENT UNDUE MOVEMENT.
6. THE BACKFLOW PREVENTER REQUIRES
   A. SIDE CLEARANCE TO THE REAR WALL MIN. 6".
   B. SIDE CLEARANCE TO THE OPEN AREA MIN. 30"
   C. CENTERLINE TO ABOVE FINISHED FLOOR MIN. 30"
   D. CLEARANCE TO THE CEILING MIN. 12"
   E. DISCHARGE PORT MIN. 12" ABOVE FINISHED FLOOR
7. PROVIDE LABEL ON WALL OR METAL SIGN HUNG W/ CHAIN FOR:
   A. METER OUTLET CONTROL VALVES
   B. METER TEST TEE
8. HORIZONTAL DISTANCE & PIPE LENGTH
   A. POINT OF ENTRY TO WATER METER LENGTH
   B. RPZ TO TEST TEE LENGTH
   C. TEST TEE TO M.A.D.V. LENGTH



6 FIRE WATER SERVICE NO. 1 ELEVATION 3-3
N.T.S.

NOTE:
THE DCVA IS INSTALLED MIN. 6" FROM THE WALL AND 36" ABOVE FINISHED FLOOR.



7 FIRE WATER SERVICE NO. 2 ELEVATION 4-4
N.T.S.

NOTE:
THE DCVA IS INSTALLED MIN. 6" FROM THE WALL AND 36" ABOVE FINISHED FLOOR.

NOTE THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT OF BUILDING ZONING AND BUILDING CODES

PROJECT
35th AVE /FARRINGTON ST HOTEL DEVELOPMENT
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DRAWING TITLE
PLUMBING BACKFLOW PREVENTER DETAILS

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PLUMBING SPECIFICATIONS

PART 1 - GENERAL

1.01 APPLICABLE STANDARDS, CODES AND PUBLICATIONS

A. THIS ENTIRE INSTALLATION SHALL BE TESTED AND INSTALLED TO CONFORM AS A MINIMUM, TO APPLICABLE PROVISIONS OF THE FOLLOWING CODES AND STANDARDS EXCEPT WHERE STRICTER REQUIREMENTS ARE SPECIFIED ELSEWHERE HEREIN OR SHOWN ON THE CONTRACT DRAWINGS:

1) BUILDING CODE OF THE CITY OF NEW YORK
2) NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION AGENCY.

1.02 WORK SCOPE

A. ALL REQUIRED LABOR, MATERIALS AND CONSTRUCTION EQUIPMENT NECESSARY FOR COMPLETE PIPE INSTALLATION OF PLUMBING WORK IN FULL CONFORMITY WITH REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION. ALL AS INDICATED ON DRAWINGS AND/OR HEREIN SPECIFIED, INCLUDING THE FOLLOWING:

1) EXCAVATION, FILLING, BACKFILLING AND CONCRETE
2) SANITARY DRAINAGE AND VENT PIPING
3) STORM DRAINAGE
4) CONNECTIONS TO PLUMBING FIXTURES AND EQUIPMENT.
5) PLUMBING FIXTURES
6) GAS PIPING
7) INSULATION
8) CUTTING AND PATCHING

1.03 COORDINATION

A. COORDINATE WITH OTHER TRADES AS NECESSARY TO FACILITATE TIMELY COMPLETION AND AVOID INTERFERENCE FOR CUTTING AND PATCHING.

B. FURNISH TO OTHER AFFECTED TRADES ALL NECESSARY INFORMATION, WORKING DRAWINGS OR MATERIALS REQUIRED FOR INSTALLATION AND COMPLETION OF ALL WORK.

C. COORDINATE THE WORK OF ALL SUBMITTALS FOR THE PURPOSE OF ASSURING THAT NO CONFLICT EXISTS WITH THE INSTALLATIONS TO BE MADE BY OTHER ENTITIES, WITH FIELD CONDITIONS AND THE SPECIFIED EXPENSION INCLUDING THE CAPABILITY OF PERFORMING REPAIRS AND EASE MAINTENANCE OF ALL COMPONENTS OF THE INSTALLATIONS.

1.04 SUBMITTALS

A. GENERAL

1) CERTAIN ITEMS SHALL BE RESUBMITTED TO THE SPECIFICATION SECTION AND LOCATION WHERE THE ITEM IS TO BE USED.

2) INCLUDE ON SHOP LAYOUT DRAWING DIMENSIONAL & COORDINATION DATA ALL RELATED CONDITIONS THAT EXIST, SHOWING HOW ALL SHARES, AND THAT NO CONFLICT EXISTS. WORKING DRAWING SUBMISSIONS WILL NOT BE APPROVED WITHOUT SUCH CONFIRMATION.

3) SUBMIT TO THE ENGINEER, FOR APPROVAL, A LIST OF ALL MATERIAL AND EQUIPMENT MANUFACTURERS WHOSE PRODUCTS ARE PROPOSED, INCLUDING ALL DELIVERY DATES.

4) MAKE ALL SUBMITTALS SUFFICIENTLY IN ADVANCE OF FIELD REQUIREMENTS TO ALLOW ANPLE TIME FOR CHECKING, NO CLAIM FOR EXTENSION OF TIME SHALL BE HONORED BY REASON OF FAILURE IN THIS RESPECT AND NO WORK IN THE FIELD MAY BE STARTED WITHOUT APPROVED SHOP DRAWINGS AND THE ENGINEER'S APPROVAL.

5) APPROVAL OF ANY SUBMITTAL SHALL NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF FURNISHING MATERIALS AND SYSTEMS OF PROPER DIMENSIONS, CHARACTER, SIZE, QUANTITIES, QUALITY AND INSTALLATION DETAILS, TO EFFICIENTLY PERFORM THE REQUIREMENTS AND INTENT OF THE CONTRACT DOCUMENTS. SUCH APPROVAL SHALL NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY FOR ERRORS IN SUBMITTALS.

6) IF THE SUBMITTALS DEPART FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, MAKE SPECIFIC MENTION OF SUCH DIFFERENCE IN LETTERS OF TRANSMITTAL, WITH A REQUEST FOR SUBSEQUENT CONSIDERATION WITH REGARDS THEREOFORE, SO SAID, IF ACCEPTABLE, REMARKS ACTION MAY BE MADE FOR PROPER ADJUSTMENT. FAILING THIS, THE CONTRACTOR WILL NOT BE RELEASED OF THE RESPONSIBILITY FOR EXECUTING THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

B. SHOP DRAWINGS

1) PIPING LOCATION LAYOUTS, INCLUDING METHOD AND LOCATION OF SUPPORTS.

2) ENLARGED LOCATION DETAILS.

C. CATALOG CUTS AND BROCHURES

1) PIPE AND FITTINGS
2) HANGERS AND SUPPORTS.
3) VALVES AND ESCUTCHEONS.
4) VALVES.
5) STOCK IDENTIFICATION BANDS.
6) INSULATION.
7) FIXTURES AND TRIM
8) EQUIPMENT

1.05 CUTTING AND PATCHING

A. WHERE CUTTING AND PATCHING OF CONSTRUCTION PERFORMED UNDER THIS CONTRACT BECOMES NECESSARY BECAUSE OF FAILURE TO PROPERLY COORDINATE THE WORKMEN'S INSTALLATION WITH OTHER CONSTRUCTION, ARRANGE FOR THIS WORK TO BE PERFORMED BY THE WORKER TRADES INVOLVED AND IN ACCORDANCE WITH APPLICABLE SPECIFICATIONS HEREIN TO AS TO AVOID ADVANCE DAMAGES.

B. PERFORM ALL PATCHING TO MATCH EXISTING ADJACENT CONSTRUCTION TO THE SATISFACTION OF THE ARCHITECT/ENGINEER AND USING THE BEST POSSIBLE WORKMANSHIP OF THE VARIOUS TRADES INVOLVED.

1.06 RECORD DRAWINGS

A. FURNISH TO THE ENGINEER A COPY OF EACH APPLICABLE CONTRACT DRAWING NEATLY MARKED UP INDICATING THE ACTUAL FINAL INSTALLATION INCLUDING ALL DEVIATIONS OR ADDENDUM NOT SHOWN ON THE ISSUED SET.

B. THE CONTRACTOR ALSO PROVIDE "AS BUILT" DRAWING TO BUILDING MANAGEMENT AT COMPLETION OF WORK.

1.07 TESTS

A. GENERAL

1) PERFORM TESTS AS HEREIN SPECIFIED ON THE VARIOUS PIPING SYSTEMS OR PORTIONS THEREOF PRIOR TO PAINTING, CONCEALING OR BUILDING.

2) NOTIFY THE ENGINEER AND REPRESENTATIVES OF AGENCIES OR OTHER ENTITIES WHICH WOULD HAVE JURISDICTION AT LEAST 48 HOURS IN ADVANCE OF MAKING THE REQUIRED TESTS, SO THAT ARRANGEMENTS MAY BE MADE FOR THEIR PRESENCE TO WITNESS THE TESTS.

3) FURNISH AND INSTALL ALL GAUGES, MATERIAL, SUPPLIES, LABOR AND POWER REQUIRED IN CONNECTION WITH TESTS. MAKE ALL TESTS IN THE PRESENCE AND TO THE SATISFACTION OF THE ENGINEER AND REPRESENTATIVES OF THE APPROVING AGENCIES OR OTHER ENTITIES.

4) SHOULD THE TESTED SYSTEM, ANY LINES OR OTHER EVIDENCE OF UNSATISFACTORY MATERIALS OR WORKMANSHIP, MAKE NECESSARY REPAIRS IMMEDIATELY, OR, IF REQUIRED BY THE ENGINEER, REMOVE DEFECTIVE WORK, THEN MAKE SOUND WORKMAN, SUBJECT TO THE APPROVAL. REPEAT TESTS AS DIRECTED UNTIL THE ENTIRE INSTALLATION IS PROVEN SATISFACTORY. NO TEMPORARY MEANS OF REPAIRED LEAKS SHALL BE PERMITTED.

5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY PROPERTY OR INSTALLATION DAMAGED BY THE TESTS AND SHALL RESTORE ONE DAMAGED WORK TO THEIR ORIGINAL CONDITION OR REPLACE THEM WITH NEW ITEMS.

6) DISPOSE OF WATER REMOVED FROM PIPE LINES IN A MANNER THAT WILL NOT CAUSE DAMAGE TO ANY PROPERTY.

7) PROVIDE AND INSTALL ONE REQUIRED AIR VENTS IN THE PIPING SYSTEM TESTED.

8) ALL EQUIPMENT, CONTROLS, INSTRUMENTS AND VALVES SHALL BE ISOLATED FROM THE PIPING SYSTEM DURING TEST.

B. PLUMBING

1) DOMESTIC WATER: CAP OR PLUG ALL OUTLETS, APPLY A HYDROSTATIC PRESSURE OF 125 PSI AND MAINTAIN SUCH PRESSURE FOR ONE HOUR.

2) SANITARY DRAINAGE: CAP OR PLUG ALL OUTLETS, APPLY A 10-FOOT HEAD OF WATER BEFORE MAKING CONNECTIONS TO EXISTING SYSTEM.

1.08 EXCAVATION

A. THE CONTRACTOR SHALL HAVE NO CLAIM OF TITLE TO ANY OF THE EQUIPMENT, MATERIALS OR OTHER ITEMS TO BE REMOVED FROM THE EXISTING BUILDING.

B. NO EXISTING WORK SHALL BE CUT TO BE REMOVED UNLESS THE CONTRACT SHALL BE DAMAGED IN ANY WAY, IF ANY SUCH DISTURBANCE OR DAMAGE OCCURS TO THE EXISTING WORK, THE CONTRACTOR SHALL PROMPTLY REPAIR, MAKE AND REPLACE SUCH DISTURBANCE OR DAMAGE TO THE EXISTING WORK TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AND THE ENGINEER.

C. INCLUDE ALL EXCAVATION OF EXISTING AND CONCEALED WORK THERE THERE ARE SUPERVISED BY THE NEW WORK. CONSTRUCTION SHALL THEREFORE, EXCAVATE AND REMOVE ALL EXPOSED AND CONCEALED WORK WHERE SUPERVISED BY THE NEW LAYOUTS.

D. THERE IS NO GUARANTEE AS TO THE ACCURACY OF THE EXCAVATION SHOWN ON THE DRAWINGS, NOT ALL EXCAVATION IS FULLY DEFINED ON THE DRAWINGS.

1.09 EXCAVATION, FILLING, BACKFILLING AND CONCRETE

A. IF THE WORK UNDER IS CHANGE AS A RESULT OF THE WORK DONE UNDER CONTRACT, THE CONTRACTOR SHALL HAVE SUCH CHANGES MADE BY AGENCIES OF THE OWNERS AND UTILITY COMPANY AND/OR LOCAL AGENCIES, UNLESS HIGHER JURISDICTION.

B. ALL CHANGES MARKING UTILITY SERVICES SHALL BE REQUIRED, CAPPED OR PLUGGED OR OTHERWISE DISCONTINUED.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. MANUFACTURER'S NAME AND MARKINGS ARE USED TO IDENTIFY THE TYPE AND QUALITY OF PRODUCTS REQUIRED, HOWEVER, PRODUCTS OF OTHER MANUFACTURERS WHICH ARE SIMILAR AND EQUAL MAY BE SUBMITTED FOR APPROVAL.

2.02 PIPE SUPPORTS AND HANGERS

A. INSTALL SLEEVES AND ESCUTCHEONS, PIPE HANGERS ADJUSTABLE HEAVY CLEVIS TYPES, SUPPORTS, GUIDES AND ANCHORS ADEQUATE TO SUPPORT AND BRACE THE PIPING. ALLOW FOR PROPER EXPANSION OF EXPANSION JOINTS, EXPERT INSTALLATION, INCORPORATE AND MAINTAIN PROPER CLEARANCES WITH RESPECT TO ADJACENT PIPING, EQUIPMENT AND STRUCTURES.

B. KEEP THE TYPES OF HANGERS TO A MINIMUM AND PROVIDE HANGERS THAT ARE MOST SUITABLE CONSTRUCTED BOLTING AND WITH THE MINIMUM OF PARTS OF EACH HANGER AND ITS ANCHOR SUITE TO A MINIMUM.

C. HANGERS SHALL BE SUSPENDED FROM ROOF CLAMPS, BRACKETS, TRAPEZE PLATES, INSERTS OR OTHER APPROVED MEANS, FLANGES AND INSTALL ANY ADDITIONAL MISCELLANEOUS STEEL SUPPORTED BETWEEN BUILDING FRAMING MEMBERS AS MAY BE REQUIRED.

D. SUPPORT AND ANCHORAL PIPING ON EVERY FLOOR WITH STEEL BEAM CLAMPS, ADJUSTING, STRENGTHENING SUPPORT BRACKETS, REQUIRED TO RELOCATING, SHALL BE INSTALLED ON PIPING FOLLOWING ABOVE COUPLING ROOMS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

E. COPPER PLATE ALL HANGERS THAT SHALL BE IN DIRECT CONTACT WITH BRASS RANGE OR COPPER PIPING.

F. HANGERS, ANCHORS, SLEEVES AND SUPPORTS SHALL BE MANUFACTURED BY GRINNELL CO. F & S CENTRAL DUAL PIPE AND ANCHOR, B-LINE-MACO CO., OR ANOTHER APPROVED PIPE HANGER SPECIALIST AND SHALL BE FABRICATED IN ACCORDANCE WITH SECTION 1 OF AND SHALL "CODE FOR PRESSURE PIPING".

G. BASE HANGER LOADS ON WEIGHT OF PIPE OR EQUIPMENT SUPPORTED, WEIGHT OF INSULATION COVERING WEIGHT OF FLUID BEING TRANSPORTED WHICHEVER IS HEAVIER.

H. INSTALL PROTECTIVE SHIELDS FOR INSULATED PIPING

I. SPACE LOADS BETWEEN SUPPORTS SUH AS TO CAUSE A RISE IN THE PIPE IN EXCESS OF 1/4" BECAUSE ENGINEER AS NECESSARY TO STAY WITHIN SLOPE LINE.

J. UNLESS OTHERWISE SPECIFICALLY APPROVED, HANGER ROD SIZE AND SPACING SHALL BE WITHIN THE FOLLOWING LIMITS

PIPE SIZE (Nominal Size)		
1/2" TO 1-1/4"	6 FT. O.C.	3/8"
1-1/2" TO 3"	9 FT. O.C.	3/8"
HORIZONTAL RUNS OF STEEL		
ALL	5 FT. O.C. AND BEHIND EVERY HUB	3/8"

2.03 VALVES

GATE VALVES AS MANUFACTURED BY CRANEMEN NO. ALL APPROVED MANUFACTURERS SHALL BE AMONG OR MILWAUKEE.

A. FOR 3" AND SMALLER - CLASS 150, BRONZE BODY, RISING-N-BONNET, BRONZE TRIM, SOLID WEDGE, THREADED OR SOLDERED ENDS.

B. ABOVE GRADE-NON, VALVE NON-RISING-STEM, NON-CLOSED VALVE BOXES, HIGH CLASS, CAST OF DURABLE-HEAVY BODY AND BONNET.

C. MANUFACTURERS

1. MUELLER CO.
2. NIBCO
3. JENKINS CO.
4. NORMAN CO.
5. HYMANS EQUAL

D. ALL VALVES EXCEPT WHERE ARE 3" IN DIAMETER AND LARGER. THE CONTACT LANGUAGE SHALL FOR CLEANER CONSTRUCTED LAID BE CERTIFIED FOR MEETING THE REQUIREMENTS OF THE FEDERALLY ANNOUNCED REDUCTION OF LEAD IN DRINKING WATER ACT OF 1974 (NOT MORE THAN 8 WEIGHTED AVERAGE OF CLEAN LEAD, MANUFACTURER SHALL PROVIDE VALVES THAT MEET THE REQUIREMENTS OF THE ACT. ALL BUILDING LINES DURING INSTALLATION OF VALVES ASSOCIATED WITH THE POTABLE WATER SYSTEMS SHALL BE FLUSHED WITH THE POTABLE WATER SYSTEM DESIGNED FOR HUMAN CONSUMPTION AND MUST MEET THE REQUIREMENTS.

2.04 SYSTEM IDENTIFICATION

A. BANDS - INSTALL IN EACH SYSTEM IN EACH EXPOSED SPACE, AND NOT MORE THAN 10 FEET APART WHERE THEY CAN EASILY BE READ. ARRANGE BANDS IDENTIFYING THE SYSTEM IN BLACK LETTERS 3" HIGH FOR 3" PIPE AND LARGER, 1" HIGH FOR 2-1/2" PIPE AND SMALLER. BLACK FLOW DIRECTIONAL ARROW AND BACKGROUND IN COLOR TO CONFORM WITH ANSI A13.1. SHALL BE ECTOR CORP., W.H. BRADY CO., OR APPROVED EQUAL.

2.05 JOINTS

A. THREADED JOINTS

1) SCREWED JOINTS SHALL BE MADE TIGHT WITHOUT THE USE OF WICKING. TEFLON TAPE AND/OR COMPOUND SUITABLE FOR THE TYPE OF SERVICE SHALL BE APPLIED TO MALE THREADS ONLY.

B. FLANGED JOINTS

1) MAKE UP FLANGE AND JOINT WITH GASKETS 1/16" THICK FULL FACE RUBBER, CUT FROM SHEET STOCK. FLANGE, OF BOLTS AND NUTS IN MIXTURE OF GRAPHITE AND OIL IMMEDIATELY PRIOR TO INSTALLATION.

C. UNION JOINTS

1) 65-0 TIN ANTIMONY SOLDER MAKING A MELTING POINT GREATER THAN 450F. EXCESS SOLDER SHALL BE REMOVED WHILE STILL IN A MOLTEN STATE WITH A PILOT LIGHT AT THE FACE OF PIPE FITTING. INTERNAL PARTS OF VALVES SHALL BE REMOVED BEFORE SOLDERING.

D. DIELECTRIC FITTINGS

1) CONFLICT FITTING OF REGULAR METALS WITH DIELECTRIC FITTINGS

2.06 PIPING

A. INSTALL PIPING AS INDICATED ON THE CONTRACT DRAWINGS AND AS DIRECTED DURING INSTALLATION, STRAIGHT AND DIRECT AS POSSIBLE, PITCHING PIPES ANGLES OR PARALLEL LINES WITH BUILDING WALLS, VERTICALLY SPACED, TRUING FRAME AND PLUG, AND AVOID INTERFERENCE WITH OTHER CONSTRUCTION.

B. PITCH SHALL PITCH BACK TOWARD SYSTEM DRAIN VALVE AND ANY INSTALLED LOW POINTS OR POCKETS SHALL HAVE A HOSE END DRAIN VALVE.

C. AVOID TOOL MARKS AND UNNECESSARY PIPE THREADS, BURRS REAMED WHEN CUTTING PIPE SHALL BE REMOVED BY REAMING, BEFORE INSTALLING PIPE, THOROUGHLY CLEAN THE INTERIOR OF CUTTINGS AND FOREIGN MATTER, CAP ALL PIPE OPENINGS AND DURING WORK OF ALL JOINTS TO REQUIRED UNITS.

D. CHECK ALL PIPING TO ENSURE SUFFICIENT FLEXIBILITY TO PREVENT EXCESSIVE STRESSES IN MATERIALS AND EXCESSIVE BENDING MOMENTS AT JOINTS OR CONNECTIONS, WHERE EXPANSION, LOOPS, EXPANSION JOINTS AND SWING CONNECTIONS WHERE SHOWN ON THE CONTRACT DRAWINGS.

E. MAKE CHANGES IN PIPE SIZE BY THE USE OF REDUCING FITTINGS, DO NOT USE REDUCING BUSHINGS EXCEPT BY APPROVAL OF THE ENGINEER, DO NOT USE CLOSE OR EXCESSIVE NIPPLES.

F. ARRANGE WATER PIPING SO THAT SYSTEM CAN BE COMPLETELY DRAINED, WHERE LINES ARE PURPOSELY PITCHED FOR DRAINAGE, A BRONZE DRAIN SHALL BE MANIFOLDED, LINES SHALL NOT BE SUSPENDED AS TO PREVENT POCKETING OF LIQUID, NO LINES SHALL HAVE POCKETS DUE TO CHANGES IN ELEVATION.

G. INSTALLED PIPING SHALL NOT INTERFERE WITH THE OPERATION OR ACCESSIBILITY OF DOORS OR WINDOWS SHALL NOT ENCROACH ON AISLES, PASSAGEWAYS AND EQUIPMENT AND SHALL NOT INTERFERE WITH THE REMOVING OF MAINTENANCE OF ANY EQUIPMENT. ADJACENT PIPE LINES SHALL BE GROUPED IN THE SAME HORIZONTAL OR VERTICAL PLANE.

H. ESCUTCHEONS AS NECESSARY TO ENSURE THAT ALL SHARES, SUPPORTS, SLEEVES AND OTHER PIPES ARE INCORPORATED IN FINISH OR IN HARMONY IN WITH NECESSITY OF OTHER PIPING STRUCTURE.

I. PROVIDE GOLD A NOT SHARES WITH COPPER, TYPE L, ASTM 888, SOLDERED ENDS. COPPER FITTINGS, WROUGHT VALVE TO BE OF CASTING ALLOY, SOLDER MANUFACTURED, CHASE BRASS & COPPER CO. PRICE'S BRONZE COPPER PRODUCTS CORP., AND MUELLER COPPER & BRASS CO.

J. ALL PIPE AND PIPE FITTINGS SHALL COMPLY WITH THE LEAD CONTENT REQUIREMENTS OF THE FEDERALLY ANNOUNCED REDUCTION OF LEAD IN DRINKING WATER ACT OF 1974 (NOT MORE THAN 8 WEIGHTED AVERAGE OF CLEAN LEAD). MANUFACTURER SHALL PROVIDE PIPE AND PIPE FITTINGS THAT MEET THE REQUIREMENTS OF THE ACT. ALL VALVES AND BRASS INSTALLATION OF PIPING ASSOCIATED WITH POTABLE WATER SYSTEMS DESIGNED FOR HUMAN CONSUMPTION SHALL MEET THE REQUIREMENTS.

K. SHARES AND LEAD PIPING SHALL HAVE BRASS, LEAD, SOLDERING BRASS AND PIPE AND PIPING SHALL HAVE PIPE AS REFERENCE CONNECTIONS FOR SOLDER JOINTS, SOLDERED JOINTS SHALL CONSIST OF A SOLDER, SOLDER PIPE SHALL BE CHARGED TO SHARE BUSHINGS AND PREVENT SHARE OVERHEATING. PROVIDE CLEARANCES TO MAKE LEAD SHARE BUSHINGS AND AS NECESSARY OF CARE. CHANGES OF DIRECTION IN SHARE PIPING SHALL BE MADE WITH APPROPRIATE USE OF 45 DEGREES ELLS, LONG RADIUS AND APPROVED BENDS, MALLEABLE MANUFACTURERS, CHARLOTTE PIPE AND FOUNDRY COMPANY.

L. ALL PIPING WITHIN THE BUILDING SHALL BE STANDARD WEIGHT BLACKSTEEL OR BLACK STEEL PIPE, STEAMS THE BUILDING SHALL BE ASTM, 53-69, GRADE B, STEEL PIPE, PIPING AND FITTINGS SHALL BE NEW AND FREE FROM DEFECTS AND IN STRICT CONFORMANCE TO ANSI, B-16 LATEST EDITION, MALLEABLE MANUFACTURERS ALL STEEL CO., KOPPER PIPE MFRS. AND MORRIS, CRANE, CORP.

2.07 PROTECTION AND CLEANUP

A. PROTECT ENTIRE INSTALLATION FROM DAMAGE DURING CONSTRUCTION AND BE RESPONSIBLE FOR ALL DAMAGE UNTIL FINAL ACCEPTANCE OF THE WORK. ALL PIPES SHALL BE PROTECTED FROM OUTSIDE CONTAMINANT AS SOON AS THEY ARE SET. ALL OPEN ENDS OF PIPES SHALL BE CLOSED BY A PLUG FITTING TO PREVENT CONTAMINATION AND DAMAGE.

B. ALL OPENINGS IN FLOORS SHALL BE COVERED AND PROTECTED DURING THE COURSE OF CONSTRUCTION.

C. BEFORE FINAL CONNECTIONS ARE MADE AND BEFORE EXPANSION OF EQUIPMENT AND PIPING, ALL PIPING SHALL BE THOROUGHLY BLOWN OUT, BOILERS CLEAN, OR SHARES OUT OF LEAST THREE IN A MANNER AS DIRECTED AND/OR APPROVED BY THE ENGINEER, TO REMOVE ALL ACCUMULATION OF DIRT, CHIPS OR OTHER DELETERIOUS MATERIAL. MAKE ALL TEMPORARY CONNECTIONS AND FLUSHES ALL APPLIANCES REQUIRED FOR THE PURPOSE OF CLEANING.

D. UPON COMPLETION OF THE INSTALLATION AND WHEN DIRECTED BY THE ENGINEER, REMOVE ALL PROTECTIVE MATERIALS ALL SCALE, DIRT, GREASE, SHARD AND THE LIKE, AND LEAVE IN A CLEAN CONDITION FOR FINISHING.

2.08 PIPE AND FITTING INSULATION

A. INSULATE ALL DOMESTIC HOT WATER PIPING WITH MINIMUM MOLDED LOW PRESSURE PIPE INSULATION, USE MOLDED LOW A-7 PLUS VAPOR BARRIER INSULATION WITH PRESSURE SENSITIVE CLOSURE SYSTEM FOR COLD WATER, EXISTING WATER COOLER SHALL PIPING. THE INSULATION MATERIAL MATERIAL, CONSISTENCY SHALL NOT EXCEED 0.22 BTU PER HOUR, PER SQUARE FOOT PER DEGREES F, PER HOUR AT A MEAN TEMPERATURE OF 75 DEGREES F. INSULATION THICKNESS SHALL CONFORM TO THE FOLLOWING TABLE:

PIPING SYSTEM	PIPE SIZE	INSULATION THICKNESS
DOMESTIC COLD WATER	ALL	1/2"
DOMESTIC HOT WATER	ALL	1"

B. COLD WATER COVERING SHALL BE REQUIRED AS REQUIRED BY THE INSULATION MANUFACTURER AND SEALED WITH REINFORCED FOIL SCRIM NO. 30-36 ADHESIVE.

C. COVERING FOR FITTINGS - ALL FITTINGS SHALL BE REQUIRED TO CONFORM SHALL BE INSULATED WITH ALUMINUM SPECIAL PREFORMED.

2.09 PLUMBING FIXTURES & TRIM

A. PROVIDE AND INSTALL NEW PLUMBING FIXTURES, FAUCETS, TRIMS, PIPING SUPPORTS, PIPING INSULATION, SUPPORTS, VALVES REQUIRED FOR A COMPLETE SYSTEM. ALL PLUMBING EQUIPMENT AND FIXTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.

B. FIXTURES SHALL BE OF THE TYPE CLEARLY AS ENUMERATED BY A A-1/2" 2020, 24-3/8" LONG, 21-1/2" HIGH, WITH HIGH ACCORDANCE POLICY MANUFACTURER OF ESTABLISHED REPUTATION.

C. ALL PLUMBING FIXTURE SHALL COMPLY WITH LL 29/96 MANDATE FIXTURE SHALL COMPLY WITH LL 29 AND ANY REQUIREMENTS.

D. PROVIDE LOOSE KEY LOCK SHALL HANDLE STOP AT EACH PLUMBING FIXTURE.

E. UNLESS OTHERWISE NOTED BY THE ARCHITECT, PLUMBING FIXTURE SHALL BE AS INDICATED ON DRAWING P-002.

F. ALL FAUCETS AND MIXTURES SHALL BE CERTIFIED TO MEET THE REQUIREMENTS OF THE FEDERALLY ANNOUNCED REDUCTION OF LEAD IN DRINKING WATER ACT OF 1974 (NOT MORE THAN 8 WEIGHTED AVERAGE OF THE ACT). ALL BUILDING LINES DURING INSTALLATION OF FAUCETS AND MIXTURES ASSOCIATED WITH THE POTABLE WATER SYSTEMS DESIGNED FOR HUMAN CONSUMPTION SHALL MEET THE REQUIREMENTS.

2.10 WATER HAMMER ARRESTOR

A. PROVIDE AND INSTALL NEW WATER HAMMER ARRESTOR IN ALL BRANCH LINES SERVING FIXTURES WITH QUICK CLOSURE VALVES IN ACCORDANCE WITH STANDARD PDI-WH-201.

THE WATER HAMMER ARRESTOR SHALL BE "MADE" DESCRIPTIVE OF ALL MANUFACTURERS SPECIFIC CONFIGURATION WITH RELATED ASSISTED BELLOWS. MAKE DESCRIPTIVE SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATION.

2.11 VACUUM BREAKERS

A. VACUUM BREAKER AS MANUFACTURED BY "WATTS" SHALL BE MANUFACTURERS' ANTI-SIPHON ANTI-SHALL AND SHALL BE INSTALLED IN ACCORDANCE W/ THE MANUFACTURER'S INSTRUCTION - BRONZE BODY W/ VALVE ASSEMBLY. SPRINGS SHALL BE STAINLESS STEEL. THE VALVE SHALL BE CONSTRUCTED WITH A MOLDED DIAPHRAGM SEPARATING THE AIR INLET FROM THE POTABLE WATER SUPPLY TO PREVENT SPILLAGE. COORDINATE WITH ARCHITECT FOR ACCESS PANEL LOCATIONS.

PART 3 - EXECUTION

3.01 INSTALLATION

A. FIXTURE FAUCET SHALL MAKE THE COLD WATER HANDLE ON THE RIGHT HAND SIDE OF THE FIXTURE AND THE HOT WATER FAUCET ON THE LEFT HAND SIDE OF THE FIXTURE.

B. PROTECT PLUMBING FIXTURES INCLUDED IN THESE SPECIFICATIONS AGAINST INJURY FROM THE BUILDING MATERIALS, AUTO, TOOLS AND EQUIPMENT.

C. FLANGE OF POLISHED FITTINGS, PIPES AND APPLIANCES SHALL BE COATED WITH VARNISH, IMMEDIATELY AFTER INSTALLATION AND SHALL BE FINALLY POLISHED AND PIECES FROM ALL MARKS AND FOREIGN SUBSTANCES, WHEN DIRECTED BY THE ARCHITECT.

D. PRIOR TO BUILDING'S ACCEPTANCE BY THE OWNER, REMOVE MANUFACTURERS' LABELS AND THOROUGHLY CLEAN ALL FIXTURES AND HAVE READY FOR USE BY BUILDING'S OCCUPANTS.

E. SET FIXTURE AND HEIGHTS AS SPECIFIED OR AS DIRECTED BY THE ARCHITECT.

F. IMMEDIATELY REMOVE ALL CONTRACT DEBRIS AND DESTROY OTHER OF MISCELLANEOUS FIXTURES, TOILET ACCESSORIES, ETC. SPECIFIED IN OTHER SECTIONS OF THE SPECIFICATIONS AND DELIVER TO SITE PROPERLY. ALL MATERIAL AND LABOR REQUIRED TO INSTALL THE ITEMS SPECIFIED IN OTHER SECTIONS AND/OR CLAUSES OF THIS TRADE.

G. PLUMBING CONTRACTOR SHALL APPROVE AND PAY FOR ALL BUILDING DEPARTMENT SIGN, INSPECTIONS AND SHALL FURNISH APPROVAL PAPERS AT COMPLETION OF WORK.

H. PROVIDE ACCESS DOOR FOR ALL ELEMENTS, VALVES, FLUSH VALVES, AND ANY OTHER EQUIPMENT OR ASSEMBLIES THAT ARE REQUIRED ACCESS FOR MAINTENANCE OR OPERATION WHICH ARE LOCATED BEHIND WALLS AND PARTITIONS OR CONCEALED IN FURR CHASE.

3.02 MATERIALS, DELIVERY, STORAGE AND HANDLING

A. DELIVER MATERIALS IN MANUFACTURER'S ORIGINAL UNOPENED PROTECTIVE PACKAGING.

B. STORE MATERIALS IN ORIGINAL PACKAGING IN A MANNER TO PREVENT SOILING, PHYSICAL DAMAGE, WETTING OR DEGRADATION PRIOR TO INSTALLATION.

C. HANDLE IN A MANNER TO PREVENT DAMAGE TO FINISHED SURFACES. WHERE POSSIBLE, REMOVE PROTECTIVE COVERINGS ONLY INSTALLATION IS COMPLETE AND REMOVE SUCH COVERS AS PART OF FINAL CLEAN-UP.

D. TOUCH-UP ANY DAMAGE TO FINISHES TO MATCH ADJACENT SURFACES TO SATISFACTION OF OWNER.

3.03 INSPECTION

A. ALL WORKING AND EQUIPMENT CLEANSED TO THE CITY WILL BE INSPECTED, WORKING, AND EQUIPMENT THAT IS DEFECTIVE OR FAILS TO CONFORM TO THE REQUIREMENTS OF THESE SPECIFICATIONS SHALL BE REMOVED IMMEDIATELY FROM THE CONSTRUCTION SITE AND REPLACED WITH NEW MATERIAL AND EQUIPMENT SATISFACTORY TO THE ENGINEER.

B. PLUMBING CONTRACTOR SHALL ARRANGE FOR ALL REQUIRED DEPARTMENT INSPECTIONS AND SHALL FURNISH THE BUILDING DEPARTMENT NON-OFFICIAL KEEP CONFORMITY IF ACCEPTABLE.

3.04 DISINFECTION OF POTABLE WATER SYSTEMS

A. NEW OR REMODELED POTABLE WATER BUILDING SHALL BE DISINFECTED PRIOR TO USE WHENEVER SAMPLES FROM THE SYSTEM SHOW ANY CONTAMINATION AFTER HAVING A BACTERIOLOGICAL EXAMINATION. SAMPLE SHALL BE TAKEN AS REQUIRED BY THE DEPARTMENT OF HEALTH. THE METHOD TO BE FOLLOWED SHALL BE THAT AS PRESCRIBED BY THE DEPARTMENT OF HEALTH, AS THE FOLLOWING.

1. THE PIPE SYSTEM SHALL BE FLUSHED WITH CLEAN, POTABLE WATER UNTIL NO DIRTY WATER APPEARS AT THE HYDRANT. THE SYSTEM SHALL THEN BE FILLED WITH A WATER-CHLORINE.
2. SOLUTION CONTAINING AT LEAST 50 PARTS PER MILLION OF CHLORINE AND ALLOW TO STAND FOR AT LEAST 24 HOURS. THE VALVES OF PIPE SHALL BE FILLED WITH A WATER-CHLORINE SOLUTION CONTAINING AT LEAST 100 PARTS PER MILLION OF CHLORINE AND ALLOW TO STAND FOR 6 HRS.
3. FOLLOWING THE PRESCRIBED DISINFECTING TIME, THE SYSTEM SHALL BE FLUSHED WITH CLEAN POTABLE WATER UNTIL NO CHLORINE CONTAINING RESIDUAL IN THE WATER LEAVING FROM THE SYSTEM.
4. SAMPLES OF WATER SHALL BE REQUIRED IF IT IS FOUND THAT CONTAMINATION STILL REMAINS IN THE SYSTEM.
5. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 17 OF THE NYC HEALTH CODE AND THE NEW DEPARTMENT OF HEALTH CODE BULLETIN 2000, AND SECTION 715 OF THE NYC PLUMBING CODE.

NOTE: THIS IS A SCHEMATIC DESIGN. A SHALL SUBJECT TO REVIEW & W/ INTERPRETATION BY NYC DEPT OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT
35th AVE /FARRINGTON ST
HOTEL DEVELOPMENT
134-37 35TH AVE FLUSHING NY 11101

DRAWING TITLE
PLUMBING SPECIFICATIONS

M.E.P. ENGINEER
R.K. ENGINEERING, PLLC
35-51 ROOSEVELT AVE SUITE 311
FLUSHING, N.Y. 11354
TEL: (718) 353-8000 FAX: (718) 353-8007

STRUCTURAL ENGINEER
WAI LEUNG NG, P.E.
Tel: (917) 516-3226 Fax: (718) 886-0416

SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-40 39th AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8630
Email: info@jmcvickarchitect.com
Web: www.jmcvickarchitect.com

DATE	
PROJECT NO.	P-047.00
PROJECT MANAGER	
DRAWN BY	
CADD FILE NO.	47
JOB NAME (DOS)	

NYC JOB NO.

Appendix B

E Designation Requirements and Document

1. New York City Department of Buildings Property Profile
2. Zoning Resolution City Environmental Quality Review Table 1 Environmental Requirements
3. Table 19-3 Required Attenuation Values to Achieve Acceptable Interior Noise Levels
4. Determination of Significance

NYC Buildings

NYC

CLICK HERE TO SIGN UP FOR BUILDINGS NEWS

NYC Department of Buildings

Property Profile Overview

134-37 35 AVENUE		**QUEENS 11354**		**BIN# 4111983**	
35 AVENUE	134-21 - 134-37	Health Area	: 1200	Tax Block	: 4949
FARRINGTON STREET	33-60 - 33-70	Census Tract	: 869	Tax Lot	: 31
		Community Board	: 407	Condo	: NO
		Buildings on Lot	: 1	Vacant	: NO

View DCP Addresses... Browse Block

View Zoning Documents | View Challenge Results | Pre - BIS PA | View Certificates of Occupancy

VIOLATION FOR FAILURE TO CERTIFY CORRECTION OF CLASS 1 VIOLATION EXISTS ON THIS PROPERTY - DOB CIVIL PENALTIES DUE

Cross Street(s):	PRINCE STREET, FARRINGTON STREET		
DOB Special Place Name:			
DOB Building Remarks:	RANGE 134-31 TO 134-37		
Landmark Status:		**Special Status:**	N/A
Local Law:	NO	**Loft Law:**	NO
SRO Restricted:	NO	**TA Restricted:**	NO
UB Restricted:	NO		
Environmental Restrictions:	HAZMAT/NOISE/AIR	**Grandfathered Sign:**	NO
Legal Adult Use:	NO	**City Owned:**	NO
Additional BINs for Building:	NONE		

Special District: E 2010 - UNKNOWN 0729 - UNKNOWN

This property is not located in an area that may be affected by Tidal Wetlands, Freshwater Wetlands, or Coastal Erosion Hazard Area. Click here for more information

Department of Finance Building Classification: V1-VACANT LAND

Please Note: The Department of Finance's building classification information shows a building's tax status, which may not be the same as the legal use of the structure. To determine the legal use of a structure, research the records of the Department of Buildings.

	Total	Open
Complaints	26	0
Violations-DOB	18	1
Violations-ECB (DOB)	30	7

This property has 2 open ECB "Work Without A Permit" Violations and may be subject to DOB civil penalties upon application for a permit. After obtaining the permit, a certificate of correction must be filed on the ECB violations.

Jobs/Filings	40
ARA / LAA Jobs	0
Total Jobs	40
Actions	27

OR Enter Action Type:

OR Select from List: Select...

AND Show Actions

Elevator Records
Electrical Applications
Permits In-Process / Issued
Illuminated Signs Annual Permits
Plumbing Inspections
Open Plumbing Jobs / Work Types
Facades
Marquee Annual Permits
Boiler Records
DEP Boiler Information
Crane Information
After Hours Variance Permits

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

The "As-built" mock-up drawings and a copy of this report will be retained by ATI for a period of four years from the original test date. This report is the exclusive property of the client so named herein and is applicable to the sample tested. Results obtained are tested values and do not constitute an opinion or endorsement by this laboratory. This report may not be reproduced, except in full, without the approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.:

Digitally Signed by: Shane Haring

Shane M. Haring
Project Engineer

Digitally Signed by: Joseph W. Wise

Joseph W. Wise
Director - Project/Curtain Wall Testing

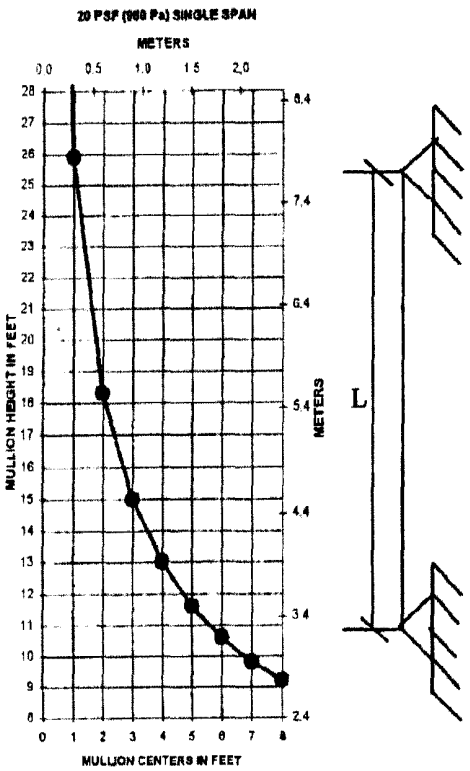
SMH:jld

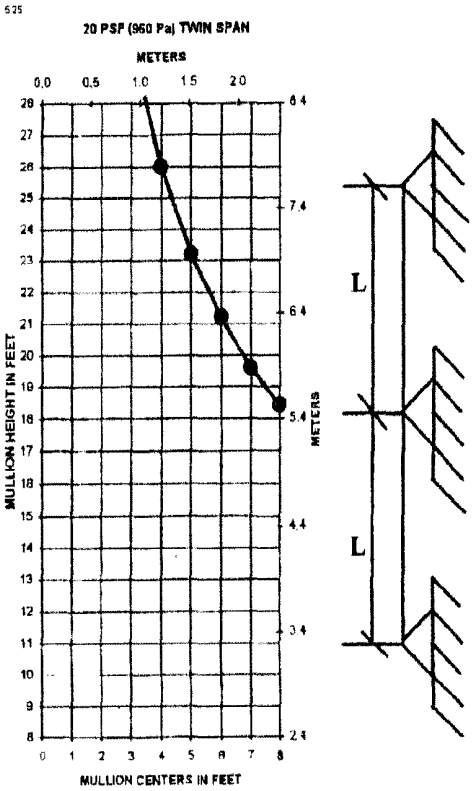
Attachments (pages)

- Appendix A: Test Procedure (3)
- Appendix B: Sketch (1)
- Appendix C: Tables (3)
- Appendix D: Photographs (4)
- Appendix E: Drawings (6)

ARCHITECTURAL TESTING INC.
130 Derry Court • York, PA 17402-9405
web www.testati.com • Facsimile 717-764-4129 • Telephone 717-764-7700

GAMCO Corporation Windload Charts





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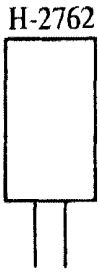
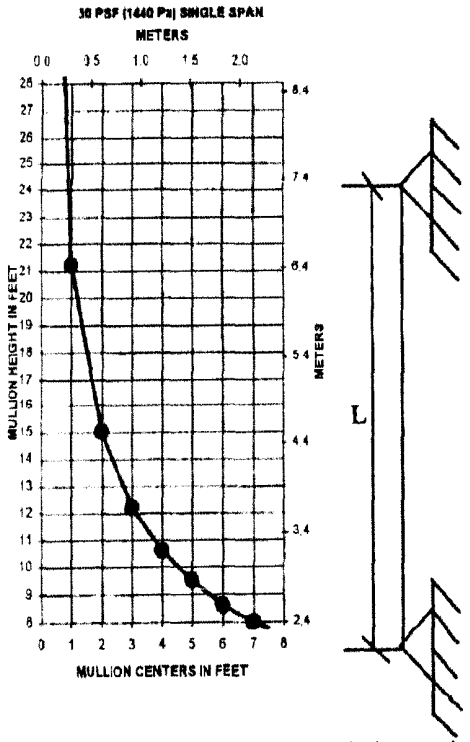
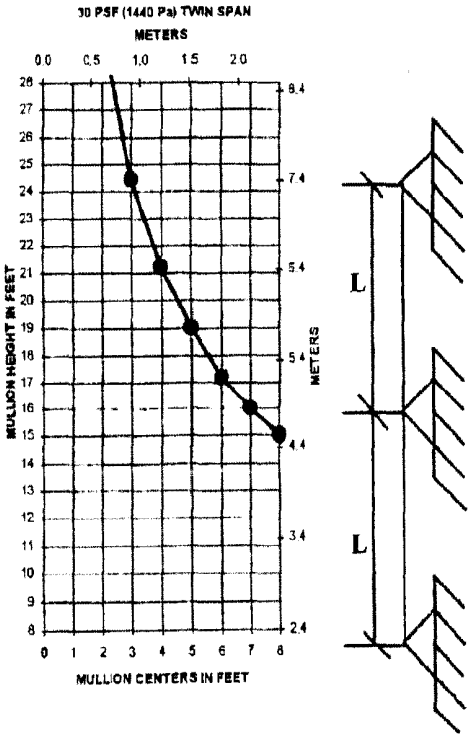




Note: These charts are based on a maximum stress of 11,310 psi (78 MPa)



Intertek | Architectural Testing

AAMA 1503-09 THERMAL PERFORMANCE TEST REPORT

Rendered to:

GAMCO CORPORATION

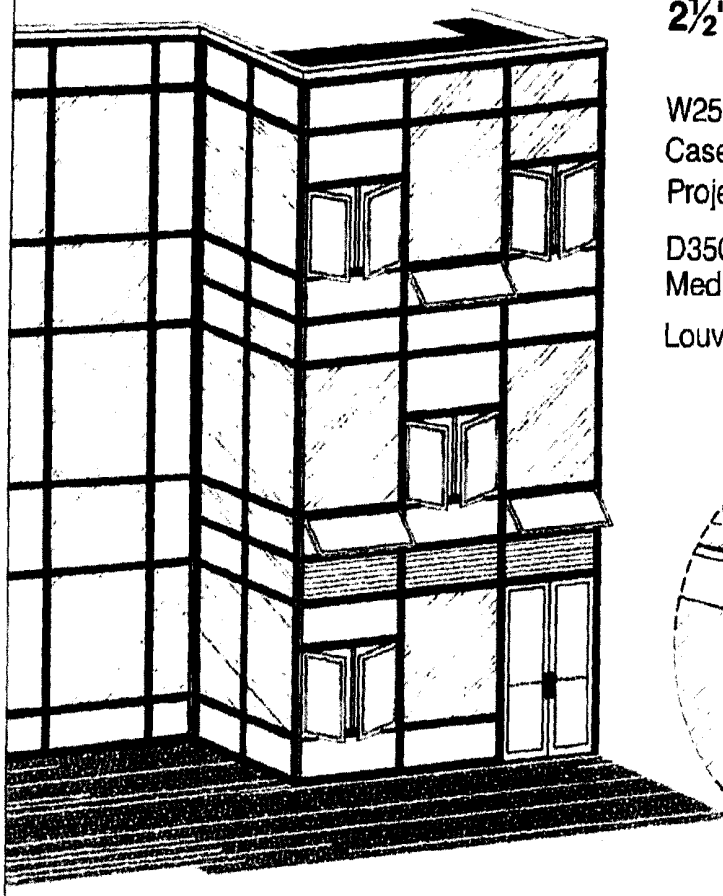
SERIES/MODEL: Curtain Wall
TYPE: Glazed Wall Systems (Site-built)

Summary of Results			
Thermal Transmittance (U-Factor)			0.47
Condensation Resistance Factor - Frame (CRF_f)			65
Condensation Resistance Factor - Glass (CRF_g)			66
Unit Size:		78-3/4" x 78-3/4"	
Layer 1:	1/4"	Clear	
Gap 1:	0.50"	A1-D: Aluminum Spacer	90% Argon*
Layer 2:	1/4"	PPG Solarban 60 (e=0.035*, #3)	

Reference must be made to Report No. E5512.01-116-46, dated 04/20/15 for complete test specimen description and data.

Gamco Corporation 131-10 Maple Ave. Flushing, N.Y.11355
Manufacturer of IRISION™ *Products* Toll Free (866) GAMCO88 TEL : (718)359-8833
FAX : (718)359-8661

250 CW Alum. Curtain Wall

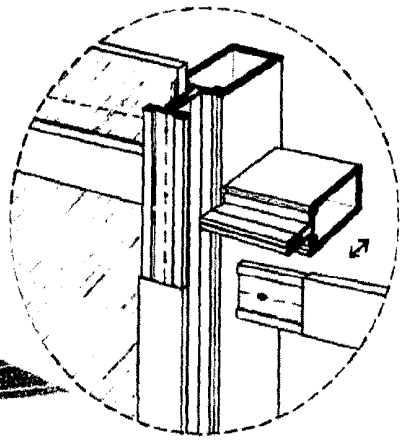


2½" X 5½" Frame

W250HC
Casement Window C-HC100
Projected - in & out Window P-HC70

D350 Series
Medium Stile Door Tested

Louver



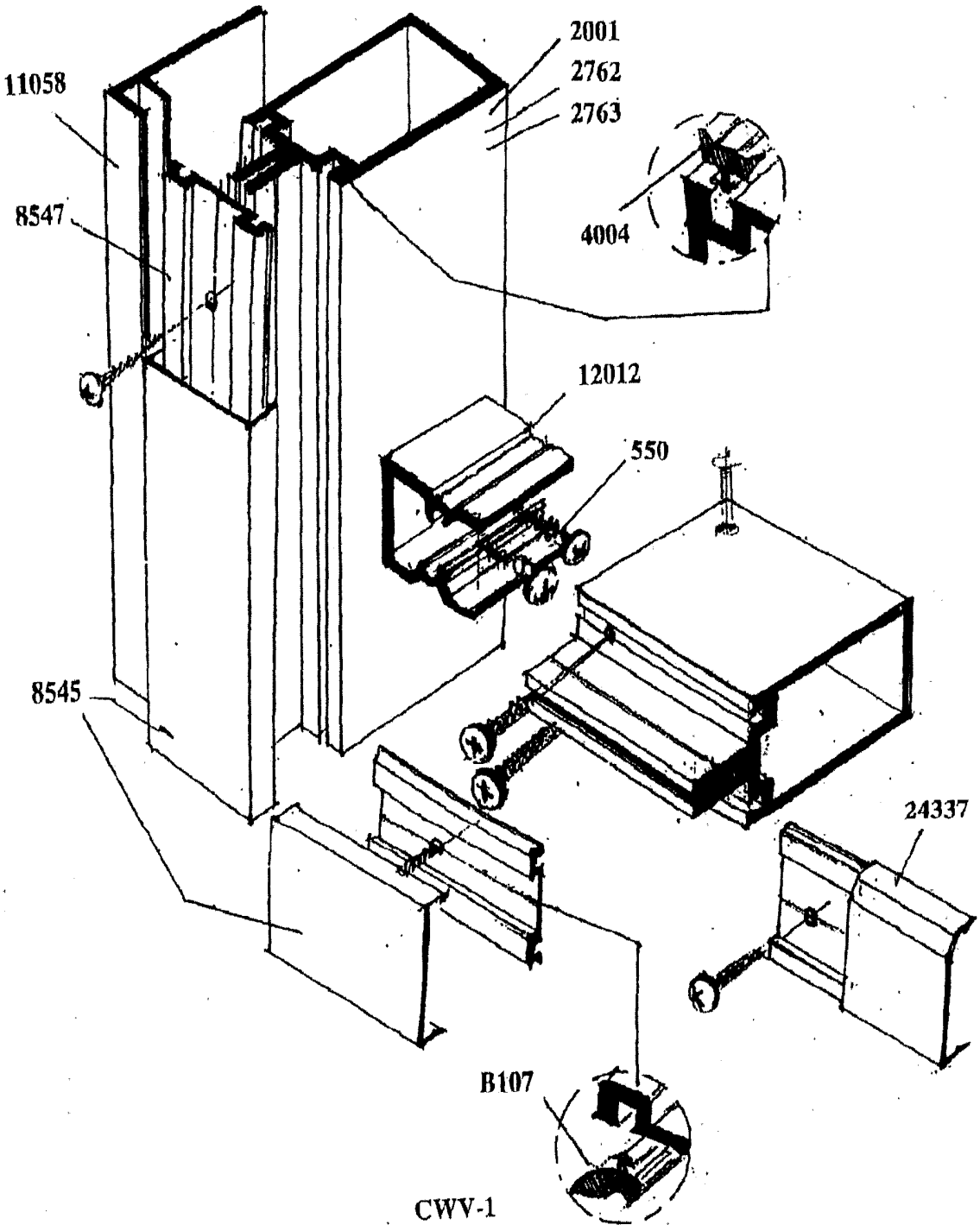
SUMMARY OF TESTING PERFORMANCE

TYPE	DESCRIPTION	CURTAIN WALL
SIZE	WIDTH X HIGH	15' X 30'
ASTM E-283-04	STATIC PRESSURE AIR INFILTRATION 6.24 psf	0.01cfm/sq.ft
ASTM E-331-00	STATIC PRESSURE WATER RESISTANCE (NO LEAKAGE)	15.0 psf
ASTM E-330-02	UNIFORM STRUCTURAL LOAD ±PRESSURE (NO DAMAGE)	60 psf
	UNIFORM STRUCTURAL OVER LOAD ±PRESSURE (NO DAMAGE)	90 psf
AAMA 501-1-05	DYNAMIC PRESSURE WATER RESISTANCE (NO LEAKAGE)	15.0 psf
INTERSTORY DIFFERENTIAL MOVEMENT(HORIZONTAL CYCLING) LEFT & RIGHT (NO DAMAGE) 1.2"		

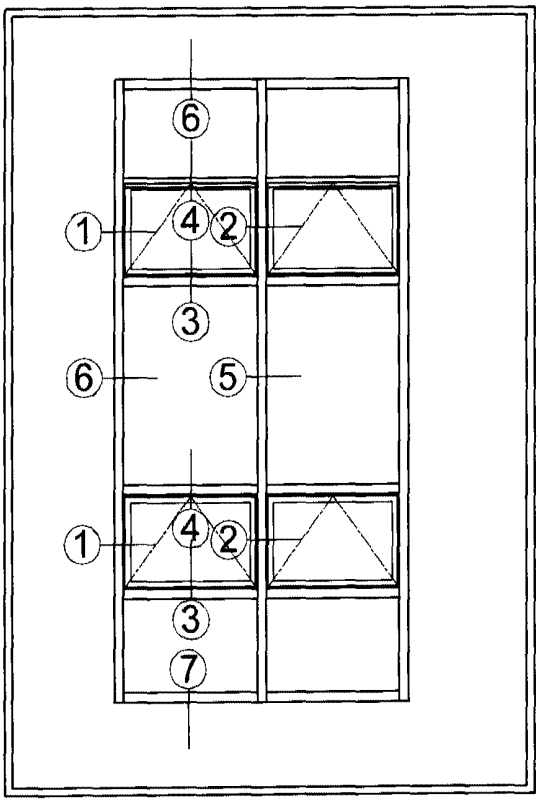
Gamco Corporation 131-10 Maple Ave. Flushing, N.Y.11355
Manufacturer of IRISION™ Products TEL (718)359-8833 FAX (718)359-8661

CW-250 PICTORIAL VIEW

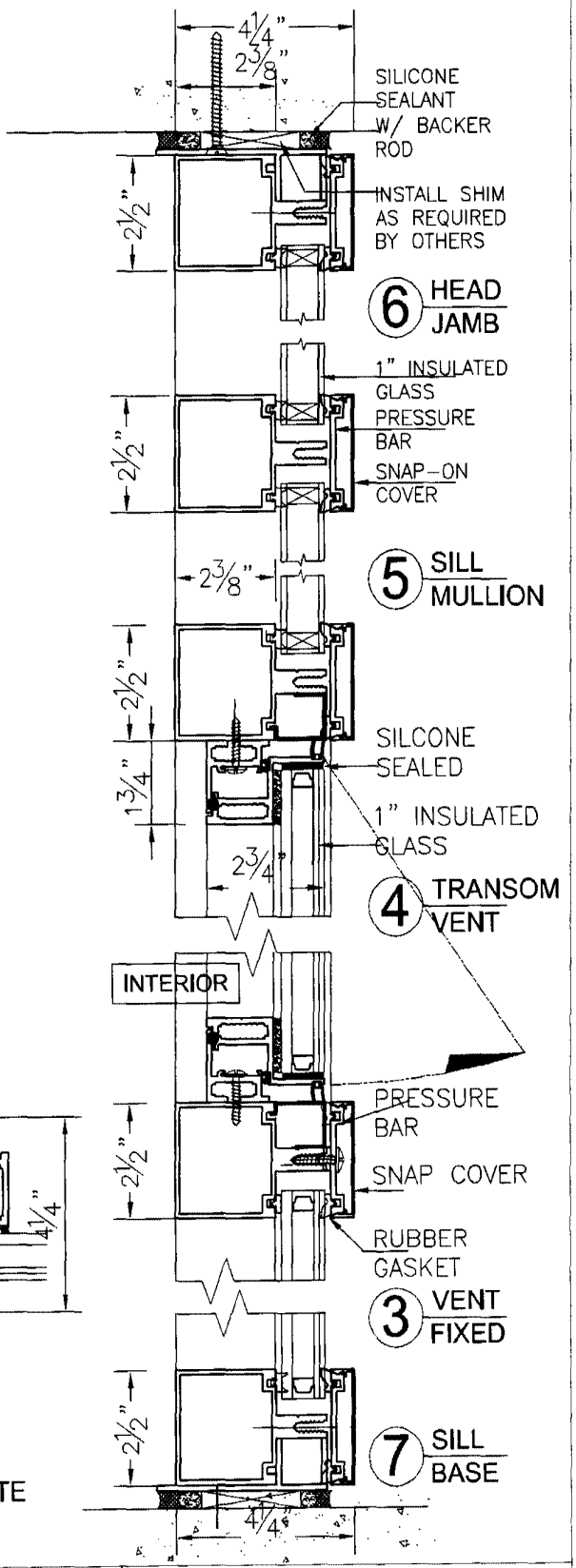
2½" SYSTEM , ⅛", ½" & 1" GLAZING (SHEAR BLOCK FABRICATION)

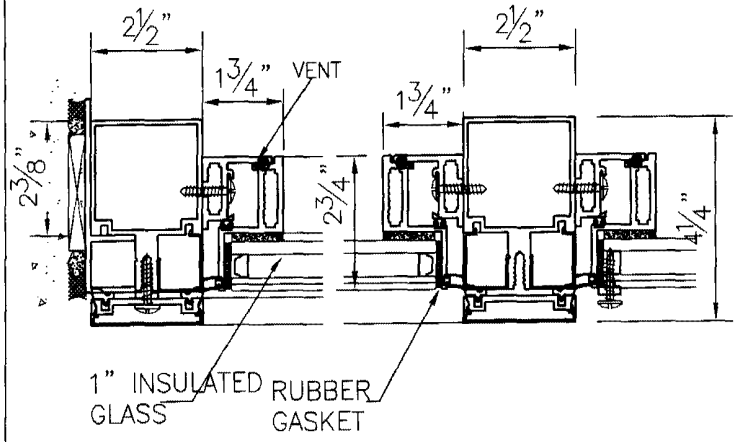


CWV-1



CW250 SEIRES
CURTAIN WALL SYSTEM





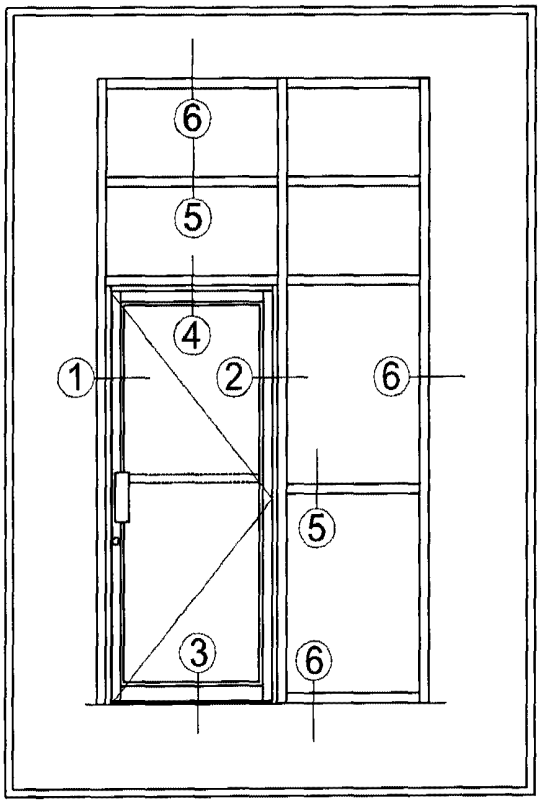
1 JAMB VENT

EXTERIOR

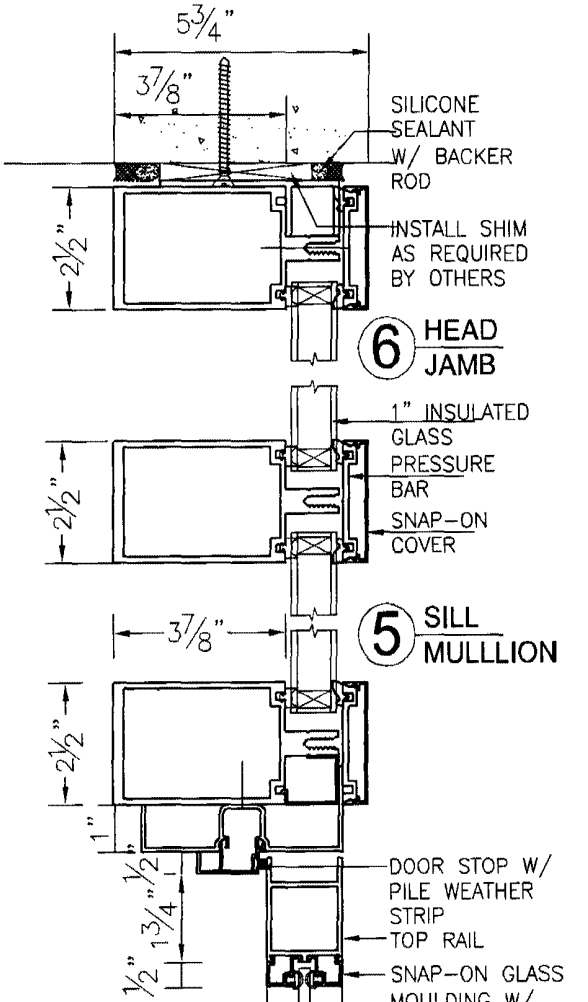
2 VENT SIDELITE

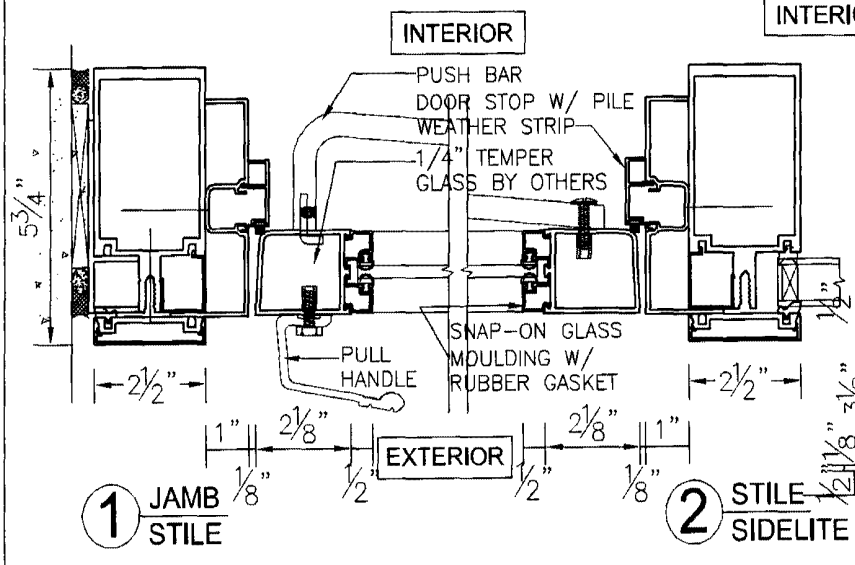
SHEET #	Drawn by: K. S. Lee	Customer	Revisions		
	Checked by: C. Chan		No.	Date	Description
	Date:	Project Name:			
	Scale: 3"=1'-0"				

GAMCO CORP.
MANUFACTURER OF QUALITY FENESTRATION PRODUCTS
131-10 Maple Ave. Flushing, N.Y. 11355
Tel: (718) 359-8833 Fax: (718) 359-8661
info@gamcocorp.com www.gamcocorp.com



CW250 SERIES
CURTAIN WALL SYSTEM





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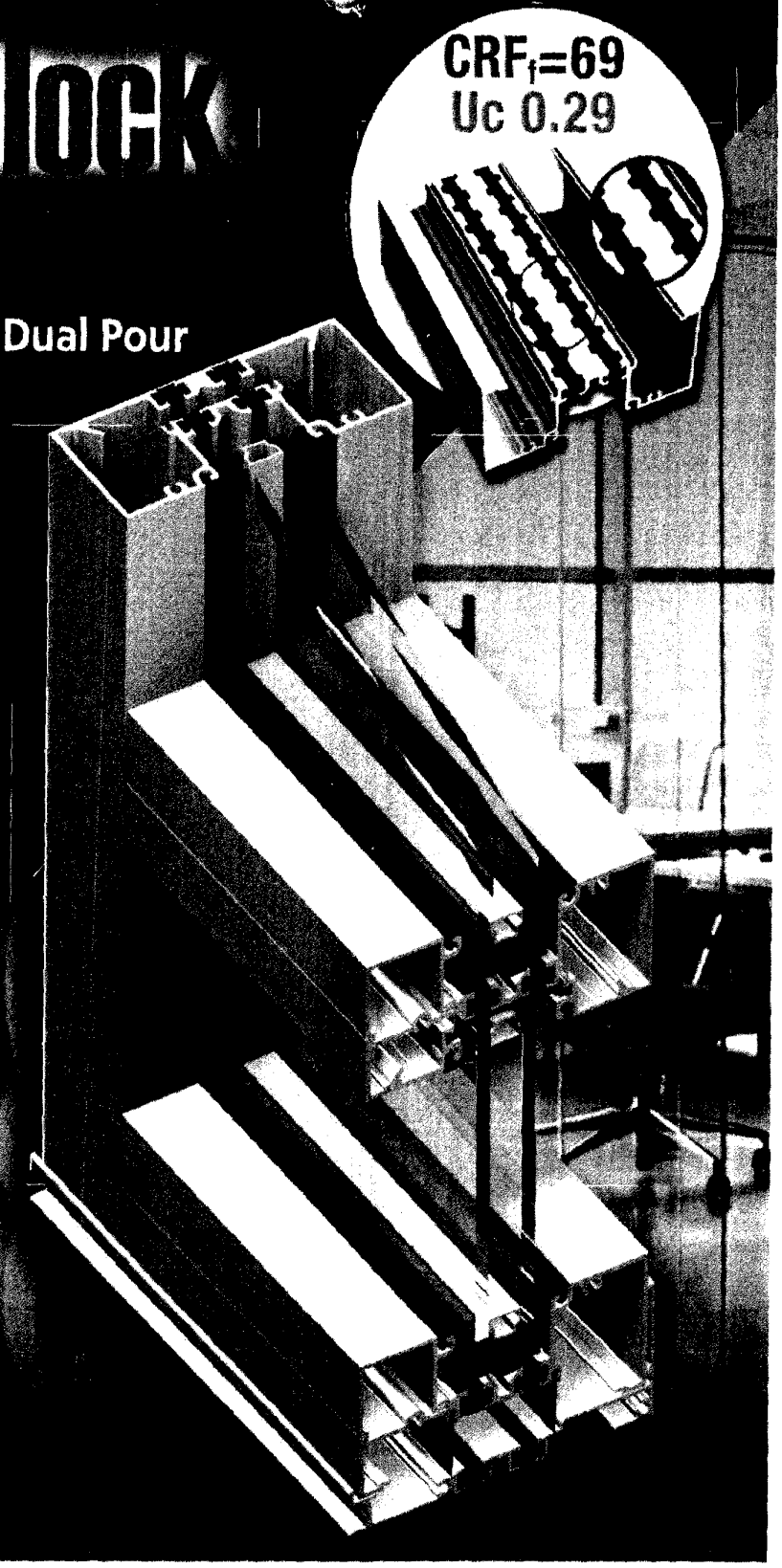
info@gamcocorp.com www.gamcocorp.com

Therm=Block

TU24000

High Thermal Performance Dual Pour & Debridged Storefront



Tubelite's most popular thermally broken storefront line has been expanded and enhanced with an additional P&D thermal break pocket. The TU24000 Series has the same 2" x 4 ½" profile as the T14000 system, and offers standard screw-spline or shear block joints.

The dual thermal break decreases U-factors by 36% and increases CRF by 30% over a single P&D pocket when using the same size and type of insulated glass. Azon's Lancer® mechanical lock provides long-term resistance to shrinkage of the polyurethane barrier. Glass is centered in the 4 ½" system depth for a pleasing reveal on the exterior and interior sides of the frame. Seven anodized finishes and 20 standard paint color are available on this storefront framing system to complement any project with warranty protection as well as street appeal.

With industry leading condensation resistance, the TU24000 system is capable of providing condensation resistance even in extreme cold weather. Under standard interior building conditions, The TU24000 system has been tested to show condensation resistance down to an outdoor temperature of -12 degrees F°.

1. Assuming indoor air temperature of 70 degrees F° and indoor relative humidity of 35%

TUBELITE®

DEPENDABLE

LEADERS IN ECO-EFFICIENT STOREFRONT, CURTAINWALL AND ENTRANCE SYSTEMS

EcoLuminum by TUBELITE

More recycled content, eco-efficient finishes

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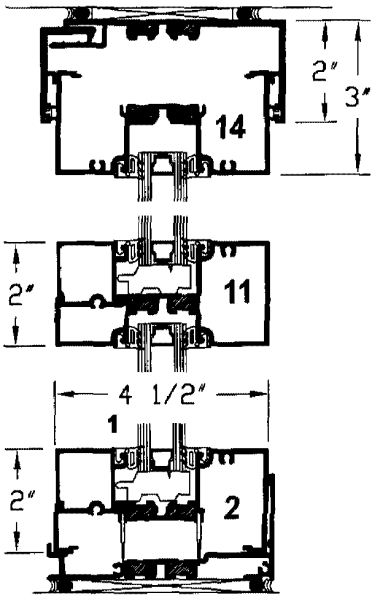
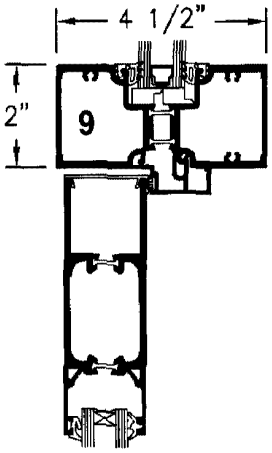
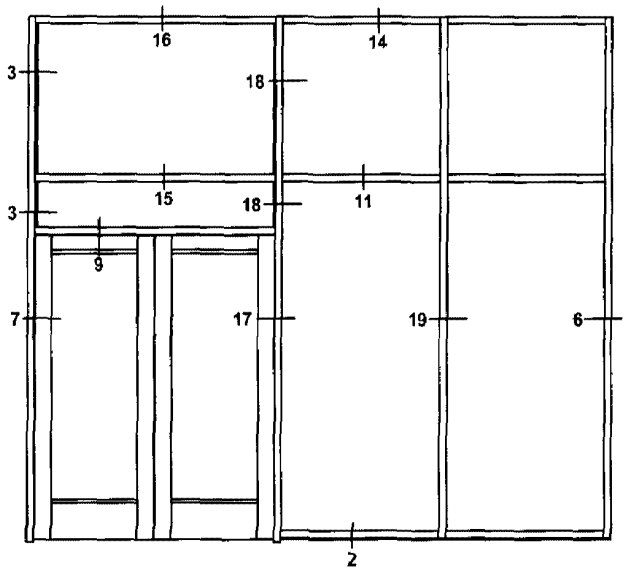
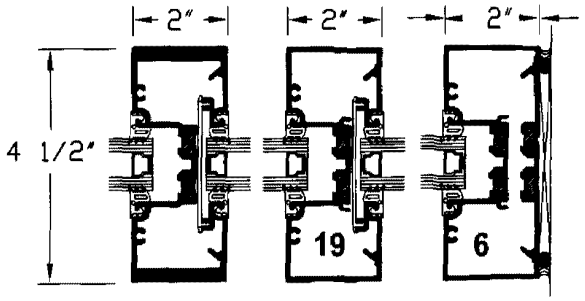
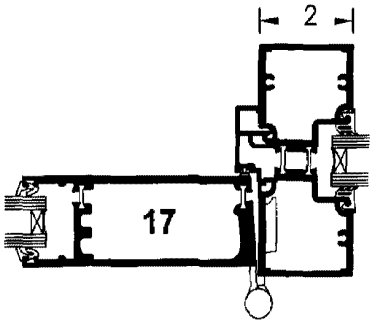
TU24000 DETAILS











TU24000 Series Product Specifications

Application	Face Width	Overall Depth	Glass Thickness	Air Infiltration	Dynamic Water	Structural Overload	CRF*	U Value	Sound Transmission
Low-Rise storefront, center-set glass, inside/ outside glazed	2", 4 ½"	4 ½"	1"	0.06 CFM/Ft. 2 @ 6.24 PSF	12 PSF	45 PSF	69 - OS	0.29 - OS	37 STC 31 OITC

Performance Test Standards

Air Performance	ASTM E 283
Water	AAMA 501 and ASTM E 331
Structural	ASTM E 330
Thermal	AAMA 1503
Thermal Break	AAMA 505 and AAMA TIR-A8
Acoustical	AAMA 1801 and ASTM E 1425

GET THE POINT!™
Thermal Storefront can help with the following LEED points:

- EA 1 - Optimize Energy Performance
- MR 4.1 & 4.2 Recycled Content
- EQ 6.2 Thermal Comfort
- EQ 8.1 & 8.2 Daylight & Views

EcoLuminum by TUBELITE
More recycled content, eco-efficient finishes

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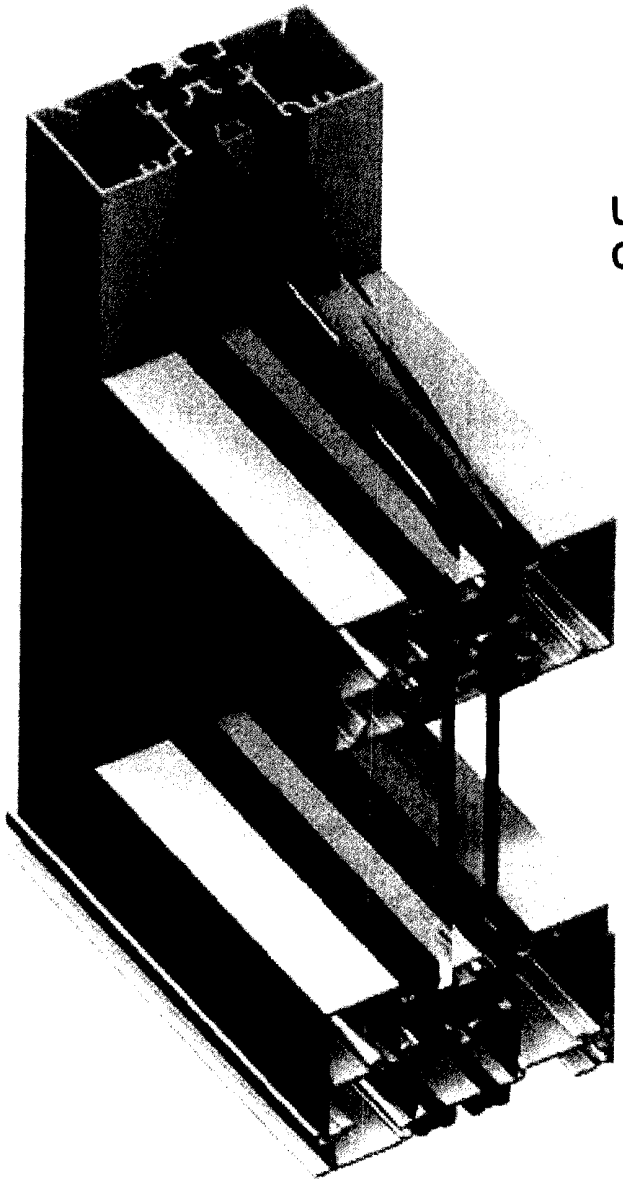
19.01
TU24000 Series HP Thermal Storefront
Description



$U_C = 0.29$
CRF = 69

Description

Tubelite TU24000 Series Framing is a 2" x 4 1/2" flush glazed storefront system for use on first floor applications. Two poured and de-bridged thermal breaks provide industry leading Condensation Resistance and reduced thermal conduction. The thermal pocket also employs Azon Lance technology to prevent dry shrinkage of the polyurethane barrier. This dry glazed internally drained framing can be glazed with 1" insulated glass or panels positioned in the center of the frame. Glass pocket reducers can be used for infill thicknesses from 1" to 1/4" .

19.02
TU24000 Series HP Thermal Storefront
Guide Specifications

General

Description

Furnish all necessary materials, labor and equipment for the complete installation of aluminum framing as shown on the drawings and specified herein.

Fixed window framing shall be 24000 Series (2" x 4 1/2") as manufactured by Tubelite Inc., Walker, Michigan. Whenever substitute products are to be considered, supporting technical literature, samples drawings and performance data must be submitted ten (10) days prior to bid in order to make a valid comparison of the products involved.

Test reports certified by an independent laboratory must be made available upon request.

Performance Requirements

Air infiltration shall not exceed .06 CFM/Ft^2 when tested in accordance with ASTM E-283 at a test pressure of 6.24 PSF.

There shall be no uncontrolled water entry when tested in accordance with ASTM E-331 "Water Penetration of Exterior Windows, Curtainwalls and Doors by Uniform Static Air Pressure Difference" at a test pressure of 12 PSF.

There shall be no uncontrolled water entry when tested in accordance with AAMA 501.1-94 at a dynamic pressure equivalent of 12 PSF.

Structural performance per ASTM E330 shall be based on a maximum allowable deflection of L/175 of the span or 3/4" maximum. The system shall perform to those criteria under a wind load of +30/-30 PSF.

There shall be no buckling, stress on glass, edge seal failure, excess stress on storefront structure, anchors and fasteners or reduction in performance when tested in accordance with AAMA 501.5-98 at a temperature range of 0^0 to 180^0 F.

Thermal transmittance due to conduction (U_c) as low as 0.29 - BTU/Hr/Ft^2/F degree when tested in accordance with AAMA 1503-98. Condensation Resistance Factor (CRF) shall not be less than 69 - when tested in accordance with AAMA 1503-98.

The system shall have a Sound Transmission Class (STC) rating of 37 and an Outdoor-Indoor Transmission Class (OITC) rating of 31 when tested in accordance with ASTM E90-09, ASTM E413-10 and ASTM E1332-10a.

Products

Materials

Extrusions shall be of aluminum alloy 6063-T5 extruded within commercial tolerance and free from defects impairing strength and/or durability. Main framing sections to be of .075 inch minimum wall thickness and glazing stop moldings of .060 inch thickness.

Screws, bolts and all other accessories to be compatible with the aluminum under normal service conditions.

Glazing shall be by means of an exterior and interior roll-in wedge of high quality extruded elastomeric material.

Thermal barrier shall be a two part chemically curing, unfilled polyurethane casting resin poured in place for perimeter members. Snap-in pocket fillers shall be aluminum with PVC inserts for efficient thermal performance.

Finish

All exposed framing surfaces shall be free of scratches and other serious blemishes.

Finish to be: (architect select)

- Etched and clear anodized
  - (AAM10C21A31)
    - Clear - Class II (C2)
  - (AAM10C21A41)
    - Clear - Class I (C1)
- Electrolytically deposited color
  - (AAM10C21A44) Class 1
    - Champagne (CH)
    - Medium Bronze (MB)
    - Light Bronze (LB)
    - Dark Bronze (DB)
    - Extra Dk Bronze (EB)
    - Black (BL)
- Fluoropolymer (70%) painted color _____.

Execution

Installation

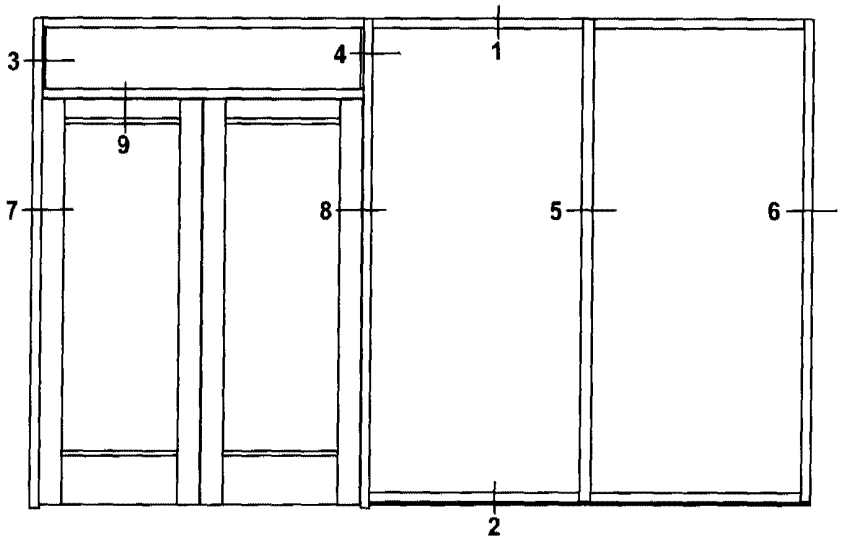
Shall be in accordance with the manufacturer's installation instructions and the approved shop drawings.

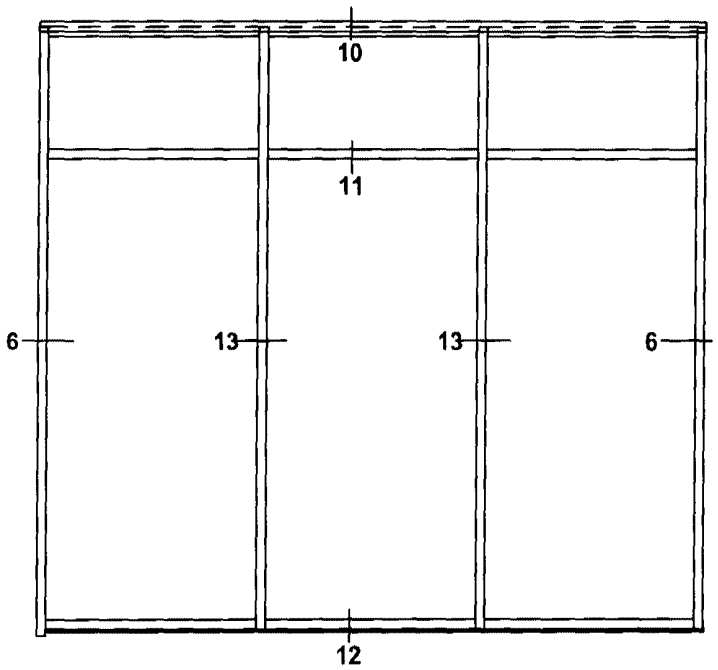
Note:

In keeping with Tubelite's policy of continuing product improvements, all specifications are subject to change without written notice by the manufacturer.

19.03
TU24000 Series Non-Impact Storefront
Elevations

CAD DETAIL FILE NO.
500ELEV



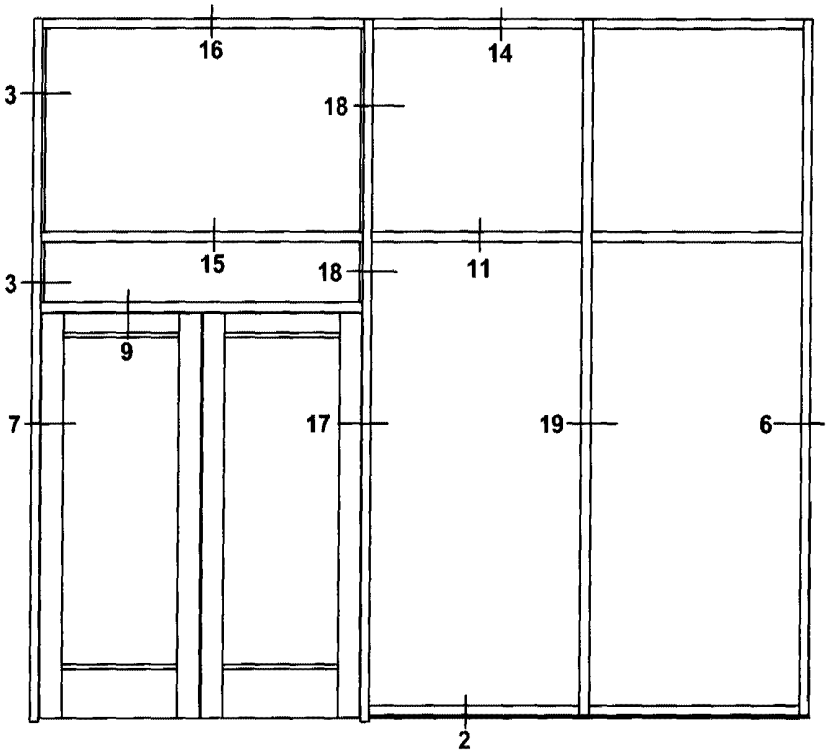


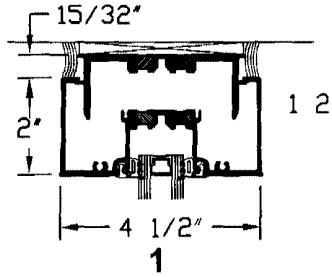
*SEALANT, ROD, & ANCHORS NOT BY TUBELITE

TUBELITE®
DEPENDABLE
LEADERS IN ECO-EFFICIENT STOREFRONT, CURTAINWALL AND ENTRANCE SYSTEMS
2013

19.04
TU24000 Series Non-Impact Storefront
Elevation and 1/4 Size Details

CAD DETAIL FILE NO.
500ELEV1





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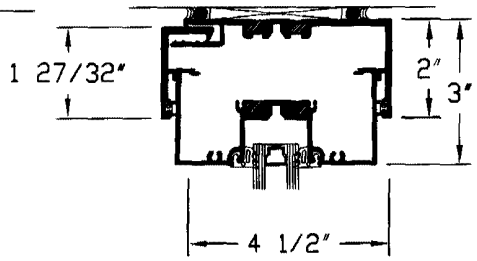

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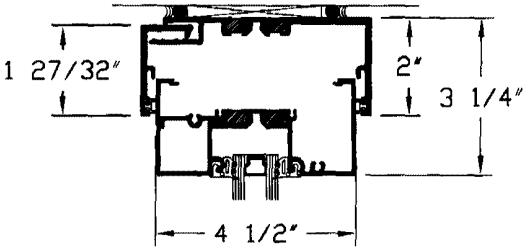

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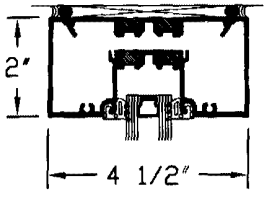

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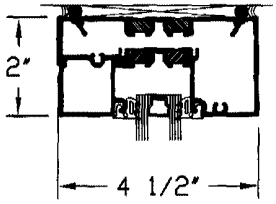

16

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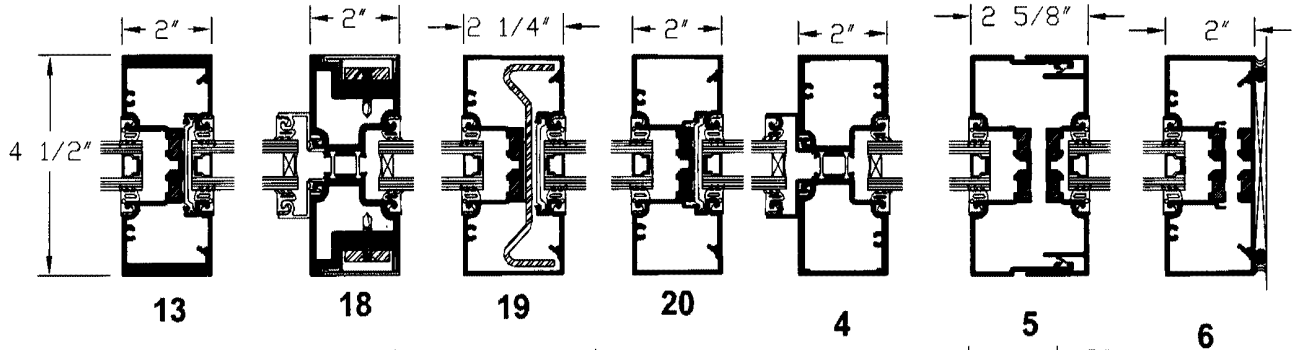
*SEALANT, ROD, & ANCHORS NOT BY TUBELITE

19.05
TU24000 Series Non-Impact Storefront
1/4 Size Details

CAD DETAIL FILE NO.
500ELEV2



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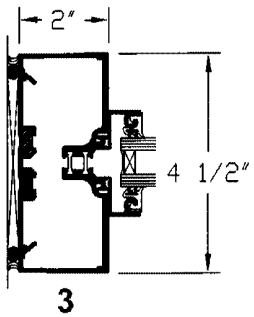

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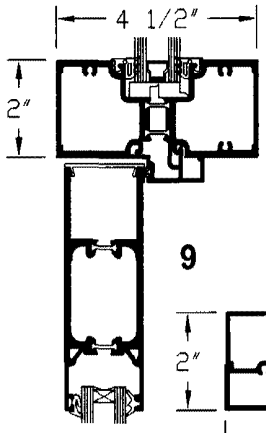

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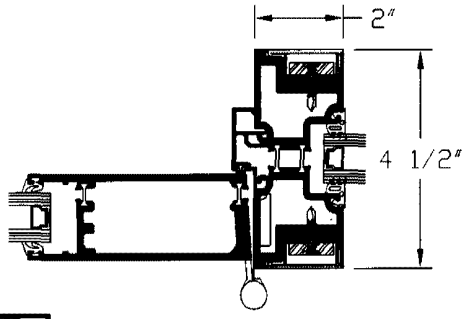

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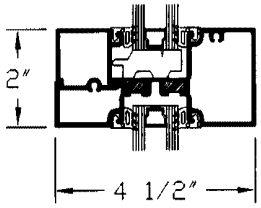

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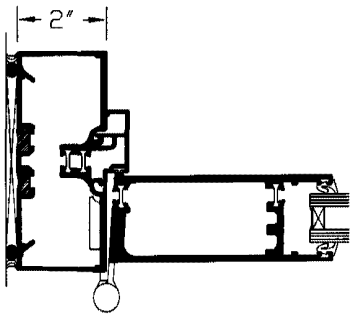

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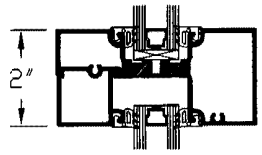

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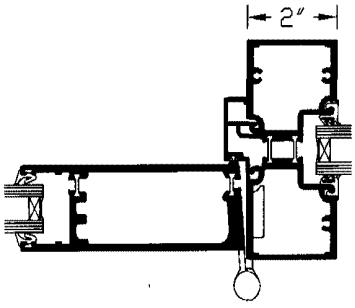

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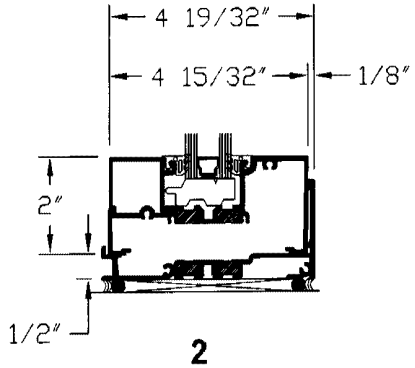

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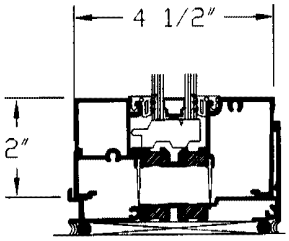

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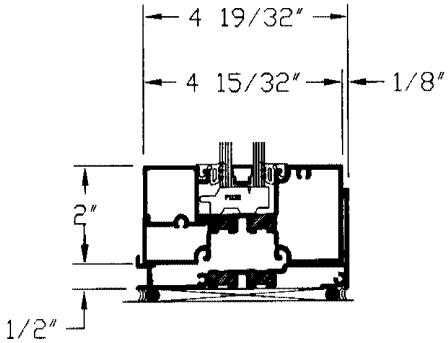

12

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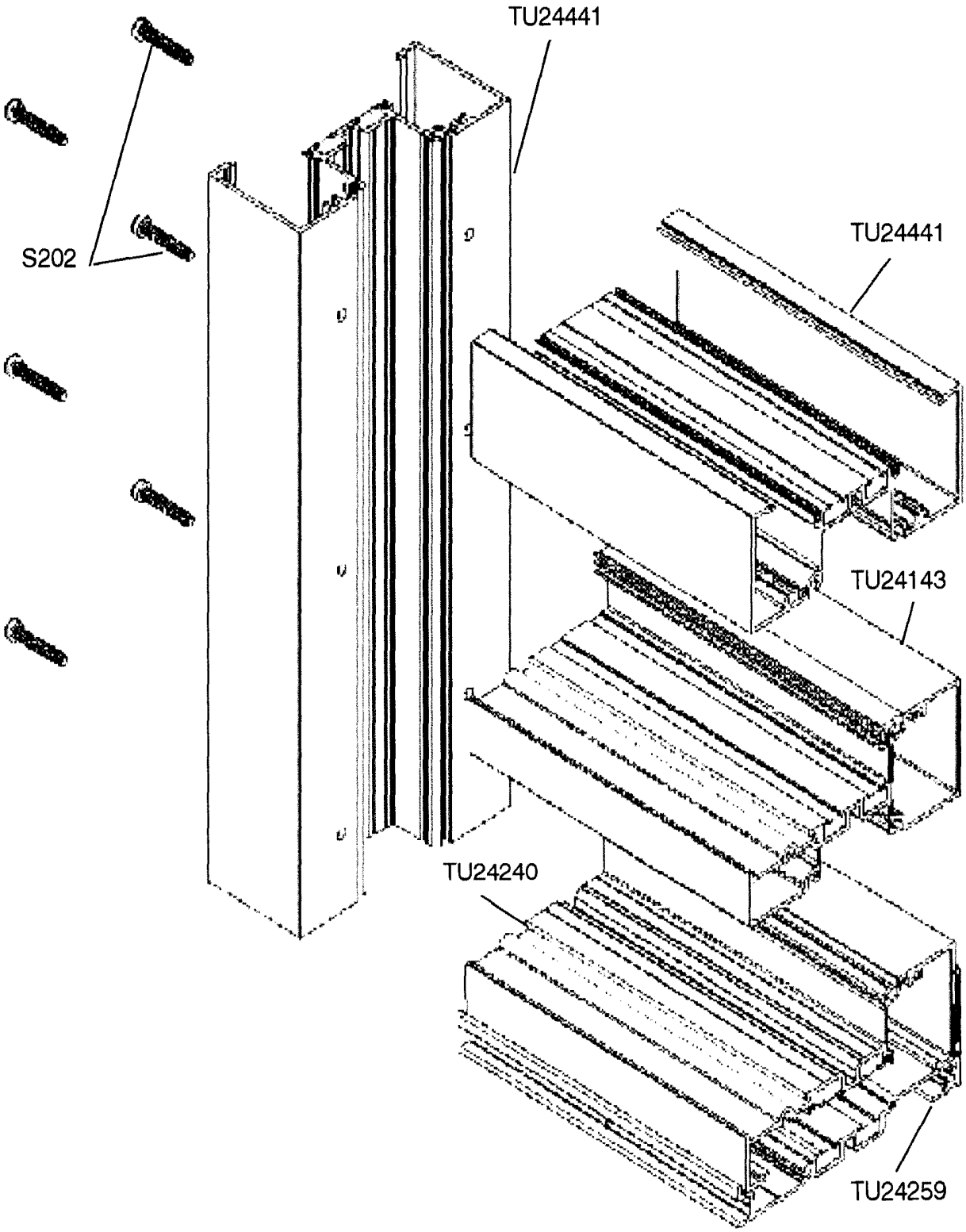
19.06
TU24000 Series HP Thermal Storefront
Isometrics



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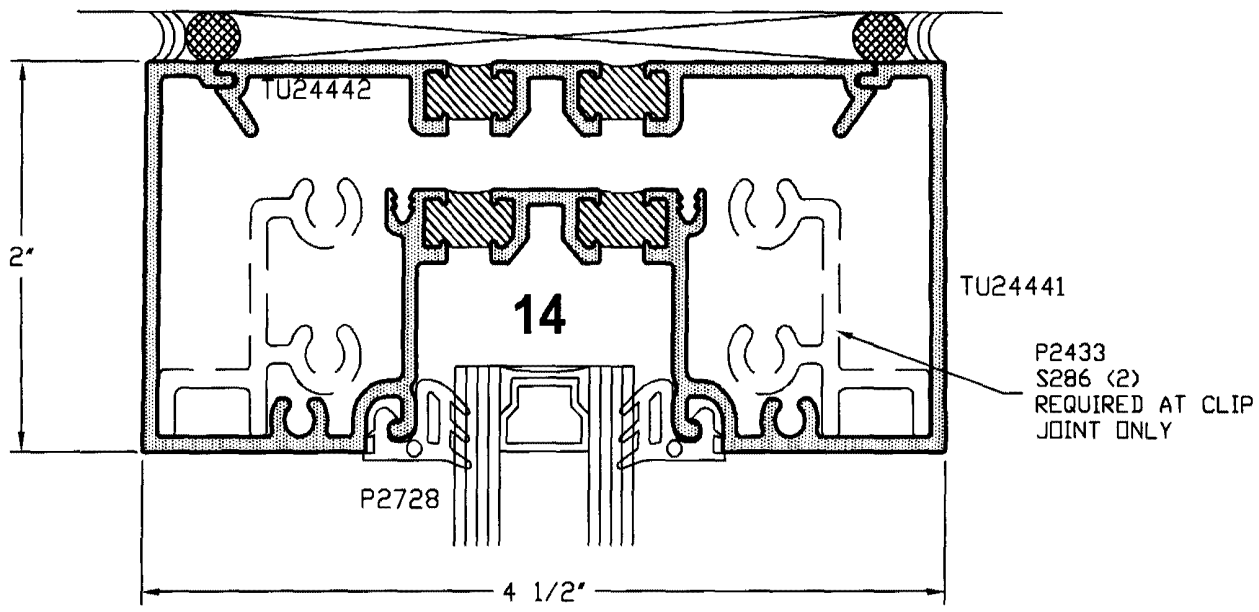
2013

19.07
TU24000 Series Non-Impact Storefront
Standard Head Member

CAD DETAIL FILE NO.
500HEAD



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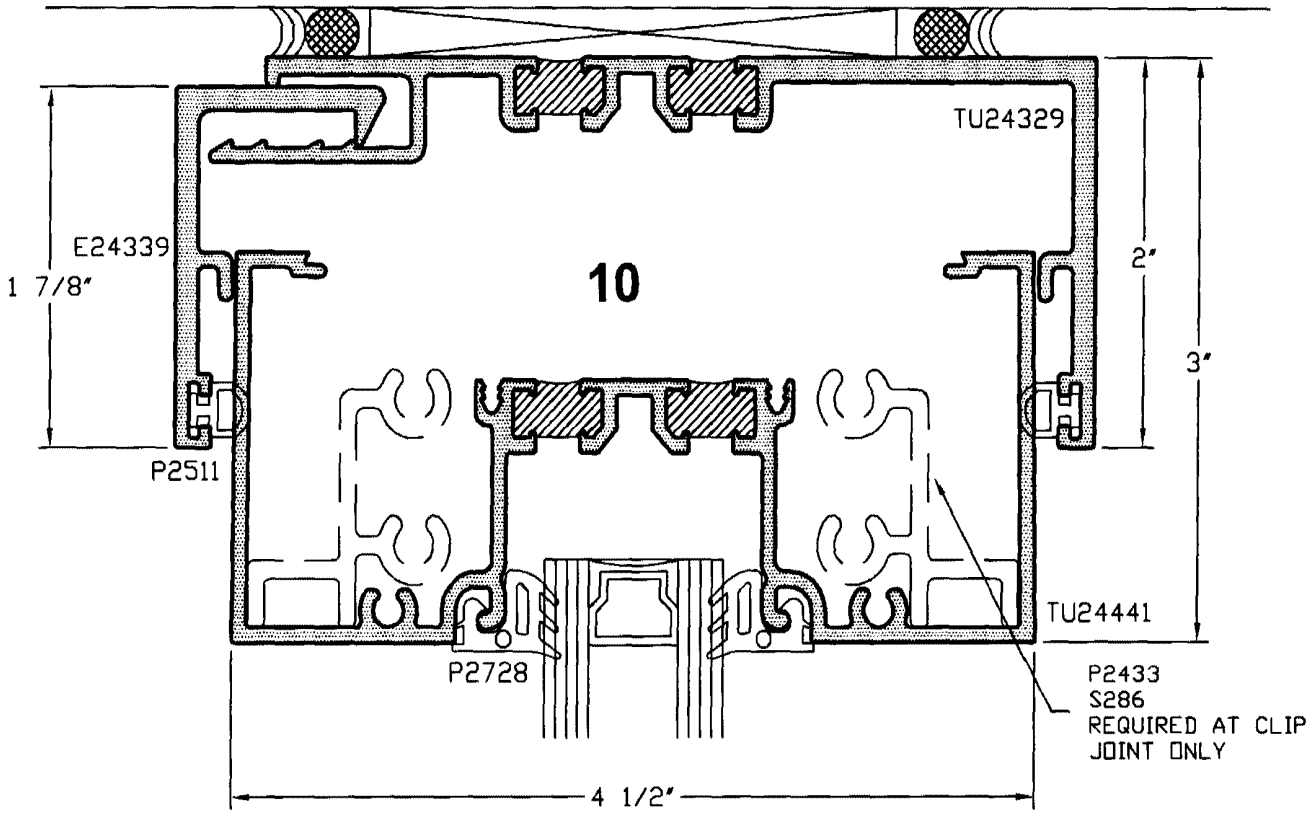
2013

19.08
TU24000 Series Non-Impact Storefront
Head Receptor

CAD DETAIL FILE NO.
500HEAD3



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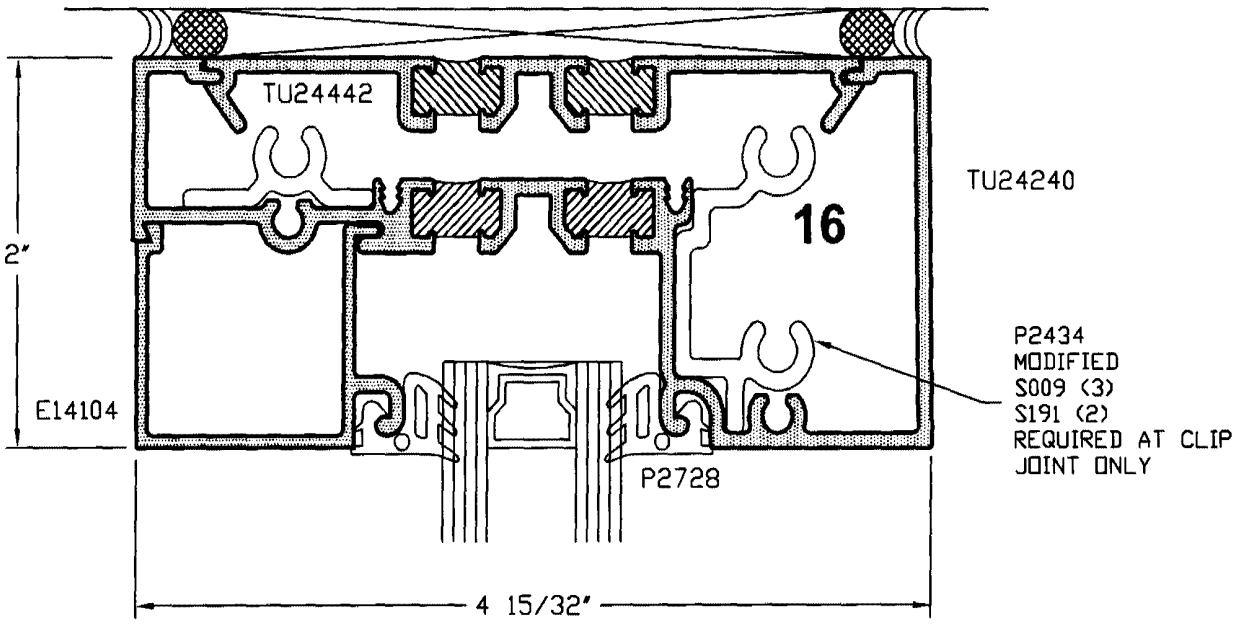
19.09
TU24000 Series Non-Impact Storefront
Alternate Head Member

CAD DETAIL FILE NO.
500HEAD1



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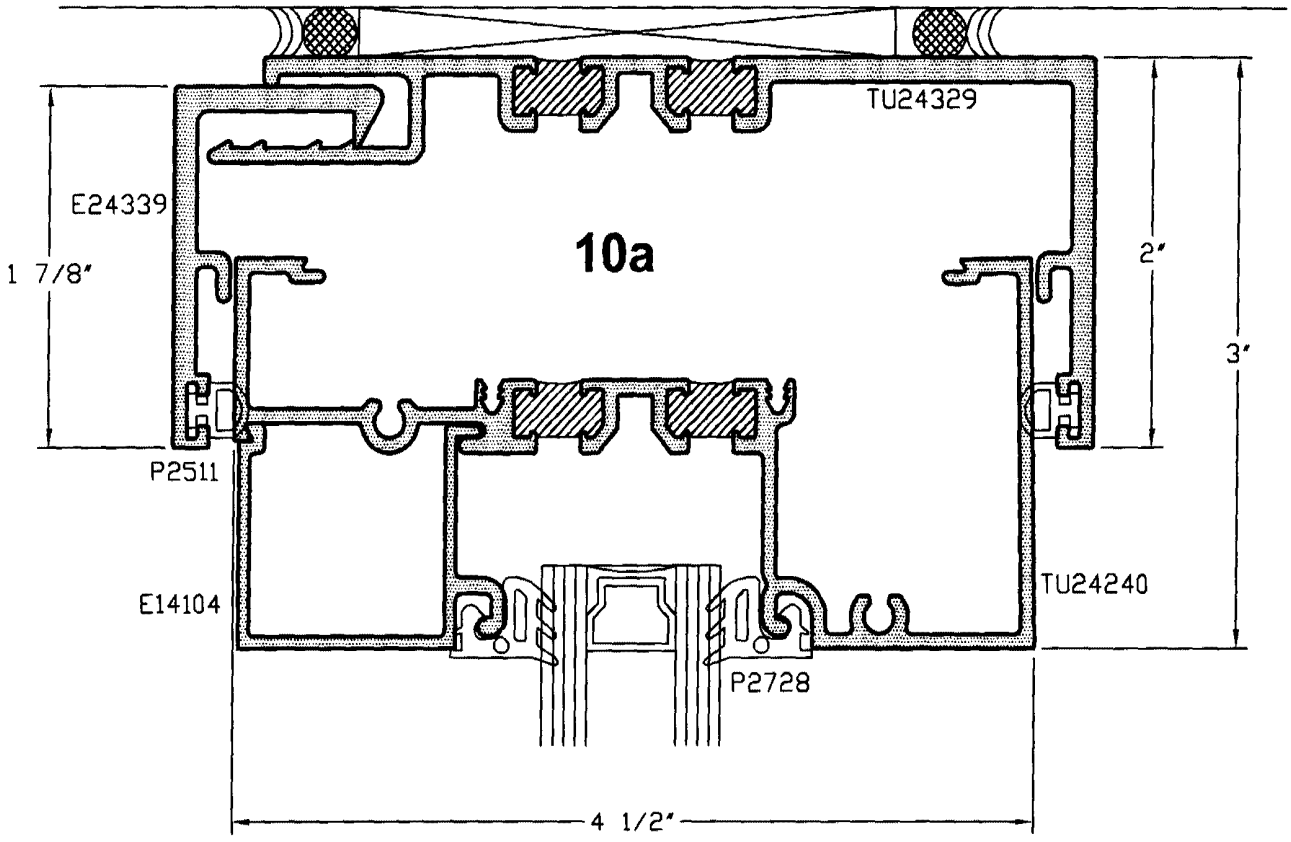
2013

19.10
TU24000 Series Non-Impact Storefront
Alternate Head with Head Receptor

CAD DETAIL FILE NO.
500HEAD4



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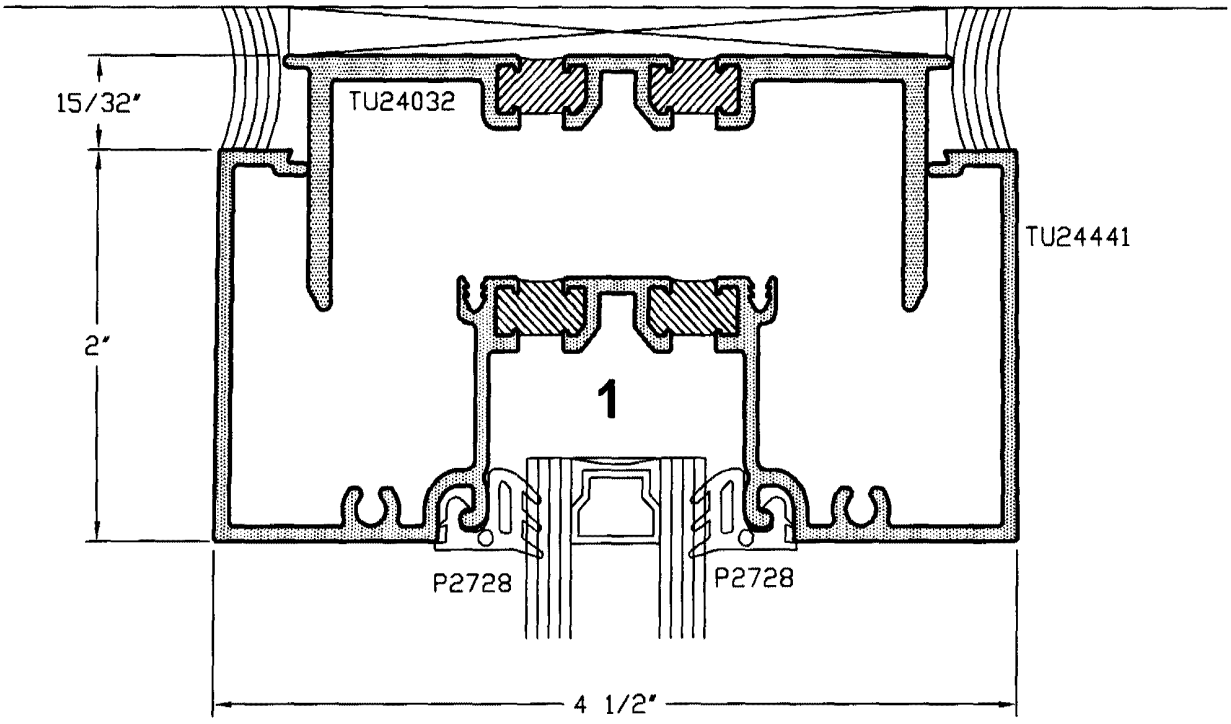
19.11
TU24000 Series Non-Impact Storefront
Alternate Head with Anchor Channel

CAD DETAIL FILE NO.
500HEAD2



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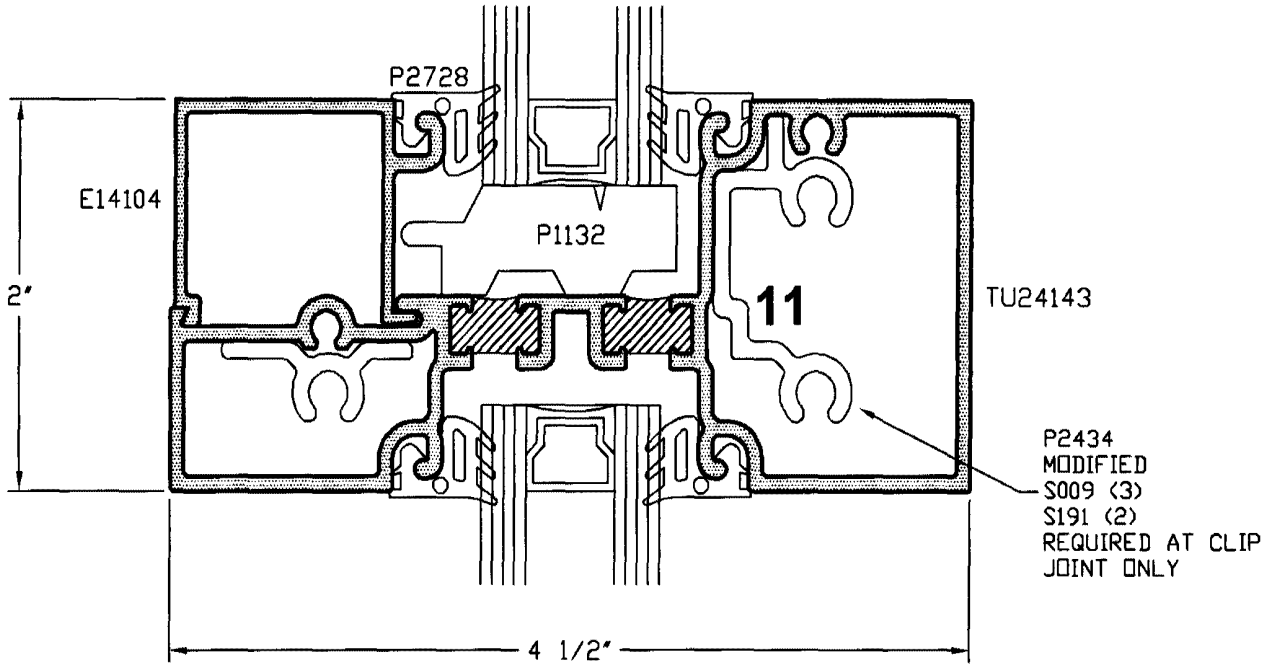
19.12
TU24000 Series Non-Impact Storefront
Intermediate Horizontal

CAD DETAIL FILE NO.
500HORZ



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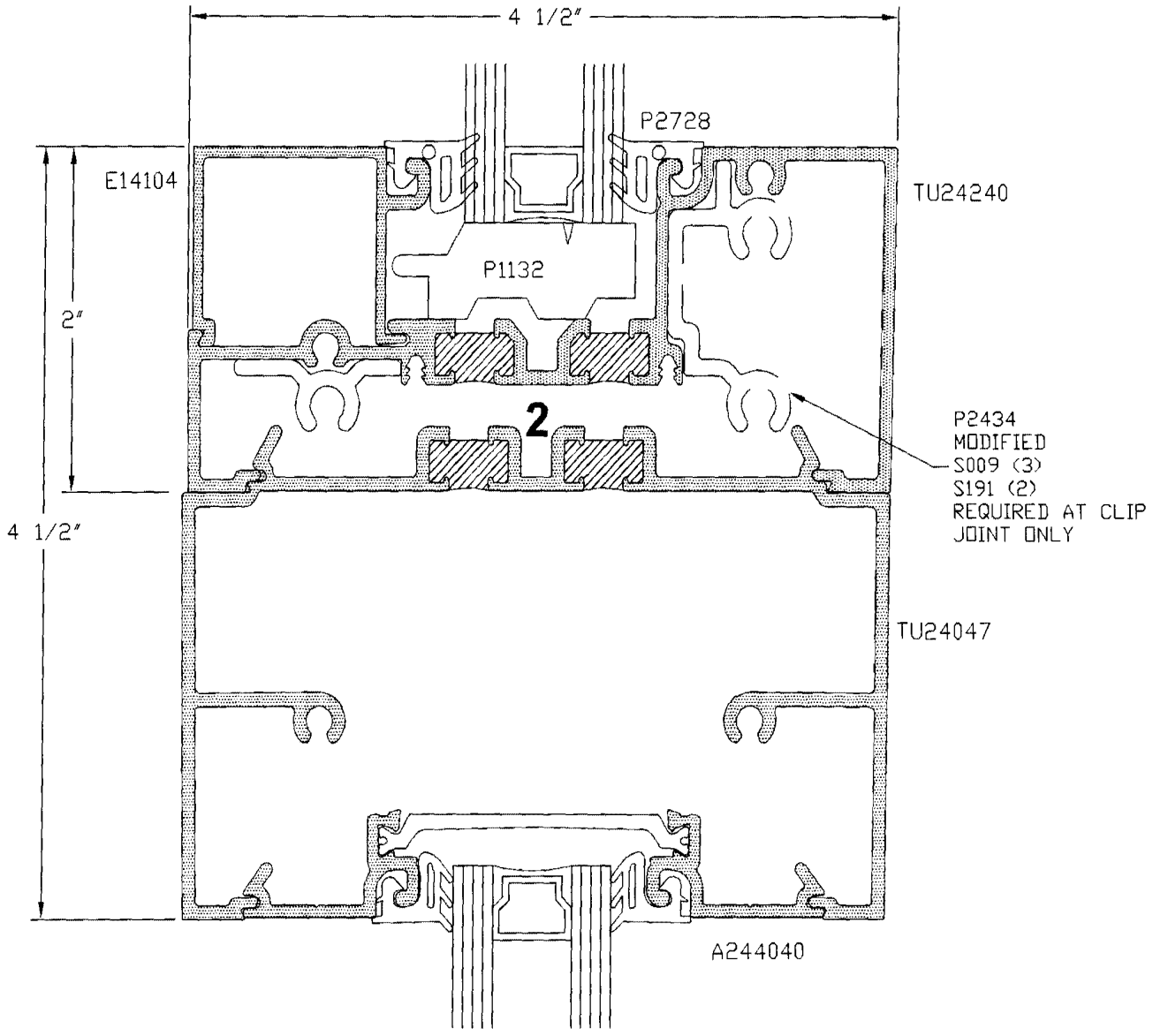
19.13
TU24000 Series Non-Impact Storefront
4 1/2" Horizontal

CAD DETAIL FILE NO.
500HORZ2



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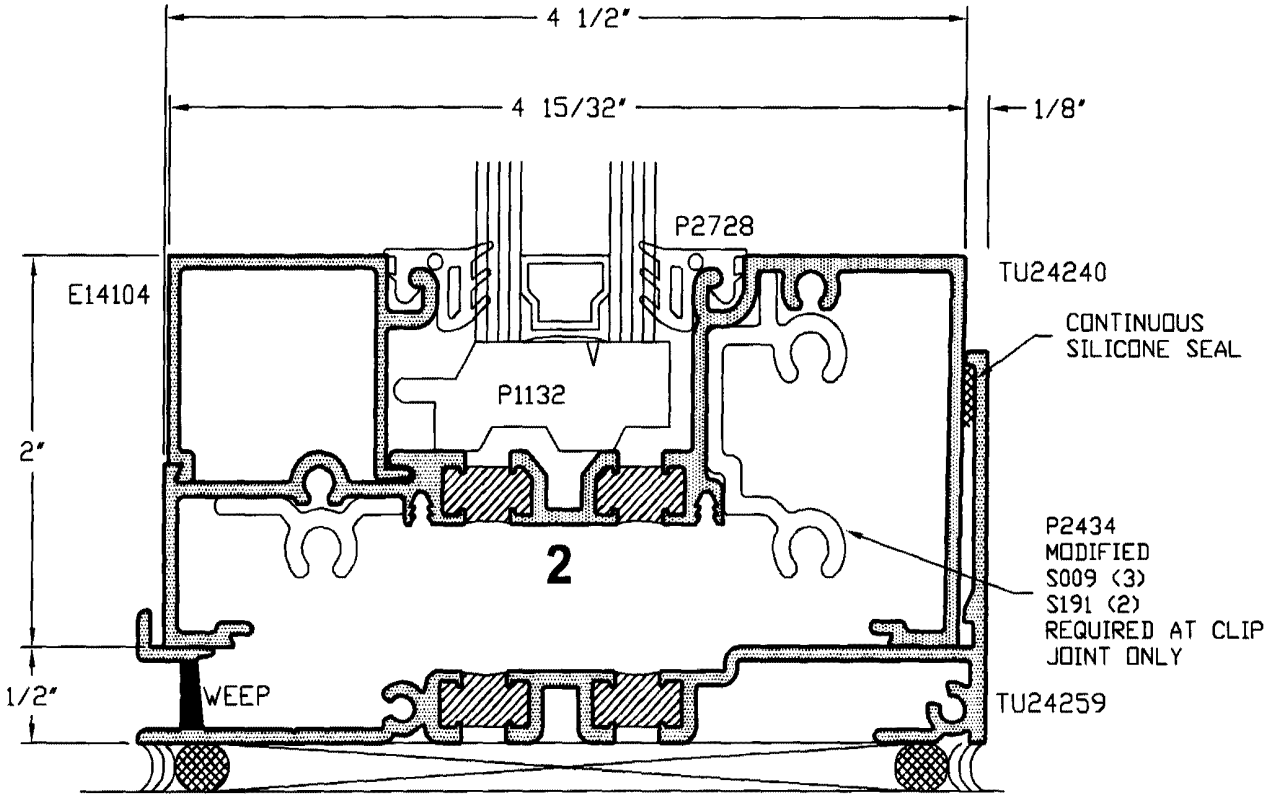
2014

19.14
TU24000 Series Non-Impact Storefront
Sill with Flashing

CAD DETAIL FILE NO.
500SILL



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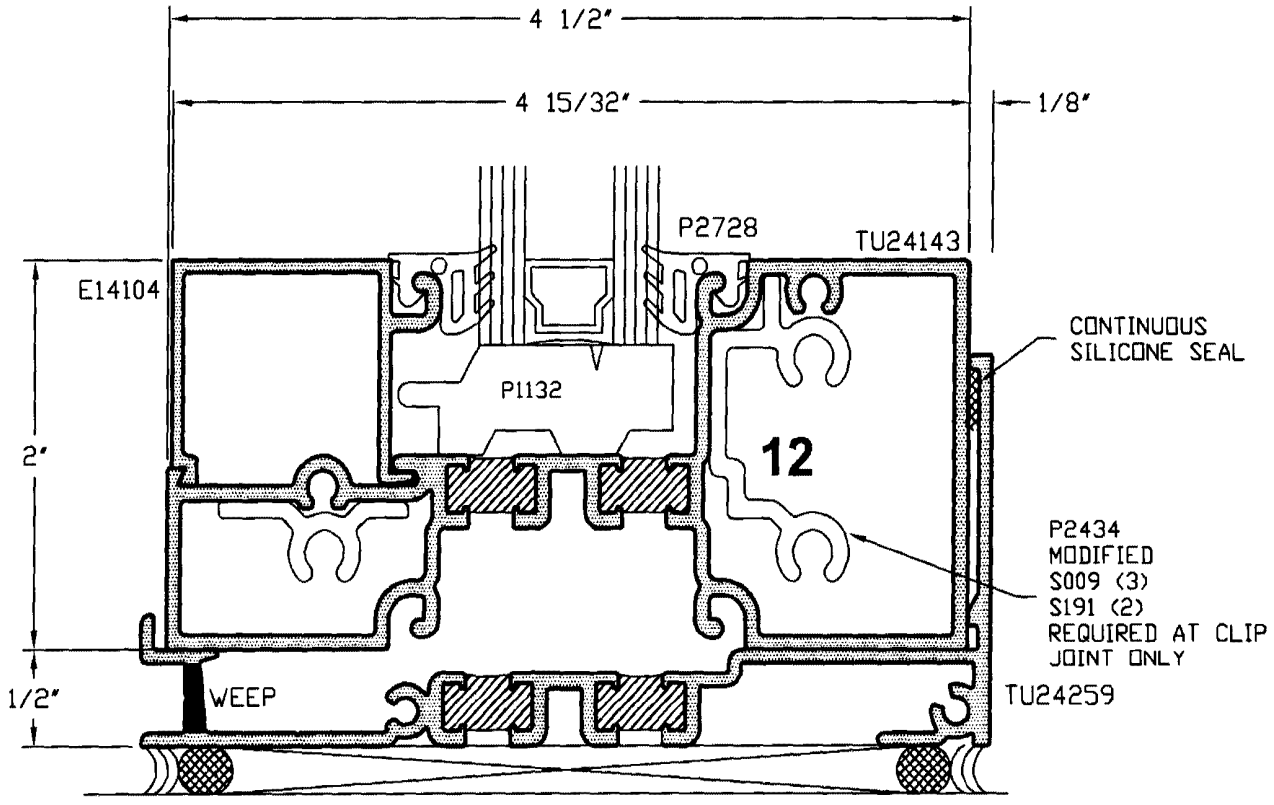
19.15
TU24000 Series Non-Impact Storefront
Alternate Sill with Flashing

CAD DETAIL FILE NO.
500SILL2



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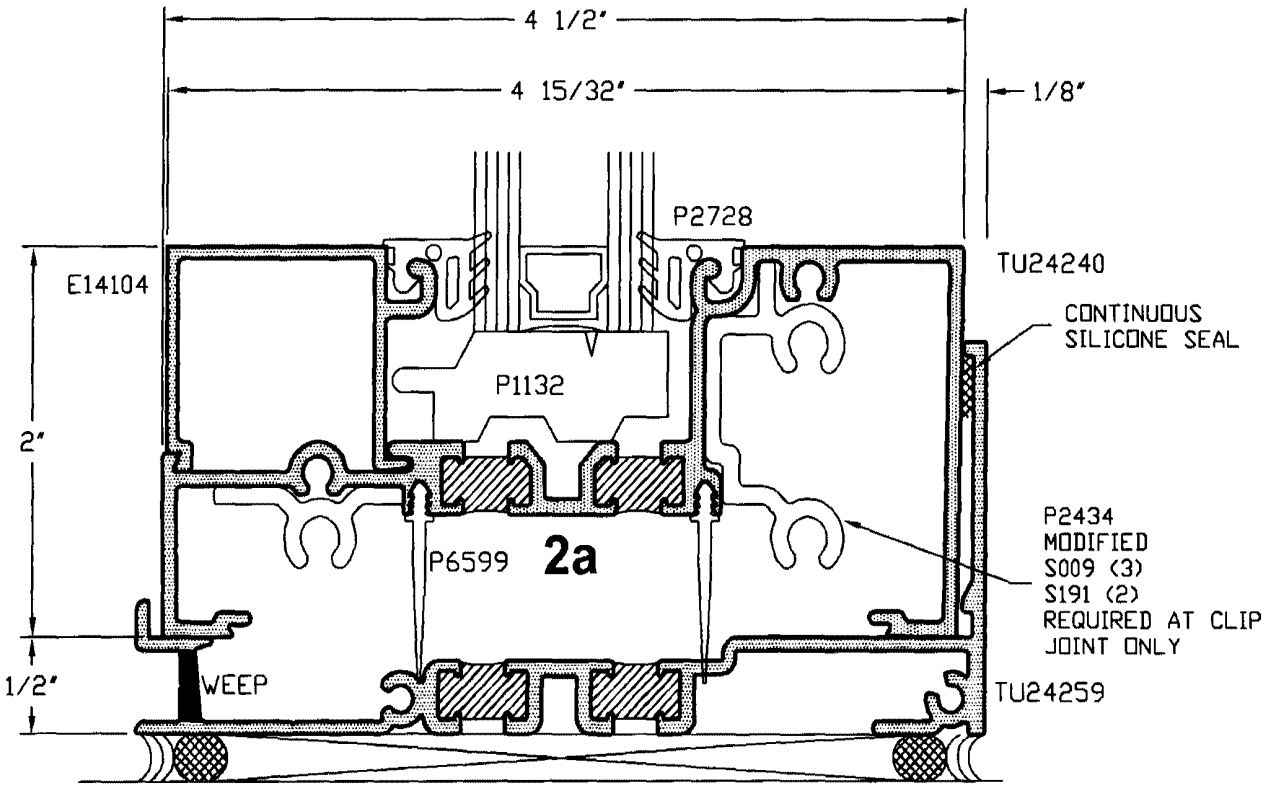
2013

19.16
TU24000 Series Non-Impact Storefront
Sill with Baffles - Optional

CAD DETAIL FILE NO.
500SILL1



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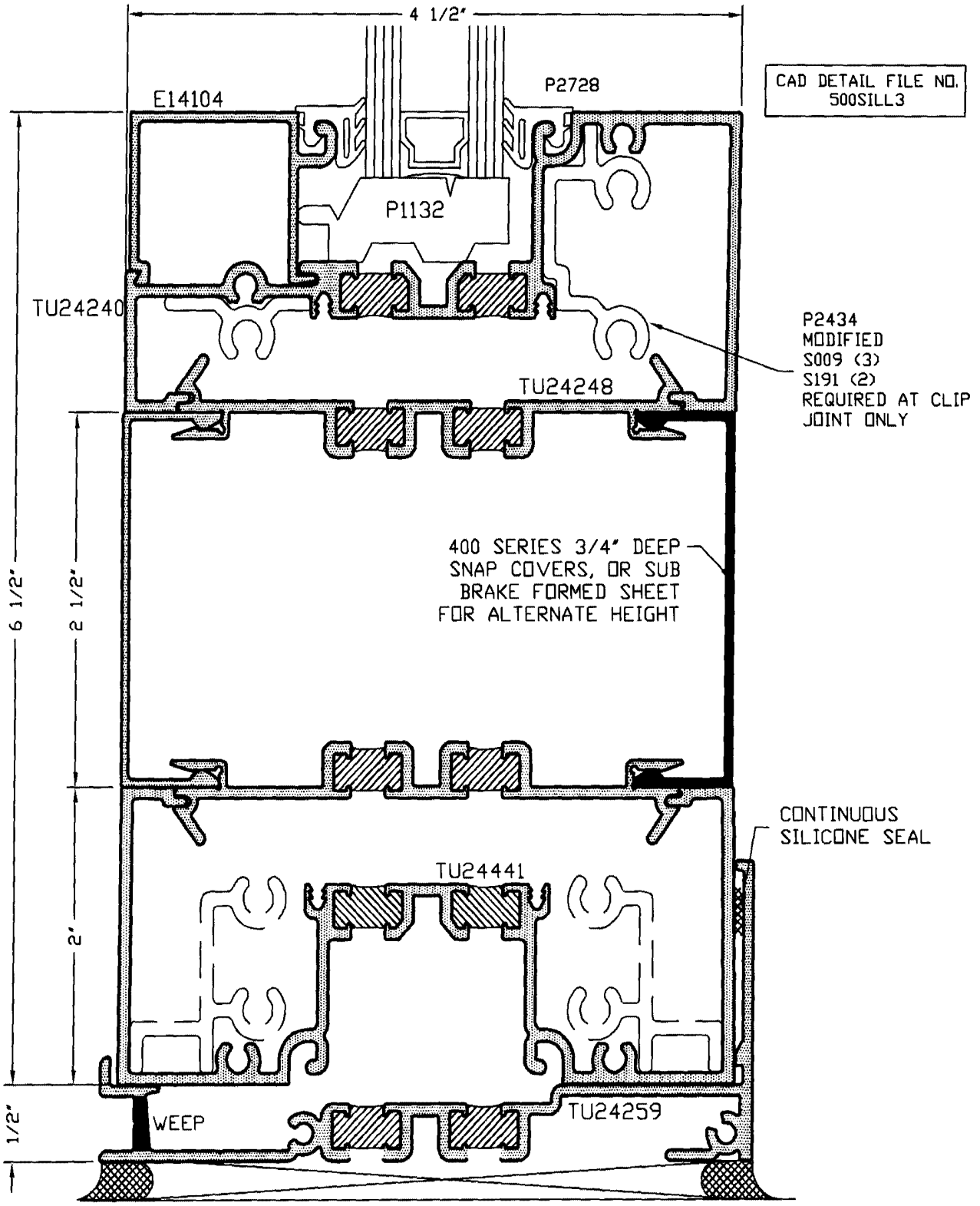
19.17
TU24000 Series Non-Impact Storefront
Sill with Sidelight Base Adapter



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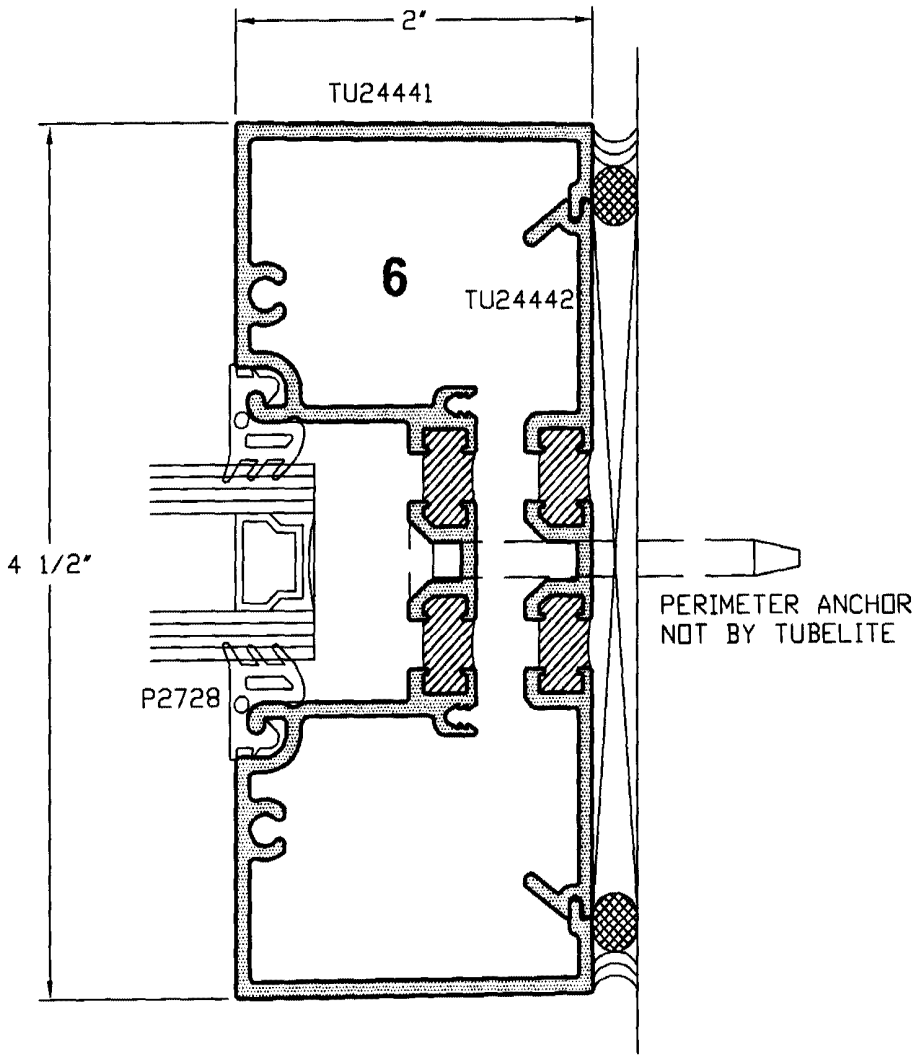
2013

19.18
TU24000 Series Non-Impact Storefront
Jamb

CAD DETAIL FILE NO.
500JAMB



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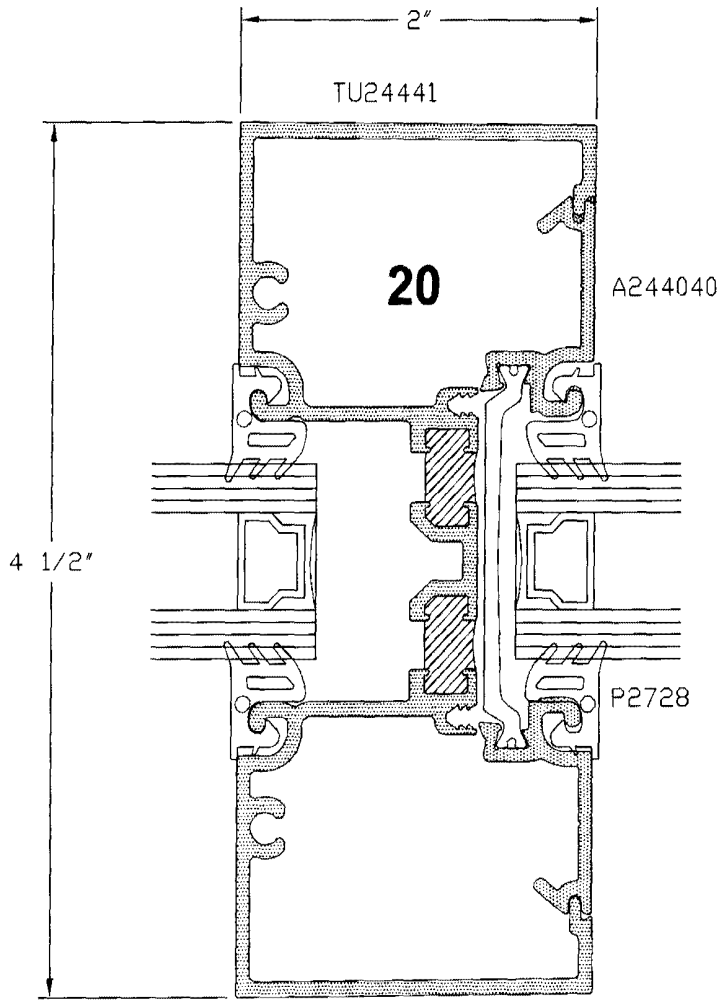
19.19
TU24000 Series Non-Impact Storefront
Intermediate Vertical

CAD DETAIL FILE NO.
500VERT



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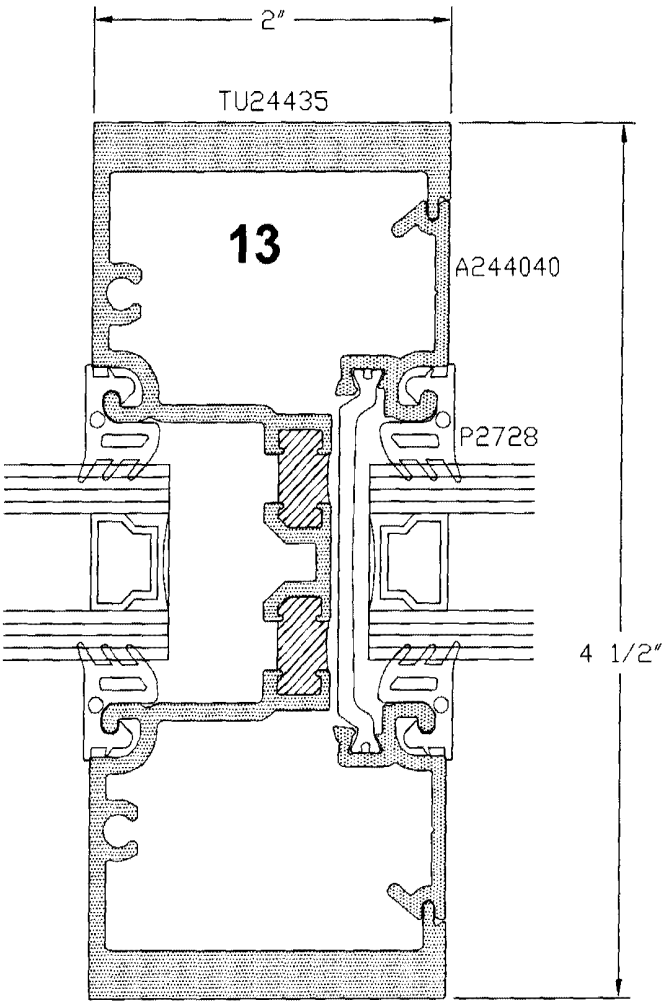
2014

19.20
TU24000 Series Non-Impact Storefront
Heavy Wall Mullion

CAD DETAIL FILE NO.
500HSVT



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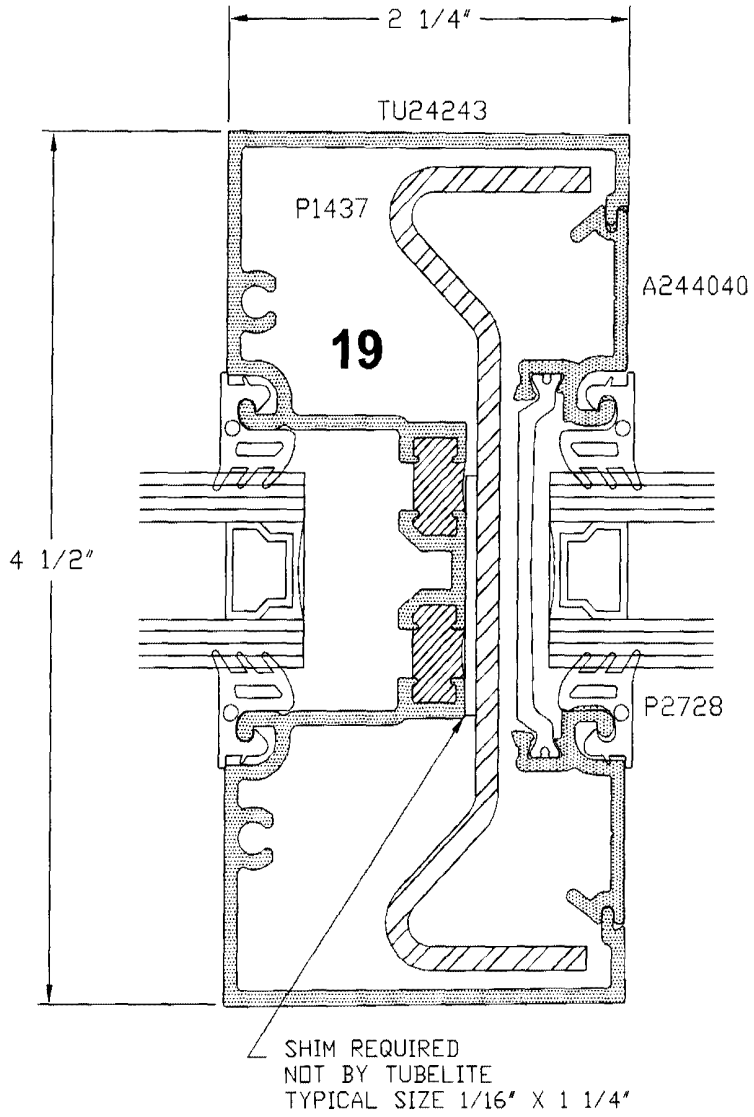
19.21
TU24000 Series Non-Impact Storefront
Intermediate Vertical with Steel Reinforcing

CAD DETAIL FILE NO.
500VERT1



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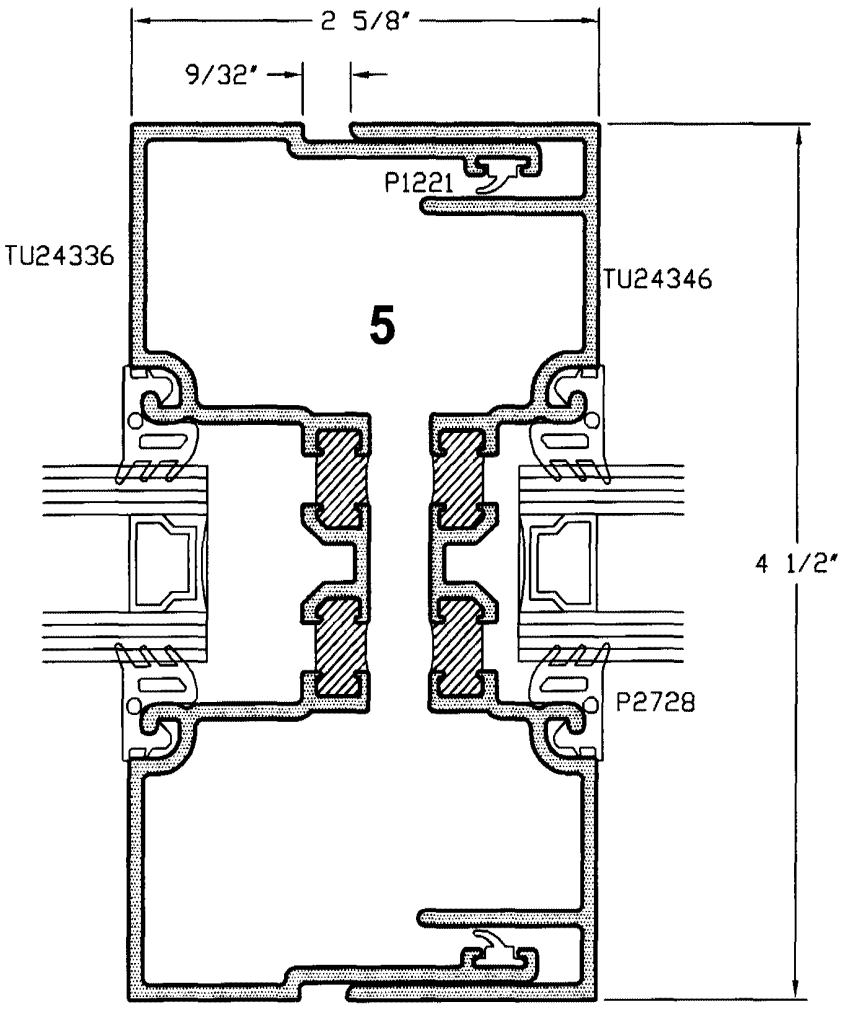
2014

19.22
TU24000 Series Non-Impact Storefront
Expansion Mullion

CAD DETAIL FILE NO.
500XVRT



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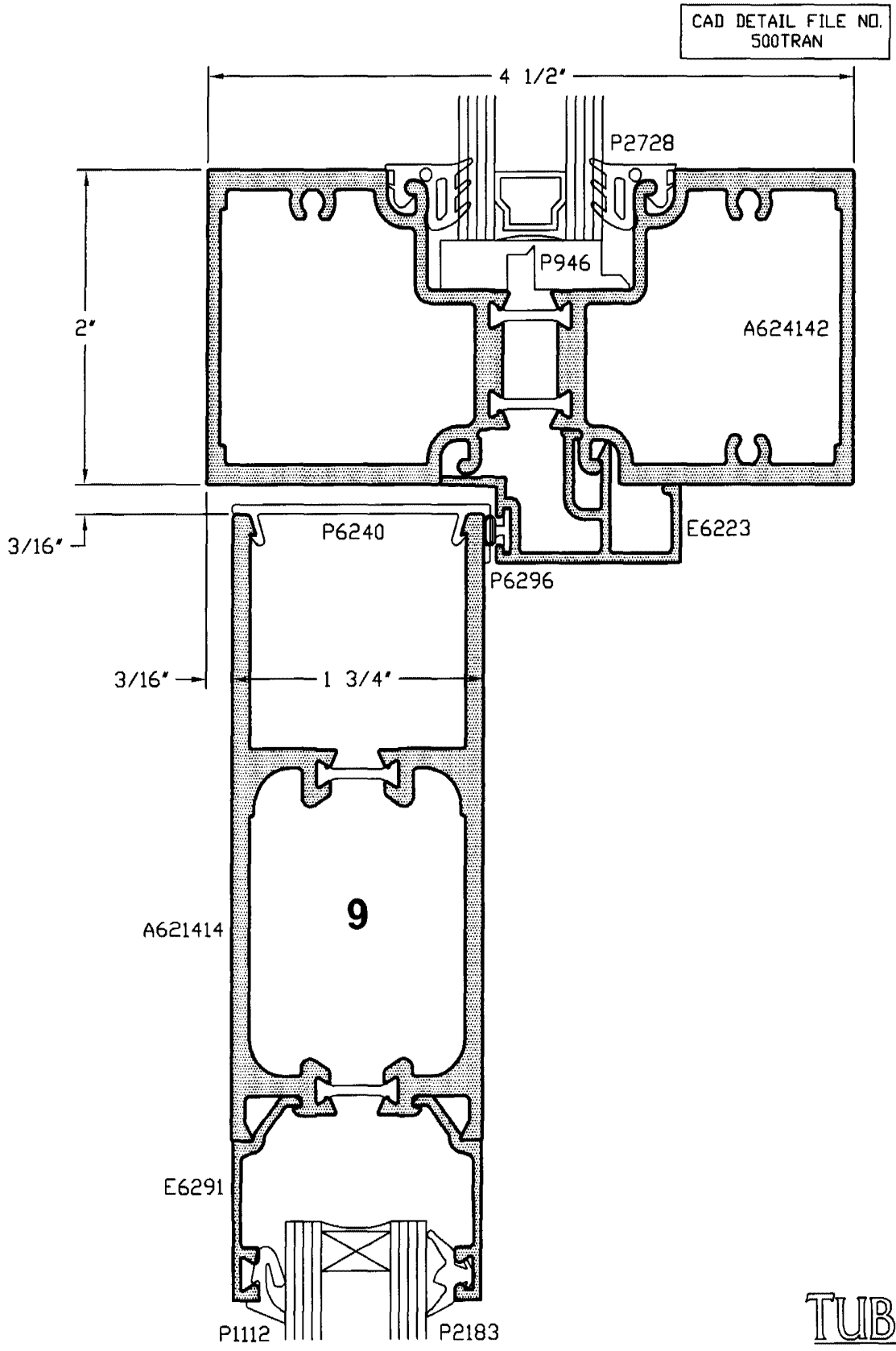
19.23
TU24000 Series Non-Impact Storefront
Transom Door Header



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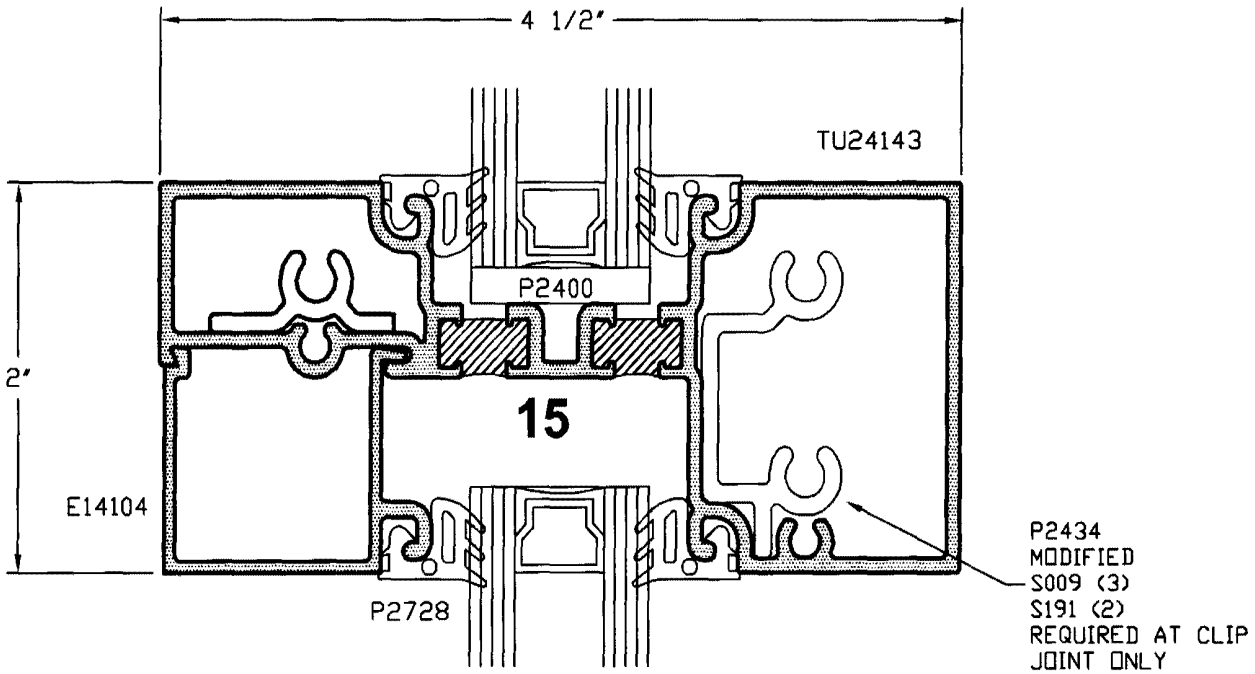
19.24
TU24000 Series Non-Impact Storefront
Horizontal Above Transom

CAD DETAIL FILE NO.
500HORZ1



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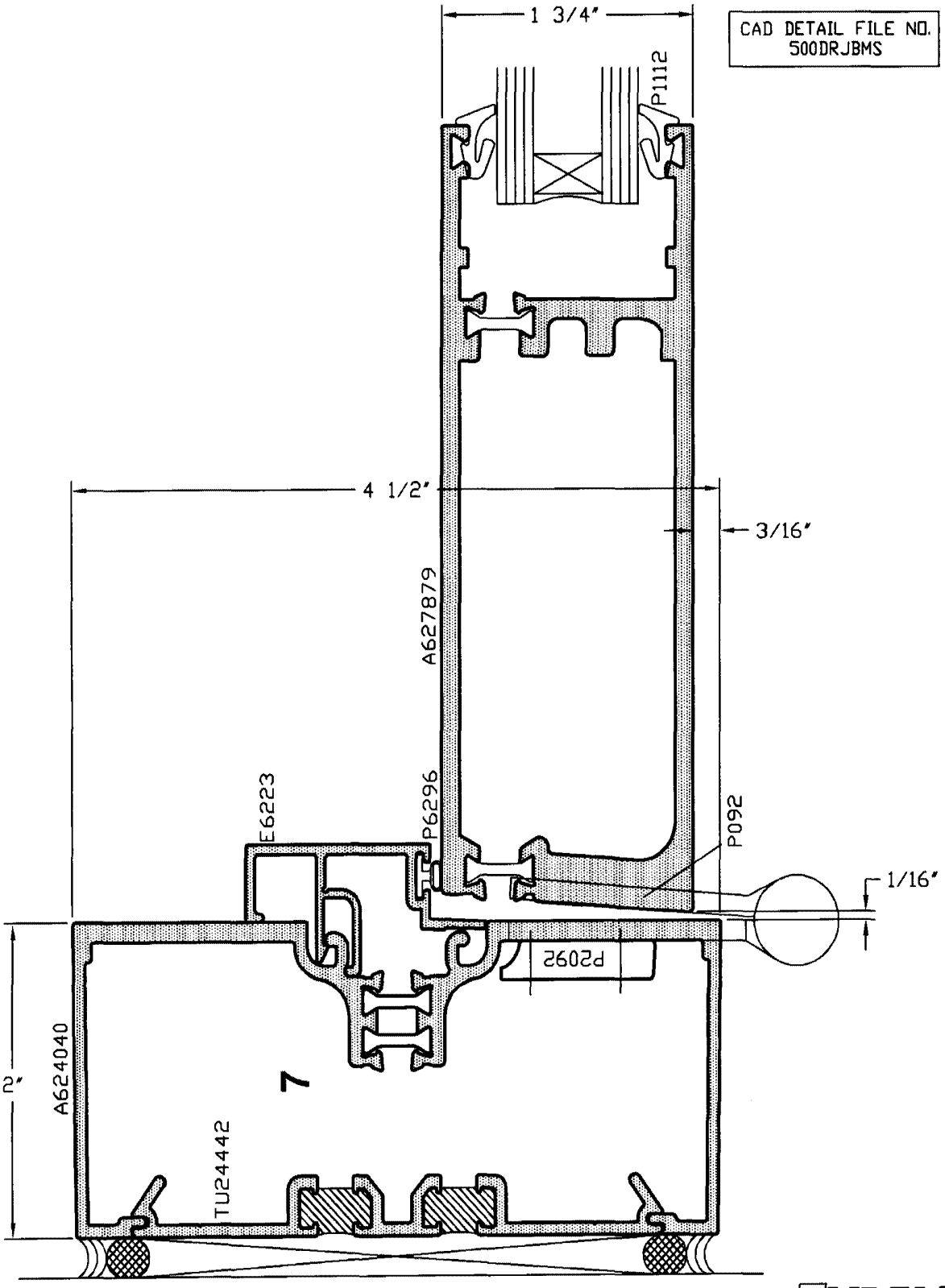
19.25
TU24000 Series Non-Impact Storefront
Door Jamb - Medium Stile Butt Hinge



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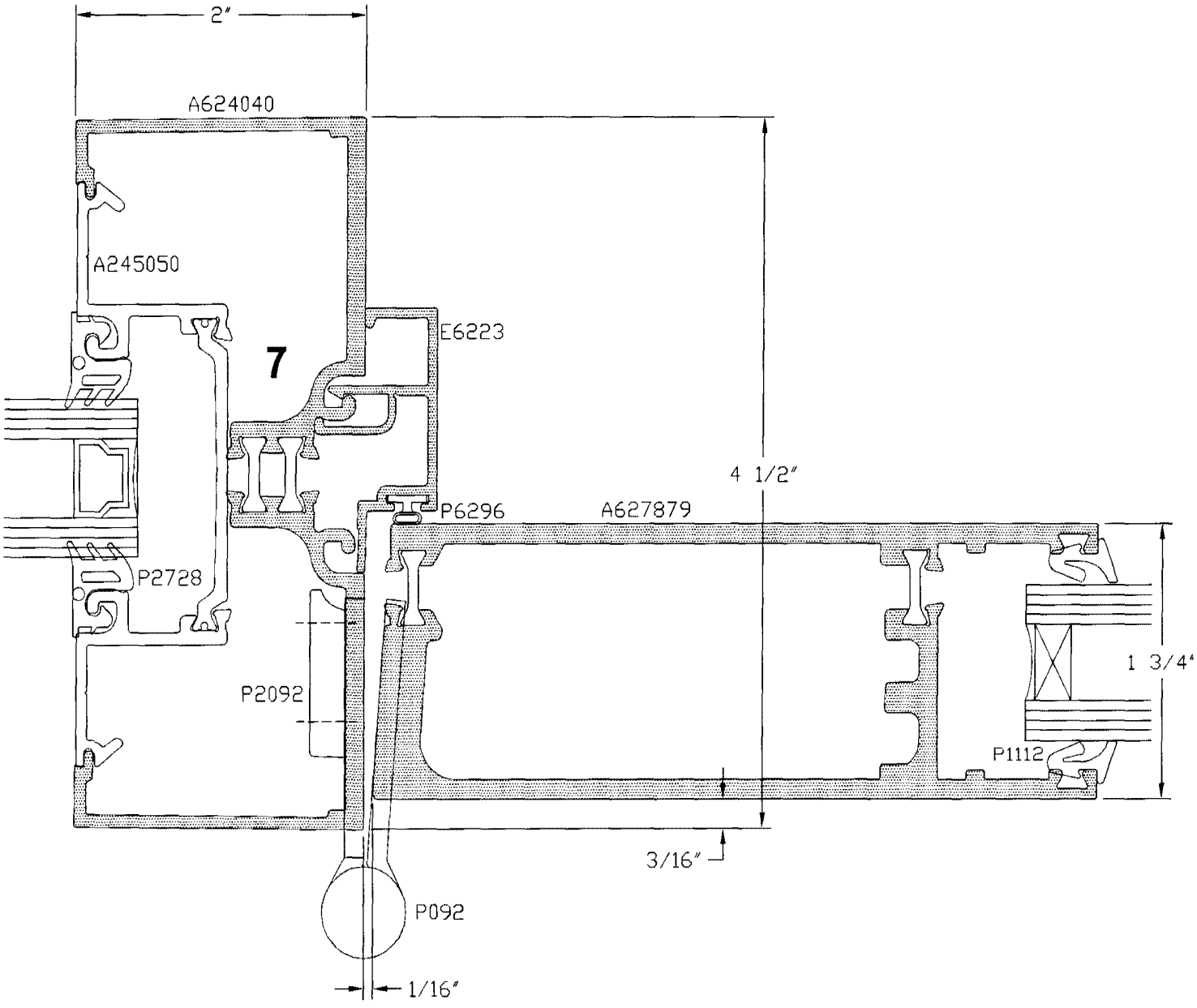
19.26
TU24000 Series Non-Impact Storefront
Door Jamb - Deep Pocket Closure

CAD DETAIL FILE NO.
500DRJBMS3



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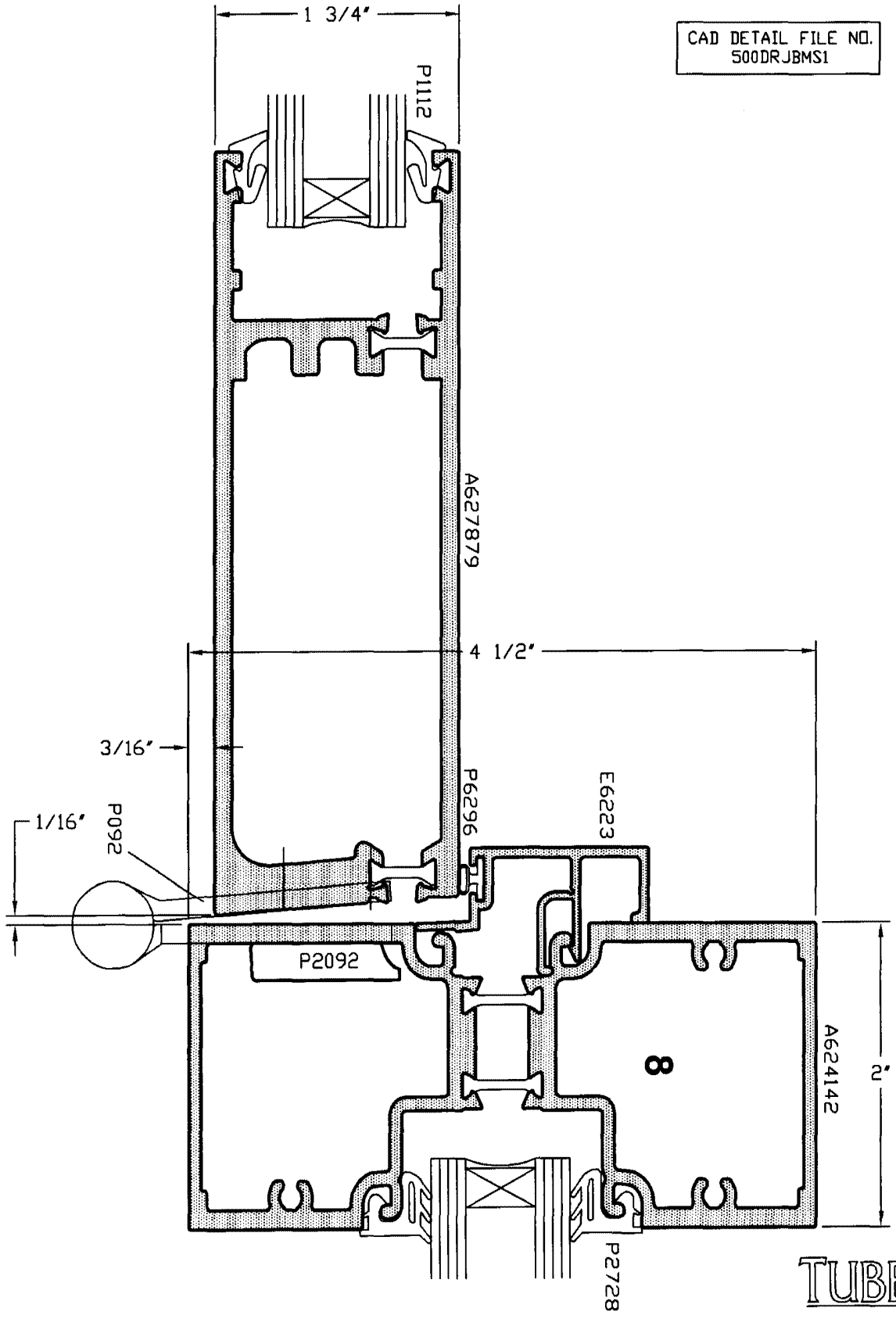
19.27
TU24000 Series Non-Impact Storefront
Door Jamb - Medium Stile Butt Hinge



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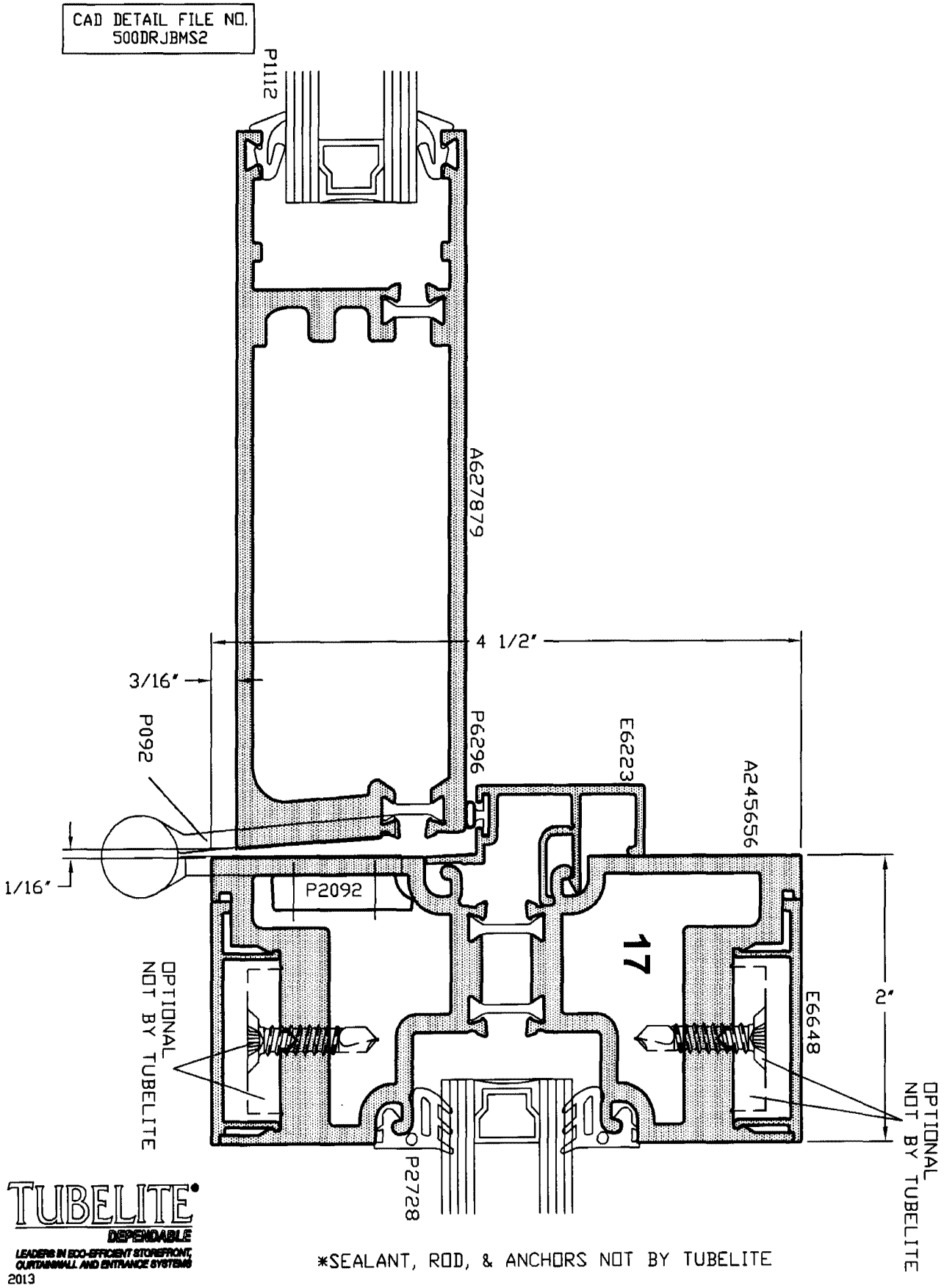
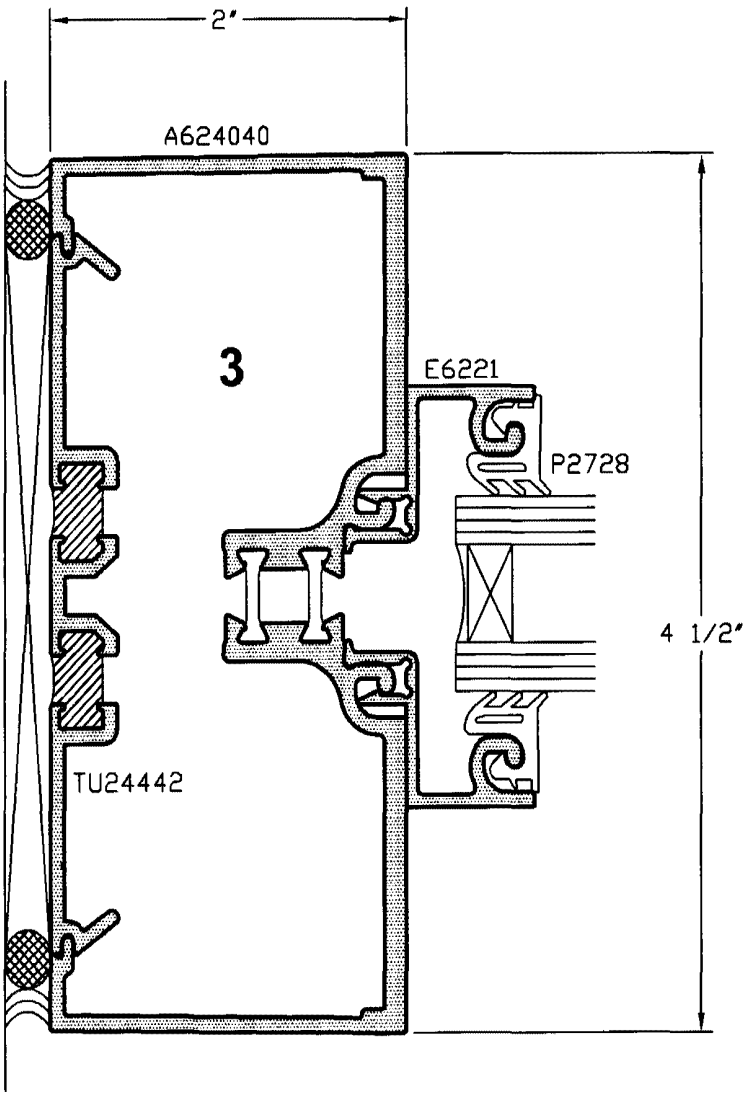
19.28
TU24000 Series Non-Impact Storefront
Door Jamb - Reinforced Mullion - Medium Stile Butt Hinge



19.29
TU24000 Series Non-Impact Storefront
Door Jamb with Transom

CAD DETAIL FILE NO.
500DRVS



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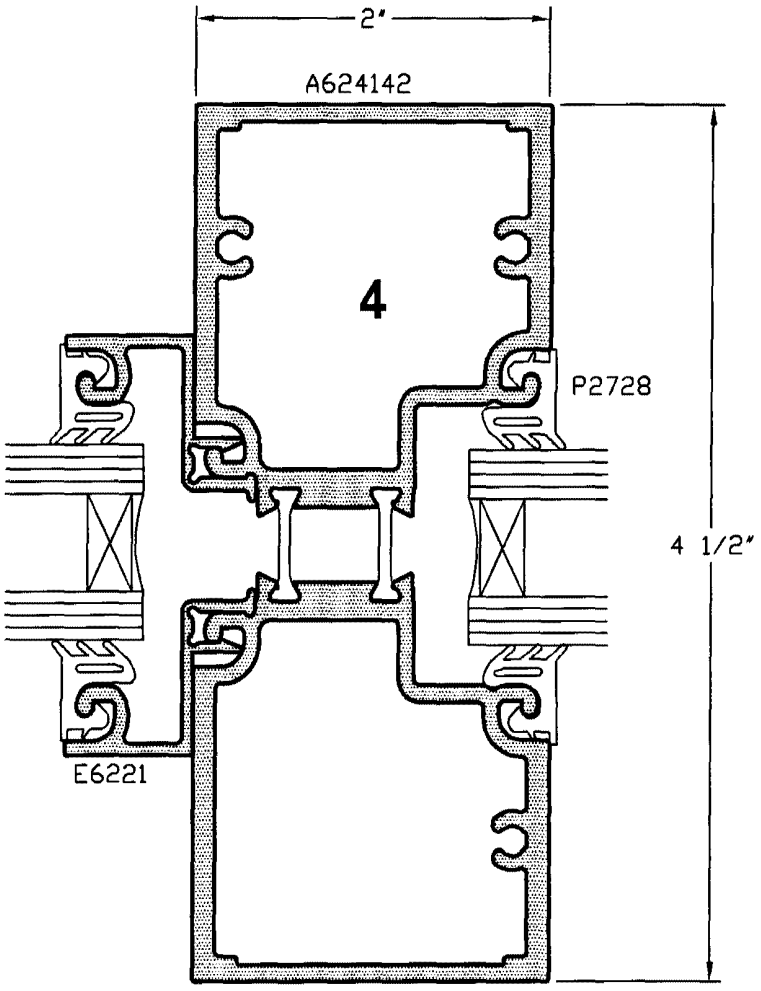
LEADERS IN ECO-EFFICIENT STOREFRONT, CURTAINWALL AND ENTRANCE SYSTEMS
2013

19.30
TU24000 Series Non-Impact Storefront
Transom Jamb with Sidelite

CAD DETAIL FILE NO.
500DRVS1



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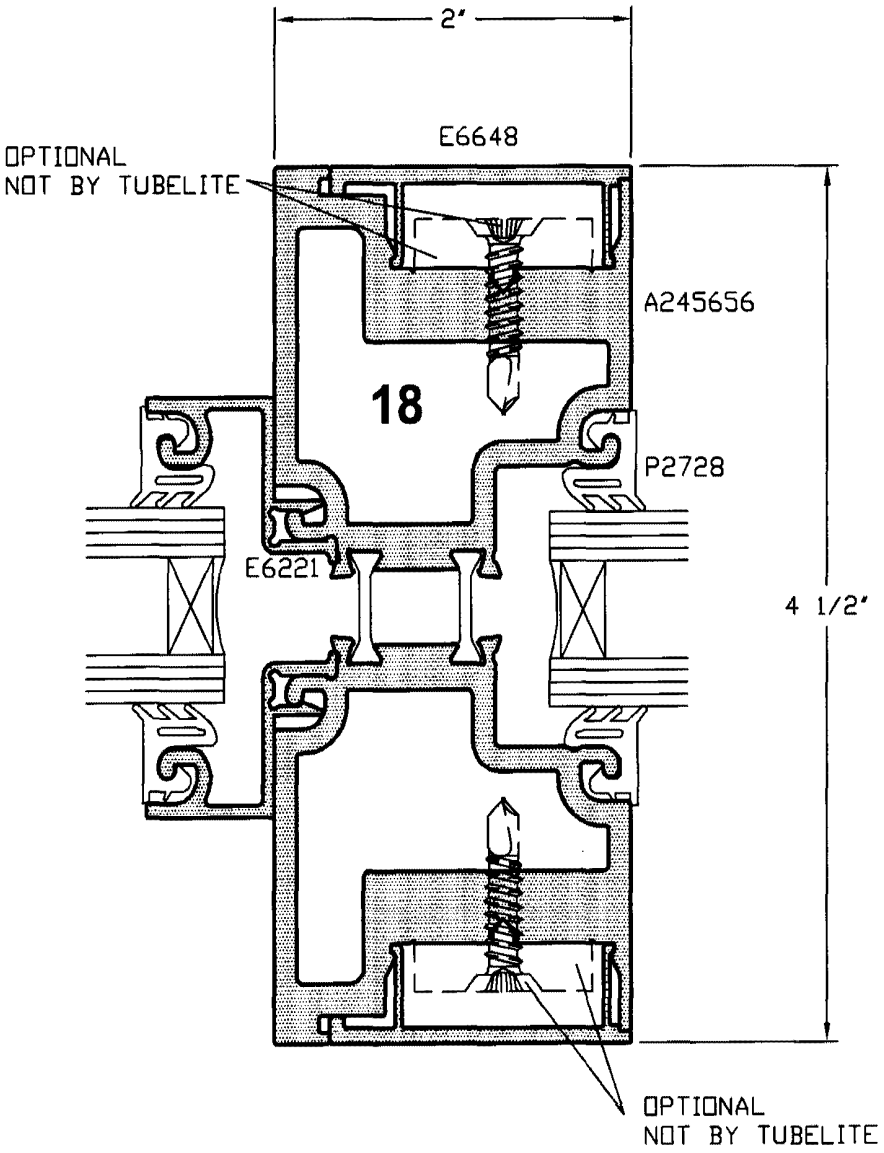
2013

*SEALANT, ROD, & ANCHORS NOT BY TUBELITE

19.31
TU24000 Series Non-Impact Storefront
Alternate Transom Jamb with Sidelite with Steel Reinforcing

CAD DETAIL FILE NO.
500DRVS2



*SEALANT, ROD, & ANCHORS NOT BY TUBELITE

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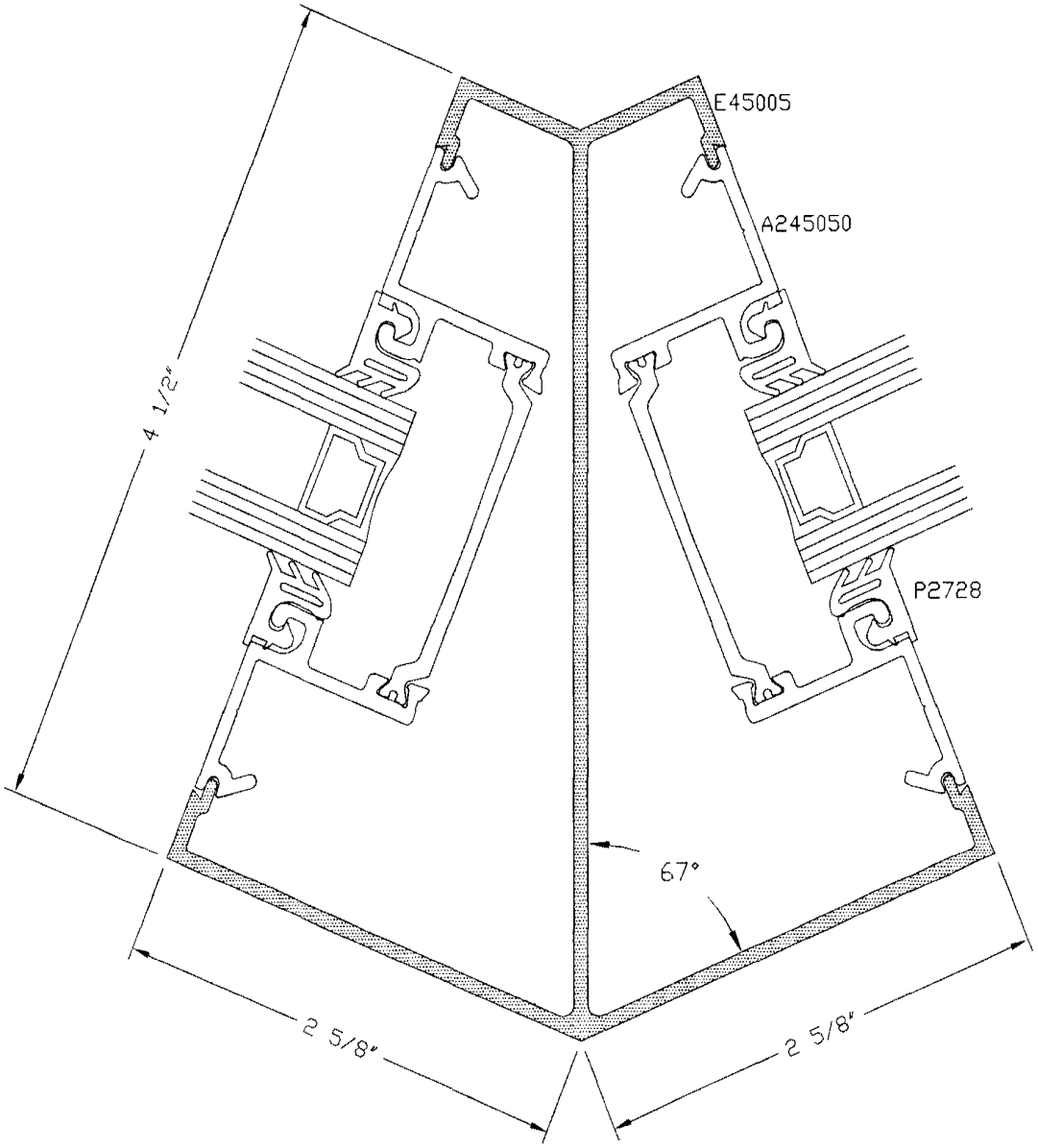
2013

19.32
TU24000 Series HP Thermal Flush Glaze
135° Corner

CAD DETAIL FILE NO.
500CORN



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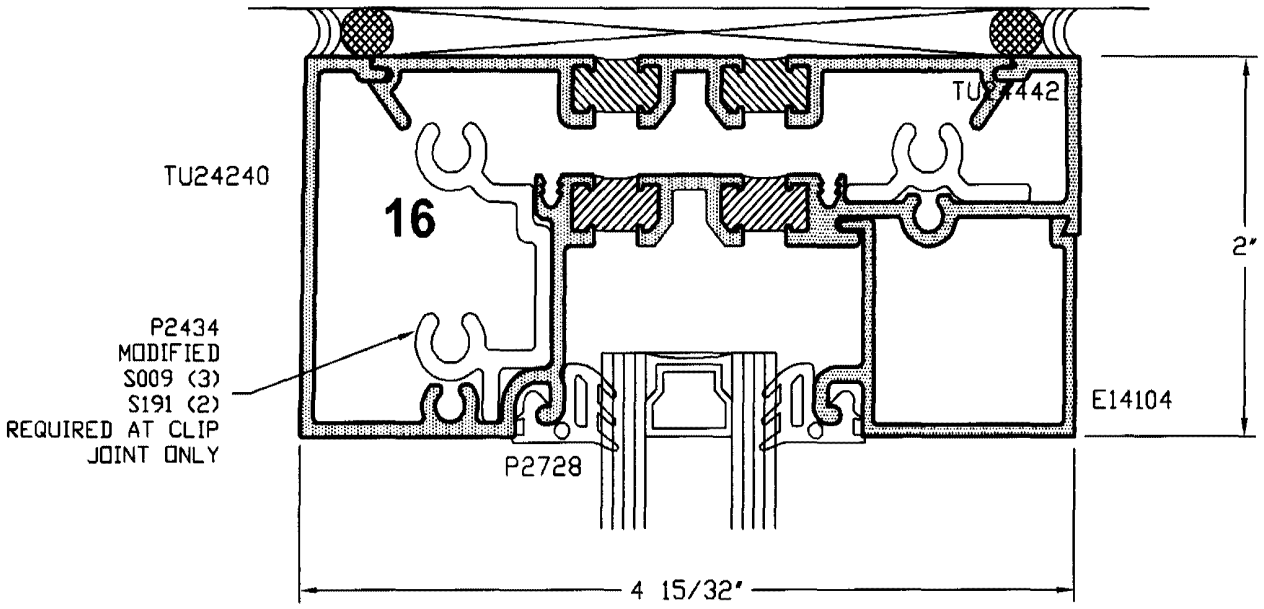
2014

*SEALANT, ROD, & ANCHORS NOT BY TUBELITE

TU24000 Series Non-Impact Storefront

Inside Glazed Head

CAD DETAIL FILE NO.
500HEAD5



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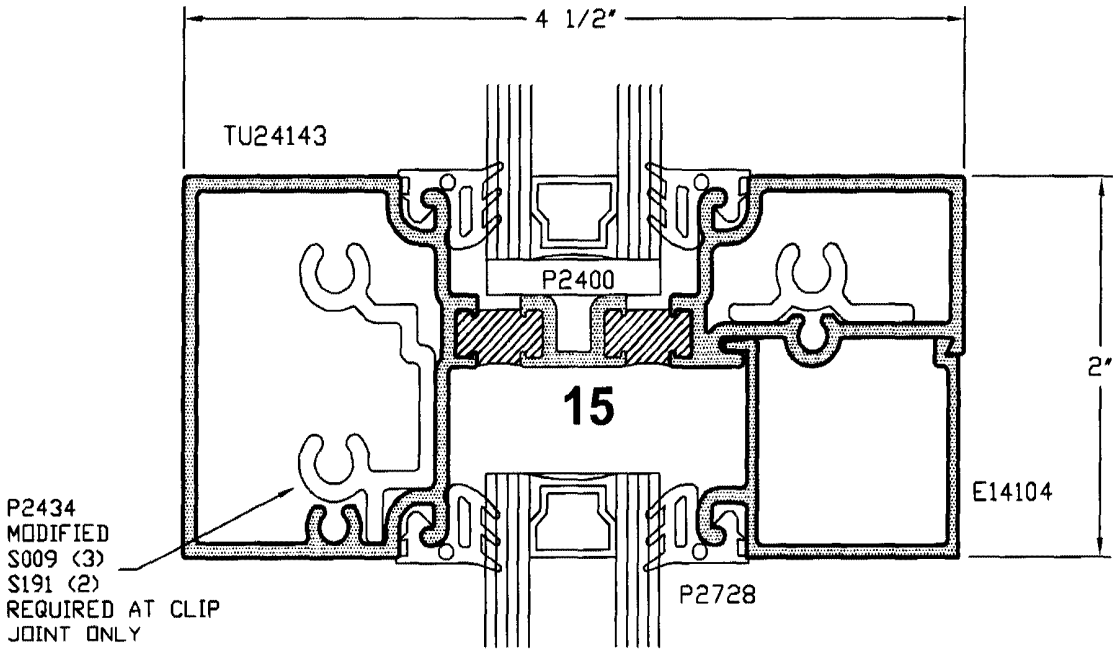
2015

*SEALANT, ROD, & ANCHORS NOT BY TUBELITE

TU24000 Series Non-Impact Storefront
Inside Glazed Horizontal

CAD DETAIL FILE NO.
500HORZ3



*SEALANT, ROD, & ANCHORS NOT BY TUBELITE

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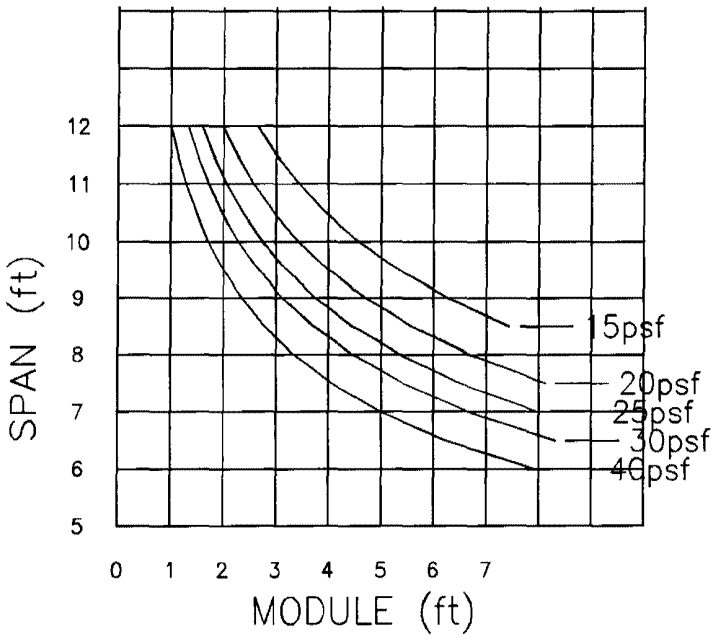
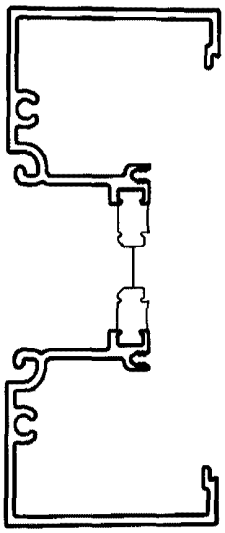
DEPENDABLE
LEADERS IN ECO-EFFICIENT STOREFRONT, CURTAINWALL AND ENTRANCE SYSTEMS
2015

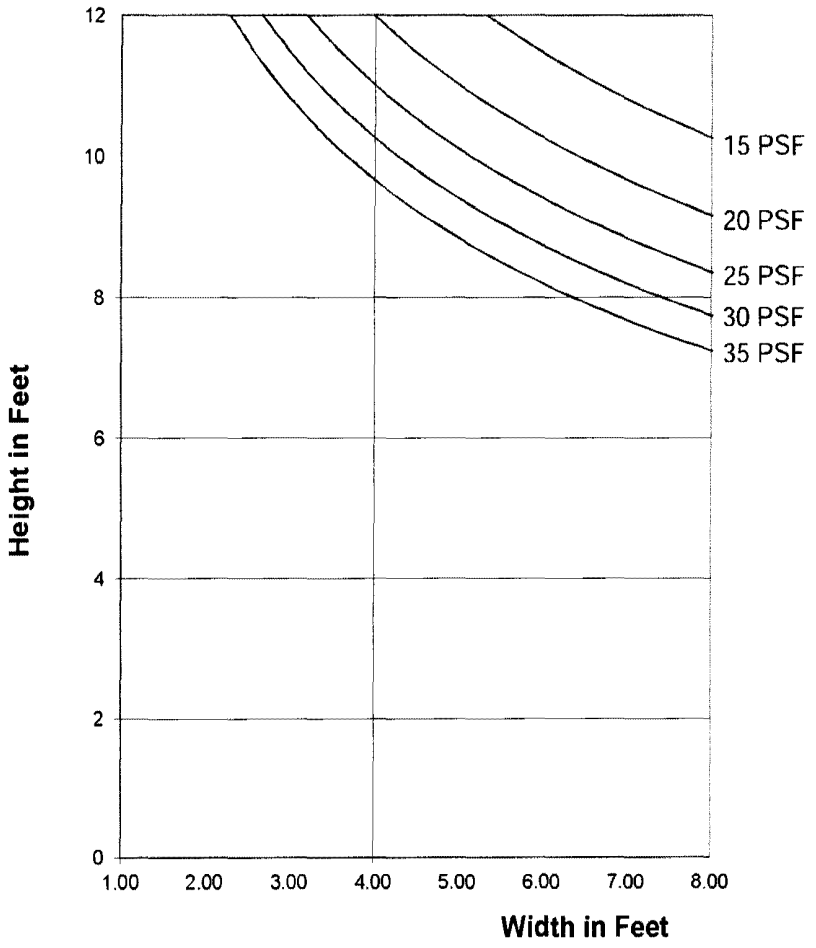
TU24441 Double Thermal
Standard Vertical
@ 120" Length

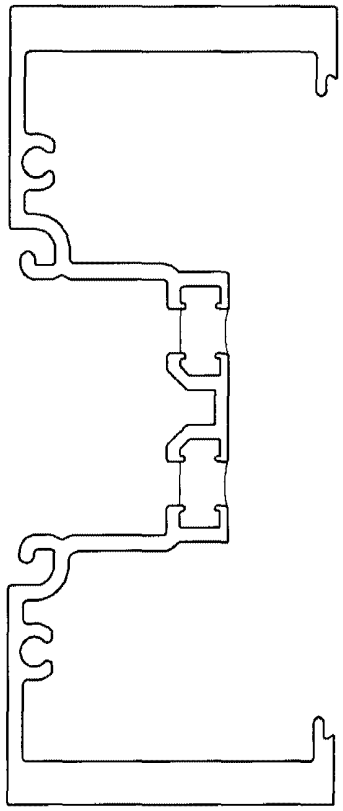




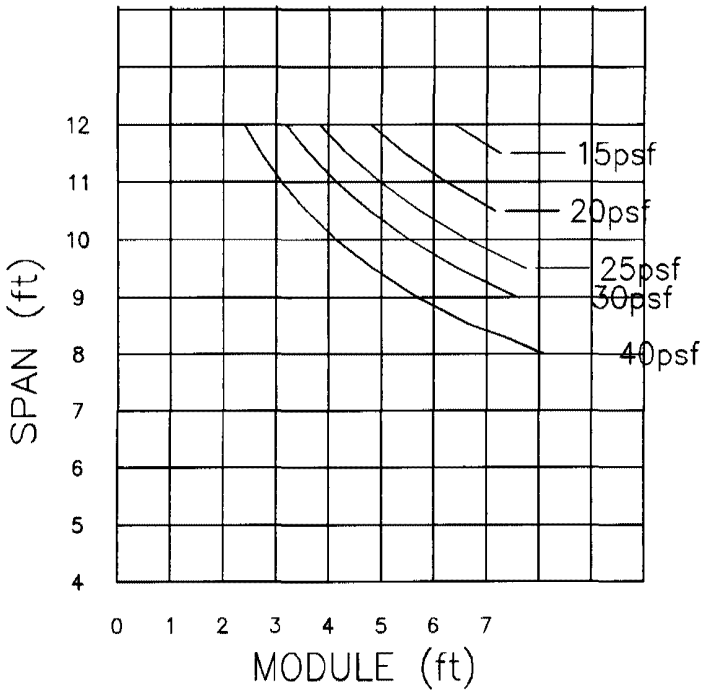
WINDLOAD CRITERIA			
Type of Loading		Uniform	
Ixx		2.249	in^4
Sxx(max)		N/A	in^3
Area		N/A	in^2
Criteria L/x	x =	175	in
Max Deflection		N/A	in

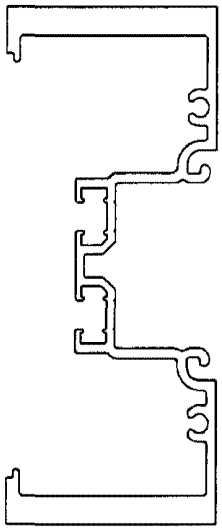
TU24435 Heavy Vertical
L/175 < 13'-6"
L/240 + 1/4" > 13'-6"
15151 psi maximum stress





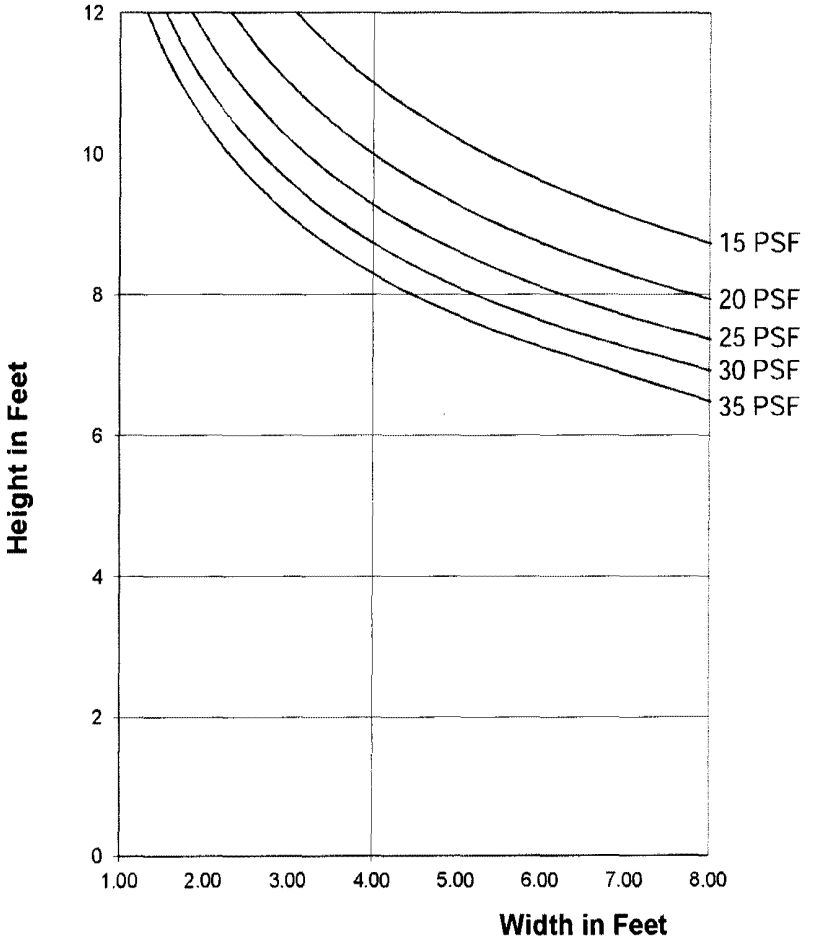
E24435 Heavy Wall Mullion

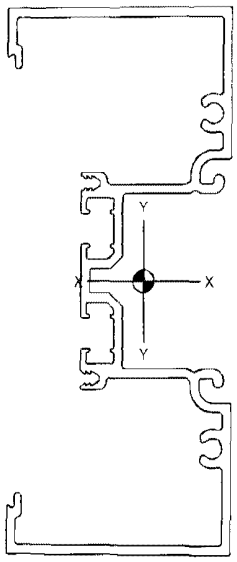




WINDLOAD CRITERIA			
Type of Loading		Uniform	
Ixx		5.445	in^4
Sxx(max)		1.167	in^3
Area		1.761	in^2
Criteria L/x	x =	175	in
Max Deflection		N/A	in

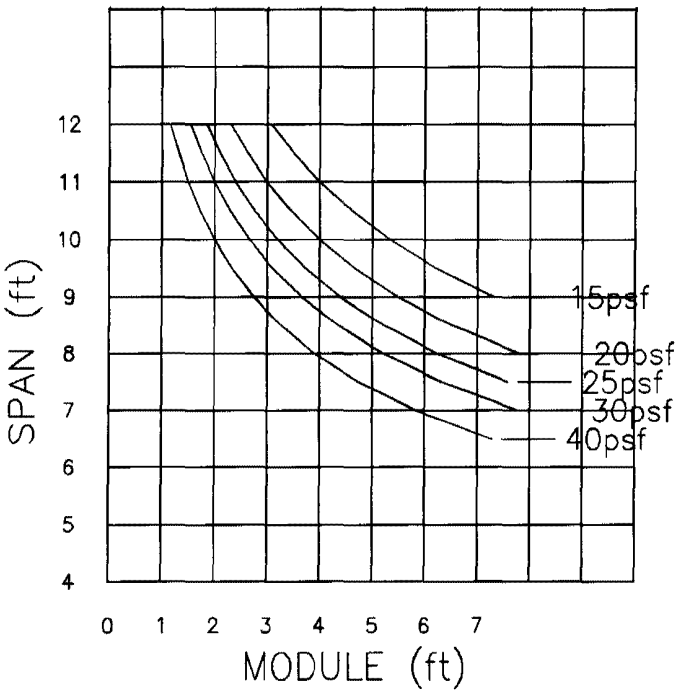
E24441 Standard Vertical
L/175 < 13'-6"
L/240 + 1/4" > 13'-6"
15151 psi maximum stress

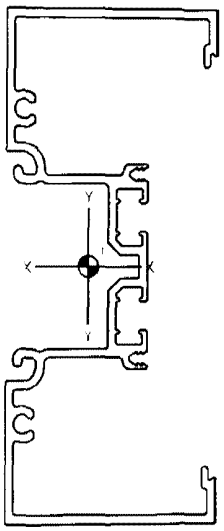




SECTION PROPERTIES					
Ixx	2.625	in^4	Iyy	.418	in^4
Sxx(max)	1.167	in^3	Syy(max)	.535	in^3
Sxx(min)	1.167	in^3	Syy(min)	.343	in^3
rxx	1.534	in	ryy	.612	in
Area	1.116	in^2	Weight	1.312	lbs/ft
Perim.	28.912	in	Wall Thk.	0	in

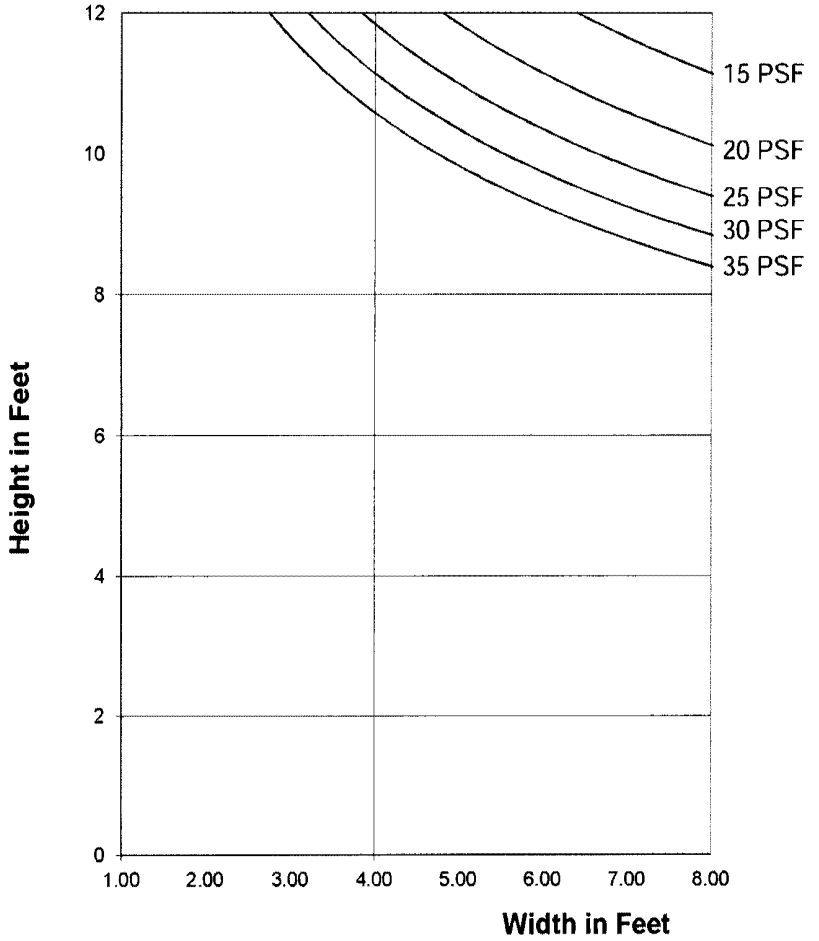
E24441 Standard Vertical

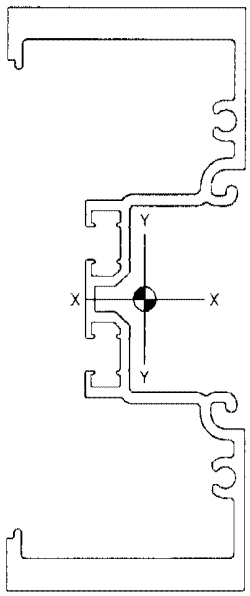




WINDLOAD CRITERIA			
Type of Loading		Uniform	
Ixx		2.625	in^4
Sxx(max)		1.167	in^3
Area		1.116	in^2
Criteria L/x	x =	175	in
Max Deflection		N/A	in

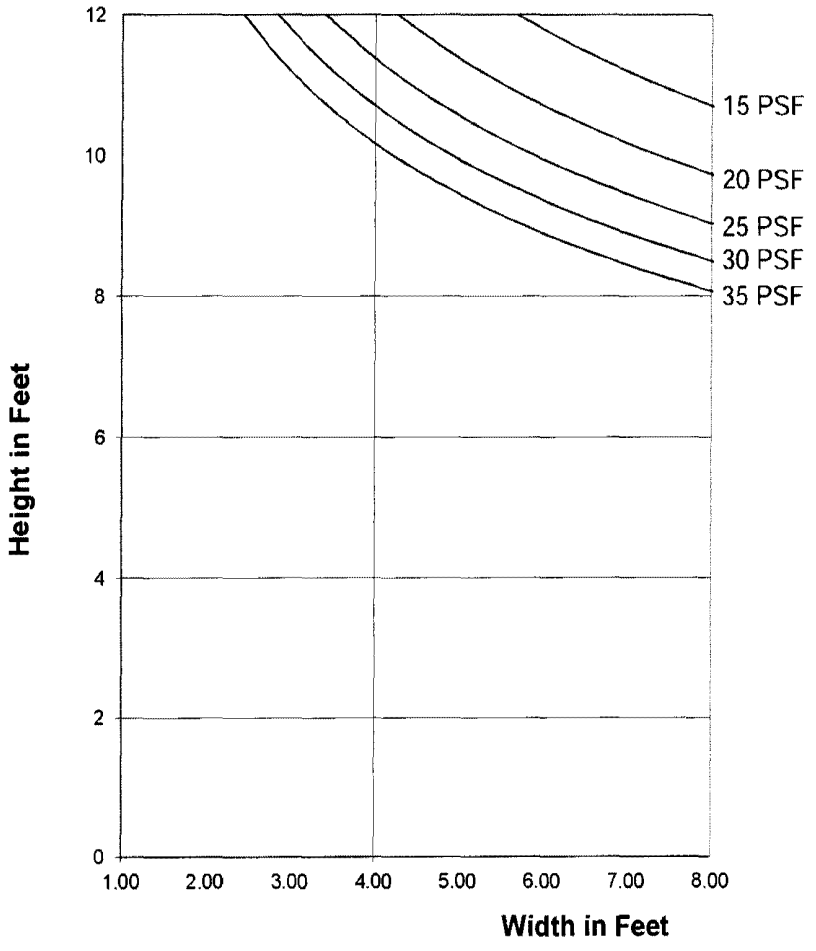
E24435 Heavy Vertical
L/175 < 13'-6"
L/240 + 1/4" > 13'-6"
15151 psi maximum stress

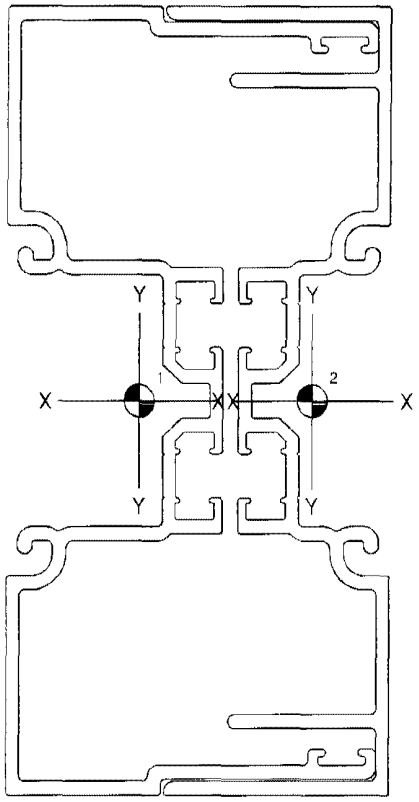




SECTION PROPERTIES					
Ixx	5.445	in^4	Iyy	.635	in^4
Sxx(max)	2.420	in^3	Syy(max)	.752	in^3
Sxx(min)	2.420	in^3	Syy(min)	.549	in^3
rxx	1.758	in	ryy	.600	in
Area	1.761	in^2	Weight	2.071	lbs/ft
Perim.	26.705	in	Wall Thk.	0	in

E24346 / E24336 Expansion Mullion
L/175 < 13'-6"
L/240 + 1/4" > 13'-6"
15151 psi maximum stress



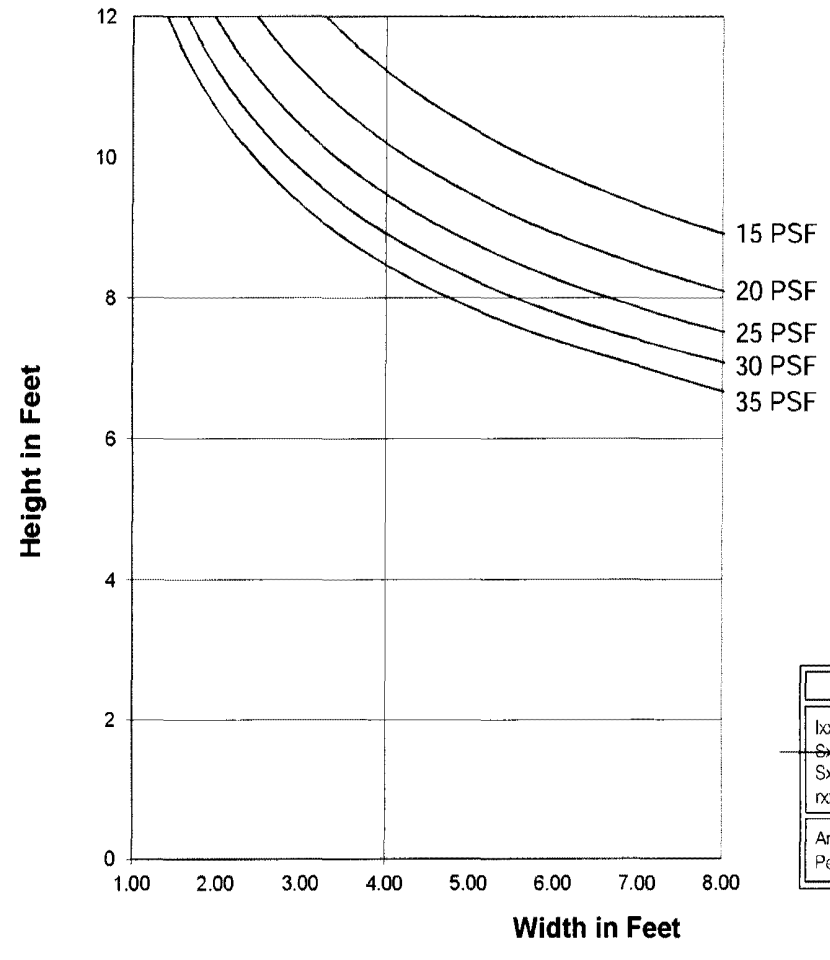


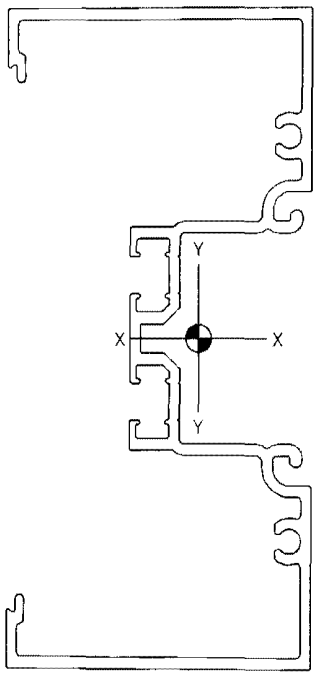
1	SECTION PROPERTIES			ALUM
Ixx	2.597	in^4	Iyy	0.441 in^4
Sxx(max)	1.154	in^3	Syy(max)	0.537 in^3
Sxx(min)	1.154	in^3	Syy(min)	0.298 in^3
rxx	1.567	in	ryy	0.646 in
Area	1.058	in^2	Weight	1.244 lbs/ft
Perim.	26.938	in	Wall Thk.	0.000 in

2	SECTION PROPERTIES			ALUM
Ixx	2.241	in^4	Iyy	0.121 in^4
Sxx(max)	0.996	in^3	Syy(max)	0.251 in^3
Sxx(min)	0.996	in^3	Syy(min)	0.132 in^3
rxx	1.535	in	ryy	0.357 in
Area	0.951	in^2	Weight	1.118 lbs/ft
Perim.	24.098	in	Wall Thk.	0.000 in

SECTION PROPERTIES (ASSEMBLY)				
Ixx	4.838	in^4	Iyy	0.562 in^4
Area	2.008	in^2	Weight	2.362 lbs/ft

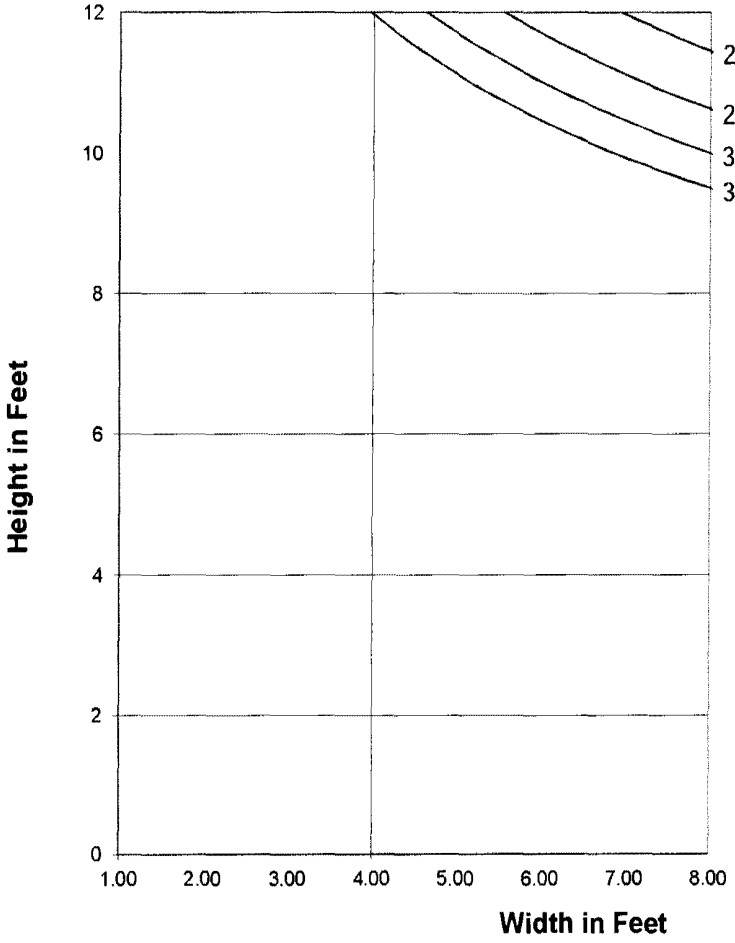
E24243 Vertical for Steel Reinforcing
L/175 < 13'-6"
L/240 + 1/4" > 13'-6"
15151 psi maximum stress

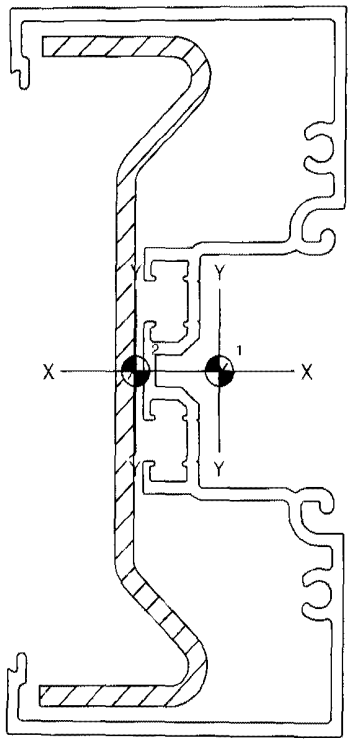




SECTION PROPERTIES					
Ixx	2.793	in^4	Iyy	.526	in^4
~~Sxx(max)~~	~~1.242~~	~~in^3~~	Syy(max)	.631	in^3
Sxx(min)	1.241	in^3	Syy(min)	.371	in^3
rxx	1.580	in	ryy	.686	in
Area	1.119	in^2	Weight	1.316	lbs/ft
Perim.	28.813	in	Wall Thk.	0	in

E24243 Vertical for Steel Reinforcing
with P1437 Steel
L/175 < 13'-6"
L/240 + 1/4" > 13'-6"
15151 psi maximum stress



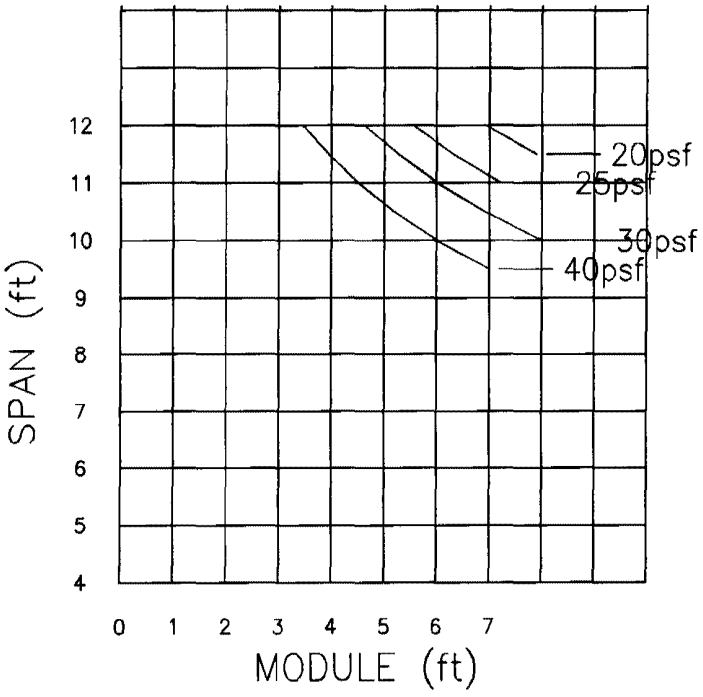


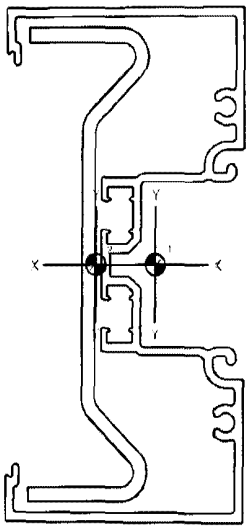
SECTION PROPERTIES			1 ALUM		
Ixx	2.793	in^4	Iyy	0.526	in^4
Sxx(max)	1.242	in^3	Syy(max)	0.631	in^3
Sxx(min)	1.241	in^3	Syy(min)	0.371	in^3
rxx	1.580	in	ryy	0.686	in
Area	1.119	in^2	Weight	1.316	lbs/ft
Perim.	28.813	in	Wall Thk.	0.000	in

SECTION PROPERTIES			2 STL		
Ixx	1.754	in^4	Iyy	0.047	in^4
Sxx(max)	0.850	in^3	Syy(max)	0.096	in^3
Sxx(min)	0.850	in^3	Syy(min)	0.074	in^3
rxx	1.487	in	ryy	0.244	in
Area	0.793	in^2	Weight	2.703	lbs/ft
Perim.	12.942	in	Wall Thk.	0.000	in

SECTION PROPERTIES (ASSEMBLY)					
Ixx	7.880	in^4	Iyy	0.662	in^4
Area	1.912	in^2	Weight	4.019	lbs/ft

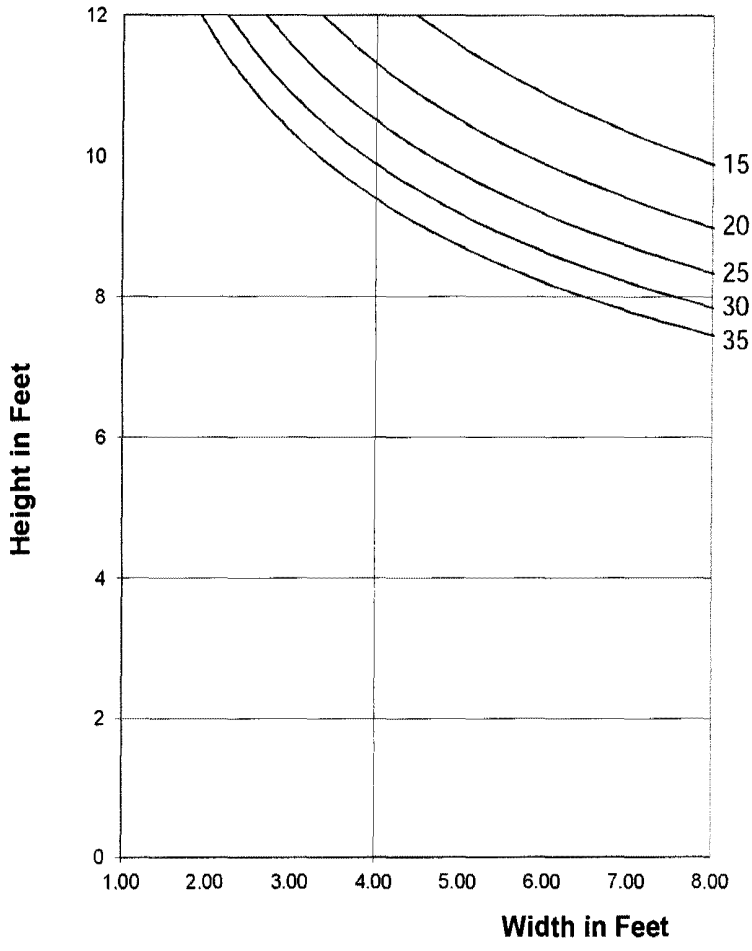
E24243 Steel Reinforced Mullion

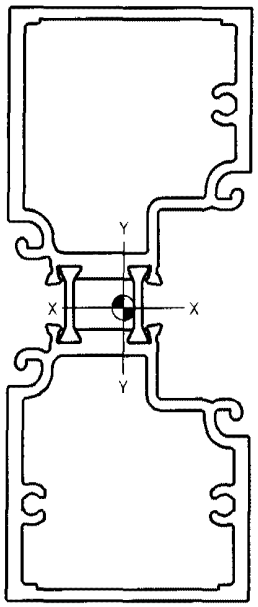




WINDLOAD CRITERIA			
Type of Loading		Uniform	
Ixx		7.880	in^4
Sxx(max)		N/A	in^3
Area		1.912	in^2
Criteria L/x	x =	175	in
Max Deflection		N/A	in

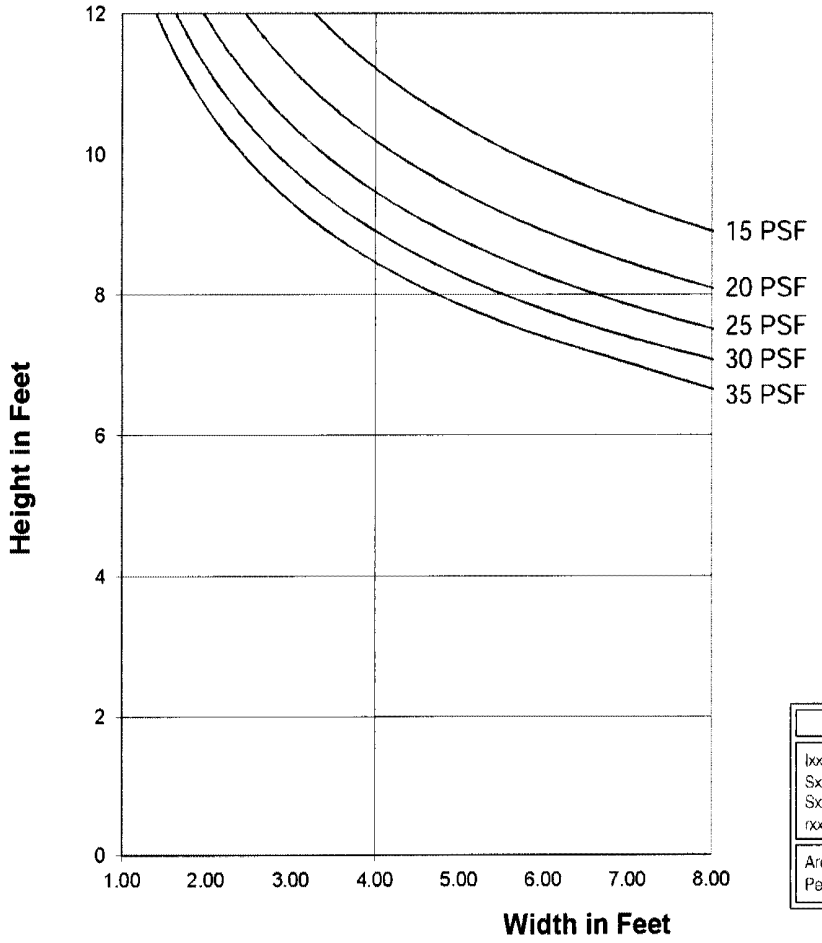
A624142 Door Jamb
L/175 < 13'-6"
L/240 + 1/4" > 13'-6"
15151 psi maximum stress

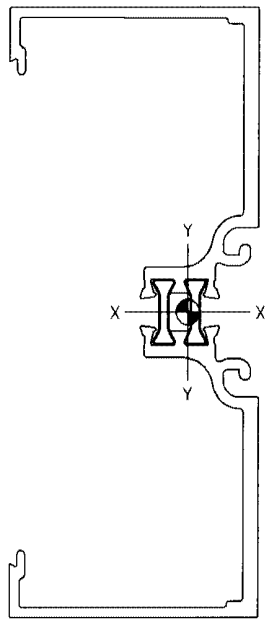




SECTION PROPERTIES					
Ixx	3.808	in^4	Iyy	.972	in^4
Sxx(max)	1.712	in^3	Syy(max)	1.019	in^3
Sxx(min)	1.673	in^3	Syy(min)	.928	in^3
rxx	1.446	in	ryy	.730	in
Area	1.821	in^2	Weight	2.141	lbs/ft
Perim.	19.504	in	Wall Thk.	0	in

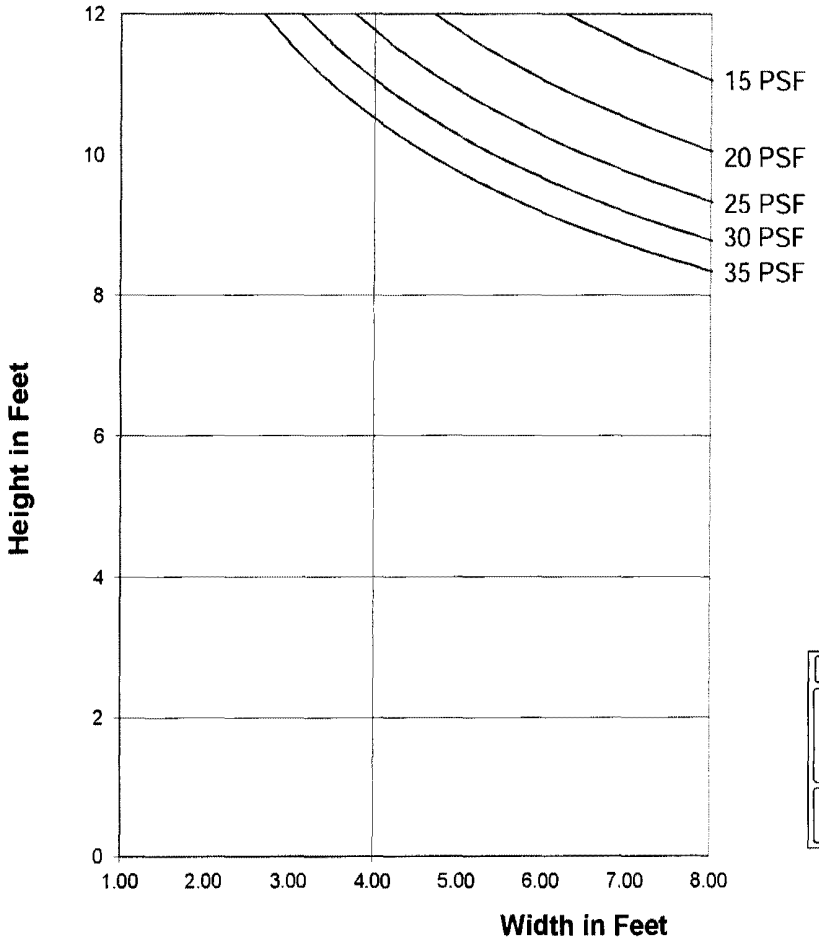
A624040 Door Jamb
L/175 < 13'-6"
L/240 + 1/4" > 13'-6"
15151 psi maximum stress

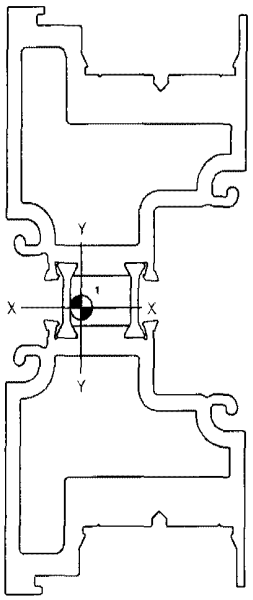




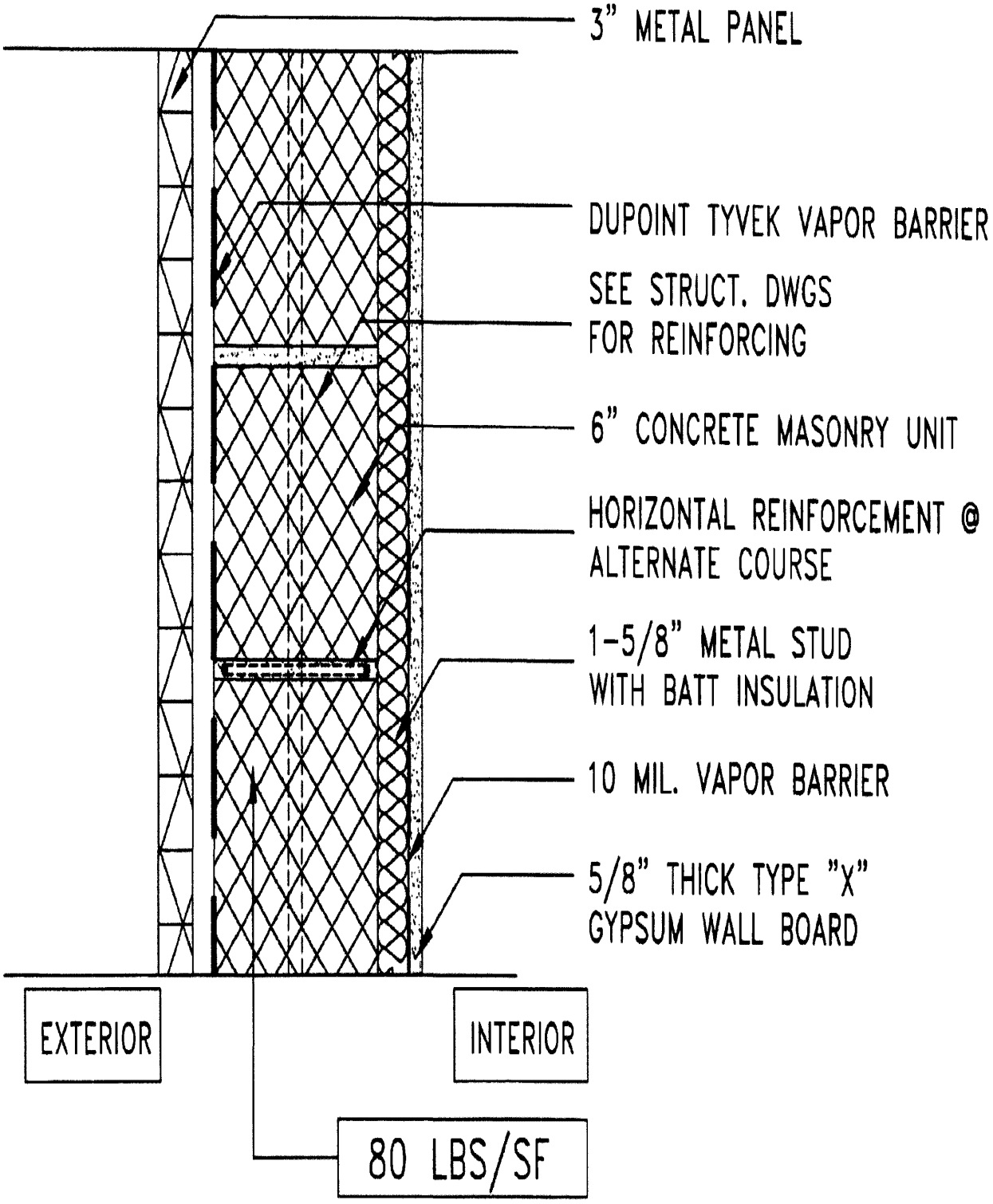
SECTION PROPERTIES					
Ixx	2.785	in^4	Iyy	.423	in^4
Sxx(max)	1.235	in^3	Syy(max)	.740	in^3
Sxx(min)	1.235	in^3	Syy(min)	.296	in^3
rxx	1.583	in	ryy	.617	in
Area	1.111	in^2	Weight	1.306	lbs/ft
Perim.	23.363	in	Wall Thk.	0	in

A245656 / E6648 Door Jamb
w/ no steel
L/175 < 13'-6"
L/240 + 1/4" > 13'-6"
15151 psi maximum stress





SECTION PROPERTIES (Composite)					
Ixx	5.342	in^4	Iyy	1.116	in^4
Sxx(max)	2.375	in^3	Syy(max)	1.176	in^3
Sxx(min)	2.375	in^3	Syy(min)	1.062	in^3
rxx	1.379	in	ryy	0.630	in
Area	2.808	in^2	Weight	3.302	lbs/ft
Perim.	21.794	in	Wall Thk.	0.000	in



1 METAL PANEL ON 6" CONCRETE MASONRY UNIT

N.T.S SECTION

BRICK INDUSTRY ASSOCIATION

TECHNICAL NOTES on Brick Construction

1850 Centennial Park Drive, Suite 301, Reston VA 20191 | www.gobrick.com | 703-620-0010

Technical Notes 5A - Sound Insulation - Clay Masonry Walls
(Reissued August 2000)

INTRODUCTION

The sound insulation or sound transmission loss of a wall is that property which enables it to resist the passage of noise or sound from one side to the other. This should not be confused with sound absorption which is that property of a material which permits sound waves to be absorbed, thus reducing the noise level within a given space and eliminating echoes or reverberations. Only sound insulation will be discussed in this *Technical Notes*.

MEASUREMENT OF SOUND

The sound insulation of a building assembly is expressed as a reduction factor in decibels (dB). The decibel is approximately the smallest change in energy the human ear can detect, and the decibel scale is used for measuring ratios of sound intensities. The reference sound intensity used to measure absolute noise levels is that corresponding to the faintest sound a human ear can hear (0 dB). However, a difference of 3 or less dB is not especially significant, because the human ear cannot detect a change in sounds of less than 3 dB.

Figure 1 shows the intensity level of common sounds on the decibel scale. These data are reproduced from "How Loud is Loud? Noise, Acoustics and Health", by Lee E. Farr, M.D., published in the February 1970 issue of Architectural & Engineering News.

SOUND TRANSMISSION LOSS

It is desirable to have a single number rating as a means for describing the performance of building elements when exposed to an "average" noise. In the past it was customary to use the numerical average of the transmission loss values at nine frequencies. This rating, termed the *nine-frequency average transmission loss*, is often quite inaccurate in comparing an assembly of materials having widely differing TL-frequency characteristics. One single number rating method which has been recently proposed is the *sound transmission class* (STC). This rating is based on the requirements that the value of transmission loss at any of the eleven measuring frequencies does not fall below a specified TL-frequency contour. The shape of this contour is drawn to represent the more common types of noise, and generally covers the requirements for speech privacy.

	dB	SOURCE	COMMENT
Deafening	150		Short exposure can cause hearing loss
	140	Jet plane takeoff	
	130	Artillery fire Machine gun Riveting	
	120	Siren at 100 ft Jet plane (passenger ramp) Thunder - Sonic boom	Threshold of pain
	110	Woodworking shop Accelerating motorcycle Hard rock band	Threshold of discomfort
Very Loud	100	Subway (steel wheels) Loud street noise Power lawnmower Outboard motor	
	90	Truck unmuffled Train whistle Kitchen blender Pneumatic jackhammer	
Loud	80	Printing press Subway (rubber wheels) Noisy office Average factory	Intolerable for phone use
	70	Average street noise Quiet typewriter Freight train at 100 ft Average radio	
Moderate	60	Noisy home Average office Normal conversation	
	50	General office Quiet radio Average home Quiet street	
Faint	40	Private office Quiet home	
	30	Quiet conversation Broadcast studio	
Very Faint	20	Empty auditorium Whisper	
	10	Rustling leaves Sound proof room Human breathing	
	0		Threshold of audibility

FIG. 1

The following are conclusions in a report entitled, "Measurements of Sound Transmission Loss in Masonry", by William Siekman of Riverbank Acoustical Laboratories, June 1969.

"In conclusion, changes in results of transmission loss measurements have been studied. They indicate that deficiencies in earlier test methods and environments have apparently been corrected. Although data reported today are lower than ever before, they agree very well with data taken in field situations, and consequently

provide assurance that laboratory tests can be relied upon to achieve the desired noise reductions. The performance of walls near the coincidence frequency cannot be predicted yet on a theoretical basis, nor can the performance of walls having a compound structure, but test specimen sizes are now large enough to be representative of typical walls and to provide data over the present frequency range of interest.

"Since the principal deviation due to specimen size is apt to occur at the lower frequencies, users of transmission loss data are urged to avoid dependence upon single figure ratings, even such a relatively good one as is recommended by the Proposed Classification for Determination of Sound Transmission Class, ASTM RM 14-2 (1966). The decision to use a particular construction should always be based upon the total curve and the requirements at individual frequencies."

DESCRIPTION OF SPECIMENS

The specimens discussed in this issue of *Technical Notes* were constructed at the Riverbank Acoustical Laboratories in a testing frame having inside dimensions of 14 ft 4 in. wide by 9 ft 4 in. high. The joints were of typical thickness and were staggered. Mortar was mixed in a ratio by volume of 1 part cement, 2 parts lime and 9 parts sand. All specimens were constructed by a professional mason. The curing time was 28 days or more. The transmission area, S. used in the computations was generally 126 sq ft.

Following are the descriptions of tests, performed at the Riverbank Acoustical Laboratories starting with the lowest Sound Transmission Class (STC):

STC 39. 4-in. Structural Clay Tile Wall

Tile dimensions: 3-9/16 by 4-7/8 by 11-3/4 in

Wall thickness: 3-9/16 in.

Average weight: 22.3 psf

Test: TL 67-59

STC 41. 4 in. Structural Clay Tile Wall, with 5/8-in. plaster one face

Tile dimensions: 3-9/16 by 4-7/8 by 11-3/4 in.

Wall thickness: 4-3/16 in.

Average weight: 25.3 psf

Test: TL 67-82

STC 45. 8-in. Structural Clay Tile Wall

Tile dimensions: 7-5/8 by 4-7/8 by 11-3/4 in.

Wall thickness: 7-5/8 in.

Average weight: 40.6 psf

Test: TL 67-69

STC 45. 4-in. Face Brick Wall

Brick dimensions: 2-1/4 by 3-3/4 by 8-1/4 in.

Wall thickness: 3-3/4 in.

Average weight: 38.7 psf

Test: TL 67-70

STC 49. 6-in. "SCR brick" (Reg. U.S. Pat. Off., SCPI) **Wall, with 3/8-in. gypsum board over 1-in. styrofoam insulation one face**

Brick dimensions: 2-1/4 by 5-1/2 by 11-1/2.

Wall thickness: 6-7/8 in.

Average weight: 57.7 psf

Test: TL 70-39

NOTE: The styrofoam was placed with adhesive, spot applied 12 in. o.c. both vertically and horizontally, to the brick wall on one side. A single layer of 3/8 in. gypsum board was applied vertically over the foam with adhesive, spot applied 12 in. o.c. vertically and horizontally in the field and 6 in. o.c. at the joints. The external joints were finished with a typical drywall joint system.

STC 50. 8-in. Face Brick and Structural Clay Tile Composite Wall

Brick dimensions: 2-1/4 by 3-3/4 by 8-1/4 in.

Tile dimensions: 4 in. nominal thickness

Wall thickness: 8 in.

Average weight: 63.8 psf

Test: TL 67-65

STC 50. 10-in. Face Brick Cavity Wall, with 2-in. air space

Brick dimensions: 2-1/4 by 3-3/4 by 8-1/4 in.

Wall thickness: 10 in.

Average weight: 81.0 psf

Test: TL 68-31

NOTE: The 2 wythes of masonry were tied together with metal wall ties.

STC 50. 4-in. Brick Wall, with 1/2-in. sanded plaster, two-coat one face

Brick dimensions: 2-1/4 by 3-5/8 by 7-5/8 in.

Wall thickness: 4-1/8 in.

Average weight: 42.4 psf

Test: TL 69-283

STC 51. 6-in. "SCR brick" (Reg. U.S. Pat. Off., SCPI) **Wall**

Brick dimensions: 2-1/4 by 5-1/2 by 11-1/2 in.

Wall thickness: 5-1/2 in.

Average weight: 55.8 psf

Test: TL 69-286

STC 52. 8-in. Solid Face Brick Wall

Brick dimensions: 2-1/4 by 3-3/4 by 8-1/4 in.

Wall thickness: 8 in.

Average weight: 83.3 psf

Test: TL 67-68

STC 53. 8-in. Solid Brick Wall, with 1/2-in. gypsum board on furring strips one face

Brick dimensions: 2-1/4 by 3-5/8 by 7-5/8 in.

Wall thickness: 9-1/4 in.

Average weight: 86.7 psf

Test: TL 69-287

NOTE: The 3/4-in. collar joint was filled with mortar. Metal Z ties were used between wythes spaced at 24 in. o.c. both vertically and horizontally. The 1 by 3 wood vertical furring strips were spaced at 16 in. o.c. and nailed at the mortar joints approximately 12 in. o.c. The gypsum board was applied vertically and attached with nails spaced 12 in. o.c. in the field and 8 in. o.c. along the edges. The joints and nail heads were finished with standard drywall system.

STC 53. 6-in. "SCR brick" (Reg. U.S. Pat. Off., SCPI) **Wall, with 1/2-in. plaster one face**

Brick dimensions: 2-1/4 by 5-1/2 by 11-1/2 in.

Wall thickness: 6 in.

Average weight: 60.8 psf

Test: TL 70-70

STC 55. 12-in. Face Brick and Structural Clay Tile Composite Wall

Brick dimensions: 2-1/4 by 3-3/4 by 8-1/4 in.

Tile dimensions: 7-5/8 by 4-7/8 by 11-3/4 in.

Wall thickness: 12 in.

Average weight: 84.1 psf

Test: TL 67-62

STC 59. 12-in. Solid Brick Wall

Brick dimensions:

Face: 2-1/4 by 3-3/4 by 8-1/4 in.

Building: 2-1/4 by 3-5/8 by 8 in.

Wall thickness: 12 in.

Average weight: 116.7 psf

Test: TL 67-32

NOTE: The outside wythes were of face brick. The interior wythe was of common brick.

STC 59. 10-in. Reinforced Brick Masonry Wall (RBM)

Brick dimensions: 2-1/4 by 3-5/8 by 7-5/8 in

Wall thickness: 9-1/2 in.

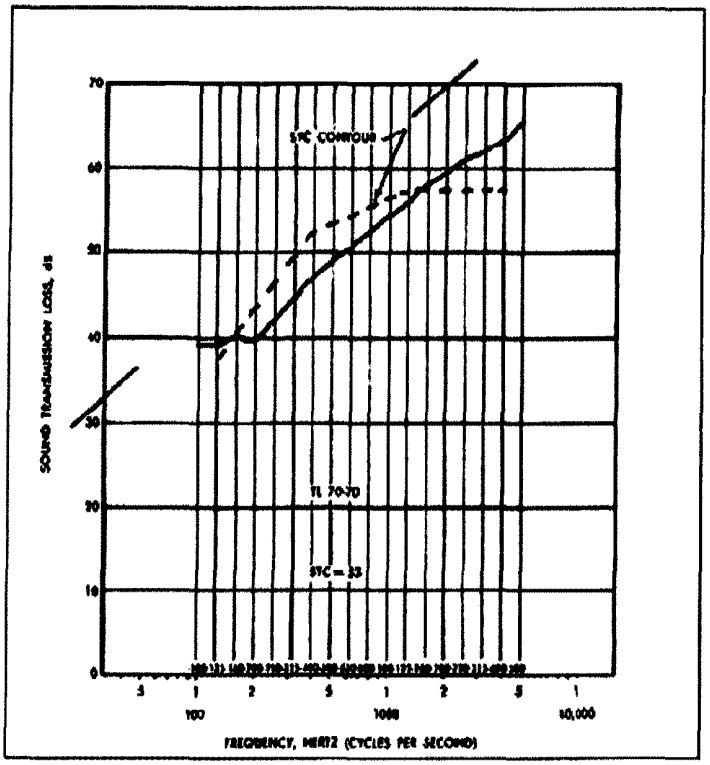
Average weight: 94.2 psf

Test: TL 70-6

NOTE: The 2-1/4-in. grouted cavity contained No. 6 bars at 48 in. o.c. vertically and No. 5 bars at 30 in. o.c. horizontally.

SOUND TRANSMISSION CLASS

Sound transmission class contours (see Fig. 2) may be constructed in accordance with ASTM RM 14-2 on conventional semi-logarithmic paper as follows: a horizontal line segment from 1250 to 4000 Hz (cycles per second); a middle line segment decreasing 5 dB in the interval 1250 to 400 Hz; and a low frequency segment decreasing 15 dB in the interval 400 to 125 Hz.



The sound transmission loss of the tested specimen is shown by the curved line in the above graph. The broken line is the limiting sound transmission class contour.

The theoretical transmission loss of that limp mass having the same weight per square foot as the specimen can be located by drawing a straight line between the two slash marks on the edges of the grid. This was derived from the equation: TL = 20 log W + 20 log F - 33, where W is weight in pounds per square foot, and F is frequency in Hertz (cycles per second).

FIG. 2

The STC contour is shifted vertically relative to the test curve until some of the measured TL values for the test specimen fall below those of the STC contour and the following conditions are fulfilled: The sum of the deficiencies (that is; the deficiencies of test points below the contour) shall not be greater than 32 dB, and the maximum deficiency of any single test point shall not exceed 8 dB. The sound transmission class for the specimen is the TL (transmission loss) value corresponding to the intersection of the sound transmission class contour and the 500-Hz ordinate.

Table 1 shows the decibel losses for 18 frequencies of test specimens listed above. Deficiencies or deviations from the contour (see graph) are tabulated to correspond with the proper frequencies.

These measurements were made using a one-third octave bank of pink noise, swept in 13 min from 100 to 5000 Hz. Runs were made before and after a system interchange, during which the ratio of sound pressure levels in the two rooms was directly recorded graphically. The final results were obtained by averaging the runs, with a resultant precision within a 90 per cent confidence limit of ±1 dB.

The sound transmission class is computed in accordance with the Tentative Recommended Practice for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions, ASTM E 90-66T, and ASTM RM 14-2. The STC number is intended to be used as a preliminary estimate of the acoustical properties of the specimen. Final decisions for design use should be based upon the entire TL curve for the values at all the test frequencies.

TABLE 1
Test Measurements for 13 Minutes from 100 to 5000 Hertz

STC Rating	Test No.		Frequency, Hertz (cps)																
			100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000
39	TL67-59	TL dB[1]	28	27	28	30	31	31	31	34	36	38	39	40	43	48	51	53	52	50
		Def.db[2]					1	4	7	5	4	3	3	3						
41	TL67-82	TL, dB	30	31	30	32	32	33	34	36	38	41	42	43	45	49	52	54	53	51
		Def					2	4	6	5	4	2	2	2						
45	TL67-69	TL, dB	33	33	32	33	37	36	38	39	43	44	45	47	49	52	55	53	50	55
		Def				2	1	5	6	6	3	3	3	2						
45	TL67-70	TL, dB	32	32	31	32	34	35	37	40	43	45	47	49	53	55	57	59	61	63
		Def			1	3	4	6	7	5	3	2	1							
49	TL70-39	TL, dB	39	37	37	36	35	37	43	49	55	60	62	63	65	67	68	70	72	73
		Def				3	7	8	5											
50	TL67-65	TL, dB	38	38	37	38	40	42	44	45	47	50	60	62	64	66	59	61	63	65
		Def				2	3	4	6	5	4	2	3	2						
50	TL68-31	TL, dB	40	37	34	34	37	40	44	47	49	52	55	58	60	62	63	65	66	64
		Def			3	0	0	6	5	3	2									
50	TL69-283	TL, dB	33	37	39	38	40	42	44	46	48	50	51	54	55	56	57	59	60	62
		Def				2	3	4	5	4	3	2	2							
51	TL69-286	TL, dB	36	38	38	39	40	43	45	47	49	50	52	54	55	58	59	61	63	65
		Def				2	4	4	6	4	3	3	2	1						
52	TL67-68	TL, dB	37	37	38	37	42	45	46	47	51	52	52	54	58	61	61	63	65	69
		Def			1	5	3	3	5	5	2	2	3	2						
53	TL69-287	TL, dB	41	37	35	35	41	49	54	56	59	61	63	64	66	70	71	69	70	73
		Def			5	8	5													
53	TL70-70	TL, dB	39	39	40	40	41	45	47	48	50	52	54	56	57	59	60	61	63	65
		Def				3	5	4	5	5	4	3	2	1						
55	TL67-62	TL, dB	41	39	41	41	45	48	49	51	52	56	59	60	62	62	63	63	64	69
		Def			1	4	3	3	5	4	4	1								
59	TL67-32	TL, dB	44	44	44	46	47	52	52	55	57	59	61	63	65	66	66	67	69	71
		Def			2	3	5	3	6	4	3	2	1							
59	TL70-6	TL, dB	43	42	43	48	47	51	54	56	59	60	63	63	64	67	68	69	71	72
		Def		1	3	3	5	4	4	3	1	1								

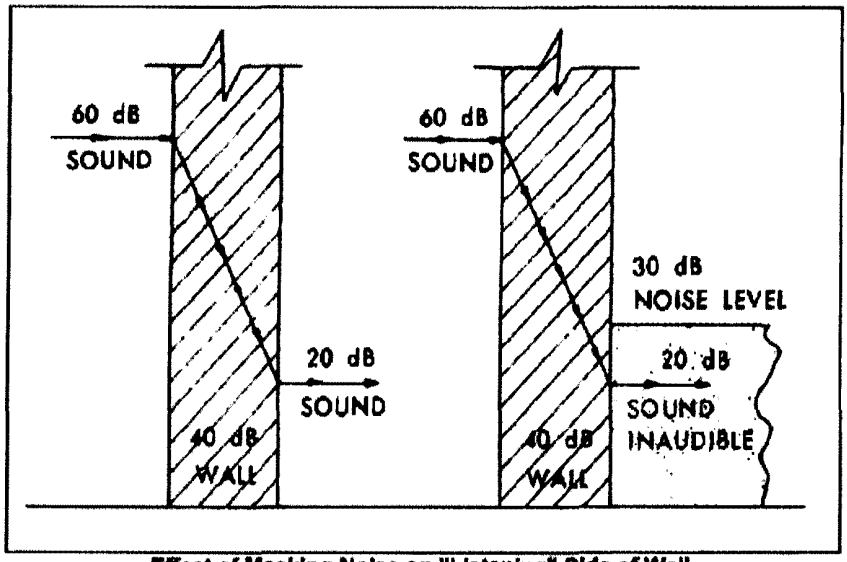
[1]Transmission Loss, decibels

[2]Deficiencies, decibels

MASKING EFFECT

The sound insulation required in a structure to give satisfactory results depends not only upon the noise level outside of the building or in adjoining rooms, but also upon the noise level within the room under consideration.

If it is to be assumed that there is no noise within the room to be insulated against sound transmission and the noise level in the adjoining room is 60 dB, it will require a partition having a reduction factor of 60 dB to render the noise in the adjoining room inaudible. However, if the noise level in the room under consideration is 30 dB, a partition having a sound reduction factor of approximately 40 dB (see Fig. 3) will make the sound in the adjoining room inaudible. Experiments have shown that for one sound to mask another, there must be at least 10 dB difference between the two sounds. This effect of the sound within the room under consideration is known as the "masking effect". Figure 3 illustrates this "masking effect" principle.



Effect of Masking Noise on "Listening" Side of Wall

FIG. 3

CONCLUSION

This issue of *Technical Notes* has discussed recent test data for, and sound insulation performance of, brick and tile walls and partitions. Future issues of *Technical Notes* will contain some suggestions and recommendations for the control of sound transmission through brick and tile walls and partitions.

Appendix I

Acoustical Laboratory Test Report

1. Crystal Window series: 8000
2. Crystal Window series: 8100
3. Crystal Window sliding door series: 1240 sliding
4. Gamco Side hinged single balcony door series: BD 325
5. Gamco Curtain wall series: CW250
6. Tubelite: Storefront window & doors: TU24000 series

Architectural Testing

ASTM E 90 SOUND TRANSMISSION LOSS TEST REPORT

Rendered to:

CRYSTAL WINDOW AND DOOR SYSTEMS, LTD.

SERIES/MODEL: 8000

TYPE: Casement Window

Summary of Test Results			
Data File No.	**Glazing Option (Nominal Dimensions)**	**STC**	**OITC**
87002.01A	1" IG (1/8" annealed, 3/4" air space, 1/8" annealed)	31	24
87002.01B	1" IG (5/16" laminated, 3/8" air space, 5/16" laminated) Glass temperature 75°F	37	30

Reference should be made to Architectural Testing, Inc. Report No. 87002.01-113-11 for complete test specimen description. The complete test results are listed in Appendix B.

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

Architectural Testing

ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

CRYSTAL WINDOW AND DOOR SYSTEMS, LTD.
31-10 Whitestone Expressway
Flushing, New York 11354

Report No: 87002.01-113-11
Test Date: 01/16/09
Report Date: 02/04/09
Expiration Date: 01/16/13

Test Sample Identification:

Series/Model: 8000

Type: Casement Window

Overall Size: 24-1/16" by 48"

Glazing Option A (Nominal Dimensions): 1" IG (1/8" Annealed, 3/4" Air Space, 1/8" Annealed)

Glazing Option B (Nominal Dimensions): 1" IG (5/16" Laminated, 3/8" Air Space, 5/16" Laminated) Glass Temperature 75 °F

Project Scope: Architectural Testing, Inc. was contracted by Crystal Window and Door Systems, Ltd. to conduct a sound transmission loss test on a Series/Model 8000, casement window. A summary of the results is listed in the Test Results section and the complete test data is included as Appendix B of this report. The samples were provided by the client.

Test Methods: The acoustical test was conducted in accordance with the following:

ASTM E 90-04, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.*

ASTM E 413-04, *Classification for Rating Sound Insulation.*

ASTM E 1332-90 (Re-approved 2003), *Standard Classification for Determination of Outdoor-Indoor Transmission Class.*

ASTM E 2235-04, *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods.*

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

Test Equipment: The equipment used to conduct this test meets the requirements of ASTM E 90. The microphones were calibrated before conducting the sound transmission loss test. The test equipment and test chamber descriptions are listed in Appendix A.

Sample Installation: Sound transmission loss tests were initially performed on a filler wall that was designed to test 48" by 72" and 72" by 48" specimens. The filler wall achieved an STC rating of 69.

A filler wall reducing element was used to reduce the test opening size to 24-9/16" wide by 48-1/2" high. The reducing element consisted of a double 2x4 wood stud wall construction with three layers of 5/8" drywall on both sides. The stud cavities in the wall were insulated with two layers of R-13 fiberglass insulation. The window was placed on a foam isolation pad in the new test opening. Duct seal was used to seal the perimeter of the window to the test opening on both sides. The interior side of the window frame, when installed, was approximately 1/4" from being flush with the receiving room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing. The vent was opened and closed at least five times prior to testing.

Test Procedure: The window was closed and locked for this test. The sound transmission loss test consisted of the following measurements: One background noise sound pressure level and five sound absorption measurements were conducted at each of the five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms, at each of the five microphone positions. The air temperature and relative humidity conditions were monitored and recorded during the background, absorption, source, and receive room measurements.

Sample Descriptions:

Frame Construction:

	Frame
Size	24-1/16" by 48"
Thickness	2-1/4"
Corners	Coped
Fasteners	Screws
Seal Method	Sealant
Material	Thermally broken aluminum
Reinforcement	None
Thermal Break Material	Urethane

Sample Descriptions: (Continued)

Vent Construction:

	Vent
Size	21-15/16" by 45-3/4"
Thickness	2-1/8"
Corners	Mitered
Fasteners	Keyed and staked
Seal Method	None
Material	Thermally broken aluminum
Reinforcement	None
Thermal Break Material	Urethane
Daylight Opening Size	16-3/4" by 40-3/4"

Vent Glazing Option A:

Measured Overall Insulation Glass Unit Thickness	0.996"
Spacer Type	Steel U-shaped

	Exterior Sheet	Gap	Interior Sheet
Measured Thickness	0.118"	0.760"	0.118"
Muntin Pattern	N/A	N/A	N/A
Material	Annealed	Air*	Annealed
Laminate Material	N/A	N/A	N/A

Glazing Method	Interior
Glazing Material	Butyl tape
Glazing Bead Material	Aluminum with 3/16" foam-filled bulb gasket

Sample Descriptions: (Continued)

Vent Glazing Option B:

Measured Overall Insulation Glass Unit Thickness	1.000"
Spacer Type	Steel U-shaped

	Exterior Sheet	Gap	Interior Sheet
Measured Thickness	0.118" - 0.062" - 0.118"	0.405"	0.118" - 0.061" - 0.118"
Muntin Pattern	N/A	N/A	N/A
Material	Laminated	Air*	Laminated
Laminate Material	PVB	N/A	PVB

Glazing Method	Interior
Glazing Material	Butyl tape
Glazing Bead Material	Aluminum with 3/16" foam-filled bulb gasket

** - Stated per Client/Manufacturer, N/A-Non Applicable*

Components:

TYPE	QUANTITY	LOCATION
Weatherstrip		
3/16" Foam-filled bulb gasket	2 Rows	Vent perimeter
Hardware		
Multi-point hinge system	2	Head and top rail, Sill and bottom rail
Sweep lock	2	Lock jamb
Keeper	2	Lock stile
Roto crank assembly	1	Interior sill face
Drainage		
No drainage		

Comments: The weight of Option A was 48 lbs. The weight of the Option B was 68 lbs. The client did not supply drawings on the Series/Model 8000, casement window. The window was disassembled, and the components will be retained by Architectural Testing for four years. Photographs of the test specimen are included in Appendix C.

Test Results: The STC (Sound Transmission Class) rating was calculated in accordance with ASTM E 413. The OITC (Outdoor-Indoor Transmission Class) was calculated in accordance with ASTM E 1332. A summary of the sound transmission loss test results on the Series/Model 8000, casement window is listed below.

Summary of Test Results			
Data File No.	**Glazing Option (Nominal Dimensions)**	**STC**	**OITC**
87002.01A	1" IG (1/8" annealed, 3/4" air space, 1/8" annealed)	31	24
87002.01B	1" IG (5/16" laminated, 3/8" air space, 5/16" laminated) Glass temperature 75°F	37	30

Note: Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. On each data sheet listed in Appendix B, the cells are highlighted red for the transmission loss values limited in this way. Due to the calculations and sample size, transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. On each data sheet listed in Appendix B, cells highlighted in green indicate transmission loss values affected in this way.

The complete test results are listed in Appendix B. Flanking limit tests and reference specimen tests are available upon request.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire. Results obtained are tested values and were secured by using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimens tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

Digitally Signed by: Keith Schade

Keith E. Schade
Technician - Acoustical Testing

Digitally Signed by: Todd D. Kister

Todd D. Kister
Laboratory Supervisor - Acoustical Testing

KES:jmcs

Attachments (pages): This report is complete only when all attachments listed are included.
- Appendix-A: Equipment description (1)
- Appendix-B: Complete test results (4)
- Appendix-C: Photographs (1)

ACCREDITED

Architectural Testing, Inc., is accredited by the International Accreditation Service, Inc. (IAS) under the specific test methods listed under lab code TL-144, in accordance with the recognized International Standard ISO/IEC 17025:2005. The laboratory's accreditation or test report in no way constitutes or implies product certification, approval, or endorsement by IAS. This test report applies only to the specimen that was tested.

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	02/04/09	N/A	Original Report Issue

Appendix A

Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number
Analyzer	Agilent Technologies	35670A	Dynamic signal analyzer	Y002929
Receive Room Microphone	G.R.A.S.	40AR	1/2", pressure type, condenser microphone	Y003246
Source Room Microphone	G.R.A.S.	40AR	1/2", pressure type, condenser microphone	Y003245
Receive Room Preamp	G.R.A.S.	26AK	1/2" preamplifier	Y003249
Source Room Preamp	G.R.A.S.	26AK	1/2" preamplifier	Y003248
Microphone Calibrator	Bruel & Kjaer	4228	Pistonphone calibrator	Y002816
Noise Source	Delta Electronics	SNG-1	Two, non-correlated "Pink" noise signals	Y002181
Equalizer	Rane	RPE228	Programmable EQ	Y002180
Power Amplifiers	Renkus-Heinz	P2000	Two Amplifiers	Y002179 Y001779
Receive Room Loudspeakers	Renkus-Heinz	Trap Jr/9"	Two Loudspeakers	Y001784 Y001785
Source Room Loudspeakers	Renkus-Heinz	Trap Jr/9"	Two Loudspeakers	Y002649 Y002650

Test Chamber:

	Volume	Description
Receiving Room	8291.3 ft^3 (234 m^3)	Rotating vane and stationary diffusers. Temperature and humidity controlled. Isolation pads under the floor.
Source Room	7296.3 ft^3 (206.6 m^3)	Stationary diffusers only. Temperature and humidity controlled.

	Maximum Size	Description
TL Test Opening	14 ft wide by 10 ft high	Vibration break between source and receive rooms.

Appendix B

Complete Test Results

SOUND TRANSMISSION LOSS

ASTM E 90

Architectural Testing

ATI No.	87002.01A **Date** 01/16/09
Client	Crystal Window & Door Systems, Ltd.
Specimen	Series/Model: 8000, casement window, 1" IG (1/8" annealed, 3/4" air space, 1/8" annealed)
Specimen Area	8.02 Sq Ft
Filler Area	131.98 Sq Ft
Operator	Keith Schade

	Bkgrd	Absorp	Source	Receive	Filler	Specimen
Temp F	74.1	73.7	72.8	74.0	74.7	73.7
RH %	43.3	44.0	42.4	43.6	42.9	43.3

Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defici-encies	Trans Coef Diff
80	38.9	49.7	85.6	59.8	36.9	19	2.30	0	
100	39.9	51.7	89.3	59.4	41.9	23	3.00	0	
125	39.2	50.3	92.9	62.2	48.7	23	2.10	0	
160	40.3	51.8	95.2	71.6	49.5	15	0.75	3	21.9
200	39.8	54.3	99.2	78.1	53.5	13	1.06	8	28.5
250	37.6	55.6	100.8	74.0	57.9	18	1.66	6	27.3
315	35.8	57.1	98.9	64.9	62.5	25	0.76	2	24.9
400	35.0	61.3	98.5	65.6	66.4	24	0.55	6	30.2
500	34.6	60.0	100.1	60.7	68.6	31	0.54	0	25.9
630	30.7	59.5	103.0	60.7	71.5	34	0.54	0	25.7
800	32.0	61.4	102.5	54.1	75.4	40	0.46	0	23.7
1000	29.8	64.0	101.8	51.5	78.0	41	0.56	0	24.6
1250	29.4	70.0	104.8	52.0	80.0	43	0.21	0	24.3
1600	26.9	71.9	110.7	56.7	84.5	44	0.20	0	27.8
2000	18.0	76.6	106.2	50.7	85.6	46	0.27	0	27.8
2500	9.1	89.5	104.5	45.8	86.0	48	0.32	0	25.6
3150	8.9	105.9	105.1	51.3	86.9	43	0.23	0	32.2
4000	8.4	127.8	103.5	58.3	87.3	33	0.22	2	41.9
5000	8.0	168.8	101.4	54.2	85.1	34	0.36	0	38.9

STC Rating = **31** *(Sound Transmission Class)*
Deficiencies = **27** *(Number of deficiencies versus contour curve)*
OITC Rating = **24** *(Outdoor/Indoor Transmission Class)*

Notes:

1) The acoustical chambers are qualified for measurements down to 80 hertz. Data reported below 80 hertz is for reference only.

2) Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. These cells are highlighted red.

3) Transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. These cells are highlighted green.

4) Receive Room levels less than 5dB above the Background levels are highlighted in yellow.

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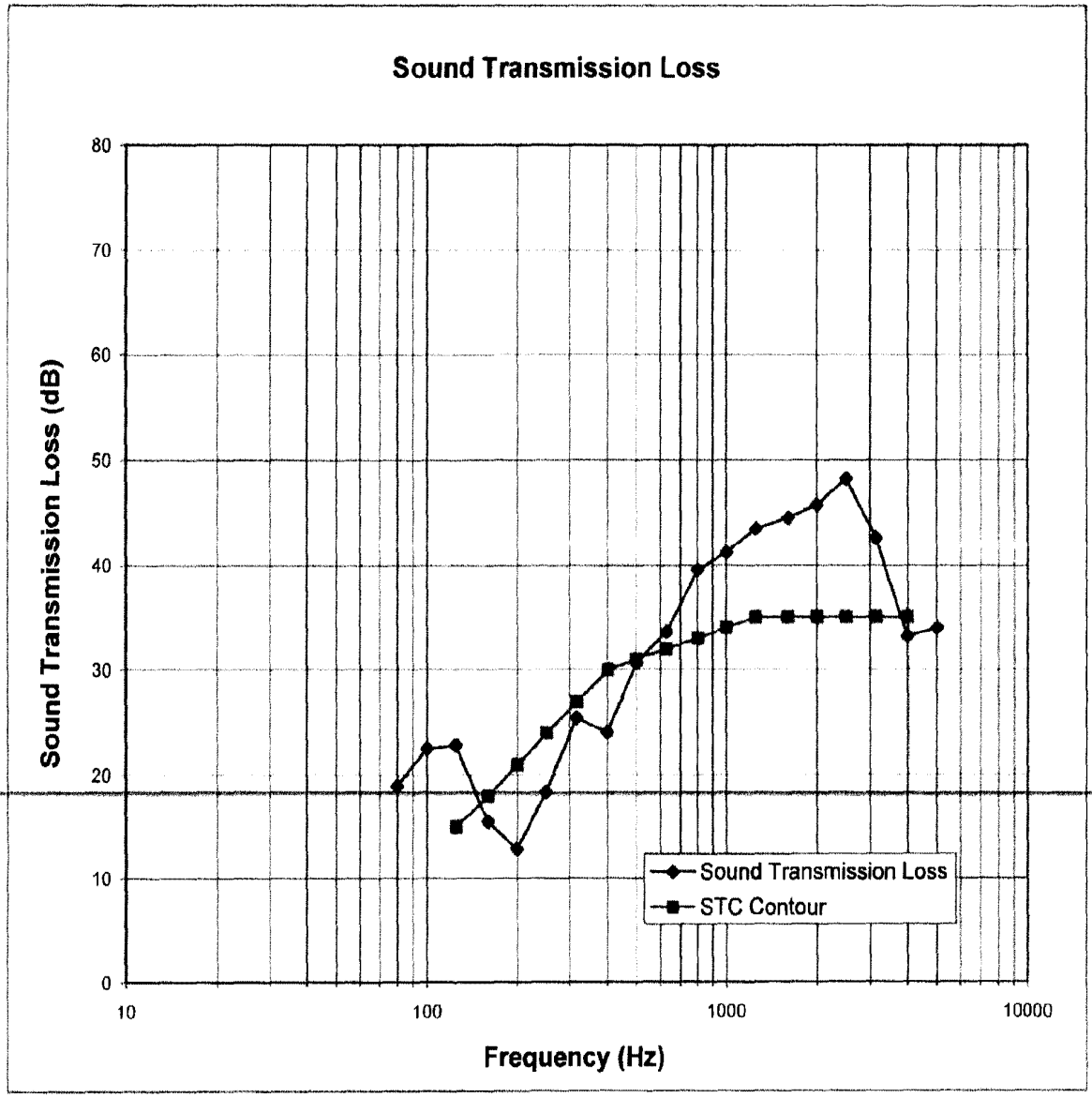
Architectural Testing

ATI No.	87002.01A	**Date**	01/16/09
Client	Crystal Window & Door Systems, Ltd.		
Specimen	Series/Model: 8000, casement window, 1" IG (1/8" annealed, 3/4" air space, 1/8" annealed)		
Specimen Area	8.02 Sq Ft		
Filler Area	131.98 Sq Ft		
Operator	Keith Schade		



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SOUND TRANSMISSION LOSS

ASTM E 90

Architectural Testing

ATI No.	87002.01B	**Date**	01/16/09
Client	Crystal Window & Door Systems, Ltd.		
Specimen	Series/Model: 8000, casement window, 1" IG (5/16" laminated, 3/8" air space, 5/16" laminated) Glass Temperature 75°F		
Specimen Area	8.02 Sq Ft		
Filler Area	131.98 Sq Ft		
Operator	Keith Schade		

	Bkgrd	Absorp	Source	Receive	Filler	Specimen
Temp F	74.2	74.0	74.3	74.2	74.7	74.2
RH %	44.9	45.3	49.1	45.0	42.9	46.1

Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defici-encies	Trans Coef Diff
80	39.7	48.2	85.5	58.1	36.9	21	2.42	0	
100	42.3	49.3	89.3	56.5	41.9	26	3.04	0	
125	39.8	53.3	92.3	60.0	48.7	24	2.66	0	
160	40.8	48.2	94.8	64.3	49.5	23	1.05	1	
200	39.4	53.0	98.6	66.3	53.5	24	0.90	3	17.2
250	37.6	53.9	100.0	70.2	57.9	22	1.11	8	24.2
315	36.7	55.1	98.4	57.0	62.5	33	0.62	0	17.3
400	35.5	59.0	98.0	54.4	66.4	35	0.46	1	19.3
500	35.0	59.3	99.7	53.9	68.6	37	0.55	0	19.3
630	31.9	59.0	102.4	52.8	71.5	41	0.43	0	18.4
800	33.4	61.9	102.0	50.7	75.4	42	0.51	0	20.8
1000	30.7	65.7	101.4	47.6	78.0	45	0.46	0	21.1
1250	30.9	69.6	104.5	50.7	80.0	44	0.35	0	23.4
1600	28.3	74.7	110.4	57.3	84.5	43	0.38	0	28.9
2000	19.0	78.8	106.0	53.4	85.6	43	0.15	0	30.7
2500	9.3	88.0	104.7	49.6	86.0	45	0.20	0	29.2
3150	9.3	105.8	105.1	46.9	86.9	47	0.36	0	27.7
4000	8.1	125.7	103.9	42.1	87.3	50	0.25	0	25.3
5000	7.6	163.0	102.2	37.0	85.1	52	0.26	0	20.8

STC Rating = **37** *(Sound Transmission Class)*
Deficiencies = **13** *(Number of deficiencies versus contour curve)*
OITC Rating = **30** *(Outdoor/Indoor Transmission Class)*

Notes:

1) The acoustical chambers are qualified for measurements down to 80 hertz. Data reported below 80 hertz is for reference only.

2) Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. These cells are highlighted red.

3) Transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. These cells are highlighted green.

4) Receive Room levels less than 5dB above the Background levels are highlighted in yellow.

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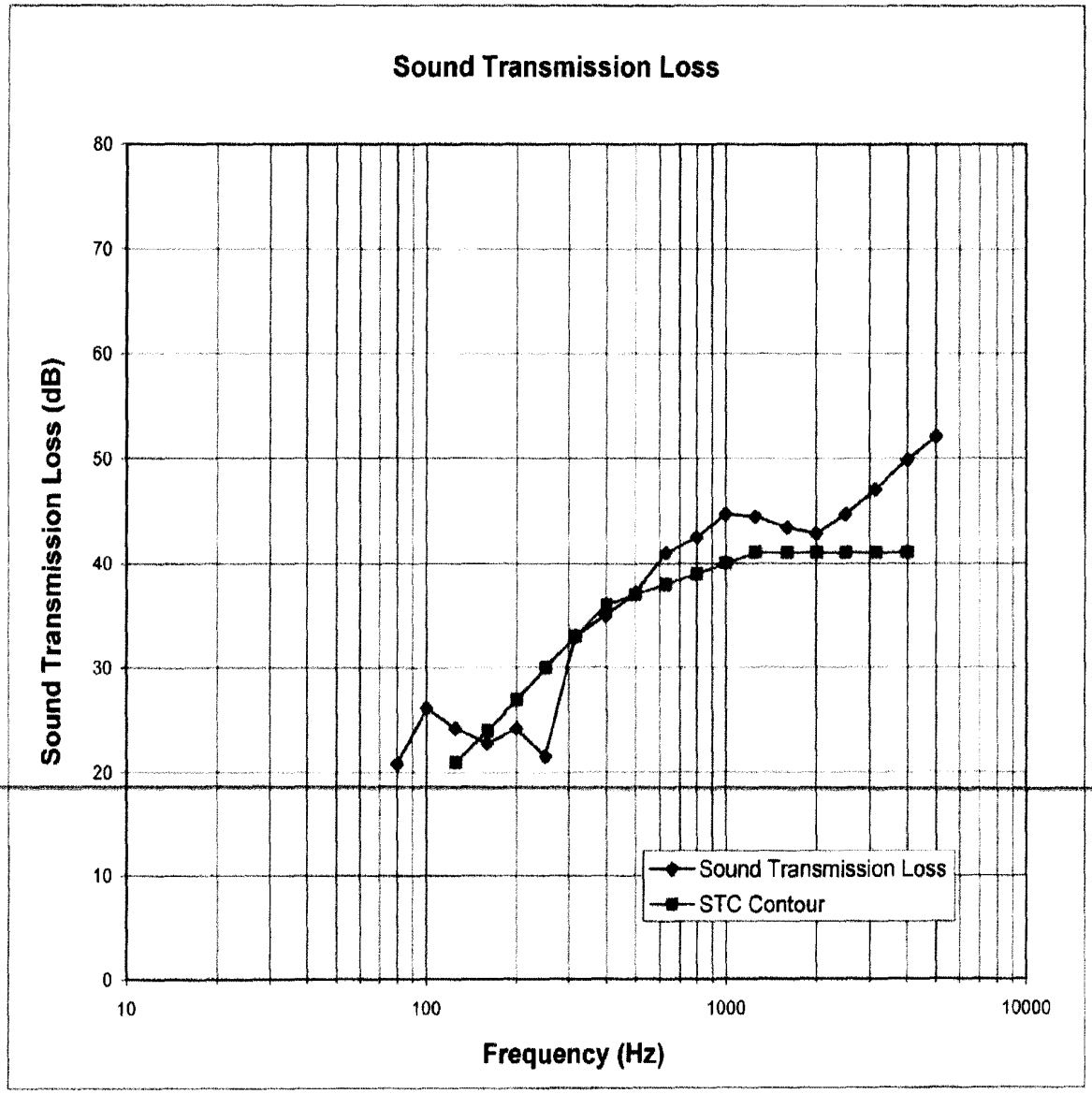
Architectural Testing

ATI No.	87002.01B	**Date**	01/16/09
Client	Crystal Window & Door Systems, Ltd.		
Specimen	Series/Model: 8000, casement window, 1" IG (5/16" laminated, 3/8" air space, 5/16" laminated) Glass Temperature 75°F		
Specimen Area	8.02 Sq Ft		
Filler Area	131.98 Sq Ft		
Operator	Keith Schade		



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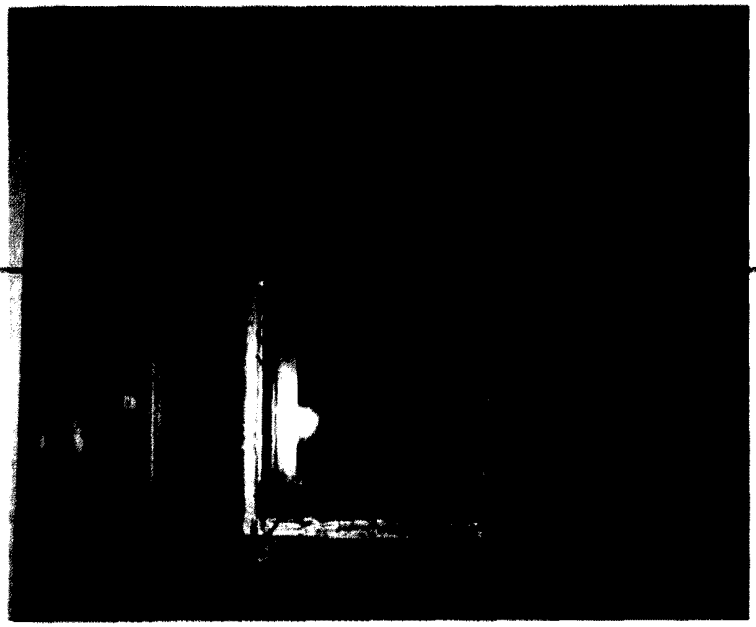
Appendix C

Photographs

Source Side View of the Sample Installed



Receive Side View of the Sample Installed

Architectural Testing

ASTM E 90 SOUND TRANSMISSION LOSS TEST REPORT

Rendered to:

CRYSTAL WINDOW & DOOR SYSTEMS, LTD.

SERIES/MODEL: 8100

TYPE: Fixed Window

Summary of Test Results			
Data File No.	**Glazing (Nominal Dimensions)**	**STC**	**OITC**
87004.01	1" IG (5/16" laminated, 3/8" Argon, 5/16" laminated), Glass temperature 75°F	39	32

Reference should be made to Architectural Testing, Inc. Report No. 87004.01-113-11 for complete test specimen description. The complete test results are listed in Appendix B.

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York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
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Architectural Testing

ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

CRYSTAL WINDOW & DOOR SYSTEMS, LTD.
31-10 Whitestone Expressway
Flushing, New York 11354

Report No: 87004.01-113-11
Test Date: 03/02/09
Report Date: 05/20/09
Expiration Date: 03/02/13

Test Sample Identification:

Series/Model: 8100

Type: Fixed Window

Overall Size: 47" by 59-1/16"

Glazing (Nominal Dimensions): 1" IG (5/16" Laminated, 3/8" Argon, 5/16" Laminated), Glass Temperature 75°F

Project Scope: Architectural Testing, Inc. was contracted by Crystal Window & Door Systems, Ltd. to conduct a sound transmission loss test on a Series/Model 8100, fixed window. A summary of the results is listed in the Test Results section and the complete test data is included as Appendix B of this report. The sample was provided by the client.

Test Methods: The acoustical tests were conducted in accordance with the following:

ASTM E 90-04, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.*

ASTM E 413-04, *Classification for Rating Sound Insulation.*

ASTM E 1332-90 (Re-approved 2003), *Standard Classification for Determination of Outdoor-Indoor Transmission Class.*

ASTM E 2235-04, *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods.*

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Test Equipment: The equipment used to conduct these tests meets the requirements of ASTM E 90. The microphones were calibrated before conducting sound transmission loss tests. The test equipment and test chamber descriptions are listed in Appendix A.

Sample Installation: Sound transmission loss tests were initially performed on a filler wall that was designed to test 48" by 72" and 72" by 48" test specimens. The filler wall achieved an STC rating of 70.

A filler wall reducing element was used to reduce the test opening size. The reducing element consisted of two separate 2x6 wood frames filled with concrete to reduce the test opening size to 47" by 59-1/16". A dense neoprene gasket was placed between the two wood and concrete frames. The window was placed on an isolation pad in the new test opening. Duct seal was used to seal the perimeter of the window to the test opening on both sides. The interior side of the window frame, when installed, was approximately 1/4" from being flush with the receiving room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing. The vent was opened and closed at least five times prior to testing.

Test Procedure: The sound transmission loss test consisted of the following measurements: One background noise sound pressure level and five sound absorption measurements were conducted at each of the five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms, at each of the five microphone positions. The air temperature and relative humidity conditions were monitored and recorded during the background, absorption, source, and receive room measurements.

Sample Descriptions:

Frame Construction:

		Frame
Size		47" by 59-1/16"
Thickness		2-1/4"
Corners		Coped
	Fasteners	Screws
	Seal Method	Foam pads
Material		Thermally broken aluminum
	Reinforcement	N/A
	Thermal Break Material	Urethane
Daylight Opening Size		42-3/4" by 54-5/8"

Sample Descriptions: (Continued)

Glazing:

Measured Overall Insulation Glass Unit Thickness	0.987"
Spacer Type	Steel U-Shaped

	Exterior Sheet	**Gap**	**Interior Sheet**
Measured Thickness	0.123" - 0.060" - 0.123"	0.375"	0.123" - 0.060" - 0.123"
Muntin Pattern	N/A	N/A	N/A
Material	Laminated	Argon*	Laminated
Laminate Material	PVB	N/A	PVB

Glazing Method	Interior
Glazing Material	Silicone
Glazing Bead Material	Aluminum

** - Stated per Client/Manufacturer, N/A-Non Applicable*

Components:

	TYPE	**QUANTITY**	**LOCATION**
Weatherstrip			
	No weatherstrip		
Hardware			
	No hardware		
Drainage			
	No drainage		

Comments: The weight of the sample was 142 lbs. The client did not supply drawings on the Series/Model 8100, fixed window. The test specimen was retained by Architectural Testing for further testing per the client's request. Photographs of the test specimen are included in Appendix C.

Test Results: The STC (Sound Transmission Class) rating was calculated in accordance with ASTM E 413. The OITC (Outdoor-Indoor Transmission Class) was calculated in accordance with ASTM E 1332. A summary of the sound transmission loss test results on the Series/Model 8100, fixed window is listed below.

Summary of Test Results			
Data File No.	**Glazing (Nominal Dimensions)**	**STC**	**OITC**
87004.01	1" IG (5/16" laminated, 3/8" Argon, 5/16" laminated), Glass temperature 75°F	39	32

Note: Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. On each data sheet listed in Appendix B, the cells are highlighted red for the transmission loss values limited in this way. Due to the calculations and sample size, transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. On each data sheet listed in Appendix B, cells highlighted in green indicate transmission loss values affected in this way.

The complete test results are listed in Appendix B. Flanking limit tests and reference specimen tests are available upon request.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire. Results obtained are tested values and were secured by using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

Keith Schade for

Digitally Signed for: Keith Schade by Eric J. Miller

Keith E. Schade
Technician - Acoustical Testing

Todd D. Kister

Digitally Signed by: Todd D. Kister

Todd D. Kister
Laboratory Supervisor - Acoustical Testing

KES:jmes

Attachments (pages): This report is complete only when all attachments listed are included.
- Appendix-A: Equipment description (1)
- Appendix-B: Complete test results (2)
- Appendix-C: Photographs (1)

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Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	05/20/09	N/A	Original Report Issue

This report produced from controlled document template ATI 00279, revised 12/03/08.

Appendix A

Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number
Analyzer	Agilent Technologies	35670A	Dynamic signal analyzer	Y002929
Receive Room Microphone	G.R.A.S.	40AR	1/2", pressure type, condenser microphone	Y003246
Source Room Microphone	G.R.A.S.	40AR	1/2", pressure type, condenser microphone	Y003245
Receive Room Preamp	G.R.A.S.	26AK	1/2" preamplifier	Y003249
Source Room Preamp	G.R.A.S.	26AK	1/2" preamplifier	Y003248
Microphone Calibrator	Bruel & Kjaer	4228	Pistonphone calibrator	Y002816
Noise Source	Delta Electronics	SNG-1	Two, non-correlated "Pink" noise signals	Y002181
Equalizer	Rane	RPE228	Programmable EQ	Y002180
Power Amplifiers	Renkus-Heinz	P2000	Two Amplifiers	Y002179 Y001779
Receive Room Loudspeakers	Renkus-Heinz	Trap Jr/9"	Two Loudspeakers	Y001784 Y001785
Source Room Loudspeakers	Renkus-Heinz	Trap Jr/9"	Two Loudspeakers	Y002649 Y002650

Test Chamber:

	Volume	Description
Receiving Room	8291.3 ft^3 (234 m^3)	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
Source Room	7296.3 ft^3 (206.6 m^3)	Stationary diffusers only Temperature and humidity controlled

	Maximum Size	Description
TL Test Opening	14 ft wide by 10 ft high	Vibration break between source and receive rooms

Appendix B

Complete Test Results

SOUND TRANSMISSION LOSS

ASTM E 90

Architectural Testing

ATI No.	87004.01 **Date** 03/02/09
Client	Crystal Window & Door Systems, Ltd.
Specimen	Series/Model: 8100, Fixed window with 1" IG (5/16" laminated, 3/8" Argon, 5/16" laminated), Glass temperature 75°F
Specimen Area	19.28 Sq Ft
Filler Area	120.72 Sq Ft
Operator	Keith Schade

	Bkgrd	Absorp	Source	Receive	Filler	Specimen
Temp F	73.3	71.3	74.9	72.6	74.0	73.0
RH %	43.7	49.3	47.9	44.6	43.6	46.4

Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defici-encies	Trans Coef Diff
80	39.9	52.1	85.8	58.6	36.0	24	2.91	0	
100	39.7	51.5	89.5	58.2	41.3	28	2.55	0	
125	40.7	49.7	93.1	59.2	47.3	30	1.95	0	
160	40.7	48.7	95.3	66.3	49.5	25	1.04	1	16.6
200	38.5	54.4	99.6	72.1	52.9	23	0.62	6	21.9
250	36.0	53.8	101.0	70.9	56.1	26	1.27	6	22.5
315	34.9	53.7	99.7	65.7	57.7	30	1.17	5	20.2
400	34.8	57.3	99.3	63.6	62.8	31	0.49	7	23.9
500	34.3	60.0	100.1	60.2	67.1	35	0.51	4	24.2
630	30.9	58.0	103.1	59.3	71.0	39	0.37	1	24.0
800	33.2	61.1	102.3	54.6	73.1	43	0.33	0	22.4
1000	29.4	62.6	101.7	51.6	76.4	45	0.26	0	23.4
1250	28.2	69.7	104.7	52.9	78.3	46	0.29	0	24.2
1600	25.0	72.3	110.5	59.2	83.2	46	0.52	0	29.7
2000	16.8	75.2	106.1	56.3	84.2	44	0.47	0	32.3
2500	8.7	88.1	104.4	53.9	85.7	44	0.33	0	33.8
3150	7.3	103.4	105.1	49.3	86.3	48	0.32	0	29.9
4000	7.3	124.0	103.5	42.7	87.2	53	0.41	0	26.5
5000	7.6	161.9	101.8	36.2	85.6	56	0.30	0	21.3

STC Rating = **39** *(Sound Transmission Class)*

Deficiencies = **30** *(Number of deficiencies versus contour curve)*

OITC Rating = **32** *(Outdoor/Indoor Transmission Class)*

Notes:

1) The acoustical chambers are qualified for measurements down to 80 hertz. Data reported below 80 hertz is for reference only.

2) Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. These cells are highlighted red.

3) Transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. These cells are highlighted green.

4) Receive Room levels less than 5dB above the Background levels are highlighted in yellow.

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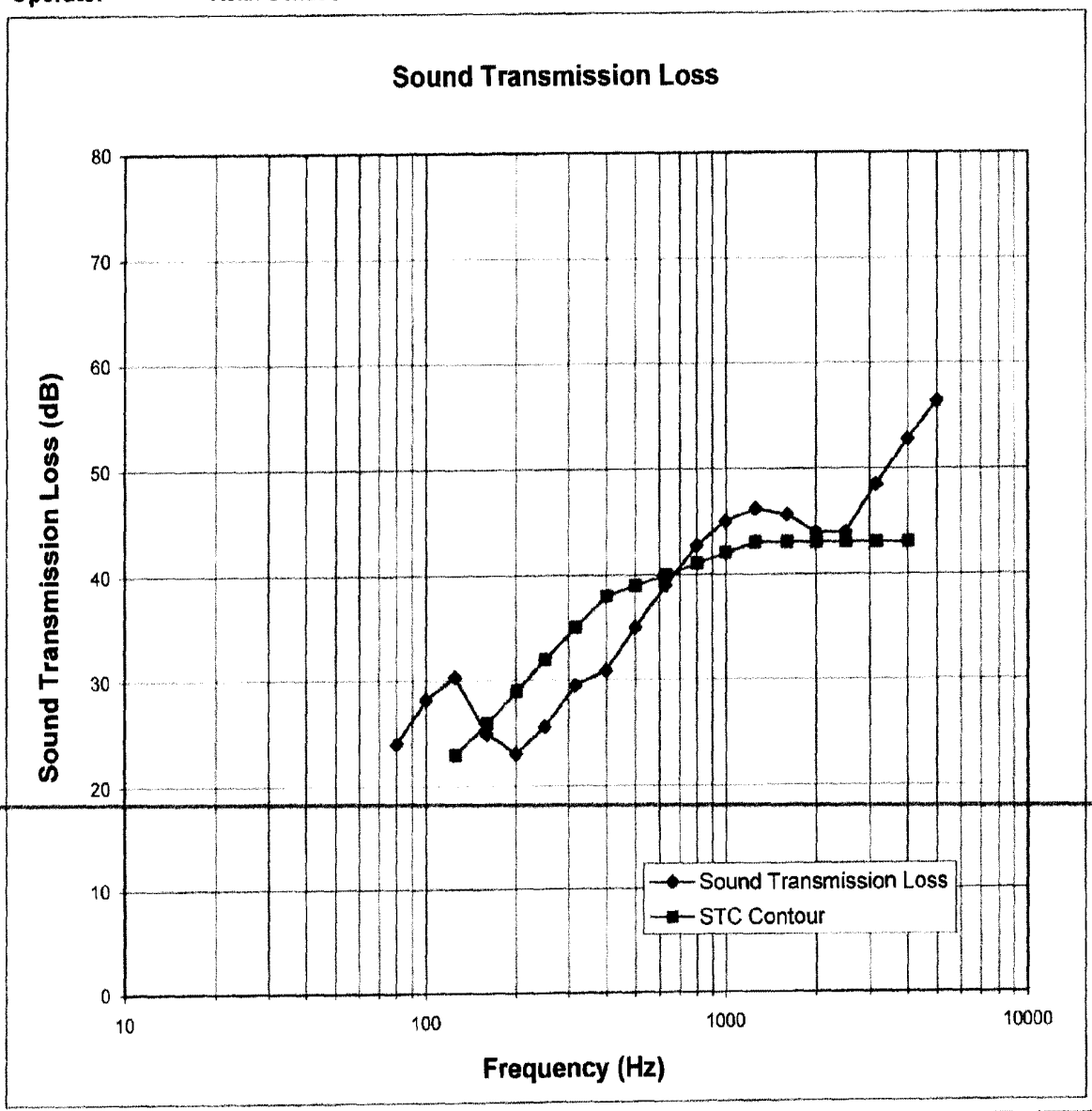
Architectural Testing

ATI No.	87004.01	**Date**	03/02/09
Client	Crystal Window & Door Systems, Ltd.		
Specimen	Series/Model: 8100, Fixed window with 1" IG (5/16" laminated, 3/8" Argon, 5/16" laminated), Glass temperature 75°F		
Specimen Area	19.28 Sq Ft		
Filler Area	120.72 Sq Ft		
Operator	Keith Schade		



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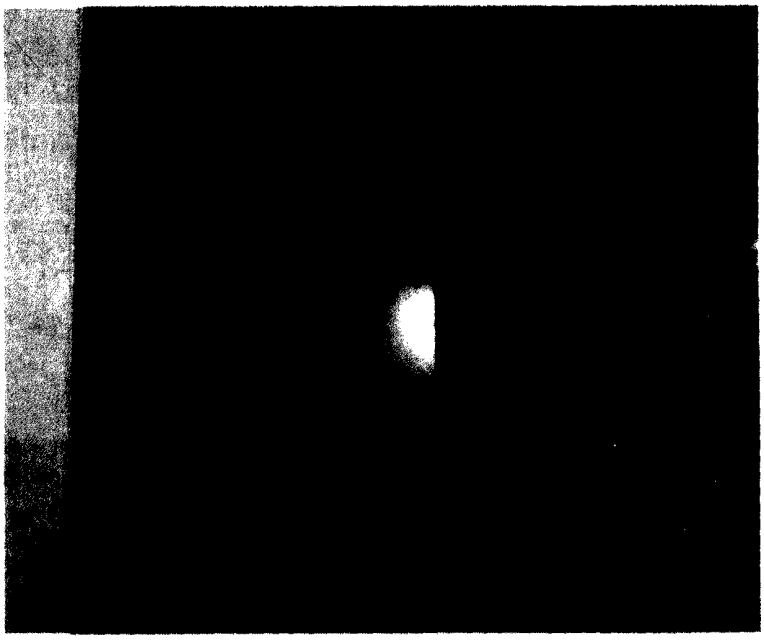
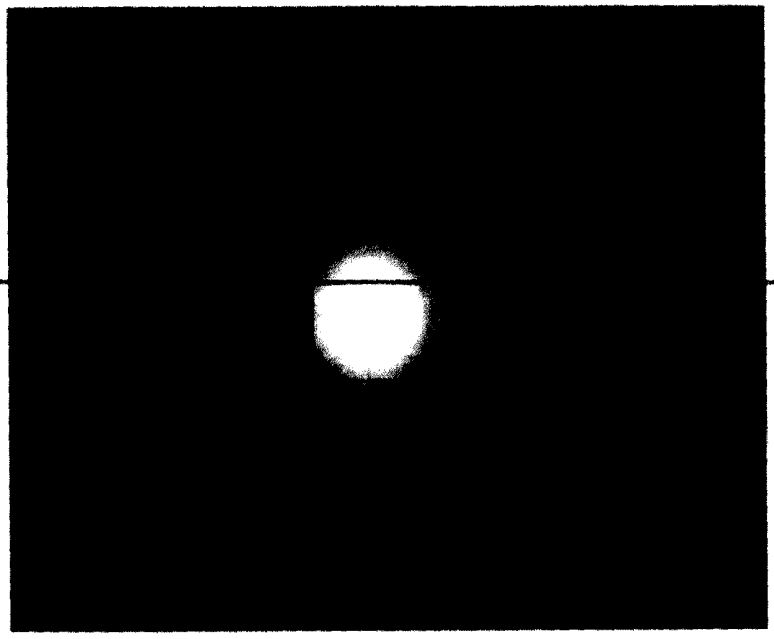
Appendix C

Photographs



Source Side View of the Sample Installed



Receive Side View of the Sample Installed

Architectural Testing

ASTM E 90 SOUND TRANSMISSION LOSS TEST REPORT

Rendered to:

CRYSTAL WINDOW & DOOR SYSTEMS, LTD.

SERIES/MODEL: 1240 Aluminum

TYPE: Sliding Glass Door

Summary of Test Results			
Data File No.	**Glazing Option (Nominal Dimensions)**	**STC**	**OITC**
C3501.01A	1" IG (1/8" tempered, 3/4" air space, 1/8" tempered)	29	22
C3501.01B	1" IG (3/16" tempered exterior, 11/16" air space, 1/8" tempered interior)	32	26
C3501.01C	1" IG (3/16" tempered, 5/8" air space, 3/16" tempered)	30	25
C3501.01D	1" IG (1/4" laminated exterior, 5/8" air space, 1/8" tempered interior), Glass temperature 75°F	33	28
C3501.01E	1" IG (1/4" laminated, 1/2" air space, 1/4" laminated), Glass temperature 75°F	35	30

Reference should be made to Architectural Testing, Inc. Report No. C3501.01-113-11 for complete test specimen description. The complete test results are listed in Appendix B.

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Architectural Testing

ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

CRYSTAL WINDOW & DOOR SYSTEMS, LTD.
31-10 Whitestone Expressway
Flushing, New York 11354

Report No: C3501.01-113-11
Test Date: 12/27/12
Report Date: 01/17/13
Record Retention End Date: 01/17/17

Test Sample Identification:

Series/Model: 1240 Aluminum

Type: Sliding Glass Door

Overall Frame Size: 72" by 80"

Glazing (Nominal Dimensions):

Option A: 1" IG (1/8" Tempered, 3/4" Air Space, 1/8" Tempered)

Option B: 1" IG (3/16" Tempered Exterior, 11/16" Air Space, 1/8" Tempered Interior)

Option C: 1" IG (3/16" Tempered, 5/8" Air Space, 3/16" Tempered)

Option D: 1" IG (1/4" Laminated Exterior, 5/8" Air Space, 1/8" Tempered Interior), Glass Temperature 75°F

Option E: 1" IG (1/4" Laminated, 1/2" Air Space, 1/4" Laminated), Glass Temperature 75°F

Project Scope: Architectural Testing, Inc. was contracted by Crystal Window & Door Systems, Ltd. to conduct sound transmission loss tests on Series/Model 1240 Aluminum, sliding glass doors. A summary of the results is listed in the Test Results section, and the complete test data is included as Appendix B of this report. The samples were provided by the client.

Test Methods: The acoustical tests were conducted in accordance with the following:

ASTM E 90-09, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.*
ASTM E 413-10, *Classification for Rating Sound Insulation.*
ASTM E 1332-10a, *Standard Classification for Rating Outdoor-Indoor Sound Attenuation.*
ASTM E 2235-04 (Reapproved 2012), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods.*

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Test Equipment: The equipment used to conduct these tests meets the requirements of ASTM E 90. The microphones were calibrated before conducting sound transmission loss tests. The test equipment and test chamber descriptions are listed in Appendix A.

Sample Installation: Sound transmission loss tests were initially performed on a filler wall that was designed to test sliding glass door specimens. The filler wall achieved an STC rating of 69.

A filler wall reducing element was used to reduce the test opening size to accommodate the test specimen. The reducing element consisted of a double 2x4 wood stud wall construction with three layers of 5/8" drywall on both sides. The stud cavities in the wall were insulated with two layers of R-13 fiberglass insulation. The sliding glass door was placed on a foam isolation pad in the new test opening. Duct seal was used to seal the perimeter of the test specimen to the test opening on both sides. The interior side of the door frame, when installed, was approximately 1/4" from being flush with the receiving room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing. The panels were opened and closed at least five times prior to testing.

Test Procedure: The sliding glass door was closed and locked for this test. The sound transmission loss tests were conducted in accordance with the ASTM E 90 test method using a single direction of measurement. The sound transmission loss test consisted of the following measurements: One background noise sound pressure level and five sound absorption measurements were conducted at each of the five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms, at each of the five microphone positions. The air temperature and relative humidity conditions were monitored and recorded during the background, absorption, source, and receive room measurements.

Sample Descriptions:

Frame Construction:

		Frame
Size		72" by 80"
Thickness		4-1/4"
Corners		Coped
	Fasteners	Screws
	Seal Method	Sealant
Material		Aluminum
	Reinforcement	None
	Thermal Break Material	Urethane

Sample Descriptions: (Continued)

Panel Construction:

		Fixed Panel	Active Panel
Size		35-3/8" by 76-3/4"	36-5/8" by 76-3/4"
Thickness		1-1/2"	1-1/2"
Corners		Coped	Coped
	Fasteners	Screws	Screws
	Seal Method	Sealant	Sealant
Material		Aluminum	Aluminum
	Reinforcement	None	None
	Thermal Break Material	Urethane	Urethane
Daylight Opening Size		32-1/4" by 71-1/2"	32-1/4" by 71-1/2"

Note: Expanded polyurethane foam was located in all members of the panels and frame.

Glazing Option A:

Measured Overall Insulation Glass Unit Thickness	0.984"
Spacer Type	Steel U-shaped

	Exterior Sheet	Gap	Interior Sheet
Measured Thickness	0.127"	0.730"	0.127"
Muntin Pattern	N/A	N/A	N/A
Material	Tempered	Air*	Tempered
Laminate Material	N/A	N/A	N/A

Glazing Method	Channel
Glazing Material	U-shaped gasket
Glazing Bead Material	N/A

** - Stated per Client/Manufacturer, N/A-Non Applicable*

Sample Descriptions: (Continued)

Glazing Option B:

Measured Overall Insulation Glass Unit Thickness	0.959"
Spacer Type	Steel U-shaped

	Exterior Sheet	**Gap**	**Interior Sheet**
Measured Thickness	0.184"	0.648"	0.127"
Muntin Pattern	N/A	N/A	N/A
Material	Tempered	Air*	Tempered
Laminate Material	N/A	N/A	N/A

Glazing Method	Channel
Glazing Material	U-shaped gasket
Glazing Bead Material	N/A

Glazing Option C:

Measured Overall Insulation Glass Unit Thickness	0.971"
Spacer Type	Steel U-shaped

	Exterior Sheet	**Gap**	**Interior Sheet**
Measured Thickness	0.184"	0.604"	0.183"
Muntin Pattern	N/A	N/A	N/A
Material	Tempered	Air*	Tempered
Laminate Material	N/A	N/A	N/A

Glazing Method	Channel
Glazing Material	U-shaped gasket
Glazing Bead Material	N/A

** - Stated per Client/Manufacturer, N/A-Non Applicable*

Sample Descriptions: (Continued)

Glazing Option D:

Measured Overall Insulation Glass Unit Thickness	0.983"
Spacer Type	Steel U-shaped

	Exterior Sheet	**Gap**	**Interior Sheet**
Measured Thickness	0.104", 0.060", 0.104"	0.588"	0.127"
Muntin Pattern	N/A	N/A	N/A
Material	Laminated	Air*	Tempered
Laminate Material	PVB	N/A	N/A

Glazing Method	Channel
Glazing Material	U-shaped gasket
Glazing Bead Material	N/A

Glazing Option E:

Measured Overall Insulation Glass Unit Thickness	0.979"
Spacer Type	Steel U-shaped

	Exterior Sheet	**Gap**	**Interior Sheet**
Measured Thickness	0.100", 0.060", 0.100"	0.455"	0.102", 0.060", 0.102"
Muntin Pattern	N/A	N/A	N/A
Material	Laminated	Air*	Laminated
Laminate Material	PVB	N/A	PVB

Glazing Method	Channel
Glazing Material	U-shaped gasket
Glazing Bead Material	N/A

** - Stated per Client/Manufacturer, N/A-Non Applicable*

Sample Descriptions: (Continued)

Components:

TYPE	QUANTITY	LOCATION
Weatherstrip		
0.270" by 0.270" Polypile with center fin	1 Row	Jambs
0.270" by 0.140" Polypile with center fin	1 Row	Fixed and active meeting stiles
0.187" by 0.170" Polypile with center fin	1 Row	Fixed meeting stile
0.270" by 0.310" Polypile with center fin	1 Row	Lock stile
0.270" by 0.310" Polypile with center fin	2 Rows	Active rails
7/16" by 1" Polypile pad with dual fins	1	Fixed meeting stile at top rail
1/8" Triple leaf seal	1 Row	Fixed rails
Hardware		
Roller assembly set	2	Active bottom rail
Handle with lock	1	Lock stile
Keeper	1	Lock jamb
Drainage		
No drainage		

Comments: The weight of Option A was 180 lbs. The weight of Option B was 204 lbs. The weight of Option C was 230 lbs. The weight of Option D was 228 lbs. The weight of Option E was 274 lbs. The client did not supply drawings on the Series/Model 1240 Aluminum, sliding glass door. The sliding glass door was disassembled, and the components will be retained by Architectural Testing for four years. Photographs of the test specimen are included in Appendix C.

Test Results: The STC (Sound Transmission Class) rating was calculated in accordance with ASTM E 413. The OITC (Outdoor-Indoor Transmission Class) was calculated in accordance with ASTM E 1332. A summary of the sound transmission loss test results on the Series/Model 1240 Aluminum, sliding glass door is listed below.

Summary of Test Results			
Data File No.	**Glazing Option (Nominal Dimensions)**	**STC**	**OITC**
C3501.01A	1" IG (1/8" tempered, 3/4" air space, 1/8" tempered)	29	22
C3501.01B	1" IG (3/16" tempered exterior, 11/16" air space, 1/8" tempered interior)	32	26
C3501.01C	1" IG (3/16" tempered, 5/8" air space, 3/16" tempered)	30	25
C3501.01D	1" IG (1/4" laminated exterior, 5/8" air space, 1/8" tempered interior), Glass temperature 75°F	33	28
C3501.01E	1" IG (1/4" laminated, 1/2" air space, 1/4" laminated), Glass temperature 75°F	35	30

The complete test results are listed in Appendix B. Flanking limit tests and reference specimen tests are available upon request.

Architectural Testing will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Architectural Testing for the entire test record retention period.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

Daniel P. Platts
Technician - Acoustical Testing

Todd D. Kister
Laboratory Supervisor - Acoustical Testing

DPP:jmcs

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Equipment description (1)
Appendix-B: Complete test results (10)
Appendix-C: Photographs (1)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	01/17/13	N/A	Original Report Issue

Appendix A

Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number	Date of Calibration
Analyzer	Hewlett Packard	HP35670A	Real time analyzer	004112	07/11 *
Data Acquisition Unit	Agilent	34970A	Data Acquisition Unit	62211	07/12
Receive Room Microphone	GRAS	40 AR	1/2" Microphone	Y003246	08/12
Source Room Microphone	GRAS	40 AR	1/2" Microphone	Y003245	08/12
Receive Room Preamplifier	GRAS	26 AK	1/2" Preamplifier	Y003249	08/12
Source Room Preamplifier	GRAS	26 AK	1/2" Preamplifier	Y003248	08/12
Microphone Calibrator	Bruel & Kjaer	Type 4228	Pistonphone Calibrator	Y002816	02/12
Noise Source	Delta Electronics	SNG-1	Noise Generator	Y002181	N/A
Equalizer	Rane	RPE 228	Programmable Equalizer	Y002180	N/A
Power Amplifiers	Crown	Xti 2000	Two, Amplifiers	005769 005770	N/A
Receive Room Loudspeakers	Renkus-Heinz Inc.	Trap Jr./9	Two, Loudspeakers	Y001784 Y001785	N/A
Source Room Loudspeakers	Renkus-Heinz Inc.	Trap Jr./9	Two, Loudspeakers	Y002649 Y002650	N/A
Receive Room Environmental Indicator	Vaisala	HMW60Y	Temperature and Humidity Sensor	005066	09/12
Source Room Environemental Indicator	Vaisala	HMW60Y	Temperature and Humidity Sensor	Y002653	03/12
Weather Station	Davis Instruments	VantagePRO 6150C	Weather Station	Y003257	05/12

*- *Note: The calibration frequency for this equipment is every two years per the manufacturer's recommendation.*

Test Chamber:

	Volume	Description
Receive Room	234 m^3 (8291.3 ft^3)	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
Source Room	206.6 m^3 (7296.3 ft^3)	Stationary diffusers only Temperature and humidity controlled

	Maximum Size	Description
TL Test Opening	4.27 m (14 ft) wide by 3.05 m (10 ft) high	Vibration break between source and receive rooms

N/A-Non Applicable

Appendix B

Complete Test Results

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SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	12/27/12		
ATI No.	C3501.01A		
Client	Crystal Window & Door Systems, Ltd.		
Specimen	Series/Model: 1240 Aluminum, sliding glass door with 1" IG (1/8" tempered, 3/4" air space, 1/8" tempered)		
Operator	Daniel Platts - Craig Fox		
Sample Area	3.72 m^2		
Filler Area	9.28 m^2		
	Source	Receive	Specimen
Temp C	22	21	21
RH %	49	45	46

Freq (Hz)	Bkgrd SPL (dB)	Absorp (m^2)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defi-ciencies	Trans Coef Diff
80	41	5.6	90	71	32	18	2.2	-	
100	40	5.9	92	67	38	23	2.8	-	
125	41	5.2	97	71	45	25	1.4	0	16.3
160	41	4.9	97	76	48	19	1.3	0	24.7
200	36	5.5	102	89	58	11	0.8	8	42.9
250	36	5.4	102	83	60	17	1.3	5	38.8
315	33	6.2	103	82	66	19	0.8	6	43.1
400	28	6.0	103	77	68	24	0.9	4	40.0
500	22	6.4	103	74	68	27	0.1	2	36.7
630	20	5.8	105	74	69	29	0.5	1	36.3
800	17	6.2	106	73	71	31	0.3	0	36.2
1000	13	6.2	105	71	74	32	0.2	0	38.2
1250	12	6.9	104	67	72	35	0.5	0	33.7
1600	11	7.0	107	68	71	36	0.4	0	31.4
2000	8	7.6	106	67	72	36	0.3	0	31.7
~~2500~~	~~6~~	~~8.6~~	~~105~~	~~65~~	~~75~~	~~36~~	~~0.3~~	~~0~~	~~34.7~~
3150	5	10.0	106	67	77	35	0.4	0	38.0
4000	6	12.4	106	72	81	29	0.4	4	47.6
5000	6	15.8	105	65	84	34	0.5	-	45.8

STC Rating	**29**	*(Sound Transmission Class)*
Deficiencies	30	*(Number of deficiencies versus contour curve)*
OITC Rating	**22**	*(Outdoor Indoor Transmission Class)*

Notes:

1) Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. These cells are highlighted red.

2) Transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. These cells are highlighted green.

3) Receive Room levels less than 5 dB above the background levels are highlighted in yellow.

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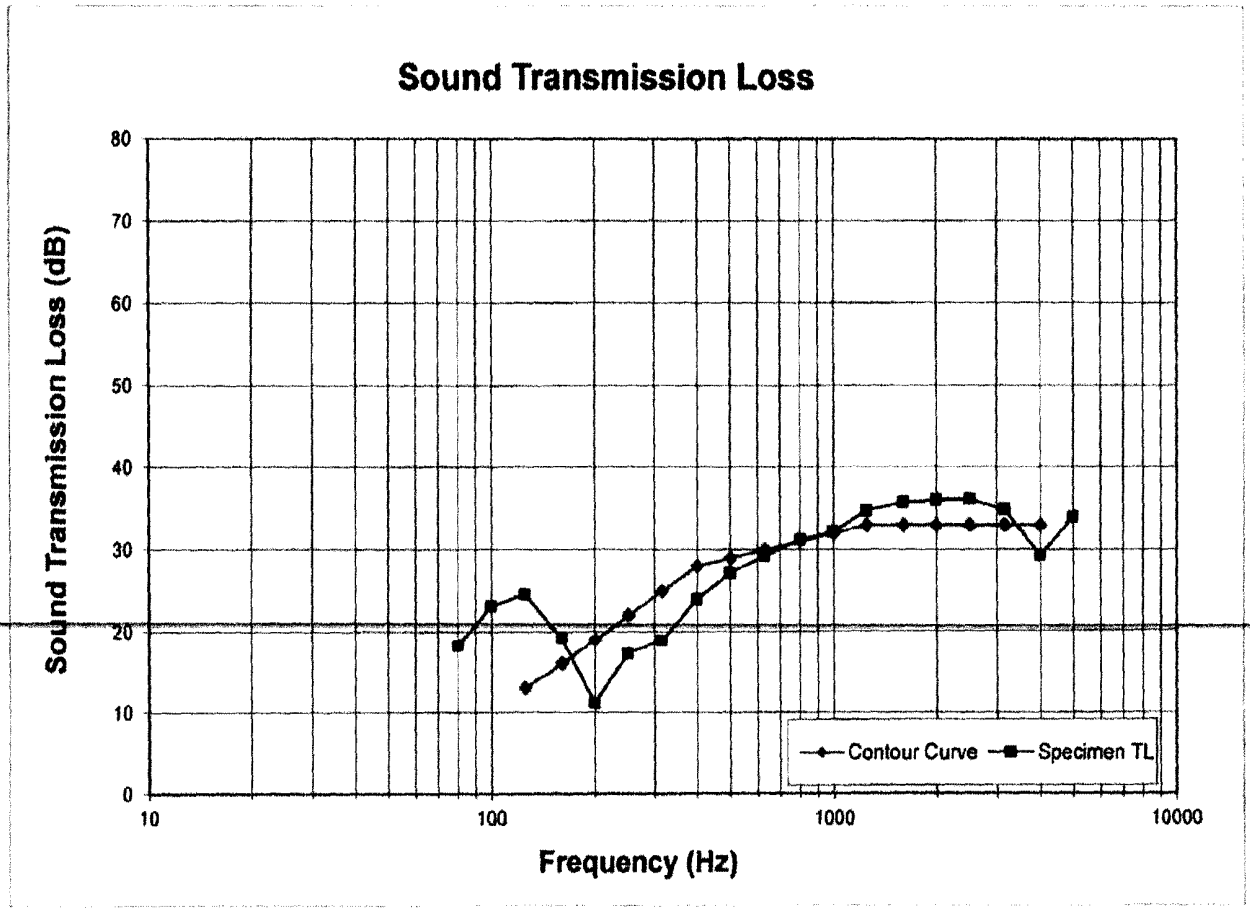
SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	12/27/12		
ATI No.	C3501.01A		
Client	Crystal Window & Door Systems, Ltd.		
Specimen	Series/Model: 1240 Aluminum, sliding glass door with 1" IG (1/8" tempered, 3/4" air space, 1/8" tempered)		
Operator	Daniel Platts - Craig Fox		
Sample Area	3.72 m^2		
Filler Area	9.28 m^2		
	Source	Receive	Sample
Temp C	22	21	21
RH %	49	45	46



Note: To obtain the Sound Transmission Class (STC), read the Sound Transmission Loss of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve cannot exceed 32. The maximum deficiencies at any one frequency cannot exceed 8.

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SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	12/27/12
ATI No.	C3501.01B
Client	Crystal Window & Door Systems, Ltd.
Specimen	Series/Model: 1240 Aluminum, sliding glass door with 1" IG (3/16" tempered exterior, 11/16" air space, 1/8" tempered interior)
Operator	Daniel Platts - Craig Fox
Sample Area	3.72 m^2
Filler Area	9.28 m^2

	Source	Receive	Specimen
Temp C	23	22	22
RH %	50	48	48

Freq (Hz)	Bkgrd SPL (dB)	Absorp (m^2)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defi-ciencies	Trans Coef Diff
80	38	5.2	91	69	32	21	1.8	-	
100	35	6.2	92	66	38	24	3.0	-	
125	38	5.4	96	69	45	25	1.7	0	15.9
160	38	4.9	96	74	48	21	1.2	0	22.9
200	36	5.5	101	84	58	15	0.7	7	39.1
250	33	5.5	101	79	60	20	1.0	5	35.8
315	29	6.2	102	76	66	24	1.0	4	38.3
400	26	6.2	103	72	68	28	0.6	3	35.6
500	24	6.0	103	69	68	32	0.5	0	32.3
630	22	6.0	105	70	69	33	0.3	0	32.2
800	19	6.2	106	69	71	35	0.4	0	32.6
1000	15	6.5	105	67	74	36	0.4	0	34.9
1250	14	7.0	104	65	72	36	0.4	0	32.0
1600	11	7.2	107	67	71	37	0.5	0	30.3
2000	7	7.4	106	66	72	37	0.4	0	30.9
~~2500~~	~~6~~	~~8.3~~	~~105~~	~~66~~	~~75~~	~~36~~	~~0.4~~	~~0~~	~~35.2~~
3150	6	9.9	106	68	77	34	0.5	2	38.8
4000	6	11.7	106	67	81	34	0.4	2	43.0
5000	7	14.9	105	62	84	36	0.4	-	43.3

STC Rating **32** *(Sound Transmission Class)*
Deficiencies 23 *(Number of deficiencies versus contour curve)*
OITC Rating **26** *(Outdoor Indoor Transmission Class)*

Notes:

1) Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. These cells are highlighted red.

2) Transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. These cells are highlighted green.

3) Receive Room levels less than 5 dB above the background levels are highlighted in yellow.

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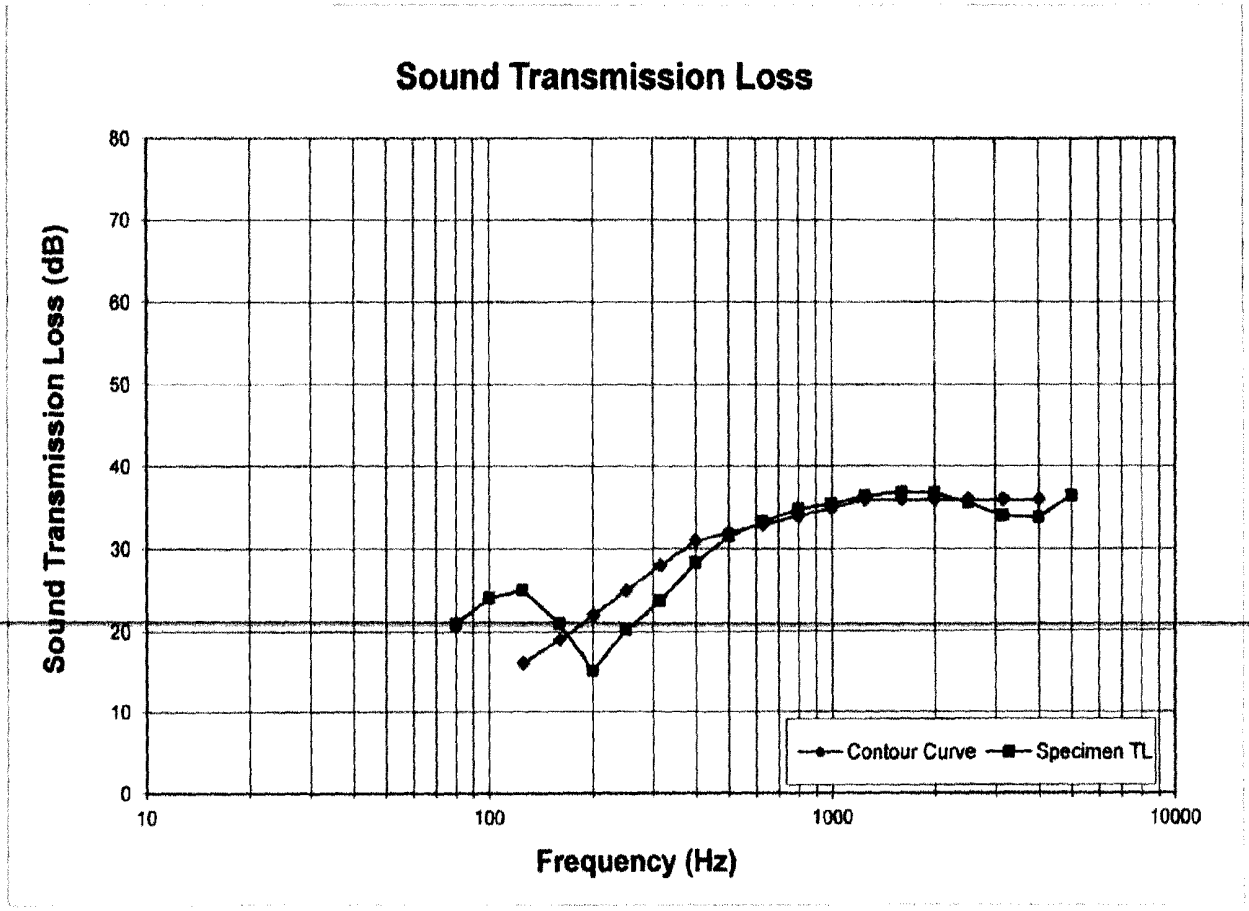
SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	12/27/12		
ATI No.	C3501.01B		
Client	Crystal Window & Door Systems, Ltd.		
Specimen	Series/Model: 1240 Aluminum, sliding glass door with 1" IG (3/16" tempered exterior, 11/16" air space, 1/8" tempered interior)		
Operator	Daniel Platts - Craig Fox		
Sample Area	3.72 m^2		
Filler Area	9.28 m^2		
	Source	Receive	Sample
Temp C	23	22	22
RH %	50	48	48



Note: To obtain the Sound Transmission Class (STC), read the Sound Transmission Loss of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve cannot exceed 32. The maximum deficiencies at any one frequency cannot exceed 8.

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SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	12/27/12		
ATI No.	C3501.01C		
Client	Crystal Window & Door Systems, Ltd.		
Specimen	Series/Model: 1240 Aluminum, sliding glass door with 1" IG (3/16" tempered, 5/8" air space, 3/16" tempered)		
Operator	Daniel Platts - Craig Fox		
Sample Area	3.72 m^2		
Filler Area	9.28 m^2		
	Source	Receive	Specimen
Temp C	23	23	23
RH %	53	49	50

Freq (Hz)	Bkgrd SPL (dB)	Absorp (m^2)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defi-ciencies	Trans Coef Diff
80	38	5.4	91	69	32	21	2.0	-	
100	35	6.6	92	66	38	24	2.9	-	
125	36	5.6	96	70	45	24	1.8	0	17.3
160	36	5.0	96	74	48	21	1.2	0	23.0
200	35	4.8	101	85	58	15	0.9	5	38.7
250	33	5.3	101	82	60	17	1.1	6	38.8
315	29	6.1	102	78	66	22	1.1	4	40.2
400	28	6.1	103	73	68	28	0.7	1	36.3
500	25	6.2	103	71	68	29	0.5	1	34.4
630	24	5.7	105	71	69	32	0.4	0	33.5
800	21	6.2	106	70	71	34	0.4	0	33.6
1000	16	6.4	105	69	74	35	0.4	0	35.9
1250	17	6.9	104	65	72	36	0.4	0	32.7
1600	12	7.3	107	68	71	36	0.5	0	31.1
2000	8	7.5	106	68	72	35	0.4	0	32.8
~~2500~~	~~8~~	~~8.5~~	~~105~~	~~73~~	~~75~~	~~28~~	~~0.4~~	~~6~~	~~42.4~~
3150	7	10.0	106	72	77	30	0.5	4	42.9
4000	8	11.5	106	68	81	34	0.3	0	43.3
5000	8	14.9	105	62	84	37	0.4	-	42.6

STC Rating	**30**	*(Sound Transmission Class)*
Deficiencies	27	*(Number of deficiencies versus contour curve)*
OITC Rating	**25**	*(Outdoor Indoor Transmission Class)*

Notes:

1) Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. These cells are highlighted red.

2) Transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. These cells are highlighted green.

3) Receive Room levels less than 5 dB above the background levels are highlighted in yellow.

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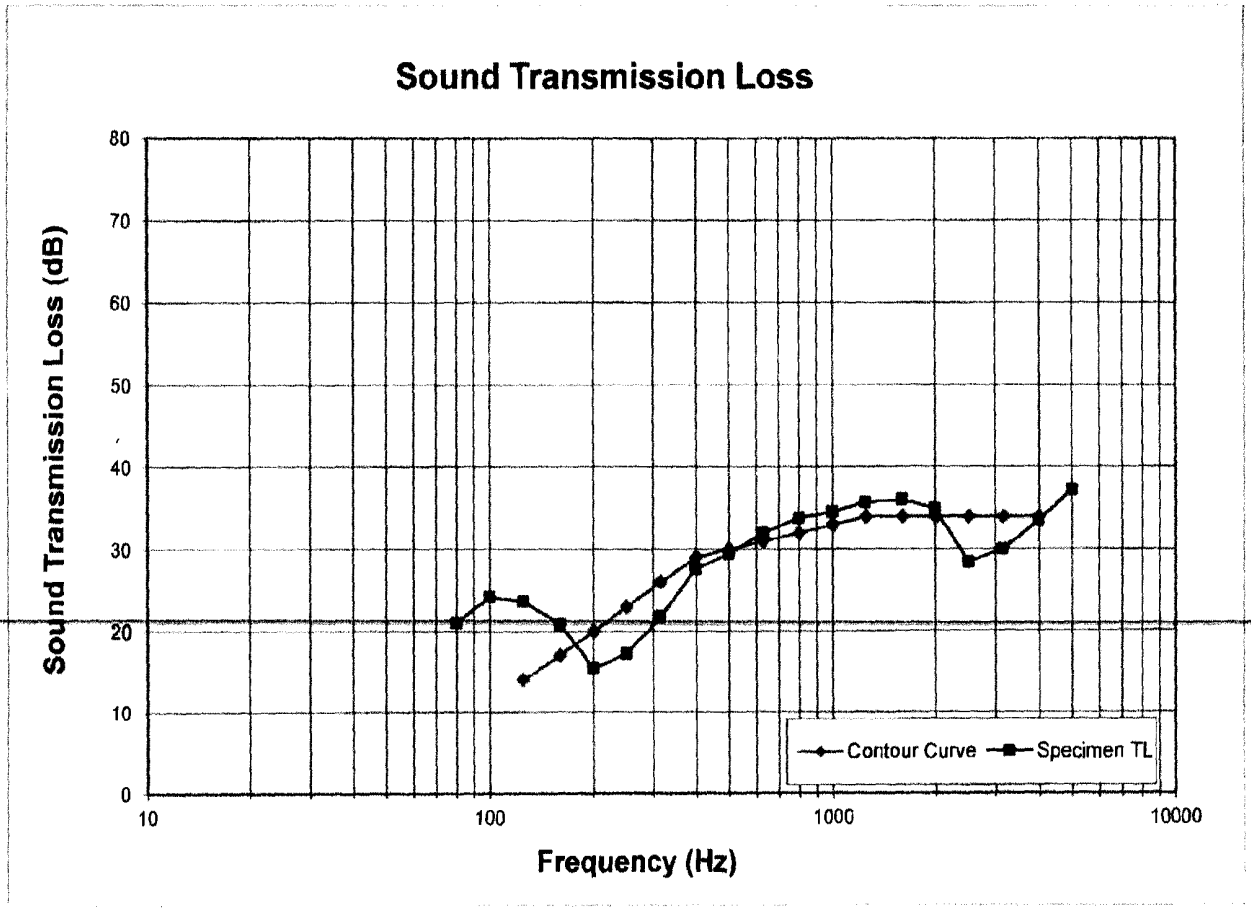
SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	12/27/12		
ATI No.	C3501.01C		
Client	Crystal Window & Door Systems, Ltd.		
Specimen	Series/Model: 1240 Aluminum, sliding glass door with 1" IG (3/16" tempered, 5/8" air space, 3/16" tempered)		
Operator	Daniel Platts - Craig Fox		
Sample Area	3.72 m^2		
Filler Area	9.28 m^2		
	Source	Receive	Sample
Temp C	23	23	23
RH %	53	49	50



Note: To obtain the Sound Transmission Class (STC), read the Sound Transmission Loss of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve cannot exceed 32. The maximum deficiencies at any one frequency cannot exceed 8.

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SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	12/27/12		
ATI No.	C3501.01D		
Client	Crystal Window & Door Systems, Ltd.		
Specimen	Series/Model: 1240 Aluminum, sliding glass door with 1" IG (1/4" laminated exterior, 5/8" air space, 1/8" tempered interior), Glass temperature 75°F		
Operator	Daniel Platts - Craig Fox		
Sample Area	3.72 m^2		
Filler Area	9.28 m^2		
	Source	Receive	Specimen
Temp C	23	23	23
RH %	54	50	51

Freq (Hz)	Bkgrd SPL (dB)	Absorp (m^2)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defi-ciencies	Trans Coef Diff
80	37	5.5	91	69	32	21	2.0	-	
100	34	5.4	93	66	38	26	3.6	-	
125	36	5.7	96	68	45	26	1.3	0	15.2
160	37	5.1	97	73	48	22	1.3	0	21.6
200	35	5.8	102	81	58	19	0.7	4	34.8
250	34	5.9	102	77	60	23	0.8	3	33.5
315	30	6.1	103	77	66	24	0.9	5	38.2
400	28	6.3	103	73	68	28	0.6	4	36.3
500	25	6.6	103	70	68	31	0.5	2	32.8
630	23	6.1	105	70	69	33	0.2	1	32.3
800	21	6.1	106	68	71	36	0.2	0	31.9
1000	17	6.5	106	67	74	36	0.4	0	33.9
1250	18	7.0	104	64	72	38	0.4	0	30.8
1600	15	7.3	107	67	71	37	0.5	0	29.7
2000	12	7.7	106	66	72	37	0.4	0	30.8
~~2500~~	~~10~~	~~8.3~~	~~105~~	~~65~~	~~75~~	~~37~~	~~0.3~~	~~0~~	~~34.1~~
3150	9	10.1	106	66	77	36	0.5	1	37.1
4000	9	11.8	106	66	81	35	0.4	2	42.0
5000	8	14.7	105	61	84	38	0.5	-	41.7

STC Rating **33** *(Sound Transmission Class)*
Deficiencies 22 *(Number of deficiencies versus contour curve)*
OITC Rating **28** *(Outdoor Indoor Transmission Class)*

Notes:

1) Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. These cells are highlighted red.

2) Transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. These cells are highlighted green.

3) Receive Room levels less than 5 dB above the background levels are highlighted in yellow.

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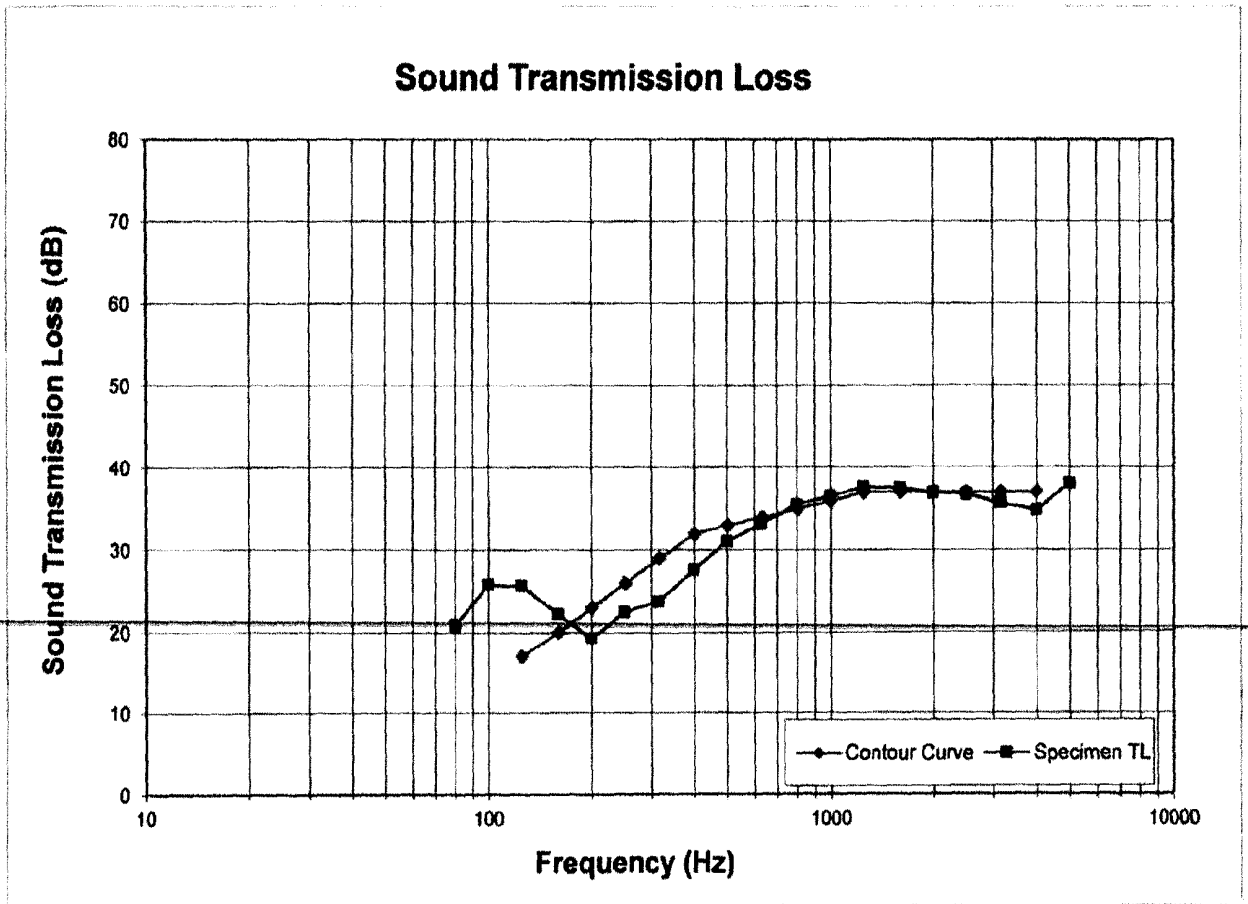
SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	12/27/12		
ATI No.	C3501.01D		
Client	Crystal Window & Door Systems, Ltd.		
Specimen	Series/Model: 1240 Aluminum, sliding glass door with 1" IG (1/4" laminated exterior, 5/8" air space, 1/8" tempered interior), Glass temperature 75°F		
Operator	Daniel Platts - Craig Fox		
Sample Area	3.72 m^2		
Filler Area	9.28 m^2		
	Source	Receive	Sample
Temp C	23	23	23
RH %	54	50	51



Note: To obtain the Sound Transmission Class (STC), read the Sound Transmission Loss of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve cannot exceed 32. The maximum deficiencies at any one frequency cannot exceed 8.

Architectural Testing

ACCREDITED
TL-144

SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	12/27/12
ATI No.	C3501.01E
Client	Crystal Window & Door Systems, Ltd.
Specimen	Series/Model: 1240 Aluminum, sliding glass door with 1" IG (1/4" laminated, 1/2" air space, 1/4" laminated), Glass temperature 75°F
Operator	Daniel Platts - Craig Fox
Sample Area	3.72 m^2
Filler Area	9.28 m^2

	Source	Receive	Specimen
Temp C	23	23	22
RH %	51	51	52

Freq (Hz)	Bkgrd SPL (dB)	Absorp (m^2)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defi-ciencies	Trans Coef Diff
80	40	5.3	91	68	32	22	2.1	-	
100	37	6.1	93	65	38	27	3.0	-	
125	37	5.8	98	68	45	28	1.0	0	
160	38	5.2	97	72	48	23	1.6	0	20.5
200	36	4.8	103	76	58	26	0.9	0	28.5
250	34	5.6	103	79	60	22	1.3	6	34.0
315	31	5.7	103	73	66	28	0.9	3	34.1
400	29	6.3	103	72	68	29	0.9	5	34.5
500	26	6.2	104	67	68	34	0.3	1	29.8
630	24	5.8	105	68	69	35	0.4	1	30.3
800	23	6.0	106	67	71	37	0.2	0	30.5
1000	19	6.6	106	66	74	37	0.2	1	33.4
1250	17	6.9	104	63	72	38	0.4	1	30.2
1600	12	7.1	107	66	71	38	0.4	1	29.3
2000	7	7.7	106	66	72	37	0.3	2	30.8
~~2500~~	~~7~~	~~8.5~~	~~105~~	~~65~~	~~75~~	~~36~~	~~0.2~~	~~3~~	~~34.8~~
3150	6	9.8	106	65	77	37	0.4	2	35.8
4000	6	11.5	106	64	81	38	0.4	1	39.1
5000	6	14.7	105	60	84	40	0.6	-	40.1

STC Rating	**35**	*(Sound Transmission Class)*
Deficiencies	27	*(Number of deficiencies versus contour curve)*
OITC Rating	**30**	*(Outdoor Indoor Transmission Class)*

Notes:

1) Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. These cells are highlighted red.

2) Transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. These cells are highlighted green.

3) Receive Room levels less than 5 dB above the background levels are highlighted in yellow.

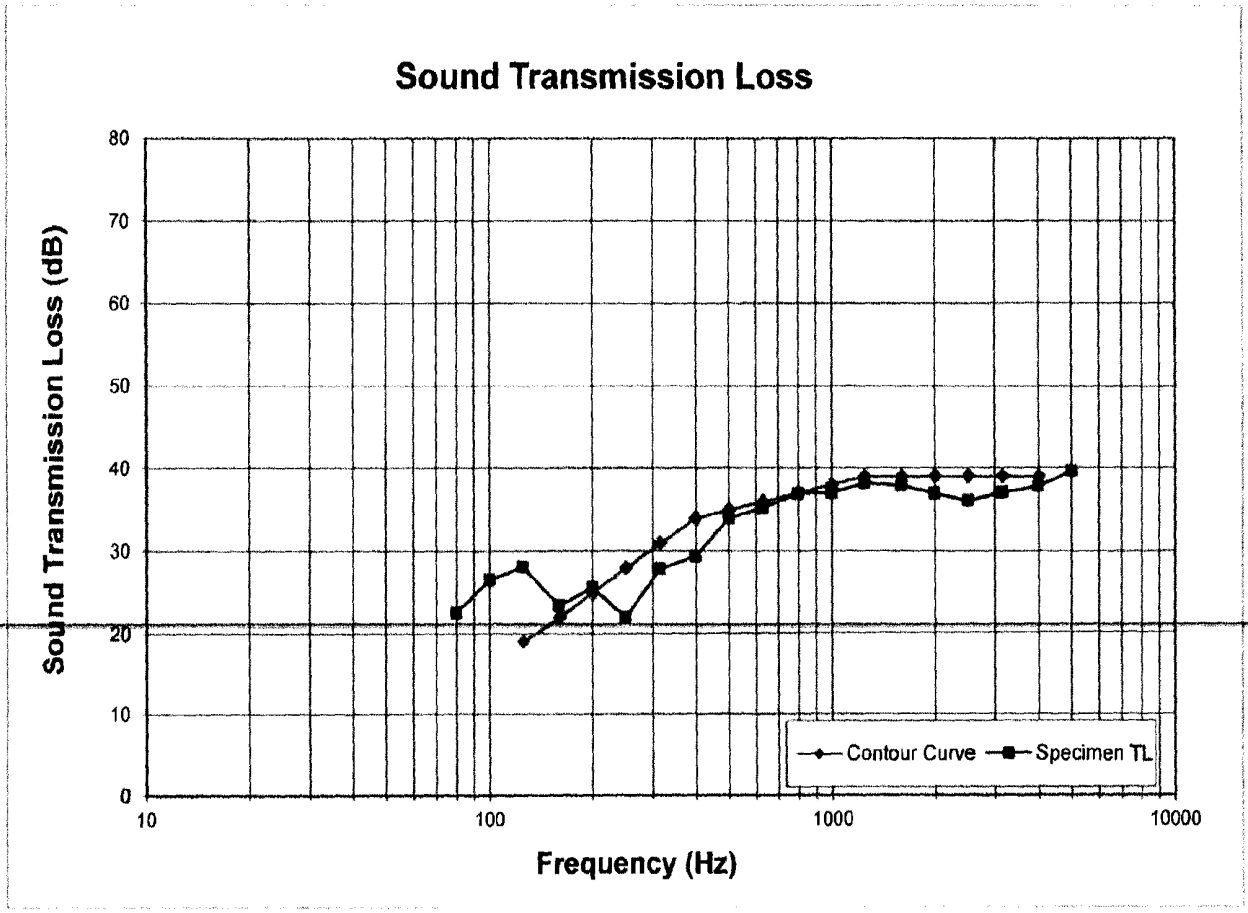
Architectural Testing

ACCREDITED
TL-144

SOUND TRANSMISSION LOSS

ASTM E 90

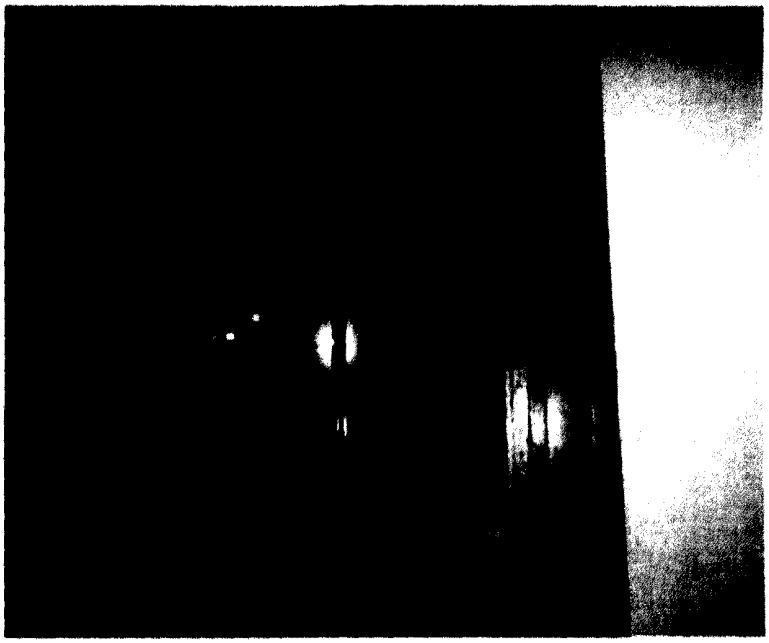
Test Date	12/27/12		
ATI No.	C3501.01E		
Client	Crystal Window & Door Systems, Ltd.		
Specimen	Series/Model: 1240 Aluminum, sliding glass door with 1" IG (1/4" laminated, 1/2" air space, 1/4" laminated), Glass temperature 75°F		
Operator	Daniel Platts - Craig Fox		
Sample Area	3.72 m^2		
Filler Area	9.28 m^2		
	Source	Receive	Sample
Temp C	23	23	22
RH %	51	51	52



Note: To obtain the Sound Transmission Class (STC), read the Sound Transmission Loss of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve cannot exceed 32. The maximum deficiencies at any one frequency cannot exceed 8.

Appendix C

Photographs



Receive Room View of Installed Specimen

Source Room View of Installed Specimen

Intertek | Architectural Testing

E6086.01-113-11-R0
ACOUSTICAL PERFORMANCE TEST REPORT
ASTM E90

Rendered to:

GAMCO CORPORATION

Series/Model: BD-325

Type: Side-Hinged Single Balcony Door System

Summary of Test Results			
Data File No.	**Glazing (Nominal Dimensions)**	**STC**	**OITC**
E6086.01A1	1-1/4" IG (7/16" laminated exterior, 9/16" air space, 1/4" laminated interior), Glass temperature 75°F	38	33

Reference should be made to Intertek-ATI Report No. E6086.01-113-11 for complete test specimen description. This page alone is not a complete report. Flanking limit tests and reference specimen tests are available upon request.

Intertek | Architectural Testing

Acoustical Performance Test Report

GAMCO CORPORATION
131-10 Maple Avenue
Flushing, New York 11355

Report No E6086.01-113-11

Project Scope
Architectural Testing, Inc., an Intertek company ("Intertek-ATI"), was contracted to conduct a sound transmission loss test. The complete test data is included as Appendix B of this report. The client provided the test specimen.

Test Methods
Testing for this project was conducted in accordance with the following standards. The equipment listed in the attachments meets the requirements of the following standards.

ASTM E90-09, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*
ASTM E413-10, *Classification for Rating Sound Insulation*
ASTM E1332-10a, *Standard Classification for Rating Outdoor-Indoor Sound Attenuation*
ASTM E2235-04 (2012), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*

Test Procedure
All measurements were conducted in the HT test chambers at Intertek-ATI located in York, Pennsylvania. The sensitivity of the microphones was checked before measurements were conducted.

The transmission loss values were obtained for a single direction of measurement. Two background noise sound pressure level and twenty-five sound absorption measurements were conducted at each of five microphone positions.

Two sound pressure levels were made simultaneously in the receive and source rooms at each of five microphone positions.

The air temperature and relative humidity conditions were monitored and recorded during all measurements.

Specimen Installation
A sound transmission loss test was initially performed on a filler wall.

The specimen plug was removed from the filler wall assembly. The specimen was placed on a foam isolation pad in the test opening. Duct seal was used to seal the perimeter of the specimen to the test opening on both sides. The interior side of the specimen frame, when installed, was approximately 1/4" from being flush with the receive room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing. Operable portions of the test specimen, if any, were cycled at least five times prior to testing.

Test Calculations
Transmission loss (TL) at each 1/3 octave frequency is the average source room sound pressure level minus the average receive room sound pressure level, plus, 10 times the log of the specimen area divided by the sound absorption of the receive room with the sample in place.

STC Rating
To obtain the Sound Transmission Class (STC), read the TL of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve may not exceed 32. The maximum deficiency at any one frequency may not exceed 8.

OITC Rating
The Outdoor-Indoor Transmission Class (OITC) is calculated by subtracting the logarithmic summation of the TL values from the logarithmic summation of the A-weighted transportation noise spectrum stated in ASTM E1332.

Specimen Descriptions

		Frame	Leaf
Size		37-3/4" by 82-3/8"	34-1/2" by 79-1/2"
Thickness		3-1/4"	2"
	Corners	Head: Mitered Sill: Coped	Mitered
	Fasteners	Screws	Keys, stakes, screws
	Seal Method	Sealant	Sealant
Material		Aluminum	Aluminum
	Reinforcement	N/A	N/A
	Thermal Break Material	Urethane jambs and head Insulbar sill	Insulbar
Daylight Opening Size		N/A	28-3/4" by 74"

Measured Overall Insulation Glass Unit Thickness	1.202"
Spacer Type	Aluminum

	Exterior Sheet	Gap	Interior Sheet
Measured Thickness	0.110", 0.032", 0.110"	0.540"	0.190", 0.030", 0.190"
Muntin Pattern	N/A	N/A	N/A
Material	Laminated	Air*	Laminated
Laminate Material	PVB	N/A	PVB

Glazing Method	Exterior
Glazing Material	Silicone
Glazing Bead Material	Aluminum with 3/16" diameter hollow bulb gasket

** - Stated per Client/Manufacturer, N/A-Not Applicable*

Specimen Descriptions (Continued)

	Type	Quantity	Location
Weatherstrip			
	3/16" Diameter hollow bulb gasket	1 Row	Perimeter of leaf and frame
Hardware			
	Multi-point lock system	1	Lock stile
	Keeper	2	Lock jamb
	Hinge	4	Hinge Jamb
Drainage			
	7/8" by 3/16" Weep slot	2	Sill face

Total Weight (lbs)	**Average Weight** (lbs/ft^2)
196	9.08

Comments

The client did not supply a report drawing of the test specimen. Intertek-ATI will store samples of test specimens for four years.

Intertek-ATI will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Intertek-ATI for the entire test record retention period. The test record retention period ends four years after the test date.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report is intended to help in the client's quality assurance program, but it does not represent a continuous or exhaustive evaluation of the specimen tested or of other products or materials that were not evaluated. The statements and data provided herein do not constitute approval, disapproval, certification, or acceptance of performance or materials.

This report may not be reproduced, except in full, without the written approval of Intertek-ATI.

For INTERTEK-ATI:

Daniel P. Platts
Senior Technician - Acoustical Testing

Todd D. Kister
Laboratory Supervisor – Acoustical Testing

DPP:jmcs

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Equipment description (1)
Appendix-B: Complete test results (2)
Appendix-C: Photographs (1)

Revision Log

Rev. #	Page(s)	Revision(s)
R0	N/A	Original Report Issue

Appendix A

Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number	Date of Calibration
Data Acquisition Unit	National Instruments	PXI-1033	Data Acquisition card	65127	04/14 *
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64902	12/14
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64903	12/14
Source Room Microphone	PCB Electronics	378B20	Microphone and Preamplifier	65103	05/14
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64905	12/14
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64906	12/14
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	11/14
Receive Room Environmental Indicator	Vaisala	HMW92	Temperature Humidity Sensor	64286	06/14
Source Room Environmental Indicator	Vaisala	HMW60Y	Temperature and Humidity Sensor	Y002653	06/14
Microphone Calibrator	Larson Davis	CAL200	Pistonphone Calibrator	065327	09/14

**- Note: The calibration frequency for this equipment is every two years per the manufacturer's recommendation.*

Test Chamber:

	Volume	Description
Receive Room	234 m^3 (8291.3 ft^3)	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
Source Room	206.6 m^3 (7296.3 ft^3)	Stationary diffusers only Temperature and humidity controlled

	Maximum Size	Description
TL Test Opening	4.27 m (14 ft) wide by 3.05 m (10 ft) high	Vibration break between source and receive rooms

N/A-Non Applicable

Appendix B

Complete Test Results

Intertek | Architectural Testing

IAS ACCREDITED TL-144

AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

Data File No.	E6086.01A1					
Client	Gamco Corporation					
Description	Series/Model: BD-325, side-hinged single balcony door system with 1-1/4" IG (7/16" laminated exterior, 9/16" air space, 1/4" laminated interior), Glass temperature 75°F					
Specimen Area	2.01 m²	Receive Temp.	22.4 °C		Source Temp.	22.5 °C
Technician	Daniel P. Platts	Receive Humidity	50%		Source Humidity	48%

Freq (Hz)	Background SPL (dB)	Absorption (m²)	Source SPL (dB)	Receive SPL (dB)	Specimen TL (dB)	95% Confidence Limit	Number of Deficiencies
80	37.7	4.9	105	77	25.4	2.26	-
100	36.4	4.8	106	76	27.6	1.75	-
125	38.5	4.6	106	75	27.8	1.08	0
160	44.3	4.6	106	80	22.7	1.28	2
200	42.7	4.2	106	72	30.7	0.65	0
250	35.8	4.6	107	70	33.1	0.47	0
315	28.7	5.4	102	67	30.3	0.62	4
400	25.8	5.5	101	63	33.6	0.34	3
500	22.2	5.7	101	63	33.3	0.52	5
630	19.9	5.4	102	61	35.9	0.35	3
800	17.1	5.6	101	59	37.4	0.29	3
1000	12.2	5.8	100	58	38.3	0.34	3
1250	10.3	6.5	98	53	39.7	0.19	2
1600	8.1	6.9	101	55	40.7	0.35	1
2000	6.2	7.3	100	54	40.7	0.31	1
2500	6.3	8.3	98	50	42.0	0.12	0
3150	6.5	10.0	98	47	44.6	0.30	0
4000	7.0	12.2	98	45	44.7	0.30	0
5000	7.6	15.5	95	40	46.5	0.24	-

STC Rating	**38**	*(Sound Transmission Class)*
Deficiencies	27	*(Sum of Deficiencies)*
OITC Rating	**33**	*(Outdoor-Indoor Transmission Class)*

Notes:

1) Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.
2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

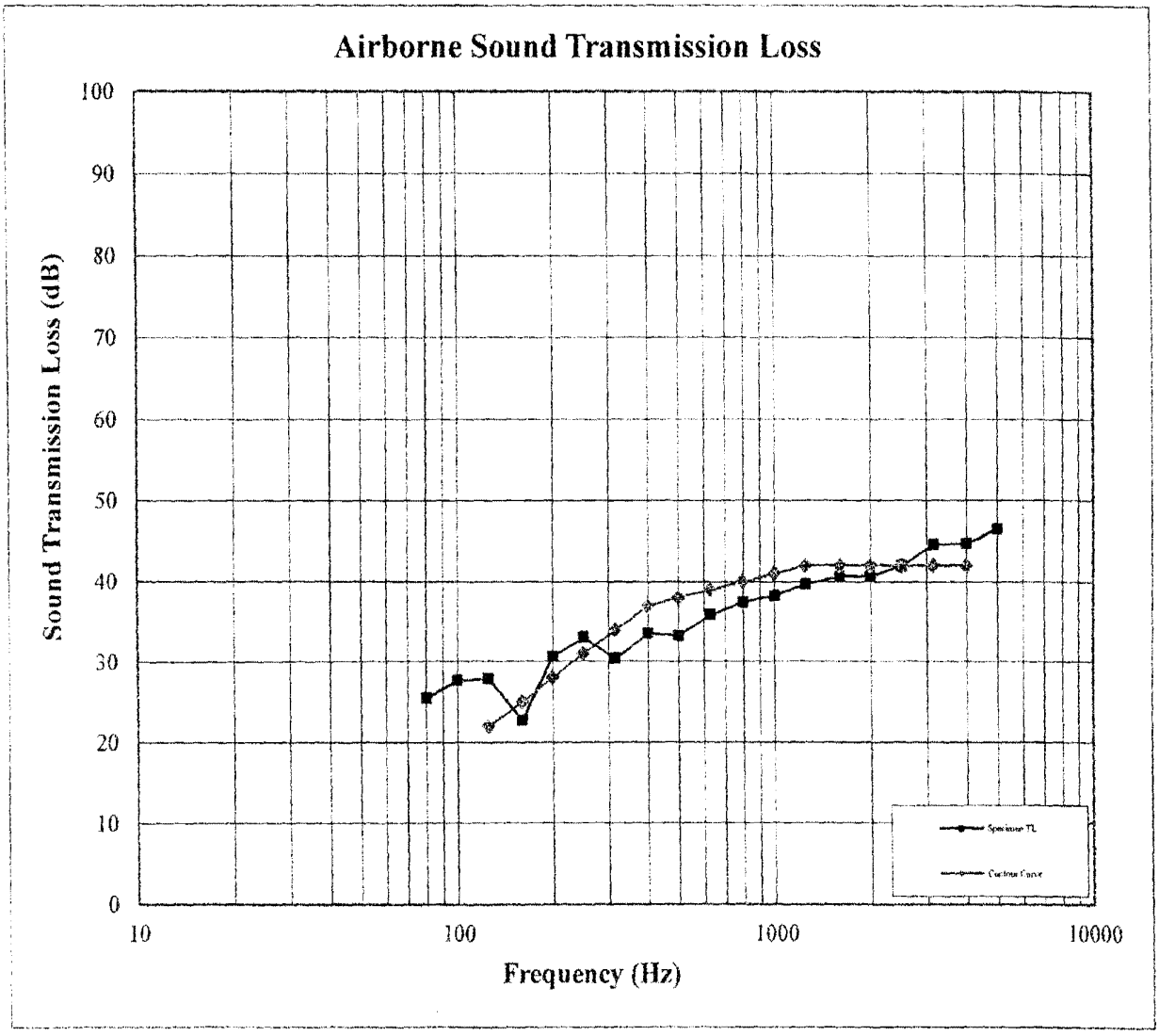
Intertek | Architectural Testing

IAS ACCREDITED TL-144

AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

Data File No.	E6086.01A1					
Client	Gamco Corporation					
Description	Series/Model: BD-325, side-hinged single balcony door system with 1-1/4" IG (7/16" laminated exterior, 9/16" air space, 1/4" laminated interior), Glass temperature 75°F					
Specimen Area	2.01 m²	Receive Temp.	22.4 °C		Source Temp.	22.5 °C
Technician	Daniel P. Platts	Receive Humidity	50%		Source Humidity	48%



Intertek | Architectural Testing

E6085.01-113-11-R0
ACOUSTICAL PERFORMANCE TEST REPORT
ASTM E90

Rendered to:

GAMCO CORPORATION

Series/Model: CW250

Type: Two-Lite Curtain Wall System

Summary of Test Results			
Data File No.	**Glazing (Nominal Dimensions)**	**STC**	**OITC**
E6085.01	1" IG (1/4" tempered exterior, 1/2" argon, 1/4" laminated interior), 1/4" tempered interior secondary glass panel, Glass temperature 75°F	40	32

Reference should be made to Intertek-ATI Report No. E6085.01-113-11 for complete test specimen description. This page alone is not a complete report. Flanking limit tests and reference specimen tests are available upon request.

Intertek | Architectural Testing

Acoustical Performance Test Report

GAMCO CORPORATION
131-10 Maple Avenue
Flushing, New York 11355

Report No E6085.01-113-11

Project Scope
Architectural Testing, Inc., an Intertek company (Intertek-ATI), was contracted to conduct a sound transmission loss test. The complete test data is included as Appendix B of this report. The client provided the test specimen.

Test Methods
Testing for this project was conducted in accordance with the following standards. The equipment listed in the attachments meets the requirements of the following standards.

ASTM E90-09, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*
ASTM E413-10, *Classification for Rating Sound Insulation*
ASTM E1332-10a, *Standard Classification for Rating Outdoor-Indoor Sound Attenuation*
ASTM E2235-04 (2012), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*

Test Procedure
All measurements were conducted in the HT test chambers at Intertek-ATI located in York, Pennsylvania. The sensitivity of the microphones was checked before measurements were conducted.

The transmission loss values were obtained for a single direction of measurement. Two background noise sound pressure level and twenty-five sound absorption measurements were conducted at each of five microphone positions.

Two sound pressure levels were made simultaneously in the receive and source rooms at each of five microphone positions.

The air temperature and relative humidity conditions were monitored and recorded during all measurements.

Specimen Installation
A sound transmission loss test was initially performed on a filler wall.

The specimen plug was removed from the filler wall assembly. The specimen was placed on a foam isolation pad in the test opening. Duct seal was used to seal the perimeter of the specimen to the test opening on both sides. The interior side of the specimen frame, when installed, was approximately 1/4" from being flush with the receive room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing. Operable portions of the test specimen, if any, were cycled at least five times prior to testing.

Test Calculations
Transmission loss (TL) at each 1/3 octave frequency is the average source room sound pressure level minus the average receive room sound pressure level, plus, 10 times the log of the specimen area divided by the sound absorption of the receive room with the sample in place.

STC Rating
To obtain the Sound Transmission Class (STC), read the TL of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve may not exceed 32. The maximum deficiency at any one frequency may not exceed 8.

OITC Rating
The Outdoor-Indoor Transmission Class (OITC) is calculated by subtracting the logarithmic summation of the TL values from the logarithmic summation of the A-weighted transportation noise spectrum stated in ASTM E1332.

Specimen Descriptions

	Primary Frame
Size	78-3/4" by 78-3/4"
Thickness	7-3/8"
Corners	Butted
Fasteners	Screws
Seal Method	Sealant
Material	Aluminum
Reinforcement	N/A
Thermal Break Material	N/A
Daylight Opening Size X2	35-5/8" by 73-5/8"

N/A-Not Applicable

Specimen Descriptions (Continued)

	Secondary Frame X2
Size	35-5/8" by 73-5/8"
Thickness	1-5/8"
Corners	Butted
Fasteners	Screws
Seal Method	Sealant
Material	Aluminum
Reinforcement	N/A
Thermal Break Material	N/A
Daylight Opening Size	34-1/8" by 72-1/8"

Primary Glazing

Measured Overall Insulation Glass Unit Thickness	0.944"
Spacer Type	Stainless steel

	Exterior Sheet	Gap	Interior Sheet
Measured Thickness	0.224"	0.470"	0.110", 0.030", 0.110"
Muntin Pattern	N/A	N/A	N/A
Material	Tempered	Argon*	Laminated
Laminate Material	N/A	N/A	PVB

Glazing Method	Exterior pressure
Glazing Material	Compression gasket
Glazing Bead Material	Aluminum pressure plate with compression gasket

* - *Stated per Client/Manufacturer. N/A-Not Applicable*

Specimen Descriptions (Continued)

Secondary Interior Glazing

	Exterior Sheet
Measured Thickness	0.224"
Muntin Pattern	N/A
Material	Tempered
Laminate Material	N/A

Glazing Method	Channel
Glazing Material	1/4" Diameter bulb gasket
Glazing Bead Material	Aluminum

	Type	Quantity	Location
Weatherstrip			
	No weatherstrip		
Hardware			
	No hardware		
Drainage			
	No drainage		

Total Weight (lbs)	**Average Weight** (lbs/ft^2)
502	11.6

** - Stated per Client/Manufacturer, N/A-Not Applicable*

Comments

The client did not supply a report drawing of the test specimen. Intertek-ATI will store samples of test specimens for four years.

Intertek-ATI will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Intertek-ATI for the entire test record retention period. The test record retention period ends four years after the test date.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report is intended to help in the client's quality assurance program, but it does not represent a continuous or exhaustive evaluation of the specimen tested or of other products or materials that were not evaluated. The statements and data provided herein do not constitute approval, disapproval, certification, or acceptance of performance or materials.

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For INTERTEK-ATI:

Daniel P. Platts
Senior Technician - Acoustical Testing

Todd D. Kister
Laboratory Supervisor – Acoustical Testing

DPP:jmcs

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Equipment description (1)
Appendix-B: Complete test results (2)
Appendix-C: Photographs (1)

Revision Log

Rev. #	Page(s)	Revision(s)
R0	N/A	Original Report Issue

Appendix A

Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number	Date of Calibration
Data Acquisition Unit	National Instruments	PXI-1033	Data Acquisition card	65127	04/14 *
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64902	12/14
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64903	12/14
Source Room Microphone	PCB Electronics	378B20	Microphone and Preamplifier	65103	05/14
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64905	12/14
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64906	12/14
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	11/14
Receive Room Environmental Indicator	Vaisala	HMW92	Temperature Humidity Sensor	64286	06/14
Source Room Environmental Indicator	Vaisala	HMW60Y	Temperature and Humidity Sensor	Y002653	06/14
Microphone Calibrator	Larson Davis	Cal 200	Pistonphone Calibrator	065327	04/15

**- Note: The calibration frequency for this equipment is every two years per the manufacturer's recommendation.*

Test Chamber:

	Volume	Description
Receive Room	234 m^3 (8291.3 ft^3)	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
Source Room	206.6 m^3 (7296.3 ft^3)	Stationary diffusers only Temperature and humidity controlled

	Maximum Size	Description
TL Test Opening	4.27 m (14 ft) wide by 3.05 m (10 ft) high	Vibration break between source and receive rooms

N/A-Non Applicable

Appendix B

Complete Test Results

Intertek | Architectural Testing

IAS ACCREDITED TL-144

AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

Data File No.	E6085.01					
Client	Gamco Corporation					
Description	Series/Model: CW250, two-lite curtain wall system with 1" IG (1/4" tempered exterior, 1/2" argon, 1/4" laminated interior), 1/4" tempered interior secondary glass panel, Glass temperature 75°F					
Specimen Area	4.00 m²	Receive Temp.	22.1 °C		Source Temp.	22.1 °C
Technician	Daniel P. Platts	Receive Humidity	51%		Source Humidity	50%

Freq (Hz)	Background SPL (dB)	Absorption (m²)	Source SPL (dB)	Receive SPL (dB)	Specimen TL (dB)	95% Confidence Limit	Number of Deficiencies
80	39.4	5.1	105	86	18.7	1.93	-
100	37.0	5.6	105	81	24.2	1.47	-
125	38.6	5.0	106	80	24.9	1.28	0
160	41.6	4.5	107	79	26.9	1.37	0
200	39.4	4.4	107	79	27.6	0.77	2
250	35.2	4.9	106	77	27.8	0.81	5
315	27.5	5.5	102	69	31.3	0.37	5
400	24.3	5.8	102	64	36.2	0.28	3
500	20.4	5.9	101	60	39.0	0.55	1
630	17.8	5.6	102	62	38.5	0.28	3
800	16.3	5.9	101	60	39.6	0.26	2
1000	12.6	6.0	100	58	40.7	0.26	2
1250	10.2	6.7	98	53	43.2	0.25	1
1600	7.4	7.0	102	56	43.2	0.28	1
2000	5.8	7.4	100	56	40.7	0.21	3
2500	5.9	8.3	98	53	41.9	0.16	2
3150	6.0	9.9	99	45	49.1	0.33	0
4000	6.8	12.0	97	41	51.8	0.23	0
5000	7.4	15.1	96	34	55.6	0.20	-

STC Rating	**40**	*(Sound Transmission Class)*
Deficiencies	30	*(Sum of Deficiencies)*
OITC Rating	**32**	*(Outdoor-Indoor Transmission Class)*

Notes:

1) Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.
2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

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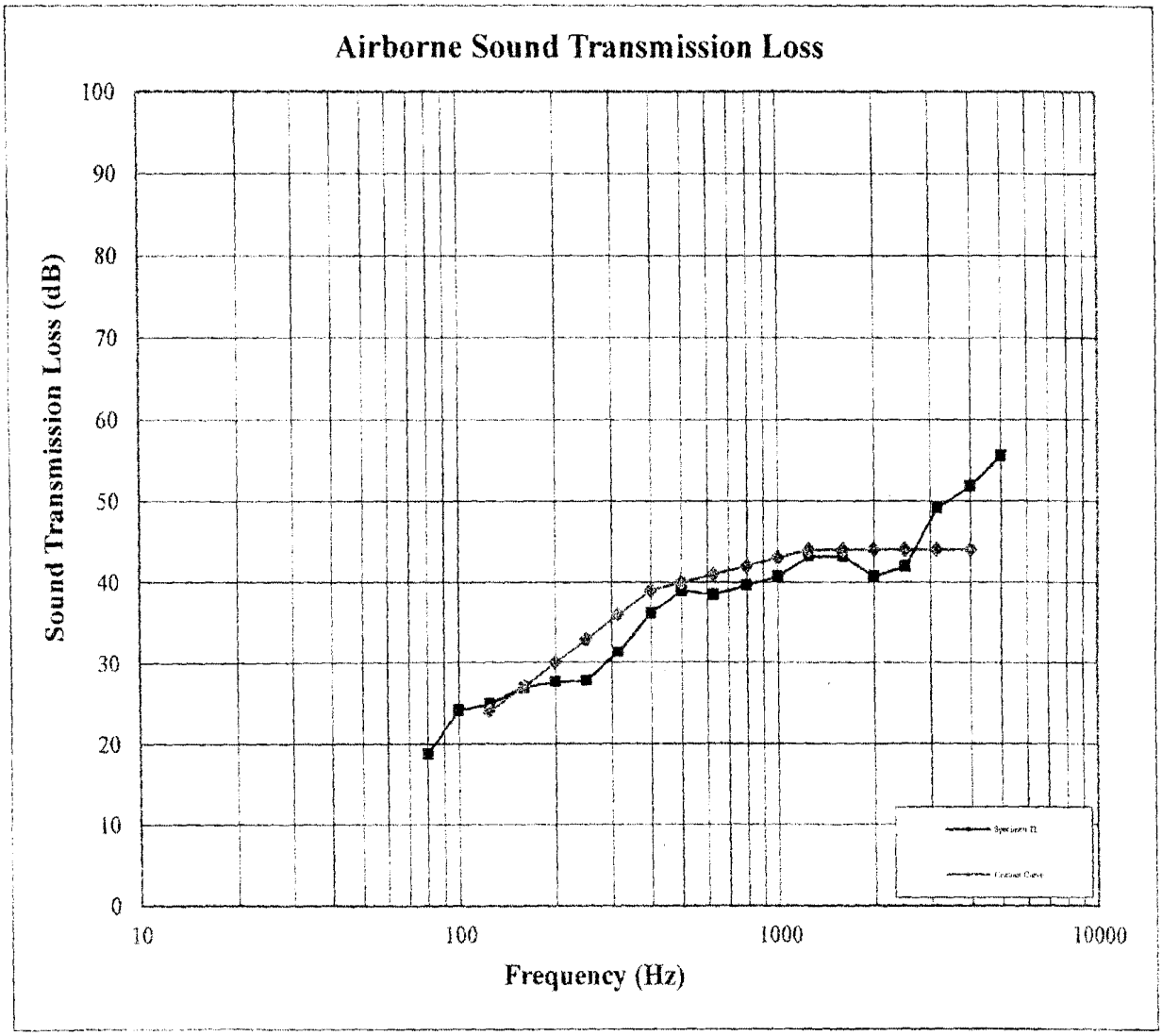
AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

Data File No.	E6085.01					
Client	Gamco Corporation					
Description	Series/Model: CW250, two-lite curtain wall system with 1" IG (1/4" tempered exterior, 1/2" argon, 1/4" laminated interior), 1/4" tempered interior secondary glass panel, Glass temperature 75°F					
Specimen Area	4.00 m²	Receive Temp.	22.1 °C		Source Temp.	22.1 °C
Technician	Daniel P. Platts	Receive Humidity	51%		Source Humidity	50%



Architectural Testing

ASTM E 90 SOUND TRANSMISSION LOSS TEST REPORT

Rendered to:

TUBELITE, INC.

SERIES/MODEL: T24000

TYPE: Two-Lite Storefront

Summary of Test Results			
Data File No.	**Glazing (Nominal Dimensions)**	**STC**	**OITC**
C5774.01	1-1/16" IG (1/4" heat strengthened exterior, 1/2" air space, 5/16" laminated interior), Glass temperature 75°F	37	31

Reference should be made to Architectural Testing, Inc. Report No. C5774.01-113-11 for complete test specimen description. The complete test results are listed in Appendix B.

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

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Architectural Testing

ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

TUBELITE, INC.
4878 Mackinaw Trail
Reed City, Michigan 49677

Report No: C5774.01-113-11
Test Date: 04/10/13
Report Date: 05/01/13
Record Retention End Date: 05/01/17

Test Sample Identification:

Series/Model: T24000

Type: Two-Lite Storefront

Overall Size: 78-3/4" by 79-1/4"

Glazing (Nominal Dimensions): 1-1/16" IG (1/4" Heat Strengthened Exterior, 1/2" Air Space, 5/16" Laminated Interior), Glass Temperature 75°F

Project Scope: Architectural Testing, Inc. was contracted by Tubelite, Inc. to conduct sound transmission loss tests on a Series/Model T24000, two-lite storefront. A summary of the results is listed in the Test Results section, and the complete test data is included as Appendix B of this report. The sample was provided by the client.

Test Methods: The acoustical tests were conducted in accordance with the following:

ASTM E 90-09, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.*
ASTM E 413-10, *Classification for Rating Sound Insulation.*
ASTM E 1332-10a, *Standard Classification for Rating Outdoor-Indoor Sound Attenuation.*
ASTM E 2235-04 (Reapproved 2012), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods.*

Test Equipment: The equipment used to conduct these tests meets the requirements of ASTM E 90. The microphones were calibrated before conducting sound transmission loss tests. The test equipment and test chamber descriptions are listed in Appendix A.

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
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Sample Installation: Sound transmission loss tests were initially performed on a filler wall that was designed to test curtain wall specimens. The filler wall achieved an STC rating of 69.

The specimen plug was removed from the filler wall assembly. The storefront was placed on a foam isolation pad in the test opening. Duct seal was used to seal the perimeter of the test specimen to the test opening on both sides. The interior side of the curtain wall frame, when installed, was approximately 1/4" from being flush with the receiving room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing.

Test Procedure: The sound transmission loss test was performed in accordance with the ASTM E 90 test method using a single direction of measurement. The sound transmission loss test consisted of the following measurements: One background noise sound pressure level and five sound absorption measurements were conducted at each of the five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms, at each of the five microphone positions. The air temperature and relative humidity conditions were monitored and recorded during the background, absorption, source, and receive room measurements.

Sample Descriptions:

Frame Construction:

		Frame
Size		78-3/4" by 79-1/4"
Thickness		4-1/2"
Corners		Butted
	Fasteners	Screws
	Seal Method	None
Material		Aluminum
	Thermal Break Material	Urethane
	Reinforcement	N/A
Daylight Opening Size (x2)		29-1/2" by 69"

N/A-Non Applicable

Sample Descriptions: (Continued)

Glazing:

Measured Overall Insulation Glass Unit Thickness	1.083"
Spacer Type	Aluminum

	Exterior Sheet	Gap	Interior Sheet
Measured Thickness	0.221"	0.554"	0.125", 0.058", 0.125"
Muntin Pattern	N/A	N/A	N/A
Material	Heat strengthened	Air*	Laminated
Laminate Material	N/A	N/A	PVB

Glazing Method	Pressure
Glazing Material	Flexible wedge gasket
Glazing Bead Material	Aluminum

Components:

	TYPE	QUANTITY	LOCATION
Weatherstrip			
	No weatherstrip		
Hardware			
	No hardware		
Drainage			
	5/8" by 3/16" Weep slot	2	Sub sill face

** - Stated per Client/Manufacturer, N/A-Non Applicable*

Comments: The weight of the test sample was 324 lbs. The design drawings (included in Appendix C) supplied by the client, accurately describe the Series/Model T24000, two-lite storefront. The dimensions on the drawings that are circled and/or checked were verified against the test specimen. The storefront was disassembled, and the components will be retained by Architectural Testing for four years. Photographs of the test specimen are included in Appendix D.

Test Results: The STC (Sound Transmission Class) rating was calculated in accordance with ASTM E 413. The OITC (Outdoor-Indoor Transmission Class) was calculated in accordance with ASTM E 1332. A summary of the sound transmission loss test results on the Series/Model T24000, two-lite storefront is listed below.

Summary of Test Results			
Data File No.	**Glazing (Nominal Dimensions)**	**STC**	**OITC**
C5774.01	1-1/16" IG (1/4" heat strengthened exterior, 1/2" air space, 5/16" laminated interior), Glass temperature 75°F	37	31

The complete test results are listed in Appendix B. Flanking limit tests and reference specimen tests are available upon request.

Architectural Testing will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Architectural Testing for the entire test record retention period.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

Kurt A. Golden
Senior Technician - Acoustical Testing

Todd D. Kister
Laboratory Supervisor - Acoustical Testing

KAG:jmcs

Attachments (pages): This report is complete only when all attachments listed are included.
- Appendix-A: Equipment description (1)
- Appendix-B: Complete test results (2)
- Appendix-C: Design drawings (4)
- Appendix-D: Photographs (1)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	05/01/13	N/A	Original Report Issue

Appendix A

Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number	Date of Calibration
Analyzer	Hewlett Packard	HP35670A	Real time analyzer	004112	07/11 *
Data Acquisition Unit	Agilent	34970A	Data Acquisition Unit	62211	07/12
Receive Room Microphone	GRAS	40 AR	1/2" Microphone	Y003246	08/12
Source Room Microphone	GRAS	40 AR	1/2" Microphone	Y003245	08/12
Receive Room Preamplifier	GRAS	26 AK	1/2" Preamplifier	Y003249	08/12
Source Room Preamplifier	GRAS	26 AK	1/2" Preamplifier	Y003248	08/12
Microphone Calibrator	Bruel & Kjaer	Type 4228	Pistonphone Calibrator	Y002816	02/13
Noise Source	Delta Electronics	SNG-1	Noise Generator	Y002181	N/A
Equalizer	Rane	RPE 228	Programmable Equalizer	Y002180	N/A
Power Amplifiers	Crown	Xti 2000	Two, Amplifiers	005769 005770	N/A
Receive Room Loudspeakers	Renkus-Heinz Inc.	Trap Jr /9	Two, Loudspeakers	Y001784 Y001785	N/A
Source Room Loudspeakers	Renkus-Heinz Inc.	Trap Jr /9	Two, Loudspeakers	Y002649 Y002650	N/A
Receive Room Environmental Indicator	Vaisala	HMW60Y	Temperature and Humidity Sensor	005066	09/12
Source Room Environemental Indicator	Vaisala	HMW60Y	Temperature and Humidity Sensor	Y002652	10/12
Weather Station	Davis Instruments	VantagePRO 6150C	Weather Station	Y003257	05/12

**- Note: The calibration frequency for this equipment is every two years per the manufacturer's recommendation.*

Test Chamber:

	Volume	Description
Receive Room	234 m^3 (8291.3 ft^3)	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
Source Room	206.6 m^3 (7296.3 ft^3)	Stationary diffusers only Temperature and humidity controlled

	Maximum Size	Description
TL Test Opening	4.27 m (14 ft) wide by 3.05 m (10 ft) high	Vibration break between source and receive rooms

N/A-Non Applicable

Appendix B

Complete Test Results

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TL-144

SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	04/10/13		
ATI No.	C5774.01		
Client	Tubelite, Inc.		
Specimen	Series/Model: T24000, two-lite storefront with 1-1/16" IG (1/4" heat strengthened exterior, 1/2" air space, 5/16" laminated interior), Glass temperature 75°F		
Operator	Kurt Golden		
Sample Area	4.03 m^2		
Filler Area	8.97 m^2		
	Source	Receive	Specimen
Temp C	23	23	23
RH %	50	47	47

Freq (Hz)	Bkgrd SPL (dB)	Absorp (m^2)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defi-ciencies	Trans Coef Diff
80	41	5.2	88	64	32	23	2.8	-	
100	39	5.8	90	61	38	28	3.6	-	
125	38	5.4	95	65	45	28	2.0	0	
160	39	4.7	95	67	48	27	0.7	0	17.7
200	37	5.1	100	77	58	22	0.7	5	32.7
250	37	5.2	101	76	60	24	1.4	6	32.6
315	33	5.9	101	73	66	27	1.0	6	35.8
400	32	5.8	102	68	68	32	0.7	4	32.3
500	31	6.1	102	64	68	37	0.7	0	27.8
630	29	5.8	104	64	69	38	0.6	0	27.5
800	28	5.8	105	62	71	41	0.3	0	26.7
1000	21	5.9	104	60	74	42	0.4	0	28.7
1250	20	6.6	102	57	72	43	0.5	0	26.0
1600	15	6.9	105	61	71	42	0.3	0	25.8
2000	9	7.2	104	64	72	37	0.2	4	30.8
2500	8	8.1	104	63	75	39	0.4	2	32.7
3150	6	9.5	106	58	77	44	0.4	0	29.8
4000	6	11.6	106	54	81	47	0.3	0	30.6
5000	7	14.4	105	48	84	51	0.4	-	29.4

STC Rating	**37**	*(Sound Transmission Class)*
Deficiencies	27	*(Number of deficiencies versus contour curve)*
OITC Rating	**31**	*(Outdoor Indoor Transmission Class)*

Notes:

1) Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. These cells are highlighted red.

2) Transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. These cells are highlighted green.

3) Receive Room levels less than 5 dB above the background levels are highlighted in yellow.

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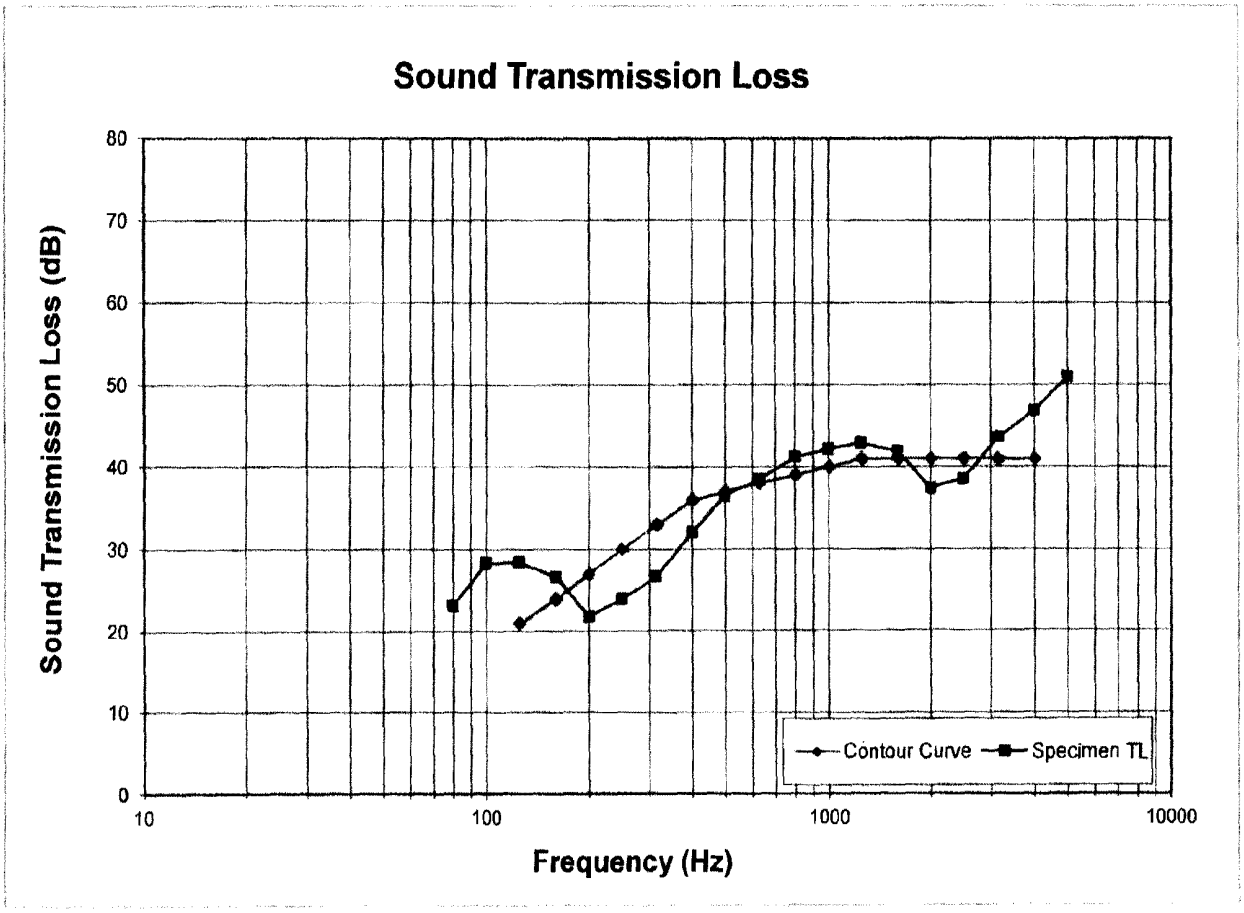
TL-144

SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	04/10/13		
ATI No.	C5774.01		
Client	Tubelite, Inc.		
Specimen	Series/Model: T24000, two-lite storefront with 1-1/16" IG (1/4" heat strengthened exterior, 1/2" air space, 5/16" laminated interior), Glass temperature 75°F		
Operator	Kurt Golden		
Sample Area	4.03 m^2		
Filler Area	8.97 m^2		
	Source	Receive	Sample
Temp C	23	23	23
RH %	50	47	47



Note: To obtain the Sound Transmission Class (STC), read the Sound Transmission Loss of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve cannot exceed 32. The maximum deficiencies at any one frequency cannot exceed 8.

Appendix C

Design Drawings

NON-IMPACT STOREFRONT TEST SPECIMEN - PARTS LIST				MATERIAL
ITEM	QTY	PART NUMBER	DESCRIPTION	
1	1	E24258	EXTRUSION - THERMAL SUB SILL	ALUMINUM-6063-T5
2	2	E24240	EXTRUSION - THERMAL OPEN BACK SILL	ALUMINUM-6063-T5
3	3	E24441	EXTRUSION - THERMAL HEAD/JAMB/VERTICAL	ALUMINUM-6063-T5
4	6	E24442	EXTRUSION - SNAP IN FILLER	ALUMINUM-6063-T5
5	1	A244546	CLOSURE POCKET ASSEMBLY	
6	2 PER ASSY	E24445	EXTRUSION - CLOSURE POCKET SNAP END 12'-2"	ALUMINUM-6063-T5
7	1 PER ASSY	P6595	BRIDGE 12'-2"	P-PART-PLASTIC
8	2	E14464	EXTRUSION - GLAZING STOP	ALUMINUM-6063-T5
9				
10				
11	4	A627879	EXTRUSION ASSEMBLY - STILE WED - HINGE	ALUMINUM-6063-T5
12	1	A628282	EXTRUSION ASSEMBLY - STILE, MED - RO FACE	ALUMINUM-6063-T5
13	1	A628384	EXTRUSION ASSEMBLY - STILE, MED - LOCK/ASTRICAL	ALUMINUM-6063-T5
14	1	E1192	EXTRUSION - ASTRICAL (DOOR)	ALUMINUM-6063-T5
15	3	A621414	EXTRUSION ASSEMBLY - TOP RAIL 4"	ALUMINUM-6063-T5
16	3	A621010	EXTRUSION ASSEMBLY - BOTTOM RAIL 10"	ALUMINUM-6063-T5
17	12	E6251	EXTRUSION - GLASS STOP TOP & BOTTOM RAIL	ALUMINUM-6063-T5
18	6	E6223	EXTRUSION - INNER DOOR STOP	ALUMINUM-6063-T5
19	2	A624442	EXTRUSION ASSEMBLY - DOOR FRAME - HEADER	ALUMINUM-6063-T5
20	4	A624446	EXTRUSION ASSEMBLY - DOOR FRAME - JAMB	ALUMINUM-6063-T5
21	2	T6250	THERMAL THRESHOLD	ALUMINUM-6063-T5
22				
23				
24				
25	60'	P2728	GASKET, GLASS, EPG	P-PART-RUBBER
26	90'	P1112	GASKET, GLASS, EPG (DOOR)	P-PART-RUBBER
27	50'	P2183	GASKET, GLASS, EPG (DOOR)	P-PART-RUBBER
28	6	P1132	SETTING BLOCK 4" LG	P-PART-RUBBER
29	8	P1912	SETTING BLOCK 1/4 x 1/2 x 6" LG	P-PART-RUBBER
30	45'	P6238	BULB WEATHERSEAL	P-PART-WEATHERSEAL
31	20'	P6308	PILE, DOOR STOP, ANESSURY GROUP	P-PART-PLASTIC/FAB
32	3	P6240	ELEMENT INHIBITOR (TOP & BOTTOM RAIL)	P-PART-FOAM PVC
33	3	P1278	CONCEALED SCREW WEATHERSTRIP 41 7/8" LG	P-PART-WEATHERSTRIP
34	2	P6604	END DAM FOR SUB SILL E24258	P-PART-ALUM .040 SHT.
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DOOR PARTS AS REQ'D

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
60	50	NA	SCREW - 12-11 x 3 1/2" PH WOOD (PHASE TO BUCK)	P-PART-FASTENER
61	8	NA	SCREW - 1/4" x 3" HEX FLG HD GALV LAG (DR. TO WOOD SUBSTRATE)	P-PART-FASTENER
62	10	NA	SCREW - 12-1" x 2" FT HD WOOD (TUBELITE TO WOOD BUCK)	P-PART-FASTENER
63	75	S070	SCREW - #12-24 x 1/2" FLAT HD PHIL (PHASE)	P-PART-FASTENER
64	50	S341	SCREW - #10-24 x 3/4" FLAT HD PHIL (ANNEALED)	P-PART-FASTENER
65	4	S196	SCREW - #8 X 3/8" SELF TAPPING PAN HEAD (SHS DAM TO SUB SILL)	P-PART-FASTENER
66	35	S332	SCREW - #10-24 x1 TYPE 23 HEX HEAD PHIL (PHASE TO PHASE)	P-PART-FASTENER
67				
68	AS REQ'D	BY OTHERS	SILICONE SEALANT DOW 795	P-PART-SEALANT
69				
70				
71	1	NA	3'-4" x 7'-2" MEDIUM STILE THERMAL DOOR	DOOR ASSEMBLY
72	1	NA	3'-4" x 7'-2" MEDIUM STILE THERMAL DOOR	DOOR ASSEMBLY
73	X	P618	LABEL, DOOR, GREEN BRUSHED SILVER (DOOR) (NOT SHOWN)	P-PART-LABEL
74	X	P1539	SPRING, STEEL, ASTRAGAL, ADJUSTABLE, (DOOR)	P-PART-HARDWARE
75	X	P1583	WASHER, SCREW & SHOULDER SCREW (DOOR) (NOT SHOWN)	P-PART-FASTENER
76	X	S071	NUT, STUD, 3/8-16 X 1 (PHASE TO PHS) (NOT SHOWN)	P-PART - FASTENER
77	X	S166	WASHER, 1 OD X 1 ID X .062 ALUMINUM (DOOR) (NOT SHOWN)	P-PART - FASTENER
78	X	S161	SCREW, 10-24 X 1 FLAT HEAD PHIL (DR HINGE/LOCK SHIMS) NOT SHOWN	P-PART - FASTENER
79	X	P308	SCREW, 10-24 X 1 PH MACH PHIL (DOOR) (NOT SHOWN)	P-PART - FASTENER
80	X	P2008	ROD, THREADED TIE 9" (DOOR) (NOT SHOWN)	P-PART - FASTENER
81	X	P878	TAB - FOR MORTISED LOCKS (DOOR) (NOT SHOWN)	P-PART - HARDWARE
82	X	P853	WASHER, DOOR PIVOT (DOOR) (NOT SHOWN)	P-PART - HARDWARE
83	6	P1216	HINGE, BUTT, REINFORCEMENT (P1216) (DOOR)	P-PART - HARDWARE
84	6	P1908 HW	BUTT HINGE HAGAR BB-1109	P-PART - HARDWARE
85				
86				
87	X	P572	CYLINDER PARTS, P572-C2 (DOOR)	P-PART - HARDWARE
88	X	P1833	M-GR-GR28 COLLAR, SPLIT RING CYL RYAGON (DOOR)	P-PART - HARDWARE
89	X	P8608	ADAMS-RITE MS8655-410-000 ADAMS-TITE (DOOR)	P-PART - HARDWARE
90	X	P1750	HEADER BOLT, ADAM-RITE P1750-DR (DOOR)	P-PART - HARDWARE
91	X	P571	CYLINDER, LOCK (DOOR)	P-PART - HARDWARE
92	X	P2251	CLOSER, DORMA, BTS, SURFACE MOUNT	P-PART - HARDWARE
93	X	P1420	DEAD BOLT	P-PART - HARDWARE
94	X	P658	FLUSH BOLTS	P-PART - HARDWARE
95	X	P6427	ROSWOOD BP152 10' PULL	P-PART - HARDWARE
96				
97				
98				
99				

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# C5774.01.13-11

Date 9/23/13 Tech K6.

TUBELITE
NON IMPACT
T24000 STOREFRONT
THERMAL & ACOUSTIC TESTING

TUBELITE®
DESIGNED TO PERFORM
LEADERS IN ENERGY EFFICIENT, HIGH PERFORMANCE ALUMINUM STOREFRONT, CURTAIN WALL AND ENTRANCE SYSTEMS
3056 WALKER RIDGE DRIVE N.W.
WALKER, MICHIGAN 49544
PH: 800.866.2237
FAX: 616.866.0085
WEB SITE: WWW.TUBELITEINC.COM

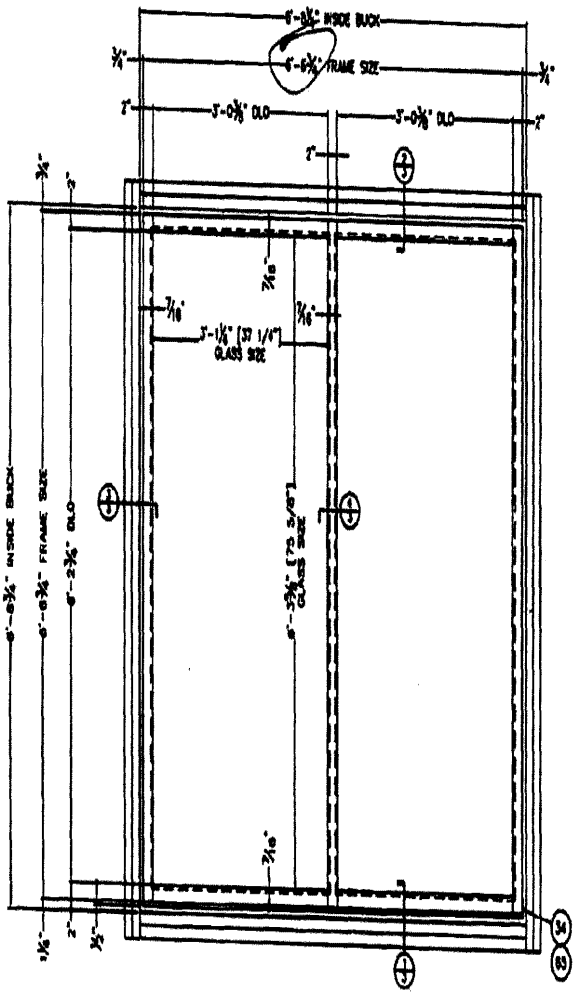
REVISIONS			
NO.	DATED	BY	DESCRIPTION
1			

DATED	LATEST RELEASE
1-07-13	1-18-13

DRAWING BY: MLP
CHECKED BY:
TEST ELEVATION

6.0

6 OF 6



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# C5774.01-113-11

Date 4/23/18 Tech KG.

T24000 STOREFRONT TEST SPECIMEN 1
NON IMPACT

GLAZING NOTES:

1-1/16" GLASS ~ 1/4 TEMPERED 1/2 AIR SPACE ~~1/4" TEMPERED~~ 5/16" LAMINATED
DRY GLAZED

TUBELITE
NON IMPACT
T24000 STOREFRONT
THERMAL & ACCOUSTIC TESTING

TUBELITE

3006 ENGLISH RIDGE DRIVE
FORT WAYNE, INDIANA 46804
PH: 800.348.2327
FX: 800.901.0029
WEB SITE: WWW.TUBELITEINC.COM

REVISIONS			
NO.	DATED	BY	DESCRIPTION
-	-	-	-

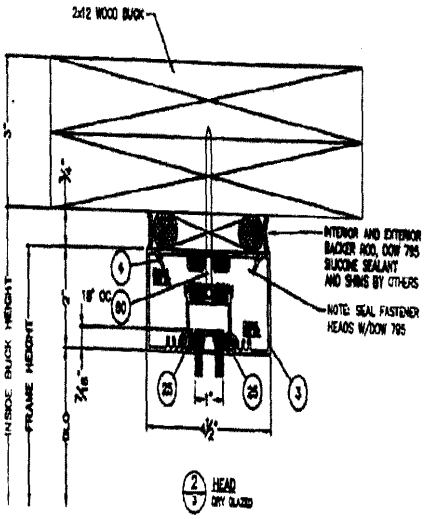
DATED	LATEST RELEASE
1-04-12	1-07-12

DRAWING BY: MLP
ENGINEERED BY:

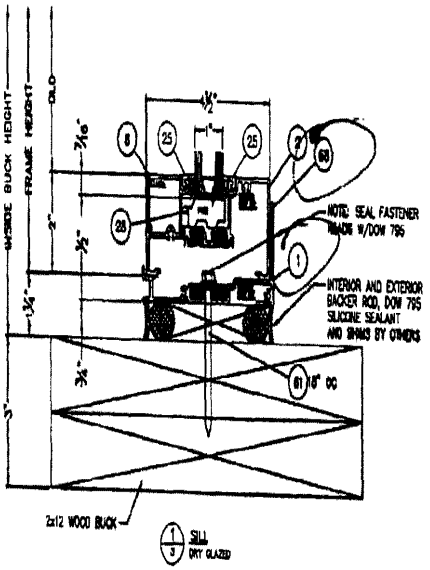
TEST ELEVATION

1.0

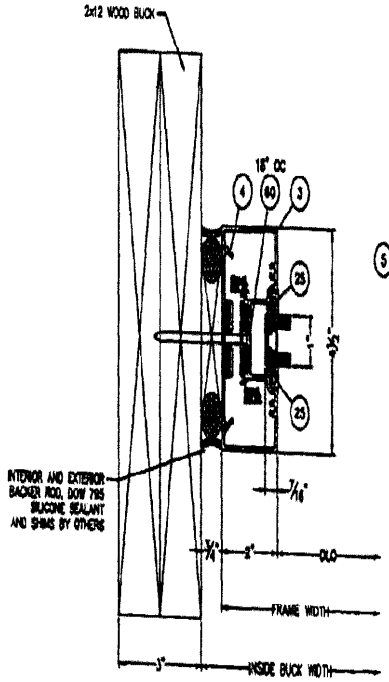
1 OF 6



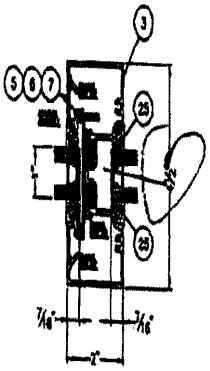
2 / 3 HEAD DRY GLAZED



1 / 3 SILL DRY GLAZED



3 / 3 JAMB DRY GLAZED



4 / 3 TYPICAL MULL DRY GLAZED

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# CS774.01-113-11

Date 4/23/13 Tech KG

TUBELITE
NON IMPACT
T24000 STOREFRONT
THERMAL & ACOUSTIC TESTING

TUBELITE
3056 WALKER RIDGE DRIVE, N.W.
WALKER, MICHIGAN 49544
PH: 800.866.2227
FX: 616.940.9600
WEB SITE: WWW.TUBELITEINC.COM

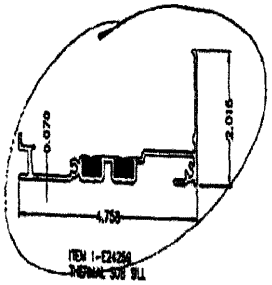
REVISIONS			
NO.	DATED	BY	DESCRIPTION
-	-	-	-

DATED	LATEST RELEASE
1-07-13	1-18-13

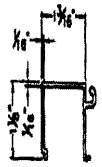
DRAWING BY: HJP
ENGINEERED BY:
TEST ELEVATION

3.0

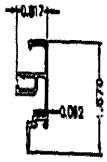
5 OF 6



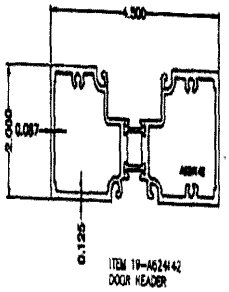
ITEM 1-E24264
THERMAL SUB SILL



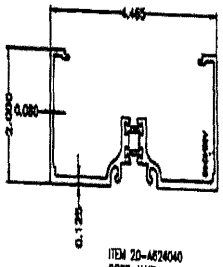
ITEM 8-E14104
GLAZING STOP



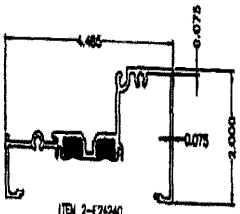
ITEM 18-E6223
INNER DOOR STOP



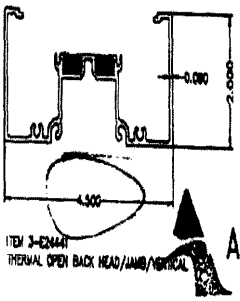
ITEM 19-A624442
DOOR HEADER



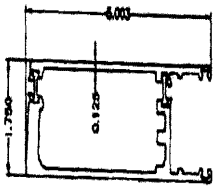
ITEM 20-A624040
DOOR JAMB



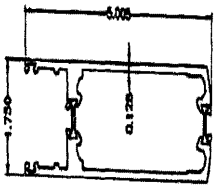
ITEM 2-E24240
OPEN BACK SILL



ITEM 3-E24441
THERMAL OPEN BACK HEAD/JAMB/VERTICAL



ITEM 11 - A627879
ASSEMBLY
MED STILE - HINGE



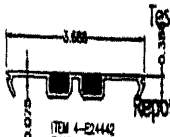
ITEM 12 - A628282
ASSEMBLY
MED RD FACE STILE

Architectural Testing

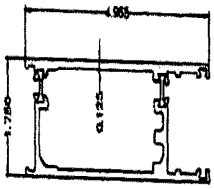
Test sample complies with these details.
Deviations are noted.

Report# CS774.01-113-11

Date 4/23/13 Tech K6.

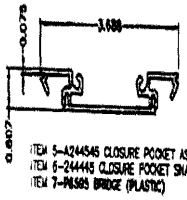


ITEM 4-E24442
SNAP IN FILLER

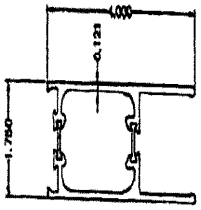


ITEM 13 - A628384
ASSEMBLY
MED STILE - LOCK W/ASTRAGAL

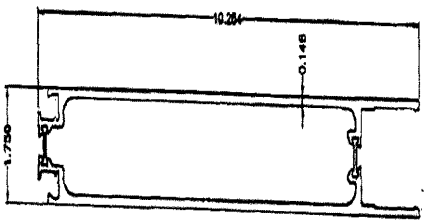
ITEM 14 - E1152
ASTRAGAL



ITEM 5-A244545 CLOSURE POCKET ASSEMBLY
ITEM 6-244445 CLOSURE POCKET SNAP
ITEM 7-P4585 BRIDGE (PLASTIC)



ITEM 15 - A621414
ASSEMBLY
MED STILE TOP RAIL



ITEM 16 - A621010
ASSEMBLY
BOTTOM RAIL

ITEM 17 -E6291
GLAZING STOP

TUBELITE
NON IMPACT
T24000 STOREFRONT
THERMAL & ACOUSTIC TESTING

TUBELITE

3056 WALKER RIDGE DRIVE N.W.
WALKER, MICHIGAN 49544
PH: 800.866.2227
FX: 616.784.1091
WEB SITE: WWW.TUBELITEINC.COM

REVISIONS			
NO.	DATED	BY	DESCRIPTION
-	-	-	-

DATED	LATEST RELEASE
1-07-13	1-16-13

DRAWING BY: HJP

ENGINEERED BY:

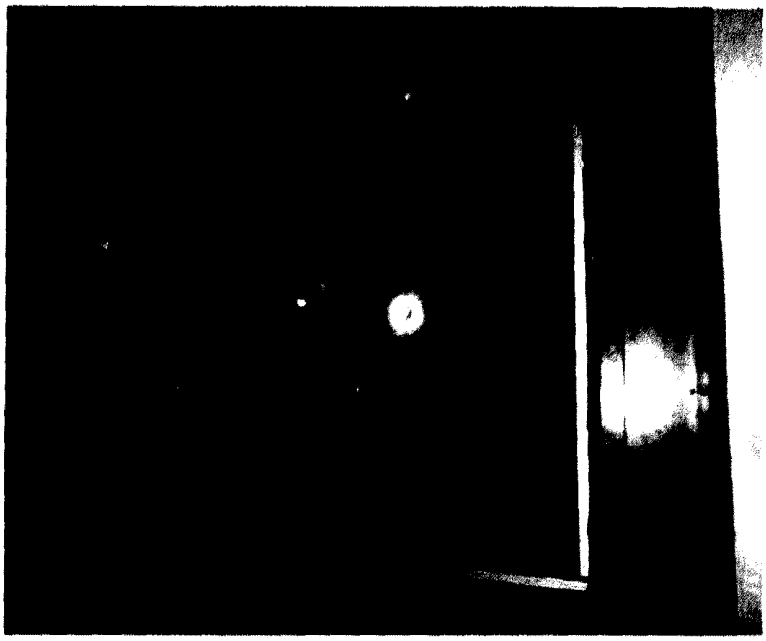
TEST ELEVATION

5.0

5 OF 6

Appendix D

Photographs



Receive Room View of Installed Specimen

Source Room View of Installed Specimen

Architectural Testing

ASTM E 90 SOUND TRANSMISSION LOSS TEST REPORT

Rendered to:

TUBELITE, INC.

SERIES/MODEL: T24000

TYPE: Side-Hinged Single Thermal Door

Summary of Test Results			
Data File No.	**Glazing (Nominal Dimensions)**	**STC**	**OITC**
C5775.01	1-1/16" IG (1/4" heat strengthened exterior, 1/2" air space, 5/16" laminated interior), Glass temperature 75°F	33	30

Reference should be made to Architectural Testing, Inc. Report No. C5775.01-113-11 for complete test specimen description. The complete test results are listed in Appendix B.

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

ACCREDITED TL-144

Architectural Testing

ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

TUBELITE, INC.
4878 Mackinaw Trail
Reed City, Michigan 49677

Report No: C5775.01-113-11
Test Date: 03/25/13
Report Date: 05/01/13
Record Retention End Date: 05/01/17

Test Sample Identification:

Series/Model: T24000

Type: Side-Hinged Single Thermal Door

Overall Frame Size: 43" by 88"

Glazing (Nominal Dimensions): 1-1/16" IG (1/4" Heat Strengthened Exterior, 1/2" Air Space, 5/16" Laminated Interior), Glass Temperature 75°F

Project Scope: Architectural Testing, Inc. was contracted by Tubelite, Inc. to conduct sound transmission loss tests on a Series/Model T24000, side-hinged single thermal door. A summary of the results is listed in the Test Results section, and the complete test data is included as Appendix B of this report. The sample was provided by the client.

Test Methods: The acoustical tests were conducted in accordance with the following:

ASTM E 90-09, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.*
ASTM E 413-10, *Classification for Rating Sound Insulation.*
ASTM E 1332-10a, *Standard Classification for Rating Outdoor-Indoor Sound Attenuation.*
ASTM E 2235-04 (Reapproved 2012), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods.*

Test Equipment: The equipment used to conduct these tests meets the requirements of ASTM E 90. The microphones were calibrated before conducting sound transmission loss tests. The test equipment and test chamber descriptions are listed in Appendix A.

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

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Sample Installation: Sound transmission loss tests were initially performed on a filler wall that was designed to test similar size specimens. The filler wall achieved an STC rating of 68.

The specimen plug was removed from the filler wall assembly. The side-hinged single thermal door was placed on an isolation pad in the test opening. Duct seal was used to seal the perimeter of the test specimen to the test opening on both sides. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing. The operable panel was opened and closed at least five times prior to testing.

Test Procedure: The side-hinged single thermal door was closed and locked for this test. The sound transmission loss test was conducted in accordance with the ASTM E 90 test method using a single direction of measurement. The sound transmission loss test consisted of the following measurements: One background noise sound pressure level and five sound absorption measurements were conducted at each of the five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms, at each of the five microphone positions. The air temperature and relative humidity conditions were monitored and recorded during the background, absorption, source, and receive room measurements.

Sample Descriptions:

Frame Construction:

	Frame
Size	43" by 88"
Thickness	4-1/2"
Corners	Butted
Fasteners	Screws
Seal Method	None
Material	Aluminum
Reinforcement	N/A
Thermal Break Material	Insulbar

N/A-Non Applicable

Sample Descriptions: (Continued)

Panel Construction:

	Panel
Size	39-3/4" by 85"
Thickness	1-3/4"
Corners	Butted
Fasteners	Screws
Seal Method	None
Material	Aluminum
Reinforcement	N/A
Thermal Break Material	Insulbar
Daylight Opening Size	29-1/2" by 69"

Glazing:

Measured Overall Insulation Glass Unit Thickness	1.087"
Spacer Type	Aluminum

	Exterior Sheet	Gap	Interior Sheet
Measured Thickness	0.221"	0.557"	0.125", 0.059", 0.125"
Muntin Pattern	N/A	N/A	N/A
Material	Heat strengthened	Air*	Laminated
Laminate Material	N/A	N/A	PVB

Glazing Method	Pressure
Glazing Material	Flexible wedge gasket
Glazing Bead Material	Aluminum

** - Stated per Client/Manufacturer, N/A-Non Applicable*

Sample Descriptions: (Continued)

Components:

	TYPE	QUANTITY	LOCATION
Weatherstrip			
	1/4" Diameter hollow bulb gasket	1 Row	Head and jambs
	Sweep with 3/8" leaf	1 Row	Bottom rails
Hardware			
	Hinge	3	Hinge jamb
	Keyed lock bolt	1	Lock stile
	Handle	1	Lock stiles
Drainage			
	No drainage		

Comments: The total weight of the sample was 198 lbs. The design drawings (included in Appendix C) supplied by the client, accurately describe the Series/Model T24000, side-hinged single thermal door. The dimensions on the drawings that are circled and/or checked were verified against the test specimen. The side-hinged single thermal door was disassembled, and the components will be retained by Architectural Testing for four years. Photographs of the test specimen are included in Appendix D.

Test Results: The STC (Sound Transmission Class) rating was calculated in accordance with ASTM E 413. The OITC (Outdoor-Indoor Transmission Class) was calculated in accordance with ASTM E 1332. A summary of the sound transmission loss test results on the Series/Model T24000, side-hinged single thermal door is listed below.

Summary of Test Results			
Data File No.	**Glazing (Nominal Dimensions)**	**STC**	**OITC**
C5775.01	1-1/16" IG (1/4" heat strengthened exterior, 1/2" air space, 5/16" laminated interior), Glass temperature 75°F	33	30

The complete test results are listed in Appendix B. Flanking limit tests and reference specimen tests are available upon request.

Architectural Testing will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Architectural Testing for the entire test record retention period.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

Kurt A. Golden
Senior Technician - Acoustical Testing

Todd D. Kister
Laboratory Supervisor - Acoustical Testing

KAG:jmcs

Attachments (pages): This report is complete only when all attachments listed are included.
- Appendix-A: Equipment description (1)
- Appendix-B: Complete test results (2)
- Appendix-C: Design drawings (4)
- Appendix-D: Photographs (1)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	05/01/13	N/A	Original Report Issue

Appendix A

Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number	Date of Calibration
Analyzer	Hewlett Packard	HP35670A	Real time analyzer	004112	07/11 *
Data Acquisition Unit	Agilent	34970A	Data Acquisition Unit	62211	07/12
Receive Room Microphone	GRAS	40 AR	1/2" Microphone	Y003246	08/12
Source Room Microphone	GRAS	40 AR	1/2" Microphone	Y003245	08/12
Receive Room Preamplifier	GRAS	26 AK	1/2" Preamplifier	Y003249	08/12
Source Room Preamplifier	GRAS	26 AK	1/2" Preamplifier	Y003248	08/12
Microphone Calibrator	Bruel & Kjaer	Type 4228	Pistonphone Calibrator	Y002816	02/13
Noise Source	Delta Electronics	SNG-1	Noise Generator	Y002181	N/A
Equalizer	Rane	RPE 228	Programmable Equalizer	Y002180	N/A
Power Amplifiers	Crown	Xti 2000	Two, Amplifiers	005769 005770	N/A
Receive Room Loudspeakers	Renkus-Heinz Inc.	Trap Jr./9	Two, Loudspeakers	Y001784 Y001785	N/A
Source Room Loudspeakers	Renkus-Heinz Inc.	Trap Jr./9	Two, Loudspeakers	Y002649 Y002650	N/A
Receive Room Environmental Indicator	Vaisala	HMW60Y	Temperature and Humidity Sensor	005066	09/12
Source Room Environemental Indicator	Vaisala	HMW60Y	Temperature and Humidity Sensor	Y002652	10/12
Weather Station	Davis Instruments	VantagePRO 6150C	Weather Station	Y003257	05/12

**- Note: The calibration frequency for this equipment is every two years per the manufacturer's recommendation.*

Test Chamber:

	Volume	Description
Receive Room	234 m^3 (8291.3 ft^3)	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
Source Room	206.6 m^3 (7296.3 ft^3)	Stationary diffusers only Temperature and humidity controlled

	Maximum Size	Description
TL Test Opening	4.27 m (14 ft) wide by 3.05 m (10 ft) high	Vibration break between source and receive rooms

N/A-Non Applicable

Appendix B

Complete Test Results

Architectural Testing

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TL-144

SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	03/25/13		
ATI No.	C5775.01		
Client	Tubelite, Inc.		
Specimen	Series/Model: T24000, side-hinged single door system with full lite 1-1/16" IG (1/4" heat strengthened exterior, 1/2" air space, 5/16" laminated interior), Glass temperature 75°F		
Operator	Kurt Golden		
Sample Area	2.50 m^2		
Filler Area	10.50 m^2		
	Source	Receive	Specimen
Temp C	22	20	21
RH %	48	52	49

Freq (Hz)	Bkgrd SPL (dB)	Absorp (m^2)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defi-ciencies	Trans Coef Diff
80	39	5.4	89	67	32	20	2.0	-	
100	35	5.8	90	63	38	24	3.6	-	
125	35	5.4	94	63	45	28	1.3	0	
160	38	4.9	95	68	48	24	1.2	0	17.3
200	35	4.5	101	70	58	28	1.3	0	23.8
250	31	5.2	101	72	60	26	0.9	0	28.0
315	29	5.8	102	73	66	25	0.9	4	34.3
400	28	5.7	102	68	68	30	0.3	2	31.5
500	25	6.3	102	65	68	33	0.6	0	28.7
630	24	5.7	104	68	69	33	0.5	1	30.6
800	23	6.0	105	69	71	32	0.3	3	32.8
1000	20	6.2	105	68	74	33	0.5	3	35.1
1250	18	6.8	103	66	72	33	0.4	4	33.1
1600	15	6.9	106	69	71	33	0.4	4	32.1
2000	10	7.5	105	67	72	33	0.3	4	32.4
2500	7	8.3	105	65	75	34	0.3	3	34.7
3150	6	9.7	106	64	77	36	0.3	1	34.8
4000	6	11.9	106	64	81	35	0.4	2	39.8
5000	6	15.3	105	62	84	35	0.4	-	42.8

STC Rating **33** *(Sound Transmission Class)*
Deficiencies 31 *(Number of deficiencies versus contour curve)*
OITC Rating **30** *(Outdoor Indoor Transmission Class)*

Notes:

1) Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. These cells are highlighted red.

2) Transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. These cells are highlighted green.

3) Receive Room levels less than 5 dB above the background levels are highlighted in yellow.

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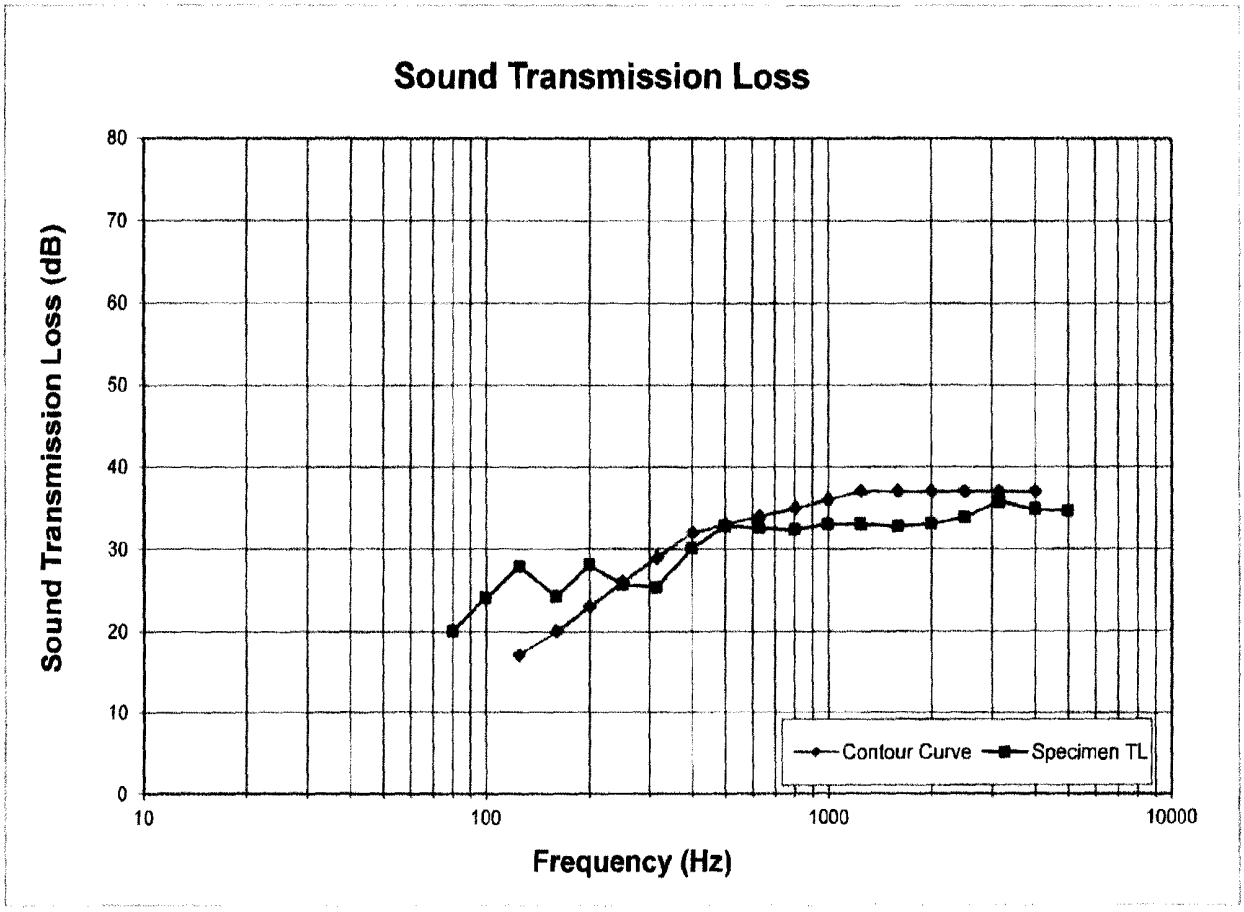
TL-144

SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	03/25/13		
ATI No.	C5775.01		
Client	Tubelite, Inc.		
Specimen	Series/Model: T24000, side-hinged single door system with full lite 1-1/16" IG (1/4" heat strengthened exterior, 1/2" air space, 5/16" laminated interior), Glass temperature 75°F		
Operator	Kurt Golden		
Sample Area	2.50 m^2		
Filler Area	10.50 m^2		
	Source	Receive	Sample
Temp C	22	20	21
RH %	48	52	49



Note: To obtain the Sound Transmission Class (STC), read the Sound Transmission Loss of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve cannot exceed 32. The maximum deficiencies at any one frequency cannot exceed 8.

Appendix C

Design Drawings

NON-IMPACT STOREFRONT TEST SPECIMEN - PARTS LIST				MATERIAL
ITEM	QTY	PART NUMBER	DESCRIPTION	
1	1	E34359	EXTRUSION - THERMAL SUB SILL	ALUMINUM-6063-T5
2	2	E34416	EXTRUSION - THERMAL OPEN BACK SILL	ALUMINUM-6063-T5
3	5	E34441	EXTRUSION - THERMAL HEAD/JAMB/MEDIAL	ALUMINUM-6063-T5
4	6	E34442	EXTRUSION - SNAP IN FILLER	ALUMINUM-6063-T5
5	1	A34454S	CLOSURE POCKET ASSEMBLY	
6	2 PER ASSY	E34445	EXTRUSION - CLOSURE POCKET SNAP BID 12'-2"	ALUMINUM-6063-T5
7	1 PER ASSY	P4886	BRACE 12'-6"	P-PART-PLASTIC
8	2	E1404	EXTRUSION - GLAZING STOP	ALUMINUM-6063-T5
9				
10				
11	4	A62107S	EXTRUSION ASSEMBLY - STILE MED - HINGE	ALUMINUM-6063-T5
12	1	A62108S	EXTRUSION ASSEMBLY - STILE, MED - HD FACE	ALUMINUM-6063-T5
13	1	A62109S	EXTRUSION ASSEMBLY - STILE MED - LOCK/VERTICAL	ALUMINUM-6063-T5
14	1	E1152	EXTRUSION - ASTRAGAL (DOOR)	ALUMINUM-6063-T5
15	3	A62144	EXTRUSION ASSEMBLY - TOP RAIL 4"	ALUMINUM-6063-T5
16	3	A62109	EXTRUSION ASSEMBLY - BOTTOM RAIL 10"	ALUMINUM-6063-T5
17	12	E6581	EXTRUSION - GLASS STOP TOP & BOTTOM RAIL	ALUMINUM-6063-T5
18	6	E6625	EXTRUSION - INNER DOOR STOP	ALUMINUM-6063-T5
19	2	A62145	EXTRUSION ASSEMBLY - DOOR FRAME - HEADER	ALUMINUM-6063-T5
20	4	A62146	EXTRUSION ASSEMBLY - DOOR FRAME - JAMB	ALUMINUM-6063-T5
21	2	T6250	THERMAL THRESHOLD	ALUMINUM-6063-T5
22				
23				
24				
25	90'	P2729	GASKET, GLASS, EPG	P-PART-RUBBER
26	90'	P1112	GASKET, GLASS, EPG (DOOR)	P-PART-RUBBER
27	90'	P2365	GASKET, GLASS, EPG (DOOR)	P-PART-RUBBER
28	1	P1122	SETTING BLOCK 4" LG	P-PART-RUBBER
29	1	P1912	SETTING BLOCK 1/4 x 1/2 x 4" LG	P-PART-RUBBER
30	40'	P6599	SILL WEATHERMEAL	P-PART-WEATHERMEAL
31	20'	P436	PILE, DOOR STOP, AMESBURY GROUP	P-PART-PLASTIC/PILE
32	3	P6940	ELIMINATE MINNTOR (TOP & BOTTOM RAIL)	P-PART-RIGID PVC
33	3	P1276	CONCEALED SCREEN WEATHERSTRIP 4 7/8" LG	P-PART-WEATHERSTRIP
34	2	P6901	END DAM FOR SUB SILL EXTR	P-PART-ALUM .040 SHT.
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DOOR PARTS AS NOTED

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
60	50	NA	SCREW - #8-41 x 3 1/2" PH WOOD (FRAME TO WOOD)	P-PART-FASTENER
61	8	NA	SCREW - 1/4" x 3" HEX FLG HD SALV LAG (SILL TO WOOD SUBSTRATE)	P-PART-FASTENER
62	10	NA	SCREW - 12-7 x 2" FT HD WOOD (GLASS TO WOOD SUPPORT)	P-PART-FASTENER
63	76	S570	SCREW - #10-24 x 1 1/2" FLAT HD PHIL (GLASS)	P-PART-FASTENER
64	60	S261	SCREW - #10-24 x 3/4" FLAT HD PHIL (GLASS)	P-PART-FASTENER
65	4	S100	SCREW - #8 X 3/4" SELF TAPPING PAN HEAD (END DAM TO SUB SILL)	P-PART-FASTENER
66	30	S202	SCREW - #10-24 x TYPE 23 HEX HEAD PHIL (GLASS TO WOOD)	P-PART-FASTENER
67				
68	AS REQ'D	BY OTHERS	SILICONE SEALANT DOW 795	P-PART-SEALANT
69				
70				
71	1	NA	3'-0" x 7'-0" MEDIUM STILE THERMAL DOOR	DOOR ASSEMBLY
72	1	NA	6'-0" x 7'-0" MEDIUM STILE THERMAL DOOR	DOOR ASSEMBLY
73	X	P900	LABEL, DOOR, OPENS INWARD SILVER (DOOR) (NOT SHOWN)	P-PART-LABEL
74	X	P1630	SPRING, STEEL, ASTRAGAL, ADJUSTABLE, (DOOR)	P-PART-HARDWARE
75	X	P1805	WASHER, SCREW & SHOULDER SCREW (DOOR) (NOT SHOWN)	P-PART-FASTENER
76	X	S571	NUT, STUD, 3/8-16 x [illegible]	P-PART - FASTENER
77	X	S466	WASHER, [illegible]	P-PART - FASTENER
78	X	S241	SCREW, 10-24 X [illegible] FLAT HEAD PHIL	P-PART - FASTENER
79	X	P908	SCREW, 10-24 X [illegible] PH WASH PHIL (DOOR) (NOT SHOWN)	P-PART - FASTENER
80	X	P4828	RAIL, WINDCOOD 12, 7" (DOOR) (NOT SHOWN)	P-PART - FASTENER
81	X	P578	TAB - FOR WARPED DOOR (DOOR) (NOT SHOWN)	P-PART - HARDWARE
82	X	P1857	WASHER, DOOR 600 (DOOR) (NOT SHOWN)	P-PART - HARDWARE
83	8	P2002	HINGE, BUTT, REINFORCEMENT (DOOR)	P-PART - HARDWARE
84	8	P1918	BUTT HINGE MAGNA MP-179	P-PART - HARDWARE
85				
86				
87	X	P1875	CYLINDER PARTS, P1875-CS (DOOR)	P-PART - HARDWARE
88	X	P1855	M-88-4RSE COLLAR, SPLIT RING CYL RYDOOR (DOOR)	P-PART - HARDWARE
89	X	P1858	ADAMS-RITE MS1850-440-000 ADAMS-TITE (DOOR)	P-PART - HARDWARE
90	X	P1780	REVERR BOLT, ADAM-RITE P1780-01 (DOOR)	P-PART - HARDWARE
91	X	P871	CYLINDER, LOCK (DOOR)	P-PART - HARDWARE
92	X	P2251	CLOSER, DORMA, BTS, SURFACE MOUNT	P-PART - HARDWARE
93	X	P1455	DEAD BOLT	P-PART - HARDWARE
94	X	P699	FLUSH BOLTS	P-PART - HARDWARE
95	X	P4827	ROCKWOOD BP197 10" PULL	P-PART - HARDWARE
96				
97				
98				
99				

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# C5775.01-113-11

Date 4/23/13 Tech KB.

TUBELITE
NON IMPACT
T24000 STOREFRONT
THERMAL & ACOUSTIC TESTING

TUBELITE

3056 WALKENT RIDGE DRIVE N.W.
WALKER, MICHIGAN 49544
PH: 616.361.2277
FAX: 616.361.0029
WEB SITE: WWW.TUBELITEINC.COM

REVISIONS			
NO.	DATED	BY	DESCRIPTION

DATED	LATEST RELEASE
1-07-13	1-16-13

DRAWING NO. NP
DRAWING BY
TEST ELEVATION

6.0

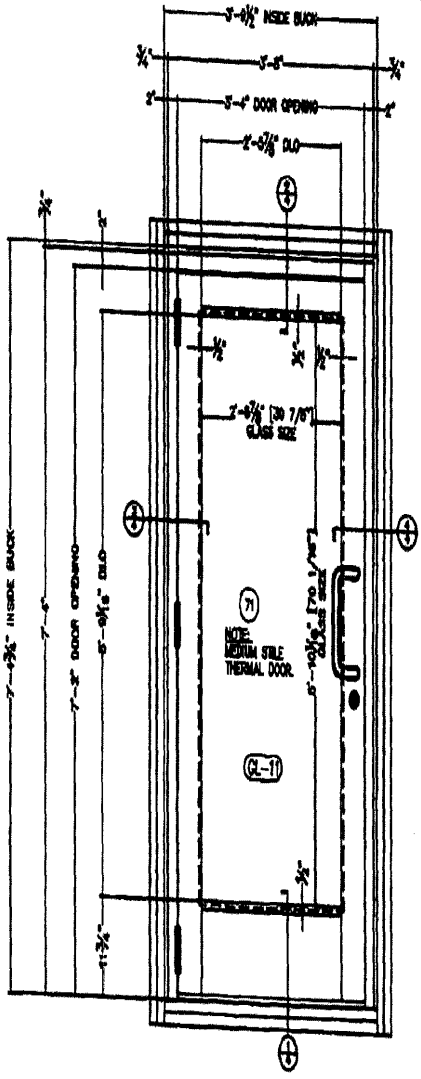
6 OF 6

Architectural Testing

Test sample complies with these details.
Deviations are noted.

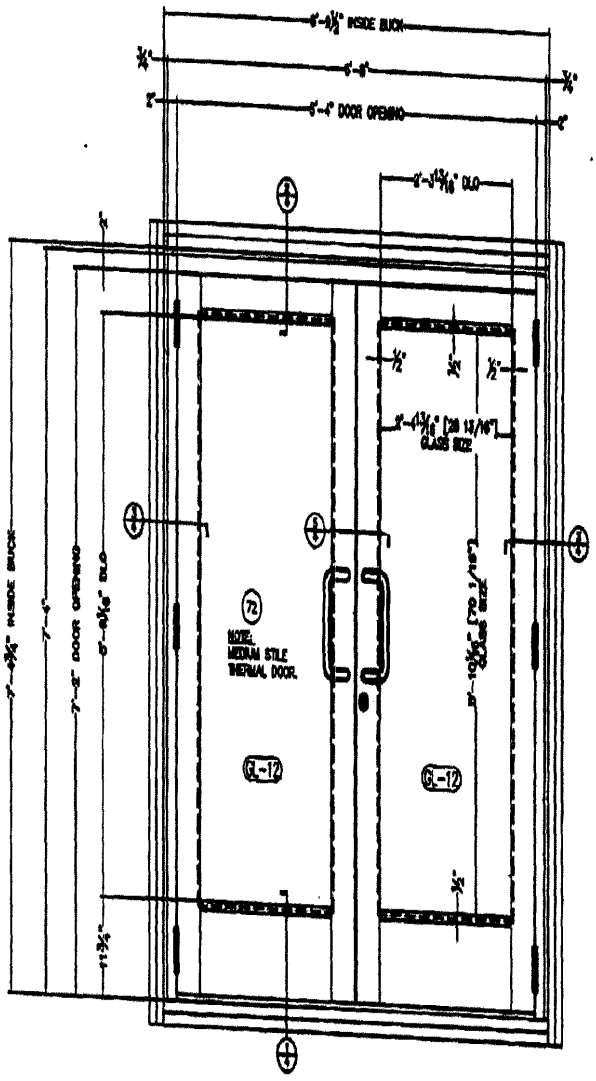
Report# C5725.01-113-11

Date 4/23/13 Tech KG.



T24000 STOREFRONT TEST SPECIMEN 2
SINGLE DOOR ~ NON IMPACT

GLAZING NOTES:
1" GLASS ~ 1/4 TEMPERED 1/2 AIR SPACE 1/4" TEMPERED
DRY GLAZED



T24000 STOREFRONT TEST SPECIMEN 3
DOUBLE DOOR ~ NON IMPACT

GLAZING NOTES:
1" GLASS ~ 1/4 TEMPERED 1/2 AIR SPACE 1/4" TEMPERED
DRY GLAZED

TUBELITE
NON IMPACT
T24000 STOREFRONT
THERMAL & ACOUSTIC TESTING

TUBELITE

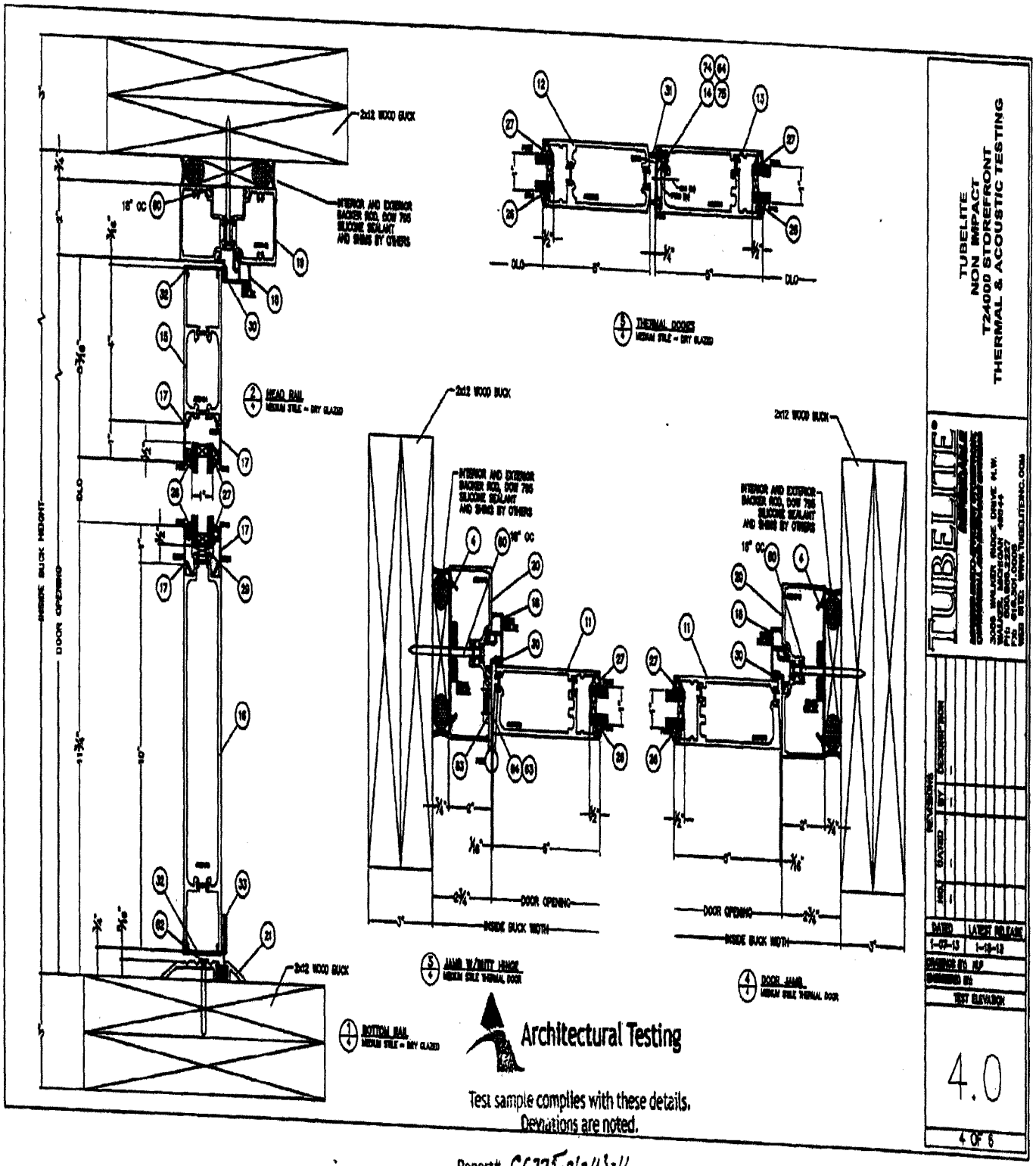
NO.	DATED	BY	DESCRIPTION
1	-	-	-

DATED	LATEST RELEASE
1-07-13	1-18-13

DRAWN BY: MP
ENGINEER BY:
TEST ELEVATION

2.0

2 OF 6



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# C5775.01-113-11

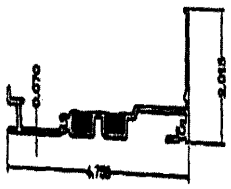
Date 4/03/13 Tech KG.

Architectural Testing

Test sample complies with these details.
Deviations are noted.

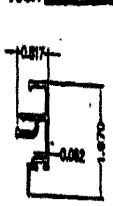
Report# C5775.01-113-11

Date 9/23/13 Tech KG.

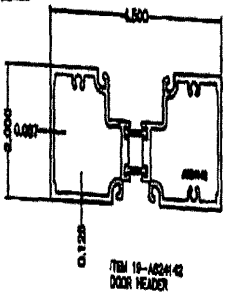


ITEM 1-E2425A
THERMAL SUB SILL

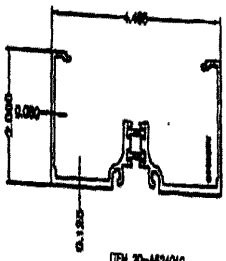
ITEM 5-E3410A
GLAZING STOP



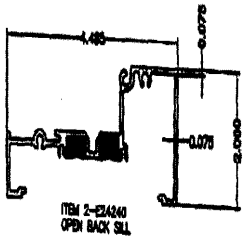
ITEM 18-E8223
INNER DOOR STOP



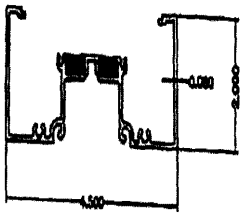
ITEM 19-A624142
DOOR HEADER



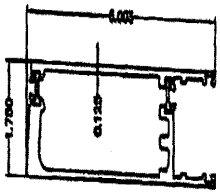
ITEM 20-A624040
DOOR JAMB



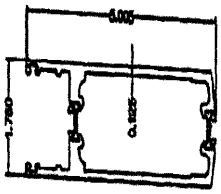
ITEM 2-E2426D
OPEN BACK SILL



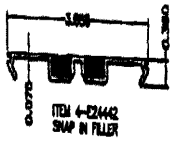
ITEM 3-E2444
THERMAL OPEN BACK HEAD/JAMB/VERTICAL



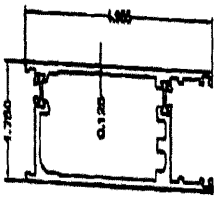
ITEM 11 - A627079
ASSEMBLY
MED STILE - HINGE



ITEM 12 - A628282
ASSEMBLY
MED RO FACE STILE

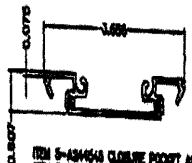


ITEM 4-E2444Z
SNAP IN FILLER

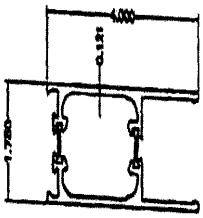


ITEM 13 - A626384
ASSEMBLY
MED STILE - LOCK W/ASTRAGAL

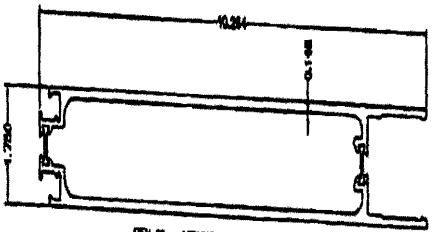
ITEM 14 - E1152
ASTRAGAL



ITEM 6-A344548 CLOSURE POCKET ASSEMBLY
ITEM 8-E3445 CLOSURE POCKET SNAP
ITEM 7-P6585 BRIDGE (PLASTIC)



ITEM 15 - A621414
ASSEMBLY
MED STILE TOP RAIL



ITEM 16 - A621010
ASSEMBLY
BOTTOM RAIL

ITEM 17 - E8221
GLAZING STOP

TUBELITE
NON IMPACT
T24000 STOREFRONT
THERMAL & ACOUSTIC TESTING

TUBELITE

NO.	DATED	BY	DESCRIPTION
-	-	-	-

DATED	LATEST RELEASE
1-07-13	1-16-13

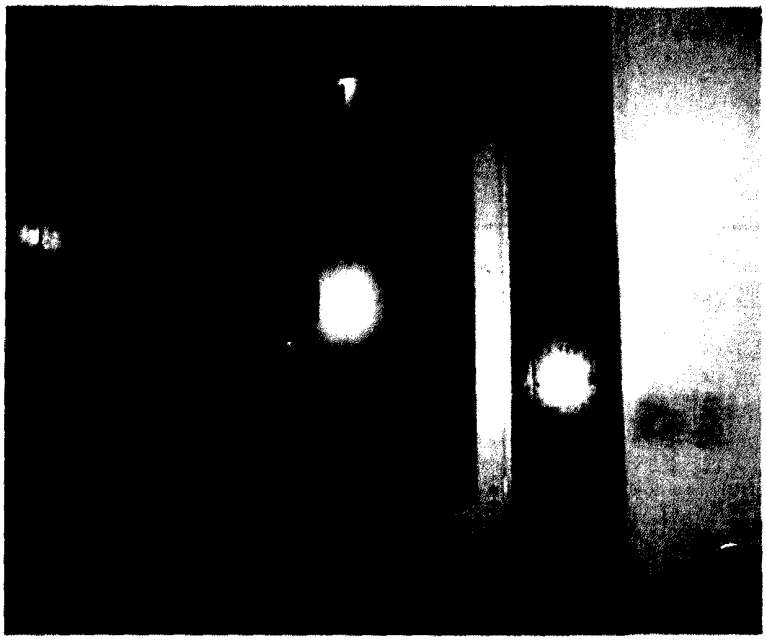
DRAWING NO. NAP
ENGINEERED BY:
TEST ELEVATION

5.0

5 OF 6

Appendix D

Photographs



Receive Room View of Installed Specimen

Source Room View of Installed Specimen

Architectural Testing

ASTM E 90 SOUND TRANSMISSION LOSS TEST REPORT

Rendered to:

TUBELITE, INC.

SERIES/MODEL: T24000

TYPE: Side-Hinged Double Thermal Door

Summary of Test Results			
Data File No.	**Glazing (Nominal Dimensions)**	**STC**	**OITC**
C5776.01	1-1/16" IG (1/4" heat strengthened exterior, 1/2" air space, 5/16" laminated interior), Glass temperature 75°F	25	25

Reference should be made to Architectural Testing, Inc. Report No. C5776.01-113-11 for complete test specimen description. The complete test results are listed in Appendix B.

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

ACCREDITED TL-144

Architectural Testing

ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

TUBELITE, INC.
4878 Mackinaw Trail
Reed City, Michigan 49677

Report No: C5776.01-113-11
Test Date: 04/10/13
Report Date: 05/01/13
Record Retention End Date: 05/01/17

Test Sample Identification:

Series/Model: T24000

Type: Side-Hinged Double Thermal Door

Overall Frame Size: 80" by 87-3/4"

Glazing (Nominal Dimensions): 1-1/16" IG (1/4" Heat Strengthened Exterior, 1/2" Air Space, 5/16" Laminated Interior), Glass Temperature 75°F

Project Scope: Architectural Testing, Inc. was contracted by Tubelite, Inc. to conduct sound transmission loss tests on a Series/Model T24000, side-hinged double thermal door. A summary of the results is listed in the Test Results section, and the complete test data is included as Appendix B of this report. The sample was provided by the client.

Test Methods: The acoustical tests were conducted in accordance with the following:

ASTM E 90-09, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.*
ASTM E 413-10, *Classification for Rating Sound Insulation.*
ASTM E 1332-10a, *Standard Classification for Rating Outdoor-Indoor Sound Attenuation.*
ASTM E 2235-04 (Reapproved 2012), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods.*

Test Equipment: The equipment used to conduct these tests meets the requirements of ASTM E 90. The microphones were calibrated before conducting sound transmission loss tests. The test equipment and test chamber descriptions are listed in Appendix A.

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
www.architest.com

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TL-144

Sample Installation: Sound transmission loss tests were initially performed on a filler wall that was designed to test similar size specimens. The filler wall achieved an STC rating of 68.

The specimen plug was removed from the filler wall assembly. The side-hinged double thermal door was placed on an isolation pad in the test opening. Duct seal was used to seal the perimeter of the test specimen to the test opening on both sides. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing. The operable panels were opened and closed at least five times prior to testing.

Test Procedure: The side-hinged double thermal door was closed and locked for this test. The sound transmission loss test was conducted in accordance with the ASTM E 90 test method using a single direction of measurement. The sound transmission loss test consisted of the following measurements: One background noise sound pressure level and five sound absorption measurements were conducted at each of the five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms, at each of the five microphone positions. The air temperature and relative humidity conditions were monitored and recorded during the background, absorption, source, and receive room measurements.

Sample Descriptions:

Frame Construction:

	Frame
Size	80" by 87-3/4"
Thickness	4-1/2"
Corners	Butted
Fasteners	Screws
Seal Method	None
Material	Aluminum
Reinforcement	N/A
Thermal Break Material	Insulbar

N/A-Non Applicable

Sample Descriptions: (Continued)

Panel Construction:

	Active Panel	Inactive Panel
Size	37-3/4" by 85"	37-3/4" by 85"
Thickness	1-3/4"	1-3/4"
Corners	Butted	Butted
Fasteners	Screws	Screws
Seal Method	None	None
Material	Aluminum	Aluminum
Reinforcement	N/A	N/A
Thermal Break Material	Insulbar	Insulbar
Daylight Opening Size	27-3/8" by 68-3/4"	27-3/8" by 68-3/4"

Glazing:

Measured Overall Insulation Glass Unit Thickness	1.048"
Spacer Type	Aluminum

	Exterior Sheet	Gap	Interior Sheet
Measured Thickness	0.221"	0.518"	0.125", 0.059", 0.125"
Muntin Pattern	N/A	N/A	N/A
Material	Heat strengthened	Air*	Laminated
Laminate Material	N/A	N/A	PVB

Glazing Method	Pressure
Glazing Material	Flexible wedge gasket
Glazing Bead Material	Aluminum

** - Stated per Client/Manufacturer, N/A-Non Applicable*

Sample Descriptions: (Continued)

Components:

TYPE	QUANTITY	LOCATION
Weatherstrip		
1/4" Diameter hollow bulb gasket	1 Row	Head and jambs
0.110" by 0.510" Polypile	2 Rows	Active panel meeting stile
Sweep with 3/8" leaf	1 Row	Bottom rails
Hardware		
Hinge	6	Jambs
Keyed lock bolt	1	Active panel lock stile
Handle	2	Lock stiles
Vertical rod lock system	2	Inactive panel lock stile
Drainage		
No drainage		

Comments: The total weight of the sample was 352 lbs. The design drawings (included in Appendix C) supplied by the client, accurately describe the Series/Model T24000, side-hinged double thermal door. The dimensions on the drawings that are circled and/or checked were verified against the test specimen. The side-hinged double thermal door was disassembled, and the components will be retained by Architectural Testing for four years. Photographs of the test specimen are included in Appendix D.

Test Results: The STC (Sound Transmission Class) rating was calculated in accordance with ASTM E 413. The OITC (Outdoor-Indoor Transmission Class) was calculated in accordance with ASTM E 1332. A summary of the sound transmission loss test results on the Series/Model T24000, side-hinged double thermal door is listed below.

Summary of Test Results			
Data File No.	**Glazing (Nominal Dimensions)**	**STC**	**OITC**
C5776.01	1-1/16" IG (1/4" heat strengthened exterior, 1/2" air space, 5/16" laminated interior), Glass temperature 75°F	25	25

The complete test results are listed in Appendix B. Flanking limit tests and reference specimen tests are available upon request.

Architectural Testing will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Architectural Testing for the entire test record retention period.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

Kurt A. Golden
Senior Technician - Acoustical Testing

Todd D. Kister
Laboratory Supervisor - Acoustical Testing

KAG:jmcs

Attachments (pages): This report is complete only when all attachments listed are included.
- Appendix-A: Equipment description (1)
- Appendix-B: Complete test results (2)
- Appendix-C: Design drawings (4)
- Appendix-D: Photographs (1)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	05/01/13	N/A	Original Report Issue

Appendix A

Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number	Date of Calibration
Analyzer	Hewlett Packard	HP35670A	Real time analyzer	004112	07/11 *
Data Acquisition Unit	Agilent	34970A	Data Acquisition Unit	62211	07/12
Receive Room Microphone	GRAS	40 AR	1/2" Microphone	Y003246	08/12
Source Room Microphone	GRAS	40 AR	1/2" Microphone	Y003245	08/12
Receive Room Preamplifier	GRAS	26 AK	1/2" Preamplifier	Y003249	08/12
Source Room Preamplifier	GRAS	26 AK	1/2" Preamplifier	Y003248	08/12
Microphone Calibrator	Bruel & Kjaer	Type 4228	Pistonphone Calibrator	Y002816	02/13
Noise Source	Delta Electronics	SNG-1	Noise Generator	Y002181	N/A
Equalizer	Rane	RPE 228	Programmable Equalizer	Y002180	N/A
Power Amplifiers	Crown	Xti 2000	Two, Amplifiers	005769 005770	N/A
Receive Room Loudspeakers	Renkus-Heinz Inc.	Trap Jr./9	Two, Loudspeakers	Y001784 Y001785	N/A
Source Room Loudspeakers	Renkus-Heinz Inc.	Trap Jr./9	Two, Loudspeakers	Y002649 Y002650	N/A
Receive Room Environmental Indicator	Vaisala	HMW60Y	Temperature and Humidity Sensor	005066	09/12
Source Room Environemental Indicator	Vaisala	HMW60Y	Temperature and Humidity Sensor	Y002652	10/12
Weather Station	Davis Instruments	VantagePRO 6150C	Weather Station	Y003257	05/12

**- Note: The calibration frequency for this equipment is every two years per the manufacturer's recommendation.*

Test Chamber:

	Volume	Description
Receive Room	234 m^3 (8291.3 ft^3)	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
Source Room	206.6 m^3 (7296.3 ft^3)	Stationary diffusers only Temperature and humidity controlled

	Maximum Size	Description
TL Test Opening	4.27 m (14 ft) wide by 3.05 m (10 ft) high	Vibration break between source and receive rooms

N/A-Non Applicable

Appendix B

Complete Test Results

Architectural Testing

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TL-144

SOUND TRANSMISSION LOSS
ASTM E 90

Test Date	04/10/13		
ATI No.	C5776.01		
Client	Tubelite, Inc.		
Specimen	Series/Model: T24000, side-hinged double door system with 1-1/16" IG (1/4" heat strengthened exterior, 1/2" air space, 5/16" laminated interior), Glass temperature 75°F		
Operator	Kurt Golden		
Sample Area	4.22 m^2		
Filler Area	8.78 m^2		
	Source	Receive	Specimen
Temp C	22	22	23
RH %	47	42	44

Freq (Hz)	Bkgrd SPL (dB)	Absorp (m^2)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defi-ciencies	Trans Coef Diff
80	38	5.7	89	67	32	22	2.9	-	
100	37	5.7	91	65	38	25	3.4	-	
125	40	5.5	96	69	45	25	2.0	0	16.3
160	43	5.2	96	73	48	22	0.8	0	22.9
200	43	4.9	101	77	58	24	0.9	0	30.9
250	39	5.4	102	77	60	24	1.1	0	32.9
315	34	5.8	102	78	66	22	0.8	0	40.5
400	31	6.0	102	75	68	26	0.4	0	38.9
500	28	6.1	103	74	68	27	0.9	0	37.4
630	25	5.8	105	76	69	27	0.6	0	38.8
800	24	5.9	105	77	71	27	0.5	0	41.3
1000	19	6.1	105	77	74	27	0.4	1	44.5
1250	16	6.7	103	75	72	27	0.4	2	42.6
1600	10	7.1	106	77	71	27	0.3	2	41.3
2000	7	7.5	105	78	72	25	0.4	4	43.6
2500	7	8.3	105	78	75	24	0.4	5	48.1
3150	6	10.1	106	79	77	23	0.2	6	50.8
4000	6	12.0	106	78	81	24	0.3	5	53.6
5000	7	15.4	105	75	84	24	0.4	-	56.6

STC Rating **25** *(Sound Transmission Class)*
Deficiencies 25 *(Number of deficiencies versus contour curve)*
OITC Rating **25** *(Outdoor Indoor Transmission Class)*

Notes:

1) Transmission loss coefficient differences less than 6 indicate the lower limit of the transmission loss for this specimen. These cells are highlighted red.

2) Transmission loss coefficient differences between 6 and 15 indicate there has been a filler wall correction applied. These cells are highlighted green.

3) Receive Room levels less than 5 dB above the background levels are highlighted in yellow.

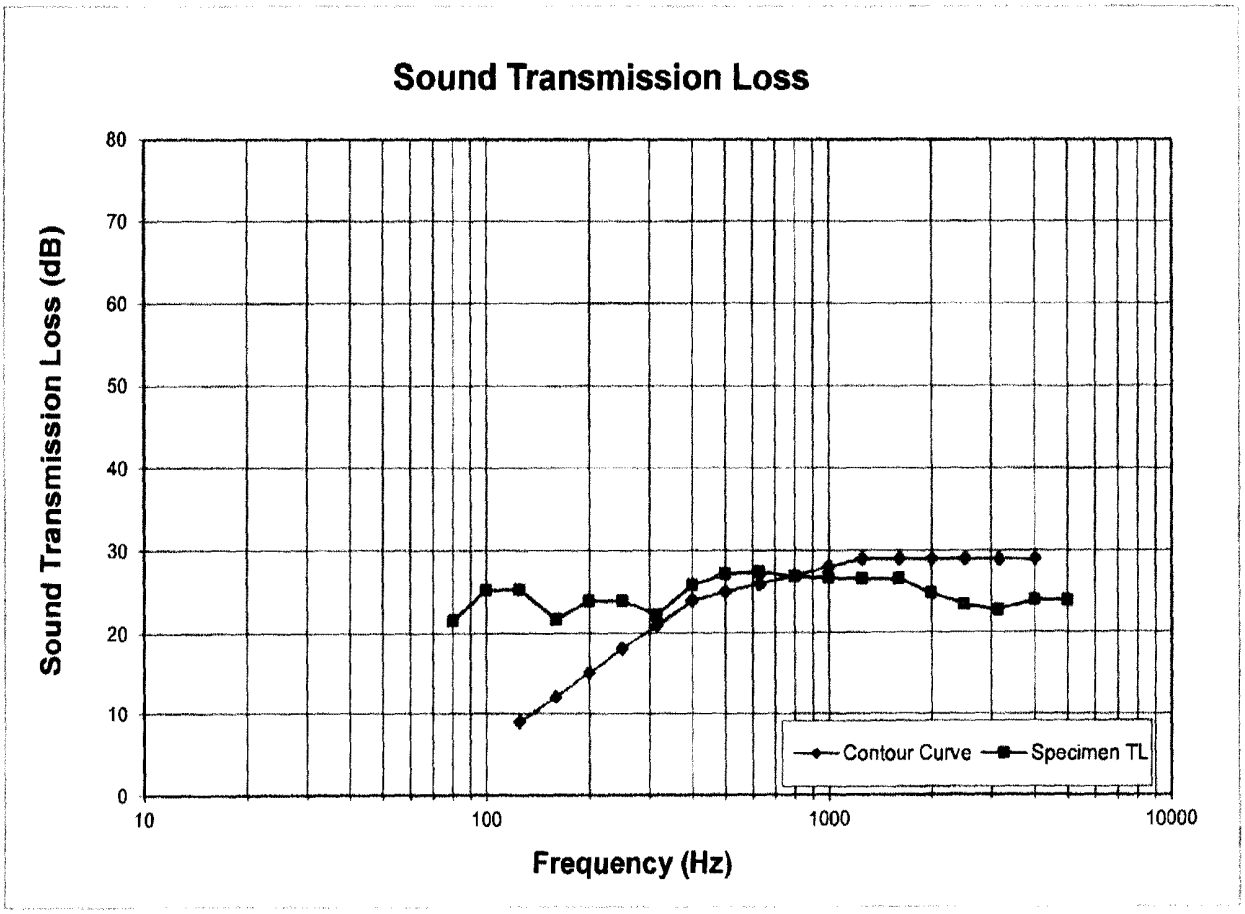
Architectural Testing

ACCREDITED
TL-144

SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	04/10/13		
ATI No.	C5776.01		
Client	Tubelite, Inc.		
Specimen	Series/Model: T24000, side-hinged double door system with 1-1/16" IG (1/4" heat strengthened exterior, 1/2" air space, 5/16" laminated interior), Glass temperature 75°F		
Operator	Kurt Golden		
Sample Area	4.22 m^2		
Filler Area	8.78 m^2		
	Source	Receive	Sample
Temp C	22	22	23
RH %	47	42	44



Note: To obtain the Sound Transmission Class (STC), read the Sound Transmission Loss of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve cannot exceed 32. The maximum deficiencies at any one frequency cannot exceed 8.

Appendix C

Design Drawings

NON-IMPACT STOREFRONT TEST SPECIMEN - PARTS LIST				
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
1	1	E24289	EXTRUSION - THERMAL, SUB SILL	ALUMINUM-6063-T5
2	1	E24290	EXTRUSION - THERMAL, DRIP BACK SILL	ALUMINUM-6063-T5
3	2	E24445	EXTRUSION - THERMAL HEAD/JAMB/MEETING	ALUMINUM-6063-T5
4	2	E24442	EXTRUSION - SNAP IN FILLER	ALUMINUM-6063-T5
5	1	A244545	CLOSURE POCKET ASSEMBLY	
6	2 PER ASSY	E24445	EXTRUSION - CLOSURE POCKET SNAP END 12'-2"	ALUMINUM-6063-T5
7	1 PER ASSY	P6886	BRIDGE 12'-2"	P-PART-PLASTIC
8	2	E24404	EXTRUSION - GLAZING STOP	ALUMINUM-6063-T5
9				
10				
11	4	A827679	EXTRUSION ASSEMBLY - STILE MED - HINGE	ALUMINUM-6063-T5
12	1	A828682	EXTRUSION ASSEMBLY - STILE, MED - RO FACE	ALUMINUM-6063-T5
13	1	A828584	EXTRUSION ASSEMBLY - STILE, MED - LOCK/ASTRAGAL	ALUMINUM-6063-T5
14	1	E7188	EXTRUSION - ASTRAGAL (DOOR)	ALUMINUM-6063-T5
15	3	A83444	EXTRUSION ASSEMBLY - TOP RAIL 6"	ALUMINUM-6063-T5
16	3	A83100	EXTRUSION ASSEMBLY - BOTTOM RAIL 10"	ALUMINUM-6063-T5
17	12	E6891	EXTRUSION - GLASS STOP TOP & BOTTOM RAIL	ALUMINUM-6063-T5
18	6	E6223	EXTRUSION - INNER DOOR STOP	ALUMINUM-6063-T5
19	2	A83442	EXTRUSION ASSEMBLY - DOOR FRAME - HEADER	ALUMINUM-6063-T5
20	4	A83440	EXTRUSION ASSEMBLY - DOOR FRAME - JAMB	ALUMINUM-6063-T5
21	2	T6220	THERMAL WINDWELD	ALUMINUM-6063-T5
22				
23				
24				
25	80'	P2706	GASKET, GLASS, EPDM	P-PART-RUBBER
26	80'	P1112	GASKET, GLASS, EPDM (DOOR)	P-PART-RUBBER
27	80'	P2183	GASKET, GLASS, EPDM (DOOR)	P-PART-RUBBER
28	6	P1132	SETTING BLOCK 4" LG	P-PART-RUBBER
29	6	P1912	SETTING BLOCK 1/4 x 1/2 x 4" LG	P-PART-RUBBER
30	40'	P6886	SILL WEATHERSEAL	P-PART-WEATHERSEAL
31	20'	P838	PILE, DOOR STOP, ASSEMBLY GROUP	P-PART-PLASTIC/PILE
32	3	P6240	ELEMENT INSERTION (TOP & BOTTOM RAIL)	P-PART-RIGID PVC
33	3	P1274	CONCEALED SCREW WEATHERSTRIP 41 7/8" LG	P-PART-WEATHERSTRIP
34	2	P6804	END DAM FOR SUB SILL E24289	P-PART-ALUM JAMB SHIT.
35				
36				
37				
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59				

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
60	80	NA	SCREW - #8-11 x 3 1/2" PH WOOD (FRAME TO WOOD)	P-PART-FASTENER
61	8	NA	SCREW - 1/4" x 3" HEX FLH HD GALV LAG (PL TO WOOD ASSEMBLY)	P-PART-FASTENER
62	10	NA	SCREW - #8-1" x 2" FT HD WOOD (FRAME TO WOOD SILL)	P-PART-FASTENER
63	75	S870	SCREW - #8-24 x 1/2" FLAT HD PHL (DOOR)	P-PART-FASTENER
64	80	S341	SCREW - #10-24 x 3/4" FLAT HD PHL (GLAZING)	P-PART-FASTENER
65	4	S198	SCREW - #8 X 3/8" SELF TAPPING PAN HEAD (END DAM TO SUB SILL)	P-PART-FASTENER
66	30	S302	SCREW - #10-24 x 1" TYPE 23 HEX HEAD PHL (FRAME TO WOOD)	P-PART-FASTENER
67				
68	AS REQ'D	BY OTHERS	SILICONE SEALANT DOW 795	P-PART-SEALANT
69				
70				
71	1	NA	3'-0" x 7'-0" MEDIUM STILE THERMAL DOOR	DOOR ASSEMBLY
72	1	NA	6'-0" x 7'-0" MEDIUM STILE THERMAL DOOR	DOOR ASSEMBLY
73	X	P898	LABEL, DOOR, GREEN BRUSHED SILVER (DOOR) (NOT SHOWN)	P-PART-LABEL
74	X	P1538	SPRING, STEEL, ASTRAGAL, ADJUSTABLE, (DOOR)	P-PART-HARDWARE
75	X	P1553	WASHER, SCREW & SHOULDER SCREW (DOOR) (NOT SHOWN)	P-PART-FASTENER
76	X	S971	NUT, STUD, 3/8-16 X 1 (pass at mull) (per mull)	P-PART - FASTENER
77	X	S188	WASHER, 1 OD X 1/2 ID X .062 ALUMINUM (pass) (per mull)	P-PART - FASTENER
78	X	S191	SCREW, 10-24 X 1 FLAT HEAD PHL (at mull/stack mullion) (per mull)	P-PART - FASTENER
79	X	P809	SCREW, 10-24 X 1 PH MACH PHL (DOOR) (NOT SHOWN)	P-PART - FASTENER
80	X	P2008	ROD, THREADED 10, 7" (DOOR) (NOT SHOWN)	P-PART - FASTENER
81	X	P878	TAB - FOR MORTISED LOCKS (DOOR) (NOT SHOWN)	P-PART - HARDWARE
82	X	P883	WASHER, DOOR ROD (DOOR) (NOT SHOWN)	P-PART - HARDWARE
83	6	P2002	HINGE, BUTT, REINFORCEMENT (DOOR)	P-PART - HARDWARE
84	6	P882	BUTT HINGE, HAGAR 99-1151	P-PART - HARDWARE
85				
86				
87	X	P875	CYLINDER PARTS, P875-CS (DOOR)	P-PART - HARDWARE
88	X	P1833	M-35-0108 COLLAR, SPLIT RING CYL RYADON (DOOR)	P-PART - HARDWARE
89	X	P4000	ADAMS-RITE MS8535-480-000 ADAMS-TITE (DOOR)	P-PART - HARDWARE
90	X	P1780	HEADER BOLT, ADAM-RITE P1780-CS (DOOR)	P-PART - HARDWARE
91	X	P871	CYLINDER, LOCK (DOOR)	P-PART - HARDWARE
92	X	P2291	CLOSER, CORAL 6914, SURFACE MOUNT	P-PART - HARDWARE
93	X	P1430	DEAD BOLT	P-PART - HARDWARE
94	X	P898	PLUMB BOLTS	P-PART - HARDWARE
95	X	P1827	ROSEWOOD SPIRIT 10" PULL	P-PART - HARDWARE
96				
97				
98				
99				

DOOR PARTS AS REQ'D

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# C5776.01-113-11

Date 4/23/13 Tech K6.

TUBELITE
NON IMPACT
T24000 STOREFRONT
THERMAL & ACOUSTIC TESTING

TUBELITE
3056 WALKER RIDGE DRIVE N.W.
WALKER, MICHIGAN 49544
P.O. BOX 1497
FAX 616.361.0003
WEB SITE: WWW.TUBELITEINC.COM

NO.	DATED	BY	DESCRIPTION

DATED	LATEST RELEASE
1-07-13	1-18-13

DRAWING BY: MJP
ENGINEERED BY:
TEST ELEVATION

6.0

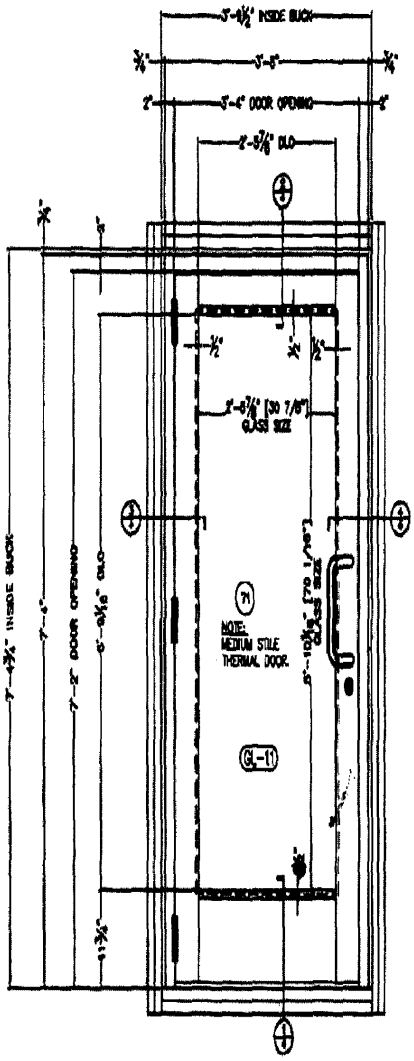
6 OF 6

Architectural Testing

Test sample complies with these details.
Deviations are noted.

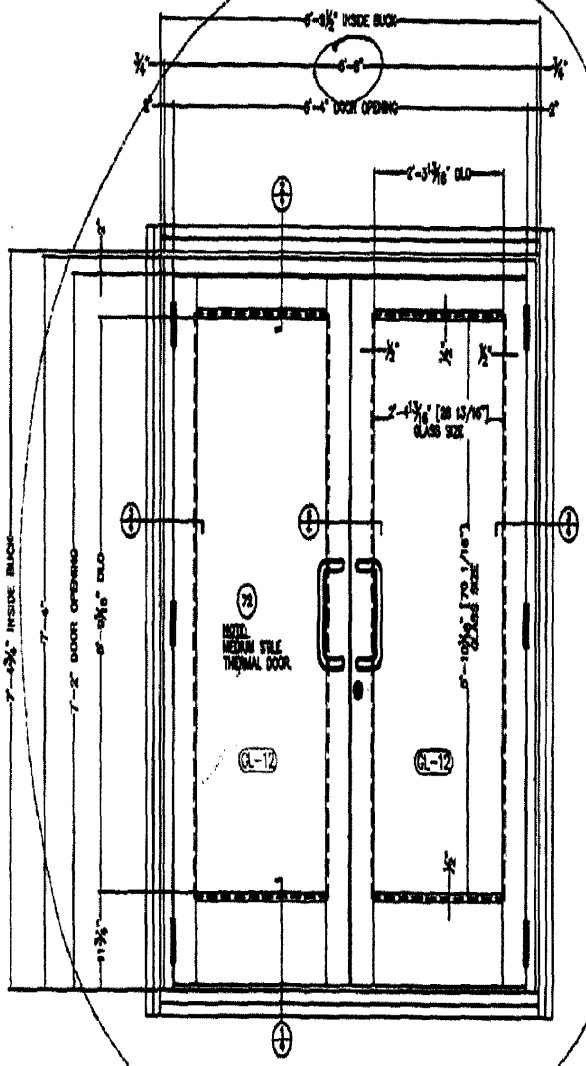
Report# C5726.01-113-11

Date 4/23/13 Tech K.G.



T24000 STOREFRONT TEST SPECIMEN 2
SINGLE DOOR ~ NON IMPACT

GLAZING NOTES:
1" GLASS ~ 1/4 TEMPERED 1/2 AIR SPACE ~~1/4" TEMPERED~~
DRY GLAZED



T24000 STOREFRONT TEST SPECIMEN 3
DOUBLE DOOR ~ NON IMPACT

GLAZING NOTES:
1-1/16" ~~1"~~ GLASS ~ 1/4 TEMPERED 1/2 AIR SPACE ~~1/4" TEMPERED~~
DRY GLAZED
5/16" LAMINATED

TUBELITE
NON IMPACT
T24000 STOREFRONT
THERMAL & ACOUSTIC TESTING

TUBELITE
3065 WALKER RIDGE DRIVE N.W.
GRAND RAPIDS, MI 49544
PH: 800.866.2227
FX: 616.301.0026
WEB SITE: WWW.TUBELITEINC.COM

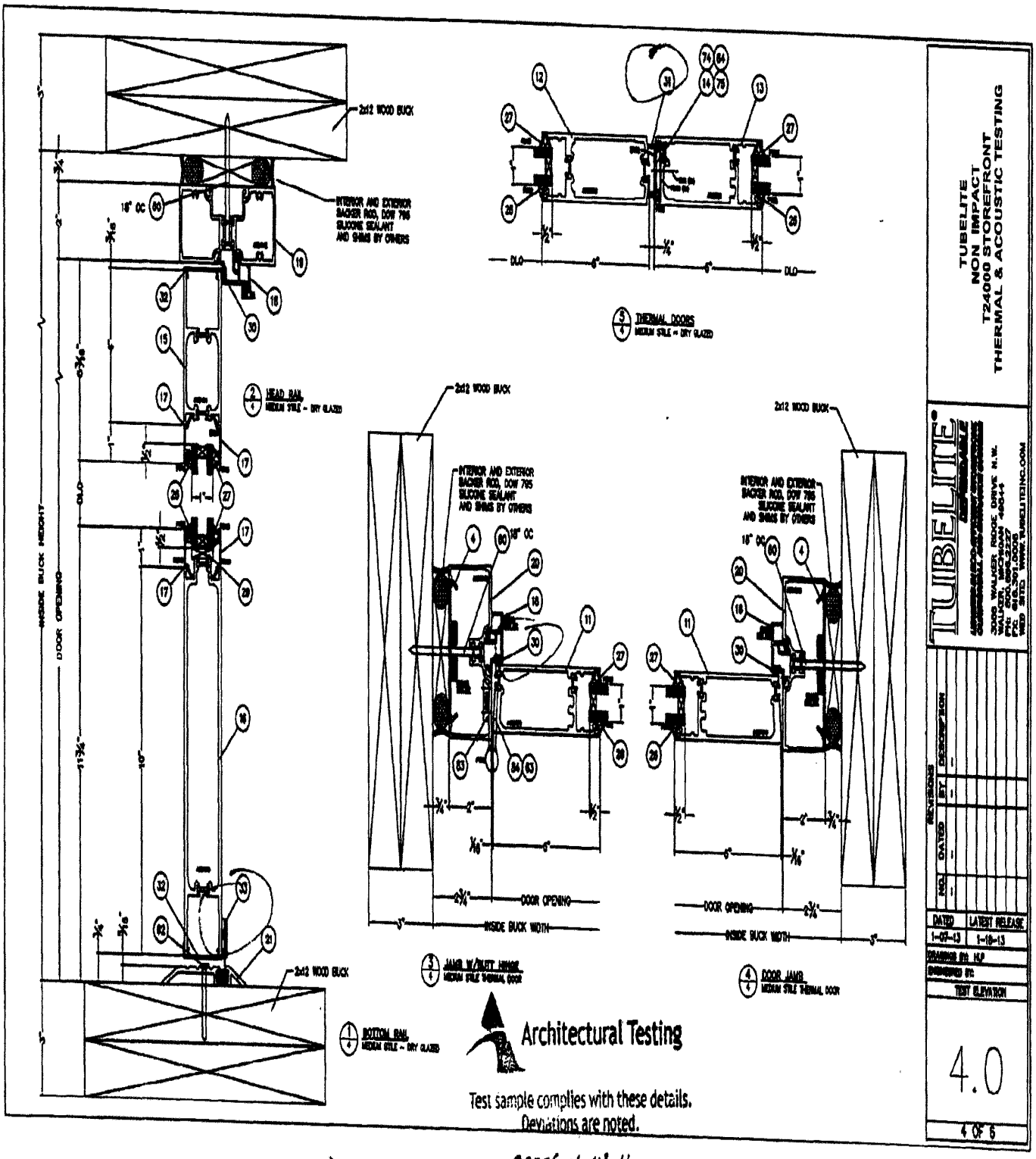
NO.	DATED	BY	DESCRIPTION
1	-	-	-

DATED	LATEST RELEASE
1-07-13	1-18-13

DRAWING BY: MP
ENGINEERED BY:
TEST ELEVATION

2.0

2 OF 6



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# C5776.01-113-11

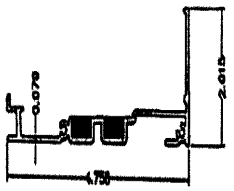
Date 4/3/13 Tech KG.

Architectural Testing

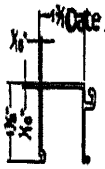
Test sample complies with these details.
Deviations are noted.

Report# C5776.01-113-11

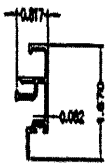
Date 9/13/13 Tech KG



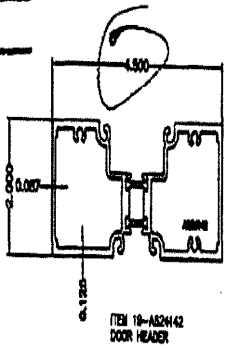
ITEM 1-E24059
THERMAL SUB SILL



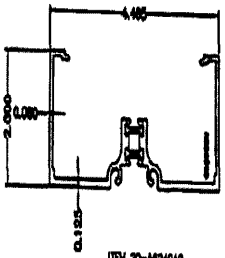
ITEM 6-E1404
GLAZING STOP



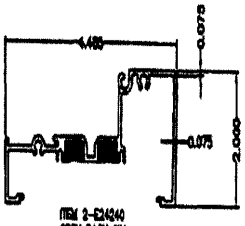
ITEM 18-E8225
INNER DOOR STOP



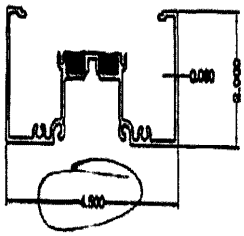
ITEM 19-A624142
DOOR HEADER



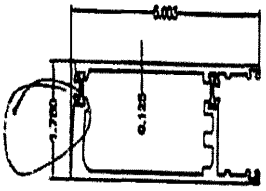
ITEM 20-A624040
DOOR JAMB



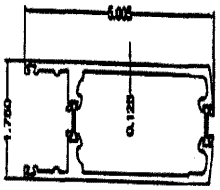
ITEM 2-E24440
OPEN BACK SILL



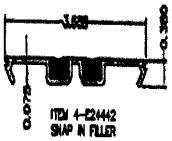
ITEM 3-E24441
THERMAL OPEN BACK HEAD/JAMB/VERTICAL



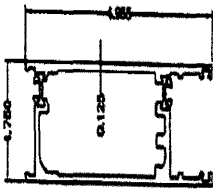
ITEM 11 - A627679
ASSEMBLY
MED STILE - HINGE



ITEM 12 - A628282
ASSEMBLY
MED RD FACE STILE

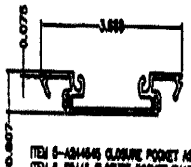


ITEM 4-E24442
SNAP IN FILLER

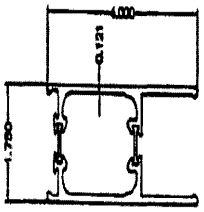


ITEM 13 - A628384
ASSEMBLY
MED STILE - LOCK W/ASTRAGAL

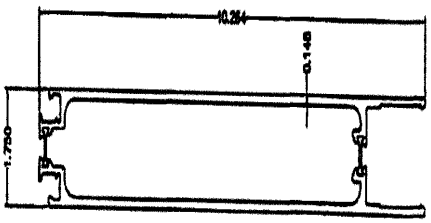
ITEM 14 - E1192
ASTRAGAL



ITEM 5-A944645 CLOSURE POCKET ASSEMBLY
ITEM 6-E2446 CLOSURE POCKET SNAP
ITEM 7-P6806 BRIDGE (PLASTIC)



ITEM 16 - A623414
ASSEMBLY
MED STILE TOP RAIL



ITEM 18 - A621010
ASSEMBLY
BOTTOM RAIL

ITEM 17 -E8291
GLAZING STOP

TUBELITE
NON IMPACT
T24000 STOREFRONT
THERMAL & ACOUSTIC TESTING

TUBELITE

3056 WALKER RIDGE DRIVE N.W.
WALKER, MICHIGAN 49544
PH: 616.784.5227
FX: 616.301.0008
WEB SITE: WWW.TUBELITEINC.COM

REVISIONS			
NO.	DATED	BY	DESCRIPTION
1	-	-	-

DATED	LATEST RELEASE
1-07-13	1-10-13

DRAWN BY: MP
ENGINEERED BY:

TEST ELEVATION

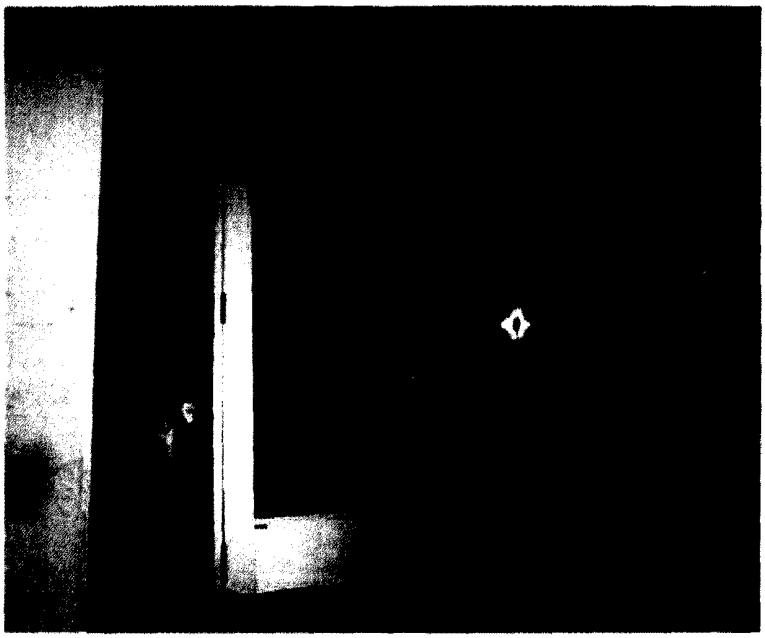
5.0

5 OF 6

Appendix D

Photographs

Receive Room View of Installed Specimen



Source Room View of Installed Specimen

Appendix J

Alternate Means of Ventilation Equipment Specifications

For Mechanical Equipments Schedule, see Dwg. M-025~M-028.

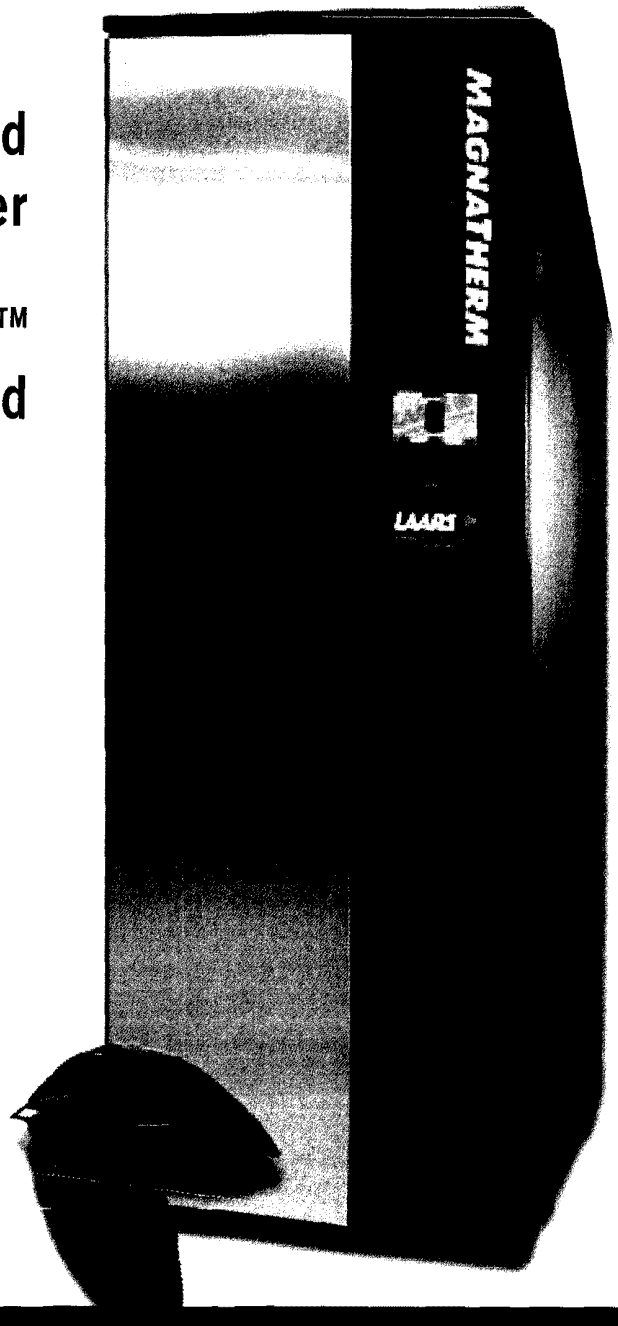
1. Heating Hot Water Boiler specification;
2. Expansion Tank specification;
3. Cooling Tower Specification;
4. Pump Specification;
5. Water-Cold Heat Pump AC specification;
6. Electrical Heater specification;
7. Water-Cold Swimming Pool AC specification

MAGNATHERM®

COMMERCIAL HIGH EFFICIENC

Condensing Boiler and Volume Water Heater

with VARI-PRIME™ Pump Control On-Board



MADE IN AMERICA

2.0, 2.5, 3.0, 3.5 and 4.0 MILLION BTU/HR

95% Certified Thermal Efficiency

Indoor and Outdoor Installation

Laars Heat Exchanger Design

LAARS Heating Systems Company

THE MAGNATHERM

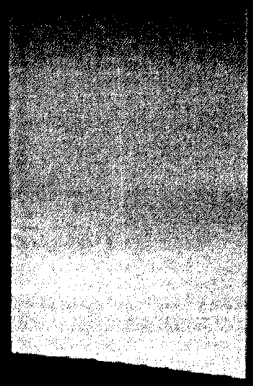
CONDENSING BOILER & VOLUME WATER HEATER

A Perfect Balance of Size, Form and Function

Every commercial heating system is unique and as such requires a boiler that can respond to system fluctuations, while maintaining the energy conservation standards held by today's building owners. Such a boiler now exists in the innovative Laars MagnaTherm.

On board every boiler is MagnaTherm's unique VARI-PRIME™ control that allows building owners to save thousands of dollars over the life of the boiler due to dramatically reduced energy costs versus a typical on/off pump arrangement. Only the Laars MagnaTherm includes the VARI-PRIME™ control that balances combustion, air flow and water flow on every boiler!

The MagnaTherm's small footprint, slim vertical design and removable top section help it to fit into tight mechanical rooms. It's optional electrical packages allow for easy pairing with various field supply voltages. And the large easy-to-navigate color touch screen display results in quick setup and diagnostics and allows up to 8 MagnaTherms to be controlled in a cascading boiler bank.

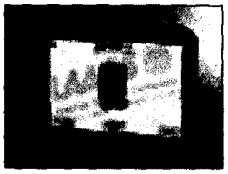


Features:

- Laars designed and built heat exchanger
- Stylish, modern cabinet design
- Up to 99% thermal efficiency, condensing operation
- Reliable, smooth starting hot surface ignition
- Optimized gas usage for lower energy bills via a 5:1 (20% to 100% input) modulating gas valve
- Quiet, variable speed blower
- VARI-PRIME™, variable speed pump control matches system pump with boiler modulation to optimize efficiency
- Small footprint compared to others in class
- Forward mounted low voltage panel for easy wiring and trouble shooting
- Unique, sealed condensate trap does not need to be primed at startup
- Single or up to 8 boilers in a cascade installation
- Up to 100 feet of vent
- Meets the most stringent NOx emission requirements
- 439 Stainless Steel Heat Exchanger for increased corrosion resistance
- Advanced control system with temperature control, diagnostics, outdoor reset capability, and easy access for field wiring
- 10-year heat exchanger warranty

LAARS
Heating Systems Company

Getting to know the MAGNATHERM



Large Color Touch Screen
A multi-color, simple to use smart touch screen display allows you to fully control and setup the MagnaTherm.

Removable Top Section
An easy-to-remove top blower section makes getting into tight spaces and elevators a smooth operation!

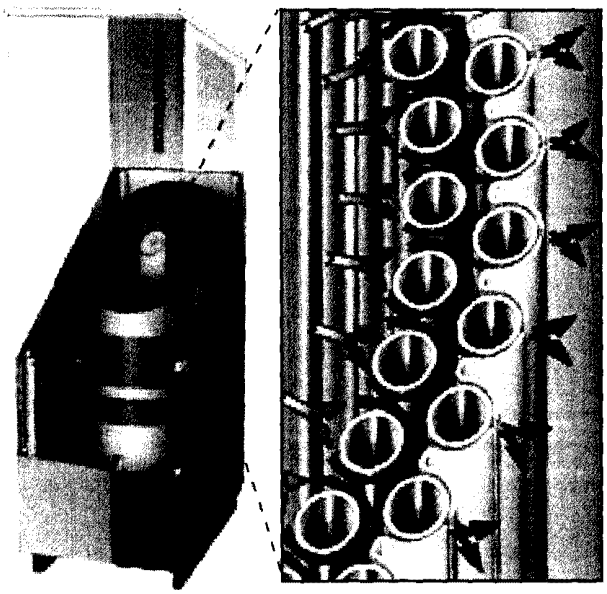
Full Access
Two full-swing removable doors allow complete access to electrical, controls, gas valves and accessories from the front of the MagnaTherm for quick setup.

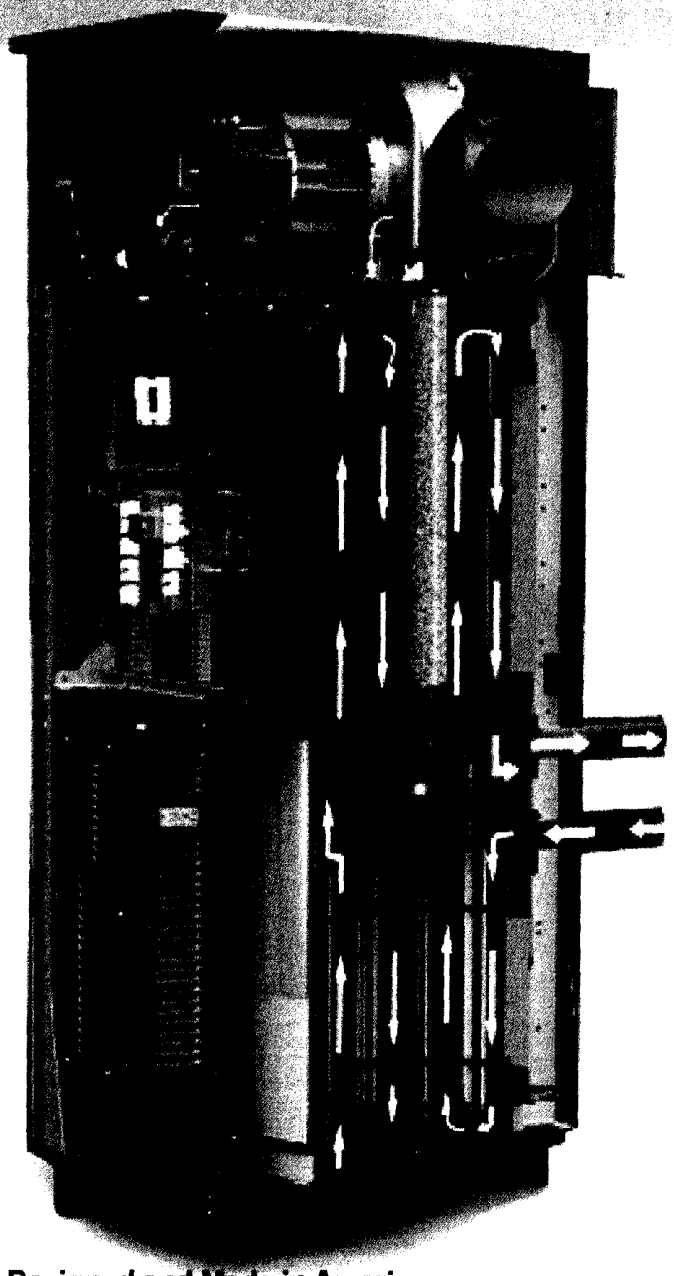
Electrical Flexibility
The MagnaTherm comes with a centralized electrical load center that allows for various voltage packages (single and three phase), to better match job site requirements.

Superior Heat Exchanger Materials
The MagnaTherm uses American produced 439 and 316 SS heat exchanger materials to withstand the extreme temperatures and caustic conditions found in high efficiency combustion chambers.

Indoor / Outdoor Installation

Slim Design, Small Footprint
The MagnaTherm's width allows it to fit through standard doorways.





Designed and Made in America
The MagnaTherm's heat exchanger design is the latest from Laars engineering. You can rely on years of worry free service knowing that the heart of the MagnaTherm was designed and built at the Laars manufacturing headquarters in Rochester, NH USA.

Optimized Heat Transfer Technology and Extended Life
The MagnaTherm's efficiency secret lies in its precise alignment of micro-finned heating tubes combined with highly engineered flue gas channels. This arrangement optimizes the flow of flue gases in order to transfer maximum heat to the water inside the heating tubes and extending heat exchanger life.

Boasting an AHRI certified 95% or higher Thermal Efficiency, indoor or outdoor certification, a 5:1 turndown and the Laars boiler VARI-PRIME™ control package, the Laars MagnaTherm is the clear choice when selecting a high efficiency boiler or volume water heater.

Sizing Data, for the MAGNATHERM

Dimensional Data

Size	A		B		C		D		E 'Knock-down' Height		Water Connection	Gas Connection	Condensate Trap Line
	Inches	cm	Inches	cm	Inches	cm	Inches	cm	Inches	cm	Groove Lock	(NPT)	
2000	29.3	75	79	201	38.0	96	57.5	147	60.8	154	3"	2"	1"
2500	30.8	78	87	221	41.5	105	60.5	154	71.0	180	3"	2"	1"
3000	30.8	78	87	221	41.5	105	60.5	178	71.0	180	3"	2"	1"
3500	34.5	88	97	246	52.0	132	70.0	178	80.8	205	4"	2"	1"
4000	34.5	88	97	246	52.0	132	70.0	178	80.8	205	4"	2"	1"

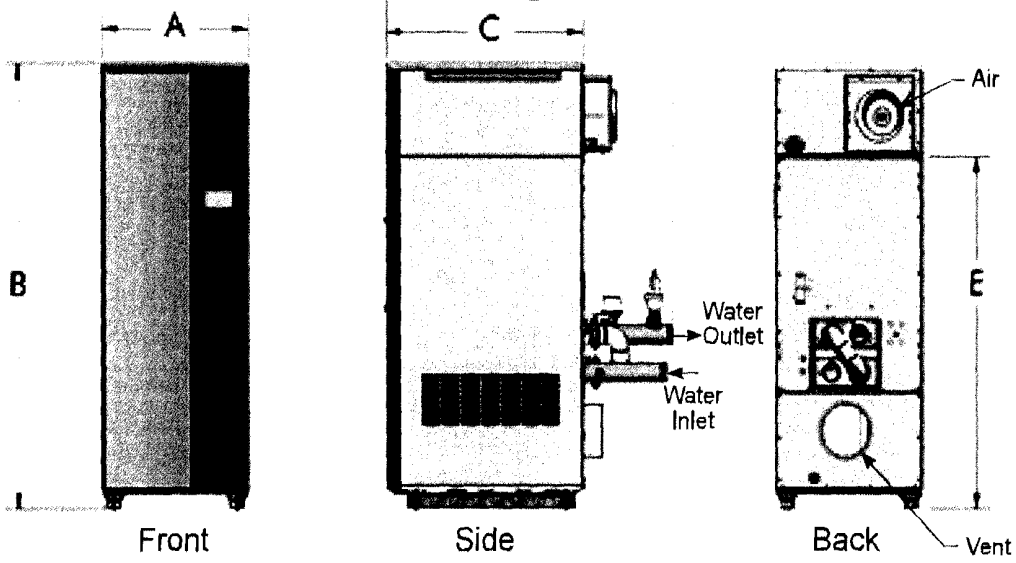
Sizing Data

Size	Input Rate		Output Rate		Boiler Thermal Efficiency	Water Heater Thermal Efficiency	Product Weight		Operating Weight		Shipping Weight		Minimum Gas Supply		Vent Diameter	Vent Length
	MBH	KW	MBH	KW	%	%	Lbs	Kg	Lbs	Kg	Lbs	Kg	" w.c.	Pa	in (cm)	ft (m)
2000	1999	586	1883	552	95.0	96	1390	630	1562	709	1590	721	4	996	8 (20)	100 (30.5)
2500	2499	732	2374	696	95.0	96	1785	810	2039	925	1985	900	4	996	8 (20)	100 (30.5)
3000	3000	879	2814	825	95.0	95	1785	810	2039	925	1985	900	4	996	10 (25)	100 (30.5)
3500	3500	1025	3317	972	95.0	96	2278	1033	2742	1244	2478	1124	4	996	10 (25)	100 (30.5)
4000	4000	1172	3724	1091	95.0	96	2278	1033	2742	1244	2478	1124	4	996	12 (30)	100 (30.5)

Venting and piping locations on Back of MagnaTherm do vary from size to size.

For further details of MagnaTherm specifications, please see the MagnaTherm Submittal Data Sheets which are available online at www.laars.com

MADE IN AMERICA



Boiler, Water Flow Requirements

Size	Temperature Rise in °F					
	30°F		35°F		40°F	
	Flow	Head Loss*	Flow	Head Loss*	Flow	Head Loss*
	GPM	Feet	GPM	Feet	GPM	Feet
2000	128	23.5	109	17.1	95	13.6
2500	158	23.6	136	17.6	119	13.6
3000	190	34.2	164	25.8	142	18.9
3500	222	30.6	190	23.6	166	18.6
4000	255	38.2	218	28.5	190	22.5

Size	Temperature Rise in °C					
	17°C		19°C		22°C	
	Flow	Head Loss*	Flow	Head Loss*	Flow	Head Loss*
	LPM	m	LPM	m	LPM	m
2000	485	7.2	413	5.2	360	4.2
2500	599	7.0	514	5.0	449	4.1
3000	719	10.4	621	7.9	538	5.8
3500	839	9.0	719	7.0	629	6.0
4000	965	11.6	825	8.7	719	6.9

Volume Water Heater, Flow Requirements

Size	Flow Rate	Temp Rise	Headloss*	Flow Rate	Temp Rise	Headloss*
	GPM	°F	Ft	LPM	°C	m
2000	152	25	33.0	575	14	10.1
2500	190	25	33.7	719	13.9	10.0
3000	190	30	36.0	719	17	11
3500	222	30	30.6	839	17	9.0
4000	224	34	30.0	848	19	9.1

Water Hardness of 1-10 grains per gallon. Allowable pH: 6.5 to 9.5
*Headloss is for the heater only (no piping).

MagnaTherm Electrical Options

Voltage	Current (FLA)				
	2000	3500	3000	3500	4000
120V Single Phase	22.6	N/A	N/A	N/A	N/A
220V Single Phase	11.3	N/A	N/A	N/A	N/A
208V Three Phase	12.7	19.4	19.4	19.4	19.4
480V Three Phase	6.2	8.7	8.7	8.7	8.7
600V Three Phase	4.5	5.9	5.9	5.9	5.9

VARI-PRIME™ Control Technology

Laars VARI-PRIME™ flow control matches the modulation rate of a MagnaTherm's combustion system to the rate of a variable speed boiler pump. This unique on board control allows the MagnaTherm boiler to mirror the heating system's profile during varying load conditions and optimize overall efficiency.

Boiler pumps are typically sized for the maximum flow that a boiler needs, but boilers rarely operate at maximum capacity. A pump's power consumption can drop by as much as 50% with only a 20% reduction in speed. By replacing a boiler's typical on/off pump with a VARI-PRIME™ equipped MagnaTherm control and variable speed pump, over a thousand dollars in boiler pump watt usage can be saved per year. The payback for the variable speed pump setup can be realized in as little as one year!

The combined potential energy savings of the MagnaTherm's high efficiency combustion coupled with the VARI-PRIME™ control system is huge. Only the Laars MagnaTherm with built in VARI-PRIME™ controls can offer such savings in one package!

VARI-PRIME™ Pump Control Energy Savings Example

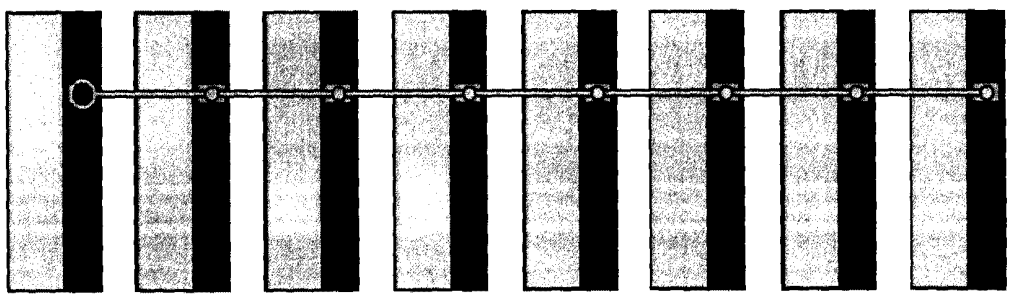
Typical boiler pump energy use seen over a full heating season located in upstate New York (September through April).

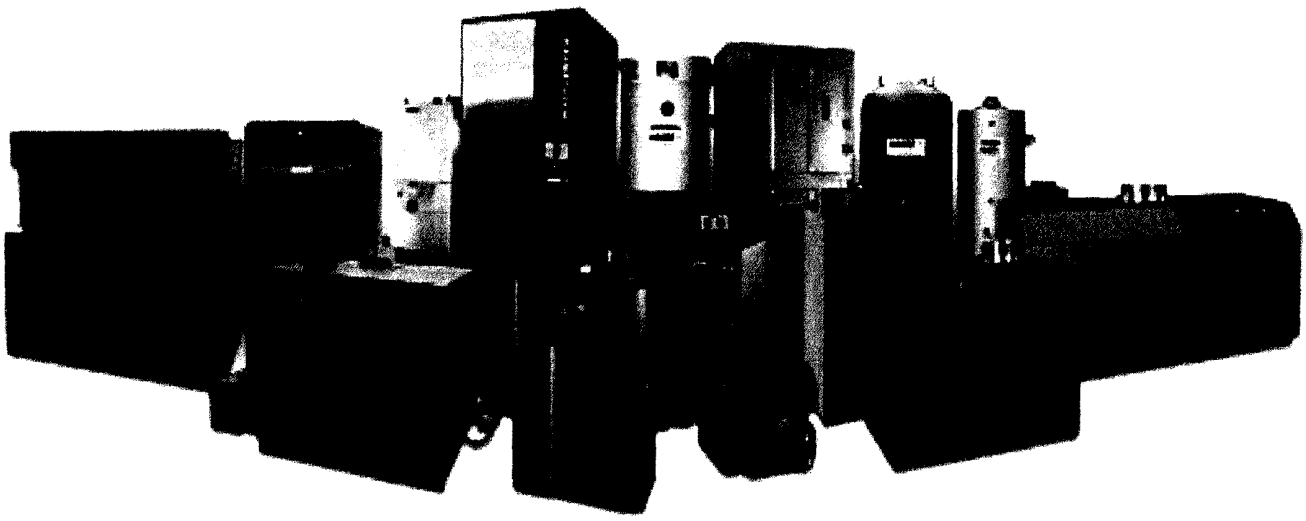
When an On/Off Boiler Pump is used - kWH consumed	18,773
When the Laars VARI-PRIME is used - kWH consumed	5,540
Annual VARI-PRIME™ kWH savings	**13,233**
Annual Percent Pump Electrical Savings	**70%**
Annual Dollar Savings*	**$1,417**

A Three Million BTU/hr MagnaTherm using VARI-PRIME™ pump control and a Goulds 22SH variable speed boiler pump were used in this example.
*2013 US Average of 11 cents per KWH used, source US Energy Information Administration.
See Laars VARI-PRIME™ white paper 9185 for complete details.

Lead Lag Cascading of up to 8 MagnaTherms

The advanced MagnaTherm control system also includes a cascading feature that allows for up to eight units to be lead lagged together. This results in a modulating heating cell of up to 32 million BTU/hr with a combined 40:1 turndown. Also included is an auto rotation function that periodically changes lead boiler to evenly spread service between all boilers. Communication with Building Automation Systems happens seamlessly via a built-in Modbus protocol included with all MagnaTherm boilers. The Laars Gateway is available for use with BacNET and LON networks.





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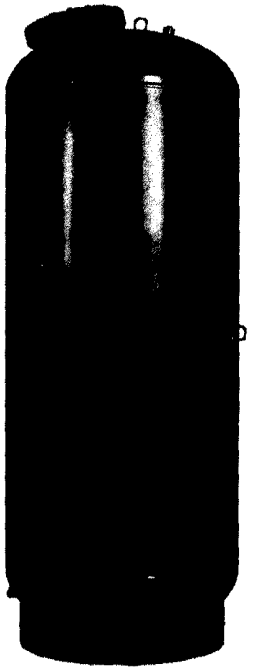
- Increases System Performance
- Reduces Oxygen Corrosion
- Prevents Waterlogging
- Replaceable Bladder
- Meets ASME Section VIII, Division 1 Standards
- 125 PSI Working Pressure Standard
- High Maximum Operating Temperature 240°F
- Seismic Restraints Available
- Sight Glass Available
- Higher Working Pressure of 175 PSI & 250 PSI Available



Designed for Closed Hydronic Heating and Cooling Systems

ASME Expansion Tanks

SERIES B FULL ACCEPTANCE PRE-CHARGED BLADDER TANKS

Bell & Gossett
a xylem brand

A-350C

Series B Full acceptance Tanks

Expansion tank
t-1 and t-2

DESCRIPTION

Series B expansion tanks are ASME rated pre-charged bladder-type pressure vessels. The Series B tank is designed to absorb the expansion forces of heating/cooling system water while maintaining proper system pressurization under varying operating conditions. The heavy duty bladder contains system water thereby eliminating tank corrosion and waterlogging problems.

OPERATING DATA

Maximum working pressure ..... 125 PSI (862kPa)
Maximum operating temperature ..... 240°F (115°C)

MATERIALS OF CONSTRUCTION

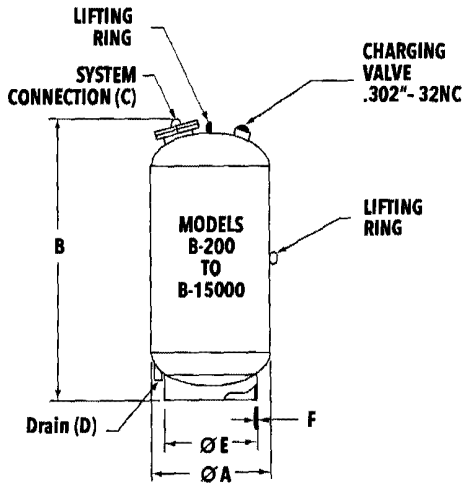
System Connection: Forged Steel
Shell: Carbon Steel
Bladder: Heavy Duty Butyl Rubber
Designed and Constructed per ASME Sec tion VIII, Division 1

Dimensions: Gallons (Ltrs.), Inches (mm), Weights: LBS (KG)

PART NUMBER	MODEL NUMBER	TANK VOLUME	ACCEPTANCE VOLUME	A	B	C (NPTF)	D	E	F	APPROX. SHPG. WT.	APPROX. WT. 100% FULL*
116550	B-200	53 (200)	53 (200)	24 (610)	36 7/8 (936)	1	3/4	19 (483)	3/16 (5)	192 (87)	629 (285)
116551	B-300	80 (300)	80 (300)		50 7/8 (1292)					268 (122)	928 (421)
116552	B-400	106 (400)	106 (400)		64 3/4 (1644)					309 (140)	1184 (537)
116553	B-500	132 (500)	132 (500)		78 (1981)					328 (149)	1417 (643)
116554	B-600	158 (600)	158 (600)	30 (762)	63 3/4 (1619)	1 1/2	1	24 (610)		510 (232)	1814 (823)
116555	B-800	211 (800)	211 (800)		81 3/4 (2076)					656 (297)	2306 (1046)
116556	B-1000	264 (1000)	264 (1000)	36 (914)	73 (1854)		1 1/4	30 (762)		691 (313)	2869 (1301)
116557	B-1200	317 (1200)	317 (1200)		85 3/8 (2169)					779 (353)	3394 (1539)
116558	B-1400	370 (1400)	370 (1400)		97 3/4 (2483)					905 (410)	3958 (1795)
116559	B-1600	422 (1600)	422 (1600)	48 (1219)	69 1/8 (1756)		1 1/2	42 (1067)	1/4 (6)	1183 (537)	4665 (2116)
116560	B-2000	528 (2000)	528 (2000)		84 (2145)					1264 (573)	5620 (2549)
116793	B-2500	660 (2500)	660 (2500)		100 7/8 (2562)	2				1445 (655)	6890 (3125)
116794	B-3000	792 (3000)	792 (3000)		118 1/8 (3000)					1630 (739)	8164 (3703)
116795	B-3500	925 (3500)	925 (3500)	54 (1372)	111 (2820)					2110 (957)	9741 (4418)
116796	B-4000	1057 (4000)	1057 (4000)		124 1/2 (3163)					2230 (1011)	10950 (4967)
116819	B-5000	1321 (5000)	1321 (5000)	60 (1524)	128 (3251)					2450 (1111)	13403 (6079)
116841	B-7500	1980 (7500)	1980 (7500)	72 (1829)	127 (3326)	3		54 (1372)	3/8 (10)	4000 (1814)	20500 (9299)
116842	B-10000	2640 (10000)	2640 (10000)		159 (4039)					4900 (2223)	26890 (12197)
116843	B-15000	3963 (15000)	3963 (15000)		233 (5918)					6000 (2721)	39010 (17695)

Dimensions subject to change. Not to be used for construction purposes *Approximate weight 100% full occurs if bag fails or if air charge is lost.
Refer to submittals for optional seismic restraints.

TYPICAL HYDRONIC HEATING/COOLING APPLICATION



NOTE: Tanks are factory pre-charged at 12 PSI (83kPa).

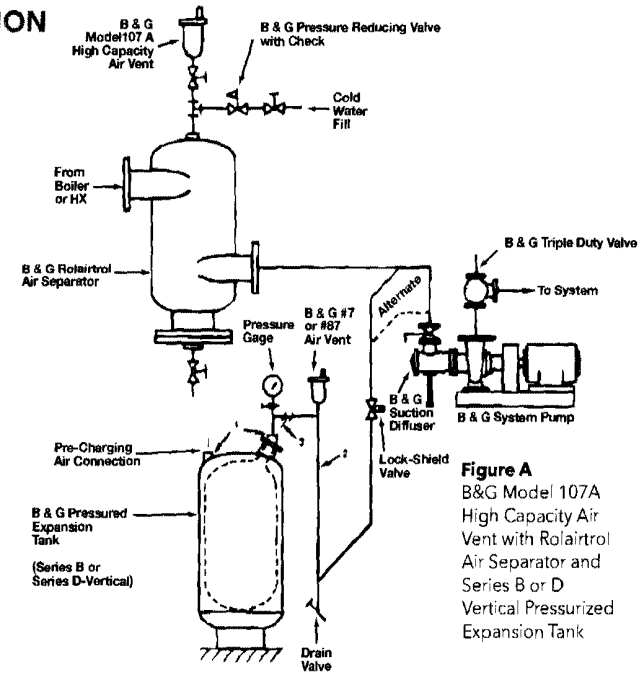


Figure A
B&G Model 107A High Capacity Air Vent with Rolairtrol Air Separator and Series B or D Vertical Pressurized Expansion Tank

xylem
Let's Solve Water

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Morton Grove, Illinois 60053
Phone: (847) 966-3700
Fax: (847) 965-8379
www.bellgossett.com

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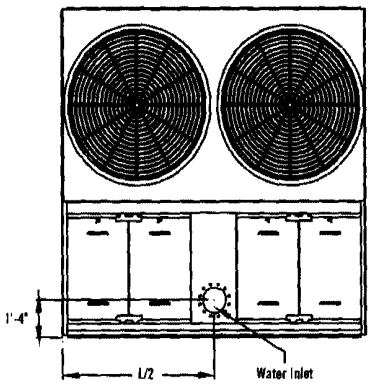
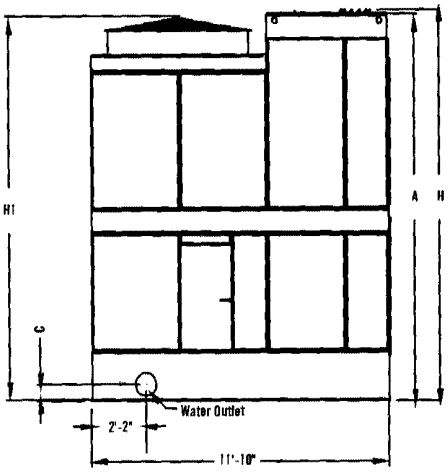
Series 1500 Engineering Data

NOTE: Do not use for construction. Refer to factory certified dimensions. This catalog includes data current at the time of publication, which should be reconfirmed at the time of purchase. Up-to-date engineering data, free product selection software, and more can be found at **www.BaltimoreAircoil.com**.

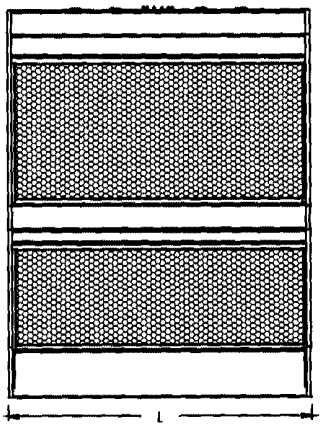
Plan View



Face A



Face D

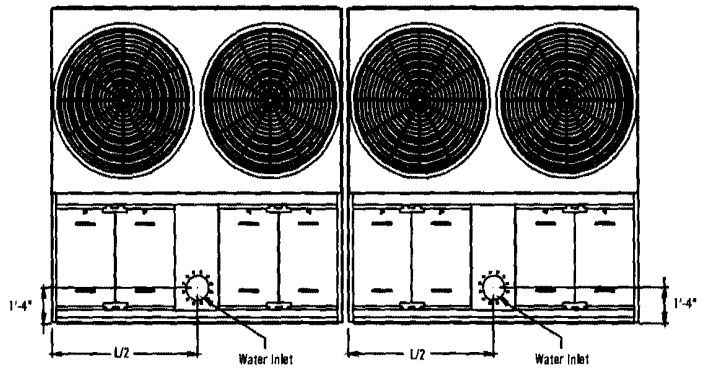


NOTES:

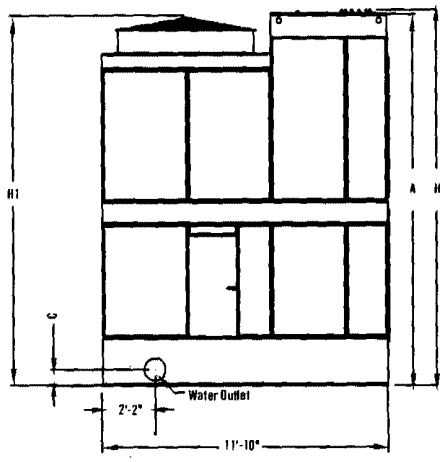
1. The specific size of the inlet and outlet connection may vary with the cooling water design flow rate. Consult unit print for dimensions.

NOTE: Do not use for construction. Refer to factory certified dimensions. This catalog includes data current at the time of publication, which should be reconfirmed at the time of purchase. Up-to-date engineering data, free product selection software, and more can be found at **www.BaltimoreAircoil.com**.

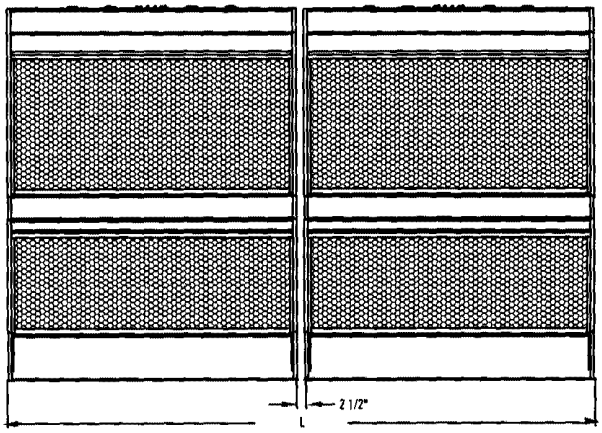
Plan View



Face A



Face D



NOTES:

1. The specific size of the inlet and outlet connection may vary with the cooling water design flow rate. Consult unit print for dimensions.

Series 1500 Single Cell Data

COOLING TOWER
CT-R-1, CT-R-2, CT-H-1, CT-H-2

Model Number	Nominal Tonnage[1]	Motor HP	Optional Dual Drive Fan Motor HP	Fan (CFM)	Weights (lbs)			Dimensions				
					Operating[2]	Shipping	Heaviest Section	L	H	H1	A	C
S15E-1285-06JN	158	7.5	-	38,020	9,100	4,310	4,310	8'-6"	10'-0"	9'-9"	9'-11"	8 1/4"
S15E-1285-06KN	173	10	-	41,520	9,110	4,320	4,320	8'-6"	10'-0"	9'-9"	9'-11"	8 1/4"
S15E-1285-06LN	198	15	-	47,090	9,240	4,450	4,450	8'-6"	10'-0"	9'-9"	9'-11"	8 1/4"
S15E-1285-07KN	189	10	-	44,040	9,670	4,640	4,640	8'-6"	11'-4"	11'-1"	11'-3"	8 1/4"
S15E-1285-07LN	217	15	-	50,310	9,790	4,760	4,760	8'-6"	11'-4"	11'-1"	11'-3"	8 1/4"
S15E-1285-07MN	236	20	-	54,550	9,850	4,820	4,820	8'-6"	11'-4"	11'-1"	11'-3"	8 1/4"
S15E-1285-09KN	223	10	-	50,570	11,760	5,770	3,260	8'-6"	14'-4"	14'-4"	14'-1"	8 1/4"
S15E-1285-09LN	253	15	-	57,100	11,880	5,890	3,380	8'-6"	14'-4"	14'-4"	14'-1"	8 1/4"
S15E-1285-09MN	276	20	-	62,250	11,940	5,950	3,440	8'-6"	14'-4"	14'-4"	14'-1"	8 1/4"
S15E-1285-10LN	264	15	-	59,420	12,630	6,160	3,380	8'-6"	15'-8"	15'-8"	15'-5"	8 1/4"
S15E-1285-10MN	289	20	-	64,740	12,690	6,220	3,440	8'-6"	15'-8"	15'-8"	15'-5"	8 1/4"
S15E-1285-10NN	310	25	-	69,230	12,720	6,250	3,470	8'-6"	15'-8"	15'-8"	15'-5"	8 1/4"
S15E-1212-07JN	282	(2) 7.5	(1) 15	66,220	14,160	6,310	6,310	12'-0"	11'-4"	11'-1"	11'-3"	8 1/4"
S15E-1212-07KN	309	(2) 10	(1) 20	72,070	14,190	6,340	6,340	12'-0"	11'-4"	11'-1"	11'-3"	8 1/4"
S15E-1212-07LC	332	(2) 15	(1) 25	76,950	14,440	6,590	6,590	12'-0"	11'-4"	11'-1"	11'-3"	8 1/4"
S15E-1212-09JN	328	(2) 7.5	(1) 15	74,490	16,770	8,060	4,650	12'-0"	14'-3"	13'-11"	14'-1"	8 1/4"
S15E-1212-09KN	358	(2) 10	(1) 20	81,000	16,800	8,090	4,680	12'-0"	14'-3"	13'-11"	14'-1"	8 1/4"
S15E-1212-09LC	383	(2) 15	(1) 25	86,420	17,050	8,340	4,930	12'-0"	14'-3"	13'-11"	14'-1"	8 1/4"
S15E-1212-09LN	401	(2) 15	(1) 30	91,310	17,050	8,340	4,930	12'-0"	14'-3"	13'-11"	14'-1"	8 1/4"
S15E-1212-10KN	376	(2) 10	(1) 20	84,500	17,510	8,450	4,680	12'-0"	15'-7"	15'-3"	15'-5"	8 1/4"
S15E-1212-10LC	402	(2) 15	(1) 25	90,130	17,760	8,700	4,930	12'-0"	15'-7"	15'-3"	15'-5"	8 1/4"
S15E-1212-10LN	421	(2) 15	(1) 30	95,220	17,760	8,700	4,930	12'-0"	15'-7"	15'-3"	15'-5"	8 1/4"
S15E-1212-10MN	459	(2) 20	(1) 40	103,680	17,880	8,820	5,050	12'-0"	15'-7"	15'-3"	15'-5"	8 1/4"
S15E-1212-11KN	387	(2) 10	(1) 20	87,560	18,380	8,810	4,680	12'-0"	16'-11"	16'-7"	16'-9"	8 1/4"
S15E-1212-11LC	414	(2) 15	(1) 25	93,370	18,630	9,060	4,930	12'-0"	16'-11"	16'-7"	16'-9"	8 1/4"
S15E-1212-11LN	434	(2) 15	(1) 30	98,620	18,630	9,060	4,930	12'-0"	16'-11"	16'-7"	16'-9"	8 1/4"
S15E-1212-11MN	478	(2) 20	(1) 40	107,330	18,750	9,180	5,050	12'-0"	16'-11"	16'-7"	16'-9"	8 1/4"
S15E-1212-12KN	401	(2) 10	(1) 20	90,280	18,750	9,180	4,680	12'-0"	18'-3"	17'-11"	18'-1"	8 1/4"
S15E-1212-12LC	429	(2) 15	(1) 25	96,240	19,000	9,430	4,930	12'-0"	18'-3"	17'-11"	18'-1"	8 1/4"
S15E-1212-12LN	449	(2) 15	(1) 30	101,620	19,000	9,430	4,930	12'-0"	18'-3"	17'-11"	18'-1"	8 1/4"
S15E-1212-12MN	495	(2) 20	(1) 40	110,560	19,120	9,550	5,050	12'-0"	18'-3"	17'-11"	18'-1"	8 1/4"

Model Number	Nominal Tonnage[1]	Motor HP	Optional Dual Drive Fan Motor HP	Fan (CFM)	Weights (lbs)			Dimensions				
					Operating[2]	Shipping	Heaviest Section	L	H	H1	A	C
S15E-1218-07JN	427	(3) 7.5	(1) 15 & (1) 7.5	100,050	23,470	9,680	9,680	18'-0"	11'-10"	11'-10"	11'-9"	16 1/4"
S15E-1218-07KN	466	(3) 10	(1) 20 & (1) 10	108,900	23,510	9,720	9,720	18'-0"	11'-10"	11'-10"	11'-9"	16 1/4"
S15E-1218-07LC	501	(3) 15	(1) 25 & (1) 15	116,280	23,890	10,100	10,100	18'-0"	11'-10"	11'-10"	11'-9"	16 1/4"
S15E-1218-09JN	490	(3) 7.5	(1) 15 & (1) 7.5	112,420	27,220	12,130	6,970	18'-0"	14'-9"	14'-8"	14'-7"	16 1/4"
S15E-1218-09KN	535	(3) 10	(1) 20 & (1) 10	122,270	27,260	12,170	7,010	18'-0"	14'-9"	14'-8"	14'-7"	16 1/4"
S15E-1218-09LC	572	(3) 15	(1) 25 & (1) 15	130,460	27,640	12,550	7,390	18'-0"	14'-9"	14'-8"	14'-7"	16 1/4"
S15E-1218-09LN	606	(3) 15	(1) 30 & (1) 15	137,860	27,640	12,550	7,390	18'-0"	14'-9"	14'-8"	14'-7"	16 1/4"
S15E-1218-10KN	561	(3) 10	(1) 20 & (1) 10	127,510	28,560	12,680	7,010	18'-0"	16'-1"	16'-0"	15'-11"	16 1/4"
S15E-1218-10LC	600	(3) 15	(1) 25 & (1) 15	136,020	28,940	13,060	7,390	18'-0"	16'-1"	16'-0"	15'-11"	16 1/4"
S15E-1218-10LN	629	(3) 15	(1) 30 & (1) 15	143,710	28,940	13,060	7,390	18'-0"	16'-1"	16'-0"	15'-11"	16 1/4"
S15E-1218-10MN	694	(3) 20	(1) 40 & (1) 20	156,490	29,120	13,240	7,570	18'-0"	16'-1"	16'-0"	15'-11"	16 1/4"
S15E-1218-11KN	584	(3) 10	(1) 20 & (1) 10	132,110	29,340	13,200	7,010	18'-0"	17'-5"	17'-4"	17'-3"	16 1/4"
S15E-1218-11LC	625	(3) 15	(1) 25 & (1) 15	140,890	29,720	13,580	7,390	18'-0"	17'-5"	17'-4"	17'-3"	16 1/4"
S15E-1218-11LN	655	(3) 15	(1) 30 & (1) 15	148,810	29,720	13,580	7,390	18'-0"	17'-5"	17'-4"	17'-3"	16 1/4"
S15E-1218-11MN	722	(3) 20	(1) 40 & (1) 20	161,970	29,900	13,760	7,570	18'-0"	17'-5"	17'-4"	17'-3"	16 1/4"
S15E-1218-12KN	605	(3) 10	(1) 20 & (1) 10	136,180	30,390	13,730	7,010	18'-0"	18'-9"	18'-8"	18'-7"	16 1/4"
S15E-1218-12LC	647	(3) 15	(1) 25 & (1) 15	145,190	30,770	14,110	7,390	18'-0"	18'-9"	18'-8"	18'-7"	16 1/4"
S15E-1218-12LN	678	(3) 15	(1) 30 & (1) 15	153,320	30,770	14,110	7,390	18'-0"	18'-9"	18'-8"	18'-7"	16 1/4"
S15E-1218-12MN	747	(3) 20	(1) 40 & (1) 20	166,820	30,950	14,290	7,570	18'-0"	18'-9"	18'-8"	18'-7"	16 1/4"

NOTES FOR DOUBLE CELL UNITS:

1. Nominal tons of cooling represents the capability to cool 3 USGPM of water from a 95°F entering water temperature to an 85°F leaving water temperature at a 78°F entering wet-bulb temperature.
2. Operating weight is based on the water level in the cold water basin at overflow height. If a lower operating weight is needed to meet design requirements, your local BAC Representative can provide additional assistance.
3. Refer to **page B61** for dimensional reference drawings.
4. Unless otherwise indicated all connections 3" and smaller are MPT. Connections 4" and larger are beveled for welding and mechanically grooved.

Do not use for construction. Refer to factory certified dimensions. This catalog includes data current at the time of publication, which should be reconfirmed at the time of purchase.

XE Model Data

Model Number	Nominal Tonnage[1]	Motor HP	Optional Dual Drive Fan Motor HP	Fan (CFM)	Weights (lbs)			Dimensions				
					Operating[2]	Shipping	Heaviest Section	L	H	H1	A	C
XES15E-1285-06EN	92	1.5	-	22,710	8,990	4,200	4,200	8'-6"	10'-0"	9'-9"	9'-11"	8 1/4"
XES15E-1285-06FN	101	2	-	24,830	9,010	4,220	4,220	8'-6"	10'-0"	9'-9"	9'-11"	8 1/4"
XES15E-1285-06GN	117	3	-	28,460	9,040	4,250	4,250	8'-6"	10'-0"	9'-9"	9'-11"	8 1/4"
XES15E-1285-06HN	138	5	-	33,320	9,050	4,260	4,260	8'-6"	10'-0"	9'-9"	9'-11"	8 1/4"
XES15E-1285-07EN	101	1.5	-	24,350	9,540	4,510	4,510	8'-6"	11'-4"	11'-1"	11'-3"	8 1/4"
XES15E-1285-07FN	111	2	-	26,630	9,560	4,530	4,530	8'-6"	11'-4"	11'-1"	11'-3"	8 1/4"
XES15E-1285-07GN	128	3	-	30,500	9,590	4,560	4,560	8'-6"	11'-4"	11'-1"	11'-3"	8 1/4"
XES15E-1285-07HN	150	5	-	35,380	9,600	4,570	4,570	8'-6"	11'-4"	11'-1"	11'-3"	8 1/4"
XES15E-1285-07JN	174	7.5	-	40,690	9,650	4,620	4,620	8'-6"	11'-4"	11'-1"	11'-3"	8 1/4"
XES15E-1285-09FN	131	2	-	30,670	11,650	5,660	3,150	8'-6"	14'-4"	14'-4"	14'-1"	8 1/4"
XES15E-1285-09GN	151	3	-	35,050	11,680	5,690	3,180	8'-6"	14'-4"	14'-4"	14'-1"	8 1/4"
XES15E-1285-09HN	178	5	-	40,870	11,690	5,700	3,190	8'-6"	14'-4"	14'-4"	14'-1"	8 1/4"
XES15E-1285-09JN	204	7.5	-	46,450	11,740	5,750	3,240	8'-6"	14'-4"	14'-4"	14'-1"	8 1/4"
XES15E-1285-10FN	137	2	-	31,960	12,400	5,930	3,150	8'-6"	15'-8"	15'-8"	15'-5"	8 1/4"
XES15E-1285-10GN	158	3	-	36,520	12,430	5,960	3,180	8'-6"	15'-8"	15'-8"	15'-5"	8 1/4"
XES15E-1285-10HN	186	5	-	42,570	12,440	5,970	3,190	8'-6"	15'-8"	15'-8"	15'-5"	8 1/4"
XES15E-1285-10JN	213	7.5	-	48,370	12,490	6,020	3,240	8'-6"	15'-8"	15'-8"	15'-5"	8 1/4"
XES15E-1285-10KN	233	10	-	52,640	12,510	6,040	3,260	8'-6"	15'-8"	15'-8"	15'-5"	8 1/4"
XES15E-1212-07EN	167	(2) 1.5	(1) 3	40,230	13,940	6,090	6,090	12'-0"	11'-4"	11'-1"	11'-3"	8 1/4"
XES15E-1212-07FN	183	(2) 2	(1) 5	43,890	13,980	6,130	6,130	12'-0"	11'-4"	11'-1"	11'-3"	8 1/4"
XES15E-1212-07GC	197	(2) 3	(1) 5	46,940	14,040	6,190	6,190	12'-0"	11'-4"	11'-1"	11'-3"	8 1/4"
XES15E-1212-07GN	208	(2) 3	(1) 7.5	49,580	14,040	6,190	6,190	12'-0"	11'-4"	11'-1"	11'-3"	8 1/4"
XES15E-1212-07HC	226	(2) 5	(1) 7.5	53,540	14,060	6,210	6,210	12'-0"	11'-4"	11'-1"	11'-3"	8 1/4"
XES15E-1212-07HN	247	(2) 5	(1) 10	58,320	14,060	6,210	6,210	12'-0"	11'-4"	11'-1"	11'-3"	8 1/4"
XES15E-1212-09EN	195	(2) 1.5	(1) 3	45,400	16,550	7,840	4,430	12'-0"	14'-3"	13'-11"	14'-1"	8 1/4"
XES15E-1212-09FN	213	(2) 2	(1) 5	49,510	16,590	7,880	4,470	12'-0"	14'-3"	13'-11"	14'-1"	8 1/4"
XES15E-1212-09GC	229	(2) 3	(1) 5	52,930	16,650	7,940	4,530	12'-0"	14'-3"	13'-11"	14'-1"	8 1/4"
XES15E-1212-09GN	243	(2) 3	(1) 7.5	55,890	16,650	7,940	4,530	12'-0"	14'-3"	13'-11"	14'-1"	8 1/4"
XES15E-1212-09HC	263	(2) 5	(1) 7.5	60,320	16,670	7,960	4,550	12'-0"	14'-3"	13'-11"	14'-1"	8 1/4"
XES15E-1212-09HN	287	(2) 5	(1) 10	65,670	16,670	7,960	4,550	12'-0"	14'-3"	13'-11"	14'-1"	8 1/4"
XES15E-1212-10EN	204	(2) 1.5	(1) 3	47,460	17,260	8,200	4,430	12'-0"	15'-7"	15'-3"	15'-5"	8 1/4"
XES15E-1212-10FN	224	(2) 2	(1) 5	51,750	17,300	8,240	4,470	12'-0"	15'-7"	15'-3"	15'-5"	8 1/4"
XES15E-1212-10GC	241	(2) 3	(1) 5	55,320	17,360	8,300	4,530	12'-0"	15'-7"	15'-3"	15'-5"	8 1/4"
XES15E-1212-10GN	255	(2) 3	(1) 7.5	58,400	17,360	8,300	4,530	12'-0"	15'-7"	15'-3"	15'-5"	8 1/4"
XES15E-1212-10HC	276	(2) 5	(1) 7.5	63,020	17,380	8,320	4,550	12'-0"	15'-7"	15'-3"	15'-5"	8 1/4"
XES15E-1212-10HN	302	(2) 5	(1) 10	68,580	17,380	8,320	4,550	12'-0"	15'-7"	15'-3"	15'-5"	8 1/4"
XES15E-1212-10JN	344	(2) 7.5	(1) 15	77,730	17,480	8,420	4,650	12'-0"	15'-7"	15'-3"	15'-5"	8 1/4"
XES15E-1212-11EN	211	(2) 1.5	(1) 3	49,260	18,130	8,560	4,430	12'-0"	16'-11"	16'-7"	16'-9"	8 1/4"
XES15E-1212-11FN	231	(2) 2	(1) 5	53,710	18,170	8,600	4,470	12'-0"	16'-11"	16'-7"	16'-9"	8 1/4"
XES15E-1212-11GC	248	(2) 3	(1) 5	57,410	18,230	8,660	4,530	12'-0"	16'-11"	16'-7"	16'-9"	8 1/4"

Do not use for construction. Refer to factory certified dimensions. This catalog includes data current at the time of publication, which should be reconfirmed at the time of purchase.

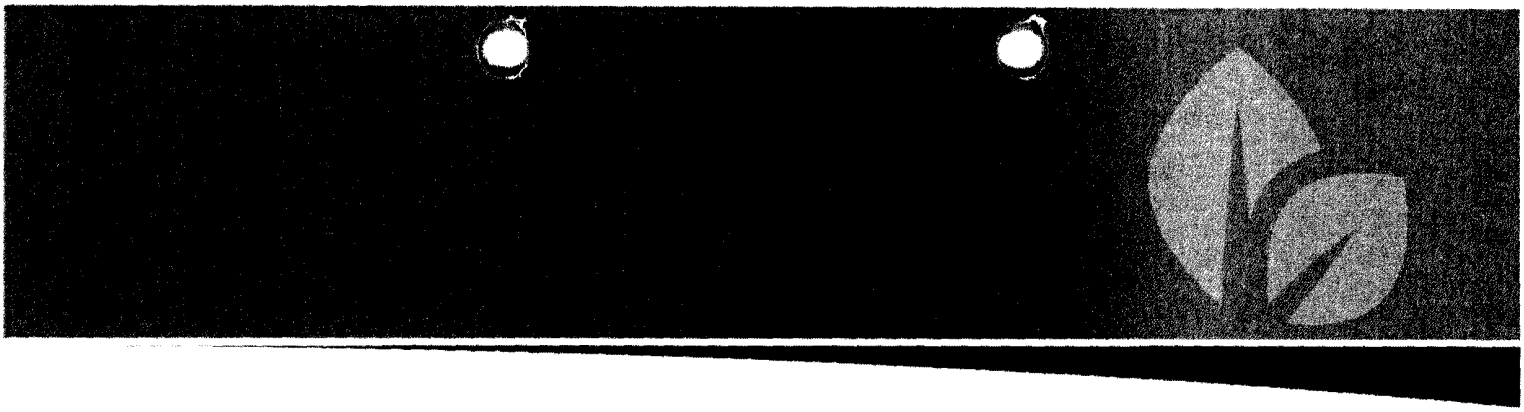
Model Number	Nominal Tonnage[1]	Motor HP	Optional Dual Drive Fan Motor HP	Fan (CFM)	Weights (lbs)			Dimensions				
					Operating[2]	Shipping	Heaviest Section	L	H	H1	A	C
XES15E-1212-11GC	248	(2) 3	(1) 5	57,410	18,230	8,660	4,530	12'-0"	16'-11"	16'-7"	16'-9"	8 1/4"
XES15E-1212-11GN	263	(2) 3	(1) 7.5	60,600	18,230	8,660	4,530	12'-0"	16'-11"	16'-7"	16'-9"	8 1/4"
XES15E-1212-11HC	285	(2) 5	(1) 7.5	65,380	18,250	8,680	4,550	12'-0"	16'-11"	16'-7"	16'-9"	8 1/4"
XES15E-1212-11HN	311	(2) 5	(1) 10	71,130	18,250	8,680	4,550	12'-0"	16'-11"	16'-7"	16'-9"	8 1/4"
XES15E-1212-11JN	355	(2) 7.5	(1) 15	80,590	18,350	8,780	4,650	12'-0"	16'-11"	17'-11"	16'-9"	8 1/4"
XES15E-1212-12FN	239	(2) 2	(1) 5	55,430	18,540	8,970	4,500	12'-0"	18'-3"	17'-11"	18'-1"	8 1/4"
XES15E-1212-12GC	257	(2) 3	(1) 5	59,240	18,600	9,030	4,530	12'-0"	18'-3"	17'-11"	18'-1"	8 1/4"
XES15E-1212-12GN	272	(2) 3	(1) 7.5	62,530	18,600	9,030	4,530	12'-0"	18'-3"	17'-11"	18'-1"	8 1/4"
XES15E-1212-12HC	295	(2) 5	(1) 7.5	67,460	18,620	9,050	4,550	12'-0"	18'-3"	17'-11"	18'-1"	8 1/4"
XES15E-1212-12HN	323	(2) 5	(1) 10	73,380	18,620	9,050	4,550	12'-0"	18'-3"	17'-11"	18'-1"	8 1/4"
XES15E-1212-12JN	368	(2) 7.5	(1) 15	83,110	18,720	9,150	4,650	12'-0"	18'-3"	17'-11"	18'-1"	8 1/4"
XES15E-1218-07EN	252	(3) 1.5	(1) 3 & (1) 1.5	60,750	23,140	9,350	9,350	18'-0"	11'-10"	11'-10"	11'-9"	16 1/4"
XES15E-1218-07FN	277	(3) 2	(1) 5 & (1) 2	66,280	23,200	9,410	9,410	18'-0"	11'-10"	11'-10"	11'-9"	16 1/4"
XES15E-1218-07GN	318	(3) 3	(1) 7.5 & (1) 3	75,640	23,290	9,500	9,500	18'-0"	11'-10"	11'-10"	11'-9"	16 1/4"
XES15E-1218-07HN	373	(3) 5	(1) 10 & (1) 5	88,100	23,320	9,530	9,530	18'-0"	11'-10"	11'-10"	11'-9"	16 1/4"
XES15E-1218-09EN	291	(3) 1.5	(1) 3 & (1) 1.5	68,470	26,890	11,800	6,640	18'-0"	14'-9"	14'-8"	14'-7"	16 1/4"
XES15E-1218-09FN	319	(3) 2	(1) 5 & (1) 2	74,680	26,950	11,860	6,700	18'-0"	14'-9"	14'-8"	14'-7"	16 1/4"
XES15E-1218-09GN	366	(3) 3	(1) 7.5 & (1) 3	85,180	27,040	11,950	6,790	18'-0"	14'-9"	14'-8"	14'-7"	16 1/4"
XES15E-1218-09HN	430	(3) 5	(1) 10 & (1) 5	99,100	27,070	11,980	6,820	18'-0"	14'-9"	14'-8"	14'-7"	16 1/4"
XES15E-1218-10EN	305	(3) 1.5	(1) 3 & (1) 1.5	71,560	28,190	12,310	6,640	18'-0"	16'-1"	16'-0"	15'-11"	16 1/4"
XES15E-1218-10FN	335	(3) 2	(1) 5 & (1) 2	78,040	28,250	12,370	6,700	18'-0"	16'-1"	16'-0"	15'-11"	16 1/4"
XES15E-1218-10GN	385	(3) 3	(1) 7.5 & (1) 3	88,980	28,340	12,460	6,790	18'-0"	16'-1"	16'-0"	15'-11"	16 1/4"
XES15E-1218-10HN	451	(3) 5	(1) 10 & (1) 5	103,460	28,370	12,490	6,820	18'-0"	16'-1"	16'-0"	15'-11"	16 1/4"
XES15E-1218-10JN	514	(3) 7.5	(1) 15 & (1) 7.5	117,290	28,520	12,640	6,970	18'-0"	16'-1"	16'-0"	15'-11"	16 1/4"
XES15E-1218-11EN	318	(3) 1.5	(1) 3 & (1) 1.5	74,250	28,970	12,830	6,640	18'-0"	17'-5"	17'-4"	17'-3"	16 1/4"
XES15E-1218-11FN	348	(3) 2	(1) 5 & (1) 2	80,970	29,030	12,890	6,700	18'-0"	17'-5"	17'-4"	17'-3"	16 1/4"
XES15E-1218-11GN	401	(3) 3	(1) 7.5 & (1) 3	92,300	29,120	12,980	6,790	18'-0"	17'-5"	17'-4"	17'-3"	16 1/4"
XES15E-1218-11HN	470	(3) 5	(1) 10 & (1) 5	107,280	29,150	13,010	6,820	18'-0"	17'-5"	17'-4"	17'-3"	16 1/4"
XES15E-1218-11JN	536	(3) 7.5	(1) 15 & (1) 7.5	121,570	29,300	13,160	6,970	18'-0"	17'-5"	17'-4"	17'-3"	16 1/4"
XES15E-1218-12EN	329	(3) 1.5	(1) 3 & (1) 1.5	76,610	30,020	13,360	6,720	18'-0"	18'-9"	18'-8"	18'-7"	16 1/4"
XES15E-1218-12FN	361	(3) 2	(1) 5 & (1) 2	83,530	30,080	13,420	6,720	18'-0"	18'-9"	18'-8"	18'-7"	16 1/4"
XES15E-1218-12GN	415	(3) 3	(1) 7.5 & (1) 3	95,220	30,170	13,510	6,790	18'-0"	18'-9"	18'-8"	18'-7"	16 1/4"
XES15E-1218-12HN	486	(3) 5	(1) 10 & (1) 5	110,640	30,200	13,540	6,820	18'-0"	18'-9"	18'-8"	18'-7"	16 1/4"
XES15E-1218-12JN	555	(3) 7.5	(1) 15 & (1) 7.5	125,340	30,350	13,690	6,970	18'-0"	18'-9"	18'-8"	18'-7"	16 1/4"

NOTES FOR XE-MODELS:

1. Nominal tons of cooling represents the capability to cool 3 USGPM of water from a 95°F entering water temperature to an 85°F leaving water temperature at a 78°F entering wet-bulb temperature.
2. Operating weight is based on the water level in the cold water basin at overflow height. If a lower operating weight is needed to meet design requirements, your local BAC Representative can provide additional assistance.
3. Refer to **page B61** for dimensional reference drawings.
4. Unless otherwise indicated all connections 3" and smaller are MPT. Connections 4" and larger are beveled for welding and mechanically grooved.

Series 1500 Double Cell Unit Data

Model Number	Nominal Tonnage[1]	Motor HP	Optional Dual Drive Fan Motor HP	Fan (CFM)	Weights (lbs)			Dimensions				
					Operating[2]	Shipping	Heaviest Section	L	H	H1	A	C
S15E-1285-06JN-2	316	(2) 7.5	-	76,040	18,200	8,620	4,310	17'-2"	10'-0"	9'-9"	9'-11"	8 1/4"
S15E-1285-06KN-2	346	(2) 10	-	83,040	18,220	8,640	4,320	17'-2"	10'-0"	9'-9"	9'-11"	8 1/4"
S15E-1285-06LN-2	396	(2) 15	-	94,180	18,480	8,900	4,450	17'-2"	10'-0"	9'-9"	9'-11"	8 1/4"
S15E-1285-07KN-2	378	(2) 10	-	88,080	19,340	9,280	4,640	17'-2"	11'-4"	11'-1"	11'-3"	8 1/4"
S15E-1285-07LN-2	434	(2) 15	-	100,620	19,580	9,520	4,760	17'-2"	11'-4"	11'-1"	11'-3"	8 1/4"
S15E-1285-07MN-2	472	(2) 20	-	109,100	19,700	9,640	4,820	17'-2"	11'-4"	11'-1"	11'-3"	8 1/4"
S15E-1285-09KN-2	446	(2) 10	-	101,140	23,520	11,540	3,260	17'-2"	14'-4"	14'-4"	14'-1"	8 1/4"
S15E-1285-09LN-2	506	(2) 15	-	114,200	23,760	11,780	3,380	17'-2"	14'-4"	14'-4"	14'-1"	8 1/4"
S15E-1285-09MN-2	552	(2) 20	-	124,500	23,880	11,900	3,440	17'-2"	14'-4"	14'-4"	14'-1"	8 1/4"
S15E-1285-10LN-2	528	(2) 15	-	118,840	25,260	12,320	3,380	17'-2"	15'-8"	15'-8"	15'-5"	8 1/4"
S15E-1285-10MN-2	578	(2) 20	-	129,480	25,380	12,440	3,440	17'-2"	15'-8"	15'-8"	15'-5"	8 1/4"
S15E-1285-10NN-2	620	(2) 25	-	138,460	25,440	12,500	3,470	17'-2"	15'-8"	15'-8"	15'-5"	8 1/4"
S15E-1212-07JN-2	564	(4) 7.5	(2) 15	132,440	28,320	12,620	6,310	24'-2"	11'-4"	11'-1"	11'-3"	8 1/4"
S15E-1212-07KN-2	618	(4) 10	(2) 20	144,140	28,380	12,680	6,340	24'-2"	11'-4"	11'-1"	11'-3"	8 1/4"
S15E-1212-07LC-2	664	(4) 15	(2) 25	153,900	28,880	13,180	6,590	24'-2"	11'-4"	11'-1"	11'-3"	8 1/4"
S15E-1212-09JN-2	656	(4) 7.5	(2) 15	148,980	33,540	16,120	4,650	24'-2"	14'-3"	13'-11"	14'-1"	8 1/4"
S15E-1212-09KN-2	716	(4) 10	(2) 20	162,000	33,600	16,180	4,680	24'-2"	14'-3"	13'-11"	14'-1"	8 1/4"
S15E-1212-09LC-2	766	(4) 15	(2) 25	172,840	34,100	16,680	4,930	24'-2"	14'-3"	13'-11"	14'-1"	8 1/4"
S15E-1212-09LN-2	802	(4) 15	(2) 30	182,620	34,100	16,680	4,930	24'-2"	14'-3"	13'-11"	14'-1"	8 1/4"
S15E-1212-10KN-2	752	(4) 10	(2) 20	169,000	35,020	16,900	4,680	24'-2"	15'-7"	15'-3"	15'-5"	8 1/4"
S15E-1212-10LC-2	804	(4) 15	(2) 25	180,260	35,520	17,400	4,930	24'-2"	15'-7"	15'-3"	15'-5"	8 1/4"
S15E-1212-10LN-2	842	(4) 15	(2) 30	190,440	35,520	17,400	4,930	24'-2"	15'-7"	15'-3"	15'-5"	8 1/4"
S15E-1212-10MN-2	918	(4) 20	(2) 40	207,360	35,760	17,640	5,050	24'-2"	15'-7"	15'-3"	15'-5"	8 1/4"
S15E-1212-11KN-2	774	(4) 10	(2) 20	175,120	36,760	17,620	4,680	24'-2"	16'-11"	16'-7"	16'-9"	8 1/4"
S15E-1212-11LC-2	828	(4) 15	(2) 25	186,740	37,260	18,120	4,930	24'-2"	16'-11"	16'-7"	16'-9"	8 1/4"
S15E-1212-11LN-2	868	(4) 15	(2) 30	197,240	37,260	18,120	4,930	24'-2"	16'-11"	16'-7"	16'-9"	8 1/4"
S15E-1212-11MN-2	956	(4) 20	(2) 40	214,660	37,500	18,360	5,050	24'-2"	16'-11"	16'-7"	16'-9"	8 1/4"
S15E-1212-12KN-2	802	(4) 10	(2) 20	180,560	37,500	18,360	4,680	24'-2"	18'-3"	17'-11"	18'-1"	8 1/4"
S15E-1212-12LC-2	858	(4) 15	(2) 25	192,480	38,000	18,860	4,930	24'-2"	18'-3"	17'-11"	18'-1"	8 1/4"
S15E-1212-12LN-2	898	(4) 15	(2) 30	203,240	38,000	18,860	4,930	24'-2"	18'-3"	17'-11"	18'-1"	8 1/4"
S15E-1212-12MN-2	990	(4) 20	(2) 40	221,120	38,240	19,100	5,050	24'-2"	18'-3"	17'-11"	18'-1"	8 1/4"



Model Number	Nominal Tonnage[1]	Motor HP	Optional Dual Drive Fan Motor HP	Fan (CFM)	Weights (lbs)			Dimensions				
					Operating[2]	Shipping	Heaviest Section	L	H	H1	A	C
S15E-1218-07JN-2	854	(6) 7.5	(2) 15 & (2) 7.5	200,100	46,940	19,360	9,680	36'-2"	11'-10"	11'-10"	11'-9"	16 1/4"
S15E-1218-07KN-2	932	(6) 10	(2) 20 & (2) 10	217,800	47,020	19,440	9,720	36'-2"	11'-10"	11'-10"	11'-9"	16 1/4"
S15E-1218-07LC-2	1,002	(6) 15	(2) 25 & (2) 15	232,560	47,780	20,200	10,100	36'-2"	11'-10"	11'-10"	11'-9"	16 1/4"
S15E-1218-09JN-2	980	(6) 7.5	(2) 15 & (2) 7.5	224,840	54,440	24,260	6,970	36'-2"	14'-9"	14'-8"	14'-7"	16 1/4"
S15E-1218-09KN-2	1,070	(6) 10	(2) 20 & (2) 10	244,540	54,520	24,340	7,010	36'-2"	14'-9"	14'-8"	14'-7"	16 1/4"
S15E-1218-09LC-2	1,144	(6) 15	(2) 25 & (2) 15	260,920	55,280	25,100	7,390	36'-2"	14'-9"	14'-8"	14'-7"	16 1/4"
S15E-1218-09LN-2	1,212	(6) 15	(2) 30 & (2) 15	275,720	55,280	25,100	7,390	36'-2"	14'-9"	14'-8"	14'-7"	16 1/4"
S15E-1218-10KN-2	1,122	(6) 10	(2) 20 & (2) 10	255,020	57,120	25,360	7,010	36'-2"	16'-1"	16'-0"	15'-11"	16 1/4"
S15E-1218-10LC-2	1,200	(6) 15	(2) 25 & (2) 15	272,040	57,880	26,120	7,390	36'-2"	16'-1"	16'-0"	15'-11"	16 1/4"
S15E-1218-10LN-2	1,258	(6) 15	(2) 30 & (2) 15	287,420	57,880	26,120	7,390	36'-2"	16'-1"	16'-0"	15'-11"	16 1/4"
S15E-1218-10MN-2	1,388	(6) 20	(2) 40 & (2) 20	312,980	58,240	26,480	7,570	36'-2"	16'-1"	16'-0"	15'-11"	16 1/4"
S15E-1218-11KN-2	1,168	(6) 10	(2) 20 & (2) 10	264,220	58,680	26,400	7,010	36'-2"	17'-5"	17'-4"	17'-3"	16 1/4"
S15E-1218-11LC-2	1,250	(6) 15	(2) 25 & (2) 15	281,780	59,440	27,160	7,390	36'-2"	17'-5"	17'-4"	17'-3"	16 1/4"
S15E-1218-11LN-2	1,310	(6) 15	(2) 30 & (2) 15	297,620	59,440	27,160	7,390	36'-2"	17'-5"	17'-4"	17'-3"	16 1/4"
S15E-1218-11MN-2	1,444	(6) 20	(2) 40 & (2) 20	323,940	59,800	27,520	7,570	36'-2"	17'-5"	17'-4"	17'-3"	16 1/4"
S15E-1218-12KN-2	1,210	(6) 10	(2) 20 & (2) 10	272,360	60,780	27,460	7,010	36'-2"	18'-9"	18'-8"	18'-7"	16 1/4"
S15E-1218-12LC-2	1,294	(6) 15	(2) 25 & (2) 15	290,380	61,540	28,220	7,390	36'-2"	18'-9"	18'-8"	18'-7"	16 1/4"
S15E-1218-12LN-2	1,356	(6) 15	(2) 30 & (2) 15	306,640	61,540	28,220	7,390	36'-2"	18'-9"	18'-8"	18'-7"	16 1/4"
S15E-1218-12MN-2	1,494	(6) 20	(2) 40 & (2) 20	333,640	61,900	28,580	7,570	36'-2"	18'-9"	18'-8"	18'-7"	16 1/4"

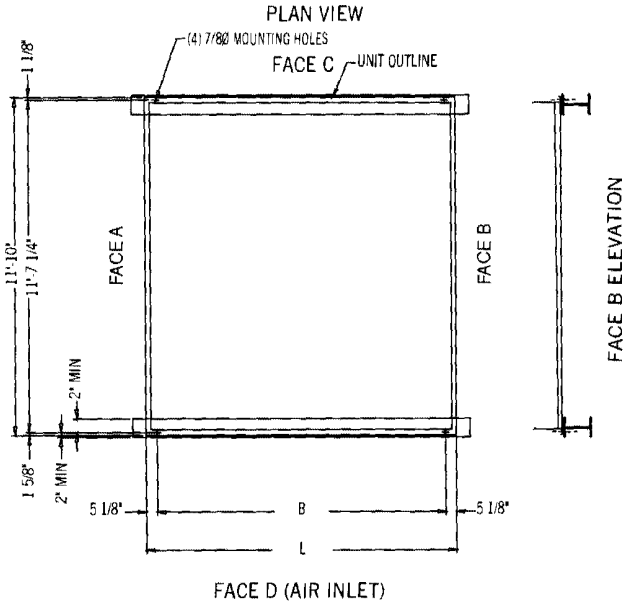
NOTES FOR DOUBLE CELL UNITS:

1. Nominal tons of cooling represents the capability to cool 3 USGPM of water from a 95°F entering water temperature to an 85°F leaving water temperature at a 78°F entering wet-bulb temperature.
2. Operating weight is based on the water level in the cold water basin at overflow height. If a lower operating weight is needed to meet design requirements, your local BAC Representative can provide additional assistance.
3. Refer to **page B61** for dimensional reference drawings.
4. Unless otherwise indicated all connections 3" and smaller are MPT. Connections 4" and larger are beveled for welding and mechanically grooved.

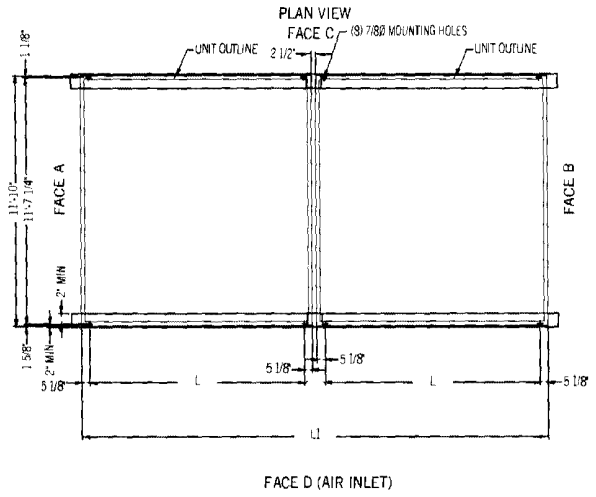
Do not use for construction. Refer to factory certified dimensions. This catalog includes data current at the time of publication, which should be reconfirmed at the time of purchase.

Series 1500 Structural Support

The recommended support arrangement for the Series 1500 Cooling Tower consists of parallel I-beams positioned as shown in the following drawings. Besides providing adequate support, the steel also serves to raise the unit above any solid foundation to ensure access to the bottom of the tower. The Series 1500 may also be supported on columns at the anchor bolt locations shown in Plan A. A minimum 12"x12" bearing surface must be provided under each of the concentrated load points. The support beams may also be run in the direction perpendicular to the beams shown below (Plan B). To support a Series 1500 Cooling Tower on columns or in an alternate steel support arrangement, consult your local BAC Representative. Upgraded structures for high wind and seismic load regions will require additional mounting holes.

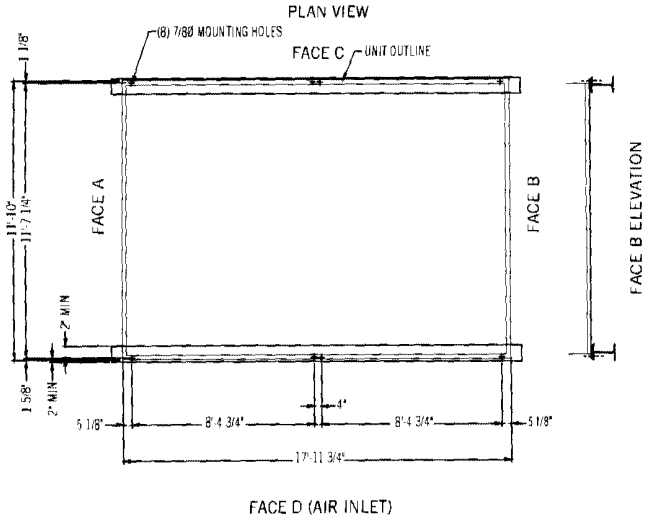


Plan A: Single Cell Unit

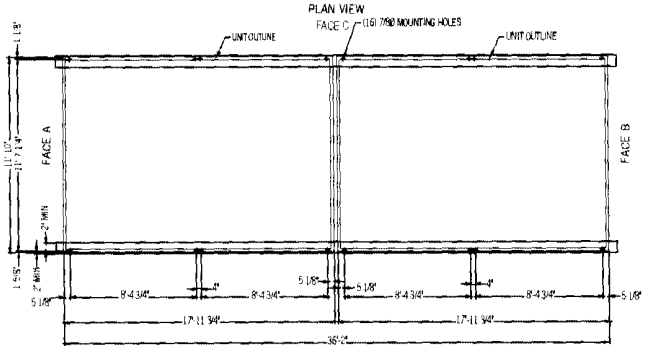


Plan A: Double Cell Unit

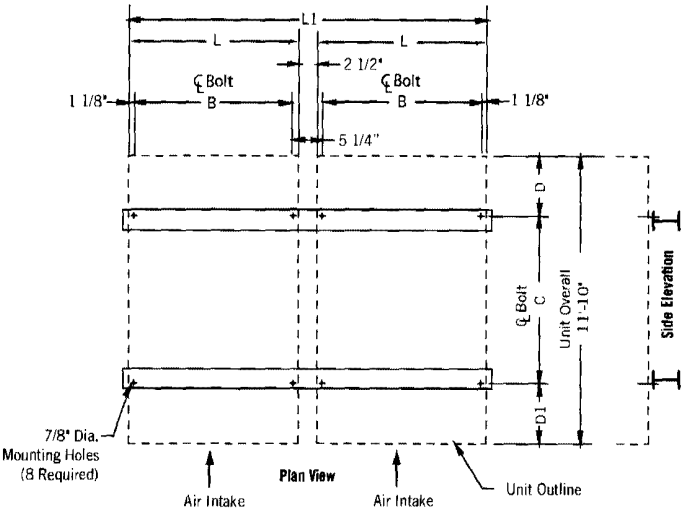
Model Number	B	L	L1
S15E/XES15E-1285	7'-7 1/2"	8'-5 3/4"	17'-2"
S15E/XES15E-1212	11'-1 1/2"	11'-11 3/4"	24'-2"



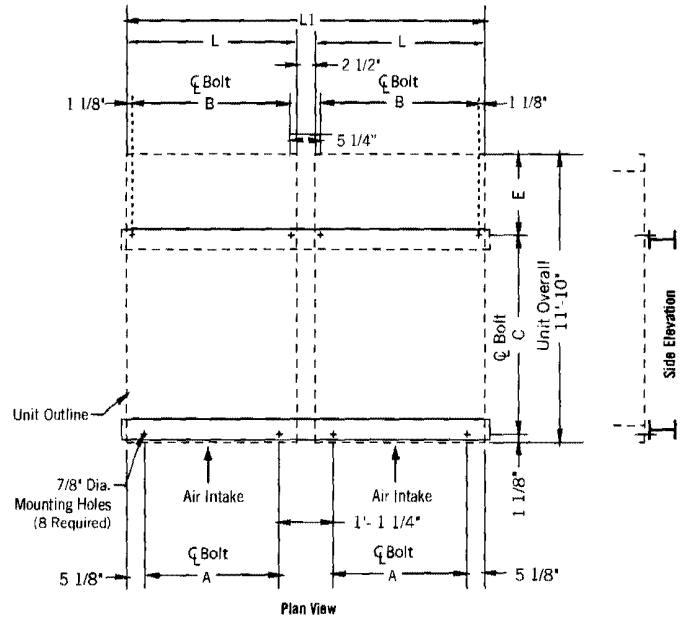
Plan A: S15E/XES15E-1285 Single Cell Unit



Plan A: S15E/XES15E-1285 Double Cell Unit



Plan C: Cantilever Inlet and Blank-Off (Double Cell Unit Shown)



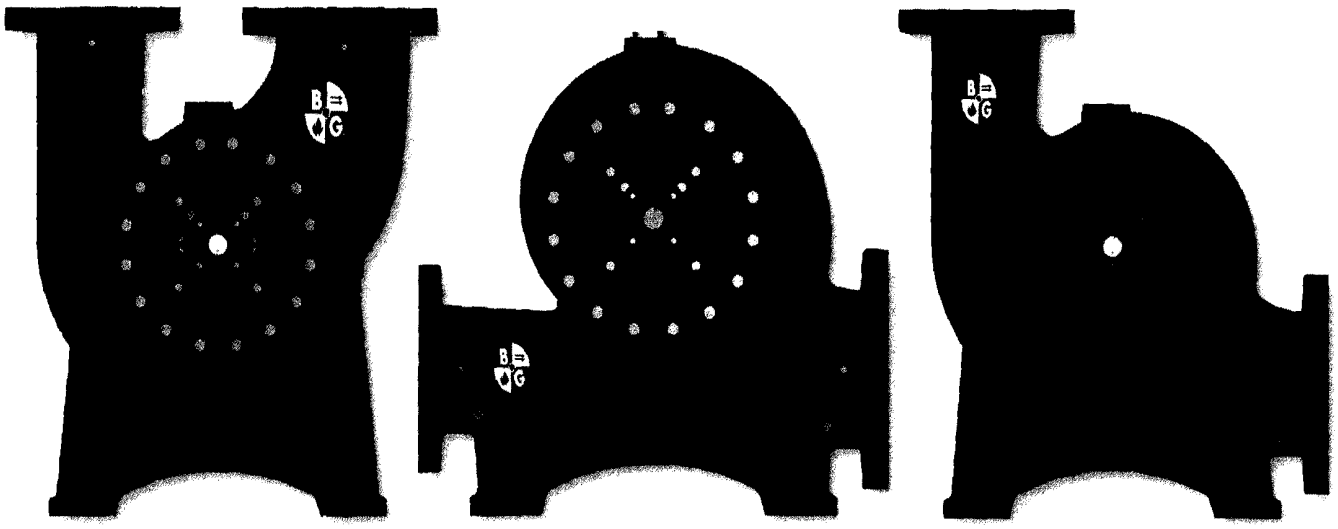
Plan C: Cantilever Blank-Off Only (Double Cell Unit Shown)

NOTES:

1. Support beams and anchor bolts are to be selected and installed by others.
2. All supporting steel must be level at the top.
3. Beams must be selected in accordance with accepted structural practice. Maximum deflection of beam under unit to be 1/360 of span, not to exceed 1/2 inch.
4. If point vibrations isolation (provided by others) is used with multi-cell towers, the isolators must be located under the supporting steel, not between the support steel and the cooling towers.
5. When using Alternative Plan C support arrangements with optional bottom water outlet, size and location restrictions will apply to water outlet piping. Consider the Cantilevered Plan C support arrangement or consult your local BAC Representative for details.

RECOMMENDED ALTERNATIVE STEEL SUPPORT FOR UNIT REPLACEMENT (PLAN C)

Model Number	Unit Replaced	A	B	C	D	D1	E	L	L1
S15E/XES15E-1285	VLT/VST	7'-7 1/2"	8'-3 1/2"	8'-9 1/8"	1'-8"	1'-4 7/8"	2'-11 1/4"	8'-5 3/4"	17'-2"
	CFT/Series 3000	7'-7 1/2"	8'-3 1/2"	8'-0"	2'-5 1/8"	1'-4 7/8"	3'-8 3/8"	8'-5 3/4"	17'-2"
S15E/XES15E-1212	VLT/VST	11'-1 1/2"	11'-9 1/2"	8'-11 1/4"	1'-5 3/8"	1'-5 3/8"	2'-9 1/8"	11'-11 3/4"	24'-2"
	VXT/VXMT	11'-1 1/2"	11'-9 1/2"	9'-7 1/2"	1'-1 1/4"	1'-1 1/4"	2'-0 7/8"	11'-11 3/4"	24'-2"
	CFT/Series 3000	11'-1 1/2"	11'-9 1/2"	8'-0"	1'-11"	1'-11"	3'-8 3/8"	11'-11 3/4"	24'-2"
	Series 30000	11'-1 1/2"	11'-9 1/2"	9'-6"	1'-2"	1'-2"	2'-2 3/8"	11'-11 3/4"	24'-2"
S15E/XES15E-1218	VLT/VST	17'-1 1/2"	17'-9 1/2"	8'-11 1/4"	1'-5 3/8"	1'-5 3/8"	2'-9 1/8"	17'-11 3/4"	36'-2"
	VXT/VXMT	17'-1 1/2"	17'-9 1/2"	9'-7 1/2"	1'-1 1/4"	1'-1 1/4"	2'-0 7/8"	17'-11 3/4"	36'-2"



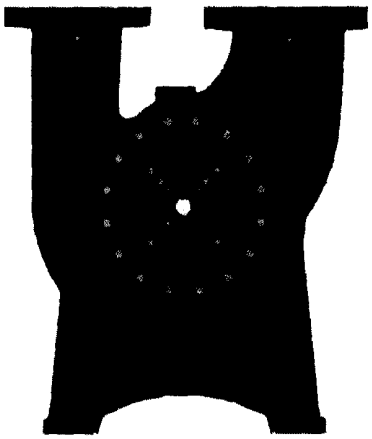
VSX®
Technical Brochure

BX-476D

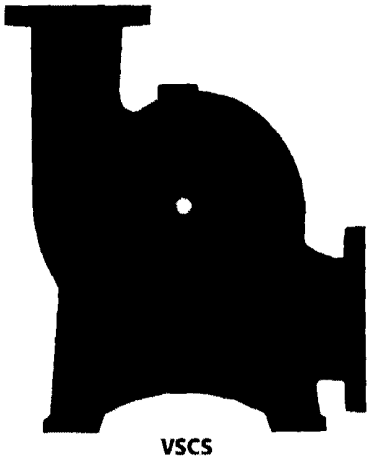
Bell & Gossett
a xylem brand

1213

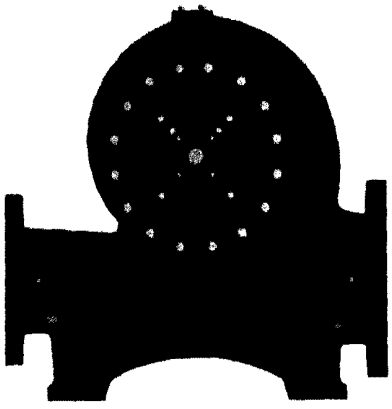
You said you needed one pump that does it all.



VSC



VSCS



VSH

Only the VSX platform offers so many piping installation configurations, thanks to its revolutionary design. Utilizing CFD technology, we can deliver identical hydraulic performance in any flange configuration: VSC (top-top), VSCS (top-side) and VSH (side-side). In addition, every model and size is available in either right or left hand rotation providing up to six possible installation configurations. See below for availability of exact sizes and models.

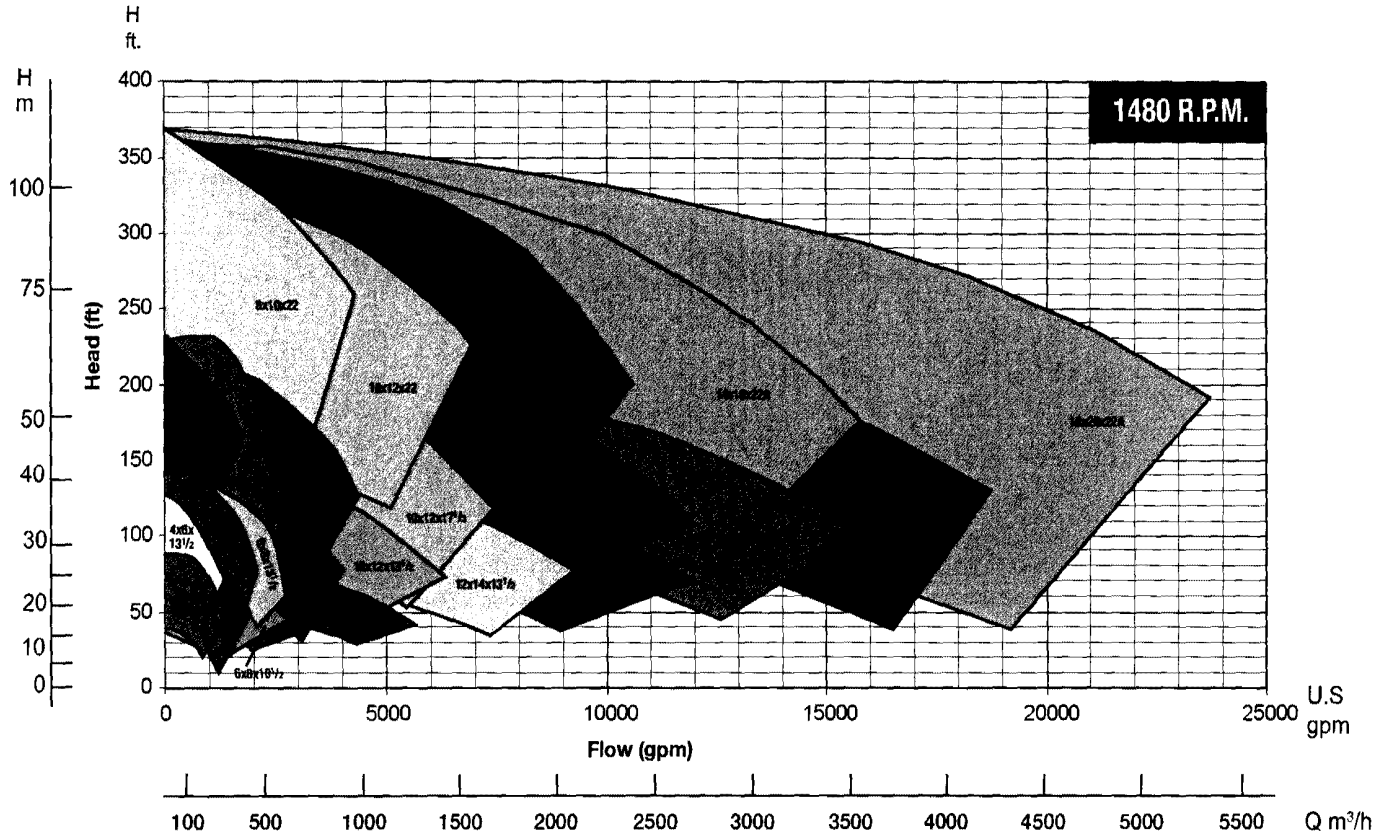
The VSH®, VSC™ and VSCS® are all available in the following pump sizes:

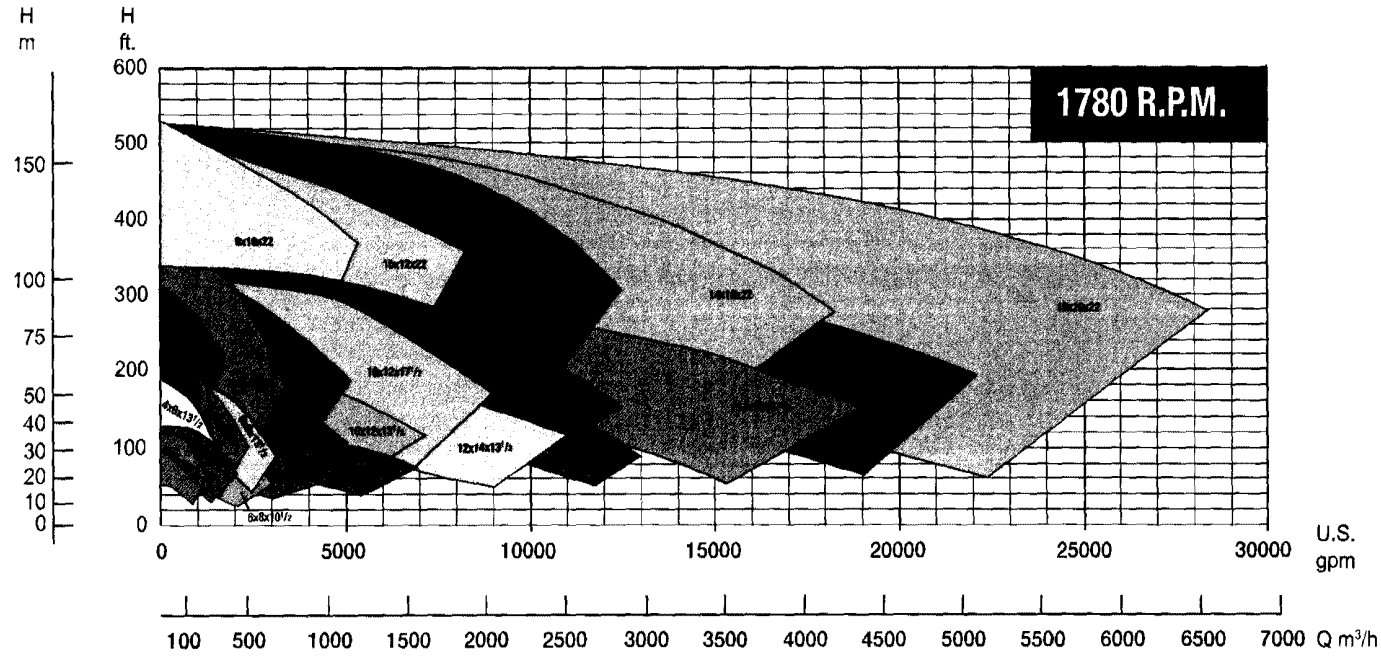
4x6x10.5	8x10x10.5	12x14x13.5
4x6x13.5	8x10x13.5	12x14x17.5
4x6x17.5	8x10x17.5	12x14x22
5x6x10.5	8x10x22	14x16x13.5
5x6x13.5	10x12x10.5	14x16x17.5
5x6x17.5	10x12x13.5	14x16x22
6x8x10.5	10x12x17.5	16x18x19*
6x8x13.5	10x12x22	18x20x22†
6x8x17.5		

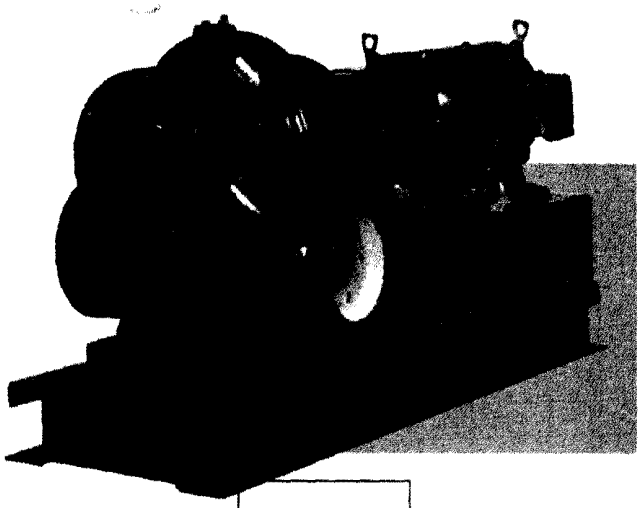
** Available in VSH and VSCS models only.*

† Available in VSH model only.

VSX Performance Range

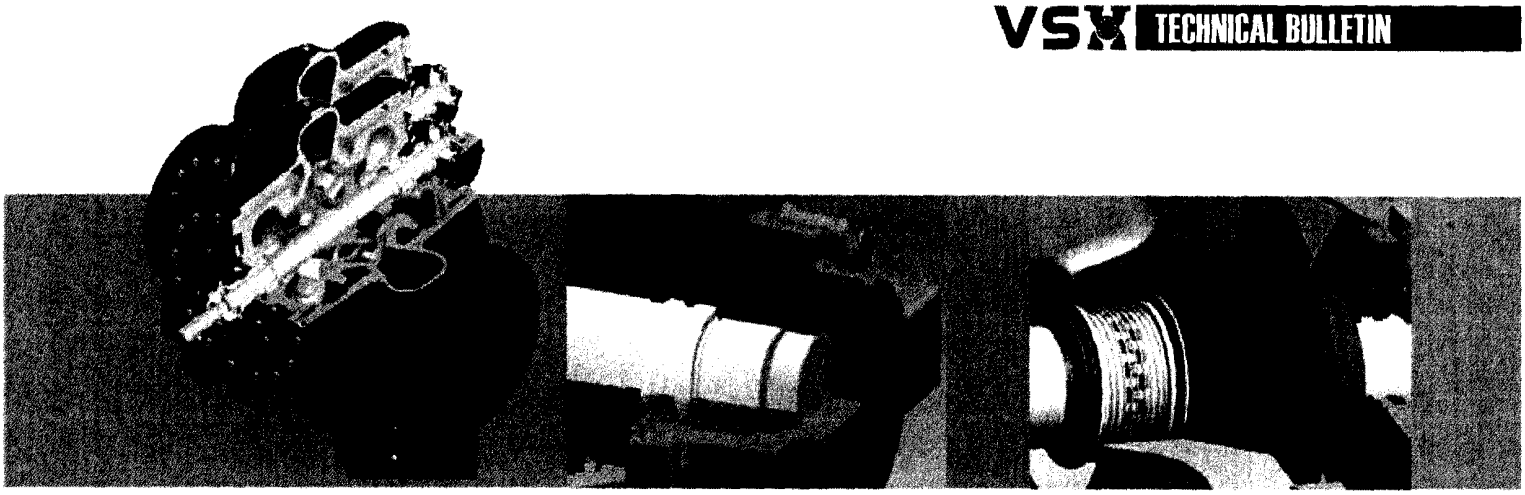




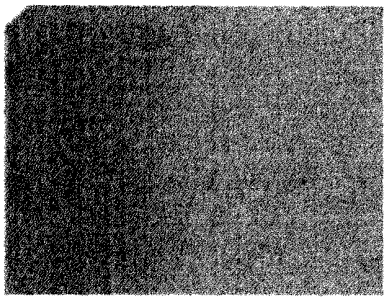


VSX Operational Data

[Pump Size]	4x6x10.5	4x6x13.5	4x6x17.5	5x6x10.5	5x6x13.5
CASING DATA					
125# FF, ANSI Flanges Maximum 175 PSI Working Pressure Supplied with Unitized Seal					
Max. Suction pressure	175	175	175	175	175
Max. Working pressure	175	175	175	175	175
Max. hydrostatic test pressure	262	262	262	262	262
Casing material	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
250# FF, ANSI Flanges Maximum 300 PSI Working Pressure Supplied with Unitized Seal*					
*Max. Suction pressure	200	200	200	200	200
Max. Working pressure	300	300	300	300	300
Max. hydrostatic test pressure	450	450	450	450	450
Casing material	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
250# FF, ANSI Flanges Maximum 300 PSI Working Pressure Supplied with Balanced Seal					
Max. Suction pressure	300	300	300	300	300
Max. Working pressure	300	300	300	300	300
Max. hydrostatic test pressure	450	450	450	450	450
Casing material	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
MECHANICAL SEAL DATA					
Mechanical Seal on sleeve for 175 and 300 psi working pressure*					
Type	Unitized	Unitized	Unitized	Unitized	Unitized
Material	EPR/Car/SiC	EPR/Car/SiC	EPR/Car/SiC	EPR/Car/SiC	EPR/Car/SiC
Min Temp - 0 deg. F	0 deg F	0 deg F	0 deg F	0 deg F	0 deg F
Max Temp - 300 deg. F	300 deg F	300 deg F	300 deg F	300 deg F	300 deg F
** Refer to max. suction pressure limitation for 300psi working pressure rating.*					
Mechanical Seal on sleeve for max. 300 psi working pressure					
Type	Balanced	Balanced	Balanced	Balanced	Balanced
Material	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC
Min Temp	0 deg F	0 deg F	0 deg F	0 deg F	0 deg F
Max Temp	300 deg F	300 deg F	300 deg F	300 deg F	300 deg F
IMPELLER DESIGN DATA					
Number of vanes	7	6	5	6	5
Maximum Impeller Diameter	10.5"	13.5"	17.5"	10.5"	13.5"
Minimum Impeller Diameter	7"	9.5"	12.5"	7"	9"
Maximum Sphere	.63"	.82"	.845"	.55"	1.00"

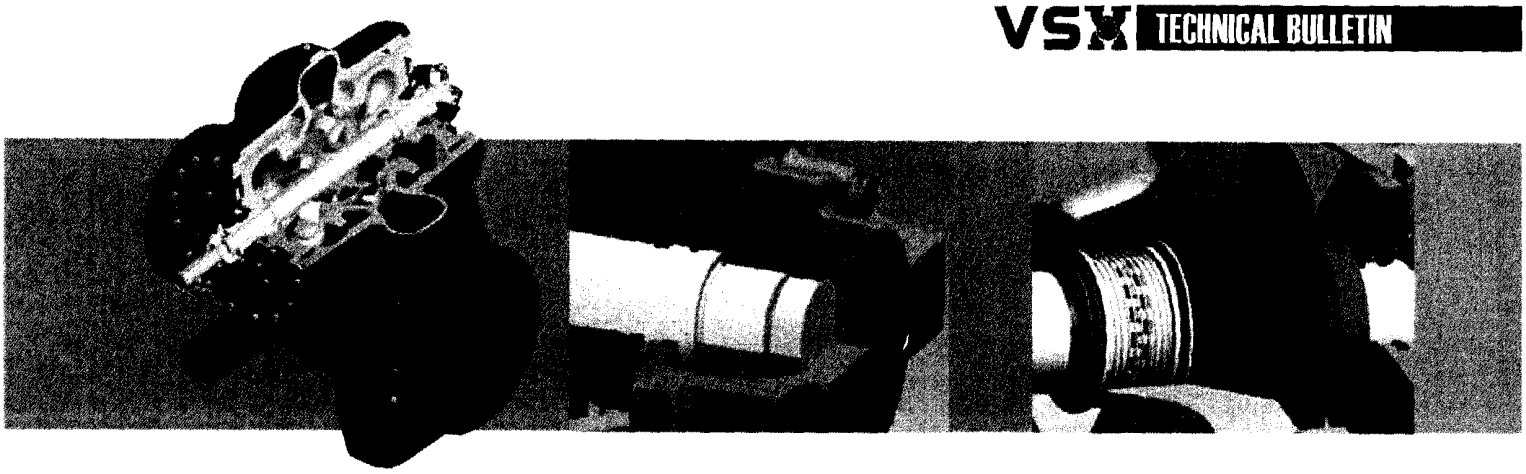


5x6x17.5	6x8x10.5	6x8x13.5	6x8x17.5	8x10x10.5	8x10x13.5	8x10x17.5	8x10x22
175	175	175	175	175	175	160	125
175	175	175	175	175	175	175	175**
262	262	262	262	262	262	262	262
Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
200	200	200	200	200	200	160	125
300	300	300	300	300	300	300	300
450	450	450	450	450	450	450	450
Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
300	300	300	300	300	300	300	300
300	300	300	300	300	300	300	300
450	450	450	450	450	450	450	450
Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Unitized	Unitized	Unitized	Unitized	Unitized	Unitized	Unitized	Unitized
EPR/Car/SiC	EPR/Car/SiC	EPR/Car/SiC	EPR/Car/SiC	EPR/Car/SiC	EPR/Car/SiC	EPR/Car/SiC	EPR/Car/SiC
0 deg F	0 deg F	0 deg F	0 deg F	0 deg F	0 deg F	0 deg F	0 deg F
300 deg F	300 deg F	300 deg F	300 deg F	300 deg F	300 deg F	300 deg F	300 deg F
Balanced	Balanced	Balanced	Balanced	Balanced	Balanced	Balanced	Balanced
EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC
0 deg F	0 deg F	0 deg F	0 deg F	0 deg F	0 deg F	0 deg F	0 deg F
300 deg F	300 deg F	300 deg F	300 deg F	300 deg F	300 deg F	300 deg F	300 deg F
6	7	6	5	7	7	7	6
17.5"	10.5"	13.5"	17.5"	10.5"	13.5"	17.5"	22"
12.5"	6.5"	10"	12.5"	7"	9.5"	12.5"	16.5"
.82"	.70"	1.08"	.80"	.57"	1.00"	1.25"	1.35"



VSX Operational Data

[Pump Size]	10x12x10.5	10x12x13.5	10x12x17.5	10x12x22	12x14x13.5
CASING DATA					
125# FF, ANSI Flanges Maximum 175 PSI Working Pressure Supplied with Unitized Seal (Balanced Seal where noted) †					
Max. Suction pressure	175	160	160	125	160
Max. Working pressure	175	175	175	175**	175
Max. hydrostatic test pressure	262	262	262	262	262
Casing material	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
250# FF, ANSI Flanges Maximum 300 PSI Working Pressure Supplied with Unitized Seal* (Balanced Seal where noted) †					
*Max. Suction pressure	200	160	160	125	160
Max. Working pressure	300	300	300	300	300
Max. hydrostatic test pressure	450	450	450	450	450
Casing material	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
250# FF, ANSI Flanges Maximum 300 PSI Working Pressure Supplied with Balanced Seal					
Max. Suction pressure	300	300	300	300	300
Max. Working pressure	300	300	300	300	300
Max. hydrostatic test pressure	450	450	450	450	450
Casing material	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
MECHANICAL SEAL DATA					
Mechanical Seal on sleeve for 175 and 300 psi working pressure*					
Type	Unitized	Unitized	Unitized	Unitized	Unitized
Material	EPR/Car/SiC	EPR/Car/SiC	EPR/Car/SiC	EPR/Car/SiC	EPR/Car/SiC
Min Temp - 0 deg. F	0 deg F	0 deg F	0 deg F	0 deg F	0 deg F
Max Temp - 300 deg. F	300 deg F	300 deg F	300 deg F	300 deg F	300 deg F
** Refer to max. suction pressure limitation for 300psi working pressure rating.*					
Mechanical Seal on sleeve for max. 300 psi working pressure					
Type	Balanced	Balanced	Balanced	Balanced	Balanced
Material	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC
Min Temp	0 deg F	0 deg F	0 deg F	0 deg F	0 deg F
Max Temp	300 deg F	300 deg F	300 deg F	300 deg F	300 deg F
IMPELLER DESIGN DATA					
Number of vanes	7	7	7	6	7
Maximum Impeller Diameter	10.75"	13.5"	17.5"	22"	13.5"
Minimum Impeller Diameter	8.75"	10"	12.5"	16.5"	10.6"
Maximum Sphere	.60"	.91"	1.35"	1.5"	.88"



12x14x17.5	12x14x22	14x16x13.5	14x16x17.5	14x16x22	16x18x19	18x20x22
	Balanced Seal			Balanced Seal	Balanced Seal	Balanced Seal
125	175	160	125	175	175	175
175	175	175	175	175	175	175
262	262	262	262	262	262	262
Cast Iron	Ductile Iron	Cast Iron	Cast Iron	Ductile Iron	Ductile Iron	Ductile Iron
	Balanced Seal			Balanced Seal	Balanced Seal	Balanced Seal
125	300	160	125	300	300	300
300	300	300	300	300	300	300
450	450	450	450	450	450	450
Cast Iron	Ductile Iron	Cast Iron	Cast Iron	Ductile Iron	Ductile Iron	Ductile Iron
300	300	300	300	300	300	300
300	300	300	300	300	300	300
450	450	450	450	450	450	450
Cast Iron	Ductile Iron	Cast Iron	Cast Iron	Ductile Iron	Ductile Iron	Ductile Iron
Unitized	Balanced	Unitized	Unitized	Balanced	Balanced	Balanced
EPR/Car/SiC	EPR/Graphite Loaded SiC	EPR/Car/SiC	EPR/Car/SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC
0 deg F	0 deg F	0 deg F	0 deg F	0 deg F	0 deg F	0 deg F
300 deg F	300 deg F	300 deg F	300 deg F	300 deg F	300 deg F	300 deg F
Balanced	Balanced	Balanced	Balanced	Balanced	Balanced	Balanced
EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC	EPR/Graphite Loaded SiC
0 deg F	0 deg F	0 deg F	0 deg F	0 deg F	0 deg F	0 deg F
300 deg F	300 deg F	300 deg F	300 deg F	300 deg F	300 deg F	300 deg F
7	7	7	7	6	7	6
17.5"	22"	13.5"	17.5"	22"	19"	22"
13"	16"	11"	12.5"	16"	13.85"	14.85"
1.12"	1.25"	.83"	1.46"	1.72"	1.47"	1.74"

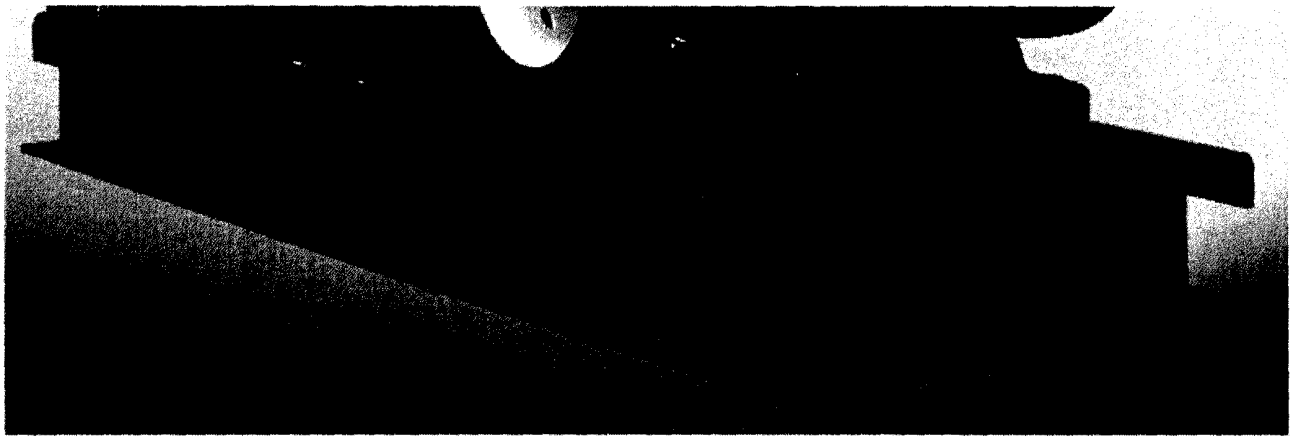
** Applicable for 1480 RPM and slower speeds. † *12x14x22, 14x16x22, 16x18x19 and 18x20x22 have balanced seals and ductile iron volutes, standard*

Groutless Structural-Steel Base Plate

Base plates must be designed with sufficient rigidity to allow the pump and motor shafts to accept the loads without resulting in undue stress, deflection or vibration. This avoids premature wear on the coupling, bearings and mechanical seals and avoids early failure of the equipment. By utilizing advanced Finite Element Analysis and design, a modern state of the art base plate can be provided.

When compared against other styles of base plates commonly found on the market today, the VSX welded-steel baseplate provides superior base stress and frequency capabilities, designed in accordance to ANSI/H.I. 1.3-2000.

- Typical rolled-channel base: the maximum amount of base plate stress reaches 41600 PSI.
- Typical fabricated-rail base: the maximum amount of base plate design stress reaches 28700 PSI.
- VSX structural-steel base plate: the maximum amount of base stress reaches 22900 PSI.



Stresses on a rolled-steel base plate are over 41000 PSI, or 180% worse than a VSX

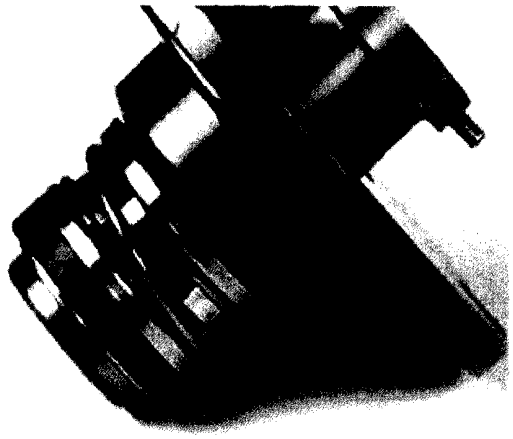
Two common base plate designs utilized on double suction pumps were evaluated against the new VSX welded-steel base plate. Utilizing Finite Element Analysis a rolled steel ("C" channel) and a fabricated-rail design base plate were analyzed against the VSX base plate.

The amount of stress exposed on the VSX base plate will be no more than 22900 PSI whereas the maximum stress reached on a rolled-steel base plate will be over 41000 PSI, or 180% worse.

Simplified Service

No rigging or heavy-duty material handling equipment is necessary to gain access to the bearing, mechanical seals or shaft sleeves. Unlike older horizontal double-suction, split-case and larger vertical inline pumps, there are no heavy top casings or motors to lift off, saving cost, reducing risk and providing easy access to the rotating assembly.

The VSX platform makes bearing, mechanical seal and shaft sleeve inspection easy. The VSX design makes these components readily accessible from both sides of the pump, so that you can service from the inboard* or outboard side without disturbing the piping or the motor. You can also replace just one bearing, mechanical seal or sleeve without disturbing the other side.



Maintenance-Free Bearings

Our maintenance-free bearings eliminate the need for regular maintenance, documentation logs, over-greasing problems and the risk of mixing greases that can cause early failure. This design not only reduces maintenance time and costs, but also helps extend pump life.

New One-Piece Unitized Seal

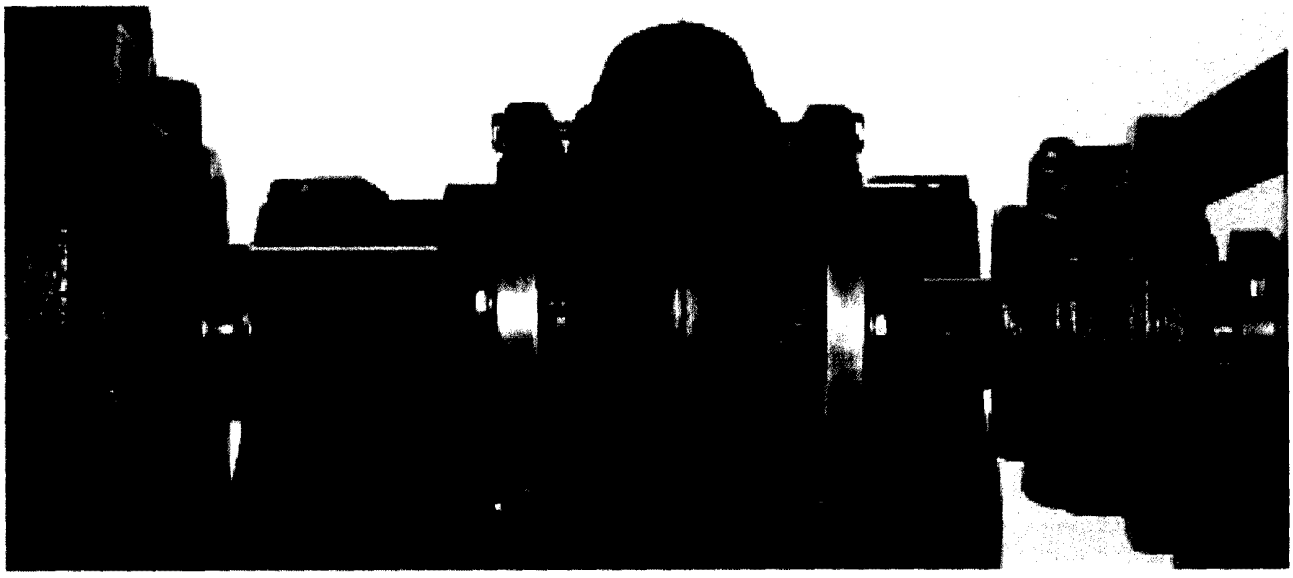
Bell & Gossett's new one-piece unitized seal eliminates multiple seal components and simplifies replacement. Because it uses a one-piece elastomeric bellows, it has fewer parts than competitive seals, resulting in significantly fewer installation errors.

Alignment Friendly Coupling

Elastomeric couplings are specifically designed to accommodate angular shaft misalignment, as well as parallel offset of the pump and motor shafts. However, the amount of the offset and/or misalignment is dependent on the type and style of flexible coupling applied. Left unchecked, coupling misalignment has a significant impact on the overall life of the mechanical seals and bearings of the pump. Laser and even infrared thermal imaging is sometimes necessary on couplings with very tight operating tolerances to insure that the proper alignment has been locked down. This process can be both time consuming as well as expensive.

Compared to the VSX coupling, typical elastomeric inserts consist of either an EPDM, Polyurethane or Hytrel material and are available in dropout or jaw type configuration with the following typical tolerances:

Coupling Type	VSX Non-Spacer Coupling up to 1500 HP	Jaw Type	EPDM	Hytrel
Angular Misalignment	1 - 4 Degrees	.9 - 1.3 Degrees	1 Degree	.25 Degrees
Parallel Misalignment	1/16" - 1/8"	.008" - .027"	.01" - .062"	.01" - .035"



A Robust Pump Starts with Heavy Duty Flanges

Other split-case pumps are provided with flat face, 125# ANSI drilled flanges for 175# working pressure design. When 300# working pressure becomes necessary, a heavier casing becomes necessary - at a heavy price.

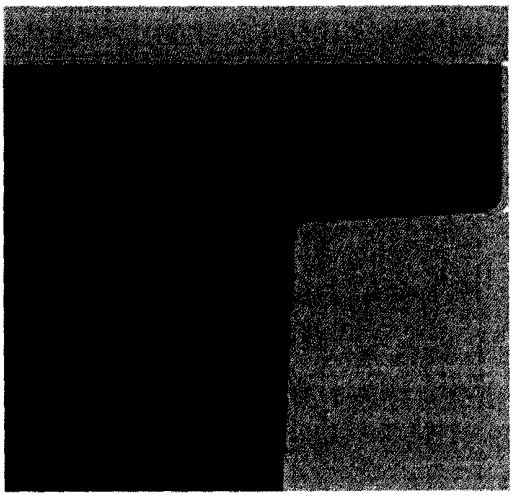
VSX pumps provide as standard a higher level of capability. Every VSX pump is available as standard with 125# ANSI flange drilling coupled with the same heavy duty 300# volute that is provided in applications requiring 175# working pressure.

Table 2, to the right, demonstrates this difference. A typical flange on a six-inch diameter pump is 1" thick. The six-inch flange on a VSX pump is 1.69" thick – 69% thicker than older traditional pump flanges found in the market today.

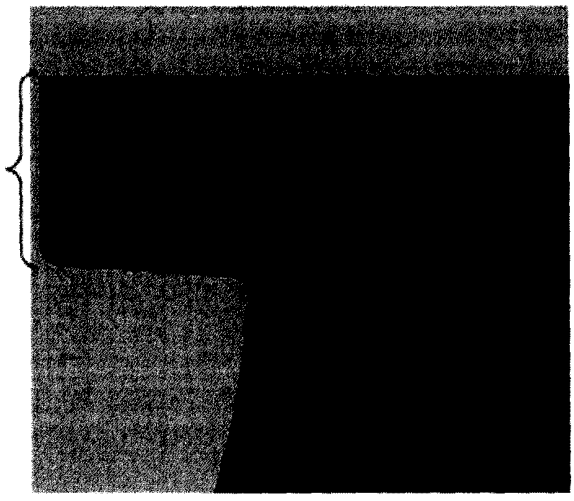
Flange	Typical Split-Case	VSX Split-Case
Diameter	Flange Thickness (in)	Flange Thickness (in)
	125#ANSI	125 & 250# ANSI
4"	0.938"	1.50"
5"	0.938"	1.62"
6"	1.000"	1.69"
8"	1.125"	1.88"
10"	1.188"	2.12"
12"	1.250"	2.25"
14"	1.375"	2.38"
16"	1.438"	2.50"
18"	1.562"	2.57"
20"	1.687"	2.69"

Table 2

Typical Split-Case 125# Flange Thickness



Standard VSX 125# Flange Thickness



Allowable Static Flange Loading for VSX Pumps

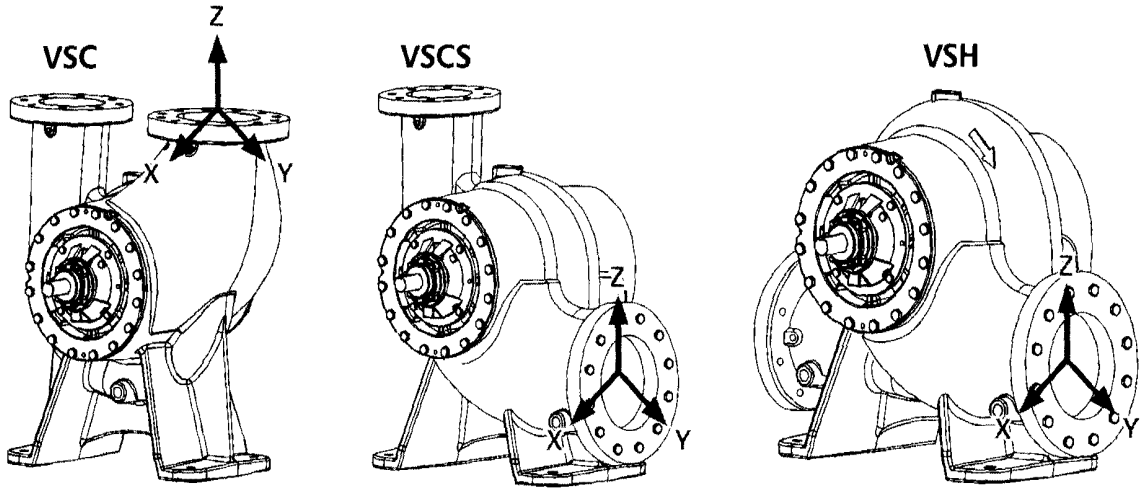
The vertical split case volute design of the VSX provides optimum nozzle loading capability that others just can't match. VSX pump flanges easily support the weight of heavy piping directly on its nozzles.

The unique design of the VSX allows for a significantly higher load level of combined forces versus traditional split case pumps that can only accept singular forces acting upon the pump.

Flg Dia (in)	Fx Max (lb)	Fy Max (lb)	Fz Max (lb)	Mx Max (ft-lb)	My Max (ft-lb)	Mz Max (ft-lb)
4	1615	1215	1615	716	532	716
5	2016	1322	2016	1024	578	1024
6	2417	1428	2417	1332	625	1332
8	3219	1642	3219	1948	718	1948
10	4021	1856	4021	2564	812	2564
12	4824	2069	4824	3180	905	3180
14	5626	2283	5626	3796	998	3796
16	6428	2497	6428	4412	1091	4412
18	7230	2711	7230	5028	1185	5028
20	8032	2924	8032	5645	1278	5645

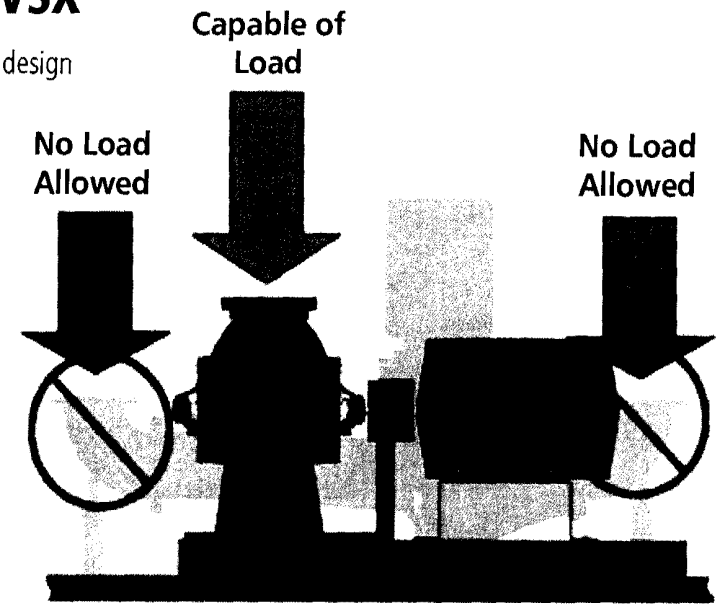
Table 3

System piping can place both forces (Fx, Fy, Fz) and twisting (Mx, My, Mz) moments on a pump casing as seen in Table 3. Only pump casings and base plates of sufficient robustness can endure these types of forces.



Reduce Space and Cost with VSX

Only the VSX offers you so many configurations for piping design flexibility. And only the top suction and discharge flange offering of the VSC offers exceptional space savings. Utilizing a VSC model can reduce your equipment footprint by up to 40 percent over traditional double-suction and large vertical inline pumps. The VSC optimizes the advantages of vertical suction and discharge piping applications by eliminating the added costs of space robbing elbows, protruding accessories and pipe supports.



VSC/VSCS Series

Floor space savings for a VSC pump as compared to a vertical in-line pump as seen in Table 4.

Series VSC

Floor Space – 13 sq. ft.

- Up to 40% smaller footprint than VIL
- Static vertical load on flanges allowed
- Pipe spool not required
- Fewer components for installation

Vertical In-Line

Floor Space – 21 sq. ft.

- Installed floor space is as much as 40% larger
- Discharge spool required to prevent hydraulic noise
- Static vertical load not allowed on valve or diffuser
- Additional components to purchase and install

ESTIMATED ADDITIONAL INSTALLED COSTS FOR VERTICAL IN-LINE PUMPS

ITEM	DESCRIPTION	4" PIPE	5" PIPE	6" PIPE	8" PIPE	10" PIPE
1	Suction Diffuser	$ 277.00	$ 380.00	$ 409.00	$ 777.00	$1,030.00
2	Triple Duty Valve	404.00	504.00	602.00	1,073.00	1,534.00
3	Spool Piece	111.00	156.00	172.00	204.00	406.00
4	Materials for fabricating two pipe supports	14.00	16.00	17.00	24.00	38.00
5	Time for locating and welding two pipe supports; positioning and bolting two pump accessories.	1.9 hrs.	2.0 hrs.	2.1 hrs.	2.6 hrs.	2.8 hrs.
6	Labor @ $45.00 per hr	85.00	90.00	95.00	117.00	126.00
7	Additional floor space cost	131.00	72.00	286.00	976.00	774.00
8	Total estimated additional installed cost over B&G VSC Pump	$1,008.00	$1,202.00	$1,564.00	$3,147.00	$3,840.00

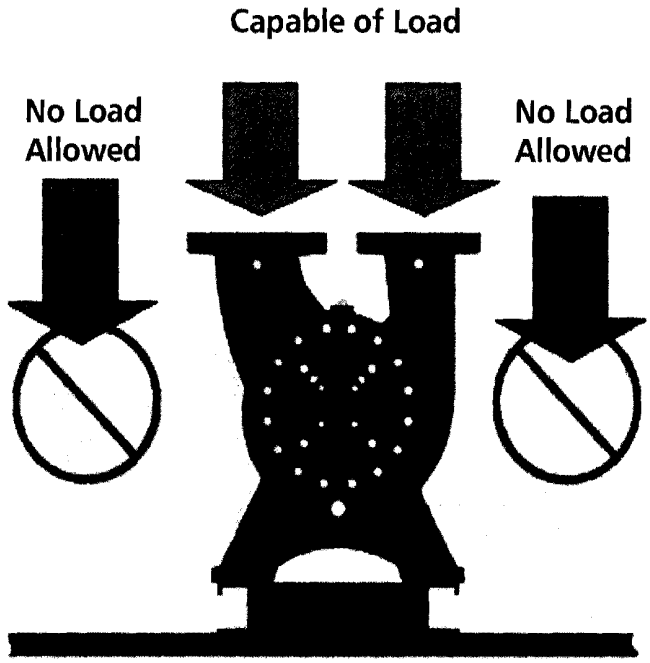
PUMP SIZE	AREA FOR VERTICAL IN-LINE PUMP	AREA FOR VSC PUMP	PERCENT AREA SAVED WITH VSC PUMPS	FLOOR SPACE COST SAVINGS WITH VSC PUMPS $119 PER SQ. FT.
4"	8.1 sq. ft.	7.0 sq. ft.	14%	$ 131.00
5"	10.2 sq. ft.	9.6 sq. ft.	6%	$ 72.00
6"	13.8 sq. ft.	11.4 sq. ft.	17%	$ 286.00
8"	20.7 sq. ft.	12.5 sq. ft.	40%	$ 976.00
10"	26.2 sq. ft.	19.7 sq. ft.	25%	$ 774.00

* Based on average construction costs per sq. ft. of various buildings as supplied by Dodge Construction Statistic for 2005.
The above estimated additional installed costs for vertical in-line pumps are conservative. Actual cost differentials will depend upon locale and piping practices employed.

Table 4

VSC/VSCS Series

Floor space savings for a VSC/VSCS pump as compared to a horizontal split case pump. See Table 5.



ESTIMATED ADDITIONAL INSTALLED COSTS FOR HORIZONTAL SPLIT CASE SINGLE-STAGE DOUBLE-SUCTION PUMPS

ITEM	DESCRIPTION	4" PIPE	6" PIPE	8" PIPE	10" PIPE
1	Two 90° long radius butt weld elbows	$ 24.00	$ 62.00	$ 115.00	$ 207.00
2	Four welding neck flanges	71.00	107.00	199.00	311.00
3	Materials for fabricating two pipe supports	14.00	17.00	24.00	38.00
4	Time for welding four flanges to elbows, gapping and setting flange	8 hrs	9.6 hrs	12.6 hrs	15.8 hrs
5	Time for locating and welding two pipe supports; positioning and bolting two elbow assemblies	1.9 hrs	2.1 hrs	2.6 hrs	2.8 hrs
6	Four welding neck flanges	10 hrs	11.7 hrs	15.2 hrs	18.6 hrs
7	Labor @ $45.00 per hr	450.00	527.00	684.00	837.00
8	Total estimated additional installed cost over B&G VSC Pump	$ 559.00	$ 713.00	$1,022.00	$1,393.00

FLOOR SPACE SAVED WITH B&G VSC PUMPS

PIPE SIZE	AREA FOR CONVENTIONAL PUMPS	AREA FOR VSC PUMPS	AREA SAVED WITH VSC PUMPS
4"	16 sq. ft.	10 sq. ft.	6 sq. ft.
6"	19 sq. ft.	12 sq. ft.	7 sq. ft.
8"	24 sq. ft.	15 sq. ft.	9 sq. ft.
10"	32 sq. ft.	20 sq. ft.	12 sq. ft.

COST SAVINGS IN FLOOR SPACE WITH B&G VSC PUMPS

PIPE SIZE	AVERAGE FLOOR SPACE SAVED WITH VSC PUMPS	SAVINGS WITH VSC PUMPS $119 PER SQ. FT.
4"	6 sq. ft.	$ 714.00
6"	7 sq. ft.	$ 833.00
8"	9 sq. ft.	$1,071.00
10"	12 sq. ft.	$1,428.00

The above estimated additional installed costs for conventional single-stage, double-suction pumps are conservative. Actual cost differentials will depend upon locale and piping practices employed.

2005 Price of Labor Estimated

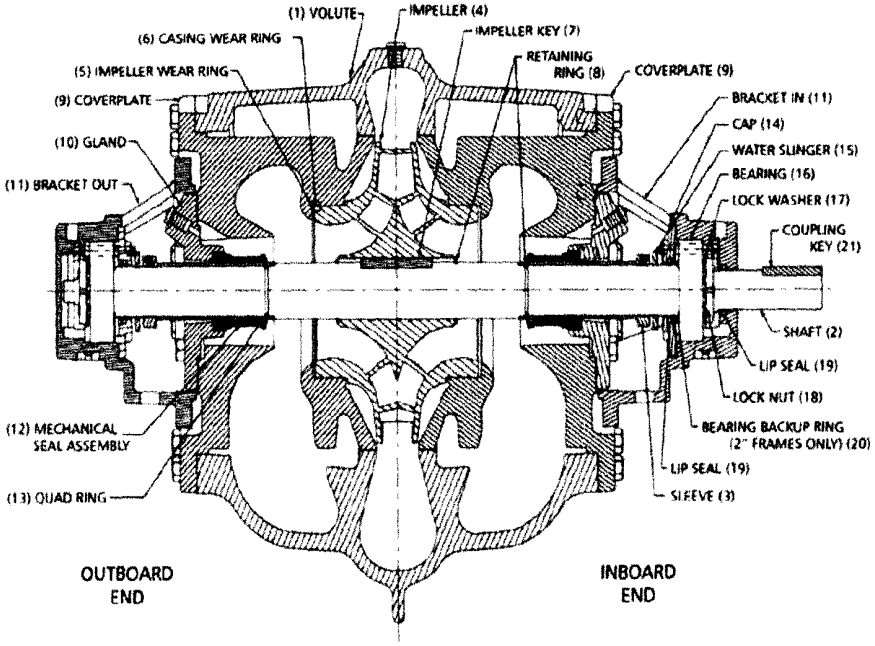
* Based on average construction costs per sq. ft. of various buildings as supplied by Dodge Construction Statistic for 2005.

Table 5

Material of Construction

No.	Description	Standard Offering	Optional Offering
1	Volute	Cast Iron ASTM A159	–
	Working Pressure	175 psig (12 Bar)	300 psig (20 Bar)
	Flange Rating	175 # Max.WP ANSI Flange Drilling FF Flange 125#	300 # Max.WP ANSI Flange Drilling FF Flange 250#
2	Shaft	1045	416 SS
3	Shaft Sleeve	304 SS	–
4	Impeller	Low Zinc Silicon Bronze (ASTM B584 Alloy C87600)	–
5	Impeller Wear Ring	–	Aluminum Bronze
6	Casing Wear Ring	–	Aluminum Bronze
7	Impeller Key	Stainless Steel	–
8	Retaining Ring	Stainless Steel	–
9	Coverplate	Gray Cast Iron	–
10	Gland	Gray Cast Iron	–
11	Bracket (In & Out)	Gray Cast Iron	–
12	Mechanical Seal*	Unitized, EPR-Car/SiC (175 psig)	Balanced, EPR/Graphite Loaded SiC (300 psig)
	Packing	–	Graphite TFE-Std
	Temperature Rating	Min. 0 deg.F (- 18 deg. C), Max. 300 deg. F (149 deg. C)	–
13	Quad Ring	EPDM Rubber	–
14	Cap	Gray Cast Iron	–
15	Water Slinger	Neoprene Rubber	–
16	Bearing	Single Row, Ball Bearing with Shield	–
17	Lock Washer	Carbon Steel	–
18	Lock Nut	Carbon Steel	–
19	Lip Seal	Steel with Nitrile Rubber Jacket	–
20	Bearing Backup Ring	Stainless Steel	–
21	Coupling Key	Stainless Steel	–
	Alignment Friendly Coupling Standard - suitable for VFD up to 1500 HP	Split Non-Spacer	–
	Standard - suitable for VFD 1500 HP and above	Gear Type, Non-Spacer	Non-Spacer, Split Polymer
	Option	–	Drop-out Spacer
	Coupling Guard with View Port	ANSI / OSHA	–
	Baseplate - Groutless	Structural Steel	–
	Drip Pan	–	Galvanized Steel
	Jacking Screws	–	Steel

* Refer to the individual pump submittals for specific limitations



Specifications

2.02 COMPONENTS

A. The pumps shall be long coupled, base mounted, single stage, double suction, vertical split case design, in cast iron bronze fitted construction specifically designed for quiet operation. Suitable for standard operations at 300° F and 175 PSIG working pressure or optional operation up to 300 PSIG working pressure. Working pressures shall not be de-rated at temperatures up to 300F.

B. The bearing housing shall supply support for heavy-duty single row permanently lubricated ball bearings, with provision for purging or flushing if desired. Polyurea grease, capable of handling both high and low temperatures and that is resistant to washout and condensation shall be provided. The bearings shall be capable of absorbing both radial and thrust loads and maintaining the rotating element in proper axial alignment. Bearings shall be capable of being inspected and repaired by removal of only a bearing bracket.

C. The impeller shaft shall be of solid 416 stainless steel material; heat-treated to 80 KSI yield strength.

D. Pump shall be equipped with internally flushed unitized mechanical seal assemblies, mounted on 304SS sleeves, installed in enlarged tapered seal chambers. Application of an internally flushed mechanical seal shall be adequate for seal flushing without requiring external flushing lines. As an option, pump may include a packing gland type seal arrangement.

E. Mechanical seal assemblies shall be unitized, single spring, EPR elastomer bellows with drive ring, Carbon face rotating against a stationary Silicon Carbide face allowing for fast and easy installation and replacement. Seals shall be capable of being inspected and easily repaired.

F. Impeller shall be of the enclosed double suction type made of low zinc silicon bronze, both hydraulically and dynamically balanced to ISO 1940-1:2003 balance grade G6.3 and keyed to the shaft.

G. A coupling, capable of absorbing torsional vibration and of operating in variable speed applications, shall be employed between the pump and motor. An optional Spacer Coupler shall allow for removal of pump's wetted end without disturbing pump volute or movement of the pump's motor and electrical connections.

H. An ANSI B15.1 and OSHA 1910.219 compliant coupling guard shall shield the coupler during operation. Coupler guard shall be dual designed and contain viewing windows for inspection of the coupling. No more than .25 inch opening in the guard around the rotating assembly shall be visible.

I. Pump volute shall be of a cast iron ASTM A159 material (35,000 psi) design with an integrally cast pump discharge and an integrally cast pump suction. Flanges shall be extra heavy-duty design and will be of 250# thickness while capable of being drilled for 125# ANSI flat face use.

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Pump us for information

Our comprehensive Web site (www.bellgossett.com) makes it easier for you to find, specify and understand the VSX pump, fluid handling systems, parts, specifications and applications.

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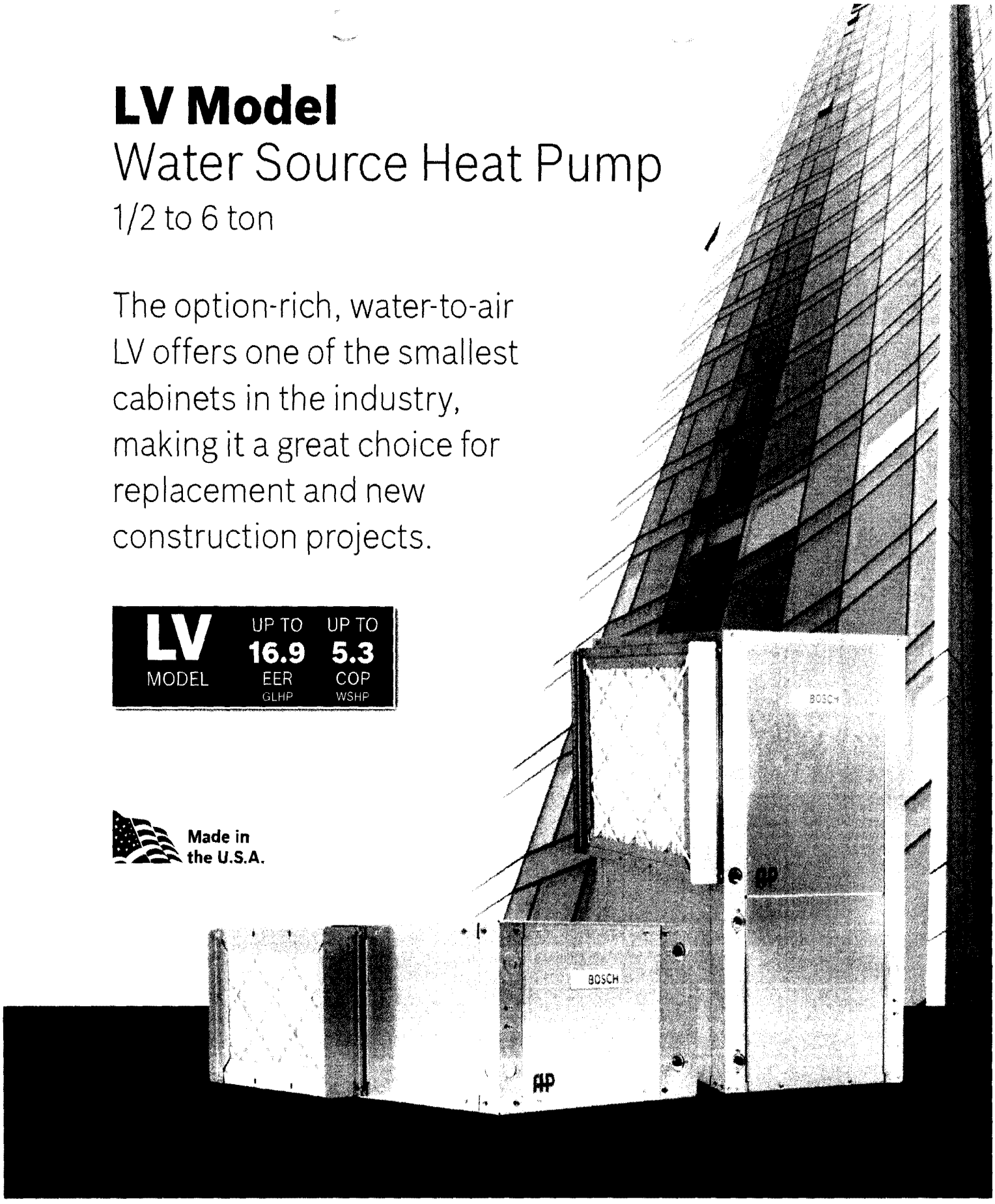

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Subject to change without prior notice.

Model Nomenclature

LV 036 1 VT C F L T P U A

MODEL:
LV

NOMINAL CAPACITY:
007, 009, 012, 015, 018, 024, 030, 036, 041, 042, 048, 060, 070

VOLTAGE DESIGNATION:
0 - 115/60/1 (LV012 only)
1 - 208/60/1 & 230/60/1
2 - 265/60/1
3 - 208/60/3 & 230/60/3
4 - 460/60/3
5 - 575/60/3

CABINET CONFIGURATION:
VT - Vertical
HZ - Horizontal
CF - Counterflow (Downflow)

COAX OPTIONS:
C - Copper
N - Cupro-Nickel

REVISION LEVEL:
A - Current

AIR COIL OPTIONS:
U - Uncoated Air Coil
D - DuoGuard™ Air Coil

FAN/MOTOR OPTIONS:
P - Standard PSC
A - ECM Constant Airflow
T - ECM Constant Torque

DISCHARGE AIR CONFIGURATION:
T - Top
S - Straight
E - End
B - Bottom

RETURN AIR CONFIGURATION:
L - Left
R - Right

WATER CONNECTIONS:
F - Front

Certified Performance Data

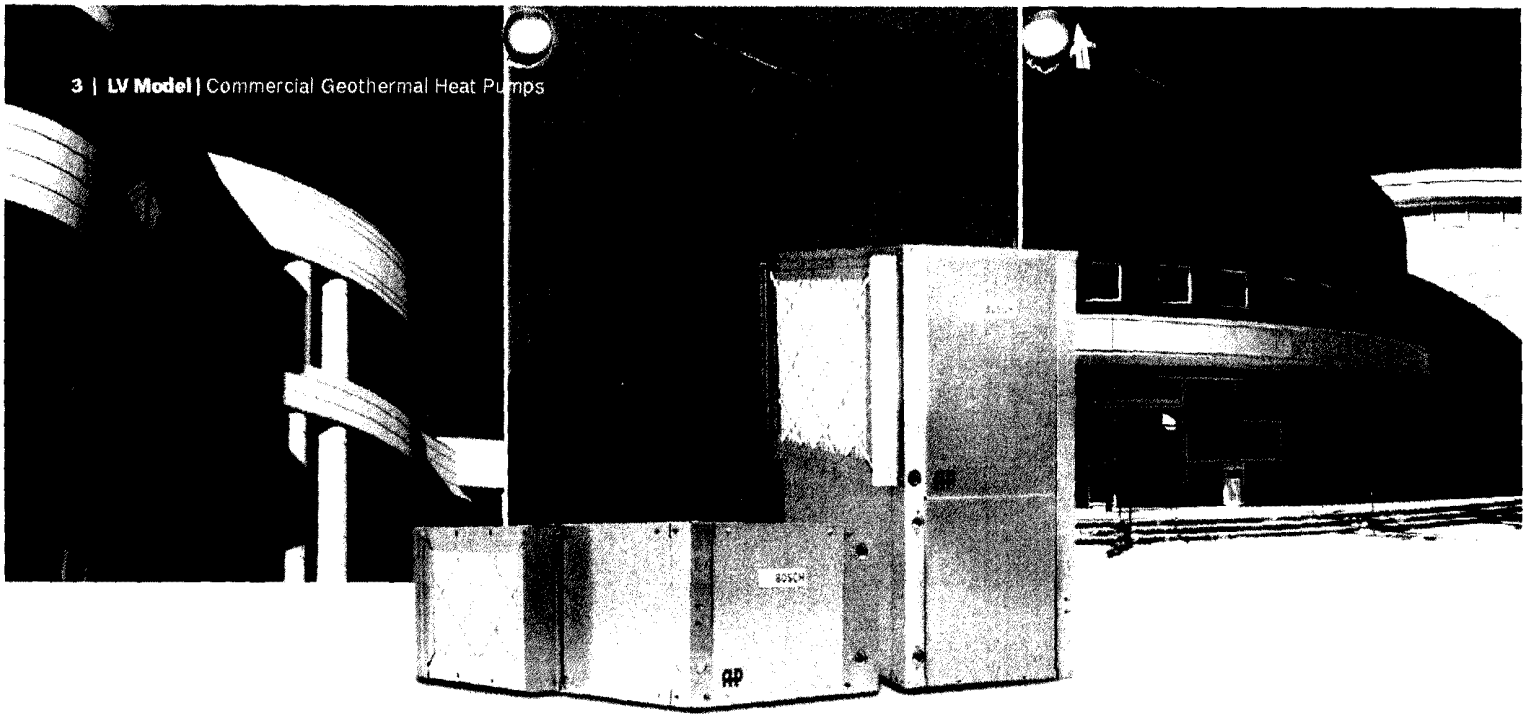
Model	Fluid Flow Rate	AHRI/ANSI 13256-1 Performance Data							
		Entering Water Temperatures							
		86°F		68°F		77°F		32°F	
		Water Loop				Ground Loop			
		Capacity and Efficiency Data - PSC Motor (Standard)							
		Cooling Capacity (WLHP)	EER (WLHP)	Heating Capacity (WLHP)	COP (WLHP)	Cooling Capacity (GLHP)	EER (GLHP)	Heating Capacity (GLHP)	COP (GLHP)
LV007	2.0	6,100	12.20	7,800	5.30	6,800	15.10	4,900	3.40
LV009	2.5	8,200	12.40	9,900	4.70	8,700	14.60	5,740	3.20
LV012	3	10,900	12.20	13,000	4.30	11,800	14.10	8,700	3.20
LV015	4	14,200	12.80	16,100	4.40	14,200	14.60	11,300	3.30
LV018	5.0	19,400	13.40	22,200	4.60	21,200	15.80	14,300	3.50
LV024	6	23,400	13.40	26,600	4.40	25,000	15.50	17,000	3.40
LV030	7	29,200	13.20	33,400	4.30	31,000	14.70	20,900	3.30
LV036	9	37,900	14.70	41,800	4.60	39,900	16.90	26,900	3.50
LV041	9	39,500	13.10	44,600	4.30	41,200	14.30	29,400	3.20
LV042	10	40,000	13.70	46,300	4.30	42,600	14.80	31,000	3.30
LV048	12	45,900	13.00	56,400	4.30	48,800	14.90	35,400	3.40
LV060	15	57,900	13.00	67,200	4.30	60,100	14.10	46,900	3.20
LV070	16	64,000	13.30	72,800	4.40	66,400	15.00	50,800	3.40
		ECM Motor (Option)							
LV015	4	13,700	13.90	15,500	4.40	14,400	16.20	10,700	3.30
LV018	5.0	19,700	14.40	21,900	4.80	21,500	15.90	14,100	3.70
LV024	6	23,800	14.50	26,200	4.60	25,400	16.80	16,700	3.60
LV030	7	30,000	15.00	32,800	4.60	31,600	17.50	20,400	3.40
LV036	9	38,200	15.40	41,400	4.70	40,200	17.70	26,500	3.60
LV041	9	40,500	13.60	43,700	4.40	42,200	15.90	28,500	3.60
LV042	10	40,900	14.10	45,300	4.40	43,500	16.30	30,100	3.50
LV048	12	46,800	14.20	55,600	4.50	49,600	16.30	34,600	3.60
LV060	15	59,000	14.30	66,400	4.30	61,100	16.40	46,200	3.30
LV070	16	65,200	14.60	71,800	4.60	67,600	16.60	50,000	3.50

HP-TYP-2
HP-TPY-7
HP-TYP-5
HP-TYP-1
HP-TYP-3
HP-TYP-4
HP-TYP-6

Tabulated performance data is at noted water temperatures and entering air conditions of 80.6°F DB/66.2°F WB at AHRI/ANSI 13256-1 rated CFM with 1" disposable filter.

GLHP ratings require an extended range option. ECM motors can be either constant torque or constant CFM.

Subject to change without prior notice.



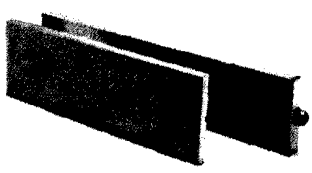
FHP Equipment

Specializing in efficient green technology for commercial heating and cooling products. FHP products are one of the leading Geothermal and Water Source heat pumps in the market, which assures that you are buying a unit that you can trust. Bosch Thermotechnology Corp. is dedicated to providing highly efficient heating and cooling solutions to the private and public sectors.

Bosch Thermotechnology Corp. is always on the forefront of product development and innovative design to optimize the performance of FHP units. Our products are designed and manufactured to the highest quality, reflecting the no-compromise standards for which FHP and Bosch are renowned in order to provide our customers with the highest level of satisfaction and comfort. The variety of options, energy efficiency, and uncompromising quality of all FHP products makes them the ideal choice for the commercial new construction market and the ease of designing into tight retrofit spaces of buildings.

Advantages of FHP Technology

- Low installation costs
- Lower operating costs
- Flexibility and comfort
- Energy efficiency
- Space savings
- Superior quality
- Quiet operation



LV Model 007 - 070

- 13 Models from 1/2 through 6 tons
- Horizontal, Vertical, and Counterflow Configurations*

The LV Model is a cost-effective, single stage water source heat pump designed for commercial retrofit and new construction applications.

*Not all model sizes are available in all configurations. Consult the charts found in this catalog for details.

Features, Functions and Benefits

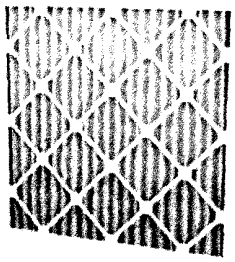
Cabinet

The LV unit cabinetry is constructed using heavy-gauge, G90 galvanized steel. This steel provides superior corrosion protection for units located indoors.

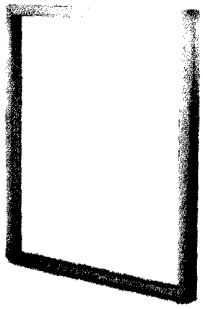
All interior surfaces are lined with 1/2" thick, 1.5 lb./cu.ft. density, Micromat insulation for thermal insulation and acoustical attenuation. This insulation is non-combustible, non-hydroscopic and does not support fungal growth. Insulation meets NFPA 90A and 90B for fire protection and is certified to meet the GREENGUARD® Indoor Air Quality Standard for Low Emitting Products.

Protection against corrosion is a feature in the LV unit. A stainless steel drain pan will last the lifetime of the unit and resist corrosion and cracking that may occur with steel or plastic materials.

Subject to change without prior notice.



MERV-8 or MERV-13 Filter Option



2" 4-Sided Filter Rack Option

Schrader Charging Valves

Closed Cell Foam Insulation (Optional)

Quiet Operation

Noise reduction is a critical consideration of the unit design. All LV units have a distinct floating base pan; the compressor is mounted on a heavy steel plate which rests on a high density rubber pad on the base of the unit. In addition, compressors are mounted on rubber grommets. This double isolation, distinct to FHP equipment, is standard in all LV units preventing vibration and noise transmission from the compressor to the unit structure, resulting in exceptionally quiet operation.

The LV offers optional 1/2" thick, closed cell foam insulation to help aid indoor air quality (IAQ) and to further attenuate low frequency noise from the compressor compartment. The closed cell foam insulation option is available in all unit sizes. For additional sound attenuation, an optional compressor blanket is available on unit sizes 024 and above.

Serviceability

All units are designed to be serviced from the front of the unit. Schrader valves for high and low pressure gauges and the electrical box components are easily accessible for diagnosing and servicing the unit. Insulated bulkheads in all units, separate the compressor section from the blower section, allowing the unit to be serviced during operation.

Large removable panels aid in servicing the unit, when necessary. Separate electrical knockouts in the unit corner post allow for easy and safe routing of high and low voltage lines to the inside of the cabinet.

Unit Configurations

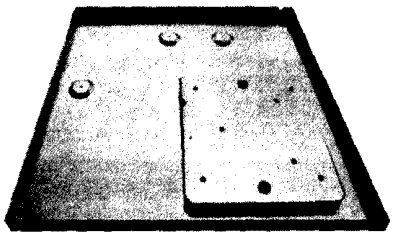
All units are available in horizontal, vertical and counterflow configurations. Additionally, several options of return air and supply air are offered as standard, providing configuration flexibility.

Filter Racks and Options

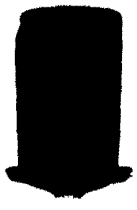
Units come standard with a 1" filter rack and construction filter. A 2" four-sided filter rack and pleated filter is optional and greatly improves air filtration. Filter doors allow for easy routine maintenance and changing of the air filter. A 1" return duct collar is integral to the filter rack eliminating the need for field mounted duct collars.

MERV-8 and MERV-13 Filters

The optional MERV-8 or -13 filter is most advantageous for premium air filtration on commercial HVAC projects. High efficiency filtration is a cost-effective way of upgrading air quality while maintaining low pressure drop and sustaining long service life. These filters effectively remove up to 98% of airborne matter, such as fine particulates, bacteria, smoke, gases and allergens including dust mites, pollen, mold spores, dust and smog. MERV-8 and MERV-13 rated filters are a minimum requirement for EQ credits 3.1 and 5 on LEED projects. With the standard ECM constant airflow motor the LV is prepared to handle higher external pressure drops when utilizing the higher efficiency MERV-13 filters.



Standard



Optional

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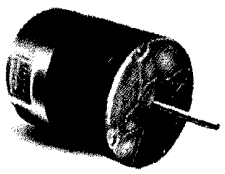
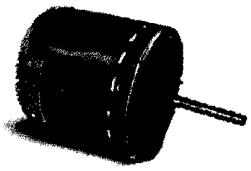
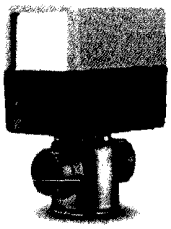


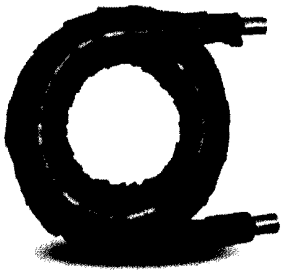
Constant Airflow ECM Option



Constant Torque ECM Option



2-Way Valve with Actuator



Coax Coil

Fan Motor

Permanent Split Capacitor Motors (PSC)

The standard motor for all LV model heat pumps is a PSC motor. For all models other than 575 V units, the supplied motor is a three speed motor. 575 V motors are single speed.

ECM Constant Torque Motor (Optional)

The LV's constant torque blower motor option offers improved efficiency (up to 33%) over the standard PSC motor. This motor is similar in function to a PSC, but can handle up to 1 in.w.g. external static pressure making it a wise choice for high filtration applications. These motors are available in unit sizes 015 to 070. This ECM motor option is an excellent choice for retrofit. The constant-torque motors do not require a neutral wire for 460/3 power.

ECM Constant Airflow Motor

The LV's new high efficiency ECM motor option, available in 1/3hp to 1hp, provides constant airflow in a wide static pressure range up to 1 in.w.g. Available in unit sizes 015 to 070, this motor is a great choice in high filtration applications, such as MERV-13. The motor has a soft start/stop feature, keeping noise to a minimum. LV units outfitted with any ECM motor can see an efficiency boost with up to 1.8 additional points of EER.

Passive dehumidification can be achieved with the constant airflow ECM by reducing nominal airflow by 15%. This control feature lowers air coil temperature and prevents over-cooling of the space when in dehumidification mode. IMPORTANT NOTE: The constant airflow ECM requires a neutral wire in a 460V application.

Hanging Brackets

All horizontal units come standard with hanging bracket kits for suspending the unit from field supplied hanger rods. These kits include heavy-duty steel brackets and rubber grommets for sound and vibration isolation from the building structure.

Water Connections

All water connections are heavy-duty bronze FPT fittings securely fastened to the unit corner post. This allows connecting to a flexible hose kit without the use of a backup wrench making for easier, faster installation.

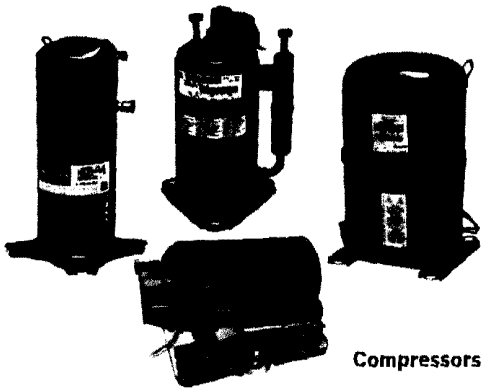
Two-Position Water Valve

The two-position motorized water valve is optional on all unit sizes and is a great energy savings option. The valve opens to allow 100% fluid flow through the coaxial heat exchanger only when there is a call for cooling or heating. Closing off fluid flow to the unit when there is no call for cooling or heating reduces system operating costs, when using variable speed pumping, by reducing the speed of the primary loop pumps.

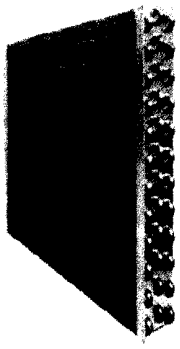
Refrigerant Circuit

LV units are designed using the optimum combination of compressor, water and air coils to provide peak performance. LV units are rated to withstand 600 PSIG working refrigerant pressure and 400 PSIG working water pressure.

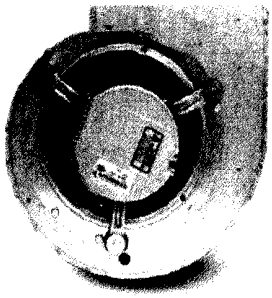
Heavy-duty heat pump compressors are used in all units. Rotary, reciprocating and scroll compressors offer optimum performance for each unit size.



Compressors



Tin Plated with Coated Fin Evaporator Coil (Optional)



Blower Housing (with Removable Inlet Ring)

Refrigerant to water heat exchangers are coaxial tube-in-tube type providing a robust construction, ensuring years of trouble free operation. Coaxial coils are selected and designed for peak performance, offering the best combination of low water pressure drop and maximum heat transfer in both the cooling and heating modes. Standard coaxial coils have a copper interior water tube and a steel outer shell. Optional Cupro-Nickel coils are available for applications where the water is of lower quality.

In geothermal applications where fluid temperatures can drop below the dew point of the surrounding air, optional insulation is available to prevent water coils and refrigerant piping from sweating.

Air side refrigerant coils have copper tubes, aluminum fins and side plates to prevent corrosion.

Air coils are state of the art, employing lanced fin and rifled tubing for maximum heat transfer. Large face areas result in lower face velocity reducing sound while ensuring high latent heat removal for maximum dehumidification in the cooling mode.

A pilot operated four-way reversing valve in the refrigeration circuit allows the unit to operate in either the heating or cooling mode. All FHP units have the reversing valve energized in cooling mode. This will ensure you are not left without heat in the middle of winter, should the reversing valve coil fail.

Refrigerant flow to the air coil is metered by capillary tubes as standard in LV units. Thermal Expansion Valves come with the optional Extended Range LV and are designed to vary the flow of refrigerant depending on the load. TXV's provide unit optimization and a more stable control over a wider range of operating conditions.

Evaporator Coil and DuoGuard™ (Option)

Air handling sections come standard with a copper tube aluminum fin evaporator coil. Available as an option is the DuoGuard™ evaporator coil protection system. DuoGuard™ Protection® - Tin Electro-Plated Copper Tubing with High-Tech Polymer Coated Aluminum Fins will aid in protecting the evaporator coil from most forms of corrosive elements in the airstream. The tin plating provides a best-in-class protection of the copper tubing from formicary corrosion while the fin coating provides protection against salt spray and other corrosive elements. DuoGuard™ protected coils are able to exceed 1000 hours salt spray per ASTM standard B-117.

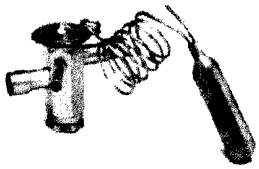
Blower Housing

A removable inlet ring is a standard feature of the blower housing on all unit sizes. The removable inlet ring helps facilitate motor removal without having to remove the fan housing from the cabinet.

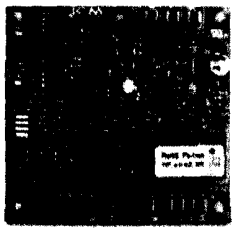
Unit Protection Module

Each LV Model is factory provided with a Unit Protection Module (UPM) that controls the unit operation and monitors the safety controls that protect the unit. The UPM interfaces with the thermostat or direct digital controller. The main purpose of the UPM is to protect the compressors by monitoring the different states of switches and sensors. This module provides time delays and protects the unit against freezing of the water to refrigerant and air to refrigerant heat exchangers as well as condensate overflow.

Subject to change without prior notice.



TXV Valve (Optional)



UPM Control Board

Safety controls include the following as standard:

- High pressure switch located in the refrigerant discharge line.
- Low pressure switch located in the unit refrigerant suction line.
- Standard low fluid temperature (freeze) protection sensor. The freeze protection sensor, located on the refrigerant liquid line entering the coaxial heat exchanger, is designed to disable compressor operation when the unit is in the heating mode, should the refrigerant temperature fall below either 26°F (-6.6°C) or 15°F (-9.4°C).
- Condensate overflow protection sensor is standard and factory mounted in the drain pan of the unit.
- Low air coil temperature (freeze) protection sensor disables the compressor when the refrigerant entering the air coil drops below 30°F (-1.1°C).

UPM Control Board Features

- **Condensate Overflow Protection** – The UPM controller continuously monitors the drain pan for high condensate water level, and if this exceeds normal operating levels, the compressor operation is interrupted to protect against drain pan overflow.
- **Anti-Short Cycle Timer** – 5 minute delay on break timer to prevent compressor short cycling.
- **Random Start** – Each controller has a unique random start delay ranging from 270 to 300 seconds after power is applied to the board. This will prevent the simultaneous start of multiple units after a power outage.
- **Low Pressure Bypass Timer** – The low pressure switch is bypassed for 120 seconds after a call for compressor operation to prevent nuisance low pressure lockouts during cold start-up in the heating mode.
- **Brownout/Surge/Power Interruption Protection** – Prevents compressor operation should the voltage drop below 10% of unit rated value. The unit will restart once the voltage is within tolerance and the random start has timed out.
- **Malfunction (Alarm) Output** – The controller has a set of contacts for remote fault indication. This can be either a steady output or can be set to pulse with the fault code. Two connections are available - one to provide a 24 volt output, the other to provide a dry contact.
- **Test Service Mode** – A dip switch setting is provided to reduce all time delay settings to 10 seconds maximum during troubleshooting for verification of unit operation.
- **LED Fault Indication** – Two LED indicators are provided as follows:
  - **Green**: Power LED indicates 18 – 30 VAC present at the board.
  - **Red**: Fault indicator with blink codes identifying the particular fault. This information is available via the malfunction (alarm) output contacts.

    1 Blink - High Pressure
    2 Blinks - Low Pressure
    3 Blinks - Low Fluid Temperature (Freeze Protection)
    4 Blinks - Condensate Overflow
    5 Blinks - Brownout condition

Subject to change without prior notice.

- **Intelligent Reset**–If a fault condition is initiated, the 5 minute delay on break time period is initiated and the unit will restart after this delay expires. The UPM is configurable for either 2 or 4 fault occurrences before going into a hard lockout. The selection is made through a dip switch setting on the board. If the fault condition still exists or reoccurs twice or four times within one hour, the unit will go into a hard lockout and requires a manual lockout reset. A condensate overflow fault will, however, put the unit into a hard lockout immediately.
- **Lockout Reset**–A hard lockout can be reset by turning the unit thermostat off and then back on or by shutting off unit power at the circuit breaker. The method of reset is selectable by the dip switch on the board.

Additional Options

- Blower monitor relay
- Compressor monitor relay
- Phase monitor
- Pump relay
- Fire alarm relay
- Fault LED light
- 50, 75 or 100 VA transformer option
- 40 Amp disconnect switch
- Single and three phase

Hot Gas Reheat

Hot gas reheat (HGR) allows the user to not only control space temperature, but also humidity levels within the conditioned space. Excessive moisture in the space can promote mold growth leading to damage in the structure or interior surfaces, as well as reducing the air quality and creating an unhealthy environment.

Possible causes of excess humidity could be a byproduct of the unit having to operate under a widely varying load, an oversized short cycling unit, a high percentage of unconditioned outside air being introduced into the space, a high latent load in the space or any location where humidity infiltration is a problem.

Typical unit control is by a wall mounted thermostat that senses temperature in the occupied space. By utilizing a humidistat in addition to the thermostat, LV units with Hot Gas Reheat are able to control the humidity levels in the space as well. The Hot Gas Reheat option allows cooling and dehumidification to satisfy both the thermostat and humidistat while preventing over-cooling of the space while in the dehumidification mode.

Once the thermostat reaches set point temperature, the humidity is above set point, the unit controller will energize the reheat valve operating the unit in hot gas reheat mode, first cooling and dehumidifying, then reheating the air (using hot refrigerant gas) before delivering it to the space, usually 2° to 5°F below room temperature. The unit operates like a dehumidifier by reheating the air along a constant sensible heat line, while the relative humidity of the leaving air is reduced.This option offers significant energy savings over reheating air with electric heating coils.

The moisture removal capacity of a specific heat pump is determined by the unit latent capacity rating. A heat pump's latent capacity can be determined by reviewing the heat pump specification data sheets. Depending upon the entering water and air conditions, a total and sensible capacity can be interpolated from the data sheets. Subtracting sensible capacity from total capacity yields latent capacity. Dividing the latent capacity by 1069 converts the amount of moisture removal from BTU/Hr. to Pounds Per/Hr.

A hot gas reheat valve and a reheat coil are included in the refrigerant circuit. The refrigerant circuit in the cooling and heating mode is identical to a standard heat pump.

In the reheat mode, the compressor discharge gas is diverted through the reheat valve to the reheat coil which is located downstream of the cooling coil. The superheated refrigerant gas reheats the air leaving the cooling coil. The hot refrigerant gas then passes though the water to refrigerant coil where it is condensed to a liquid. From this point the rest of the cooling cycle is completed as in a regular heat pump. There are check valves to prevent refrigerant flow into the reheat coil during standard cooling/ heating cycles.

Subject to change without prior notice.

Hot Gas Reheat Control Options

There are several ways to control heat pumps with hot gas reheat. You should choose the means that best suits your specific application. Please refer to the Hot Gas Reheat wiring diagrams for typical thermostat wiring. Most heat pump compatible thermostats in conjunction with a humidistat are acceptable for use, (Note: "O" output for reversing valve energized in cooling mode is required.) Combination thermostat/ humidistats are also available.

Special Considerations

Some applications require special attention to maximize the performance of the hot gas reheat function:

- Low Temperature Well Water
- Indoor Pool Dehumidifying During Winter Months (Re: Heating Mode)

Consult the factory for special application considerations.

Low Temperature Well Water

When low temperature well water is utilized as the water source (below 55°F), a means of establishing two flow rates, one for the cooling/reheat mode and one for heating mode is recommended. In the cooling mode at low entering water temperatures and standard flow rates, discharge pressures and corresponding discharge gas temperatures are relatively low. At these conditions, when the reheat mode is initiated, the low temperature discharge gas can reduce reheat capacity. A means to reduce the water flow rate and elevate the discharge pressure/temperature in cooling/reheat mode should be provided. Conversely, at low entering water temperatures in the heating mode, system suction pressure is reduced causing a loss in heating capacity. A means of providing higher flow in the heating mode should be supplied. The simplest way to accomplish the above is to install water regulating valves.

Indoor Pool Dehumidifying During Winter Months

It is important to remember that when in the reheat/ dehumidification mode the heat pump is cooling and reheating. A secondary means of heating the space during the dehumidification mode should be provided. For indoor pool environments, the indoor space temperature should be kept at least two (2) degrees F above the pool water temperature. If this is not done the warm pool water attempts to heat the space and the humidity levels increase exponentially. The heat pump is normally sized to handle the design latent load moisture removal. A second heat pump or resistance heat should be provided to handle the structure's shell loss load. DuoGuard™ evaporator coil option is required for this application.

Protective coatings are highly recommended for all pool applications, due to the highly corrosive chemical environment.

Sequence of Operation - Modulating Hot Gas Reheat (MHGRH)

Modulating Hot Gas Reheat differs from On/Off in that the reheat function is always active. The purpose of Modulating Hot Gas Reheat is to deliver supply air at or close to neutral conditions.

Air is cooled and dehumidified by the cooling coil to around 55°F DB/54°F WB. A sensor located in the supply air stream is set at the required leaving dry bulb temperature and will send a signal to the modulating hot gas reheat valve to direct the flow of hot gas to maintain that temperature. A typical application for this would be in treating 100% outside air. This air would be ducted directly into the space relieving the unit handling the zone of any outside air load. This can result in a smaller zone unit, less airflow and a savings in both initial and operating cost.

Control of the hot gas modulation is by the thermostat in the supply air duct or through a building management system. A separate controller is used to control the unit itself.

Hot Gas Bypass

The function of the hot gas bypass valve is to prevent icing of the air coil when the unit is operating at low cooling load conditions. This situation could arise if the space experiences widely different loads, for example a conference center or if a unit is sized for heating, it could be oversized for cooling. Without a hot gas bypass circuit the evaporating temperature could fall and ice could form on the coil restricting airflow and aggravating the situation. Eventually the heat pump could lock out on air coil freeze protection.

The hot gas bypass valve located in the compressor discharge line diverts hot gas to the inlet of the air coil. The valve is factory set to open when the evaporating pressure falls to 90 PSI and will modulate to prevent the pressure falling any lower. This setting is field adjustable and this set point may be adjusted as required.

Psychrometric Chart

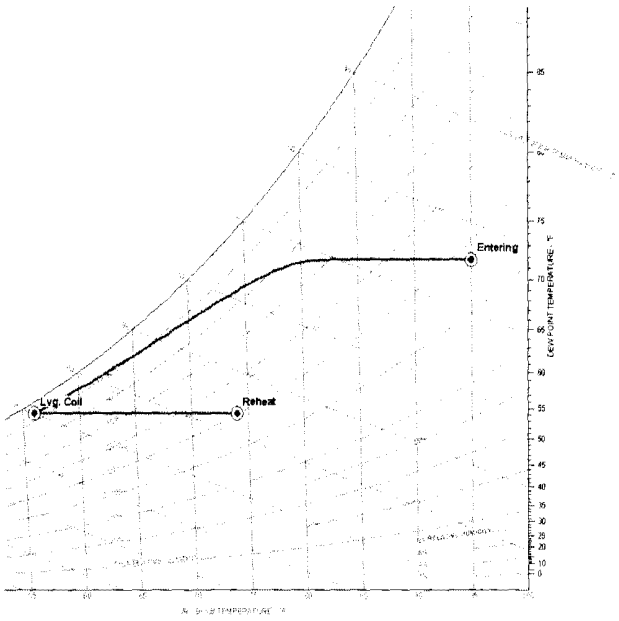


Figure 1

DDC Controls

The optional factory mounted DDC Controller is preprogrammed and installed on the unit with the Unit Protection Module (UPM) to be job site ready. The unit will operate in a 100% stand-alone control mode or connect to a Building Automation System (BAS) using open protocols BACnet™, Modbus, N2 or LonWorks® (with an optional Lon card). Stand-alone DDC modules must use remote intelligent sensors and are to be programmed by the BACview® controller only.

Zone temperatures, leaving air temperatures and water temperatures can be monitored from the central control computer and unit fault indication displayed. Available inputs/outputs include:

- Discharge air temperature
- Leaving water temperature
- Fan run time
- Override time remaining
- Night setback status
- Percent of units cooling
- Percent of units heating
- Cooling set point
- Heating set point
- Status of all the alarms
- Space temperature
- Occupied heating and cooling set points
- Continuous or cycle fan during occupied mode
- Command for occupied or unoccupied mode
- Command for override of the unoccupied mode (unit resorts to occupied set points)
- Set point adjustment

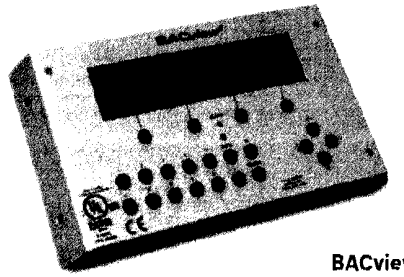
DDC Room Sensors

To complement the controller, Bosch offers a line of intelligent space sensors, which provide precision measurement and communication capabilities in an attractive low profile enclosure. A hidden communications jack provides access to the HVAC control system for commissioning and maintenance.

Models available include:

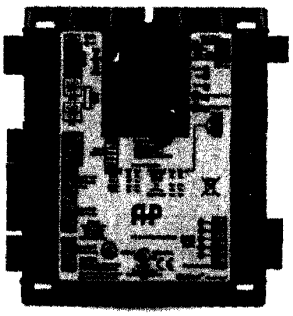
- **The RS Pro** has a large LCD display and easy-to-use occupant controls for set point adjustment.
- **The RS Plus** offers a local set point adjustment and override to an occupied mode and LED indication of current status.
- **The RS Standard** which has no local temperature set point adjustment.

A BACview® hand held diagnostic tool is available to allow local access to display and modify user defined properties without any computer software. These space sensors will monitor, sense and provide local control for the room.

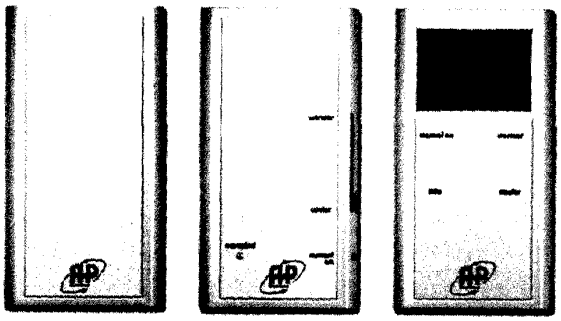


BACview® Hand Held Diagnostic Tool

Subject to change without prior notice.



DDC Control Board



RS Base DDC Sensor | RS Plus DDC Sensor | RS Pro DDC Sensor

DDC Zone Sensors*

The Pro Zone Sensor (ZS) has an LCD screen that can display the current temperature and set temperature. It can also display relative humidity and CO_2 settings as well as their current readings. It comes with a button for additional information that can be displayed.

The Pro ZS can be ordered in any of the following combinations:

- Temperature setting only
- Temperature with relative humidity settings
- Temperature, relative humidity, and CO_2 settings

The Plus Zone Sensor (ZS) has a little different look to it. It has a occupied indicator that identifies the sensor to be operating in occupied conditions. It comes with a slide bar of for some manual temperature control in the occupied mode +/- setting can be adjusted during commissioning.

The Plus ZS can be ordered in any of the following combinations:

- Temperature setting only

The Base Zone Sensor (ZS) is limited to only sensing capabilities without local controllability. This zone sensor offers a basic look and blends into most decors.

The Base ZS can be ordered in any of the following combinations:

- Temperature sensor
- Temperature and relative humidity sensor

* DDC Zone Sensors available through Applications Special Handling Sheet. When the Zone Sensors (ZS) are available as a standard option they will replace the Room Sensors (RS).

Waterside Economizer

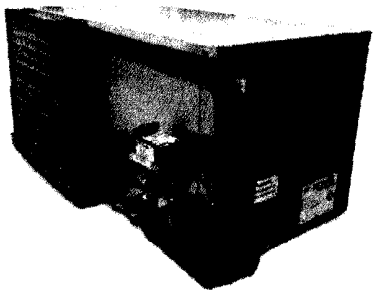
Common Waterside Economizer Applications

- Commercial application where perimeter heating is taking place while core cooling is required. Perimeter heat pumps operating in the heating mode extract heat from the building loop, thus dropping the building loop fluid temperature. Internal core cooling requirements are usually high even in the winter months due to people, lighting, and equipment loads. The moderate temperature loop water circulated through a core heat pump's waterside economizer coil can provide free-cooling without the use of mechanical cooling (Compressors). Also, in many areas code requires some type of economizer cycle. Waterside Economizers in lieu of air side economizers are an inexpensive way to satisfy code requirements in commercial applications.
- Can also be sized up for preheating.
- Tenant build out commercial applications where the central chilled water fluid loop serves as a individual zoned heat pump condenser water. In this application low temperature fluid is always available for free-cooling.

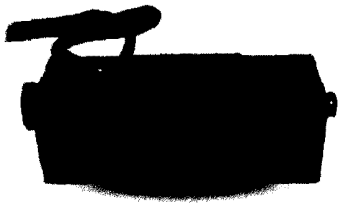
Fluid Flow

Fluid flow through heat pumps equipped with waterside economizer coils is directed by the use of a single three-way motorized ball valve. Flow is either through the waterside economizer coil and then through the condenser or through the condenser only. When applying these units to a variable speed pumping system, a separate field provided means of positive flow shut-off is required. (Re: A positive shut-off solenoid valve located down stream of the heat pump. See figure 2 on next page).

Subject to change without prior notice.



Waterside Economizer (Optional)



Fluid Differential Pressure Switch (Optional)

Aquastat

The aquastat controller is mounted to the heat pump electrical control box. All electrical control wiring is factory installed. The controller is supplied with an external range adjustment and screwdriver slot. Actual range is -30° to 100°F and requires field setting. The remote bulb stored inside the heat pump for shipping requires field mounting.

Recommended settings: 45° F Cool, 90° F Heat

Air Side Pressure Drop

The air side pressure drop shown on the waterside economizer performance tables is considered as additional heat pump external static pressure. Refer to Bosch Select Tools selection software for blower performance and to determine if the unit requires an optional fan upgrade.*

*See fhp-mfg.com for BST Software.

Fluid Differential Pressure Switch

The function of the differential pressure switch is to prevent or stop compressor operation should the water supply fail. This will prevent the unit from locking out on a safety requiring a manual reset to restart. This optional control is internally mounted and factory installed.

The switch is piped between the water entering and leaving connections. Should the pressure drop across the water to refrigerant heat exchanger and fall below set value, the switch will open de-energizing the compressor. The blower operation will not be affected by this option.

Energy Management Switch (EMS)

This switch allows you to connect to an energy management system that can turn the unit off and on.

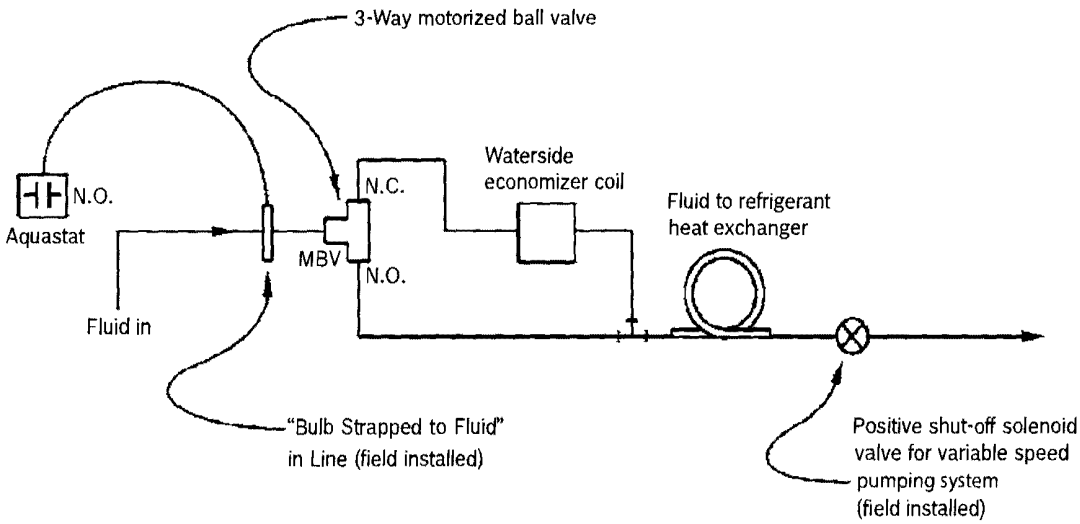
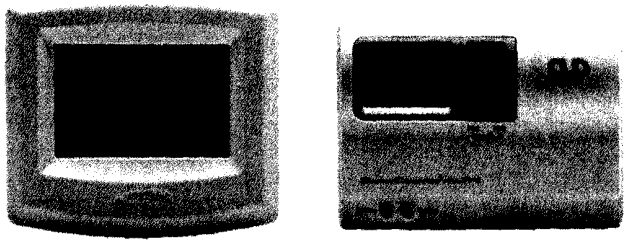
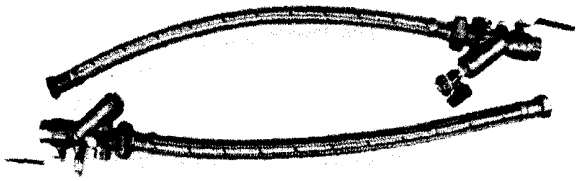


Figure 2



Thermostats



Hose Kit

Accessories

Thermostats

The unit control may be as simple as a single stage thermostat or the unit may have a DDC controller integrated into the building management system.

All external low voltage control wiring is made to the thermostat terminal located in the unit electrical box.

Thermostats may be manual change over, auto change over, programmable or non-programmable depending on the requirements of the project. A full line of thermostats are available as an accessory.

Hose Kits

Hose kits are recommended between the unit and system loop piping. This will help eliminate the transmission of vibration and noise from the unit to the space.

Hoses are fire rated fiber reinforced EPDM Stainless Steel braid hoses with swivel connections.

Maximum working pressure 400 PSI for sizes 1/2" – 1" diameter and 300 PSI for sizes 1 1/4" – 2".

A variety of hose kits are available depending on the job requirement.

- **Kit 1**: Hoses only. 3/4" through 2" diameter hoses are available with 24" and 36" hose lengths. 1/2" diameter hose kits are available only with 12" long hoses.
- **Kit 2**: Hose kit 1 with ball valves on the supply and return hoses. Valves have P/T (pressure/temperature) ports to facilitate pressure and temperature readings.
- **Kit 3**: Hose kit 2 with an automatic flow control valve. The design flow rate is preset at the factory per the design conditions and will automatically limit the flow to this value. This will greatly facilitate balancing of the fluid loop and ensuring each unit gets the required flow.
- **Kit 4**: Hose kit 3 with a Y-strainer and blow down valve on the supply side. The filter screen is 20 mesh, 304 stainless steel to help prevent dirt and debris from entering the water coil.
- **Kit 5**: Hose kit 3 with a 24 v 2 position solenoid valve. This could be used to shut off flow to the unit when there is not a call for heating or cooling. A typical application would be with VFD pumping.
- **Kit 6**: Hose kit 4 with a 24 v 2 position solenoid valve. Hose kit options are available in the accessories section of the BST selection software.

Unit Configuration Diagrams

Counterflow

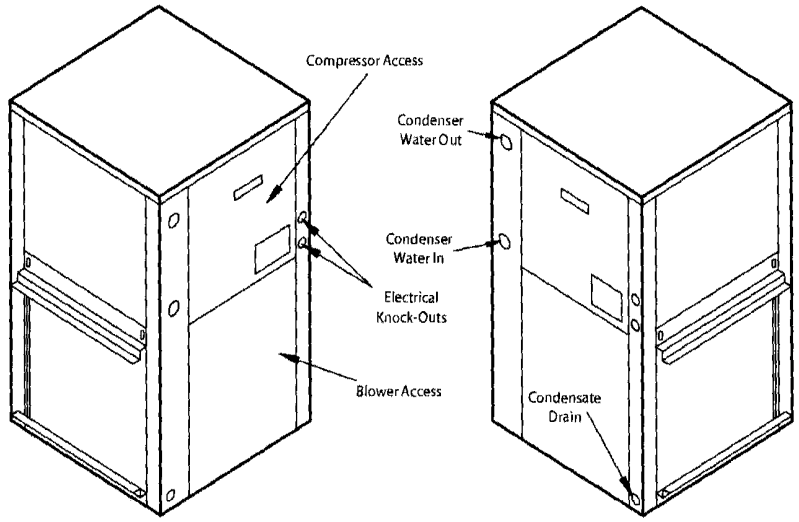


Figure 3

Left Hand Return Top Discharge FLT | Right Hand Return Top Discharge FRT

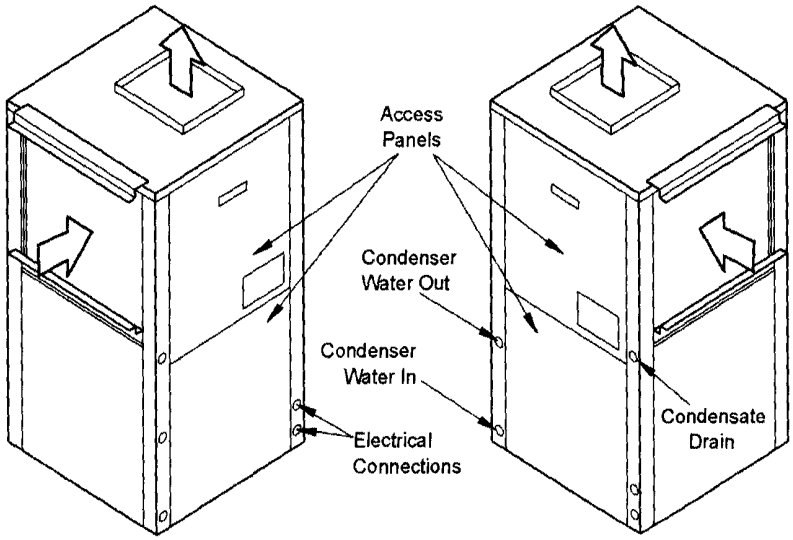


Figure 4

Typical Horizontal Unit Configurations

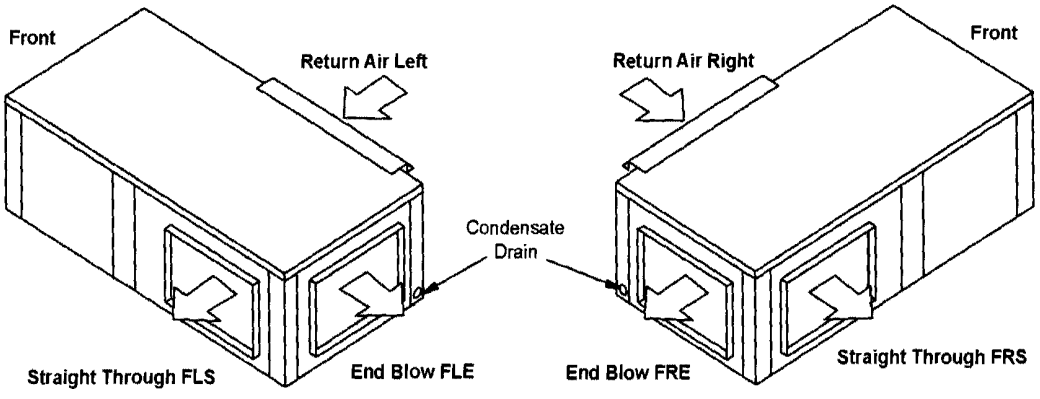
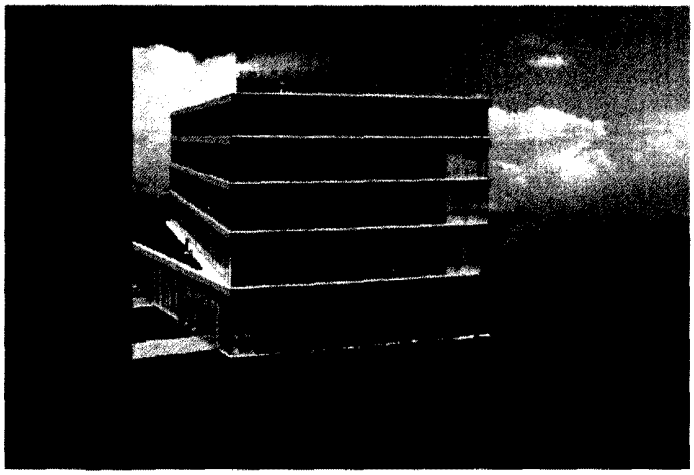


Figure 5

Systems

LV Models may be used in a variety of different applications depending on the system design. An overview of tower/boiler and geothermal systems is given below. There could be several variations and combinations of these systems.

Cooling Tower/Boiler Systems



Water source heat pumps with cooling tower/boiler systems have been used for many years and are recognized as having a low installation cost and providing more energy efficient operation than most other systems on the market.

In a typical building, each office or space would receive its own heat pump. This ensures that the unit will independently satisfy the heating or cooling requirements for that space irrespective of the requirements of any other space. Unlike some other systems, this offers individual control and enhanced comfort in all areas.

All the units are connected to a common water loop containing, in addition to the heat pumps, a cooling tower, boiler, a primary and standby pump and a loop water temperature controller. In the summer cooling mode, the units are cooling and rejecting heat to the water loop. This heat is then rejected to the atmosphere through a cooling tower. In winter, heat is taken from the loop and, together with the compressor's heat of compression, used to heat the space. The heat removed from the loop is then replenished by the boiler. The loop water temperature controller will keep the fluid within certain temperature limits typically 70°F in winter and 85°F in summer by cycling either the cooling tower or boiler.

In today's modern buildings the interior core usually has a net cooling requirement year round irrespective of the outside temperature. This is due to the internal heat gains from people, office equipment and lighting. The heat from heat pumps operating in cooling is rejected to the common water loop and is absorbed by heat pumps on the building's perimeter that are in the heating mode. In effect the system is transferring energy around the building areas from where it is in excess to those areas where it is needed. In many instances we find a balanced system where the heat generated in the interior space is sufficient to heat the perimeter, resulting in neither the cooling tower nor boiler operating. This concept, unique to a water source system, provides the most energy efficient system on the market.

Geothermal Systems

The earth has a tremendous capacity of storing thermal energy, which can be utilized to heat or cool a building.

A geothermal system offers all the benefits of a cooling tower and boiler system with the additional advantage of having overall greater energy efficiency. As the cost of energy increases, geothermal installations are becoming the system of choice by developers and design engineers.

There are several alternative methods of utilizing the energy contained in a geothermal system, giving the design engineer several options for selecting the one that is right for a particular application.

Earth Coupling Options

Ground Loop Systems (Closed Loop)

Lengths of high density polyethylene piping are buried in the earth either in vertical bore holes or horizontal trenches depending on the space available.

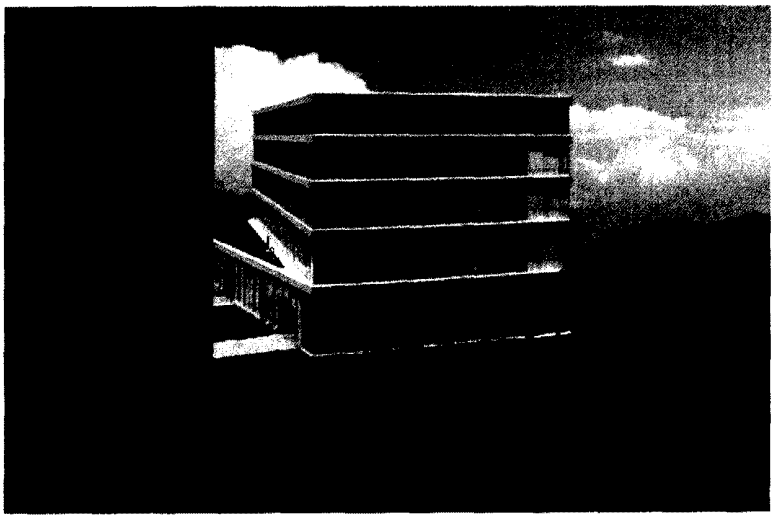
Fluid from the loop inside the building circulates through these pipes either rejecting heat to the ground when there is a net cooling requirement or absorbing heat from the ground when heating is the dominant requirement.

The temperature of the earth below 6 feet is relatively constant and is not affected by the ambient temperature. For this reason, the ground temperature is cooler than the summer ambient and warmer than the winter ambient in most regions. Geothermal systems are able to operate effectively in extreme ambient conditions exceeding 100°F in summer and -30°F in winter. This is one of the reasons why geothermal systems have such an advantage over other systems. An additional advantage is that no fossil fuels are used, reducing the carbon emission of the building.

Even in areas which are cooling or heating dominant a hybrid system can be used with a downsized cooling tower or boiler. This system will reduce the installed cost significantly with only a modest impact on overall operating efficiency.

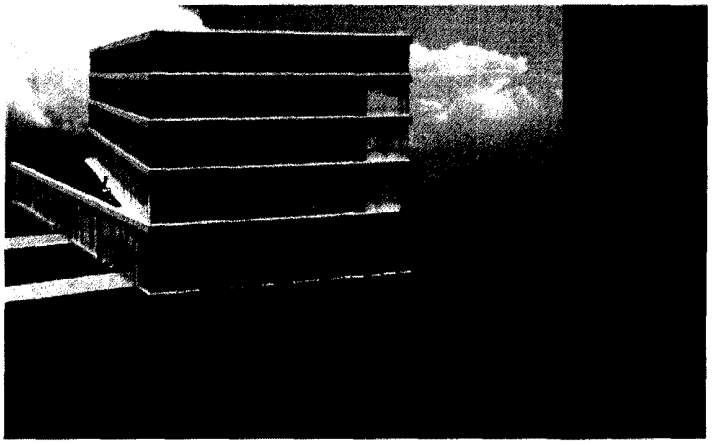
Geothermal systems may cost more to install but the savings in energy and low maintenance costs more than off set this with payback times typically five years or even less.

Vertical Ground Loop System



This method is used mainly in commercial buildings or where space for a loop field is limited. Vertical holes 100 to 400 feet deep are drilled in the ground, and a single loop of high density polyethylene pipe with a U-tube at the bottom is installed. The bore hole is then sealed with grout to ensure good contact for heat transfer with the soil. The size of the project will determine how many bore holes are required. The vertical ground loops are then connected to a horizontal header pipe that carries fluid to the building and circulated to each heat pump. The Earth's temperature is stable below the surface which is an advantage for this system and provides for the greater efficiency. Vertical ground loop fields may be located under buildings or parking lots. The life expectancy is in excess of 50 years.

Horizontal Ground Loop System

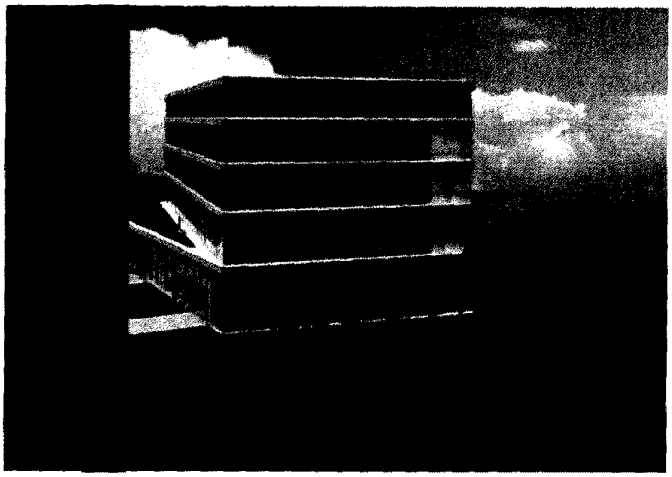


This type is cost effective on smaller projects or where there is sufficient space for the loop field. Trenches, three to six feet deep are dug in which a series of high density polyethylene pipes are laid. These loops are manifolded and connected to the loop inside the building which feeds the heat pumps. The fluid is then circulated, absorbing or rejecting heat to the earth depending on the requirement for heating or cooling.

Subject to change without prior notice.

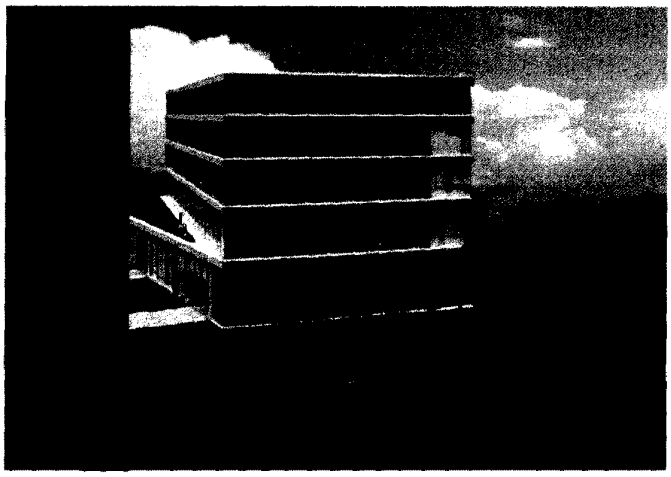
Typical Heat Pump System

Surface Water, Lake or Pond System



This type of design is economical when a project is located near a body of water. Fluid circulates through polyethylene piping in a closed system, just as it does through ground loops, but in this case, underwater. The pipes may be coiled in a slinky to fit more surface into a given amount of space. The lake needs to be a minimum size and depth depending on the building load. Lake loops have no adverse impact on the aquatic system. Specialized lake heat exchangers are also available for this application. New technology is emerging for stainless steel and titanium heat exchangers.

Well Water System



This type of installation is only possible if there is sufficient ground water available in a well. The water must be of good quality. Local codes may limit the use of this system in certain areas. The arrangement is referred to as an open system which means that water is pumped directly from the source into the geothermal unit and then discharged either into a return well or a body of water. The water quality is unaffected other than a change in the temperature. Refer to the installation manuals for water quality guidelines.

Typical Heat Pump Operation

Cooling Mode

In the cooling mode, hot high pressure refrigerant gas is pumped from the compressor to the water-to-refrigerant heat exchanger via the reversing valve. Water, or an anti-freeze solution, flowing through the water-to-refrigerant heat exchanger transfers heat from the refrigerant to the fluid raising the fluid temperature while condensing the hot gas into a liquid. This liquid refrigerant then flows through a metering device, where the refrigerant is expanded to a cold liquid, to the air-to-refrigerant heat exchanger coil.

The air-to-refrigerant heat exchanger cools and dehumidifies air by evaporating the liquid refrigerant. The cooling cycle is completed when the refrigerant flows as a low pressure gas through the reversing valve and back to the suction side of the compressor. Cool dehumidified air is circulated to the space maintaining comfort conditions.

Heating Mode

During the heating mode, the high pressure refrigerant gas is pumped from the compressor to the air-to-refrigerant heat exchanger coil via the reversing valve. In the air-to-refrigerant heat exchanger coil, the heat is removed by the air that passes over the coil surface, and the hot gas condenses into a liquid.

The heated air is ducted to the space and provides heating for the building. The refrigerant liquid then flows through a metering device to the water-to-refrigerant heat exchanger. Water, or an anti-freeze solution, circulates through this heat exchanger and is cooled by the evaporating refrigerant which evaporates into a gas. The heating cycle is completed when the refrigerant flows as a low pressure gas through the reversing valve and back to the suction side of the compressor.

Subject to change without prior notice.

Typical Unit Installation

Water-to-Air Heat Pump Cycle – Cooling

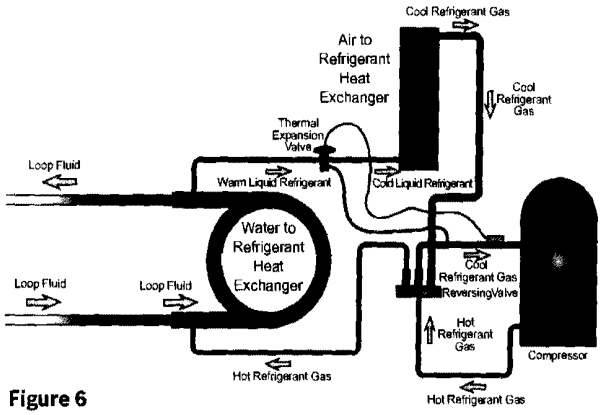


Figure 6

Water-to-Air Heat Pump Cycle – Heating

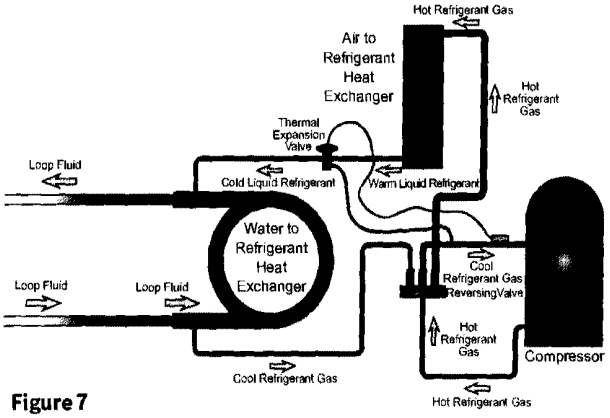


Figure 7

Unit Location

Any mechanical device will, at some point in time require servicing and repair.

With this in mind sufficient space must be provided around the unit for service personnel to perform maintenance or repair.

Units are not designed for outdoor installation. Avoid locations where the unit may be exposed to freezing conditions or where the humidity levels could cause condensation on the unit panels, for example, when exposed to outdoor ambient conditions.

Vertical Unit Installation

Vertical units are normally installed in a closet or mechanical plant room.

If installed in a closet or other confined space, ensure adequate space for return air to the unit.

Sufficient space must be provided for filter replacement and access to the compressor and blower for service.

Units should be set on a piece of rubber, neoprene or other vibration absorbing material at least 1/3" to 1/2" thick. The pad should extend 3/4" over the entire base of the unit.

Avoid direct line of sight to the unit. Install a sound baffle over any door that has a return air grille.

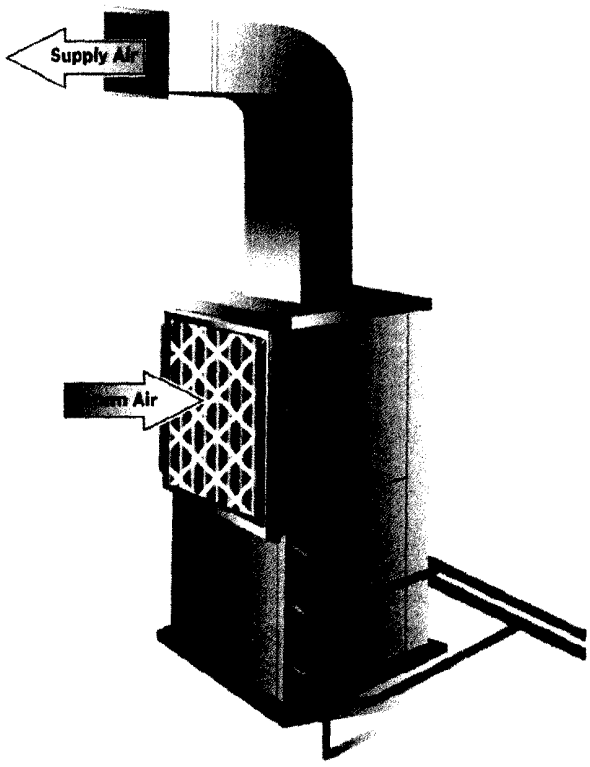


Figure 8

Typical Unit Installation

Horizontal Unit Installation

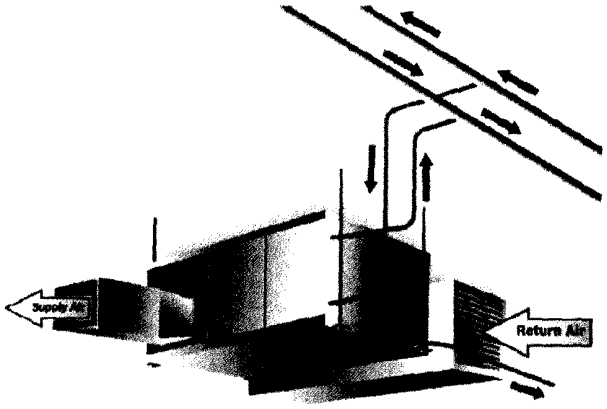


Figure 9

Horizontal units are typically suspended above the ceiling by four (field supplied) 3/8" threaded rods fastened to the unit by the factory supplied hanger bracket kits. The kits include rubber isolators to help prevent transmission of vibration and noise to the building structure. Units should be located directly below a structural member, so that it is securely anchored.

A horizontal unit should be positioned to allow for removal of the filters and access panels. Allow at least 18" clearance on each side of the unit for service and 36" in front of the unit for maintenance access. The filter needs to be slid out and sufficient space must be provided to allow this.

Do not install the unit above any piping or electrical raceways. The unit should be able to be removed to the floor without major rearrangement of other mechanical or ceiling components.

Consideration needs to be made as to the location of the units. Avoid installing units directly above occupied spaces (e.g. above office desks or classrooms). This will minimize possible disruption to the occupants if maintenance or service is required as well as keeping a potential source of noise out of the area. If possible, units should be installed above the hallway drop ceiling in schools, and the supply and return air is routed directly into classrooms. Local code may require fire dampers to be used in this application.

Ductwork and Sound Attenuation Considerations

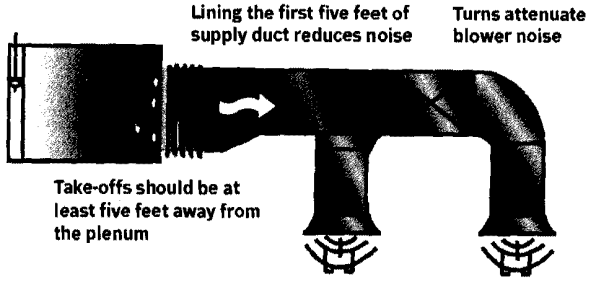


Figure 10: Supply Air Ducting

Sound is becoming an increasingly important factor in all HVAC installations. The LV models has been designed to minimize sound, but sound acoustical design plays an important part of the sound level in the space.

Most of the problems associated with HVAC generated sound can be avoided by paying close attention to duct design and equipment placement.

A discharge flange is provided on all horizontal unit models for fastening of ductwork. We recommend using a flexible collar between the discharge flange and the duct transformation to reduce vibration transmission from the cabinet and to simplify disconnection of the unit from the ceiling ductwork.

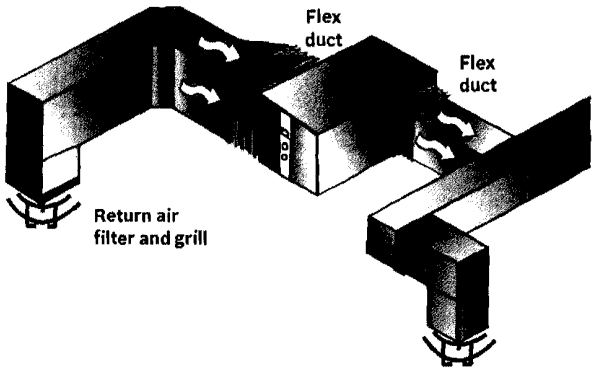


Figure 11: Return Air Ducting

Return air to the unit could be either free return or ducted. The filter rack is provided with a 1" flange should a ducted return be used. We recommend using a flexible collar between the return flange and the duct transformation to reduce vibration transmission from the cabinet and to simplify disconnection of the unit from the ductwork.

Sound is transmitted down the ductwork and it is important to avoid direct line of sight between the unit and the space, both on the return or supply side. To accomplish this, design the duct runs with two 90° turns.

As a general recommendation, duct interiors should have an acoustic / thermal lining of least ½" thick over the entire duct run or a minimum of the first 5 feet of the supply trunk.

Line the last five diameters of duct before each outlet with a 1" thick sound blanket. Line elbows and transition pieces, as well as a short distance upstream and downstream of the fittings.

Elbows, tees and dampers can create turbulence or distortion in the airflow. Using aerodynamic fittings will help in reducing this effect. Place a straight length of duct, 5 to 10 times the duct width, before the next fitting to smooth out airflow.

Diffusers that are located in the bottom of a trunk duct can also produce noise.Balancing dampers should be located several duct widths upstream from an air outlet. Ductwork should be mounted and supported using isolation devices that absorb vibration.

Applications such as Hotel, Motel, Dormitory or Nursing Home that use a single duct discharge are susceptible to noise. These applications typically have low static pressures and short duct lengths. In these applications the discharge duct must be fully lined and have a square elbow without turning vanes. A velocity not exceeding 500 to 600 fpm is recommended. Return air for these applications should enter through a sidewall grille and route up the stud space to a ceiling plenum.

For horizontal heat pumps mounted in the ceiling plenum, an insulated return plenum is sometimes placed at the return air opening to further attenuate line-of-sight sound transmission through return openings.

Piping

The water loop system is typically designed using a "reverse return" piping system which includes a flow control device so that flow requirements are met for each zone.

A high pressure stainless steel flexible hose kit is recommended to connect the unit to the building's hard piping and acts as a sound attenuator for both the unit operating noise and hydraulic pumping noise. One end of the hose has a swivel fitting to facilitate removal of the unit for replacement or service.

Hose kits come in several configurations, but in all cases should include supply and return shutoff ball valves to allow removal of a unit without the need to shut down the entire heat pump system. The hose kit may contain either a manual or automatic flow control that may be preset to ensure correct water flow to the unit.

Pressure / Temperature ports should be included in these fittings to allow the service technician to measure water flow and temperatures when checking unit operation.

Condensate Drain Piping

Condensate piping can be made of steel, copper or PVC pipe. In most cases, PVC pipe eliminates the need to wrap insulation around the pipe to prevent sweating.

A 3/4" FPT condensate drain connection is installed in the unit. The condensate piping must be trapped at the unit and pitched away from the unit not less than 1/4" per foot. A vent is required after the trap so that the condensate will drain away from the unit. The vent can also act as a cleanout if the trap becomes clogged. The condensate drain should not be directly piped to a drain/waste/vent stack. See local codes for the correct application of condensate piping to drains.

Operating Limits

LV Models are capable of operating over a wide range of conditions. For operation in a geothermal application or any other installation where the loop fluid temperature may drop below the ambient dew point, the extended range option is recommended. This consists of TXV in lieu of capillary tubes and additional insulation on the piping and wax exchanger to prevent condensation.

- Maximum and minimum fluid conditions are at unit rated flow rate.
- Maximum and minimum operating limits may not be combined. If one value is at either maximum or minimum, the other two should be at normal operating range.
- Entering fluid temperatures below 45°F in the heating mode requires antifreeze.

Subject to change without prior notice.

Equipment Selection

To ensure that you get the optimal performance from your FHP heat pump it is important that they be selected accurately to match your design conditions.

Prior to making equipment selections the zone conditions need to be determined. Bosch Thermotechnology Corp. recommends using a building load program to determine the heating and cooling loads.

The catalog provides a wide range of entering air and water conditions that will meet most applications. The unit performance can be determined by referring to the data tables from page 23 to 35.

Our Bosch Select Tools Selection Software (BST) is designed to provide you with a fast and accurate selection based on your specific conditions. This software is available through the commercial website. You may click on the BST link and request an account.

Unit Operating Limits–LV Model

Operating Limits – Cooling & Heating	Standard Unit	Extended Range Option
Cooling		
Minimum ambient air temperature °F	50	50
Maximum ambient air temperature °F	100	100
Minimum evaporator entering air db/wb °F	68/57	68/57
Rated air coil entering air db/wb °F	80/67	80/67
Maximum evaporator entering air db/wb °F	95/85	95/85
Minimum water coil entering fluid temperature °F	50	50
Water loop typical coil entering fluid range temperature °F	70/90	70/90
Maximum water coil entering fluid temperature °F	110	110
Heating		
Minimum ambient air temperature °F	50	40
Maximum ambient air temperature °F	100	85
Minimum evaporator entering air db °F	50	50
Rated air coil entering air °F	68	68
Maximum evaporator entering air db °F	80	80
Normal water coil entering fluid range °F	50-80	25-80*
Minimum water coil entering Fluid °F	50	20*

* Antifreeze solution is required at these fluid temperatures.

Subject to change without prior notice.

Antifreeze Correction Data

Antifreeze Type	Antifreeze %	Antifreeze Correction					WPD Correction Factor
		Cooling EWT 90 °F			Heating EWT 30 °F		
		Total Cap.	Sens. Cap	Power	Htg. Cap	Power	EWT 30 °F
Water	0	1.000	1.000	1.000	1.000	1.000	1.000
Propylene Glycol	5	0.997	0.997	1.004	0.989	0.997	1.060
	10	0.994	0.994	1.006	0.986	0.995	1.125
	15	0.990	0.990	1.009	0.978	0.988	1.190
	25	0.983	0.983	1.016	0.960	0.979	1.300
Methanol	5	0.997	0.997	1.003	0.990	0.997	1.060
	10	0.996	0.996	1.005	0.979	0.993	1.100
	15	0.994	0.994	1.008	0.970	0.990	1.140
Ethanol	5	0.998	0.998	1.002	0.981	0.994	1.160
	10	0.996	0.996	1.004	0.960	0.988	1.230
	15	0.992	0.992	1.006	0.944	0.983	1.280
	25	0.986	0.986	1.009	0.917	0.974	1.400
Ethylene Glycol	5	0.997	0.997	1.003	0.993	0.998	1.060
	10	0.995	0.995	1.004	0.986	0.996	1.120
	15	0.992	0.992	1.005	0.980	0.993	1.190
	25	0.988	0.988	1.009	0.970	0.990	1.330
	30	0.985	0.985	1.012	0.965	0.987	1.400

Waterside Pressure Drop

Mixture of 15% methanol / water solution.

Model	Wtr. Flow Rate (GPM)	Wtr. PD w/o Int. Valve (psi)	Wtr. PD w/ Int. Valve (psi)
LV007	1.0	0.3	0.5
	2.0	1.1	1.8
	3.0	2.3	3.8
LV009	1.0	0.5	0.6
	2.0	1.7	2.3
	3.0	3.5	5.0
LV012	1.5	1.0	1.4
	2.5	2.6	3.6
	3.5	4.8	6.7
LV015	2.0	1.9	2.5
	3.0	3.9	5.3
	4.0	6.5	9.1
LV018	2.5	1.1	2.1
	4.0	2.7	5.2
	5.0	4.0	8.0
LV024	3.0	1.7	2.0
	4.0	2.8	3.4
	6.0	5.8	7.2
LV030	4.0	2.0	2.6
	6.0	4.2	5.6
	8.0	7.0	9.6

Model	Wtr. Flow Rate (GPM)	Wtr. PD w/o Int. Valve (psi)	Wtr. PD w/ Int. Valve (psi)
LV036	4.5	1.6	2.4
	6.0	2.6	4.0
	9.0	5.4	8.6
LV041	5.0	2.0	3.0
	8.0	4.6	7.2
	11.0	8.2	13.1
LV042	5.0	2.0	3.0
	8.0	4.6	7.2
	11.0	8.2	13.0
LV048	6.0	0.8	1.4
	8.0	1.4	2.5
	12.0	2.8	5.4
LV060	7.5	1.4	2.4
	10.0	2.3	4.1
	15.0	4.8	8.8
LV070	9.0	2.0	3.4
	12.0	3.4	5.9
	18.0	7.0	12.7

Based on 70° F

Subject to change without prior notice.

Capacity Data

LV007 (300 CFM)

Cooling									Heating					
Entering Fluid Temp (°F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) °F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (°F)	Entering Air Temp (°F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
			75/63	7.0	6.3	8.3	0.42	16.9						
	1	0.3 (0.6)	80/67	7.5	6.5	8.8	0.42	18.1						
			85/71	7.9	6.7	9.2	0.42	19.0						
			75/63	7.5	6.5	8.6	0.37	20.3						
50	2	1.2 (2.77)	80/67	8.0	6.7	9.1	0.37	21.9						
			85/71	8.5	6.9	9.7	0.36	23.5						
			75/63	7.6	6.5	8.8	0.35	21.6						
	3	2.5 (5.77)	80/67	8.1	6.8	9.3	0.35	23.4						
			85/71	8.7	7.0	9.8	0.34	25.5						
			75/63	6.6	6.1	8.0	0.45	14.6						
	1	0.3 (0.6)	80/67	7.1	6.3	8.5	0.46	15.7						
			85/71	7.5	6.6	8.9	0.46	16.5						
			75/63	7.1	6.3	8.3	0.41	17.4						
60	2	1.2 (2.77)	80/67	7.5	6.5	8.8	0.41	18.4						
			85/71	8.0	6.8	9.3	0.41	19.8						
			75/63	7.2	6.4	8.5	0.40	18.3						
	3	2.4 (5.54)	80/67	7.7	6.6	9.0	0.39	19.8						
			85/71	8.2	6.8	9.5	0.39	21.3						
			75/63	6.2	6.0	7.7	0.49	12.7		60	6.0	4.7	0.44	4.0
	1	0.3 (0.6)	80/67	6.7	6.2	8.2	0.50	13.6		70	5.9	4.4	0.47	3.6
			85/71	7.1	6.5	8.6	0.50	14.3		80	5.7	4.1	0.51	3.3
			75/63	6.6	6.1	8.0	0.45	14.7		60	6.7	5.3	0.44	4.4
70	2	1.1 (2.54)	80/67	7.1	6.4	8.5	0.45	15.8	50	70	6.5	4.9	0.48	4.0
			85/71	7.6	6.6	9.0	0.45	17.0		80	6.3	4.6	0.52	3.6
			75/63	6.8	6.2	8.1	0.44	15.6		60	6.9	5.5	0.44	4.5
	3	2.3 (5.31)	80/67	7.3	6.4	8.6	0.44	16.8		70	6.7	5.2	0.48	4.1
			85/71	7.8	6.7	9.1	0.43	18.1		80	6.5	4.8	0.52	3.7
			75/63	5.9	5.6	7.4	0.53	11.2		60	6.9	5.5	0.44	4.5
	1	0.3 (0.6)	80/67	6.3	6.1	7.8	0.54	11.8		70	6.7	5.2	0.48	4.1
			85/71	6.7	6.3	8.3	0.54	12.5		80	6.5	4.9	0.52	3.7
			75/63	6.2	6.0	7.7	0.50	12.6		60	7.6	6.2	0.45	5.0
80	2	1.1 (2.54)	80/67	6.7	6.2	8.2	0.50	13.6	60	70	7.4	5.8	0.49	4.4
			85/71	7.1	6.5	8.6	0.50	14.4		80	7.1	5.4	0.53	3.9
			75/63	6.4	6.0	7.8	0.48	13.4		60	7.9	6.5	0.45	5.2
	3	2.3 (5.31)	80/67	6.8	6.3	8.3	0.48	14.2		70	7.7	6.1	0.49	4.6
			85/71	7.3	6.5	8.7	0.48	15.3		80	7.4	5.7	0.53	4.1
			75/63	5.7	5.5	7.3	0.55	10.4		60	7.7	6.3	0.45	5.0
	1	0.3 (0.6)	80/67	6.1	5.8	7.7	0.56	11.0		70	7.6	6.0	0.49	4.6
			85/71	6.4	6.3	8.1	0.56	11.5		80	7.4	5.6	0.53	4.1
			75/63	6.0	5.7	7.6	0.52	11.7		60	8.6	7.2	0.45	5.6
85	2	1.1 (2.54)	80/67	6.4	6.1	8.0	0.52	12.4	70	70	8.3	6.8	0.49	4.9
			85/71	6.9	6.4	8.4	0.52	13.4		80	8.1	6.3	0.53	4.4
			75/63	6.1	5.9	7.6	0.50	12.2		60	9.0	7.6	0.45	5.9
	3	2.2 (5.07)	80/67	6.6	6.2	8.1	0.50	13.2		70	8.7	7.1	0.49	5.2
			85/71	7.0	6.4	8.6	0.50	14.0		80	8.4	6.6	0.53	4.6
			75/63	5.5	5.4	7.1	0.57	9.7		60	8.6	7.2	0.45	5.6
	1	0.3 (0.6)	80/67	5.9	5.7	7.5	0.58	10.3		70	8.4	6.9	0.49	5.0
			85/71	6.2	6.0	8.0	0.58	10.7		80	8.2	6.5	0.53	4.5
			75/63	5.8	5.6	7.4	0.54	10.8		60	9.6	8.2	0.45	6.3
90	2	1.1 (2.54)	80/67	6.2	6.0	7.8	0.54	11.6	80	70	9.3	7.7	0.49	5.5
			85/71	6.6	6.3	8.3	0.54	12.3		80	9.0	7.3	0.54	4.9
			75/63	5.9	5.7	7.5	0.53	11.3		60	10.0	8.6	0.45	6.5
	3	2.2 (5.07)	80/67	6.3	6.1	7.9	0.53	12.0		70	9.7	8.1	0.49	5.8
			85/71	6.8	6.4	8.4	0.53	13.0		80	9.3	7.6	0.54	5.0
			75/63	5.1	5.1	6.9	0.62	8.4						
	1	0.3 (0.6)	80/67	5.4	5.4	7.2	0.62	8.8						
			85/71	5.8	5.8	7.6	0.63	9.3						
			75/63	5.4	5.4	7.1	0.58	9.3						
100	2	1 (2.31)	80/67	5.8	5.7	7.5	0.59	10.0						
			85/71	6.2	5.9	7.9	0.59	10.6						
			75/63	5.5	5.4	7.1	0.57	9.7						
	3	2.1 (4.84)	80/67	5.9	5.7	7.6	0.58	10.3						
			85/71	6.3	6.0	8.0	0.58	11.0						
			75/63	4.7	4.7	6.6	0.66	7.2						
	1	0.3 (0.6)	80/67	5.0	5.0	7.0	0.67	7.5						
			85/71	5.4	5.4	7.3	0.68	8.0						
			75/63	5.0	5.0	6.8	0.63	8.0						
110	2	1 (2.31)	80/67	5.3	5.3	7.2	0.64	8.4						
			85/71	5.7	5.7	7.6	0.64	9.0						
			75/63	5.1	5.1	6.8	0.62	8.3						
	3	2.1 (4.84)	80/67	5.4	5.4	7.2	0.62	8.7						
			85/71	5.8	5.8	7.6	0.63	9.3						

Extended Range - Anti-freeze required

AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.

Unit performance may be interpolated. Extrapolation is not allowed.

For conditions other than rating conditions provided, consult the BST selection software.

Ratings below 40°F are with a methanol solution.

The results reported herein are estimates based on testing by FHP. Variations in the installation and operational environment may alter performance. Bosch disclaims all warranties, express and implied, that the performance will be as reported, including the warranty of merchantability and fitness for purpose. In addition, continuous research and development may result in a change to an appliances design and specifications, which Bosch may change without notice. Before purchase, confirm the design specifications of the appliance.

Capacity Data

LV009 (350 CFM)

Cooling									Heating					
Entering Fluid Temp (°F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) °F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (°F)	Entering Air Temp (°F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
			75/63	9.1	7.7	10.6	0.52	17.6						
	1	0.5 (1.1)	80/67	9.6	8.0	11.2	0.52	18.6						
			85/71	10.2	8.2	11.8	0.52	19.8						
			75/63	9.6	8.0	11.0	0.44	21.6						
50	2	1.8 (4.15)	80/67	10.3	8.2	11.7	0.44	23.6						
			85/71	10.9	8.5	12.3	0.43	25.4						
			75/63	9.8	8.0	11.1	0.42	23.5						
	3	3.8 (8.77)	80/67	10.5	8.3	11.8	0.41	25.7						
			85/71	11.2	8.6	12.5	0.40	28.2						
			75/63	8.6	7.5	10.4	0.57	15.1						
	1	0.5 (1.1)	80/67	9.2	7.8	10.9	0.57	16.1						
			85/71	9.7	8.1	11.5	0.57	16.9						
			75/63	9.2	7.8	10.7	0.50	18.3						
60	2	1.8 (4.15)	80/67	9.8	8.0	11.3	0.50	19.7						
			85/71	10.4	8.3	11.9	0.49	21.2						
			75/63	9.4	7.8	10.8	0.48	19.7						
	3	3.6 (8.30)	80/67	10.0	8.1	11.5	0.47	21.2						
			85/71	10.6	8.4	12.1	0.46	22.9						
			75/63	8.2	7.2	10.0	0.62	13.1		60	7.7	6.0	0.57	4.0
	1	0.5 (1.1)	80/67	8.7	7.6	10.6	0.63	13.8		70	7.6	5.7	0.61	3.6
			85/71	9.3	7.9	11.2	0.63	14.7		80	7.5	5.3	0.67	3.3
			75/63	8.7	7.5	10.4	0.56	15.5		60	8.6	6.8	0.57	4.4
70	2	1.7 (3.92)	80/67	9.3	7.9	11.0	0.56	16.6	50	70	8.4	6.4	0.62	4.0
			85/71	9.9	8.1	11.6	0.56	17.8		80	8.2	6.0	0.68	3.6
			75/63	8.9	7.6	10.5	0.54	16.5		60	9.0	7.2	0.57	4.6
	3	3.5 (8.07)	80/67	9.5	7.9	11.1	0.53	17.8		70	8.7	6.7	0.63	4.1
			85/71	10.1	8.2	11.8	0.53	19.1		80	8.5	6.3	0.68	3.7
			75/63	7.7	7.0	9.7	0.68	11.3		60	8.8	7.0	0.57	4.5
	1	0.5 (1.1)	80/67	8.2	7.3	10.3	0.69	11.9		70	8.6	6.6	0.63	4.0
			85/71	8.7	7.5	10.8	0.69	12.6		80	8.5	6.2	0.68	3.7
			75/63	8.2	7.2	10.1	0.62	13.2		60	9.8	8.0	0.58	5.0
80	2	1.6 (3.69)	80/67	8.8	7.6	10.6	0.62	14.1	60	70	9.5	7.5	0.63	4.4
			85/71	9.3	7.9	11.2	0.62	15.0		80	9.3	7.0	0.69	3.9
			75/63	8.4	7.2	10.2	0.60	14.0		60	10.2	8.4	0.58	5.2
	3	3.4 (7.84)	80/67	9.0	7.7	10.8	0.60	15.0		70	9.9	7.8	0.64	4.6
			85/71	9.6	8.0	11.4	0.60	16.1		80	9.6	7.3	0.70	4.1
			75/63	7.5	6.9	9.6	0.71	10.6		60	9.8	8.0	0.58	5.0
	1	0.5 (1.1)	80/67	8.0	7.2	10.1	0.72	11.2		70	9.6	7.6	0.63	4.4
			85/71	8.5	7.4	10.7	0.72	11.8		80	9.4	7.2	0.69	4.0
			75/63	8.0	7.1	9.9	0.65	12.2		60	11.0	9.2	0.58	5.6
85	2	1.6 (3.69)	80/67	8.5	7.3	10.5	0.65	13.0	70	70	10.7	8.6	0.64	4.9
			85/71	9.1	7.8	11.0	0.65	13.9		80	10.4	8.1	0.70	4.3
			75/63	8.1	7.1	10.0	0.63	12.8		60	11.6	9.7	0.58	5.9
	3	3.3 (7.61)	80/67	8.7	7.4	10.6	0.63	13.7		70	11.1	9.0	0.64	5.1
			85/71	9.3	7.9	11.2	0.63	14.8		80	10.8	8.5	0.71	4.5
			75/63	7.3	6.7	9.4	0.74	9.9		60	10.9	9.1	0.58	5.5
	1	0.5 (1.1)	80/67	7.8	7.0	10.0	0.75	10.4		70	10.7	8.6	0.64	4.9
			85/71	8.2	7.3	10.5	0.75	10.9		80	10.4	8.2	0.70	4.3
			75/63	7.7	7.0	9.7	0.68	11.2		60	12.3	10.5	0.58	6.2
90	2	1.6 (3.69)	80/67	8.2	7.3	10.3	0.69	11.9	80	70	11.8	9.8	0.65	5.4
			85/71	8.8	7.5	10.8	0.69	12.8		80	11.5	9.3	0.71	4.7
			75/63	7.8	7.0	9.8	0.67	11.7		60	12.9	11.1	0.58	6.5
	3	3.3 (7.61)	80/67	8.4	7.3	10.4	0.67	12.6		70	12.3	10.2	0.65	5.6
			85/71	9.0	7.8	11.0	0.66	13.6		80	12.0	9.8	0.72	4.9
			75/63	6.8	6.5	9.1	0.80	8.5						
	1	0.4 (0.9)	80/67	7.2	6.8	9.6	0.81	8.9						
			85/71	7.7	7.1	10.1	0.82	9.4						
			75/63	7.2	6.7	9.4	0.75	9.6						
100	2	1.5 (3.47)	80/67	7.7	7.1	9.9	0.75	10.2						
			85/71	8.2	7.3	10.5	0.75	10.9						
			75/63	7.3	6.8	9.5	0.73	10.0						
	3	3.2 (7.39)	80/67	7.9	7.1	10.0	0.73	10.8						
			85/71	8.4	7.3	10.6	0.73	11.4						
			75/63	6.3	6.3	8.8	0.86	7.3						
	1	0.4 (0.9)	80/67	6.7	6.6	9.3	0.87	7.7						
			85/71	7.2	6.9	9.8	0.88	8.1						
			75/63	6.7	6.5	9.0	0.82	8.2						
110	2	1.5 (3.47)	80/67	7.1	6.8	9.6	0.82	8.6						
			85/71	7.6	7.1	10.1	0.83	9.2						
			75/63	6.8	6.6	9.1	0.80	8.5						
	3	3.1 (7.15)	80/67	7.3	6.9	9.6	0.80	9.1						
			85/71	7.8	7.2	10.2	0.81	9.7						

Extended Range - Anti-freeze required

AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.

Unit performance may be interpolated. Extrapolation is not allowed.

For conditions other than rating conditions provided, consult the BST selection software.

Ratings below 40°F are with a methanol solution.

The results reported herein are estimates based on testing by FHP. Variations in the installation and operational environment may alter performance. Bosch disclaims all warranties, express and implied, that the performance will be as reported, including the warranty of merchantability and fitness for purpose. In addition, continuous research and development may result in a change to an appliances design and specifications, which Bosch may change without notice. Before purchase, confirm the design specifications of the appliance.

Subject to change without prior notice.

Capacity Data

LV012 (400 CFM)

Cooling									Heating					
Entering Fluid Temp (°F)	Water Flow (GPM)	Pressure Drop PSI (FDH)	Entering Air Temp (db/wb) °F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (°F)	Entering Air Temp (°F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
			75/63	12.5	9.7	14.6	0.67	18.8						
	1.5	1.1 (2.54)	80/67	13.3	10.0	15.4	0.67	19.9						
			85/71	14.1	10.2	16.3	0.67	21.0						
			75/63	12.9	9.9	14.9	0.61	21.3						
50	2.5	2.8 (6.46)	80/67	13.8	10.2	15.8	0.60	22.9						
			85/71	14.7	10.4	16.7	0.60	24.6						
			75/63	13.1	10.0	15.0	0.58	22.6						
	3.5	5.1 (11.7)	80/67	14.0	10.3	15.9	0.57	24.4						
			85/71	15.0	10.6	16.9	0.57	26.6						
			75/63	11.9	9.4	14.2	0.74	16.1						
	1.5	1.1 (2.54)	80/67	12.7	9.7	15.0	0.75	17.1						
			85/71	13.5	10.0	15.9	0.75	18.0						
			75/63	12.3	9.6	14.5	0.69	18.0						
60	2.5	2.7 (6.23)	80/67	13.2	9.9	15.4	0.68	19.4						
			85/71	14.1	10.2	16.3	0.68	20.8						
			75/63	12.5	9.7	14.6	0.66	18.9						
	3.5	4.9 (11.2)	80/67	13.4	10.0	15.5	0.66	20.5						
			85/71	14.3	10.3	16.4	0.65	22.0						
			75/63	11.3	9.2	13.8	0.82	13.9		60	10.6	8.1	0.78	4.0
	1.5	1 (2.3)	80/67	12.0	9.5	14.6	0.82	14.6		70	10.4	7.7	0.85	3.6
			85/71	12.8	9.8	15.4	0.83	15.4		80	10.2	7.2	0.92	3.2
			75/63	11.7	9.4	14.1	0.76	15.3		60	11.4	8.8	0.79	4.2
70	2.5	2.6 (5.9)	80/67	12.5	9.7	14.9	0.77	16.4	50	70	11.1	8.3	0.86	3.8
			85/71	13.3	10.0	15.8	0.76	17.4		80	10.9	7.8	0.93	3.4
			75/63	11.8	9.4	14.2	0.75	15.9		60	11.7	9.2	0.79	4.3
	3.5	4.8 (11.0)	80/67	12.7	9.8	15.1	0.74	17.2		70	11.4	8.6	0.86	3.9
			85/71	13.6	10.0	15.9	0.74	18.4		80	11.2	8.1	0.94	3.5
			75/63	10.7	8.9	13.5	0.89	12.0		60	12.0	9.4	0.79	4.4
	1.5	1 (2.3)	80/67	11.4	9.2	14.2	0.90	12.6		70	11.8	8.9	0.87	4.0
			85/71	12.1	9.5	15.0	0.91	13.3		80	11.5	8.4	0.95	3.6
			75/63	11.1	9.1	13.7	0.85	13.1		60	12.9	10.3	0.80	4.7
80	2.5	2.5 (5.7)	80/67	11.8	9.4	14.5	0.85	13.9	60	70	12.5	9.7	0.88	4.2
			85/71	12.6	9.7	15.3	0.85	14.8		80	12.2	9.1	0.96	3.7
			75/63	11.2	9.2	13.8	0.83	13.5		60	13.3	10.7	0.81	4.8
	3.5	4.6 (10.6)	80/67	12.0	9.4	14.6	0.83	14.5		70	12.9	10.1	0.89	4.3
			85/71	12.8	9.7	15.5	0.83	15.5		80	12.6	9.4	0.97	3.8
			75/63	10.4	8.8	13.3	0.93	11.2		60	13.4	10.8	0.81	4.9
	1.5	1 (2.3)	80/67	11.1	9.1	14.0	0.94	11.8		70	13.1	10.2	0.89	4.3
			85/71	11.8	9.4	14.8	0.95	12.4		80	12.8	9.7	0.97	3.9
			75/63	10.7	9.0	13.5	0.89	12.1		60	14.4	11.8	0.82	5.2
85	2.5	2.5 (5.7)	80/67	11.5	9.3	14.3	0.89	12.9	70	70	14.0	11.1	0.90	4.5
			85/71	12.2	9.6	15.1	0.90	13.6		80	13.7	10.4	0.99	4.1
			75/63	10.9	9.0	13.5	0.87	12.6		60	14.9	12.3	0.82	5.3
	3.5	4.5 (10.3)	80/67	11.6	9.3	14.4	0.87	13.3		70	14.5	11.5	0.91	4.7
			85/71	12.4	9.6	15.2	0.88	14.2		80	14.1	10.8	1.00	4.1
			75/63	10.1	8.7	13.1	0.98	10.4		60	14.9	12.2	0.82	5.3
	1.5	1 (2.3)	80/67	10.7	9.0	13.8	0.99	10.9		70	14.5	11.6	0.91	4.7
			85/71	11.5	9.3	14.6	1.00	11.6		80	14.2	11.0	1.00	4.2
			75/63	10.4	8.8	13.3	0.93	11.2		60	16.0	13.3	0.83	5.6
90	2.5	2.4 (5.5)	80/67	11.1	9.1	14.1	0.94	11.9	80	70	15.6	12.6	0.93	4.9
			85/71	11.9	9.4	14.8	0.94	12.6		80	15.2	11.9	1.02	4.4
			75/63	10.5	8.8	13.4	0.92	11.4		60	16.6	13.9	0.84	5.8
	3.5	4.5 (10.3)	80/67	11.3	9.2	14.1	0.91	12.4		70	16.1	13.1	0.93	5.1
			85/71	12.1	9.5	14.9	0.92	13.2		80	15.6	12.3	1.03	4.5
			75/63	9.4	8.4	12.6	1.06	8.9						
	1.5	0.9 (2.0)	80/67	10.1	8.8	13.4	1.07	9.4						
			85/71	10.8	9.0	14.1	1.08	10.0						
			75/63	9.7	8.5	12.8	1.02	9.5						
100	2.5	2.4 (5.5)	80/67	10.4	8.8	13.6	1.03	10.1						
			85/71	11.1	9.2	14.3	1.03	10.7						
			75/63	9.8	8.6	12.9	1.01	9.8						
	3.5	4.3 (9.9)	80/67	10.5	8.9	13.6	1.01	10.5						
			85/71	11.3	9.3	14.4	1.01	11.2						
			75/63	8.8	8.1	12.2	1.15	7.7						
	1.5	0.9 (2.0)	80/67	9.4	8.5	12.9	1.16	8.1						
			85/71	10.0	8.8	13.6	1.17	8.6						
			75/63	9.0	8.3	12.4	1.11	8.1						
110	2.5	2.3 (5.3)	80/67	9.7	8.5	13.1	1.12	8.7						
			85/71	10.4	8.9	13.9	1.13	9.2						
			75/63	9.1	8.3	12.5	1.10	8.3						
	3.5	4.2 (9.6)	80/67	9.8	8.7	13.2	1.10	8.9						
			85/71	10.5	9.0	13.9	1.11	9.5						

Extended Range - Anti-freeze required

AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.

Unit performance may be interpolated. Extrapolation is not allowed.

For conditions other than rating conditions provided, consult the BST selection software.

Ratings below 40°F are with a methanol solution.

The results reported herein are estimates based on testing by FHP. Variations in the installation and operational environment may alter performance. Bosch disclaims all warranties, express and implied, that the performance will be as reported, including the warranty of merchantability and fitness for purpose. In addition, continuous research and development may result in a change to an appliances design and specifications, which Bosch may change without notice. Before purchase, confirm the design specifications of the appliance.

Capacity Data

LV015 (500 CFM)

Cooling									Heating					
Entering Fluid Temp (°F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) °F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (°F)	Entering Air Temp (°F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
			75/63	15.2	11.5	17.7	0.77	19.8						
	2	2 (4.62)	80/67	16.3	11.9	18.7	0.76	21.5						
			85/71	17.3	12.3	19.8	0.75	23.2						
			75/63	15.6	11.7	17.9	0.71	21.9						
50	3	4.2 (9.6)	80/67	16.7	12.1	19.0	0.70	24.0						
			85/71	17.9	12.5	20.1	0.68	26.4						
			75/63	15.9	11.9	18.1	0.67	23.6						
	4.5	8.6 (19.8)	80/67	17.1	12.3	19.2	0.65	26.2						
			85/71	18.3	12.7	20.4	0.63	29.0						
			75/63	14.5	11.2	17.3	0.86	16.8						
	2	1.9 (4.3)	80/67	15.5	11.6	18.3	0.86	18.1						
			85/71	16.6	12.0	19.3	0.85	19.6						
			75/63	14.9	11.4	17.5	0.81	18.4						
60	3	4 (9.2)	80/67	16.0	11.8	18.6	0.80	20.1						
			85/71	17.1	12.2	19.6	0.78	21.9						
			75/63	15.2	11.5	17.7	0.77	19.6						
	4.5	8.3 (19.1)	80/67	16.3	11.9	18.7	0.76	21.5						
			85/71	17.4	12.3	19.8	0.74	23.6						
			75/63	13.8	11.0	16.8	0.96	14.4		60	13.2	9.9	0.98	3.9
	2	1.9 (4.3)	80/67	14.8	11.3	17.8	0.96	15.5		70	13.2	9.3	1.07	3.6
			85/71	15.8	11.7	18.8	0.95	16.6		80	12.7	8.7	1.16	3.2
			75/63	14.2	11.1	17.0	0.91	15.6		60	13.7	10.7	0.99	4.0
70	3	3.9 (8.9)	80/67	15.2	11.5	18.1	0.90	16.9	50	70	13.4	10.0	1.08	3.7
			85/71	16.3	11.9	19.1	0.89	18.3		80	13.1	9.3	1.17	3.3
			75/63	14.4	11.2	17.2	0.88	16.4		60	14.2	11.1	1.00	4.2
	4.5	8.1 (18.6)	80/67	15.5	11.6	18.2	0.86	18.0		70	13.9	10.3	1.08	3.8
			85/71	16.6	12.0	19.3	0.85	19.6		80	13.5	9.7	1.17	3.4
			75/63	13.0	10.6	16.4	1.06	12.3		60	14.8	11.6	1.00	4.3
	2	1.8 (4.1)	80/67	14.0	11.1	17.3	1.06	13.2		70	14.5	11.0	1.09	3.9
			85/71	14.9	11.4	18.3	1.06	14.1		80	14.1	10.3	1.18	3.5
			75/63	13.4	10.7	16.6	1.01	13.2		60	15.8	12.2	1.01	4.6
80	3	3.8 (8.7)	80/67	14.4	11.2	17.5	1.01	14.3	60	70	15.4	11.4	1.10	4.1
			85/71	15.4	11.6	18.6	1.00	15.4		80	14.8	10.9	1.19	3.6
			75/63	13.6	10.9	16.7	0.98	13.8		60	16.4	12.7	1.01	4.7
	4.5	7.8 (17.9)	80/67	14.6	11.2	17.7	0.97	15.0		70	16.0	11.8	1.11	4.2
			85/71	15.7	11.7	18.7	0.96	16.3		80	15.3	11.3	1.20	3.7
			75/63	12.7	10.4	16.1	1.11	11.4		60	16.5	13.4	1.02	4.8
	2	1.8 (4.1)	80/67	13.6	10.9	17.0	1.11	12.2		70	16.5	12.4	1.11	4.4
			85/71	14.5	11.3	18.0	1.11	13.1		80	16.0	11.7	1.21	3.9
			75/63	13.0	10.6	16.3	1.07	12.2		60	17.7	14.0	1.02	5.1
85	3	3.7 (8.5)	80/67	13.9	11.1	17.3	1.06	13.1	70	70	17.5	13.0	1.12	4.6
			85/71	15.0	11.4	18.3	1.05	14.2		80	17.1	12.1	1.22	4.1
			75/63	13.2	10.7	16.4	1.04	12.7		60	18.0	14.8	1.02	5.2
	4.5	7.7 (17.7)	80/67	14.2	11.1	17.4	1.03	13.8		70	17.9	13.6	1.13	4.7
			85/71	15.2	11.5	18.5	1.02	14.9		80	17.4	12.7	1.23	4.2
			75/63	12.3	10.3	15.9	1.16	10.6		60	18.4	14.9	1.03	5.3
	2	1.8 (4.1)	80/67	13.2	10.7	16.8	1.16	11.3		70	18.2	14.1	1.13	4.7
			85/71	14.1	11.1	17.8	1.16	12.1		80	18.0	13.0	1.23	4.3
			75/63	12.6	10.4	16.1	1.12	11.3		60	19.6	15.9	1.03	5.6
90	3	3.6 (8.3)	80/67	13.5	10.9	17.0	1.12	12.1	80	70	19.1	15.0	1.14	4.9
			85/71	14.5	11.3	18.0	1.11	13.1		80	18.9	13.9	1.24	4.5
			75/63	12.8	10.6	16.2	1.09	11.7		60	20.4	16.5	1.03	5.8
	4.5	7.6 (17.5)	80/67	13.8	10.9	17.2	1.09	12.7		70	19.8	15.6	1.14	5.1
			85/71	14.8	11.4	18.2	1.08	13.8		80	19.5	14.4	1.25	4.6
			75/63	11.5	9.9	15.4	1.27	9.1						
	2	1.7 (3.9)	80/67	12.3	10.4	16.3	1.27	9.7						
			85/71	13.2	10.8	17.2	1.27	10.4						
			75/63	11.8	10.0	15.6	1.23	9.6						
100	3	3.5 (8.0)	80/67	12.7	10.5	16.5	1.23	10.4						
			85/71	13.6	10.9	17.5	1.23	11.1						
			75/63	12.0	10.1	15.7	1.21	9.9						
	4.5	7.3 (16.8)	80/67	12.9	10.6	16.6	1.20	10.8						
			85/71	13.9	11.0	17.6	1.20	11.6						
			75/63	10.7	9.6	15.0	1.38	7.8						
	2	1.7 (3.9)	80/67	11.5	10.0	15.8	1.38	8.3						
			85/71	12.4	10.4	16.7	1.39	8.9						
			75/63	11.0	9.7	15.1	1.34	8.2						
110	3	3.4 (7.8)	80/67	11.8	10.2	16.0	1.34	8.8						
			85/71	12.7	10.6	16.9	1.34	9.5						
			75/63	11.1	9.8	15.2	1.32	8.4						
	4.5	7.1 (16.3)	80/67	12.0	10.3	16.1	1.32	9.1						
			85/71	12.9	10.7	17.0	1.31	9.8						

Extended Range - Anti-freeze required

AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.

Unit performance may be interpolated. Extrapolation is not allowed.

For conditions other than rating conditions provided, consult the BST selection software.

Ratings below 40°F are with a methanol solution.

The results reported herein are estimates based on testing by FHP. Variations in the installation and operational environment may alter performance. Bosch disclaims all warranties, express and implied, that the performance will be as reported, including the warranty of merchantability and fitness for purpose. In addition, continuous research and development may result in a change to an appliances design and specifications, which Bosch may change without notice. Before purchase, confirm the design specifications of the appliance.

Subject to change without prior notice.

Capacity Data

LV018 (650 CFM)

Cooling									Heating					
Entering Fluid Temp (°F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) °F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (°F)	Entering Air Temp (°F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
			75/63	22.3	15.9	26.1	1.24	18.0						
	2.5	1.2 (2.7)	80/67	24.1	16.5	27.9	1.25	19.3						
			85/71	25.9	17.0	29.8	1.26	20.6						
			75/63	23.5	16.3	27.1	1.15	20.4						
50	4	2.9 (6.6)	80/67	25.4	16.9	29.0	1.15	22.1						
			85/71	27.4	17.4	31.0	1.15	23.9						
			75/63	23.9	16.5	27.4	1.12	21.3						
	5	4.3 (9.9)	80/67	25.8	17.1	29.4	1.12	23.1						
			85/71	27.9	17.6	31.4	1.11	25.3						
			75/63	21.1	15.3	25.1	1.33	15.9						
	2.5	1.2 (2.7)	80/67	22.8	15.9	26.9	1.34	17.0						
			85/71	24.5	16.4	28.7	1.36	18.1						
			75/63	22.2	15.8	26.0	1.25	17.8						
60	4	2.8 (6.4)	80/67	24.0	16.4	27.9	1.26	19.1						
			85/71	25.9	16.9	29.8	1.26	20.6						
			75/63	22.6	16.0	26.3	1.22	18.5						
	5	4.1 (9.4)	80/67	24.5	16.5	28.2	1.22	20.1						
			85/71	26.4	17.1	30.3	1.22	21.7						
			75/63	19.8	14.8	24.0	1.42	14.0		60	17.6	13.4	1.26	4.1
	2.5	1.1 (2.54)	80/67	21.4	15.3	25.7	1.44	14.9		70	16.8	12.4	1.32	3.7
			85/71	23.1	15.7	27.6	1.46	15.9		80	15.8	11.6	1.38	3.4
			75/63	20.8	15.2	24.9	1.35	15.5		60	18.9	14.5	1.30	4.3
70	4	2.7 (6.2)	80/67	22.6	15.8	26.7	1.36	16.7	50	70	18.0	13.4	1.36	3.9
			85/71	24.5	16.2	28.7	1.37	17.9		80	17.1	12.3	1.42	3.5
			75/63	21.2	15.4	25.2	1.32	16.1		60	19.1	15.2	1.31	4.3
	5	4 (9.2)	80/67	23.0	16.0	27.0	1.33	17.3		70	18.5	13.8	1.37	3.9
			85/71	24.9	16.4	29.1	1.33	18.7		80	17.5	12.6	1.43	3.6
			75/63	18.5	14.1	22.9	1.50	12.4		60	20.3	15.9	1.33	4.5
	2.5	1.1 (2.54)	80/67	20.1	14.6	24.6	1.53	13.2		70	19.5	14.8	1.40	4.1
			85/71	21.6	15.3	26.2	1.55	13.9		80	18.4	13.9	1.47	3.7
			75/63	19.5	14.5	23.7	1.44	13.6		60	21.6	17.5	1.37	4.6
80	4	2.6 (5.9)	80/67	21.1	15.1	25.5	1.46	14.5	60	70	20.9	16.0	1.45	4.2
			85/71	22.9	15.6	27.4	1.47	15.6		80	19.9	14.7	1.52	3.8
			75/63	19.8	14.7	24.0	1.42	14.0		60	22.1	18.1	1.39	4.7
	5	3.9 (8.9)	80/67	21.5	15.3	25.8	1.43	15.0		70	21.5	16.4	1.46	4.3
			85/71	23.4	15.8	27.7	1.44	16.2		80	20.4	15.1	1.53	3.9
			75/63	17.8	13.8	22.3	1.54	11.6		60	23.2	18.4	1.40	4.8
	2.5	1.1 (2.54)	80/67	19.3	14.5	23.9	1.57	12.3		70	22.0	17.5	1.49	4.3
			85/71	20.8	15.0	25.6	1.60	13.0		80	21.1	16.3	1.56	3.9
			75/63	18.8	14.2	23.1	1.49	12.7		60	25.0	20.0	1.44	5.1
85	4	2.6 (5.9)	80/67	20.3	14.9	24.8	1.51	13.5	70	70	23.9	18.6	1.53	4.6
			85/71	22.0	15.5	26.6	1.53	14.4		80	22.8	17.2	1.61	4.1
			75/63	19.1	14.3	23.4	1.47	13.0		60	25.3	21.0	1.46	5.1
	5	3.8 (8.7)	80/67	20.8	14.9	25.2	1.49	14.0		70	24.5	19.1	1.54	4.6
			85/71	22.5	15.5	27.0	1.50	15.0		80	23.4	17.7	1.63	4.2
			75/63	17.1	13.6	21.7	1.58	10.8		60	26.0	21.1	1.46	5.2
	2.5	1.1 (2.54)	80/67	18.6	14.2	23.3	1.62	11.5		70	24.8	20.0	1.56	4.7
			85/71	20.1	14.7	25.0	1.65	12.2		80	23.8	18.7	1.65	4.2
			75/63	18.0	13.8	22.5	1.53	11.8		60	28.1	22.9	1.50	5.5
90	4	2.5 (5.7)	80/67	19.6	14.6	24.1	1.56	12.6	80	70	26.9	21.4	1.60	4.9
			85/71	21.2	15.1	25.9	1.58	13.5		80	25.5	20.1	1.70	4.4
			75/63	18.3	14.0	22.7	1.51	12.1		60	28.5	24.0	1.52	5.5
	5	3.8 (8.7)	80/67	19.9	14.6	24.5	1.53	13.0		70	27.6	21.9	1.62	5.0
			85/71	21.6	15.3	26.3	1.55	13.9		80	25.9	20.7	1.71	4.4
			75/63	15.6	13.0	20.3	1.65	9.5						
	2.5	1 (2.3)	80/67	17.0	13.6	21.9	1.70	10.0						
			85/71	18.5	14.1	23.6	1.74	10.7						
			75/63	16.5	13.3	21.1	1.61	10.2						
100	4	2.4 (5.5)	80/67	18.0	14.0	22.8	1.65	10.9						
			85/71	19.6	14.5	24.5	1.68	11.7						
			75/63	16.8	13.5	21.4	1.60	10.5						
	5	3.6 (8.3)	80/67	18.3	14.1	23.1	1.63	11.3						
			85/71	20.0	14.6	24.9	1.66	12.1						
			75/63	14.1	12.3	18.9	1.72	8.2						
	2.5	1 (2.3)	80/67	15.4	12.9	20.4	1.77	8.7						
			85/71	16.7	13.7	21.9	1.81	9.2						
			75/63	14.9	12.6	19.6	1.69	8.8						
110	4	2.4 (5.5)	80/67	16.4	13.2	21.3	1.73	9.5						
			85/71	17.8	13.9	23.0	1.77	10.1						
			75/63	15.1	12.8	19.8	1.68	9.0						
	5	3.5 (8.0)	80/67	16.7	13.3	21.6	1.72	9.7						
			85/71	18.2	14.0	23.3	1.75	10.4						

Extended Range - Anti-freeze required

AHRI/ISO 13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.

Unit performance may be interpolated. Extrapolation is not allowed.

For conditions other than rating conditions provided, consult the BST selection software.

Ratings below 40°F are with a methanol solution.

The results reported herein are estimates based on testing by FHP. Variations in the installation and operational environment may alter performance. Bosch disclaims all warranties, express and implied, that the performance will be as reported, including the warranty of merchantability and fitness for purpose. In addition, continuous research and development may result in a change to an appliances design and specifications, which Bosch may change without notice. Before purchase, confirm the design specifications of the appliance.

Capacity Data

LV024 (850 CFM)

Cooling									Heating					
Entering Fluid Temp (°F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) °F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (°F)	Entering Air Temp (°F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
			75/63	25.6	18.6	30.0	1.44	17.8						
	3	1.8 (4.1)	80/67	27.5	19.2	32.0	1.45	19.0						
			85/71	29.5	19.8	34.0	1.45	20.4						
			75/63	26.9	19.1	31.0	1.33	20.2						
50	5	4.5 (10.3)	80/67	28.9	19.8	33.1	1.33	21.8						
			85/71	31.1	20.4	35.3	1.31	23.7						
			75/63	27.5	19.4	31.5	1.28	21.5						
	7	8.2 (18.9)	80/67	29.6	20.1	33.6	1.27	23.4						
			85/71	31.8	20.7	35.8	1.25	25.5						
			75/63	24.3	18.0	29.0	1.55	15.7						
	3	1.7 (3.9)	80/67	26.1	18.6	30.9	1.56	16.7						
			85/71	28.0	19.2	32.9	1.58	17.8						
			75/63	25.5	18.5	29.9	1.45	17.6						
60	5	4.3 (9.8)	80/67	27.5	19.2	32.0	1.45	19.0						
			85/71	29.6	19.8	34.1	1.45	20.5						
			75/63	26.1	18.8	30.4	1.40	18.6						
	7	7.9 (18.2)	80/67	28.1	19.4	32.5	1.40	20.1						
			85/71	30.3	20.1	34.6	1.38	21.9						
			75/63	22.9	17.3	27.9	1.66	13.8						
	3	1.7 (3.9)	80/67	24.7	18.0	29.8	1.68	14.7						
			85/71	26.5	18.6	31.7	1.70	15.6						
			75/63	24.1	17.8	28.8	1.57	15.4						
70	5	4.2 (9.6)	80/67	26.0	18.5	30.8	1.58	16.5						
			85/71	27.9	19.2	32.8	1.58	17.6						
			75/63	24.6	18.1	29.2	1.53	16.1						
	7	7.7 (17.7)	80/67	26.6	18.8	31.3	1.53	17.4						
			85/71	28.6	19.4	33.4	1.53	18.8						
			75/63	21.5	16.6	26.7	1.77	12.1						
	3	1.6 (3.6)	80/67	23.1	17.3	28.5	1.80	12.8						
			85/71	24.9	17.9	30.4	1.83	13.6						
			75/63	22.5	17.2	27.6	1.69	13.3						
80	5	4 (9.2)	80/67	24.4	17.8	29.5	1.71	14.3						
			85/71	26.3	18.5	31.5	1.72	15.3						
			75/63	23.0	17.4	28.0	1.65	13.9						
	7	7.4 (17.0)	80/67	24.9	18.0	30.0	1.66	15.0						
			85/71	26.9	18.7	32.0	1.67	16.1						
			75/63	20.7	16.3	26.1	1.83	11.3						
	3	1.6 (3.6)	80/67	22.4	17.0	27.9	1.86	12.1						
			85/71	24.1	17.6	29.7	1.89	12.8						
			75/63	21.8	16.8	26.9	1.75	12.5						
85	5	4 (9.2)	80/67	23.5	17.5	28.9	1.77	13.3						
			85/71	25.4	18.1	30.8	1.79	14.2						
			75/63	22.2	17.0	27.3	1.71	13.0						
	7	7.3 (16.8)	80/67	24.1	17.7	29.3	1.73	13.9						
			85/71	26.0	18.3	31.3	1.74	14.9						
			75/63	20.0	15.9	25.5	1.88	10.7						
	3	1.6 (3.6)	80/67	21.5	16.7	27.2	1.92	11.2						
			85/71	23.2	17.2	29.1	1.95	11.9						
			75/63	21.0	16.4	26.3	1.81	11.6						
90	5	3.9 (8.9)	80/67	22.7	17.1	28.2	1.84	12.4						
			85/71	24.5	17.7	30.1	1.86	13.2						
			75/63	21.4	16.6	26.7	1.78	12.1						
	7	7.2 (16.6)	80/67	23.2	17.3	28.6	1.80	12.9						
			85/71	25.1	17.9	30.6	1.81	13.9						
			75/63	18.4	15.2	24.1	1.98	9.3						
	3	1.5 (3.4)	80/67	19.9	15.9	25.8	2.03	9.8						
			85/71	21.4	16.6	27.6	2.07	10.3						
			75/63	19.3	15.7	24.9	1.92	10.1						
100	5	3.8 (8.7)	80/67	20.9	16.4	26.7	1.96	10.7						
			85/71	22.6	17.1	28.6	1.99	11.4						
			75/63	19.7	15.9	25.2	1.89	10.4						
	7	7 (16.1)	80/67	21.4	16.6	27.1	1.93	11.1						
			85/71	23.2	17.3	29.0	1.95	11.9						
			75/63	16.7	14.6	22.6	2.08	8.1						
	3	1.5 (3.4)	80/67	18.1	15.3	24.3	2.13	8.5						
			85/71	19.5	15.9	26.0	2.19	8.9						
			75/63	17.5	15.0	23.4	2.03	8.6						
110	5	3.7 (8.5)	80/67	19.1	15.6	25.2	2.08	9.2						
			85/71	20.7	16.3	27.0	2.12	9.8						
			75/63	17.9	15.1	23.7	2.01	8.9						
	7	6.8 (15.6)	80/67	19.6	15.8	25.6	2.05	9.6						
			85/71	21.2	16.6	27.4	2.09	10.2						
										60	20.9	16.0	1.58	3.9
										70	20.1	14.9	1.66	3.5
										80	19.6	13.7	1.73	3.3
										60	22.4	17.5	1.63	4.0
									50	70	21.5	16.2	1.71	3.7
										80	21.0	14.8	1.79	3.4
										60	23.3	18.1	1.66	4.1
										70	22.2	16.8	1.74	3.7
										80	21.6	15.2	1.82	3.5
										60	24.0	18.7	1.68	4.2
										70	23.1	17.6	1.77	3.8
										80	22.6	16.2	1.86	3.6
										60	25.8	20.4	1.73	4.4
									60	70	24.8	19.2	1.83	4.0
										80	24.2	17.4	1.92	3.7
										60	26.8	21.3	1.75	4.5
										70	25.7	19.9	1.86	4.1
										80	24.5	18.4	1.95	3.7
										60	27.1	21.6	1.76	4.5
										70	26.2	20.4	1.87	4.1
										80	25.2	19.1	1.98	3.7
										60	29.3	23.6	1.82	4.7
									70	70	28.2	22.1	1.93	4.3
										80	27.0	20.6	2.04	3.9
										60	30.4	24.6	1.84	4.8
										70	29.2	23.0	1.96	4.4
										80	27.9	21.3	2.07	3.9
										60	30.4	24.6	1.84	4.8
										70	29.4	23.2	1.97	4.4
										80	28.3	21.8	2.09	4.0
										60	32.8	26.9	1.89	5.1
									80	70	31.6	25.2	2.02	4.6
										80	30.3	23.5	2.15	4.1
										60	34.0	28.0	1.91	5.2
										70	32.7	26.2	2.05	4.7
										80	31.3	24.3	2.18	4.2

Extended Range - Anti-freeze required

AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.

Unit performance may be interpolated. Extrapolation is not allowed.

For conditions other than rating conditions provided, consult the BST selection software.

Ratings below 40°F are with a methanol solution.

The results reported herein are estimates based on testing by FHP. Variations in the installation and operational environment may alter performance. Bosch disclaims all warranties, express and implied, that the performance will be as reported, including the warranty of merchantability and fitness for purpose. In addition, continuous research and development may result in a change to an appliances design and specifications, which Bosch may change without notice. Before purchase, confirm the design specifications of the appliance.

Capacity Data

LV030 (950 CFM)

Cooling									Heating					
Entering Fluid Temp (°F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) °F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (°F)	Entering Air Temp (°F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
			75/63	34.3	25.3	39.4	1.65	20.8						
	3.5	1.7 (3.9)	80/67	36.8	26.1	42.0	1.66	22.2						
			85/71	39.4	26.9	44.6	1.66	23.8						
			75/63	36.1	26.1	40.8	1.50	24.1						
50	6	4.5 (10.3)	80/67	38.8	27.0	43.5	1.48	26.2						
			85/71	41.7	27.8	46.4	1.46	28.6						
			75/63	37.0	26.5	41.5	1.42	26.0						
	9	9.3 (21.4)	80/67	39.8	27.4	44.3	1.40	28.5						
			85/71	42.8	28.2	47.2	1.36	31.5						
			75/63	32.5	24.5	38.0	1.80	18.1						
	3.5	1.6 (3.7)	80/67	34.9	25.4	40.5	1.81	19.3						
			85/71	37.3	26.1	43.0	1.82	20.5						
			75/63	34.2	25.3	39.3	1.66	20.6						
60	6	4.3 (9.9)	80/67	36.9	26.2	42.0	1.65	22.3						
			85/71	39.6	27.0	44.8	1.64	24.2						
			75/63	35.1	25.6	40.0	1.59	22.1						
	9	8.9 (20.5)	80/67	37.8	26.6	42.8	1.57	24.1						
			85/71	40.7	27.4	45.6	1.54	26.3						
			75/63	30.6	23.7	36.5	1.94	15.7		60	25.4	20.1	1.70	4.4
	3.5	1.6 (3.7)	80/67	33.0	24.4	39.0	1.97	16.8		70	24.5	18.7	1.80	4.0
			85/71	35.3	25.4	41.4	1.99	17.8		80	23.3	17.4	1.89	3.6
			75/63	32.2	24.4	37.8	1.82	17.7		60	27.7	22.3	1.76	4.6
70	6	4.2 (9.6)	80/67	34.8	25.3	40.4	1.82	19.1	50	70	26.6	20.7	1.87	4.2
			85/71	37.4	26.1	43.1	1.82	20.5		80	25.4	19.1	1.97	3.8
			75/63	33.0	24.7	38.4	1.75	18.8		60	29.1	23.5	1.80	4.7
	9	8.6 (19.8)	80/67	35.7	25.7	41.1	1.75	20.4		70	27.8	21.8	1.90	4.3
			85/71	38.4	26.5	43.9	1.73	22.1		80	26.5	20.1	2.00	3.9
			75/63	28.7	22.7	35.0	2.09	13.7		60	29.7	23.5	1.80	4.8
	3.5	1.5 (3.4)	80/67	30.9	23.6	37.4	2.12	14.5		70	28.2	22.3	1.92	4.3
			85/71	33.2	24.4	39.8	2.15	15.4		80	27.2	20.8	2.03	3.9
			75/63	30.2	23.3	36.2	1.98	15.3		60	32.1	26.3	1.87	5.0
80	6	4 (9.2)	80/67	32.6	24.3	38.8	1.99	16.3	60	70	30.8	24.6	1.99	4.5
			85/71	35.1	25.1	41.3	2.00	17.5		80	29.6	22.8	2.11	4.1
			75/63	30.9	23.6	36.8	1.92	16.0		60	33.6	27.7	1.90	5.2
	9	8.4 (19.3)	80/67	33.4	24.8	39.3	1.93	17.3		70	32.3	25.9	2.03	4.7
			85/71	36.0	25.7	42.0	1.93	18.7		80	30.8	24.0	2.15	4.2
			75/63	27.7	22.4	34.1	2.15	12.8		60	33.7	27.3	1.90	5.2
	3.5	1.5 (3.4)	80/67	29.8	23.3	36.4	2.20	13.6		70	32.2	25.9	2.03	4.7
			85/71	32.0	24.1	38.8	2.23	14.3		80	31.0	24.2	2.16	4.2
			75/63	29.2	22.9	35.4	2.05	14.2		60	36.5	30.4	1.96	5.5
85	6	4 (9.2)	80/67	31.5	23.9	37.8	2.08	15.2	70	70	35.1	28.6	2.11	4.9
			85/71	33.9	24.8	40.4	2.09	16.2		80	33.7	26.7	2.24	4.4
			75/63	29.8	23.4	35.9	2.00	14.9		60	38.3	32.1	1.99	5.6
	9	8.2 (18.9)	80/67	32.3	24.3	38.4	2.02	16.0		70	36.8	30.1	2.14	5.0
			85/71	34.8	25.1	41.1	2.02	17.2		80	35.2	28.0	2.29	4.5
			75/63	26.7	21.9	33.3	2.22	12.0		60	37.8	31.1	1.98	5.6
	3.5	1.5 (3.4)	80/67	28.7	22.8	35.6	2.27	12.6		70	36.2	29.6	2.13	5.0
			85/71	30.9	23.5	38.0	2.31	13.3		80	35.0	27.7	2.28	4.5
			75/63	28.0	22.5	34.4	2.13	13.1		60	41.0	34.7	2.03	5.9
90	6	3.9 (8.9)	80/67	30.3	23.4	36.9	2.16	14.0	80	70	39.5	32.6	2.20	5.3
			85/71	32.7	24.2	39.4	2.18	15.0		80	38.0	30.5	2.36	4.7
			75/63	28.7	22.9	34.9	2.08	13.8		60	43.1	36.7	2.06	6.1
	9	8.1 (18.6)	80/67	31.1	23.8	37.5	2.11	14.8		70	41.4	34.3	2.23	5.4
			85/71	33.6	24.6	40.1	2.12	15.8		80	39.7	32.0	2.40	4.8
			75/63	24.6	21.0	31.6	2.36	10.4						
	3.5	1.4 (3.2)	80/67	26.6	21.8	33.8	2.42	11.0						
			85/71	28.5	22.8	36.0	2.47	11.5						
			75/63	25.9	21.4	32.6	2.28	11.3						
100	6	3.8 (8.7)	80/67	28.0	22.5	34.9	2.32	12.1						
			85/71	30.2	23.4	37.4	2.36	12.8						
			75/63	26.4	21.7	33.1	2.24	11.8						
	9	7.9 (18.2)	80/67	28.6	22.8	35.5	2.28	12.6						
			85/71	31.0	23.8	38.0	2.30	13.4						
			75/63	22.6	19.9	29.9	2.48	9.1						
	3.5	1.4 (3.2)	80/67	24.3	21.0	31.9	2.55	9.5						
			85/71	26.1	21.9	34.0	2.62	10.0						
			75/63	23.6	20.4	30.8	2.42	9.7						
110	6	3.7 (8.5)	80/67	25.6	21.4	33.0	2.48	10.3						
			85/71	27.6	22.5	35.2	2.53	10.9						
			75/63	24.0	20.6	31.1	2.39	10.0						
	9	7.6 (17.5)	80/67	26.1	21.7	33.4	2.44	10.7						
			85/71	28.3	22.5	35.8	2.49	11.4						

Extended Range - Anti-freeze required

AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.

Unit performance may be interpolated. Extrapolation is not allowed.

For conditions other than rating conditions provided, consult the BST selection software.

Ratings below 40°F are with a methanol solution.

The results reported herein are estimates based on testing by FHP. Variations in the installation and operational environment may alter performance. Bosch disclaims all warranties, express and implied, that the performance will be as reported, including the warranty of merchantability and fitness for purpose. In addition, continuous research and development may result in a change to an appliances design and specifications, which Bosch may change without notice. Before purchase, confirm the design specifications of the appliance.

Capacity Data

LV036 (1200 CFM)

Cooling									Heating					
Entering Fluid Temp (°F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) °F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (°F)	Entering Air Temp (°F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
			75/63	40.8	30.0	47.7	2.16	18.9						
	4	1.3 (2.9)	80/67	43.7	31.0	50.7	2.17	20.1						
			85/71	46.7	31.9	53.7	2.18	21.4						
			75/63	43.4	31.0	49.7	1.96	22.1						
50	7.5	4.2 (9.6)	80/67	46.7	32.0	53.0	1.95	24.0						
			85/71	50.0	32.9	56.3	1.93	25.9						
			75/63	44.4	31.5	50.4	1.88	23.6						
	11	8.3 (19.1)	80/67	47.8	32.4	53.8	1.86	25.7						
			85/71	51.3	33.5	57.2	1.83	28.0						
			75/63	38.7	29.1	46.0	2.33	16.6						
	4	1.3 (2.9)	80/67	41.5	30.0	49.0	2.35	17.6						
			85/71	44.5	30.8	52.0	2.37	18.8						
			75/63	41.2	30.1	47.9	2.14	19.3						
60	7.5	4 (9.6)	80/67	44.3	31.1	51.1	2.13	20.8						
			85/71	47.6	32.0	54.4	2.12	22.4						
			75/63	42.1	30.5	48.7	2.06	20.4						
	11	8 (18.4)	80/67	45.4	31.5	51.9	2.05	22.2						
			85/71	48.8	32.4	55.3	2.02	24.1						
			75/63	36.5	28.0	44.4	2.51	14.5		60	31.9	24.2	2.29	4.1
	4	1.3 (2.9)	80/67	39.3	28.9	47.2	2.54	15.5		70	30.8	22.6	2.42	3.7
			85/71	42.0	29.8	50.1	2.56	16.4		80	29.3	21.1	2.54	3.4
			75/63	38.9	29.0	46.2	2.33	16.7		60	35.0	27.2	2.39	4.3
70	7.5	3.9 (8.9)	80/67	41.9	30.0	49.3	2.33	18.0	50	70	33.9	25.2	2.52	3.9
			85/71	45.0	31.1	52.4	2.32	19.3		80	32.2	22.8	2.64	3.6
			75/63	39.8	29.4	46.9	2.25	17.7		60	36.9	28.3	2.42	4.5
	11	7.8 (17.9)	80/67	42.9	30.4	50.0	2.25	19.1		70	35.6	25.8	2.56	4.1
			85/71	46.2	31.3	53.3	2.23	20.7		80	33.1	24.8	2.69	3.6
			75/63	34.3	27.0	42.6	2.69	12.8		60	36.6	28.3	2.42	4.4
	4	1.2 (2.7)	80/67	36.9	28.0	45.4	2.73	13.5		70	35.4	26.6	2.57	4.0
			85/71	39.4	29.1	48.1	2.76	14.3		80	33.8	24.9	2.71	3.7
			75/63	36.5	27.9	44.3	2.52	14.5		60	40.2	32.0	2.52	4.7
80	7.5	3.8 (8.7)	80/67	39.3	29.0	47.3	2.53	15.5	60	70	37.4	29.0	2.66	4.1
			85/71	42.3	30.1	50.3	2.54	16.7		80	36.9	27.9	2.83	3.8
			75/63	37.3	28.3	45.0	2.45	15.2		60	41.9	33.9	2.56	4.8
	11	7.5 (17.2)	80/67	40.3	29.5	48.0	2.46	16.4		70	40.7	31.1	2.72	4.4
			85/71	43.4	30.3	51.2	2.45	17.7		80	38.3	29.3	2.88	3.9
			75/63	33.1	26.5	41.7	2.77	11.9		60	41.4	32.7	2.54	4.8
	4	1.2 (2.7)	80/67	35.6	27.5	44.4	2.82	12.6		70	39.9	30.9	2.71	4.3
			85/71	38.2	28.4	47.1	2.86	13.4		80	38.7	29.0	2.88	3.9
			75/63	35.2	27.5	43.3	2.61	13.5		60	46.0	36.9	2.64	5.1
85	7.5	3.7 (8.5)	80/67	38.0	28.4	46.3	2.64	14.4	70	70	44.4	34.6	2.82	4.6
			85/71	41.0	29.4	49.3	2.65	15.5		80	42.9	32.0	3.00	4.2
			75/63	36.0	27.7	44.0	2.55	14.1		60	48.1	38.7	2.67	5.3
	11	7.4 (17.0)	80/67	39.0	28.8	47.0	2.56	15.2		70	46.7	35.7	2.86	4.8
			85/71	42.0	30.0	50.0	2.56	16.4		80	44.7	33.2	3.04	4.3
			75/63	31.9	26.1	40.6	2.86	11.1		60	46.3	37.3	2.64	5.1
	4	1.2 (2.7)	80/67	34.3	27.2	43.3	2.91	11.8		70	44.6	35.2	2.83	4.6
			85/71	36.8	28.2	46.0	2.95	12.5		80	43.3	33.1	3.02	4.2
			75/63	34.0	26.9	42.3	2.71	12.5		60	51.5	42.1	2.73	5.5
90	7.5	3.6 (8.3)	80/67	36.6	28.1	45.2	2.74	13.4	80	70	49.2	39.5	2.94	4.9
			85/71	39.5	28.9	48.2	2.76	14.3		80	47.2	37.0	3.13	4.4
			75/63	34.7	27.2	42.9	2.65	13.1		60	53.8	44.2	2.76	5.7
	11	7.3 (16.8)	80/67	37.5	28.4	45.9	2.67	14.0		70	52.3	40.8	2.97	5.2
			85/71	40.5	29.5	48.9	2.68	15.1		80	49.3	39.0	3.18	4.5
			75/63	29.5	25.0	38.7	3.03	9.7						
	4	1.1 (2.5)	80/67	31.7	26.3	41.2	3.09	10.2						
			85/71	34.1	27.2	43.9	3.15	10.8						
			75/63	31.3	26.0	40.2	2.90	10.8						
100	7.5	3.5 (8.0)	80/67	34.0	26.9	43.1	2.94	11.5						
			85/71	36.6	27.9	45.9	2.97	12.3						
			75/63	32.1	26.1	40.8	2.85	11.2						
	11	7.1 (16.3)	80/67	34.8	27.2	43.7	2.88	12.1						
			85/71	37.6	28.2	46.6	2.90	12.9						
			75/63	27.0	24.1	36.7	3.18	8.5						
	4	1.1 (2.5)	80/67	29.1	25.2	39.1	3.26	8.9						
			85/71	31.4	26.0	41.7	3.34	9.4						
			75/63	28.7	24.7	38.1	3.08	9.3						
110	7.5	3.4 (7.8)	80/67	31.1	25.8	40.8	3.14	9.9						
			85/71	33.6	27.1	43.4	3.18	10.5						
			75/63	29.3	24.9	38.6	3.04	9.6						
	11	6.9 (15.9)	80/67	31.8	26.1	41.3	3.09	10.3						
			85/71	34.4	27.3	44.1	3.12	11.0						

Extended Range - Anti-freeze required

AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.

Unit performance may be interpolated. Extrapolation is not allowed.

For conditions other than rating conditions provided, consult the BST selection software.

Ratings below 40°F are with a methanol solution.

The results reported herein are estimates based on testing by FHP. Variations in the installation and operational environment may alter performance. Bosch disclaims all warranties, express and implied, that the performance will be as reported, including the warranty of merchantability and fitness for purpose. In addition, continuous research and development may result in a change to an appliances design and specifications, which Bosch may change without notice. Before purchase, confirm the design specifications of the appliance.

Capacity Data

LV041 (1150 CFM)

Cooling									Heating					
Entering Fluid Temp (°F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) °F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (°F)	Entering Air Temp (°F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
			75/63	44.8	32.0	52.9	2.52	17.8						
	5	2.1 (4.8)	80/67	48.1	33.0	56.3	2.53	19.0						
			85/71	51.4	33.9	59.7	2.54	20.2						
			75/63	47.2	33.0	54.8	2.33	20.3						
50	9	6.1 (14.0)	80/67	50.7	34.1	58.3	2.32	21.9						
			85/71	54.5	35.0	62.0	2.30	23.7						
			75/63	48.2	33.5	55.5	2.25	21.4						
	13	11.9 (27.4)	80/67	51.8	34.5	59.2	2.23	23.2						
			85/71	55.7	35.5	63.0	2.20	25.3						
			75/63	42.5	31.0	51.2	2.71	15.7						
	5	2.1 (4.8)	80/67	45.6	32.0	54.4	2.73	16.7						
			85/71	48.9	32.9	57.8	2.75	17.8						
			75/63	44.8	32.0	52.9	2.52	17.7						
60	9	5.9 (13.6)	80/67	48.2	33.0	56.4	2.52	19.1						
			85/71	51.8	34.0	60.0	2.51	20.6						
			75/63	45.7	32.4	53.6	2.45	18.7						
	13	11.5 (26.5)	80/67	49.3	33.5	57.2	2.44	20.2						
			85/71	53.0	34.5	60.9	2.41	22.0						
			75/63	40.1	29.9	49.3	2.91	13.8		60	36.2	27.1	2.78	3.8
	5	2 (4.6)	80/67	43.1	31.0	52.5	2.94	14.6		70	34.9	25.4	2.92	3.5
			85/71	46.2	31.9	55.7	2.97	15.6		80	33.7	23.4	3.07	3.2
			75/63	42.3	30.8	51.0	2.73	15.5		60	39.2	29.8	2.87	4.0
70	9	5.7 (13.1)	80/67	45.6	31.9	54.4	2.74	16.6	50	70	37.6	27.9	3.02	3.6
			85/71	49.0	32.9	57.8	2.74	17.9		80	36.2	25.7	3.17	3.4
			75/63	43.2	31.2	51.7	2.66	16.2		60	40.5	31.1	2.91	4.1
	13	11.1 (25.6)	80/67	46.6	32.3	55.1	2.66	17.5		70	38.8	29.0	3.07	3.7
			85/71	50.1	33.4	58.7	2.65	18.9		80	37.3	26.7	3.21	3.4
			75/63	37.6	28.8	47.4	3.11	12.1		60	41.2	31.7	2.93	4.1
	5	1.9 (4.3)	80/67	40.5	29.9	50.5	3.15	12.8		70	39.9	29.8	3.10	3.8
			85/71	43.5	30.8	53.6	3.19	13.6		80	38.5	27.8	3.26	3.5
			75/63	39.7	29.7	49.0	2.95	13.5		60	44.8	34.9	3.03	4.3
80	9	5.6 (12.9)	80/67	42.8	30.8	52.3	2.97	14.4	60	70	43.1	32.6	3.21	3.9
			85/71	46.1	31.8	55.7	2.98	15.5		80	42.0	29.9	3.38	3.6
			75/63	40.5	30.0	49.6	2.88	14.0		60	46.4	36.4	3.06	4.4
	13	10.8 (24.9)	80/67	43.8	31.2	53.0	2.89	15.1		70	44.5	33.9	3.25	4.0
			85/71	47.2	32.2	56.5	2.89	16.3		80	43.3	30.9	3.42	3.7
			75/63	36.3	28.2	46.4	3.21	11.3		60	46.5	36.5	3.07	4.4
	5	1.9 (4.3)	80/67	39.2	29.3	49.5	3.26	12.0		70	45.0	34.3	3.26	4.0
			85/71	42.1	30.2	52.6	3.30	12.8		80	43.5	32.1	3.45	3.7
			75/63	38.3	29.1	48.0	3.06	12.5		60	50.5	40.2	3.16	4.7
85	9	5.5 (12.6)	80/67	41.4	30.2	51.2	3.08	13.4	70	70	48.7	37.6	3.36	4.2
			85/71	44.6	31.2	54.5	3.10	14.4		80	46.8	35.1	3.56	3.9
			75/63	39.1	29.4	48.6	2.99	13.1		60	52.3	41.9	3.19	4.8
	13	10.6 (24.4)	80/67	42.3	30.5	51.9	3.01	14.0		70	50.3	39.1	3.40	4.3
			85/71	45.7	31.6	55.3	3.02	15.1		80	48.2	36.3	3.60	3.9
			75/63	35.0	27.7	45.4	3.31	10.6		60	51.8	41.4	3.18	4.8
	5	1.9 (4.3)	80/67	37.8	28.9	48.3	3.36	11.2		70	50.2	39.0	3.40	4.3
			85/71	40.5	29.9	51.4	3.41	11.9		80	48.5	36.6	3.61	3.9
			75/63	37.0	28.5	46.9	3.16	11.7		60	56.2	45.6	3.26	5.1
90	9	5.4 (12.4)	80/67	40.0	29.6	50.1	3.20	12.5	80	70	54.2	42.8	3.49	4.6
			85/71	43.0	30.8	53.3	3.22	13.4		80	52.1	39.9	3.71	4.1
			75/63	37.7	28.8	47.5	3.11	12.1		60	58.2	47.5	3.28	5.2
	13	10.4 (23.9)	80/67	40.9	29.9	50.8	3.13	13.1		70	56.0	44.4	3.52	4.7
			85/71	44.0	31.1	54.1	3.14	14.0		80	53.7	41.3	3.75	4.2
			75/63	32.3	26.7	43.2	3.50	9.2						
	5	1.8 (4.1)	80/67	35.0	27.6	46.2	3.57	9.8						
			85/71	37.6	28.7	49.1	3.63	10.4						
			75/63	34.1	27.2	44.7	3.38	10.1						
100	9	5.2 (11.9)	80/67	37.0	28.4	47.8	3.42	10.8						
			85/71	39.9	29.7	50.8	3.46	11.5						
			75/63	34.8	27.5	45.2	3.33	10.5						
	13	10.1 (23.2)	80/67	37.7	28.9	48.3	3.36	11.2						
			85/71	40.9	29.8	51.6	3.39	12.0						
			75/63	29.6	25.3	41.0	3.69	8.0						
	5	1.8 (4.1)	80/67	32.0	26.7	43.8	3.76	8.5						
			85/71	34.5	27.8	46.6	3.84	9.0						
			75/63	31.2	26.0	42.3	3.58	8.7						
110	9	5.1 (11.7)	80/67	33.9	27.2	45.3	3.64	9.3						
			85/71	36.6	28.5	48.3	3.70	9.9						
			75/63	31.8	26.5	42.8	3.54	9.0						
	13	9.8 (22.6)	80/67	34.6	27.5	45.9	3.60	9.6						
			85/71	37.4	28.8	48.9	3.64	10.3						

Extended Range - Anti-freeze required

AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.

Unit performance may be interpolated. Extrapolation is not allowed.

For conditions other than rating conditions provided, consult the BST selection software.

Ratings below 40°F are with a methanol solution.

The results reported herein are estimates based on testing by FHP. Variations in the installation and operational environment may alter performance. Bosch disclaims all warranties, express and implied, that the performance will be as reported, including the warranty of merchantability and fitness for purpose. In addition, continuous research and development may result in a change to an appliances design and specifications, which Bosch may change without notice. Before purchase, confirm the design specifications of the appliance.

Capacity Data

LV042 (1500 CFM)

Cooling									Heating					
Entering Fluid Temp (°F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) °F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (°F)	Entering Air Temp (°F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
50	5	2.1 (4.8)	75/63	45.2	33.0	53.8	2.72	16.6						
			80/67	48.6	34.1	57.3	2.73	17.8						
			85/71	52.0	35.1	60.8	2.73	19.0						
	10	7.4 (17.0)	75/63	48.1	34.2	56.2	2.49	19.3						
			80/67	51.7	35.4	59.9	2.48	20.9						
			85/71	55.6	36.2	63.9	2.45	22.7						
	13	11.8 (27.0)	75/63	48.8	34.6	56.8	2.44	20.0						
			80/67	52.5	35.7	60.6	2.41	21.7						
			85/71	56.5	36.6	64.6	2.38	23.7						
60	5	2 (4.6)	75/63	42.9	32.0	51.8	2.91	14.7						
			80/67	46.1	33.1	55.2	2.93	15.7						
			85/71	49.4	34.1	58.7	2.94	16.8						
	10	7.1 (16.3)	75/63	45.6	33.1	54.1	2.69	16.9						
			80/67	49.2	34.1	57.8	2.68	18.3						
			85/71	52.8	35.3	61.6	2.67	19.8						
	13	11.4 (26.2)	75/63	46.2	33.4	54.7	2.64	17.5						
			80/67	49.9	34.4	58.5	2.62	19.0						
			85/71	53.7	35.6	62.3	2.60	20.7						
70	5	2 (4.6)	75/63	40.4	30.9	49.8	3.10	13.0		60	36.7	27.3	2.92	3.7
			80/67	43.5	31.9	53.1	3.13	13.9		70	35.5	25.6	3.07	3.4
			85/71	46.7	32.9	56.6	3.16	14.8		80	34.2	23.6	3.21	3.1
	10	6.9 (15.9)	75/63	43.0	31.9	52.0	2.90	14.8		60	40.2	30.7	3.01	3.9
			80/67	46.4	33.1	55.5	2.90	16.0	50	70	39.3	28.2	3.17	3.6
			85/71	50.0	34.1	59.2	2.90	17.3		80	37.1	26.1	3.32	3.3
	13	11.1 (25.6)	75/63	43.6	32.2	52.5	2.85	15.3		60	41.8	31.1	3.04	4.0
			80/67	47.1	33.4	56.1	2.85	16.5		70	40.2	28.9	3.20	3.7
			85/71	50.8	34.4	59.9	2.83	17.9		80	38.0	26.7	3.35	3.3
80	5	1.9 (4.3)	75/63	37.9	29.7	47.7	3.30	11.5		60	41.8	32.0	3.05	4.0
			80/67	40.9	30.8	51.0	3.35	12.2		70	40.6	30.1	3.23	3.7
			85/71	43.8	32.0	54.1	3.38	13.0		80	39.7	27.9	3.40	3.4
	10	6.7 (15.4)	75/63	40.3	30.7	49.7	3.12	12.9		60	46.0	36.1	3.15	4.3
			80/67	43.6	31.8	53.2	3.13	13.9	60	70	45.0	33.2	3.33	4.0
			85/71	47.0	33.0	56.8	3.14	15.0		80	43.3	30.9	3.52	3.6
	13	10.7 (24.7)	75/63	40.9	31.0	50.2	3.07	13.3		60	47.8	36.5	3.17	4.4
			80/67	44.3	32.1	53.8	3.08	14.4		70	46.0	34.1	3.36	4.0
			85/71	47.7	33.3	57.4	3.07	15.5		80	45.2	30.6	3.54	3.7
85	5	1.9 (4.3)	75/63	36.6	29.1	46.6	3.40	10.7		60	47.1	36.9	3.17	4.4
			80/67	39.4	30.5	49.7	3.45	11.4		70	45.8	34.8	3.37	4.0
			85/71	42.4	31.3	53.0	3.49	12.1		80	44.9	32.4	3.57	3.7
	10	6.6 (15.2)	75/63	38.9	30.1	48.6	3.23	12.0		60	52.5	41.1	3.25	4.7
			80/67	42.0	31.4	51.9	3.25	12.9	70	70	50.8	38.5	3.47	4.3
			85/71	45.3	32.6	55.4	3.26	13.9		80	48.9	35.9	3.68	3.9
	13	10.5 (24.2)	75/63	39.5	30.3	49.1	3.18	12.4		60	53.9	42.3	3.27	4.8
			80/67	42.7	31.7	52.5	3.20	13.4		70	52.0	39.5	3.49	4.4
			85/71	46.1	32.8	56.0	3.20	14.4		80	51.1	35.5	3.71	4.0
90	5	1.9 (4.3)	75/63	35.1	28.7	45.4	3.50	10.0		60	52.5	42.1	3.26	4.7
			80/67	38.0	29.9	48.5	3.55	10.7		70	50.9	39.8	3.49	4.3
			85/71	40.9	30.8	51.8	3.60	11.4		80	49.3	37.2	3.71	3.9
	10	6.5 (14.9)	75/63	37.5	29.4	47.4	3.34	11.2		60	58.5	46.8	3.33	5.2
			80/67	40.6	30.7	50.8	3.36	12.1	80	70	56.6	43.9	3.57	4.6
			85/71	43.8	31.8	54.2	3.38	13.0		80	54.6	41.0	3.81	4.2
	13	10.4 (23.9)	75/63	38.0	29.7	47.9	3.30	11.5		60	59.5	48.7	3.34	5.2
			80/67	41.2	30.9	51.3	3.32	12.4		70	57.9	45.1	3.59	4.7
			85/71	44.5	32.1	54.8	3.33	13.4		80	56.9	40.5	3.83	4.4
100	5	1.8 (4.1)	75/63	32.5	27.5	43.1	3.69	8.8						
			80/67	35.1	28.8	46.1	3.76	9.3						
			85/71	37.9	29.7	49.2	3.82	9.9						
	10	6.3 (14.5)	75/63	34.5	28.4	44.9	3.55	9.7						
			80/67	37.5	29.7	48.1	3.59	10.4						
			85/71	40.6	30.7	51.5	3.63	11.2						
	13	10.1 (23.2)	75/63	35.0	28.6	45.3	3.51	10.0						
			80/67	38.0	29.9	48.6	3.55	10.7						
			85/71	41.2	30.9	52.0	3.58	11.5						
110	5	1.8 (4.1)	75/63	29.7	26.2	40.7	3.88	7.7						
			80/67	32.2	27.4	43.6	3.96	8.1						
			85/71	34.7	28.6	46.6	4.03	8.6						
	10	6.1 (14.0)	75/63	31.5	27.2	42.3	3.76	8.4						
			80/67	34.3	28.5	45.4	3.82	9.0						
			85/71	37.1	29.7	48.6	3.86	9.6						
	13	9.8 (22.6)	75/63	32.0	27.3	42.7	3.73	8.6						
			80/67	34.8	28.7	45.8	3.78	9.2						
			85/71	37.8	29.7	49.1	3.82	9.9						

Extended Range - Anti-freeze required

AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.

Unit performance may be interpolated. Extrapolation is not allowed.

For conditions other than rating conditions provided, consult the BST selection software.

Ratings below 40°F are with a methanol solution.

The results reported herein are estimates based on testing by FHP. Variations in the installation and operational environment may alter performance. Bosch disclaims all warranties, express and implied, that the performance will be as reported, including the warranty of merchantability and fitness for purpose. In addition, continuous research and development may result in a change to an appliances design and specifications, which Bosch may change without notice. Before purchase, confirm the design specifications of the appliance.

Subject to change without prior notice.

Capacity Data

LV048 (1600 CFM)

Cooling									Heating					
Entering Fluid Temp (°F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) °F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (°F)	Entering Air Temp (°F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
			75/63	52.8	38.0	62.5	2.95	17.9						
	6	0.9 (2.0)	80/67	56.3	39.1	66.0	2.97	19.0						
			85/71	59.9	40.1	69.8	2.99	20.1						
			75/63	56.5	39.7	65.2	2.63	21.5						
50	12	3 (6.9)	80/67	60.3	40.7	68.9	2.61	23.1						
			85/71	64.3	41.6	72.9	2.58	24.9						
			75/63	57.5	40.1	65.9	2.54	22.7						
	16	5.1 (11.7)	80/67	61.4	41.1	69.8	2.51	24.5						
			85/71	65.5	42.1	73.8	2.46	26.6						
			75/63	49.9	36.8	60.3	3.19	15.6						
	6	0.8 (1.8)	80/67	53.3	37.9	63.8	3.23	16.5						
			85/71	56.9	39.0	67.5	3.26	17.5						
			75/63	53.4	38.3	62.9	2.91	18.4						
60	12	2.9 (6.6)	80/67	57.1	39.3	66.6	2.90	19.7						
			85/71	61.0	40.4	70.6	2.89	21.1						
			75/63	54.3	38.6	63.6	2.83	19.2						
	16	4.9 (11.3)	80/67	58.1	39.7	67.4	2.81	20.7						
			85/71	62.1	40.8	71.4	2.79	22.3						
			75/63	46.9	35.5	57.9	3.43	13.7		60	43.5	33.3	3.07	4.1
	6	0.8 (1.8)	80/67	50.3	36.6	61.6	3.48	14.5		70	41.5	30.7	3.23	3.8
			85/71	53.8	37.7	65.2	3.52	15.3		80	39.3	28.3	3.38	3.4
			75/63	50.2	36.8	60.5	3.18	15.8		60	47.4	36.5	3.21	4.3
70	12	2.8 (6.4)	80/67	53.8	38.0	64.2	3.19	16.9	50	70	45.3	33.7	3.37	3.9
			85/71	57.6	39.1	68.1	3.19	18.0		80	43.2	31.0	3.54	3.6
			75/63	51.0	37.1	61.1	3.11	16.4		60	48.7	37.5	3.24	4.4
	16	4.7 (10.8)	80/67	54.7	38.3	64.9	3.11	17.6		70	46.6	35.5	3.42	4.0
			85/71	58.7	39.5	68.9	3.10	18.9		80	44.3	32.3	3.59	3.6
			75/63	43.9	34.1	55.6	3.67	12.0		60	48.8	37.8	3.25	4.4
	6	0.8 (1.8)	80/67	47.2	35.2	59.2	3.73	12.7		70	47.0	35.3	3.43	4.0
			85/71	50.5	36.7	62.7	3.78	13.4		80	45.3	32.8	3.62	3.7
			75/63	46.8	35.3	57.9	3.44	13.6		60	53.7	42.2	3.39	4.6
80	12	2.7 (6.2)	80/67	50.4	36.5	61.7	3.47	14.5	60	70	51.6	39.2	3.59	4.2
			85/71	54.2	37.7	65.6	3.49	15.5		80	49.5	37.0	3.79	3.8
			75/63	47.6	35.6	58.5	3.38	14.1		60	55.2	44.0	3.43	4.7
	16	4.6 (10.6)	80/67	51.3	36.9	62.3	3.40	15.1		70	53.0	41.1	3.64	4.3
			85/71	55.1	38.0	66.3	3.41	16.2		80	50.8	38.3	3.84	3.9
			75/63	42.3	33.3	54.4	3.78	11.2		60	54.6	43.2	3.41	4.7
	6	0.8 (1.8)	80/67	45.5	34.9	57.8	3.85	11.8		70	52.8	40.7	3.63	4.3
			85/71	48.9	35.7	61.6	3.92	12.5		80	51.0	38.1	3.84	3.9
			75/63	45.2	34.5	56.6	3.57	12.7		60	60.3	48.3	3.56	5.0
85	12	2.7 (6.2)	80/67	48.7	35.8	60.4	3.61	13.5	70	70	58.2	45.2	3.79	4.5
			85/71	52.3	37.2	64.2	3.64	14.4		80	56.0	42.8	4.02	4.1
			75/63	45.9	34.9	57.2	3.51	13.1		60	62.1	50.4	3.60	5.1
	16	4.5 (10.3)	80/67	49.5	36.1	61.0	3.54	14.0		70	59.8	47.3	3.84	4.6
			85/71	53.3	37.5	64.9	3.56	15.0		80	57.5	44.3	4.07	4.1
			75/63	40.7	32.9	53.1	3.90	10.5		60	60.7	48.9	3.57	5.0
	6	0.8 (1.8)	80/67	44.0	33.9	56.7	3.98	11.1		70	58.9	46.2	3.81	4.5
			85/71	47.3	35.2	60.3	4.05	11.7		80	57.0	43.5	4.06	4.1
			75/63	43.5	33.7	55.3	3.70	11.8		60	67.3	54.7	3.70	5.3
90	12	2.6 (5.9)	80/67	46.9	35.3	59.0	3.75	12.5	80	70	65.0	51.4	3.97	4.8
			85/71	50.6	36.3	62.9	3.79	13.4		80	62.8	48.1	4.23	4.4
			75/63	44.2	34.1	55.9	3.65	12.1		60	70.0	56.7	3.74	5.5
	16	4.4 (10.1)	80/67	47.7	35.6	59.6	3.68	13.0		70	66.8	53.8	4.02	4.9
			85/71	51.5	36.7	63.5	3.72	13.9		80	64.3	50.5	4.28	4.4
			75/63	37.5	31.5	50.6	4.12	9.1						
	6	0.7 (1.6)	80/67	40.6	32.9	54.1	4.22	9.6						
			85/71	43.7	34.2	57.6	4.31	10.2						
			75/63	40.0	32.3	52.6	3.95	10.1						
100	12	2.6 (5.9)	80/67	43.3	33.9	56.2	4.02	10.8						
			85/71	46.9	35.0	60.0	4.08	11.5						
			75/63	40.6	32.6	53.1	3.91	10.4						
	16	4.3 (9.9)	80/67	44.0	34.2	56.7	3.96	11.1						
			85/71	47.7	35.3	60.7	4.02	11.9						
			75/63	34.4	30.2	48.2	4.35	7.9						
	6	0.7 (1.6)	80/67	37.2	31.7	51.4	4.46	8.3						
			85/71	40.2	33.0	54.8	4.57	8.8						
			75/63	36.5	30.9	49.8	4.20	8.7						
110	12	2.5 (5.7)	80/67	39.6	32.5	53.3	4.29	9.2						
			85/71	43.0	34.0	57.0	4.36	9.9						
			75/63	37.0	31.1	50.2	4.17	8.9						
	16	4.2 (9.6)	80/67	40.3	32.5	53.9	4.25	9.5						
			85/71	43.7	34.3	57.5	4.31	10.2						

Extended Range - Anti-freeze required

AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.

Unit performance may be interpolated. Extrapolation is not allowed.

For conditions other than rating conditions provided, consult the BST selection software.

Ratings below 40°F are with a methanol solution.

The results reported herein are estimates based on testing by FHP. Variations in the installation and operational environment may alter performance. Bosch disclaims all warranties, express and implied, that the performance will be as reported, including the warranty of merchantability and fitness for purpose. In addition, continuous research and development may result in a change to an appliances design and specifications, which Bosch may change without notice. Before purchase, confirm the design specifications of the appliance.

Capacity Data

LV060 (2000 CFM)

Cooling									Heating					
Entering Fluid Temp (°F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) °F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (°F)	Entering Air Temp (°F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
			75/63	65.6	47.0	77.2	3.52	18.7						
	8	1.7 (3.9)	80/67	70.0	48.3	81.8	3.56	19.7						
			85/71	74.5	49.6	86.6	3.62	20.6						
			75/63	67.6	47.9	78.5	3.28	20.6						
50	13	4 (9.2)	80/67	72.2	49.2	83.3	3.31	21.8						
			85/71	77.1	50.5	88.3	3.35	23.1						
			75/63	68.7	48.4	79.2	3.14	21.9						
	20	8.6 (19.8)	80/67	73.5	49.8	84.1	3.16	23.2						
			85/71	78.6	51.1	89.3	3.19	24.7						
			75/63	63.0	45.9	75.6	3.83	16.5						
	8	1.6 (3.6)	80/67	67.2	47.2	80.1	3.88	17.3						
			85/71	71.7	48.5	84.7	3.93	18.2						
			75/63	64.9	46.7	76.8	3.59	18.1						
60	13	3.8 (8.7)	80/67	69.4	48.1	81.5	3.62	19.2						
			85/71	74.2	49.3	86.4	3.66	20.3						
			75/63	66.0	47.2	77.5	3.46	19.1						
	20	8.3 (19.1)	80/67	70.7	48.6	82.3	3.48	20.3						
			85/71	75.6	49.9	87.3	3.51	21.6						
			75/63	60.2	44.7	74.0	4.17	14.4		60	57.4	41.8	4.23	4.0
	8	1.5 (3.4)	80/67	64.4	46.1	78.3	4.22	15.3		70	55.7	40.0	4.62	3.5
			85/71	68.7	47.2	82.9	4.28	16.1		80	55.1	37.8	5.06	3.2
			75/63	62.1	45.5	75.1	3.93	15.8		60	60.7	44.8	4.30	4.1
70	13	3.7 (8.5)	80/67	66.5	46.8	79.7	3.96	16.8	50	70	59.8	42.4	4.69	3.7
			85/71	71.1	48.1	84.4	4.00	17.8		80	58.9	39.9	5.13	3.4
			75/63	63.2	46.0	75.8	3.80	16.6		60	62.9	46.6	4.34	4.2
	20	8.1 (18.6)	80/67	67.7	47.3	80.4	3.82	17.7		70	61.8	44.0	4.74	3.8
			85/71	72.5	48.6	85.3	3.85	18.8		80	60.8	41.2	5.18	3.4
			75/63	57.4	43.5	72.4	4.56	12.6		60	64.2	48.2	4.37	4.3
	8	1.5 (3.4)	80/67	61.5	44.8	76.6	4.61	13.4		70	63.4	45.8	4.78	3.9
			85/71	65.6	45.9	81.0	4.66	14.1		80	61.6	43.8	5.23	3.5
			75/63	59.3	44.2	73.4	4.31	13.8		60	68.3	51.7	4.46	4.5
80	13	3.6 (8.3)	80/67	63.5	45.6	77.8	4.34	14.6	60	70	67.1	49.0	4.87	4.0
			85/71	67.9	46.8	82.4	4.38	15.5		80	66.1	46.3	5.32	3.6
			75/63	60.2	44.6	74.0	4.17	14.4		60	70.2	55.1	4.53	4.5
	20	7.8 (17.9)	80/67	64.6	46.0	78.5	4.20	15.4		70	68.5	51.4	4.93	4.1
			85/71	69.2	47.3	83.2	4.22	16.4		80	68.3	48.1	5.38	3.7
			75/63	56.0	42.7	71.7	4.77	11.8		60	72.7	54.2	4.54	4.7
	8	1.5 (3.4)	80/67	60.0	44.1	75.8	4.82	12.5		70	71.7	51.6	4.95	4.2
			85/71	64.0	45.5	80.0	4.87	13.1		80	69.5	49.6	5.42	3.8
			75/63	57.8	43.5	72.6	4.51	12.8		60	76.2	59.0	4.65	4.8
85	13	3.5 (8.0)	80/67	62.0	44.9	76.9	4.55	13.6	70	70	74.8	56.0	5.07	4.3
			85/71	66.3	46.1	81.5	4.58	14.5		80	73.5	53.0	5.53	3.9
			75/63	58.7	43.9	73.1	4.38	13.4		60	79.3	61.6	4.73	4.9
	20	7.7 (17.7)	80/67	63.0	45.4	77.6	4.40	14.3		70	76.6	58.8	5.15	4.4
			85/71	67.5	46.6	82.2	4.43	15.3		80	75.0	55.4	5.61	3.9
			75/63	54.6	42.1	70.9	4.99	10.9		60	79.2	61.9	4.73	4.9
	8	1.5 (3.4)	80/67	58.5	43.4	75.0	5.04	11.6		70	79.1	58.3	5.15	4.5
			85/71	62.4	44.7	79.2	5.10	12.2		80	76.7	56.0	5.63	4.0
			75/63	56.3	42.8	71.8	4.73	11.9		60	84.5	66.6	4.87	5.1
90	13	3.5 (8.0)	80/67	60.4	44.2	76.1	4.76	12.7	80	70	82.8	63.2	5.30	4.6
			85/71	64.5	45.8	80.3	4.80	13.5		80	81.3	59.9	5.77	4.1
			75/63	57.2	43.2	72.3	4.60	12.4		60	88.0	69.5	4.97	5.2
	20	7.6 (17.5)	80/67	61.4	44.7	76.6	4.62	13.3		70	85.0	66.4	5.39	4.6
			85/71	65.7	46.2	81.1	4.64	14.2		80	83.0	62.6	5.86	4.1
			75/63	51.7	40.7	69.6	5.49	9.4						
	8	1.4 (3.2)	80/67	55.3	42.2	73.5	5.54	10.0						
			85/71	59.1	43.5	77.4	5.59	10.6						
			75/63	53.2	41.4	70.3	5.22	10.2						
100	13	3.4 (7.8)	80/67	57.1	42.9	74.4	5.25	10.9						
			85/71	61.2	44.2	78.5	5.28	11.6						
			75/63	54.1	41.8	70.7	5.08	10.6						
	20	7.3 (16.8)	80/67	58.0	43.5	74.7	5.10	11.4						
			85/71	62.2	44.9	79.0	5.12	12.2						
			75/63	48.5	39.4	68.4	6.08	8.0						
	8	1.4 (3.2)	80/67	52.0	40.9	72.1	6.12	8.5						
			85/71	55.6	42.3	75.8	6.17	9.0						
			75/63	50.0	40.0	68.9	5.79	8.6						
110	13	3.3 (7.6)	80/67	53.6	41.8	72.7	5.81	9.2						
			85/71	57.4	43.3	76.6	5.84	9.8						
			75/63	50.7	40.5	69.1	5.65	9.0						
	20	7.1 (16.3)	80/67	54.5	42.2	73.0	5.65	9.6						
			85/71	58.4	43.7	77.1	5.67	10.3						

Extended Range - Anti-freeze required

AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.

Unit performance may be interpolated. Extrapolation is not allowed.

For conditions other than rating conditions provided, consult the BST selection software.

Ratings below 40°F are with a methanol solution.

The results reported herein are estimates based on testing by FHP. Variations in the installation and operational environment may alter performance. Bosch disclaims all warranties, express and implied, that the performance will be as reported, including the warranty of merchantability and fitness for purpose. In addition, continuous research and development may result in a change to an appliances design and specifications, which Bosch may change without notice. Before purchase, confirm the design specifications of the appliance.

Intertek

Capacity Data

LV070 (2200 CFM)

Cooling									Heating					
Entering Fluid Temp (°F)	Water Flow (GPM)	Pressure Drop PSI (FOH)	Entering Air Temp (db/wb) °F	Total Capacity (MBTUH)	Sensible Capacity (MBTUH)	Heat of Rejection (MBTUH)	Power Input (kW)	EER	Entering Fluid Temp (°F)	Entering Air Temp (°F)	Total Capacity (MBTUH)	Heat of Absorption (MBTUH)	Power Input (kW)	COP
			75/63	72.2	53.9	85.4	3.96	18.3						
	10	2.6 (5.9)	80/67	77.1	55.5	90.5	4.01	19.3						
			85/71	82.2	57.0	95.9	4.06	20.2						
			75/63	74.0	54.7	86.6	3.76	19.7						
50	15	5.4 (12.4)	80/67	79.2	56.3	91.9	3.80	20.9						
			85/71	84.5	57.9	97.4	3.84	22.0						
			75/63	74.9	55.1	87.2	3.66	20.5						
	20	9.1 (20.9)	80/67	80.2	56.7	92.6	3.69	21.8						
			85/71	85.7	58.3	98.2	3.72	23.0						
			75/63	69.2	52.5	83.5	4.29	16.1						
	10	2.5 (5.7)	80/67	74.0	54.2	88.4	4.34	17.1						
			85/71	78.9	55.8	93.6	4.39	18.0						
			75/63	71.0	53.3	84.6	4.09	17.3						
60	15	5.2 (11.9)	80/67	75.9	55.0	89.7	4.13	18.4						
			85/71	81.0	56.9	95.0	4.17	19.4						
			75/63	71.8	53.7	85.2	4.00	18.0						
	20	8.7 (20.0)	80/67	76.9	55.4	90.4	4.03	19.1						
			85/71	82.1	57.3	95.7	4.06	20.2						
			75/63	66.1	51.2	81.5	4.65	14.2		60	62.6	47.7	4.40	4.2
	10	2.4 (5.5)	80/67	70.6	52.9	86.2	4.70	15.0		70	61.6	45.6	4.78	3.8
			85/71	75.4	54.5	91.2	4.76	15.9		80	60.8	42.9	5.21	3.4
			75/63	67.7	51.9	82.5	4.45	15.2		60	65.5	50.5	4.45	4.3
70	15	5 (11.5)	80/67	72.4	53.9	87.4	4.49	16.1	50	70	64.2	47.8	4.83	3.9
			85/71	77.5	55.3	92.7	4.53	17.1		80	63.1	45.2	5.26	3.5
			75/63	68.5	52.5	82.9	4.35	15.7		60	67.1	52.0	4.47	4.4
	20	8.5 (19.6)	80/67	73.4	54.3	88.0	4.38	16.8		70	65.7	49.2	4.86	4.0
			85/71	78.5	56.0	93.3	4.42	17.8		80	64.4	46.4	5.28	3.6
			75/63	62.8	49.8	79.5	5.05	12.4		60	71.1	54.5	4.53	4.6
	10	2.4 (5.5)	80/67	67.2	51.6	84.1	5.10	13.2		70	69.1	52.7	4.92	4.1
			85/71	71.6	53.6	88.7	5.15	13.9		80	67.6	49.5	5.35	3.7
			75/63	64.3	50.7	80.3	4.85	13.3		60	73.7	58.3	4.59	4.7
80	15	4.9 (11.3)	80/67	68.9	52.6	85.1	4.88	14.1	60	70	72.2	55.3	4.98	4.2
			85/71	73.6	54.3	90.0	4.92	15.0		80	70.8	52.4	5.42	3.8
			75/63	65.1	51.1	80.8	4.75	13.7		60	75.8	60.2	4.62	4.8
	20	8.2 (18.9)	80/67	69.8	52.9	85.7	4.78	14.6		70	73.6	57.0	5.01	4.3
			85/71	74.7	54.7	90.7	4.81	15.5		80	72.4	53.8	5.45	3.9
			75/63	61.0	49.4	78.4	5.27	11.6		60	79.3	62.2	4.67	5.0
	10	2.3 (5.3)	80/67	65.3	51.2	82.9	5.32	12.3		70	76.8	59.5	5.07	4.4
			85/71	69.7	52.9	87.5	5.37	13.0		80	75.4	56.4	5.52	4.0
			75/63	62.7	49.8	79.4	5.07	12.4		60	82.7	66.6	4.75	5.1
85	15	4.8 (11.0)	80/67	67.2	51.6	84.1	5.10	13.2	70	70	80.4	63.4	5.15	4.6
			85/71	71.7	53.6	88.8	5.14	14.0		80	80.0	59.0	5.60	4.2
			75/63	63.5	50.1	79.9	4.97	12.8		60	84.8	68.7	4.79	5.2
	20	8.1 (18.6)	80/67	68.1	51.9	84.6	5.00	13.6		70	82.8	64.6	5.20	4.7
			85/71	72.7	54.0	89.4	5.02	14.5		80	80.4	61.7	5.64	4.2
			75/63	59.5	48.4	77.6	5.51	10.8		60	87.9	70.2	4.84	5.3
	10	2.3 (5.3)	80/67	63.5	50.5	81.9	5.55	11.4		70	85.0	67.3	5.25	4.7
			85/71	68.0	51.9	86.6	5.61	12.1		80	83.8	64.1	5.71	4.3
			75/63	60.8	49.3	78.3	5.29	11.5		60	92.0	75.2	4.94	5.5
90	15	4.7 (10.8)	80/67	65.4	50.9	83.0	5.33	12.3	80	70	89.2	71.7	5.35	4.9
			85/71	69.8	52.9	87.6	5.37	13.0		80	88.5	66.8	5.81	4.5
			75/63	61.6	49.6	78.7	5.19	11.9		60	94.3	77.6	4.99	5.5
	20	7.9 (18.2)	80/67	66.1	51.5	83.4	5.22	12.7		70	91.9	73.9	5.41	5.0
			85/71	70.9	52.9	88.3	5.26	13.5		80	89.2	69.8	5.86	4.5
			75/63	55.9	47.4	75.7	6.02	9.3						
	10	2.2 (5.0)	80/67	59.9	49.2	79.9	6.07	9.9						
			85/71	64.1	50.6	84.3	6.13	10.5						
			75/63	57.3	47.8	76.4	5.81	9.9						
100	15	4.6 (10.6)	80/67	61.5	49.8	80.7	5.84	10.5						
			85/71	65.8	51.5	85.2	5.87	11.2						
			75/63	57.9	48.1	76.7	5.71	10.2						
	20	7.7 (17.7)	80/67	62.2	50.3	81.1	5.72	10.9						
			85/71	66.8	51.5	85.9	5.76	11.6						
			75/63	52.3	45.8	74.1	6.64	7.9						
	10	2.1 (4.8)	80/67	56.0	47.8	78.0	6.68	8.4						
			85/71	59.9	49.5	82.1	6.73	8.9						
			75/63	53.7	46.1	74.8	6.41	8.4						
110	15	4.5 (10.3)	80/67	57.7	48.0	78.9	6.43	9.0						
			85/71	61.6	50.3	82.9	6.46	9.5						
			75/63	54.2	46.7	74.9	6.30	8.6						
	20	7.5 (17.2)	80/67	58.3	48.5	79.1	6.32	9.2						
			85/71	62.5	50.3	83.4	6.34	9.9						

Extended Range - Anti-freeze required

AHRI/ISO13256-1 certified performance is rated at entering air conditions of 80.6°F DB and 66.2°F WB in cooling and 68°F DB in heating.

Tabulated unit performance does not include fan or pump power corrections required for AHRI/ISO standard performance ratings.

Unit performance may be interpolated. Extrapolation is not allowed.

For conditions other than rating conditions provided, consult the BST selection software.

Ratings below 40°F are with a methanol solution.

The results reported herein are estimates based on testing by FHP. Variations in the installation and operational environment may alter performance. Bosch disclaims all warranties, express and implied, that the performance will be as reported, including the warranty of merchantability and fitness for purpose. In addition, continuous research and development may result in a change to an appliances design and specifications, which Bosch may change without notice. Before purchase, confirm the design specifications of the appliance.

Unit Electrical Data

with Standard Blower Motor

Model	Voltage Code	Voltage/Hz/ Phase	Voltage Min/Max	Compressor			Blower Motor			Min. Circuit Amps	HACR Breaker
				Quantity	RLA	LRA	FLA	HP	Total Unit FLA		
LV007	1	208-230/1/60	197/253	1	2.6	17.7	0.96	0.1	3.6	4.2	15
	2	265/1/60	238/292	1	2.6	13.5	0.96	0.1	3.6	4.2	15
LV009	1	208-230/1/60	197/253	1	3.4	22.2	0.96	0.1	4.4	5.2	15
	2	265/1/60	238/292	1	2.9	18.8	0.85	0.1	3.8	4.5	15
LV012	0	115/1/60	103/126	1	9.6	58.4	2.2	0.1	11.8	14.2	20
	1	208-230/1/60	197/253	1	4.6	28.0	0.96	0.1	5.6	6.7	15
	2	265/1/60	238/292	1	3.8	22.2	0.85	0.1	4.7	5.6	15
LV015	1	208-230/1/60	197/253	1	5.6	29.0	1.10	0.17	6.7	8.1	15
	2	265/1/60	238/292	1	4.6	20.0	0.90	0.17	5.5	6.7	15
LV018	1	208-230/1/60	197/253	1	6.5	43.0	1.8	0.25	8.3	9.9	15
	2	265/1/60	238/292	1	5.8	46.0	1.6	0.25	7.4	8.9	15
LV024	1	208-230/1/60	197/253	1	7.4	43.0	1.8	0.25	9.2	11.1	15
	2	265/1/60	238/292	1	6.7	46.0	1.6	0.25	8.3	10.0	15
	3	208-230/3/60	197/253	1	5.9	63.0	1.8	0.25	7.7	9.2	15
	4	460/3/60	414/506	1	2.9	30.0	0.9	0.25	3.8	4.5	15
LV030	1	208-230/1/60	197/253	1	9.9	54.0	1.8	0.25	11.7	14.2	20
	2	265/1/60	238/292	1	8.5	46.0	1.6	0.25	10.1	12.2	20
	3	208-230/3/60	197/253	1	6.9	63.0	1.8	0.25	8.7	10.4	15
	4	460/3/60	414/506	1	5.4	30.0	0.9	0.25	6.3	7.7	15
LV036	1	208-230/1/60	197/253	1	13	74.0	4.4	0.5	17.4	20.7	30
	2	265/1/60	238/292	1	11.3	67.0	3.3	0.5	14.6	17.4	25
	3	208-230/3/60	197/253	1	7.8	68.0	4.4	0.5	12.2	14.2	20
	4	460/3/60	414/506	1	3.9	34.0	1.8	0.5	5.7	6.7	15
LV041	1	208-230/1/60	197/253	1	13.6	88.0	4.4	0.75	18.0	21.4	35
	3	208-230/3/60	197/253	1	8.8	68.0	4.4	0.75	13.2	15.4	20
	4	460/3/60	414/506	1	4.4	34.0	2.8	0.75	7.2	8.3	15
LV042	1	208-230/1/60	197/253	1	13.6	88.0	4.4	0.5	18.0	21.4	35
	3	208-230/3/60	197/253	1	8.8	68.0	4.4	0.5	13.2	15.4	20
	4	460/3/60	414/506	1	4.4	34.0	1.8	0.5	6.2	7.3	15
LV048	1	208-230/1/60	197/253	1	15.7	84.0	4.4	0.75	20.1	24.0	35
	3	208-230/3/60	197/253	1	11	88.0	4.4	0.75	15.4	18.2	25
	4	460/3/60	414/506	1	5.4	44.0	2.8	0.75	8.2	9.6	15
	5	575/3/60	517/633	1	4.4	36.0	2.6	0.75	7.0	8.1	15
LV060	1	208-230/1/60	197/253	1	26.3	134.0	5.5	0.75	31.8	38.4	60
	3	208-230/3/60	197/253	1	15.6	110.0	5.5	0.75	21.1	25.0	40
	4	460/3/60	414/506	1	7.8	52.0	2.8	0.75	10.6	12.6	20
	5	575/3/60	517/633	1	5.8	38.9	2.6	0.75	8.4	9.9	15
LV070	1	208-230/1/60	197/253	1	28.3	178.0	5.5	0.75	33.8	40.9	60
	3	208-230/3/60	197/253	1	19.2	136.0	5.5	0.75	24.7	29.5	45
	4	460/3/60	414/506	1	8.7	66.1	2.8	0.75	11.5	13.7	20
	5	575/3/60	517/633	1	6.9	55.3	2.6	0.75	9.5	11.2	15

208/230V units shipped with transformer wired for 230V–for 208V remove orange tranformer primary lead and replace with red lead.
All blower motors are single phase.

UNIT POWER SUPPLY: A voltage variation of +/- 10% of nameplate rating is acceptable. Phase imbalance shall not exceed 2%.

Subject to change without prior notice.

Unit Electrical Data

with ECM Constant Torque

Model	Voltage Code	Voltage/Hz/ Phase	Voltage Min/Max	Compressor			Blower Motor			Min. Circuit Amps	HACR Breaker
				Quantity	RLA	LRA	FLA	HP	Total Unit FLA		
LV015	1	208-230/1/60	197/253	1	5.6	29.0	2.80	0.33	8.4	9.8	15
	2	265/1/60	238/292	1	4.6	20.0	2.60	0.33	7.2	8.4	15
LV018	1	208-230/1/60	197/253	1	6.5	43.0	2.8	0.33	9.3	10.9	15
	2	265/1/60	238/292	1	5.8	46.0	2.6	0.33	8.4	9.9	15
LV024	1	208-230/1/60	197/253	1	7.4	43.0	2.8	0.33	10.2	12.1	15
	2	265/1/60	238/292	1	6.7	46.0	2.6	0.33	9.3	11.0	15
	3	208-230/3/60	197/253	1	5.9	63.0	2.8	0.33	8.7	10.2	15
	4	460/3/60	414/506	1	2.9	30.0	2.1	0.50	5.0	5.7	15
LV030	1	208-230/1/60	197/253	1	9.9	54.0	2.8	0.33	12.7	15.2	25
	2	265/1/60	238/292	1	8.5	46.0	2.6	0.33	11.1	13.2	20
	3	208-230/3/60	197/253	1	6.9	63.0	2.8	0.33	9.7	11.4	15
	4	460/3/60	414/506	1	5.4	30.0	2.1	0.50	7.5	8.9	15
LV036	1	208-230/1/60	197/253	1	13	74.0	4.1	0.5	17.1	20.4	30
	2	265/1/60	238/292	1	11.3	67.0	3.9	0.5	15.2	18.0	25
	3	208-230/3/60	197/253	1	7.8	68.0	4.1	0.5	11.9	13.9	20
	4	460/3/60	414/506	1	3.9	34.0	2.1	0.5	6.0	7.0	15
LV041	1	208-230/1/60	197/253	1	13.6	88.0	6.0	0.75	19.6	23.0	35
	3	208-230/3/60	197/253	1	8.8	68.0	6.0	0.75	14.8	17.0	25
	4	460/3/60	414/506	1	4.4	34.0	4.6	0.75	9.0	10.1	15
LV042	1	208-230/1/60	197/253	1	13.6	88.0	6.0	0.75	19.6	23.0	35
	3	208-230/3/60	197/253	1	8.8	68.0	6.0	0.75	14.8	17.0	25
	4	460/3/60	414/506	1	4.4	34.0	4.6	0.75	9.0	10.1	15
LV048	1	208-230/1/60	197/253	1	15.7	84.0	6.0	0.75	21.7	25.6	40
	3	208-230/3/60	197/253	1	11	88.0	6.0	0.75	17.0	19.8	30
	4	460/3/60	414/506	1	5.4	44.0	4.6	0.75	10.0	11.4	15
LV060	1	208-230/1/60	197/253	1	26.3	145.0	7.6	1.00	33.9	40.5	60
	3	208-230/3/60	197/253	1	15.6	123.0	7.6	1.00	23.2	27.1	40
	4	460/3/60	414/506	1	7.8	70.0	4.0	1.00	11.8	13.8	20
LV070	1	208-230/1/60	197/253	1	28.3	158.0	7.6	1.00	35.9	43.0	70
	3	208-230/3/60	197/253	1	19.2	155.0	7.6	1.00	26.8	31.6	50
	4	460/3/60	414/506	1	8.7	75.0	4.0	1.00	12.7	14.9	20

Subject to change without prior notice.

Unit Electrical Data

with ECM Constant Airflow (Variable Speed)

Model	Voltage Code	Voltage/Hz/ Phase	Voltage Min/Max	Compressor			Blower Motor			Min. Circuit Amps	HACR Breaker
				Quantity	RLA	LRA	FLA	HP	Total Unit FLA		
LV015	1	208-230/1/60	197/253	1	5.6	29.0	2.80	0.33	8.4	9.8	15
	2	265/1/60	238/292	1	4.6	20.0	2.60	0.33	7.2	8.4	15
LV018	1	208-230/1/60	197/253	1	6.5	43.0	2.8	0.33	9.3	10.9	15
	2	265/1/60	238/292	1	5.8	46.0	2.6	0.33	8.4	9.9	15
LV024	1	208-230/1/60	197/253	1	7.4	43.0	2.8	0.33	10.2	12.1	15
	2	265/1/60	238/292	1	6.7	46.0	2.6	0.33	9.3	11.0	15
	3	208-230/3/60	197/253	1	5.9	63.0	2.8	0.33	8.7	10.2	15
	4	460/3*/60	414/506	1	2.9	30.0	2.6	0.33	5.5	6.2	15
LV030	1	208-230/1/60	197/253	1	9.9	54.0	2.8	0.33	12.7	15.2	25
	2	265/1/60	238/292	1	8.5	46.0	2.6	0.33	11.1	13.2	20
	3	208-230/3/60	197/253	1	6.9	63.0	2.8	0.33	9.7	11.4	15
	4	460/3*/60	414/506	1	5.4	30.0	2.6	0.33	8.0	9.4	15
LV036	1	208-230/1/60	197/253	1	13	74.0	4.3	0.50	17.3	20.6	30
	2	265/1/60	238/292	1	11.3	67.0	4.1	0.50	15.4	18.2	25
	3	208-230/3/60	197/253	1	7.8	68.0	4.3	0.50	12.1	14.1	20
	4	460/3*/60	414/506	1	3.9	34.0	4.1	0.50	8.0	9.0	15
LV041	1	208-230/1/60	197/253	1	13.6	88.0	6.8	0.75	20.4	23.8	35
	3	208-230/3/60	197/253	1	8.8	68.0	6.8	0.75	15.6	17.8	25
	4	460/3*/60	414/506	1	4.4	34.0	5.5	0.75	9.9	11.0	15
LV042	1	208-230/1/60	197/253	1	13.6	88.0	6.8	0.75	20.4	23.8	35
	3	208-230/3/60	197/253	1	8.8	68.0	6.8	0.75	15.6	17.8	25
	4	460/3*/60	414/506	1	4.4	34.0	5.5	0.75	9.9	11.0	15
LV048	1	208-230/1/60	197/253	1	15.7	84.0	6.8	0.75	22.5	26.4	40
	3	208-230/3/60	197/253	1	11	88.0	6.8	0.75	17.8	20.6	30
	4	460/3*/60	414/506	1	5.4	44.0	5.5	0.75	10.9	12.3	15
LV060	1	208-230/1/60	197/253	1	26.3	145.0	9.1	1.00	35.4	42.0	60
	3	208-230/3/60	197/253	1	15.6	123.0	9.1	1.00	24.7	28.6	40
	4	460/3*/60	414/506	1	7.8	70.0	6.9	1.00	14.7	16.7	20
LV070	1	208-230/1/60	197/253	1	28.3	158.0	9.1	1.00	37.4	44.5	70
	3	208-230/3/60	197/253	1	19.2	155.0	9.1	1.00	28.3	33.1	50
	4	460/3*/60	414/506	1	8.7	75.0	6.9	1.00	15.6	17.8	25

* 460V models with a constant airflow motor require a neutral wire to provide 265V power to the motor

Subject to change without prior notice.

Blower Performance CFM

Standard PSC Blower Motor

Model	Motor Speed	Rated Airflow	Available External Static Pressure (in. wc. wet coil and filter included)											
			0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20
	Low		370	340	295	250	-	-	-	-	-	-	-	-
LV007	Medium	300	390	360	330	300	260	-	-	-	-	-	-	-
	High		410	380	350	315	280	210	-	-	-	-	-	-
	Low		370	340	295	250	-	-	-	-	-	-	-	-
LV009	Medium		390	360	330	300	260	-	-	-	-	-	-	-
	High	350	410	380	350	315	280	210	-	-	-	-	-	-
	Low		300	290	290	300	-	-	-	-	-	-	-	-
LV012	Medium		380	380	360	330	290	-	-	-	-	-	-	-
	High	400	420	400	380	360	340	320	-	-	-	-	-	-
	Low		500	450	400	-	-	-	-	-	-	-	-	-
LV015	Medium		560	520	480	430	400			-	-	-	-	-
	High	500	700	650	600	550	500	450	400	-	-	-	-	-
	Low		630	590	560	-	-	-	-	-	-	-	-	-
LV018	Medium	650	810	790	760	730	680	590	-	-	-	-	-	-
	High		1010	970	920	870	800	680	530	-	-	-	-	-
	Low		650	610	570	540	510	-	-	-	-	-	-	-
LV024	Medium		830	820	800	770	720	620	-	-	-	-	-	-
	High	850	1050	1000	950	910	840	710	570	-	-	-	-	-
	Low		740	730	700	660	610	-	-	-	-	-	-	-
LV030	Medium		830	810	770	730	680	620	-	-	-	-	-	-
	High	950	1000	950	900	830	750	690	630	-	-	-	-	-
	Low		1290	1250	1200	1150	1080	1000	-	-	-	-	-	-
LV036	Medium		1410	1350	1290	1220	1150	1060	900	-	-	-	-	-
	High	1200	1500	1440	1370	1290	1210	1120	1000	900	-	-	-	-
	Low		950	900	840	780	720	700	-	-	-	-	-	-
LV041	Medium		1200	1140	1080	1010	930	870	820	-	-	-	-	-
	High	1300	1490	1400	1320	1240	1160	1080	990	910	-	-	-	-
	Low		1210	1210	1190	1160	1120	1080	-	-	-	-	-	-
LV042	Medium		1460	1450	1430	1390	1330	1250	1160	-	-	-	-	-
	High	1400	1750	1710	1670	1620	1560	1460	1330	1210	1080	-	-	-
	Low		1450	1440	1420	1400	1360	1320	-	-	-	-	-	-
LV048	Medium		1700	1670	1630	1580	1530	1470	1400	-	-	-	-	-
	High	1600	1930	1870	1810	1740	1670	1600	1520	1430	1340	-	-	-
	Low		1560	1550	1540	1530	1505	1475	1440	1400	-	-	-	-
LV060	Medium		1890	1880	1870	1860	1825	1790	1730	1670	1590	1500	-	-
	High	2000	2220	2200	2150	2100	2050	2000	1940	1870	1800	1700	1590	-
	Low		1570	1560	1550	1540	1530	1505	1475	1440	1400	-	-	-
LV070	Medium		1900	1890	1880	1870	1860	1825	1790	1730	1670	1590	1500	-
	High	2100	2240	2220	2200	2150	2100	2050	2000	1940	1870	1800	1700	1590

Blower Performance CFM

ECM Constant Torque

Model	Tap #	Rated Airflow	Available External Static Pressure (in. wc, wet coil and filter included)											
			0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20
	1		480	440	410	370	340	-	-	-	-	-	-	-
	2		530	490	450	420	380	340	-	-	-	-	-	-
LV015	3	500	600	560	510	470	440	410	370	-	-	-	-	-
	4		650	600	560	520	500	480	440	380	-	-	-	-
	5		710	660	620	580	550	520	490	470	-	-	-	-
	1		630	590	560	530	490	-	-	-	-	-	-	-
	2	650	720	700	670	630	600	560	-	-	-	-	-	-
LV018	3		790	770	750	710	670	620	560	-	-	-	-	-
	4		910	890	850	810	740	670	590	520	-	-	-	-
	5		1010	970	920	860	810	750	660	530	-	-	-	-
	1		650	610	580	560	520	-	-	-	-	-	-	-
	2		740	720	690	660	620	570	-	-	-	-	-	-
LV024	3		850	830	800	770	730	690	630	-	-	-	-	-
	4	850	950	920	890	870	840	820	770	650	-	-	-	-
	5		1160	1110	1050	990	920	800	670	560	-	-	-	-
	1		620	600	570	540	490	-	-	-	-	-	-	-
	2		730	710	670	640	610	550	-	-	-	-	-	-
LV030	3		820	790	760	740	710	670	630	-	-	-	-	-
	4		940	910	880	850	800	740	660	-	-	-	-	-
	5	950	1070	1010	950	900	840	760	670	-	-	-	-	-
	1		1120	1090	1055	1030	1000	-	-	-	-	-	-	-
	2		1260	1230	1200	1170	1140	1080	-	-	-	-	-	-
LV036	3	1200	1330	1290	1250	1210	1170	1100	1030	-	-	-	-	-
	4		1400	1360	1310	1250	1190	1120	1040	960	-	-	-	-
	5		1470	1420	1360	1290	1220	1140	1050	970	890	-	-	-
	1		840	770	700	620	-	-	-	-	-	-	-	-
	2		1220	1150	1080	1010	950	-	-	-	-	-	-	-
LV041	3		1430	1360	1280	1200	1130	1080	-	-	-	-	-	-
	4	1300	1540	1460	1380	1300	1220	1140	1060	-	-	-	-	-
	5		1620	1550	1470	1370	1260	1180	1090	1000	-	-	-	-
	1		1270	1250	1230	1210	-	-	-	-	-	-	-	-
	2	1400	1440	1420	1410	1410	1400	1380	1340	-	-	-	-	-
LV042	3		1540	1530	1510	1500	1490	1470	1430	1350	-	-	-	-
	4		1650	1630	1610	1600	1580	1530	1460	1360	1240	-	-	-
	5		1730	1720	1700	1670	1620	1570	1490	1380	1260	1100	-	-
	1		1390	1370	1350	1320	-	-	-	-	-	-	-	-
	2		1600	1580	1550	1530	1510	-	-	-	-	-	-	-
LV048	3	1600	1730	1700	1670	1650	1630	1600	1580	1540	-	-	-	-
	4		1830	1810	1780	1760	1740	1710	1670	1600	1520	-	-	-
	5		1930	1910	1880	1860	1830	1780	1720	1640	1540	1420	-	-
	1		1900	1880	1860	1820	-	-	-	-	-	-	-	-
	2		2000	1970	1950	1920	1890	1860	-	-	-	-	-	-
LV060	3	2000	2110	2090	2060	2030	2010	1970	1940	1910	1880	-	-	-
	4		2220	2200	2170	2140	2110	2080	2050	2060	2050	2000	1920	-
	5		2340	2320	2290	2260	2230	2210	2180	2150	2110	2070	2000	1930
	1		2050	2010	1970	1930	-	-	-	-	-	-	-	-
	2		2150	2120	2080	2030	1990	1960	-	-	-	-	-	-
LV070	3	2100	2270	2230	2200	2160	2120	2080	2040	2010	1980	-	-	-
	4		2390	2350	2320	2280	2250	2200	2160	2130	2100	2070	2030	-
	5		2520	2480	2450	2420	2380	2330	2290	2260	2220	2170	2100	2020

Subject to change without prior notice.

Blower Performance CFM

ECM Constant Airflow (Variable Speed)

Model	Fan Speed	Rated Airflow	Available External Static Pressure (in. wc. wet coil and filter included)											
			0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20
	A - Low		450	450	450	450	450	450	450	440	440	430	-	-
LV015	A - Normal	500	500	500	500	500	500	500	500	480	470	460	-	-
	A - Hi		580	580	580	580	580	580	580	570	560	550	-	-
	B - Low		550	540	540	540	540	540	540	530	520	500	-	-
LV018	B - Normal	650	650	650	650	650	650	650	640	630	610	590	-	-
	B - Hi		750	750	750	750	750	750	740	730	710	690	-	-
	C - Low		720	720	720	720	720	720	720	700	650	560	-	-
LV024	C - Normal	850	850	850	850	850	850	850	850	850	800	700	-	-
	C - Hi		960	960	960	960	960	960	960	960	880	790	-	-
	D - Low		810	810	810	810	810	810	810	770	720	650	-	-
LV030	D - Normal	950	950	950	950	950	950	950	950	900	850	780	-	-
	D - Hi		980	980	980	980	980	980	980	950	900	820	-	-
	A - Low		1020	1020	1020	1020	1020	1020	1000	990	960	930	-	-
LV036	A - Normal	1200	1200	1200	1200	1200	1200	1200	1180	1160	1130	1090	-	-
	A - Hi		1380	1380	1380	1380	1380	1380	1360	1330	1300	1250	-	-
	A - Low		1100	1100	1100	1100	1100	1090	1070	1050	1020	990	-	-
LV041	A - Normal	1300	1280	1280	1280	1280	1280	1260	1240	1220	1180	1140	-	-
	A - Hi		1300	1300	1300	1300	1300	1280	1260	1240	1200	1160	-	-
	B - Low		1190	1190	1190	1190	1190	1190	1190	1190	1190	1190	1190	-
LV042	B - Normal	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	-
	B - Hi		1630	1630	1630	1630	1630	1630	1630	1630	1630	1630	1630	-
	A - Low		1340	1340	1340	1340	1340	1340	1340	1340	1340	1340	1340	-
LV048	A - Normal	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	-
	A - Hi		1810	1810	1810	1810	1810	1810	1810	1810	1810	1810	1810	-
	A - Low		1700	1700	1700	1700	1700	1700	1700	1700	1700	1690	1690	1680
LV060	A - Normal	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	1980	1980	1980
	A - Hi		2220	2220	2220	2220	2220	2220	2220	2220	2220	2130	2100	2070
	B - Low		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
LV070	B - Normal	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
	B - Hi		2330	2330	2330	2330	2330	2330	2330	2330	2330	2330	2330	2330

Physical Data

	LV Models	LV007	LV009	LV012	LV015	LV018	LV024	LV030
	Compressor Type (Qty. 1)	Rotary	Rotary	Rotary	Rotary	Reciprocating	Reciprocating	Reciprocating
	Max. Water Working Pressure (PSIG/kPa)	400	400	400	400	400	400	400
PSC Fan Motor & Blower	Fan Motor Type/Speeds	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3
	Fan Motor (HP)	1/10	1/10	1/10	1/6	1/4	1/4	1/4
	Blower Wheel Size (Dia. x W)	4.5 x 4.5	4.5 x 4.5	5.5 x 4.5	9 x 7	9 x 7	9 x 7	9 x 7
ECM Fan Motor & Blower	Fan Motor Type/Speeds	N/A	N/A	N/A	X13 / EON	X13 / EON	X13 / EON	X13 / EON
	Fan Motor (HP)	N/A	N/A	N/A	1/3	1/3	1/3* / 1/2	1/3* / 1/2
	Blower Wheel Size (Dia. x W)	N/A	N/A	N/A	9 x 7	9 x 7	9 x 7	9 x 7
Water Connection Size	FPT	3/4	3/4	3/4	3/4	3/4	3/4	3/4
	Coaxial Coil Volume (gal)	0.04	0.06	0.08	0.09	0.14	0.14	0.24
	Condensate Connection in. FPT	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Vertical Cabinet	Refrigeration Charge (oz)	14	15	21	19	28	29	37
	Air Coil Dimensions (H x W)	10 x 14	10 x 14	10 x 14	12 x 16.5	16 x 16.5	20 x 16.5	20 x 16.5
	Std. Filter - 1" Throwaway (L x H)	10 x 16	10 x 16	10 x 16	16 x 20	16 x 20	20 x 20	20 x 20
	Opt. Filter - 2" MERV-8 or -13 Throwaway (L x H)	10 x 16	10 x 16	10 x 16	16 x 20	16 x 20	20 x 20	20 x 20
	Weight - Operating (lbs)	98	103	105	123	173	177	190
	Weight - Shipping (lbs)	126	130	132	151	201	205	217
Horizontal Cabinet	Refrigeration Charge (oz)	17	19	19	19	29	29	39
	Air Coil Dimensions (H x W)	10 x 14	10 x 14	10 x 14	12 x 16.5	16 x 16.5	16 x 20.5	16 x 20.5
	Std. Filter - 1" Throwaway (L x H)	10 x 16	10 x 16	10 x 16	16 x 20	16 x 20	16 x 25	16 x 25
	Opt. Filter - 2" MERV-8 or -13 Throwaway (L x H)	10 x 16	10 x 16	10 x 16	16 x 20	16 x 20	16 x 25	16 x 25
	Weight - Operating (lbs)	98	103	105	127	177	181	194
	Weight - Shipping (lbs)	128	132	134	158	208	212	224

	LV Models	LV036	LV041	LV042	LV048	LV060	LV070
	Compressor Type (Qty. 1)	Reciprocating	Reciprocating	Reciprocating	Scroll	Scroll	Scroll
	Max Water Working Pressure (PSIG/kPa)	400	400	400	400	400	400
PSC Fan Motor & Blower	Fan Motor Type/Speeds	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3	PSC/3
	Fan Motor (HP)	1/2	1/2	1/2	3/4	3/4	3/4+
	Blower Wheel Size (Dia. x W)	9x7	10x8	10x8	10x8	11x9	11x9
ECM Fan Motor & Blower	Fan Motor Type/Speeds	X13 / EON	X13 / EON	X13 / EON	X13 / EON	X13 / EON	X13 / EON
	Fan Motor (HP)	1/2	1/2	3/4	3/4	1	1
	Blower Wheel Size (Dia. x W)	9x7	10x8	10x8	10x8	11x9	11x9
Water Connection Size	FPT	3/4	3/4	3/4	1	1	1
	Coaxial Coil Volume (gal)	0.27	0.27	0.27	0.49	0.62	0.62
	Condensate Connection in. FPT	3/4	3/4	3/4	3/4	3/4	3/4
Vertical Cabinet	Refrigeration Charge (oz)	48	48	48	52	59	73
	Air Coil Dimensions (H x W)	24x20.2	20x16	24x20.2	24x26.75	24x26.75	32x26.2
	Std. Filter - 1" Throwaway (L x H)	24x24	20x20	24x24	24x30	24x30	16x30 @2
	Opt. Filter - 2" MERV-8 or -13 Throwaway (L x H)	24x24	20x20	24x24	24x30	24x30	16x30 @2
	Weight - Operating (lbs)	229	217	239	287	307	336
	Weight - Shipping (lbs)	255	243	265	312	331	360
Horizontal Cabinet	Refrigeration Charge (oz)	46	N/A	43	44	64	61
	Air Coil Dimensions (H x W)	18x27.5	N/A	18x27.5	20x32	20x32	20x42
	Std. Filter - 1" Throwaway (L x H)	18x30	N/A	18x30	20x34.5	20x34.5	20x24 @2
	Opt. Filter - 2" MERV-8 or -13 Throwaway (L x H)	18x30	N/A	18x30	20x34.5	20x34.5	20x24 @2
	Weight - Operating (lbs)	237	N/A	231	268	288	316
	Weight - Shipping (lbs)	270	N/A	264	299	318	365

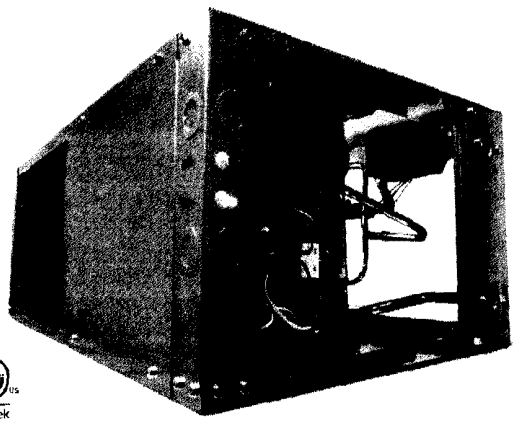
* Unit sizes 024 & 030 with -4 voltage (460/3/60), the X13 motor will be 1/2 HP rather than 1/3 HP.

Subject to change without prior notice.

Horizontal Cabinet Corner Weights

Configuration			Left Hand Evaporator				Right Hand Evaporator			
Model		Total	Left Front*	Right Front*	Left Back	Right Back	Left Front*	Right Front*	Left Back	Right Back
LVH 007	Lbs	98	28	21	25	24	21	28	24	25
	kg	45	13	10	11	11	10	13	11	11
LVH 009	Lbs	103	29	23	26	25	23	29	25	26
	kg	47	13	10	12	11	10	13	11	12
LVH 012	Lbs	105	29	24	26	26	24	29	26	26
	kg	48	13	11	12	12	11	13	12	12
LVH 015	Lbs	127	36	28	34	29	28	36	29	34
	kg	58	16	13	15	13	13	16	13	15
LVH 018	Lbs	177	57	36	48	37	36	57	37	48
	kg	80	26	16	22	17	16	26	17	22
LVH 024	Lbs	181	58	37	48	38	37	58	38	48
	kg	82	26	17	22	17	17	26	17	22
LVH 030	Lbs	194	61	41	52	41	41	61	41	52
	kg	88	28	18	23	19	18	28	19	23
LVH 036	Lbs	237	71	49	66	52	49	71	52	66
	kg	108	32	22	30	24	22	32	24	30
LVH 042	Lbs	231	70	47	64	50	47	70	50	64
	kg	105	32	21	29	23	21	32	23	29
LVH 048	Lbs	268	87	60	62	60	60	87	60	62
	kg	122	39	27	28	27	27	39	27	28
LVH 060	Lbs	288	88	65	69	66	65	88	66	69
	kg	131	40	29	31	30	29	40	30	31
LVH 072	Lbs	316	98	72	76	70	72	98	70	76
	kg	143	44	32	35	32	32	44	32	35

NOTE: * Front is control box end.



Intertek

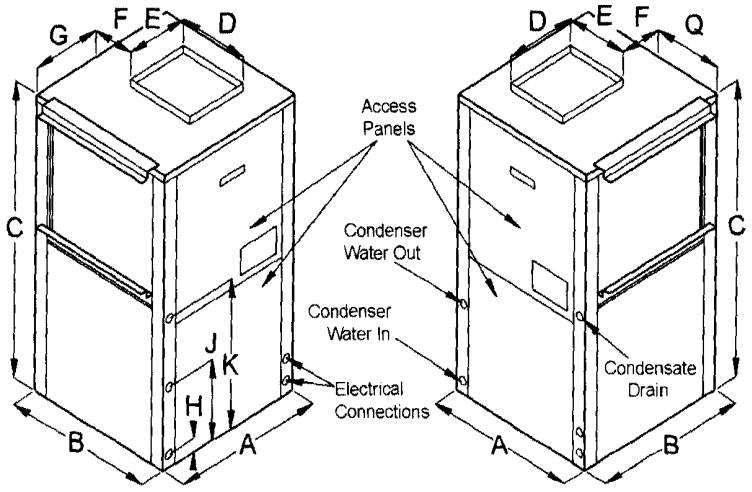
Subject to change without prior notice.

Vertical Unit Dimensions

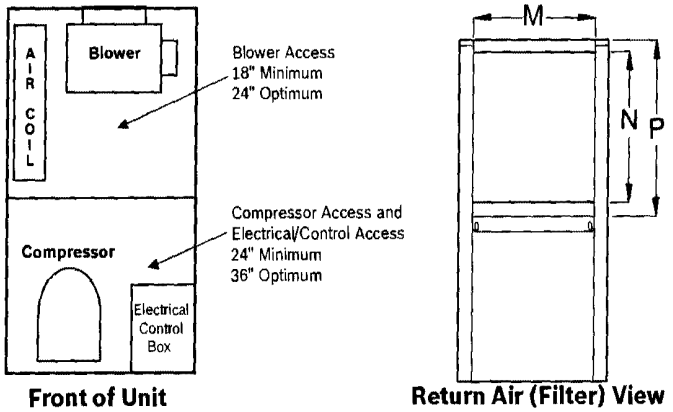
Overall unit dimensions do not include filter rack or duct flanges.

Model	A Width	B Depth	C Height	D Discharge Depth	E Discharge Width	F Cabinet Edge to Discharge	G Left Side to Discharge	H Water Inlet	J Water Outlet	K Condensate Drain	M R/A Duct Width	N R/A Duct Flange Height	P Filter Rack Height	Q	Condenser Water Connections	Recommended Replacement Nominal Filter Size
LV007	19.0	19.0	24.25	10.0	8.0	4.5	9.3	2.44	9.68	13.87	16.0	8.0	10.0	5.4	3/4"FPT	10 × 16 × 1
LV009	19.0	19.0	24.25	10.0	8.0	4.5	9.3	2.44	9.68	13.87	16.0	8.0	10.0	5.4	3/4"FPT	10 × 16 × 1
LV012	19.0	19.0	24.25	10.0	8.0	4.5	9.3	2.44	9.68	13.87	16.0	8.0	10.0	5.4	3/4"FPT	10 × 16 × 1
LV015	21.5	21.5	32.25	14.0	14.0	3.1	5.2	2.85	8.45	15.87	20.0	14.0	16.0	5.2	3/4"FPT	16 × 20 × 1
LV018	21.5	21.5	32.25	14.0	14.0	3.1	5.2	2.85	8.45	15.87	20.0	14.0	16.0	5.2	3/4"FPT	16 × 20 × 1
LV024	21.5	21.5	39.25	14.0	14.0	3.1	5.2	2.80	8.45	18.87	20.0	18.0	20.0	5.2	3/4"FPT	20 × 20 × 1
LV030	21.5	21.5	39.25	14.0	14.0	3.1	5.2	2.80	8.45	18.87	20.0	18.0	20.0	5.2	3/4"FPT	20 × 20 × 1
LV036	21.5	26.0	43.25	16.0	14.0	4.0	5.0	2.75	10.77	18.87	24.0	22.0	24.0	5.0	3/4"FPT	24 × 24 × 1
LV041	21.5	21.5	39.25	16.0	14.0	1.7	4.7	2.80	8.45	18.87	20.0	18.0	20.0	4.7	3/4"FPT	20 × 20 × 1
LV042	21.5	26.0	43.25	16.0	14.0	4.0	5.0	2.75	10.77	18.87	24.0	22.0	24.0	5.0	3/4"FPT	24 × 24 × 1
LV048	24.0	32.5	45.25	18.0	14.0	7.0	6.2	3.26	13.20	20.87	30.0	22.0	24.0	6.2	1"FPT	24 × 30 × 1
LV060	24.0	32.5	45.25	18.0	14.0	7.0	6.2	3.26	13.20	20.87	30.0	22.0	24.0	6.2	1"FPT	24 × 30 × 1
LV070	26.0	33.25	58.25	18.0	16.0	7.8	7.2	2.92	13.36	25.87	30.0	30.0	32.0	7.2	1"FPT	16 × 30 × 1 (2)

All dimensions within +– 0.125". All condensate drain connections are 3/4" FPT. LV015-070 can be field converted between end blow and straight through supply air configurations. Specifications subject to change without notice.
1" filter rack extends 1.23" beyond the side of the unit. 2" filter rack extends 2.89" beyond the side of the unit.
The 2" filter rack is 4 sided with a filter access door on one end and can accept either a 1" or 2" filter.



Left Hand Return (FLT) **Right Hand Return (FRT)**



Front of Unit Service Clearances **Return Air (Filter) View**

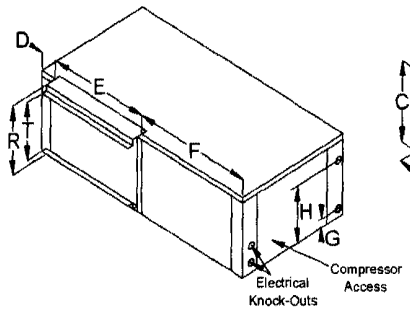
NOTE: The local electric codes may require 36" or more clearance at the electrical control box.

Horizontal Unit Dimensions

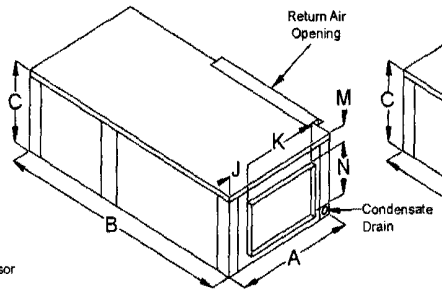
Overall unit dimensions do not include filter rack or duct flanges.

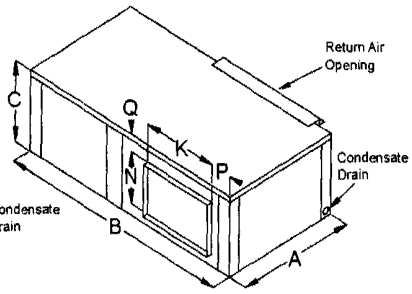
Model	A Width	B Depth	C Height	D Cabinet End to Filter Rack	E R/A Duct Width	F Cab Front to Filter Rack	G Water Inlet	H Water Outlet	J Side to Discharge (End)	K Discharge Width	M Top to Discharge (FLE & FRS)	N Discharge Height	P End to Discharge (Straight)	Q Top to Discharge (FRE & FLS)	R Filter Rack Height	T R/A Duct Flange Height	Condenser Water Connections	Recommended Replacement Nominal Filter Size
LV007	19.0	33.0	11.5	1.5	16.15	15.35	2.38	9.5	5.375	6.3	5.97	4.1	4.875	1.41	11.3	8.6	3/4" FPT	10 × 16 × 1
LV009	19.0	33.0	11.5	1.5	16.15	15.35	2.38	9.5	5.375	6.3	5.97	4.1	4.875	1.41	11.3	8.6	3/4" FPT	10 × 16 × 1
LV012	19.0	33.0	11.5	1.5	16.15	15.35	2.38	9.5	5.25	6.43	6.31	4.1	4.75	1.14	11.3	8.6	3/4" FPT	10 × 16 × 1
LV015	22.0	43.0	17.0	1.5	20.15	21.35	2.86	15.0	5.42	9.13	6.11	9.65	4.92	1.23	16.8	15.0	3/4" FPT	16 × 20 × 1
LV018	22.0	43.0	17.0	1.5	20.15	21.35	2.86	14.13	5.42	9.13	6.11	9.65	4.92	1.23	16.8	15.0	3/4" FPT	16 × 20 × 1
LV024	22.0	43.0	17.0	1.5	25.0	16.5	2.86	14.13	5.42	9.13	6.11	9.65	4.92	1.23	16.8	15.0	3/4" FPT	16 × 25 × 1
LV030	22.0	43.0	17.0	1.5	25.0	16.5	2.47	15.0	5.42	9.13	6.11	9.65	4.92	1.23	16.8	15.0	3/4" FPT	16 × 25 × 1
LV036	22.0	54.5	19.0	1.5	30.15	22.85	2.86	16.13	6.47	9.13	7.5	10.28	5.97	1.21	18.8	17.0	3/4" FPT	18 × 30 × 1
LV042	22.0	54.5	19.0	1.5	30.15	22.85	2.86	16.13	5.27	10.45	6.46	11.3	4.77	1.22	18.8	17.0	3/4" FPT	18 × 30 × 1
LV048	25.0	54.5	21.0	1.5	34.6	18.4	2.86	18.52	7.25	10.45	7.46	11.36	6.75	2.16	20.8	19.0	1" FPT	20 × 34.5 × 5 × 1
LV060	25.0	54.5	21.0	1.5	34.6	18.4	2.86	18.52	6.32	11.76	6.81	12.5	5.82	1.68	20.8	19.0	1" FPT	20 × 34.5 × 5 × 1
LV070	25.0	65.0	21.0	1.5	48.1	15.4	2.86	18.52	6.32	11.76	6.81	12.5	5.82	1.68	20.8	19.0	1"F PT	20 × 24 × 1 (2)

All dimensions within +– 0.125". All condensate drain connections are 3/4" FPT. LV015-070 can be field converted between end blow and straight through supply air configurations. Specifications subject to change without notice.
1" filter rack extends 1.23" beyond the side of the unit. 2" filter rack extends 2.89" beyond the side of the unit.
The 2" filter rack is 4 sided with a filter access door on one end and can accept either a 1" or 2" filter.



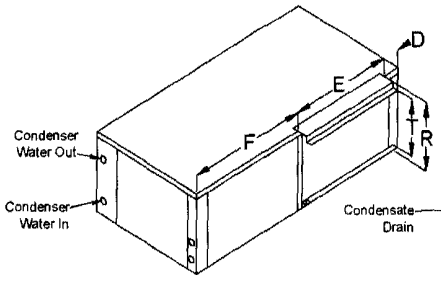
Left Hand Return End Blow (FLE)

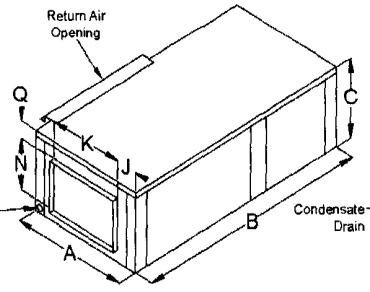




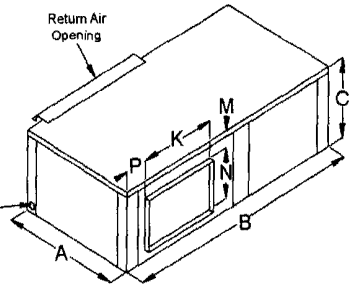
Left Hand Return Straight Through (FLS)

Models LV048 & 060 Left Hand Return units have condenser water connections on the front right and electrical knockouts on the front left.



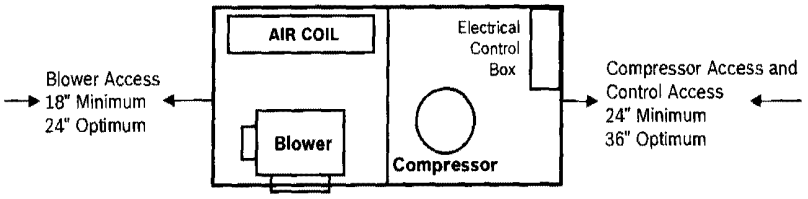


Right Hand Return End Blow (FRE)



Right Hand Return Straight Through (FRS)

Service Clearances



NOTE: The local electric codes may require 36" or more clearance at the electrical control box.

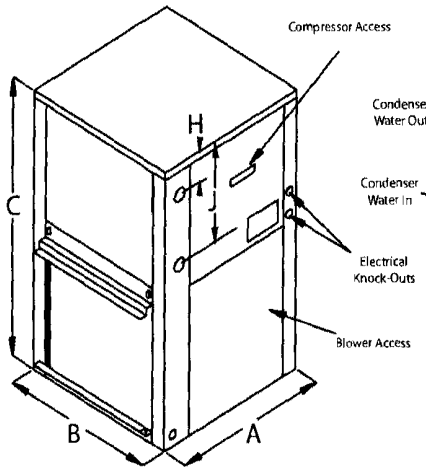
Subject to change without prior notice.

Counterflow Unit Dimensions

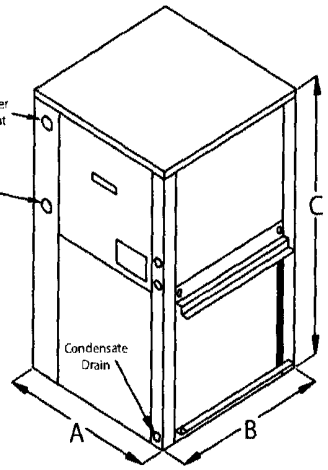
Overall unit dimensions do not include filter rack or duct flanges.

Model	A Width	B Depth	C Height	D Discharge Depth	E Discharge Width	F Cabinet Edge to Discharge	G Left Side to Discharge	H Water Inlet	J Water Outlet	K Condensate Drain	M R/A Duct Width	N R/A Duct Flange Height	P Filter Rack Height	Q	Condenser Water Connections	Recommended Replacement Nominal Filter Size
LV015	21.5	21.5	32.25	9.7	9.0	5.9	6.8	19.9	25.5	1.0	20.0	14.0	16.0	6.7	3/4" FPT	16x20x1
LV018	21.5	21.5	32.25	9.7	9.0	5.9	6.8	19.9	25.5	1.0	20.0	14.0	16.0	6.7	3/4" FPT	16x20x1
LV024	21.5	21.5	39.25	9.7	9.0	5.9	6.8	23.9	36.0	1.0	20.0	18.0	20.0	6.7	3/4" FPT	20x20x1
LV030	21.5	21.5	39.25	9.7	9.0	5.9	6.8	23.9	36.0	1.0	20.0	18.0	20.0	6.7	3/4" FPT	20x20x1
LV036	21.5	26	43.25	10.3	9.2	7.8	6.2	27.8	35.8	1.0	24.0	22.0	24.0	6.2	3/4" FPT	24x24x1
LV042	21.5	26	43.25	11.3	10.5	7.4	5.9	27.8	35.8	1.0	24.0	22.0	24.0	5.9	3/4" FPT	24x24x1
LV048	24	32.5	45.25	11.4	10.5	10.5	6.7	28.3	38.3	1.0	30.0	22.0	24.0	6.7	1" F.P.T.	24x30x1
LV060	24	32.5	45.25	12.5	11.7	10.0	6.1	28.3	38.3	1.0	30.0	22.0	24.0	6.1	1" F.P.T.	24x30x1
LV070	26	33.25	58.25	12.5	11.7	10.3	7.2	36.0	46.4	1.0	30.0	30.0	32.0	7.1	1" F.P.T.	16x30x1 (2)

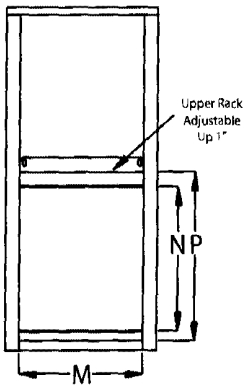
All dimensions within +– 0.125". All condensate drain connections are 3/4" FPT. LV015-070 can be field converted between end blow and straight through supply air configurations. Specifications subject to change without notice.
1" filter rack extends 1.23" beyond the side of the unit. 2" filter rack extends 2.89" beyond the side of the unit.
The 2" filter rack is 4 sided with a filter access door on one end and can accept either a 1" or 2" filter.



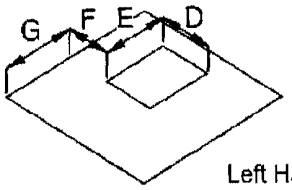
Left Hand Return (FLB)



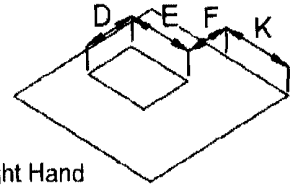
Right Hand Return (FRB)



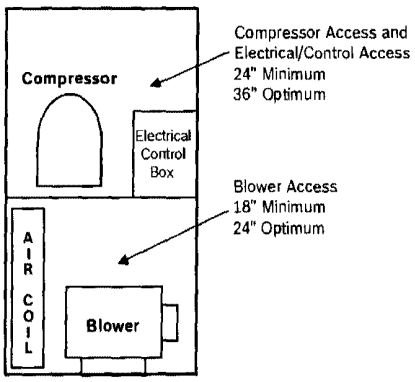
Return Air (Filter) View



Left Hand Return (FLB)



Right Hand Return (FRB)



Front of Unit Service Clearances

NOTE: The local electric codes may require 36" or more clearance at the electrical control box.

Guide Specification

1.0 General

Furnish and install FHP water source heat pumps as indicated on the plans with capacities and characteristics as listed in the schedule and the specifications that follow. The units shall be manufactured in an ISO 9001:2000 certified facility.

2.0 Horizontal/Vertical/Counterflow Water Source Heat Pumps

The units shall be designed to operate with entering fluid temperatures between 50°F (10°C) and 100°F (38°C) in cooling and between 50°F (10°C) and 80°F (27°C) in heating. With the optional factory installed extended range package, units shall operate with entering fluid temperatures between 50°F (10°C) and 110°F (43.3°C) in cooling and between 20°F (-6.6°C) and 80°F (27°C) in heating. Equivalent units from other manufacturers can be proposed, provided approval to bid is given 10 days prior to bid closing. All equipment with a nominal capacity of 135,000 BTUH Total Cooling or lower must be listed in the current AHRI Applied Equipment Directory under the AHRI Standard AHRI/ISO- 13256-1, WLHP, GWHP and GLHP certification points.

All equipment in this section must meet or exceed the DOE mandated minimum EER's and COP's as listed in ASHRAE 90.1 as follows:

For the AHRI/ISO-13256-1, WLHP Rating (12.0 EER and 4.2 COP for units larger than a nominal 17,000 BTUH Total Cooling – 11.2 EER and 4.2 COP for units below a nominal 17,000 BTUH Total Cooling).

For the AHRI/ISO-13256-1, GLHP Rating a minimum 13.4 EER and 3.1 COP. All units shall be listed with Underwriters Laboratories (UL) for safety.

2.01 Basic Construction

A. Units shall have the airflow arrangement as shown on the plans. If units with these arrangements are not used, the contractor supplying the water source heat pumps is responsible for any extra costs incurred by other trades and must submit detailed mechanical drawings showing ductwork requirements and changes or relocation of any other mechanical or electrical system. If other arrangements make servicing difficult, the contractor must provide access panels and clear routes to ease service. The architect must approve all changes 10 days prior to bid.

B. All units shall have stainless steel drain pans to comply with this project's IAQ requirements. Painted steel or plastic is not acceptable.

C. The cabinet shall be fabricated from heavy-gauge G-90 galvanized steel for superior corrosion protection. All interior surfaces shall be lined with 1/2" (12.7mm) thick, multi density, coated, glass fiber insulation. Insulation within the air handling section shall not have any exposed edges. All insulation must meet NFPA 90A and be certified to meet the GREENGUARD® Indoor Air Quality Standard for Low Emitting Products. One blower access panel and two compressor compartment access panels shall be removable with supply and return air ductwork in place.

D. Unit shall have a floating compressor or pan consisting of a 1/2" (12 mm) thick high density elastomeric pad between the compressor base plate and the unit base pan to prevent transmission of vibration to the structure.

E. Units shall have a 1" filter rack and 1" thick throw-away type glass fiber filter as standard. Units shall have an optional 2" thick pleated MERV 8 filter (size 007-070) or MERV 13 filter (size 015 and larger with upgraded ECM) available. The filter rack shall incorporate a 1" duct flange. The units shall have an insulated divider panel between the air handling section and the compressor section to minimize the transmission of compressor noise, and to permit service testing without air bypass.

F. Cabinets shall have separate holes and knockouts for entrance of line voltage and low voltage control wiring.

Supply and return water connections shall be brass female pipe thread fittings and mounted flush to cabinet exterior. Connections that require a back up wrench or that extrude past the unit corner post are not acceptable. Condensate connections will be stainless steel female pipe thread fittings. Plastic is not acceptable.

G. Hanging brackets shall be provided as standard for horizontal units.

Guide Specification

2.02 Fan and Motor Assembly

A. The fan shall be direct-drive centrifugal forward curved type with a dynamically balanced wheel. The housing and wheel shall be designed for quiet low velocity operation. The blower housing shall feature a removable inlet ring to facilitate removal and servicing of the fan motor. The fan motor shall be 3-speed, permanently lubricated, PSC type with thermal overload protection.

B. 15,000 Btu/Hr to 70,000 Btu/Hr models shall have an optional constant torque electronically commutated motor for premium fan efficiency. These motors shall feature 5 pre-programmed torque settings that can be changed in the field to match design requirements. 460 V – 3 Ph – 60 Hz units with these motors must be able to operate without the need for a neutral wire for the motor.

C. 15,000 Btu/Hr to 70,000 Btu/Hr models shall have an optional constant CFM electronically commutated motor for premium fan efficiency and constant air delivery over a wide range of external static pressures. These motors shall be field adjustable for +/- 15% of nominal design airflow. These motors shall provide feedback to the unit control box to verify motor operating mode and delivered CFM.

2.03 Refrigerant Circuit

Units shall use R-410A refrigerant. All units shall have a factory sealed and fully charged refrigerant circuit with the following components:

A. Hermetic compressor: Hermetic reciprocating, rotary, or scroll compressors shall be specifically designed for R-410A refrigerant and shall be internally sprung (if reciprocating), externally isolated and with thermal overload protection.

B. Refrigerant metering thermal expansion valves or capillary tubes.

C. The finned tube heat exchanger shall be constructed of lanced aluminum fins not exceeding sixteen fins per inch bonded to rifled copper tubes in a staggered pattern and will have a 600 PSIG (4140 kPa) working pressure. The heat exchanger shall have aluminum end sheets.

Optional Air Coil Protection: The finned tube heat exchanger shall have optional DuoGuard™ protective coil coating. This corrosion protection shall consist of tin plated copper tubing with coated aluminum fins that must pass 1000 hours of ASTM B117 salt fog testing. Painted, dipped or e-coated heat exchangers are not acceptable.

D. Reversing valve. Reversing valves shall be four-way solenoid activated refrigerant valves which shall fail to the heating operation should the solenoid fail to function. Reversing valves which fail to the cooling operation shall not be allowed.

E. Coaxial (tube in tube) refrigerant to water heat exchanger. Refrigerant to water heat exchangers shall be of copper inner water tube and steel outer refrigerant tube design rated to withstand 600 PSIG working refrigerant pressure and 400 PSIG working water pressure. Shell and Tube style refrigerant to water heat exchangers shall be treated as pressure vessels and shall require refrigerant pressure relief valves piped to the exterior of the building. The contractor supplying the water source heat pumps with Shell and Tube heat exchangers shall be responsible for any additional installation costs. Brazed Plate water to refrigerant heat exchangers shall require additional centrifugal separators added to the supply water piping at each unit. Each separator shall have an automated clean out valve piped to a waste line. The contractor supplying water source heat pumps with Brazed Plate heat exchangers shall be responsible for any additional costs.

Option for E: Cupro-Nickel water coil – The refrigerant to water heat exchanger shall be of Cupro-Nickel inner water tube construction.

F. Safety controls include both a high pressure and low pressure switch. Temperature sensors shall not replace these safety switches. See the controls section of this specification for additional information.

G. Access fittings shall be factory installed on high and low pressure refrigerant lines to facilitate field service.

Guide Specification

H. Activation of any safety device shall prevent compressor operation via a lockout circuit. The lockout circuit shall be reset at the thermostat or at the contractor supplied disconnect switch. Units which may be reset at the disconnect switch only shall not be acceptable. Refer to solid state safety circuit below.

2.04 Electrical

Controls and safety devices will be factory wired and mounted within the unit. Controls shall include fan relay, compressor contactor, 24V transformer, reversing valve coil and solid state lockout controller, Unit Protection Module (UPM). The standard transformer shall be rated for a minimum 50 VA. All units shall be name-plated for use with time delay fuses or HACR circuit breakers. Unit controls shall be 24 volts.

Option: Optional transformers shall be rated 75VA and shall have a push button reset circuit breaker on the secondary power.

2.05 Solid-State Safety Circuit

All units shall have a solid-state UPM safety control circuit with the following features:

1. Anti-short cycle time delay (5 minute delay on break).
2. Random start time delay on initial power.
3. Brown out/surge/power interruption protection.
4. 120 second low pressure switch bypass timer.
5. High refrigerant pressure shutdown.
6. Low refrigerant pressure shutdown.
7. Low water temperature shutdown (adjustable for closed loop systems).
8. Air coil freeze protection shutdown.
9. High condensate level shutdown.
10. 24 VAC alarm output for remote fault indication.

The UPM shall automatically reset after a safety shut down. Restart the unit if the cause of the shut down no longer exists (except for low temperature and high condensate level shutdowns). Should a fault re-occur within 60 minutes after reset, then a "hard" lockout will occur. A light emitting diode (LED) shall annunciate the following alarms: brown out, high refrigerant pressure, low refrigerant pressure, low water temperature and a high level of condensate in the drain pan. The LED will display each fault condition as soon as the fault occurs. If a hard lockout occurs, then the fault LED will display the type of fault until the unit is reset.

The UPM shall feature the following field configurable adjustments:

1. Lock out reset on thermostat interruption or power reset.
2. 2 or 4 restart attempts before a hard lockout.
3. Test mode (reduces all time delays to 5 seconds for diagnostic work).
4. Antifreeze setting for low water temperature sensor.

Safety devices include:

1. Low pressure cutout set a 40 PSIG (280 kPA) for loss of charge protection (freezestat and/or high discharge gas temperature sensor is not acceptable).
2. High pressure cutout control set at 600 PSIG (4125 kPA).
3. Low supply water temperature sensor that detects drops in refrigerant temperature that could result in water coax heat exchanger freezing.
4. Low air coil temperature sensor that detects drops in refrigerant temperature that could result in air heat exchanger freezing.
5. High level condensate sensor that shuts off the compressor if the condensate drain pan fills with water.
6. On board voltage detection that disables the compressor control circuit if there are extreme variations in supply voltage.

An optional energy management relay that allows unit control by an external source shall be factory installed. A terminal block with screw terminals shall be provided for control wiring.

2.06 Options

A. Units shall have an optional 2-way electrically operated shut-off valve mounted internally in the unit cabinet.

B. Units shall have an optional water flow regulating valve set to 3 gallons per minute of water flow per nominal ton of refrigeration capacity.

Guide Specification

C. Extra quiet construction: Optional compressor blanket shall be provided on units having a capacity above 18,000 BTUH.

D. Hot Gas Reheat: Units as noted on the schedule shall be equipped with optional Hot Gas Reheat (HGRH) on units having a capacity above 12,000 BTUH. HGRH shall be either on/off control or modulating as noted in the specifications.

On/Off HGRH shall be controlled by a humidistat connected to the unit H terminal and shall start the unit in the reheat mode should the humidity be above set-point once the thermostat control is satisfied. Cooling or heating requirements shall take precedent over HGRH.

Modulating Hot Gas Reheat (MHGRH) shall be active during the cooling mode. A 0 - 10 VDC signal from a sensor located in the unit discharge air supply shall modulate the hot gas valve to maintain an adjustable preset leaving air temperature to the conditioned space.

E. Hot Gas Bypass: For units as noted on the schedule, supply each unit with a ETL listed modulating hot gas bypass valve with factory supplied and installed controls to prevent air coils from frost development by taking hot gas and bypassing the water coil and expansion device and reintroducing the hot gas into the refrigerant line prior to the air coil. The hot gas bypass valve shall maintain a minimum refrigerant suction pressure to allow for a light load cooling mode or a low entering air temperature cooling mode.

F. Water Differential Pressure Switch: Prevents unit operation if there is no fluid flow. This factory installed, internally mounted device shall be rated at 600psi and disable the compressor if a lack of water-flow occurs.

G. Water Side Economizer: Water side economizer shall be completely installed at the factory, with an additional condensate drain pan, motorized 3 way valve, aqua stat, and all internal electric controls. Water side economizer shall be rated at 400 psi and UL listed for application with the heat pump. This option is externally mounted outside the unit.

H. Factory-installed control options: Water differential pressure switch, 75 VA transformer (resettable), phase loss and reversal protection, and unit mounted disconnect switch.

I. A 2", four-sided filter rack is optional to accommodate nominal 2" thick pleated filters.

J. DDC Controls: Unit shall be equipped with a factory installed DDC control capable of interfacing with BacNet, Modbus, N2 and Lonworks. The controller shall be pre-programmed to control the unit and monitor the safety controls. The unit shall be able to operate as a standalone or be incorporated into the building management system. A leaving water and leaving air sensor shall be installed in the unit. Wall sensors shall be available for controlling zone temperature.

3.0 Hose Kits

All units shall be connected with hoses. The hoses shall be either 2 or 3 feet long, braided stainless steel, fire rated hoses complete with adapters. Non-fire rated hoses are not acceptable. Optional ball valves with P/T ports, flow controller, Y strainer and electric valve shall be in included as specified in the schedule.

Subject to change without prior notice.

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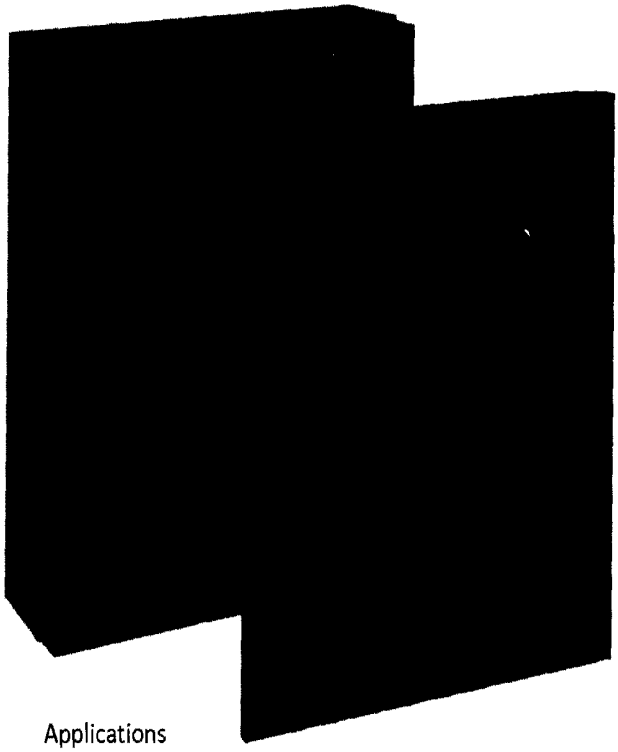
Architectural Wall Heater



The WAI fan-forced wall heater is designed for commercial and industrial areas requiring higher KW ratings and quick recovery. The unit provides a burst of heat in areas affected by cold drafts or wide temperature swings.

- **Efficient Operation:** The fan draws air into the top of the grille and discharges warm air downward to distribute heat and keep floors warm and dry. High CFMs create air circulation within the room to provide uniform temperatures.
- **Extended Capacity:** The WAI is available with one or two modules and ratings up to 12,000 W and 320 CFM.

Applications

- Entryways
- Garages
- Guard Houses
- Offices
- Reception Areas
- Restrooms
- Stairwells
- Vestibules

Standard Construction Features

Heating Elements – Steel finned tubular elements.

Outlet Grille – The WAI has an architectural extruded aluminum grille in a choice of eight polyester powder paint finishes. The closely spaced, heavy bar grille design prevents insertion of foreign objects. The tamperproof thermostat adjustment is concealed behind the front cover.

Built-in Controls – Automatic reset thermal cutout, fan override and tamperproof thermostat (32° to 120°F).

Fan Motor – Permanently lubricated, totally enclosed fan operates at a low 58 dBA.

Installation Requirements – Standard supply wiring rated at 60°C can be used for installation of wall heaters. Heater must be installed at least ten inches from the floor and adjacent walls.

Rough in Dimensions –

- 1500/1125 - 4800 Watt heaters: 14-1/2" wide x 19-7/8" high x 4-1/2" deep.
- 6000/4500 - 8000 Watt heaters: 30-3/16" wide x 19-7/8" high x 4-1/2" deep.
- 12000/9000 Watt heaters: 46-5/8" wide x 19-7/8" high x 4-1/2" deep.

Architectural Wall Heater

Factory Built-in Options

Code	Description
D1	Disconnect Switch 600V, Three-pole, 40 Amp
D3	Disconnect Switch 277V, Double-pole, 20 Amp
R1	24 Relay (1)
R2	24V Relay with Transformer (1)
S3	Fan On/Auto Switch

(1) A built-in thermostat will not be supplied when option R1 or R2 are selected. If built-in thermostat is required with these options, add Code T1 to the part number.

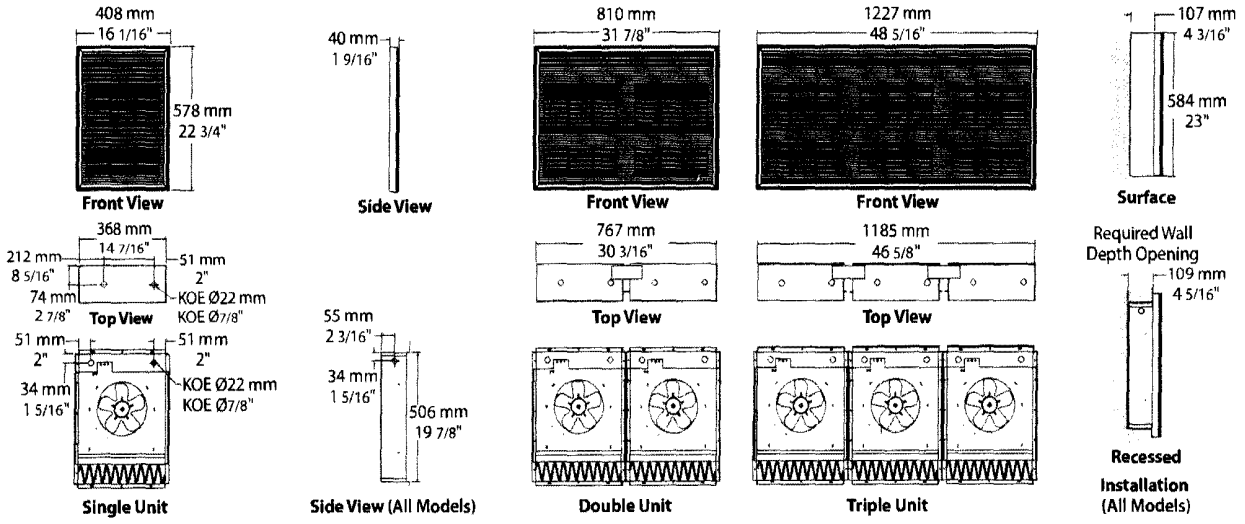
Field-Installed Options

(shipped loose for field installation into heater)

Catalog Number	Description
933-124501	Surface Mounting Box (1500-4800 W)
933-158471	Surface Mounting Box (6000-8000 W)
933-269345	Surface Mounting Box (12000 W)
933-151114	1" Semi Recessed Trim Kit (1500-4800 W)
933-166530	1" Semi Recessed Trim Kit (6000-8000 W)
933-269346	1" Semi Recessed TrimKit (12000W)
933-151115	2" Semi Recessed Trim Kit (1500-4800 W)
933-166531	2" Semi Recessed Trim Kit (6000-8000 W)
933-269347	2" Semi Recessed Trim Kit (12000W)

Add color code to end of catalog number. (See next page for codes.)

Remote Room Thermostat – See page 99



EHU-TYP-1

EHU-TYP-2

Architectural Wall Heater

Heater Listing

Built-in tamperproof thermostat is included.

Watts	Volts (1 Phase)	Total Amps (1)	CFM	Approximate Air Temperature Rise °F (°C)	Weight lb (kg)	Catalog Number
1500/1125	240/208	6.6/5.8	160	30/27 (17/12)	24 (11)	933U01500V¶
1500	120	12.9	160	30 (17)	28 (13)	933U01500B¶
1500	277	5.8	160	30 (17)	28 (13)	933U01500N¶
	480	3.5	160	30 (17)	28 (13)	933U01500T¶
2000/1500	240/208	8.7/7.6	160	40/30 (22/17)	24 (11)	933U02000V¶
2000	208	10.0	160	40 (22)	24 (11)	933U02000C¶
	277	7.6	160	40 (22)	28 (13)	933U02000N¶
	480	4.5	160	40 (22)	28 (13)	933U02000T¶
3000/2250	240/208	12.9/11.2	160	60/45 (33/25)	24 (11)	933U03000V¶
3000	277	11.2	160	60 (33)	28 (13)	933U03000N¶
	480	6.6	160	60 (33)	28 (13)	933U03000T¶
4000/3000	240/208	17.0/14.8	160	80/60 (44/33)	24 (11)	933U04000V¶
4000	208	19.6	160	80 (44)	24 (11)	933U04000C¶
	277	14.8	160	80 (44)	28 (13)	933U04000N¶
	480	8.7	160	80 (44)	28 (13)	933U04000T¶
4800/3600	240/208	20.4/17.7	160	96/72 (53/40)	24 (11)	933U04800V¶
4800	208	23.5	160	96 (53)	28 (13)	933U04800C¶
	277	17.7	160	96 (53)	28 (13)	933U04800N¶
	480	10.4	160	96 (53)	28 (13)	933U04800T¶
6000/4500	240/208	25.4/22.0	320	60/45 (33/25)	50 (23)	933U06000V¶
6000	277	22.1	320	60 (33)	50 (23)	933U06000N¶
	480	12.9	320	60 (33)	50 (23)	933U06000T¶
8000/6000	240/208	33.7/29.2	320	80/60 (44/33)	50 (23)	933U08000V¶
8000	208	38.9	320	80 (44)	50 (23)	933U08000C¶
	277	29.3	320	80 (44)	50 (23)	933U08000N¶
	480	17.1	320	80 (44)	50 (23)	933U08000T¶
12000/9000	240/208/3	29.3/25.4	480	80 (44)	90 (41)	933U12000P¶
12000	208/3	33.7	480	80 (44)	90 (41)	933U12000D¶
	240/3	29.3	480	80 (44)	90 (41)	933U12000K¶
	277	43.7	480	80 (44)	90 (41)	933U12000N¶
	480	25.4	480	80 (44)	90 (41)	933U12000T¶
	480/3	14.8	480	80 (44)	90 (41)	933U12000U¶

(1) Total Amps = Heating element amps and motor amps.
All models listed are single-phase.
¶Add color code to end of catalog number.
Standard colors. **See Color Code Chart below.**

Color Code Chart

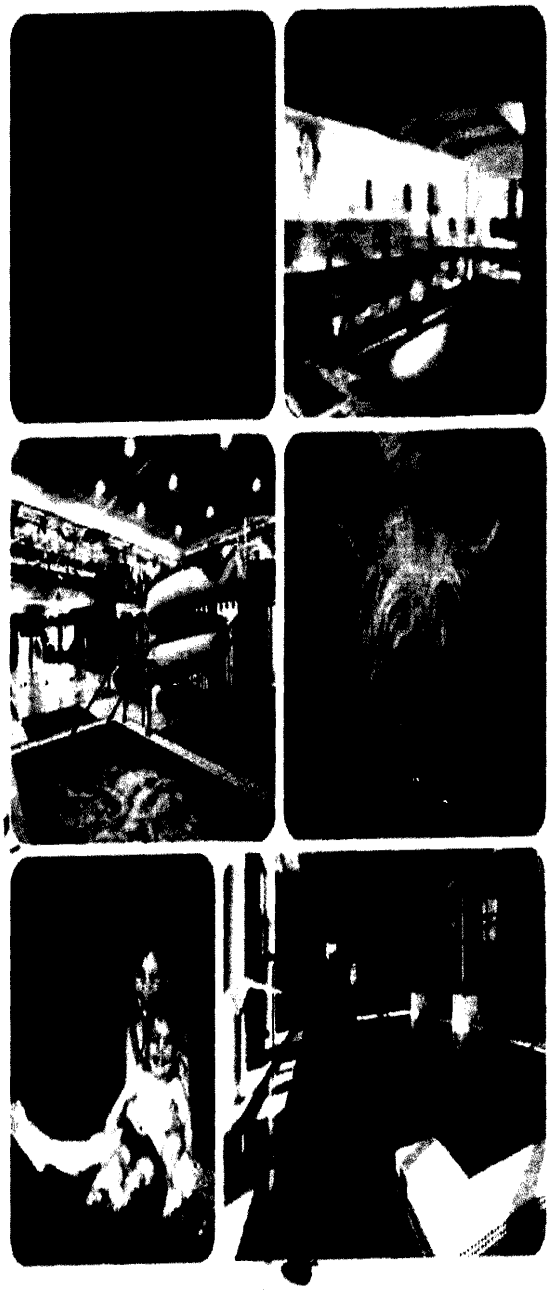
Code	Color	Code	Color
BZ	Bronze	BG	Beige-Grey
AE	Metallic Silver	W	White
CM	Metallic Charcoal	A	Almond
NR	Textured Black	AL	Aluminum

DRY-O-TRON®
by
Dectron

DS | DSV SERIES

Indoor Pool :: Whirlpool :: SPA

Light Commercial & Residential Dehumidifiers



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designer indoor air®

DRY-O-TRON®

For the Ultimate Indoor Pool Environment

DS | DSV SERIES

Indoor Pool :: Whirlpool :: SPA

Light Commercial & Residential Dehumidifiers

Dectron (a subsidiary of Dectron Internationale) developed the DRY-O-TRON® energy recycling pool dehumidifier more than 40 years ago. Constant innovations and advancements have kept the DRY-O-TRON® as the standard to be met for indoor pool environmental comfort.

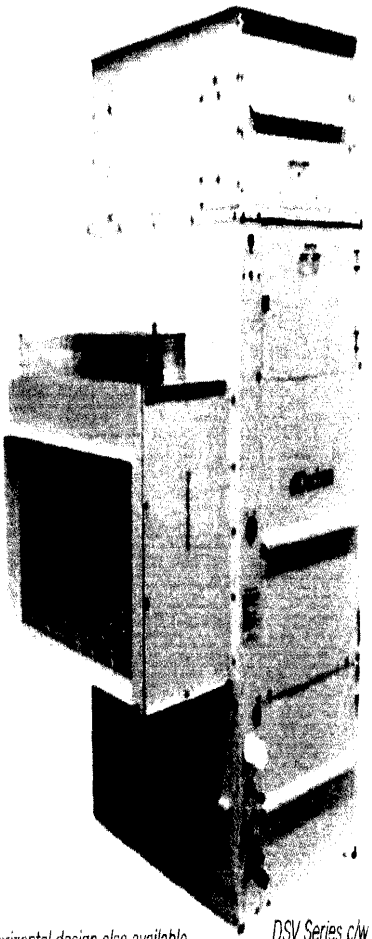
Additionally, Dectron's engineering team also developed the DSV Series, a vertical configuration of the ever-popular DS unit. It has all of the standard horizontal DS features including Water Smart pool water heating and microprocessor control. All combined in a package with 10 field selectable discharge locations providing a smaller footprint with no loss of performance.

That may not seem like much, but with increasing construction costs, a compact unit that fits through a standard 32-inch door, that can be installed in a corner and serviced through the front, not only makes sense, it can save dollars.

Take a look at the DRY-O-TRON® DS and DSV Series today, and see why the innovation never stops at Dectron.

Water Smart.

- :: Plenum fan section, complete with VFD controlled direct drive motor
- :: Up to 10 field selectable air discharge locations and 2 selectable outdoor air locations
- :: Suitable for corner installation, compact footprint
- :: Supervisaire® controls for real time monitoring and diagnostics
- :: Choice of "Green" refrigerants: R-134a, R-407C and R-410A
- :: Controls space humidity
- :: Heats pool water with recycled energy*
- :: Vertical design up to Model 042 (8.8 Ton) fits through a 32" door**
- :: Vertical design suitable for corner installation, compact footprint
- :: Single side service access
- :: Optional A/C for year-round comfort control
- :: Contributes to space heating
- :: "Water Smart" feature indicates reliable operation even without pool water flow
- :: HyPoxy® coated coils for performance enhancement and corrosion resistance
- :: Microprocessor control, flexible and reliable
- :: Separate compressor and water heater compartment out of airstream
- :: Indoor installation
- :: Factory tested at operating conditions
- :: Optional internal space heating coil



DSV Series c/w Plenum Fan

** Models also available without pool water heater*

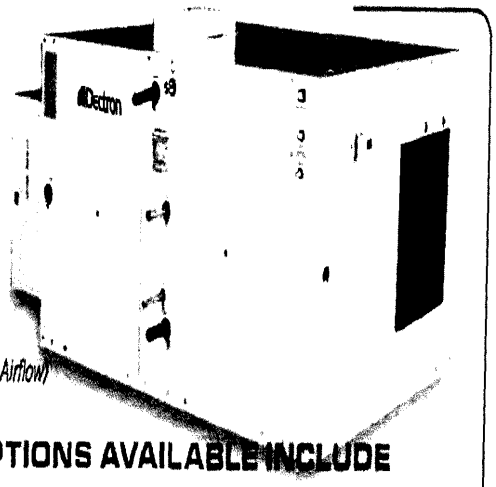
*** Horizontal design also available*

FEATURES AND BENEFITS

An indoor pool is a challenging indoor air quality project unlike few others. With a combination of high temperatures, high moisture generation, high chemical usage, differential activity levels and multiple interdependent systems, it requires specialized design and engineering which Dectron can provide.

The indoor pool environment also requires specialized equipment, and here Dectron can help even more.

See some of the features and benefits that keep the DRY-O-TRON® DS and DSV Series ahead of the competition ( ). Ask for these features ( ).



Also available DS Series (Horizontal Airflow)

QUALITY FEATURES INCLUDE

- Patented simultaneous heat rejection to air and pool water avoids temperature swings
- Outdoor air inlet to meet ASHRAE Ventilation Standard 62 with filter and balancing damper
- "Water Smart" feature for reliable operation even without pool water flow
- Heavy gauge enclosure painted internally and externally with baked alkyd powder paint in a 5-stage process
- Scroll compressors for high reliability and quieter operation
- Contributes to space heating when required
- Corrosion proof self-draining sanitary drain pan
- Side drain with integral P-trap
- Supervisaire® microprocessor control reduces service time
- Unit mounted sensors simplify installation
- Vented coaxial cupronickel pool water heater suitable for potable water
- VFD controlled plenum fan complete with Direct Drive Motor
- Choice of "Green" refrigerants: R-134a, R-407C and R-410A
- Voltages available: 208/230 single phase 60 Hz (some models) 208/230, 460, 575 three phase 60 Hz

OPTIONS AVAILABLE INCLUDE

- Electronically commutated premium efficiency EC motors
- Remote air-conditioning package (air, water or fluid-cooled)
- Matching remote outdoor air-cooled condenser or fluid cooler
- Auxiliary outdoor gas boiler for pool water heating
- Higher air volumes and higher external static pressures
- Second pool water heater
- Power supply for ventilation 80VA, 24V
- Firestat interlock
- Remote Chloraguard® module for advanced gas-phase air filtration
- Mirror image configuration
- Extended warranty plans
- 50 Hz operation

PERFORMANCE DATA

Model[4]	Moisture Removal[1]	Air Volume[2]	Total Energy Consumption[1]	Total Capacity[1]	External Static Pressure[3]
DSV/DV5	lb./h	cfm	kW	Btu/h	in WC
010	12.3	1,000	3.0	28,635	1.0
015	14.0	1,200	3.4	32,660	1.0
020	23.1	2,000	5.2	53,900	1.0
030	31.5	3,000	6.8	73,495	1.0
040	45.5	3,800	8.9	106,160	1.0
042	45.5	3,800	9.6	106,160	1.0
050	57.8	4,800	11.9	134,780	1.0
060	68.3	5,500	15.8	159,285	1.0
062	63.0	5,500	13.4	146,990	1.0
080	91.0	6,500	18.2	212,310	1.0
082	91.0	6,500	18.2	212,310	1.0

1. *At air on 82°F DB and 60% RH.*
2. *Higher air volumes available, please contact factory.*
3. *Higher external static pressures available, please contact factory.*
4. *DSV Commercial & Industrial dehumidifiers (size 100 & up) also available, please contact factory.*

DIMENSIONAL DATA

Plenum Model	Dimensions[1,2,3] (Footprint)	DSV/DV5 Net Weight[4]	DSH Net Weight[4]
DSV/DV5	L x W x H (in.)	lb.	lb.
010	30 x 30 x 83	700	410
015	30 x 30 x 83	725	535
020	43 x 30 x 83	1,050	720
030	43 x 30 x 83	1,135	835
040	52 x 30 x 99	1,500	1,700
042	52 x 30 x 99	1,570	1,700
050	72 x 46 x 103	2,130	1,950
060	72 x 46 x 103	2,300	2,300
062	72 x 46 x 103	2,400	2,300
080	72 x 46 x 103	2,800	3,900
082	72 x 46 x 103	2,880	3,900

1. *Certain options require larger enclosures.*
2. *Add 18 inches for removable filter section to "inches" for overall width.*
3. *Height includes removable plenum fan section.*
4. *For basic unit with air-cooled air conditioning. For other options, please contact factory.*

OPERATING RANGE*

Air on temperature	74°F thru 86°F DB
Air on relative humidity	40 thru 70% RH
Pool water temperature	78 thru 104°F

** For conditions outside this range, consult your DRY-O-TRON® representative or the factory for assistance*

DA5/DV5:
Models with no pool water heaters.

AHRI MEMBER

c ETL us Intertek

ELECTRICAL DATA & MRE'S

REFRIGERANT																
DSV / DV5	R410A					R407C					R134a					
Model	Volts-Ph-Hz	HP	MCA	MOP	MRE*	Volts-Ph-Hz	HP	MCA	MOP	MRE*	Volts-Ph-Hz	HP	MCA	MOP	MRE*	
10	208/230-1-60	1.5	29	45	4.9	208/230-1-60	1.5	26	35	4.9	208/230-1-60	1.5	36	50	4	
	208/230-3-60	1.5	18	25	4.9	208/230-3-60	1.5	17	25	4.9	208/230-3-60	1.5	20	30	4.1	
	460-3-60	1.5	9	15	4.9	460-3-60	1.5	9	15	4.9	460-3-60	1.5	10	15	4.1	
	575-3-60	1.5	7	15	4.9	575-3-60	1.5	7	15	4.9	575-3-60	1.5	8	15	4.1	
15	208/230-1-60	1.5	32	45	4.5	208/230-1-60	1.5	29	45	4.5	208/230-1-60	1.5	39	60	4	
	208/230-3-60	1.5	22	35	4.5	208/230-3-60	1.5	20	30	4.5	208/230-3-60	1.5	23	35	4.5	
	460-3-60	1.5	10	15	4.5	460-3-60	1.5	9	15	4.5	460-3-60	1.5	11	15	4.5	
	575-3-60	1.5	8	15	4.4	575-3-60	1.5	8	15	4.4	575-3-60	1.5	9	15	4.4	
20	208/230-1-60	2	45	70	5.2	208/230-1-60	2	37	50	5.2	208/230-1-60	2	48	70	5.4	
	208/230-3-60	2	27	40	5.3	208/230-3-60	2	26	40	5.3	208/230-3-60	2	31	45	5.5	
	460-3-60	2	14	20	5.2	460-3-60	2	13	20	5.2	460-3-60	2	15	20	5.5	
	575-3-60	2	11	15	5.2	575-3-60	2	13	20	5.2	575-3-60	2	13	20	5.5	
30	208/230-1-60	2	53	80	4.9	208/230-1-60	2	48	70	4.9	208/230-1-60	-	-	-	-	
	208/230-3-60	2	35	50	5.1	208/230-3-60	2	29	45	5.1	208/230-3-60	2	43	70	5.1	
	460-3-60	2	17	25	5.1	460-3-60	2	17	25	5.1	460-3-60	2	22	35	5.1	
	575-3-60	2	13	20	5.1	575-3-60	2	13	20	5.1	575-3-60	2	18	25	5.1	
40	230-1-60	3	58	80	5.8	230-1-60	3	62	80	5.8	230-1-60	3	-	-	-	
	208/230-3-60	3	48	70	5.9	208/230-3-60	3	47	70	5.9	208/230-3-60	3	61	90	5.9	
	460-3-60	3	22	35	5.9	460-3-60	3	23	35	5.9	460-3-60	3	26	40	5.9	
	575-3-60	3	20	30	5.9	575-3-60	3	17	25	5.9	575-3-60	3	20	30	5.9	
42	230-1-60	3	77	110	5.7	230-1-60	3	60	80	5.7	230-1-60	3	97	125	5.6	
	208/230-3-60	3	47	60	5.8	208/230-3-60	3	47	60	5.8	208/230-3-60	3	53	70	5.7	
	460-3-60	3	22	25	5.7	460-3-60	3	22	25	5.7	460-3-60	3	26	35	5.7	
	575-3-60	3	18	20	5.7	575-3-60	3	18	20	5.7	575-3-60	3	22	25	5.7	
50	208/230-3-60	5	58	90	5.9	208/230-3-60	5	61	90	5.9	208/230-3-60	5	85	125	5.8	
	460-3-60	5	28	45	5.9	460-3-60	5	31	45	5.9	460-3-60	5	41	60	5.8	
	575-3-60	5	0	22	5.9	575-3-60	5	23	35	5.9	575-3-60	5	34	50	5.8	
60	208/230-3-60	5	79	125	5.8	208/230-3-60	5	81	125	5.8	208/230-3-60	5	110	175	5.7	
	460-3-60	5	39	60	5.8	460-3-60	5	38	60	5.8	460-3-60	5	47	70	5.7	
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	575-3-60	5	31	50	5.8	575-3-60	5	38	60	5.7	
62	230-1-60	5	105	125	5.2	230-1-60	5	106	125	5.2	230-1-60		-	-	-	
	208/230-3-60	5	65	80	5.4	208/230-3-60	5	61	70	5.4	208/230-3-60	5	86	110	5.3	
	460-3-60	5	34	40	5.4	460-3-60	5	30	35	5.4	460-3-60	5	42	50	5.3	
	575-3-60	5	25	30	5.4	575-3-60	5	24	30	5.4	575-3-60	5	32	40	5.3	
80	208/230-3-60	2 x 3.0	87	125	5.9	208/230-3-60	2 x 3.0	89	125	5.9	208/230-3-60	2 x 3.0	113	175	5.7	
	460-3-60	2 x 3.0	42	60	5.9	460-3-60	2 x 3.0	40	60	5.9	460-3-60	2 x 3.0	55	90	5.7	
	575-3-60	2 x 3.0	40	60	5.9	575-3-60	2 x 3.0	35	50	5.9	575-3-60	2 x 3.0	45	70	5.7	
82	230-1-60	2 x 3.0	107	125	5.9	230-1-60	2 x 3.0	87	110	5.9	230-1-60		-	-	-	
	208/230-3-60	2 x 3.0	84	110	6.1	208/230-3-60	2 x 3.0	87	110	6.1	208/230-3-60	2 x 3.0	110	150	5.9	
	460-3-60	2 x 3.0	41	50	6.1	460-3-60	2 x 3.0	41	50	6.1	460-3-60	2 x 3.0	47	60	5.9	
	575-3-60	2 x 3.0	38	45	6.1	575-3-60	2 x 3.0	32	40	6.1	575-3-60	2 x 3.0	39	50	5.9	

AHRI Standard 910 ratings, configuration "C" at 82°F/60% RH

REFRIGERANT																
DSH / DA5	R410A					R407C					R134a					
Model	Volts-Ph-Hz	HP	MCA	MOP	MRE*	Volts-Ph-Hz	HP	MCA	MOP	MRE*	Volts-Ph-Hz	HP	MCA	MOP	MRE*	
10	208/230-1-60	1	27	40	4.7	208/230-1-60	1	24	35	4.7	208/230-1-60	1	33	50	4.1	
	208/230-3-60	1	19	25	4.8	208/230-3-60	1	15	20	4.8	208/230-3-60	1	19	30	4.2	
	460-3-60	1	8	15	4.8	460-3-60	1	8	15	4.8	460-3-60	1	9	15	4.2	
	575-3-60	1	7	15	4.8	575-3-60	1	7	15	4.8	575-3-60	1	8	15	4.2	
15	208/230-1-60	1	29	45	4.6	208/230-1-60	1	27	40	4.5	208/230-1-60	1	37	60	4.1	
	208/230-3-60	1	20	30	4.6	208/230-3-60	1	18	25	4.7	208/230-3-60	1	22	35	4.6	
	460-3-60	1	10	15	4.6	460-3-60	1	8	15	4.7	460-3-60	1	10	15	4.6	
	575-3-60	1	8	15	4.5	575-3-60	1	7	15	4.7	575-3-60	1	9	15	4.6	
20	208/230-1-60	1.5	41	60	5.5	208/230-1-60	1.5	33	50	5.5	208/230-1-60	1.5	44	70	5.6	
	208/230-3-60	1.5	26	40	5.6	208/230-3-60	1.5	24	35	5.7	208/230-3-60	1.5	29	45	5.7	
	460-3-60	1.5	13	20	5.5	460-3-60	1.5	12	15	5.7	460-3-60	1.5	14	20	5.7	
	575-3-60	1.5	9	15	5.5	575-3-60	1.5	10	15	5.7	575-3-60	1.5	11	15	5.7	
30	208/230-1-60	2	51	80	5.2	208/230-1-60	2	46	70	5.2	208/230-1-60	-	-	-	-	
	208/230-3-60	2	35	50	5.5	208/230-3-60	2	30	45	5.4	208/230-3-60	2	42	70	5.1	
	460-3-60	2	17	25	5.5	460-3-60	2	15	20	5.4	460-3-60	2	21	35	5.1	
	575-3-60	2	13	20	5.4	575-3-60	2	12	15	5.4	575-3-60	2	17	25	5.1	

AHRI Standard 910 ratings, configuration "C" at 82°F/60% RH

For DSH/DA5 Models 40 thru 82 - refer to top table

DS | DSV SERIES

Indoor Pool :: Whirlpool :: SPA

Light Commercial & Residential Dehumidifiers

Dectron internationale

AHRI MEMBER

1.888.DECTRON
www.dectron.com
info@dectron.com

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LIT00142-DD513-030K

Appendix K

Alternate Means of Ventilation Plans

For Mechanical Plans, see Dwg. M-002~M-016, M-021 & M-022.

Appendix L

Certified Alternate Means of Ventilation Letter from Mechanical Engineer

1. Mechanical Engineer letter to OER
2. Mechanical Engineer supplemental information

EJC Engineering, PLLC
136-21 Roosevelt Avenue, Suite 211
Flushing, NY 11354
Tel: 718-353-8010 Fax: 718-353-4007

June 5, 2015

NYC Office of Environmental Remediation
100 Gold Street, 2nd Floor
New York, NY 10038

Re: Mix-usage Hotel/Residential/Retail/Community Facilities
134-37 35th Avenue, Flushing, NY 11101
Block: 4949, Lot 31 & 8900 OER Project: 14EHAN384Q

To Whom It May Concern:

I, Eric Chang, am currently a NYS licensed engineer, the design applicant on record, for the HVAC systems (Heating, Ventilation and Air Conditioning) serving above referenced project, certify that our engineering design comply with the Air Quality Requirements, stated in Section 2.1.1, the natural gas will be utilized at the site for boilers, hot water heaters, cooking, and HVAC systems; our engineering design also comply with Alternate Means of Ventilation (AMV), stated in Section 2.2.2. and Section 3.3.

Individual outdoor air louvers shall be installed within each hotel guest room, public corridors, retail units and community facility units, minimum code required outdoor air will be provided via. HPAC units. Individual outdoor air intake fans shall be installed within each residential dwelling unit, to supply minimum code required (75 cfm) outdoor air to each dwelling unit, in compliance with 2014 NYC Mechanical Code Table 403.3, Footnote i. An air-cooled rooftop AC unit with gas-fired heating will be provided on 1st floor roof, to supply minimum code required outdoor air to the hotel accessory spaces in cellar and sub-cellar floors.

The locations of the proposed flue pipes (direct-venting condensing boilers and hot water heaters) on roof, are in compliance with Chapter 8 of 2014 NYC Mechanical Code, Chapter 5 of 2014 NYC Fuel Gas Code and E-designation requirements. No chimneys or stacks are required for these type boilers and hot water heaters. Therefore, if a taller building is erected at east, south or north sides of lot line in the future, the owner of the taller building is not required to alter the direct-venting flue pipes, in compliance with MC 802.1.1.1.

Thank you for your attention in this matter.
Sincerely,

Eric Chang, P.E.

STATE OF NEW YORK ERIC J. CHANG No. 073... LICENSED PROFESSIONAL ENGINEER

Y:\2013\034 - 134-37 35th Avenue Flushing\HVAC\PSE&A Elec full\OER\Letter to OER.doc

EJC Engineering, PLLC
136-21 Roosevelt Avenue, Suite 211
Flushing, NY 11354
Tel: 718-353-8010 Fax: 718-353-4007

June 5, 2015

Air Quality and Noise Remedial Action Plan
35th Ave. Farrington St. Hotel Development
134-37 35th Avenue, Flushing, NY Block 4949 Lot 31
DOB No. 420892323, OER No. 14EHAN384Q

Air Quality Requirement
The Air Quality E- Designation (E-246) for Block 4949 and Lot 31 requires the following: "Any new residential and/or commercial development on the above referenced property must use natural gas for HVAC systems or, if fuel oil No. 4/2 is used, ensure that the heating, ventilating and air conditioning stack(s) are located at least 37 feet from the Lot lines facing Prince Street and 35th Avenue, to avoid any potential significant adverse air quality impacts. "

1) **Fuel type**
   Natural gas will be used at the site for space heating, hot water, residential and commercial (hotel) cooking.

   No. 2 fuel oil will be used for an emergency generator located at 2nd floor roof, at 12' from west side of lot line. A 175-gallon fuel storage day tank will be provided below the generator on 2nd floor roof. The emergency generator will only be used during emergency condition to supply power for the building life safety equipment in compliance with 2014 NYC Building Code.

2) Alternate Means of Ventilation (AMV)
   In order to satisfy the requirements of the E-designation, Alternate Means of Ventilation (AMV) will be installed in order to maintain a closed window condition.
   AMV for this project will be achieved by:

   The water source heat pump air conditioning units (HPAC) will be used for the space heating and cooling in entire building, including residential dwelling units, hotel guest rooms, community facilities and retail units. The heat pump units are made by Bosch – Florida Heat Pump; size varies from LV009 – LV070.HPAC units will provide outdoor air through individual louvers to all hotel living space, retail and community facility space. An outdoor air intake fan in each residential dwelling unit will provide outdoor air to all living spaces, i.e. living rooms and bedrooms in compliance with 2014 NYC Mechanical Code.

   Four (4) gas-fired hot water boilers, made by LAARS Model MAGNATHERM Size 2500, will be provided in the roof mechanical room, for the building heating. These

boilers are high efficiency direct-venting type condensing boilers with flue pipes to outdoor. No chimney is required.

Two (2) double-cell cooling towers, made by Baltimore Air Coil, Series 1500 Model S15E-1285-7MN-2, will be installed on the building roof for the building cooling. Total nine (9) gas-fired direct-venting hot water heaters will be installed in mechanical rooms in 2nd, 3rd floors and the roof. All proposed hot water heaters are direct-venting condensing hot water heaters, made by Conquest Condensing Heater, models 130A-GCL, 130A-GCML, 100A-GCL & 130A-GCML. Each hot water heater will have direct-venting type flue pipe to outdoor at roof, and no chimney is required.

Each residential dwelling unit will have individual exhaust fan within the unit, to provide minimum code required exhaust air from toilet (50 cfm each) and kitchen (150 cfm). The exhaust louvers in each dwelling unit will have minimum 2 ft from any operational window or door serving the same dwelling unit, minimum 3 ft from any operational window or door serving an adjoining dwelling unit, and minimum 10 ft from any outdoor air intake opening, in compliance with 2014 NYC Mechanical Code.

Each residential dwelling unit will have one outdoor air fan within the unit, to supply 75 cfm outdoor fresh air to all living spaces, i.e. living rooms and bedrooms in compliance with 2014 NYC Mechanical Code. Outdoor air louvers at each floor corridor will provide minimum code required outdoor air via. HPAC units dedicated for residential corridors and lobby.

Each hotel guest room will have an outdoor air intake louver (6x6) within the room, to provide minimum code required outdoor fresh air (30 cfm), drawn by a heat pump air conditioning unit, for all living spaces, i.e. living rooms and bedrooms in compliance with 2014 NYC Mechanical Code. All hotel public corridors in guest room floors will have dedicated louvers for minimum outdoor fresh air, drawn by heat pump units serving the corridors.

A gas-fired rooftop AC unit (AC-1), located on 1st floor roof, will supply tempered outdoor air to the hotel lobby, dining areas, meeting rooms, gym, swimming pool and other hotel accessory areas in cellar and sub-cellar, in compliance with 2014 NYC Mechanical Code.

June 5, 2015

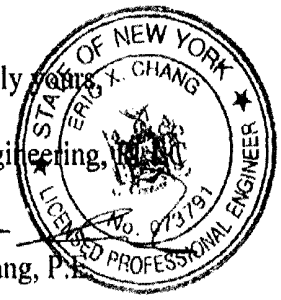
Re: Air Quality and Noise Remedial Action Plan
134-37 35th Avenue, Flushing, NY Block 4949 Lot 31
DOB No. 420892323, OER No. 14EHAN384Q

12" height architectural louvers will be provided above all windows in retail and community facility space in cellar and 2nd floor, and blanked off for future tenant outdoor air connection. Toilet exhaust fans will be installed and providing 50 cfm per toilet fixture for all toilets in retail and community facility units.

Compliance with Mechanical Code: Providing outdoor fresh air to commercial spaces and common areas such as lobbies and corridors in accordance with 2014 NYC Mechanical Code.

Very truly yours,

EJC Engineering, PLLC



Eric Chang, P.E.

Restoration & Conservation LLC

Dr. James M. Cervino
(917) 620-5287

Transportation & Disposal of Non-Hazardous Contaminated Soils From 134-37 35th Avenue Flushing, Queens, New York OER Project Number 14EHAN384Q; E-Designation E-246

Prepared By:
Dr. James M. Cervino
RESTORATION LLC Marine & Environmental Specialist
e-mail: jamescervino@gmail.com; Phone: 917-620-5287

Prepared For:
George Xu; August 12th 2015

FINAL REVISED ADJUSTED PRICES

FREE Environmental Consulting: Daily On-Site Manifesting & Acceptance Letters Included if Restoration is awarded the job.

1) **Disposal Of Debris Free Clean Long Island Soils 22.00/ton Using Tractor Trailers.** Must Consist of clean dirt with no garbage, plastic, asphalt or concrete. Must Pass NYSDEC Unrestricted Use SCO and OER Approval. If scale is not present, we can use the conversion of 1.4 tons to yards.

2) **TRACTOR TRAILERS CARRY DOUBLE WEIGHT: GET JOB FINISHED FASTER.**

3) **Contaminated Soils: Transportation & Disposal- Contaminated & Petrol Impacted Soils to NJDEP Bayshore Thermal Facility: MUST MATCH CLEAN EARTH OR SOIL SAFE PRICE**

IF WE USE BAYSHORE
NO EXTRAS FOR MOISTURE
NO EXTRAS FOR LARGE ROCKS
NO EXTRAS FOR ASPHALT
NO EXTRAS FOR CONCRETE
NO SUR CHARGES

EXTRAS FOR GARBAGE

Please compare the Clean Earth Surcharges, taxes and extras on their contract

Restoration & Conservation Environmental LLC
Address: 9-22 119st College Point: New York 11356
Contact: (917) 620-5287: OSHA HAZMAT SPECIALIST. Marine & Environmental Specialist

Prepared for

Century Construction
George Xu

Generator Location

134-37 35th Avenue Flushing, Queens, New York
OER Project Number 14EHAN384Q; E-Designation E-246

Restoration & Conservation LLC (RCAG) is pleased to submit this proposal for Environmental Consulting Services as detailed below:

August 8th, 2015 : *REVISED SCOPE OF WORK:*

The scope of work involves the tasks associated with an approved RAP Plan conducted by FPM Group 909 Marconi Avenue Ronkonkoma, New York 11779. This next phase involves the following scope of work:

1) Soil Testing Characterization, see below

2) Off Site Disposal Plan, see below

3) Facility acceptance letters of clean vs. contaminated soils, see below

4) Daily Reporting & Air CAMP monitoring and PID-VOC meter see below

5) Reporting and daily tracking of waste hauling manifests for soils being hauled and disposed to off site, to approved facilities as per the OER & NYSDEC compliance specification. see below (45/hr).

6) Remedial Investigation Report & Closure Report to OER

7) Traffic Control (flag man) and Street Sweeping will be supplied by the excavating contractor. This is mandatory in the OER FPM APPROVED RAP.

8) Your engineer must apply for a NYSDEC SPDES permit as per 1.90 page 51.

9) On Page 51 1.10 FPM RAP includes a SWPP Storm water pollution plan and site work implementation including hay-bales, silt curtains, and de-contamination exclusion zone on site. The site needs a truck wash station that will need to be implemented on site with running water. Pay supply cost for materials: haybales, silt curtains nails, stakes and site mini bobcat use and operator. 3 days labor installation charge =2,800.

10) If a vapor barrier is needed, then the installation of this material and engineer sign off is an extra. The foundation contractor knows how to install this. Restoration LLC can get this signed off for an extra cost. This will only be needed if the bottom layer has an oil spill or the final end point samples do not meet Unrestricted NYSDEC track one.

11) Meetings at OER office, site visits and NYSDEC meetings= FREE NO TIME CHARGED

Restoration & Conservation Environmental LLC
Address: 9-22 119st College Point: New York 11356
Contact: (917) 620-5287: OSHA HAZMAT SPECIALIST, Marine & Environmental Specialist

Task #1 - Site Characterization, Soil Classification and Investigation:

This task involves conducting Soil Testing & Characterization of soils currently present at the site for the purpose of Off-Site Disposal. RCAG will perform soil waste characterization sampling meeting the requirements of the selected disposal facilities. As part of this task, RCAG assumes a proposed construction depth of approximately five (30) feet below existing grade surface.

**NO Petroleum contamination was not found during my investigation. If petrol spill or strong odor is found during Restoration LLC working at the site, then a separate proposal will be created for environmental reporting, along with a NYSDEC submittal will be presented to Century. A clean up plan will also be presented at this time.

For this purposes of this scope, RCAG will assume a total of six (15) waste characterization samples for disposal at NYSDEC 375 Track 1 analysis. Separate end-point samples when at the terminal depth will be conducted at a later time.

Top Layer 0-3ft

NJDEP Waste Classification samples: PAY COST TO LAB

NYSDEC 375 Track 1 for 3-30ft: PAY COST TO LAB

Restoration will assist Century Construction LLC with on site management and off site disposal. RCAG will provide a list of recommended soil disposal facilities to facilitate with this sampling task. Due to already visually characterizing the recognized environmental concerns; we will be able to excavate the layers of PAH impacted, and historic fill soils, and load them onto trucks to be taken for off site disposal. Some of the "native soils" will be slated for beneficial reused, and taken off site to a facility or program that is using native clean NYSDEC 375 unrestricted use soils, remaining soils will be confirmed with end point sampling to meet NYSDEC Track 1 & 2 SCOs.

Sample Collection

Daily Monitoring & Field Work

1) Principal and Senior Scientist ~~$90.00~~ per hour FREE
2) Field Assistant $45.00 per hour
3) Equipment and Mobilization (FREE)
4) Comparative Excel Sheets and Comparative Analysis (Review Data+ Time=FREE)

Task #1 Services - Soil Classification for Off-Site Disposal

ITEM #	DESCRIPTION	UNITS	Parameters	CHARGE

Restoration & Conservation Environmental LLC
Address: 9-22 119st College Point: New York 11356
Contact: (917) 620-5287: OSHA HAZMAT SPECIALIST. Marine & Environmental Specialist

1	Sample Collection and PID-VOC		~~90/hr~~ 45/hr 8 Hours/Day	
2	Lab Costs TCLP Full Waste Class + 2	1 Comp 1-VOC	NJDEP-Waste Class & TCLP 15 Samples	PAY LAB DIRECT Estimated 700/sample
3	NYSDEC 375 Analysis Track One END POINT	1 Comp 1-VOC	NYSDEC 375 (a) 15 Samples	PAY LAB DIRECT 500/sample
4	Remedial Investigation Report Required by OER			**5,000**

Task #2 Onsite soil removal and compliance

Controlled Environmental Oversight & Off Site Disposal Activities

ITEM #	DESCRIPTION	RATE	CHARGE
5	Daily Field Assistant Tracking Manifesting (each truck signed in and out). DAILY CAMP MONITOR & EQUIPMENT INCLUDING DUST METER REPORTING We will follow the approved RAP plan to implement the number of dust meters at different parameters of the property.		**45/hr** **PAY DIRECT FOR RENTAL USE**
6	Obtain Acceptance Letters & Waste Class Disposal Plan for OER & Disposal Sites (with drawings)		1,200
7	Closure Report for OER		5,000

IMPORTANT:

Contaminated Soil Disposal sites require 1 composite sample for every 800cyd of soils under NJDEP Waste Classification standards. Two composite samples,

and two VOC samples were collected. We will be approved for the first 1,600 cy only. If we generate more than 1,600 cy then additional samples will be needed for every 800cy (1-composite +VOC).

Clean Fill Disposal Facilities in Long Island will require a sample frequency of one test for every 1,000 cy of soils disposed for Long Island Disposal NYSDEC 360 Facilities.

RCAG will collect one (1) waste characterization sample per 1,200 tons (800cy) of soil proposed for off-site disposal. RCAG' Licensed Environmental Specialist shall perform all sampling and will collect the environmental samples. Each sample collected will be relinquished under chain-of-custody protocol to an accredited laboratory and will be analyzed for total petroleum hydrocarbons (TPH) via United States Environmental Protection Agency (USEPA Method 8105M, total volatile organics (VOCs) via USEPA Method 8260B, petroleum aromatic hydrocarbons (PAHs) via USEPA Method 8270, total Resource Conservation Recovery Act (RCRA) metals via USEPA Method 6010, Toxicity Characteristic Leaching Procedure (TCLP) RCRA metals via USEPA Method 1311/6010, ignitability via USEPA Method 1010A, corrosivity via USEPA Method 9040C, reactivitity via USEPA Method SW846, and polychlorinated biphenyls (PCBs) via USEPA Method 8082. Upon receipt of all waste characterization-sampling results, RCAG will complete and submit all necessary paperwork to disposal facilities on behalf of Double Walker Realty and/or the selected subcontractor(s). Standard timeframe from sampling to facility acceptance is ten (10) business days.

NOTE: IN CASE OF HAZ OR PETROL FINDINGS A NEW AGREEMENT WILL BE DEVISED. Additional Services Proposal - Soil Classification for Off-Site Petrol Spill and or/ HAZ Waste Disposal will be discussed.

IF THE NYSDEC OR OER REQUEST ADDITIONAL GROUND WATER SAMPLING, INVESTIGATION OR DRILLING INTO GROUND WATER THIS IS ALSO NOT INCLUDED

STANDARD TERMS AND CONDITIONS:

1. Work will be scheduled upon acceptance of this agreement. **Work already started.**
2. Payment shall be based on the costs stated above, plus reimbursable expenses. Payments shall be made upon submittal of RCAG invoice.
3. Meetings, which require the attendance of a Project Manager, will be billed and are not complementary. Phone call discussions and **conference calls are FREE.**
   Any additional testing and/or analysis will be charged as per RCAG standard rates. RUSH analysis could be provided - a surcharge will be applied.
   Unless notice is made of any discrepancies for the total amount due within five (5) days of receipt of invoice, all items will be deemed as acceptable.
   The client or building/land owner must provide free and clear access to the work area(s).
   The client must provide an advance notice, 24-48 hours prior to project start,

Restoration & Conservation Environmental LLC
Address: 9-22 119st College Point: New York 11356
Contact: (917) 620-5287: OSHA HAZMAT SPECIALIST. Marine & Environmental Specialist

The client agrees to indemnify, exonerate, and hold harmless RCAG against the risk of loss, damage, or expense, by reason of suits, claims, demands, judgments, and causes of action for personal injury, death, or property damage arising out of or in any way in consequence of the performance of all work undertaken by RCAG, except that in no instance shall the client be held responsible for any liability claim, demand, or cause of action attributable solely to the negligence of RCAG.

Neither RCAG, nor any of its employees, agents or sub-contractors shall be liable for any loss or damages arising out of RCAG's performance or nonperformance, except by way of negligence or breach of contract, or otherwise, in any amount greater than the amount billed to the customer for the work leading to the claim of the customer. Said remedy shall be the sole and exclusive remedy against RCAG arising out of its work.
In no event shall RCAG, its employees, agents or sub-contractors be responsible for consequential or special damages of any kind or in any amount.

Results pertain only to items analyzed. Information supplied by client is assumed to be correct. This information may be used on reports and in calculations and RCAG is not responsible for the accuracy of this information.
RCAG's insurance coverage meets and exceeds the industry standard. RCAG maintains Professional, General Liability and Pollution Liability insurance coverage of $2,000,000.00.

Respectfully,

AGREED AND ACCEPTED:

Restoration & Conservation Environmental LLC (RCAG)

CERTIFICATION
I, Dr. James M. Cervino, am a Qualified Environmental Professional as defined in §43-140. I have primary direct responsibility for implementation of this remedial action.

Dr. James M. Cervino August 9th 2015.
QEP Name

QEP Signature

Respectfully,

AGREED AND ACCEPTED:

Century Construction LLC

Sign By: _____: Print Name:_____

Title: _____

Date:

RCAG Project # 08-4-2015

REGIONAL CENTER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: FARRINGTON EB-5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 15:

Permits

Please see a full discussion of the permits of the project in the attached Comprehensive Business Plan (**Exhibit 7**).

- **Work Permit for Sidewalk**, from New York City Department of Buildings on October 29, 2013
- **Work Permit for Fence**, from New York City Department of Buildings on March 2, 2015
- **Approval Letter of Plan Exam**, from New York City Department of Buildings on July 16, 2015
- **P-R Plan Review Application Receipt,** from City of New York Parks and Recreation on April 28, 2014

NYC™ Buildings

Work Permit Department of Buildings

Permit Number: 440111344-01-EQ-SH

Issued: 10/29/2013 Expires: 01/17/2014

Issued to: SANDEEP BOPARAI

Address: QUEENS 134-37 35 AVE

Business: SUKHMANY CONSTRUCTION INC

Contractor No: GC-9103

Description of Work:

ALTERATION TYPE 3 - CONSTRUCTION EQUIPMENT - SIDEWALK-SHED PROPOSED INSTALLATION OF HEAVY DUTY SIDEWALK SHED FILED FOR REMEDIAL REPAIRS AS PER PLANS. NO CHANGE IN USE OCCUPANCY OR EGRESS UNDER THIS APPLICATION. LIVE LOAD 300 PER SQUARE FEET. SIDEWALK SHED SHALL COMPLY WITH CHAPTER # 33 OF THE 2008 CODE.

Review is requested under Building Code: 2008

Electrical Application Number for Shed Lighting: A321811

To see a Zoning Diagram (ZD1) or to challenge a zoning approval filed as part of a New Building application or Alteration application filed after 7/13/2009, please use "My Community" on the Buildings Department web site at www.nyc.gov/buildings.

Emergency Telephone Day or Night: 311

Borough Commissioner:

Commissioner of Buildings:

Tampering with or knowingly making a false entry in or falsely altering this permit is a crime that is punishable by a fine, imprisonment or both.

01 10/29/2013

OP-35A (5/10)

NYC™ Buildings

Work Permit Department of Buildings

Permit Number: 421087353-01-EQ-FN

Issued: 03/03/2015 Expires: 03/02/2016

Issued to: FOTIOS KERASTOS

Address: QUEENS 134-37 35TH AVENUE

Business: FK CONSTRUCTION INC

Contractor No: GC-606695

Description of Work:

ALTERATION TYPE 3 - CONSTRUCTION EQUIPMENT - FENCE FILE TEMPORARY CONSTRUCTION EQUIPMENT ON SITE FOR RENEWING EXPIRED FENCE PERMIT IN ACCORDANCE WITH ALT3#420836046.

Review is requested under Building Code: 2014

To see a Zoning Diagram (ZD1) or to challenge a zoning approval filed as part of a New Building application or Alteration application filed after 7/13/2009, please use "My Community" on the Buildings Department web site at www.nyc.gov/buildings.

Emergency Telephone Day or Night: 311

Borough Commissioner:

Commissioner of Buildings:

Tampering with or knowingly making a false entry in or falsely altering this permit is a crime that is punishable by a fine, imprisonment or both.

01 06/15/2015

OP-35A (5/10)

NYC Buildings

CLICK HERE TO SIGN UP FOR BUILDINGS NEWS

NYC Department of Buildings

Application Details

JUMP TO: Doc 2 ▼ Go

Premises: 134-21 35 AVENUE QUEENS
BIN: 4111983 Block: 4949 Lot: 31

Job No: 420892323
Document: 02 OF 4
Job Type: NB - NEW BUILDING

Document Overview | Items Required | Virtual Job Folder | All Permits | Schedule A | Schedule B
Fees Paid | Forms Received | All Comments | C/O Summary | Plumbing Inspections
Crane Information | Plan Examination | C/O Preview
After Hours Variance Permits

Zoning Documents | Challenge Period Status | Challenge Results

Last Action: PLAN EXAM - APPROVED 07/16/2015 (P)

Pre-Filed: 12/22/2014 **Building Type:** Other **Estimated Total Cost:** $0.00
Date Filed: 12/22/2014 **Electronically Filed:** Yes
Fee Structure: STANDARD

Job Description Comments

1 Location Information (Filed At)

House No(s): 134-37 **Street Name:** 35TH AVENUE
Borough: Queens **Block:** 4949 **Lot:** 31 **BIN:** 4111983 **CB No:** 407
Work on Floor(s): SC2,SC1,CEL,ROF 001 thru 015 **Apt/Condo No(s):** **Zip Code:** 11354

2 Applicant of Record Information

Name: JIEMING WANG
Business Name: LMW ENGINEERING GROUP, LLC. **Business Phone:** 908-862-7600
Business Address: 2539 BRUNSWICK AVENUE LINDEN NJ 07036 **Business Fax:** 908-862-8998
E-Mail: JWANG@LMW-ENG.COM **Mobile Telephone:**
License Number: 074354

Applicant Type: ☒ P.E. ☐ R.A ☐ Sign Hanger ☐ R.L.A. ☐ Other

Directive 14 Applicant
Not Applicable
Previous Applicant of Record
Not Applicable

3 Filing Representative

Name: PU ZHANG
Business Name: RAYMOND CHAN ARCHITECT, P.C. **Business Phone:** 718-445-2345
Business Address: 136-40 39TH AVENUE SUITE#301 FLUSHING NY 11354 **Business Fax:**
E-Mail: INFO@RAYMONDCHANARCHITECT.COM **Mobile Telephone:**

Registration Number: 002078

4 Filing Status

Click Here to View

5 Job Types

☐ **Alteration Type 1 or Alteration Type 1 required to meet New Building requirements (28-101.4.5)**

☐ **Alteration Type 1, OT "No Work"** ☒ **New Building**

☐ **Alteration Type 2** ☐ **Full Demolition**

☐ **Alteration Type 3** ☐ **Subdivision: Improved**

☐ **Sign** ☐ **Subdivision: Condo**

Directive 14 acceptance requested? ☐ Yes ☒ No

6 Work Types

☐ **BL - Boiler** ☐ **FA - Fire Alarm** ☐ **FB - Fuel Burning** ☐ **FS - Fuel Storage**

☐ **FP - Fire Suppression** ☐ **MH - Mechanical** ☐ **PL - Plumbing** ☐ **SD - Standpipe**

☐ **SP - Sprinkler** ☐ **EQ - Construction Equipment** ☐ **CC - Curb Cut**

☒ **OT -** STRUCTURAL

7 Plans/Construction Documents Submitted

Plans Page Count: See Document 01 for totals

8 Additional Information

Not Applicable

9 Additional Considerations, Limitations or Restrictions

See 01 Document for this Information

10 NYCECC Compliance ***New York City Energy Conservation Code*** **(Applicant Statement)**

Not Provided

11 Job Description

SUB-FILING FOR STRUCTURAL AND FOUNDATION

Related BIS Job Numbers:

Primary application Job Number:

12 Zoning Characteristics

See 01 Document for this Information

13 Building Characteristics

See 01 Document for this Information

14 Fill

See 01 Document for this Information

15 Construction Equipment

Not Applicable

16 Curb Cut Description

Not Applicable

17 Tax Lot Characteristics

See 01 Document for this Information

18 Fire Protection Equipment

See 01 Document for this Information

19 Open Spaces

Not Provided

20 Site Characteristics

See 01 Document for this Information

21 Demolition Details

Not Applicable

22 Asbestos Abatement Compliance

Not Applicable

23 Signs

Not Applicable

24 Comments

25 Applicant's Statements and Signatures **(See paper form or check Forms Received)**

See 01 Document for this Information

26 Owner's Information

Name: GEORGE XU

Relationship to Owner: MEMBER

Business Name: FARRINGTON REALTY, LLC.

Business Phone: 718-939-1060

Business Address: 35-06 LEAVITT STREET CF-A FLUSHING NY 11354

Business Fax: 718-939-1036

E-Mail: GEORGEXU88@YAHOO.COM

Owner Type: PARTNERSHIP

Non Profit: ☐ Yes ☒ No

Metes and Bounds

To view metes and bounds, see the Plot Diagram (form PD-1). A scanned image may be available here.

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

NYC Parks

P-R Plan Review Application Receipt

Chief
Forestry, Horticulture, and Natural Resources

City of New York
Parks & Recreation

Overlook
80-30 Park Lane
Kew Gardens, NY 11415
www.nyc.gov/parks

April-28-14

Raymond Chan
Raymond Chan Architect, P.C.
136-40 39th Ave., Suite #301
Flushing, NY, 11354
Ph: 718-445-2345
Fax: 718-359-8809
Email: Raymond [admin@raymondchanarchitect.com]

RE: 134-37 35th Ave.; BIS# 420892323

Your application number is 13843. Use this number to reference all future correspondence for this site.

Your Plan Review request has been received and is ready to review. You will be contacted by a member of the Forestry staff should changes need to be made to your plan. Upon the completion of the review you will receive 2 approved sealed copies of your site plan in the mail. Should you encounter issues with existing trees during construction you must contact the borough forestry office immediately.

PLEASE NOTE: **If your plans involve any work around existing trees or tree removals, you must coordinate for associated permits from the proper Borough Forestry office two weeks prior to the start of demolition and/or construction. If your application impacts any existing City tree(s), tree preservation and protection is required to be properly installed immediately & remain throughout the duration of this project. Be aware NYC Parks Inspector's require access to trees within the city right of way. Regulated activity requiring a NYC Parks Forestry permit can include sidewalk, curb, utility installation etc. including site access. Failure to comply may result in a summons, fine and/or restitution.**

This is NOT a permit to perform any tree work or work adjacent to a tree.

Thank you for contacting NYC Parks

NYC Parks
Central Forestry, Horticulture & Natural Resources Group
TreePlanting.Permits@parks.nyc.gov
Phone: 212.360.TREE (8633)
Fax: 718-760-6640
http://www.nycgovparks.org/services/forestry/tree-work-permit
http://www.nycgovparks.org/trees/street-tree-planting/parks-plan-review

REGIONAL CENTER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: FARRINGTON EB-5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 16:

Financials

Please see a full discussion of the financial viability of the project in the attached Comprehensive Business Plan (**Exhibit 7**).

- **Sources and Uses** - budget of construction
- **Ten Year Projections**
- **Loan Term Sheet with Cathay Bank**
- **Verification Letter** from Century Construction Group, LLC verifying their experience in the field and project development costs dated August 14, 2015.

Project Name: Four Points Sheraton / Luxury Condo Development
Project Location: 134-37 35th Avenue, Flushing NY 11354
MAX FAR ALLOWED 201,840 SF
BUILDING GROSS FLOOR AREA 353,078 SF

(b)(4)

	DESCRIPTION	SUBTOTAL ESTIMATE
HARD COST		
	SITE WORK	
	DEMOLITION OF EXISTING BUILDINGS	
	SITE PREP.	
	SHORING & BRACING	
	EARTHWORK	
	ROCK REMOVAL	
	BACKFILL MISC.	
	UNDERPINNING	
	MISCELLANEOUS	
	PUMPING	
	SHEETING ASSUME NO SECANT WALLS	
	PRE-PROOF & MIRADRAIN	
	ANCHORS - TIE DWNS.	
	SIDEWALKS - Incl. Curbs	
	WATER DISTR. SYST. W/15400	
	STORM DRAINAGE W/15400	
	SANIT. SEWER W/15400	
	LANDSCAPING	
	Subtota	
	CONCRETE	
	1. Concrete Superstructure	
	Concrete Foundation	
	Forms	
	Rebars	
	Foundation Walls	
	Beams	
	Slabs	
	Walls	
	Buttresses & Col	
	Elevator Pit	
	Slabs&Mat	
	2. Waterproofing Cost	
	3. Support of Excavation Cost	
	4. Excavation & Backfill Cost	
	5. Dewatering Cost	
	6. Dumping Cost	
	Subtota	
	MASONRY	
	MISCELLANEOUS INTERIOR - Some Struc.	
	MASONRY WALLS (Assume Shaft	
	Walls at Elev., Stairs, Etc)	
	STONE WORK	
	Stone (Assume at Blg. Base)	
	Subtota	
	METALS	

(b)(4)

	MISC. METALS - Stair Rails, Misc., Lintels	
	CANOPY	
	Subtotal	
	CARPENTRY	
	ROUGH CARPENTRY	
	Roof Blocking	
	Protection	
	Install. Hdw.	
	FINISH CARPENTRY MATERIAL	
	Subtotal	
	MOIST. & TN. PROT.	
	MECH. ROOM WATERPROOF	
	MISC. WATER PROOFING	
	METALLIC WP.	
	JOINT SEALANTS	
	BLDG. INSUL. (In Trades)	
	FIRESTOPPING	
	BUILT-UP ASPHALT ROOF.	
	ROOF. INSUL.	
	ROOF PAVERS / (I.P.E DECK)	
	BLEND (ASSUME 50%)	
	Subtotal	
	DOORS & WINDOWS	
	Curtain Wall-OITC30	
	Curtain Wall-OITC25	
	Window Wall-OITC30	
	Curtain Wall at cellar level	
	Alum. Louver	
	Alum coping	
	Single Swing Doors @ Balcony	
	Top-hung Windows	
	Subtotal	
	FINISHES	
	Gypsum Board Systems	
	TILE AND FINISH ALLOWANCES	
	HOTEL TILE FLRS.	
	HOTEL TILE WALLS	
	BATHS-MOAC GLASS	
	MARBLE, GRANITE SADDLES	
	LOBBY FINISH ALLOWANCE (INC. ENT.)	
	HOTEL FINISH ALLOWANCE (NON LOBBY)	
	B.O.H. FINISH AND LOCKERS (INCL. OFFICES)	
	GYM ALLOWANCE	
	LOCKER RM./COMPACTOR ROOM TILE FL.	
	TILE MISC.	
	STORAGE/SERVICE AREAS (FINISH)	
	CARPET	
	WOOD FLOORING	
	PAINTING - General	
	Wall Covering	
	Kadex	

(b)(4)

	Subtotal	
	SPECIALTIES	
	TOILET ACCESSORIES F/O	
	MED. CABINETS & MIRRORS (w/Hotel Rm.)	
	MAIL BOX	
	SIGNAGE	
	MISC. (FIRE & CAB; ECT.)	
	POOL	
	Subtotal	
	EQUIPMENT	
	HOTEL KITCHEN/BAR EQUIPMENT	
	WASTE COMPACTOR	
	APPLIANCES	
	LOADING DOCK EQUIPMENT	
	HOTEL LAUNDRY EQUIPMENT	
	WINDOW WASHING CRANE	
	Subtotal	
	FURNISHINGS	
	MISC. - LOBBY	
	KITCHEN CABINETS & COUNTERS	
	L.T.S. MILLWORK BUILT INS	
	HOTEL RM. MILLWORK & BUILT INS	
	BAR COUNTERS/CHECK IN DESK	
	Subtotal	
	CONVEYING SYSTEMS	
	ELEVATOR - H1 H2 C1 C2 S1	
	LINEN CHUTE	
	BUILDING HOISTS	
	Subtotal	
	MECHANICAL	
	Plumbing	
	Sprinkler	
	Commerical/Retail	
	Pool	
	Subtotal	
	FIRE PROTECTION	
	HVAC	
	HOTEL-PUBLIC AREAS	
	Commercial Retail, Misc.	
	Subtotal	
	ELECTRICAL	
	LIGHTS	
	Telecom/Elec. Hospitality Sys./Security	
	Subtotal	
(A)	**SUBTOTAL DIRECT WORK**	

(b)(4)

SOFT COST		
	Architect & Engineer	
	Admin (Accounting etc.)	
	Appraisal	
	Environmental	
	Bank Engineer	
	Permit & Survey	
	RE Taxes	
	Insurance	
	Title Insurance	
	Bank Legal	
	Borrower Legal	
	Mortgage Recording Tax	
	Bank Fee	
	Interest Reserve	
	Subtota	
(B)	**SUBTOTAL INDIRECT WORK**	
FF&E COST		
	Furniture and Fixtures for Hotel	
	Subtota	
(C)	**SUBTOTAL INDIRECT WORK**	
	TOTAL of (A)+(B)+(C)	
	GENERAL CONDITIONS/CONTINGENCY (10%)	
	SUBTOTA	
	TOTAL PRELIMINARY ESTIMAT	

(b)(4)

Table 4: Annual Operating Income & Expense

Four Points Flushing Hotel, Flushing, NY

Year	1	2	3	4	5	6	7	8	9	10
	Stabilized									
Year Ending	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26
No. Of Rooms										
Rooms Sold										
Occupancy										
ADR										
ADR % Change										
RevPAR										
RevPAR % Change										
Revenue										
Rooms										
Food and Beverage										
Other Departments										
Rentals and Other Income										
Total Revenue										
Departmental Expenses										
Rooms										
Food and Beverage										
Other Operating Departments										
Total Expenses										
Departmental Profit										
Undistributed Operating Ex										
G&A										
Marketing										
Franchise Fees										
Repairs & Maintenance										
Utilities										
Total Expenses										
House Profit										
Fixed Expenses										
Management Fee										
Property and Other Taxes										
Insurance										
Other										
Total Fixed Expenses										
EBITDA before FF&E										
FF&E Reserve										
EBITDA after FFE Reserves										
EBITDA Margin										

Sources: HVS Consulting & Valuation Services Division of Hotel Appraisals, LLC

(b)(4)

CATHAY BANK

Indicative Term Sheet
(For Discussion Purpose Only)
(September 16, 2014)

40-14 MAIN STREET, FLUSHING, NEW YORK 11354 · PHONE: (718) 886-5225 · FAX: (718) 961-9640 · WWW.CATHAYBANK.COM

[redacted]

Acknowledged and agreed:
Farrington Realty, LLC

By: George Xu
Date:

August 14, 2015

Attention: EB-5 Unit
U.S. Citizenship and Immigration Services
California Service Center
Department of Homeland Security
24000, Avila Road, Room 2312
Laguna Niguel, CA 92677

Re: Four Points Sheraton / Luxury Condo Development
134-37 35th Avenue, Flushing NY 11354

Dear CSC EB-5 Unit Officer:

Century Construction Group was hired by Farrington Realty LLC as the general contractor on the above-referenced Project. I am the president of Century Construction Group and have worked in the construction industry for twenty years and have supervised, managed and/or constructed. My experience includes hospitality, commercial interior and residential projects. I have constructed similar projects to the proposed Four Points Sheraton in term of size, budgets and timeline. These projects include the Marriot Fairfield Inn, the Leavitt Manor Condominium and the Farrington Estate, all located in Flushing. I have been asked by Farrington Realty, LLC to provide you with some information concerning the Project in connection with certain funding obtained by EB-5.

Century Construction Group has advised that construction estimate cost would be [redacted] (b)(4) The construction timeline is 30 months. This mixed used building consists of luxury condominium, hotel, commercial retail, community facility/medical offices, and parking garage. The Project will include 100 luxury condominium units and a Four Points Sheraton hotel that will provide 210 keys. The demolition stage of the Project has been completed and excavation is scheduled to begin in September 2015. I attest that the construction budgets and timeline are estimated based on established industry standards

Very Truly Yours,

George Xu

35-06 Leavitt St., Suite CF-A Flushing, NY 11354
Tel: (718) 939-1060 Fax: (718) 939-1036
www.centurygroupdevelopment.com

Notice of Entry of Appearance as Attorney or Accredited Representative

Department of Homeland Security

DHS Form G-28
OMB No. 1615-0105
Expires 03/31/2018

Part 1. Information About Attorney or Accredited Representative

1. USCIS ELIS Account Number *(if any)*
   ▶

Name and Address of Attorney or Accredited Representative

2.a. Family Name *(Last Name)*: Mehreen
2.b. Given Name *(First Name)*: Shah
2.c. Middle Name:
3.a. Street Number and Name: 299 Broadway
3.b. Apt. ☐ Ste. ☒ Flr. ☐: 1005
3.c. City or Town: New York
3.d. State: NY
3.e. ZIP Code: 10007
3.f. Province:
3.g. Postal Code:
3.h. Country: USA
4. Daytime Telephone Number: 2122337473
5. Fax Number: 2122334877
6. E-Mail Address *(if any)*: mona@mshahlaw.com
7. Mobile Telephone Number *(if any)*:

Part 2. Notice of Appearance as Attorney or Accredited Representative

This appearance relates to immigration matters before *(Select **only one** box)*:

1.a. ☒ USCIS
1.b. List the form numbers: I-924
2.a. ☐ ICE
2.b. List the specific matter in which appearance is entered:
3.a. ☐ CBP
3.b. List the specific matter in which appearance is entered:

I enter my appearance as attorney or accredited representative at the request of:

4. Select **only one** box:
   ☐ Applicant ☒ Petitioner ☐ Requestor
   ☐ Respondent (ICE, CBP)

Information About Applicant, Petitioner, Requestor, or Respondent

5.a. Family Name *(Last Name)*: XU
5.b. Given Name *(First Name)*: George
5.c. Middle Name:
6. Name of Company or Organization *(if applicable)*: N/A

Part 3. Information About the Regional Center (Continued)

B. Name of Managing Company/Agency: N/A

Street Address/P.O. Box: N/A

City: N/A	State: NY	Zip Code: N/A
Web site address:	Fax Number (include area code):	Telephone Number (include area code):

C. Name of Other Agent: Mona Shah & Associates

Street Address/P.O. Box: 299 Broadway, Suite 1005

City: New York	State: NY	Zip Code: 10007
Web site address: www.mshahlaw.com	Fax Number (include area code): (212) 233-4877	Telephone Number (include area code): (212) 233-7473

D. Continuation, if needed, to provide information for additional management companies/agencies, regional center principals, agents, individuals or entities who are or will be involved in the management, oversight, and administration of the regional center.)

Not applicable - Please find attached for reference the Regional Center's previous approval letter of May 14, 2015. Reference can also be made to the following USCIS receipt numbers: RCW1420251818/ID1420251818

Part 3. Information About the Regional Center (Continued)

Note: If extra space is needed to complete any item, attach a continuation sheet, indicate the item number, and provide the response.

1a. Describe the structure, ownership and control of the regional center entity.

Please find attached for reference the Regional Center's previous approval letter of May 14, 2015. Reference can also be made to the following USCIS receipt numbers: RCW1420251818/ID1420251818

b. Date the Regional Center was established(mm/dd/yyyy): 03/25/2014

c. Organization Structure for the Regional Center:

- ☐ **1.** Agency of a U.S. State or Territory (identify) _____
- ☐ **2.** Corporation
- ☐ **3.** Partnership (including Limited Partnership)
- ☒ **4.** Limited Liability Company (LLC)
- ☐ **5.** Other (Explain) _____

2. Has this regional center's designation ever been formally terminated by USCIS, or has the regional center ever filed a Form I-924 or regional center proposal or amendment that was denied?

☒ No ☐ Yes - Attach a copy of the adverse decision, with an explanation, the date of decision, and case number, if any.

3. Describe the geographic area of the regional center. **Note:** This area must be contiguous. Provide a map of the geographic area.

Please find attached for reference the Regional Center's previous approval letter of May 14, 2015. Reference can also be made to the following USCIS receipt numbers: RCW1420251818/ID1420251818

4. Describe the regional center's administration, oversight, and management functions that are or will be in place to monitor all EB-5 capital investment activities and the allocation of the resulting jobs created or maintained under the sponsorship of the regional center.

Please find attached for reference the Regional Center's previous approval letter of May 14, 2015. Reference can also be made to the following USCIS receipt numbers: RCW1420251818/ID1420251818

Part 3. Information About the Regional Center (Continued)

5. Describe the past, current, and future promotional activities for the regional center. Include a description of the budget for this activity, along with evidence of the funds committed to the regional center for promotional activities. Submit a plan of operation for the regional center that addresses how EB-5 investors will be recruited, the methods by which the capital investment opportunities will be offered to the investors, and how they will subscribe or commit to the investment interest.

Please find attached for reference the Regional Center's previous approval letter of May 14, 2015. Reference can also be made to the following USCIS receipt numbers: RCW1420251818/ID1420251818

6. Describe whether and how the regional center is engaged in supporting a due diligence screening of its alien investor's lawful source of capital and the alien investor's ability to fully invest the requisite amount of capital. Also, describe the regional center's prospective plans in this regard if they differ from past practice.

Please find attached for reference the Regional Center's previous approval letter of May 14, 2015. Reference can also be made to the following USCIS receipt numbers: RCW1420251818/ID1420251818

7. Identify each industry that has or will be the focus of EB-5 capital investments sponsored through the regional center.

Industry Category Title: Nonresidential Building Construction NAICS Code for the Industry Category: 2 3 6 2 _ _	Is the Form I-924 application supported by an economic analysis and underlying business plan for the determination of prospective EB-5 job creation through EB-5 investments in this industry category? ☐ No - Attach an explanation ☒ Yes
Industry Category Title: Furniture and Home Furnishing Mercha NAICS Code for the Industry Category: 4 2 3 2 _ _	Is the Form I-924 application supported by an economic analysis and underlying business plan for the determination of prospective EB-5 job creation through EB-5 investments in this industry category? ☐ No - Attach an explanation ☒ Yes
Industry Category Title: Hotel and Motel NAICS Code for the Industry Category: 7 2 2 5 1 _	Is the Form I-924 application supported by an economic analysis and underlying business plan for the determination of prospective EB-5 job creation through EB-5 investments in this industry category? ☐ No - Attach an explanation ☒ Yes

Part 3. Information About the Regional Center (Continued)

8a. Describe and document the current and/or prospective structure of ownership and control of the commercial entities in which the EB-5 alien investors have or will make their capital investments.

Please see the Operating Agreement attached in the Exhibits.

b. Date commercial enterprise established, if any (mm/dd/yyyy): 08/07/2015

c. Organization Structure for commercial enterprise:

- ☐ **1.** Corporation
- ☐ **2.** Partnership (including Limited Partnership)
- ☒ **3.** Limited Liability Company (LLC)
- ☐ **4.** Other (Explain) _____

d. Has or will the Regional Center or any of its principals or agents have an equity stake in the commercial enterprise?

☒ No ☐ Yes - Attach an explanation and documentation that outlines when and under what circumstances these remittances will be paid.

e. Has or will the Regional Center or any of its principals or agents receive fees, profits, surcharges, or other like remittances through EB-5 capital investment activities from this commercial enterprise, beyond the minimum capital investment threshold required of the EB-5 alien entrepreneurs?

☐ No ☒ Yes - Attach an explanation and documentation that outlines when and under what circumstances these remittances will be paid.

Part 4. Applicant Signature

Read the information on penalties in the instructions before completing this section. If someone helped you prepare this petition, he or she must compete **Part 5.**

I certify, under penalty of perjury under the laws of the United States of America, that this form and the evidence submitted with it are all true and correct. I authorize the release of any information from my records that U.S. Citizenship and Immigration Services needs to determine eligibility for the benefit being sought. I also certify that I have authority to act on behalf of the Regional Center.

Signature of Applicant	**Daytime Phone Number** (Area/Country Codes)	**Date** (mm/dd/yyyy)
	(718) 939-1060	08/14/2015
Printed Name of Applicant George Xu	**E-Mail Address** centurygroup88@yahoo.com	
Relationship to the Regional Center Entity (Managing Member, President, CEO, etc.) Principal of the Regional Center		

Part 5. Signature of Person Preparing This Form, If Other Than Above (Sign Below)

I declare that I prepared this application using information provided by someone with authority to act on behalf of the Regional Center, and the answers and information provided by the Regional Center.

Attorney or Representative: In the event of a Request for Evidence (RFE), may the USCIS contact you by Fax or E-mail? ☐ No ☒ Yes

Signature of Preparer	**Printed Name of Preparer**	**Date** (mm/dd/yyyy)
	Mehreen Shah, Esq.	08/14/2015

Firm Name and Address
Mona Shah & Associates
299 Broadway, Suite 1005
New York, NY 10007

Daytime Phone Number (Area/Country Codes)	**Fax Number** (Area/Country Codes)	**E-Mail Address**
(212) 233-7473	(212) 233-4877	mona@mshahlaw.com

OMB No. 1615-0026; Exp. 09/30/2016

Department of Homeland Security
U.S. Citizenship and Immigration Services

Form I-526, Immigrant Petition by Alien Entrepreneur

Do Not Write in This Block - For USCIS Use Only (Except G-28 Block Below)		
Classification	**Action Block**	Fee Receipt
Priority Date		**To be completed by Attorney or Representative, if any** ☒ G-28 is attached Attorney's State License No. MS1058
Remarks:		

START HERE - Type or print in black ink.

Part 1. Information About You

Family Name	Given Name	Middle Name
Doe	John	

Address - In Care of Name, if applicable

Street Number and Name	Apt. Number
64-06 Queens Blvd	

City	State or Province	Country	Zip/Postal Code
Woodside	New York	USA	11377

Date of Birth *(mm/dd/yyyy)*	Country of Birth	Social Security Number (if any)	A-Number (if any)
01/01/1975	New York	N/A	N/A

If you are in the United States, provide the following information:

Date of Arrival *(mm/dd/yyyy)*	I-94 Number	Passport Number
Travel Document Number	Expiration Date for Passport or Travel Document	Country of Issuance for Passport or Travel Document
Current Nonimmigrant Status	Date Current Status Expires *(mm/dd/yyyy)*	Daytime Telephone Number (with Area Code)

Part 2. Application Type *(Check one)*

a. ☒ This petition is based on an investment in a commercial enterprise in a targeted employment area for which the required amount of capital invested has been adjusted downward.

b. ☐ This petition is based on an investment in a commercial enterprise in an area for which the required amount of capital invested has been adjusted upward.

c. ☐ This petition is based on an investment in a commercial enterprise that is not in either a targeted area or in an upward adjustment area.

Part 3. Information About Your Investment

Name of commercial enterprise in which funds are invested ***(Required Field - Do Not Leave Blank)***
QB Ventures EB5 Capital, LLC

Street Address
64-06 Queens Blvd in Woodside, New York 11377

Phone Number with Area Code	Business organized as (corporation, partnership, etc.)
+1 (718) 939-1060	Limited Liability Company

RECEIVED: _____ RESUBMITTED: _____ RELOCATED: SENT _____ REC'D _____

Part 3. Information About Your Investment *(Continued)*

(b)(3)

Kind of business (e.g. furniture manufacturer): Investment Fund

Date established (mm/dd/yyyy): 03/25/2014

IRS Tax #:

Date of your initial investment (mm/dd/yyyy):

Amount of your initial investment: $ 000,000,500,000.00

Your total capital investment in the enterprise to date: $ 000,000,500,000.00

Percentage of the enterprise you own:

If you are not the sole investor in the new commercial enterprise, list on separate paper the names of all other parties (natural and non-natural) who hold a percentage share of ownership of the new enterprise and indicate whether any of these parties is seeking classification as an alien entrepreneur. Include the name, percentage of ownership, and whether or not the person is seeking classification under section 203(b)(5). **NOTE:** A "natural" party would be an individual person, and a "non-natural" party would be an entity such as a corporation, consortium, investment group, partnership, etc.

If you indicated in **Part 2** that the enterprise is in a targeted employment area or in an upward adjustment area, name the county and State: County: Queens State: NY

Part 4. Additional Information About the Enterprise

Type of Enterprise (check one):

- [X] New commercial enterprise resulting from the creation of a new business.
- [ ] New commercial enterprise resulting from the purchase of an existing business.
- [ ] New commercial enterprise resulting from a capital investment in an existing business.

Composition of the Petitioner's Investment:

Total amount in U.S. bank account	$ 000,000,000.00
Total value of all assets purchased for use in the enterprise	$ 000,000,000.00
Total value of all property transferred from abroad to the new enterprise	$ 000,000,000.00
Total of all debt financing	$ 000,000,000.00
Total stock purchases	$ 000,000,000.00
Other (explain on separate paper)	$ 000,500,000.00
Total	$ 000,000,500,000.00

Income:

When you made the investment	Gross	$ 000,000,000.00	Net	$ 000,000,000.00
Now	Gross	$ 000,000,000.00	Net	$ 000,000,000.00

Net worth:

When you made investment	Gross	$ 000,000,000.00	Now	$ 000,000,000.00

Part 5. Employment Creation Information

Number of full-time employees in the enterprise in U.S. (excluding you, your spouse, sons, and daughters)

When you made your initial investment? 0 Now 0 Difference 0

How many of these new jobs were created by your investment? 0

How many additional new jobs will be created by your additional investment? 10+

What is your position, office, or title with the new commercial enterprise?

Members

Briefly describe your duties, activities, and responsibilities.

Vote & participate in company matters based on the company's Limited Liability Agreement

What is your salary? $ What is the cost of your benefits? $

Part 6. Processing Information

Check One:

☐ The person named in **Part 1** is now in the United States, and an application to adjust status to permanent resident will be filed if this petition is approved.

☒ If the petition is approved and the person named in **Part 1** wishes to apply for an immigrant visa abroad, complete the following for that person:

Country of nationality: U.S.

Country of current residence or, if now in the United States, last permanent residence abroad:

U.S.

If you provided a United States address in **Part 1**, print the person's foreign address:

If the person's native alphabet is other than Roman letters, write the foreign address in the native alphabet:

Are you in deportation or removal proceedings? ☐ Yes (Explain on separate paper) ☒ No

Have you ever worked in the United States without permission? ☐ Yes (Explain on separate paper) ☒ No

Part 7. Signature *Read the information on penalties in the instructions before completing this section.*

I certify, under penalty of perjury under the laws of the United States of America, that this petition and the evidence submitted with it is all true and correct. I authorize the release of any information from my records that U.S. Citizenship and Immigration Services needs to determine eligibility for the benefit I am seeking.

Signature (b)(6) Date

Mobile Phone Number E-Mail Address mona@mshahlaw.com

NOTE: *If you do not completely fill out this form or fail to the submit the required documents listed in the instructions, you may not be found eligible for the immigration benefit you are seeking and this petition may be denied.*

Part 8. Signature of Person Preparing Form, If Other Than Above (Sign below)

I declare that I prepared this application at the request of the above person, and it is based on all information of which I have knowledge.

Signature Print Your Name Mehreen Shah, Esq. Date 09/18/2015

Firm Name Mona Shah & Associates Daytime phone # with area code 212-233-7473

Address 299 Broadway, Suite 1005, New York, NY 10007

MONA SHAH & ASSOCIATES
—ATTORNEYS AT LAW—

299 Broadway, Suite 1005
New York, NY 10007

Tel: 212-233-7473
Fax: 212-233-4877
E Fax: 917-210-3711

Email: info@mshahlaw.com
Web: www.mshahlaw.com

September 18, 2015

VIA Fed-Ex Delivery

USCIS – California Service Center
Attn: EB-5 RC Processing Unit
24000 Avila Road, 2nd Floor
Laguna Niguel, CA 92677

RE: Request for an Amendment to an Approved Regional Center Application, Form I-924, Exemplar Filing for a New Project (QB Ventures EB5 Capital, LLC) and Form I-526 Petition
Petitioner: Century New York City Regional Center, LLC / RCW1420251818
Project: QB Ventures EB5 Capital, LLC

Dear Adjudicating Officer,

Attached please find request for an amendment to Century New York City Regional Center, LLC's previously approved RC petition, along with an Exemplar Form I-526.

Attached also is our G-28 and supporting documentation, indexed and tabbed.

Should you require any additional document or clarification, please do not hesitate to contact us, we will be delighted to oblige.

Sincerely,

Mona Shah & Associates

Omar Al Hakim, Esq.

OH/hm
Enclosures

Submitted By:

Mona Shah & Associates

Attorneys for:
Century New York City Regional Center
299 Broadway, Suite 1005
New York, NY 10007
Tel: (212) 233 7473

Century New York City Regional Center, LLC
Receipt No: RCW1420251818/ Regional Center ID: 1420251818

Century New York City Regional Center, LLC

REQUEST FOR AN AMENDMENT TO AN APPROVED REGIONAL CENTER APPLICATION, FORM I-924, EXEMPLAR FILING FOR A NEW PROJECT (QB Ventures EB5 Capital, LLC) AND FORM I-526 PETITION

Century New York City Regional Center, LLC
Continuation Sheet

Part 3. Information About the Regional Center

Question 7. Identify each industry that has or will be the focus of EB-5 capital investments sponsored through the regional center.

Industry Category Title	NAICS Code	Economic Analysis & Business Plan?
Food Services and drinking places	72251	Yes
Real Estate	53112/5313	Yes
Other government enterprises	921	Yes
Architectural, engineering and related services	5413	Yes
Insurance	5241	Yes
Accounting tax preparation, bookkeeping services	5412	Yes
Legal Services	5411	Yes
Monetary authorities and depository credit intermediation	5222	Yes
Other miscellaneous professional and technical services	5419	Yes

Part 3. Information About the Regional Center

Question 8e. Has or will the Regional Center or any of its principals or agents receive fees, profits, surcharges, or other like remittances through EB-5 capital investment activities from this commercial enterprise, beyond the minimum capital investment threshold required of the EB-5 alien entrepreneurs?

The Regional Center will charge each investor a (b)(4) administrative fee. Please see the Offering Documents at Exhibit 5 for more details.

U.S. Department of Homeland Security
U.S. Citizenship and Immigration Services
Immigrant Investor Program
Washington, DC 20529

U.S. Citizenship and Immigration Services

May 14, 2015
George Xu
Century New York City Regional Center
35-06 Leavitt Street, Unit CFA
Flushing, New York 11354

Application:	Form I-924, Application for Regional Center under the Immigrant Investor Pilot Program
Applicant(s):	Century New York City Regional Center
Re:	Initial Regional Center Designation Century New York City Regional Center RCW1420251818/ID1420251818

This notice is in reference to the Form I-924, Application for Regional Center Under the Immigrant Investor Pilot Program that was filed by the applicant with the U.S. Citizenship and Immigration Services ("USCIS") on July 21, 2014. The Form I-924 application was filed to request approval of initial regional center designation under the Immigrant Investor Program. The Immigrant Investor Program was established under § 610 of the Department of Commerce, Justice and State, the Judiciary, and Related Agencies Appropriations Act of 1993 (Pub. L. 102-395, Oct. 6, 1992, 106 Stat. 1874).

I. Executive Summary of Adjudication

Effective the date of this notice, USCIS approves the Form I-924 request to designate Century New York City Regional Center as a qualifying participant in the Immigrant Investor Program.

II. Regional Center Designation

USCIS approves the applicant's request to focus, promote economic growth, and offer capital investment opportunities in the following geographic area and industry categories:

A. Geographic Area

State	Counties/Cities
New York	Queens, New York, Bronx County, Richmond County, Westchester County, and Nassau County

Note: Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment request is not required if investment opportunities arise outside the geographic area referenced above. USCIS will evaluate eligibility upon the filing of an initial Form I-526 related to that new investment opportunity.

B. Industry Categories

Industry Category	NAICS code
Nonresidential Building Construction	2362
Furniture and Home Furnishing Merchant Wholesalers	4232
Hotel and Motel (including Casino)	72251
Restaurants and Other Eating Places	72251
Lessors of Nonresidential Buildings (Except Miniwarehouses)	53112
Architectural, Engineering and Related Services	5413
Insurance Carriers	5241
Accounting Tax Preparation, Bookkeeping Services	5412
Legal Services	5411
Monetary Authorities and Depository Credit Intermediation	5222
Other miscellaneous professional and technical services	5419

Note: Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment request is not required if investment opportunities arise outside the industry categories referenced above. USCIS will evaluate eligibility upon the filing of an initial Form I-526 related to that new investment opportunity.

III. Job Creation

USCIS approves the geographic area and industry categories noted above based on the economic impact analysis presented and reviewed in conjunction with the adjudication of this regional center proposal.

This hypothetical project does not have the factual details necessary to be in compliance with the requirements described in Matter of Ho, 22 I&N Dec. 206 (Assoc. Comm'r 1998), and therefore, USCIS's approval of the hypothetical job creation estimates presented in the Form I-924 will not be accorded deference and may not be relied upon by an individual investor when filing the Form I-526. The business plan and job creation estimates will receive a de novo review by USCIS when an individual investor files Form I-526. Once an actual project is adjudicated upon the filing of the initial Form I-526, USCIS will give deference to subsequent Forms I-526 when the critical assumptions remain materially unchanged from the initially-approved Form I-526.

When filing Form I-526, it will be the responsibility of the individual investor to submit a comprehensive, detailed and credible business plan, showing by a preponderance of the evidence that his or her investment in the new commercial enterprise will create not fewer than 10 full-time positions. If prior to filing a form I-829, the job creation estimated in the business plan submitted by the individual investor materially changes or will not be realized, then it will be the responsibility of the EB-5 investor to notify USCIS of an agreed upon methodology to allocate job creation among eligible investors.

IV. Guidelines for Filing Form I-526 Petitions

Each individual petition, in order to demonstrate that it is affiliated with the Century New York City Regional Center in conjunction with addressing all the requirements for an individual immigrant investor petition, shall also contain the following:

1. A copy of this regional center approval notice and designation letter including all subsequent amendment approval letters (if applicable).

2. An economic impact analysis which reflects a job creation methodology required at 8 CFR § 204.6 (j)(4)(iii) and shows how the capital investment by an individual immigrant investor will create not fewer than ten (10) indirect jobs for each immigrant investor.

3. A comprehensive, detailed and credible business plan for an actual project that contains the factual details necessary to be in compliance with the requirements described in Matter of Ho, 22 I&N Dec. 206 (Assoc. Comm'r 1998).

4. Legally executed organizational documents of the commercial enterprise.

Note: The project reviewed with this Form I-924 application is a hypothetical project. Organizational and transactional documents associated with the new commercial enterprise (NCE) submitted with this Form I-924 have not been reviewed to determine compliance with program requirements since these documents will receive de novo review in subsequent filings (e.g., an amended Form I-924 application with a Form I-526 exemplar or the first Form I-526 petition filed by an investor under the regional center project).

V. Designee's Responsibilities in the Operations of the Regional Center

As provided in 8 CFR § 204.6 (m)(6), to ensure that the regional center continues to meet the requirements of section 610(a) of the Appropriations Act, a regional center must provide USCIS with updated information to demonstrate the regional center is continuing to promote economic growth, improved regional productivity, job creation, and increased domestic capital investment in the approved geographic area. Such information must be submitted to USCIS on an annual basis or as otherwise requested by USCIS. The applicant must monitor all investment activities under the sponsorship of the regional center and to maintain records in order to provide the information required on the Form I-924A Supplement to Form I-924. Form I-924A, Supplement to Form I-924 Application is available in the "Forms" section on the USCIS website at www.uscis.gov.

Regional centers that remain designated for participation in the Immigrant Investor Program as of September 30th of a calendar year are required to file Form I-924A Supplement in that year. The Form I-924A Supplement with the required supporting documentation must be filed on or before December 29th of the same calendar year.

The failure to timely file a Form I-924A Supplement for each fiscal year in which the regional center has been designated for participation in the Immigrant Investor Program will result in the issuance of an intent to terminate the participation of the regional center in the Immigrant Investor Program, which may ultimately result in the termination of the designation of the regional center.

The regional center designation is non-transferable.

VI. Legal Notice

This approval and designation of a Regional Center under the Immigrant Investor Program does not constitute or imply an endorsement or recommendation by USCIS, the United States Government or any instrumentality thereof, of the investment opportunities, projects or other business activities related to or undertaken by such Regional Center. Except as expressly set forth in this approval and designation, USCIS has not reviewed any information provided in connection with or otherwise related to the Regional Center for compliance with relevant securities laws or any other laws unrelated to eligibility for designation as a Regional Center. Accordingly USCIS makes no determination or representation whatsoever regarding the compliance of either the Regional Center or associated New Commercial Enterprises with such laws.

Each Regional Center designated by USCIS must monitor and oversee all investment offerings and activities associated with, through or under the sponsorship of the Regional Center. The failure of an associated New Commercial Enterprise to comply with all laws and regulations related to such investment offerings and activities may result in the issuance by USCIS of a notice of intent to terminate the Regional Center designation.

If the applicant has any questions concerning the regional center designation under the Immigrant Investor Program, please contact the USCIS by email at USCIS.ImmigrantInvestorProgram@uscis.dhs.gov.

Sincerely,

Nicholas Colucci
Chief, Immigrant Investor Program

cc: Mehreen Shah, Esq.
299 Broadway, Suite 1005
New York, NY 10007

MONA SHAH & ASSOCIATES
—ATTORNEYS AT LAW—

299 Broadway, Suite 1005
New York, NY 10007

Tel: 212-233-7473
Fax: 212-233-4877
E Fax: 917-210-3711

Email: info@mshahlaw.com
Web: www.mshahlaw.com

September 18, 2015

U.S. Citizenship & Immigration Services
Attn: I-526
2501 S. State Highway 121 Business
Suite 400
Lewisville, TX 75067

SUBMISSION CONTAINS CONFIDENTIAL COMMERCIAL INFORMATION PER FOIA (5 U.S.C. § 552 (b)(4)), SUBMITTER REQUESTS PREDISCLOSURE NOTIFICATION PER PRESIDENTIAL EXECUTIVE ORDER NO. 12, 600, 52 FED. REG. 23781 (JUNE 23, 1987)

RE: I-526 Immigrant Petition by Alien Entrepreneur: **John Doe**
New Commercial Enterprise: **QB Ventures EB5 Capital, LLC**
Regional Center: **Century New York City Regional Center**

Dear Adjudicating Officer:

This letter is submitted in support of an exemplar I-526 petition with the Century New York City Regional Center, LLC, under the regulations at 8 CFR §204.6, for Petitioner **John Doe**. Materials specific to the I-526 petitioner's investment and source of funds are organized under separate cover.

The Offering Package provided to investors included all of the offering and organizational documents, project business plan, economic analysis, and voluminous supporting documents necessary for the investors' I-526 petitions. The Offering Package contains a detailed Table of Contents for all of those documents and divides offering materials into 17 numbered sections. Exhibits 1 through 5 consist of documents relating to the Regional Center, New Commercial Enterprise and placement of capital "at risk". Exhibit 6 comprises the economic report, while

exhibits 7 through 16 encompass supporting documents relating to the *Matter of Ho* Roadmap, beginning with the comprehensive Business Plan. For ease of reference, a detailed exhibit list is attached. This is the only valid version of the offering documents, and no other version should be submitted by any investor.

(b)(4)

In summary, each investor in the Project seeks classification as an alien entrepreneur based on his or her $500,000 capital investment in the *Holiday Inn Express & Suites Project.* The Project will spend a maximum [redacted] contributed from EB-5 funds to finance the construction, development and operations of a hotel, located at 64-06 Queens Blvd, Woodside, NY 11377. The hotel will feature 135 rooms, including a breakfast room, a fitness room, business center, market pantry, outdoor lounge, and vending areas. The project is estimated to break ground no later than October 2015, and will open around mid-2018.

In accordance with 8 C.F.R. § 204.6(m)(7), this petition is accompanied by supporting evidence establishing the investor's qualifying investment into a new commercial enterprise within an approved regional center and that such investment will create jobs directly and indirectly through this enterprise. Evidence that the investor's funds for capital investment are derived from a lawful source as required by 8 C.F.R. § 204.6(j)(3) are provided separately from the project materials.

I. NEW COMMERCIAL ENTERPRISE AND CREDIBLE PROJECT

Holiday Inn Express & Suites Project

(b)(4)

The investor has made an at-risk capital investment of [redacted] in cash into the QB Ventures EB-5 Capital, LLC (the "NCE"). $500,000 will be used for the investment, and [redacted] is the Administrative Fee. Century New York City Regional Center, LLC ("CNYRC") is the regional center. Please see documents relevant to the regional center at **Exhibit 1.** (b)(4)

The Manager of QB Ventures EB-5 Capital, LLC is Century New York City Regional Center, LLC. The New Commercial Enterprise, QB Ventures EB-5 Capital, LLC, is a newly formed entity for the purpose of raising investment capital for the development of the Project. As it is a for-profit limited partnership that was established after November 29, 1990, QB Ventures EB-5 Capital, LLC is classified as a "new" commercial enterprise as defined in 8 C.F.R. § 204.6(e).

Queens Blvd Ventures, LLC is the job creating entity ("JCE"). The NCE, QB Ventures EB-5 Capital, LLC, will make a loan to the JCE to provide EB-5 investment capital for the development of the Project and for the job creation. The Project will be developed by a real estate development company, Midtown Properties Group, which is an affiliate company of the JCE.

There are a maximum of 16 Limited Member Units, one of which has been purchased by the investor. Please refer to a copy of the Subscription and Operating Agreements at **Exhibit 5** for additional details. A copy of the Private Placement Memorandum and Escrow Agreement are also included at **Exhibit 5**.

As described in the comprehensive business plan at **Exhibit 8**, the total project cost is estimated to be [redacted] For the capital stack, the EB-5 funds will be [redacted] the bank loan will be [redacted] and the developer's equity contribution will be [redacted] The hotel will feature 135 rooms, including a breakfast room, a fitness room, business center, market pantry, outdoor lounge, and vending areas. (b)(4)

The construction of the Project will take approximately 27 months to complete, and will break ground no later than October 2015. Please refer to the submitted construction timeline at **Exhibit 10**. The construction budget was estimated by Century Construction Group, a qualified, unaffiliated, third-party general contractor, which offers the experience of having constructed similar projects in size, nature and scope. The construction budget was based on their previous experience of projects similar in size and nature and scope for the Project. The construction timeline was derived from figures and statistics; the detailed plans and specifications drawn up by the architect; spot checks on the numbers developed, and the comparable analysis method of similar hotel projects in a similar location.

The project has made great efforts to commence the Project. The Developer has entered into formal contract with General Contractor Century Construction Group, Architect and Engineer Raymond Chan Architect. Please refer to **Exhibit 10**, **Exhibit 11**. It has purchased the land upon which it will construct the hotel. Please see the deed for the land at **Exhibit 13**. It has researched and explored the necessary permits, zoning and environmental regulations, licensing requirements, and other restrictions concerning the Project. Please refer to the permits at **Exhibit 15**. It has entered into the franchise agreement with Holiday Hospitality Franchising, LLC. Please see the executed franchise agreement at **Exhibit 7**.

(b)(4)

The NCE will make the Loan to the Borrower at a fixed rate of [redacted] per annum. The EB-5 funds will fund the construction cost of the Project. EB-5 Investors, as Members, will be entitled to a return of up to [redacted] per annum if the NCE generates sufficient revenues. There is no guarantee that the EB-5 Investors will receive a return on their investment or that their principal will be repaid. Copies of the loan agreement and promissory note are included at **Exhibit 3**.

***Matter of Ho* Roadmap- All contained in at EXHIBITS 8 THROUGH 16**

- The Comprehensive Business Plan – with the description of the business, its products and/or services, and its objectives (**Exhibit 8**)
- Appraisal Report prepared by HVS, dated August 17, 2015. This document lays out the market analysis, the names of competing businesses, their relative strengths and weaknesses, a comparison of the competition's products and pricing structures, and a description of the target market/prospective customers of the new commercial enterprise along the reasonable analysis method used to derive the development cost estimates as well as to show the prospective market value of the project (**Exhibit 9**)
- Documents relating to construction documents, including the construction timeline, fully executed AIA document with general contractor, certificate of liability insurance and evidence of commercial property insurance (**Exhibit 10**)
- Documents relating to architectural documents, including fully executed document with architect, approved building plans, architecture renderings, and architecture and site plans (**Exhibit 11**)
- Deed (**Exhibit 13**)
- Franchise Agreement between Holiday Hospitality Franchising, LLC. and Queens Blvd Ventures, LLC (**Exhibit 7**)
- Independent Third Party Analysis (**Exhibit 14**)
- Permits obtained by the project (**Exhibit 15**)
- Project Financials (**Exhibit 16**)

II. CREATION OF DIRECT AND INDIRECT EMPLOYMENT POSITIONS

(b)(4)

The new commercial enterprise is affiliated with an approved regional center in this project.

Based on the EB-5 Economic Impact Report by Evans, Carroll & Associates, Inc., Holiday Inn Express & Suites Project will create [redacted] permanent new jobs, including [redacted] jobs from construction activity and [redacted] jobs from the hotel operation.

Table A. Summary of Employment and Revenue Estimates

Activity	Exp/Rev mil cur $	Exp/Rev mil 2010 $	RIMS II Mult	Total Jobs	Direct Jobs
Hard construction costs	[redacted]	[redacted]	13.2149	[redacted]	[redacted]
Architect & Engineering Svcs			11.9014		
Purchase of FF&E *			5.6974		
Hotel Operations			15.0799		
Total					

All figures based on unrounded numbers

* Indirect and induced jobs only

The [redacted] jobs will support a maximum EB-5 capital raise of [redacted] The project intends to raise [redacted] from [redacted] EB-5 investors. The full Economic and Job Creation Impacts Report is included at **Exhibit 6**.

Jobs will be allocated to each investor in the order in which the investment funds were received into the project.

(b)(4)

III. MANAGEMENT OF THE NEW COMMERCIAL ENTERPRISE

Each investor is a limited member in QB Ventures EB-5 Capital, LLC, a New York Limited Liability Company. Pursuant to 8 C.F.R. § 204.6(j)(5), a limited member is considered sufficiently engaged in the management of the new commercial enterprise through policy formulation.

Investors in this project are sufficiently engaged in the management of the new commercial enterprise through policy formulation. Please see the ***Management and Voting Rights Section*** of Private Placement Memorandum and other Offering Documents at **Exhibit 5**. Therefore, the investors satisfy immigrant investor requirements.

IV. CAPITAL INVESTMENT

The Property is located at 64-06 Queens Blvd., Woodside, NY. The project is located at Census tract 245 in Queens County and qualifies as a "targeted employment area". Attached at **Exhibit 4** is the most updated TEA confirmation letter dated August 20, 2015, issued by New York State Department of Economic Development. The location of the Project therefore falls squarely within the definition of "TEA" provided in 8 C.F.R. §204.6(e).

The investor made an at-risk capital investment of $500,000 into QB Ventures EB-5 Capital, LLC. Evidence that the funds were deposited into specific escrow account designated for QB Ventures EB-5 Capital, LLC's bank account is provided under separate cover with the investor-specific source of funds exhibits.

In compliance with the regulations and governing precedent decisions, the full amount of the capital contribution has been invested solely in QB Ventures EB-5 Capital, LLC. $500,000 of the funds will be released for purposes of financing the construction, development and operation of the property as described in the comprehensive business plan at **Exhibit 8**. No portion of an investor's contribution has been or will be applied towards legal service fees or administrative fee, marketing costs or interest payment of QB Ventures EB-5 Capital, LLC or Century New York City Regional Center, LLC, which are paid from the separate (b)(4) administrative fee. In addition, legal fees for pursuit of immigration benefits are paid by each investor outside of the $500,000 investment.

The investor's investment is placed in an active commercial enterprise in the form of cash. There are no loans, promissory notes, mortgage agreements or other forms of borrowing relating to any of his or her capital contribution. The investor is thus subject to the inherent risks associated with operating a new commercial enterprise. Should the business not perform well, the investor risks losing part or all of the petitioner's investment.

V. CONCLUSION

For these reasons and based on the supporting documentation, the investor meets all the requirements to qualify as an EB-5 alien entrepreneur under the Immigrant Investor Pilot Program, pursuant to INA § 203(b)(5) and 8 C.F.R. §204.6. Furthermore, this investment in the United States will result in job creation that will benefit the regional and/or national economies.

We respectfully request your prompt approval of the enclosed I-526 Petition.

Sincerely,
Mona Shah & Associates

Mona Shah, Esq.
New York, NY

Submitted by:
Mona Shah & Associates
Attorneys for the Petitioner,
Century New York City Regional Center, LLC
299 Broadway, Suite 1005
New York, NY 10007
Tel: (212)233-7473

September 18, 2015

UNITED STATES DEPARTMENT OF STATE
US CITIZENSHIP AND IMMIGRATION SERVICE

In the Matter of:

	}
I-924 EXEMPLAR FILING	}
Pursuant to 8 CFR ss.204.6	}
Petitioner: Century New York City Regional Center	}
Project: QB Ventures EB5 Capital, LLC	}

REQUEST FOR AN AMENDMENT TO AN APPROVED REGIONAL CENTER APPLICATION, FORM I-924, EXEMPLAR FILING FOR A NEW PROJECT (QB Ventures EB5 Capital, LLC) AND FORM I-526 PETITION

ATTORNEY MEMORANDUM

This Instant Request for an Amendment is filed to seek:

(1) A preliminary determination of an exemplar Form I-526 – *QB Ventures EB5 Capital, LLC*

This letter and the annexed supporting documentation constitute a request for the approval of an exemplar Form I-526, filed in accordance with 8 CFR 204.6., in order for

USCIS to determine if the documentation is EB-5 compliant and thus facilitate adjudication of an actual but identical Form I-526 petition, if the evidence of record otherwise establishes EB-5 eligibility.

Attached is a detailed exhibit list covering all the supporting documents; the exhibits have been tabbed for your reference.

I. Preliminary:

The petitioning regional center is named *Century New York City Regional Center*. The company was incorporated on March 25, 2014. Please see company formation documents, exhibited at **Exhibit 2.**

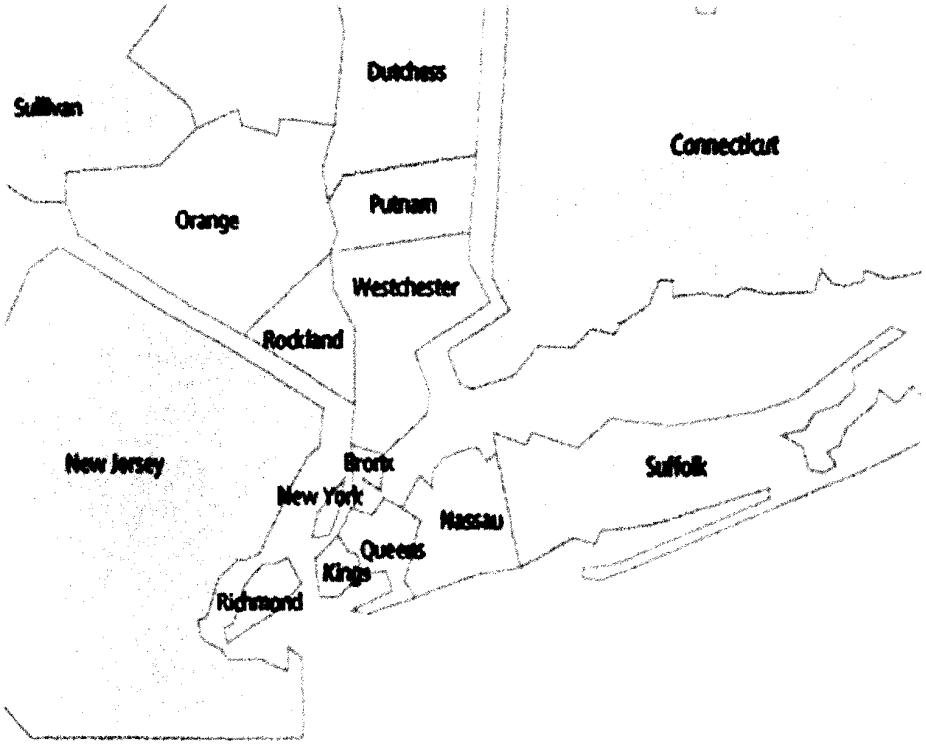
The Century New York City Regional Center, LLC (hereafter "CNYC") seeks approval of an exemplar Form I-526, filed in accordance with 8 CFR 204.6., in order for USCIS to determine if the documentation is EB-5 compliant and thus facilitate adjudication of an actual but identical Form I-526 petition, if the evidence of record otherwise establishes EB-5 eligibility.

II. Prior Approval

CNYC was approved on March 14, 2015. Please see approval letter **at Exhibit 1.**

III. Regional Center Geographical Region and TEA Designation

The geographical area for CNYC has not changed. It continues to comprise the New York counties of Queens County, New York County, Bronx County, Richmond County, Westchester County and Nassau County. Below is a map of the geographical area.



The Project is located at 64-06 Queens Blvd, Woodside, New York 11377. This is a designated targeted employment area (TEA), as per 8CFR 204.6 and thus qualified to accept an investment of $500,000.00. Please see attached **Exhibit 4**, TEA confirmation letter issued by the Empire State Development.

III. Industry Sectors Requested

The industry sectors have not changed. Please see the North American Industry Classification System (NAICS) code listed below:

Queens Blvd Ventures, LLC developments continue to encompass the following industries:

North American Industry Classification System (NAICS) codes are listed as follows:

Construction Hard Costs

- Construction (Building & Site) – 2362/23622
- Wholesale Trade (FF&E) – 42/4232

- Real Estate – 53112/5313

Financing & Soft Costs

- Other government enterprises – 921
- Architectural, engineering and related services – 5413
- Insurance - 5241
- Accounting tax preparation, bookkeeping services – 5412
- Legal Services – 5411
- Monetary authorities and depository credit intermediation – 5222
- Other miscellaneous professional and technical services – 5419

IV. Brief Project Description (b)(4)

The Project will provide funding to construct and operate a mix-use building which consists of a 135-room and suites hotel, including a breakfast room, a fitness room, business center, market pantry, outdoor lounge, and vending areas. The Project is looking to raise US[ ] from[ ] investors through EB5 investment.

Attached at **Exhibit 8** is a comprehensive business plan, compliant with *Matter of Ho*. CNYC is seeking approval of an exemplar Form I-526, filed in accordance with 8 CFR 204.6., in order for USCIS to determine if the documentation is EB-5 compliant and thus facilitate adjudication of an actual but identical Form I-526 petition, if the evidence of record otherwise establishes EB-5 eligibility. The business plan clearly describes how the project will promote economic growth through improved regional productivity, job creation, and increased domestic capital investment.

V. Promotion of Economic Growth

The New Commercial Enterprise (NCE) QB Ventures EB5 Capital, LLC is seeking to raise US$[ ] in investors' capital from [ ] investors through the EB-5 Immigrant Investor Program for the expansion plan into the seven counties in the state of New York.

Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment is not required if investment opportunities arise outside the geographic area referenced. (b)(4)

Under 8 CFR 204.6(g), the establishment of a new commercial enterprise may be used as the basis of a petition for classification as an alien entrepreneur by more than one investor, provided each petitioning investor has invested or is actively in the process of investing the required amount for the area in which the new commercial enterprise is principally doing business, and provided each individual investment results in the creation of at least ten (10) full-time positions for qualifying employees. The establishment of a new commercial enterprise may be used as the basis of a petition for classification as an alien entrepreneur even though there are several owners of the enterprise, including persons who are not seeking classification under Section 203(b)(5) of the Act and non-natural persons, both foreign and domestic, provided that the source(s) of all capital invested is identified and all invested capital has been derived by lawful means.

VI. Job Creation (b)(4)

Exhibited hereto at **Exhibit 6** is a *full* economic analysis by Dr. Michael K. Evans of Evans, Carroll & Associates, Inc, dated July 24, 2015. According to the Economic Impact Report, the Flushing Hotel will create [redacted] jobs, including [redacted] jobs from direct and indirect from construction, and [redacted] direct and indirect jobs from operation.

(b)(4)

Century New York City Regional Center take note of recent USCIS guidance which states: that the full-time employment requirement excludes jobs that are intermittent, temporary, seasonal or transient in nature [1] seen as intermittent, temporary, seasonal and transient rather than permanent.

The Project has developed a five year strategic business plan to increase sales and market share. The method of obtaining the funding would be through EB-5 program. The alternative financing plan is to obtain a bridge loan. The financial banking criteria and federally defined underwriting guidelines will be applied in determining the rate of the mortgage loan.

[1] Spencer Enterprises v. U.S., 229 F.Supp.2d 1025 (E.D. Cal. 2001)

The JCE will review each project under the RC that is seeking funding focusing on job creation, development potential, financial stability and exit plan. The Holiday Inn Express & Suites Project meets the JCE's assessment standards after conducting full due diligence studies.

VII. Investment Terms

Each EB-5 investor must execute the Private Placement Memorandum, the Operating Agreement, and the Subscription Agreement, all attached at **Exhibit 5.**

If the I-526 petition is denied or if the I-526 petition is approved but the EB-5 investor is denied at the consulate interview, Century New York City Regional Center will return the investor's capital contribution $500,000 and [redacted] administrative fee without interest. In addition, EB-5 Investors must pay an administrative fee of [redacted] which will be used to pay for a thorough review of the investor's personal questionnaire, background documents, commissions, finder's fees, to offset advertising costs and other administrative expenses. (b)(4)

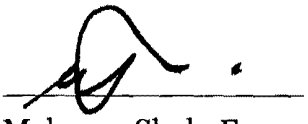
The Subscription Agreement requires the investor to affirm that he or she is an accredited investor pursuant to Rule 506 of Regulation D under the Securities Act of 1933. By signing the Subscription Agreement, the EB-5 investor agrees to become a member pursuant to the particular LLC Operating Agreement and Subscription Agreement **Exhibit 6.** Immigrant investors may not file their I-526 petition until their cash investments are fully invested in the particular project. The investor deposits his investment capital directly to the account of the Project managing the particular project. EB-5 regulations and USCIS rulings require that the investment be at risk for at least five (5) years. However, the Project may, at its sole discretion, make distributions of profits and income during this time period.

In Conclusion:

The documentary evidence submitted complies with the regulatory requirements for approval of an exemplar Form I-526. Thank you for your consideration in this matter.

Respectfully Submitted:

Dated: September 18, 2015
New York, NY

By: 

Mehreen Shah, Esq.
Mona Shah & Associates
Attorneys for *Century New York City Regional Center, LLC*

REGIONAL CENTER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: QB VENTURES EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

PROJECT'S SUPPORTING DOCUMENTS

Exhibit	Description

1. **Regional Center Documentation**
   - **Century New York City Regional Center, LLC ("CNYC")**: Designation letter dated March 14, 2015
   - **Executed Agreement** entered into September 15, 2015 among Century New York City Regional Center and QB Ventures EB-5 Capital, LLC, affiliating the NCE with the Regional Center

2. **Establishment of the New Commercial Enterprise (NCE)**
   - **Articles of Organization** of QB Ventures EB5 Capital, LLC, filed on August 7, 2015, issued by the State of New York
   - **EIN** for QB Ventures EB5 Capital, LLC, Dated August 10, 2015

   Job Creating Entity (JCE):
   - **Articles of Organization** of Queens Blvd Ventures, LLC, filed on March 7, 2014, issued by the State of New York
   - **EIN** of Queens Blvd Ventures, LLC, dated March 7, 2014

   Manager of NCE:
   - **Articles of Organization** of Century New York City Regional Center, LLC, filed on March 25, 2014, issued by the State of New York
   - **EIN** of Century New York City Regional Center, LLC, dated May 2, 2014

3. **Placement of Capital "at risk"**
   - **Loan / Promissory note between JCE and NCE**

4. **Documentation that Project is Located in Targeted Economic Area (TEA)**
   - **TEA Confirmation Letter** from the New York State Department of Economic Development, dated August 20, 2015

5. **Formal Business Arrangements Between the NCE and JCE**
   The purpose of these documents is to show that the required amount of capital is invested or actively in the process of being invested; further that the capital is at risk for the purpose of generating a return on the capital placed at risk.
   - **Offering Memorandum**
   - **Executed Operating Agreement**
   - **Executed Subscription Agreement**
   - **Executed Escrow Agreement**

6. **Economic Analysis Showing the Job Creation of the Project**
   - **The Economic Impact of Construction and Operation of a Hotel,** located in Woodside, Queens, NY, prepared by Michael K. Evans, dated August 25, 2015

7. **Hotel Management of the Project**
   - **Hotel Management Agreement,** between Holiday Hospitality Franchising, LLC and Queens Blvd Ventures, LLC, dated October 24, 2014

MATTER OF HO ROADMAP[1]

8. **Comprehensive I-526 Business Plan**
   - **Comprehensive I-526 Business Plan** in accordance with the Matter of Ho

9. **Feasibility Study**
   The purpose of these documents is to show the viability of the project.
   - **Appraisal Report** prepared by HVS, dated August 17, 2015

10. **Construction**
    - **Construction Timeline**, prepared by Century Construction Group
    - **Certificate of Liability Insurance**

[1] The purpose of these documents is to show that the project is credible and the information contained therein verifiable.

11. **Architectural Documents**

- **Fully Executed Agreement with Architect**– this document is the standard form of agreement between developer (George Xu) and architect (Raymond Chan Architect, PC)
- **Proposed Zoning Analysis**– this document shows the proposed floor plan of the mixed used building

12. **Engineering and Interior Design Documents**

- **Fully Executed Engineering Contract** between Owner (Century Construction Group Corp.) and Engineer (Times Building Engineering Services PC) dated March 4, 2015 where Times Building Engineering Services PC to provide professional engineering, surveying, planning and environmental services for the project
- **Fully Executed Agreement for Interior Design Services** between Owner (Queens Blvd. Ventures) and Engineer (EJC Engineering, PLLC) dated February 12, 2015
- **Approved Proposal for Field Exploration, Special Inspections, and Geotechnical Report,** from Geotechnical Investigation Proposal on March 18, 2015

13. **Real Estate Purchase Agreements**

The purpose of these documents is to show that the business is credible – executed purchase agreements and deed for the land to construct the hotel and condominium evidencing commitment to the project. (b)(4)

- **Executed Purchase Agreement** – purchase price for [redacted] from Rafi Haghani from Stonehill Management LLC. This agreement is executed by Rafi Haghani and by George Xu of QB Ventures EB-5 Capital, LLC on March 4, 2014
- **Compliance and Tax Preparation Agreement** dated August 14, 2015
- **Special Warranty Deed** dated March 19, 2015
- **Owner's Policy of Title Insurance** dated Feb 26, 2015

14. Independent Third Party Analysis

The purpose of these documents is to show the viability of the project.

- **Phase I Environmental Site Assessment** for Queens Blvd Venture, LLC, which asses a property of the nature, history, and setting of the subject property. Prepared by FPM Group, dated April of 2015.
- **Phase II Environmental Subsurface Investigation** for Queens Blvd Venture, LLC, which addresses issues presented in a Phase I Environmental Site Assessment. Prepared by EEA Inc., dated May 28, 2004.
- **Phase II Work Plan** for Queens Blvd Venture, LLC, which addresses the environmental concerns identified at the property. Prepared by FPM Group, dated June of 2015.
- **Phase II Subsurface Investigation** for Queens Blvd Venture, LLC, which addresses the environmental concerns identified at the property. Prepared by Advanced Cleanup Technologies, Inc., dated September 3rd, 2014.
- **Health and Safety Plan** for Queens Blvd Venture, LLC, which has the sampling of groundwater, soil, and soil vapor performed at or in proximity to the subject property. Prepared by FPM Group.
- **Figures** for Queens Blvd Venture, LLC. Prepared by FPM Group.

15. Permits

Please see a full discussion of the permits of the project in the attached Comprehensive Business Plan (**Exhibit 8**).

- **Work Permit Schedule**
- **Work Permit for Demolition**, from New York City Department of Buildings on July 21, 2015
- **Work Permit for Fence**, from New York City Department of Buildings on July 21, 2015
- **Work Permit for Other Mechanical Means**, from New York City Department of Buildings on July 21, 2015

16. Financials

Please see a full discussion of the financial viability of the project in the attached Comprehensive Business Plan (**Exhibit 8**).

- **Sources and Uses** - budget of construction
- **Ten Year Projections**
- **Verification Letter** from Century Construction Group, LLC verifying their experience in the field and project development costs dated September 15, 2015.

REGIONAL CENTER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: QB VENTURES EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 1:

Regional Center Documentation

- **Century New York City Regional Center, LLC ("CNYC"):** Designation letter dated March 14, 2015
- **Executed Agreement** entered into September 15, 2015 among Century New York City Regional Center and QB Ventures EB-5 Capital, LLC, affiliating the NCE with the Regional Center

U.S. Department of Homeland Security
U.S. Citizenship and Immigration Services
Immigrant Investor Program
Washington, DC 20529

U.S. Citizenship and Immigration Services

May 14, 2015
George Xu
Century New York City Regional Center
35-06 Leavitt Street, Unit CFA
Flushing, New York 11354

Application:	Form I-924, Application for Regional Center under the Immigrant Investor Pilot Program
Applicant(s):	Century New York City Regional Center
Re:	Initial Regional Center Designation Century New York City Regional Center RCW1420251818/ID1420251818

This notice is in reference to the Form I-924, Application for Regional Center Under the Immigrant Investor Pilot Program that was filed by the applicant with the U.S. Citizenship and Immigration Services ("USCIS") on July 21, 2014. The Form I-924 application was filed to request approval of initial regional center designation under the Immigrant Investor Program. The Immigrant Investor Program was established under § 610 of the Department of Commerce, Justice and State, the Judiciary, and Related Agencies Appropriations Act of 1993 (Pub. L. 102-395, Oct. 6, 1992, 106 Stat. 1874).

I. Executive Summary of Adjudication

Effective the date of this notice, USCIS approves the Form I-924 request to designate Century New York City Regional Center as a qualifying participant in the Immigrant Investor Program.

II. Regional Center Designation

USCIS approves the applicant's request to focus, promote economic growth, and offer capital investment opportunities in the following geographic area and industry categories:

A. Geographic Area

State	Counties/Cities
New York	Queens, New York, Bronx County, Richmond County, Westchester County, and Nassau County

Note: Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment request is not required if investment opportunities arise outside the geographic area referenced above. USCIS will evaluate eligibility upon the filing of an initial Form I-526 related to that new investment opportunity.

B. Industry Categories

Industry Category	NAICS code
Nonresidential Building Construction	2362
Furniture and Home Furnishing Merchant Wholesalers	4232
Hotel and Motel (including Casino)	72251
Restaurants and Other Eating Places	72251
Lessors of Nonresidential Buildings (Except Miniwarehouses)	53112
Architectural, Engineering and Related Services	5413
Insurance Carriers	5241
Accounting Tax Preparation, Bookkeeping Services	5412
Legal Services	5411
Monetary Authorities and Depository Credit Intermediation	5222
Other miscellaneous professional and technical services	5419

Note: Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment request is not required if investment opportunities arise outside the industry categories referenced above. USCIS will evaluate eligibility upon the filing of an initial Form I-526 related to that new investment opportunity.

III. Job Creation

USCIS approves the geographic area and industry categories noted above based on the economic impact analysis presented and reviewed in conjunction with the adjudication of this regional center proposal.

This hypothetical project does not have the factual details necessary to be in compliance with the requirements described in Matter of Ho, 22 I&N Dec. 206 (Assoc. Comm'r 1998), and therefore, USCIS's approval of the hypothetical job creation estimates presented in the Form I-924 will not be accorded deference and may not be relied upon by an individual investor when filing the Form I-526. The business plan and job creation estimates will receive a de novo review by USCIS when an individual investor files Form I-526. Once an actual project is adjudicated upon the filing of the initial Form I-526, USCIS will give deference to subsequent Forms I-526 when the critical assumptions remain materially unchanged from the initially-approved Form I-526.

When filing Form I-526, it will be the responsibility of the individual investor to submit a comprehensive, detailed and credible business plan, showing by a preponderance of the evidence that his or her investment in the new commercial enterprise will create not fewer than 10 full-time positions. If prior to filing a form I-829, the job creation estimated in the business plan submitted by the individual investor materially changes or will not be realized, then it will be the responsibility of the EB-5 investor to notify USCIS of an agreed upon methodology to allocate job creation among eligible investors.

IV. Guidelines for Filing Form I-526 Petitions

Each individual petition, in order to demonstrate that it is affiliated with the Century New York City Regional Center in conjunction with addressing all the requirements for an individual immigrant investor petition, shall also contain the following:

1. A copy of this regional center approval notice and designation letter including all subsequent amendment approval letters (if applicable).

2. An economic impact analysis which reflects a job creation methodology required at 8 CFR § 204.6 (j)(4)(iii) and shows how the capital investment by an individual immigrant investor will create not fewer than ten (10) indirect jobs for each immigrant investor.

3. A comprehensive, detailed and credible business plan for an actual project that contains the factual details necessary to be in compliance with the requirements described in Matter of Ho, 22 I&N Dec. 206 (Assoc. Comm'r 1998).

4. Legally executed organizational documents of the commercial enterprise.

Note: The project reviewed with this Form I-924 application is a hypothetical project. Organizational and transactional documents associated with the new commercial enterprise (NCE) submitted with this Form I-924 have not been reviewed to determine compliance with program requirements since these documents will receive de novo review in subsequent filings (e.g., an amended Form I-924 application with a Form I-526 exemplar or the first Form I-526 petition filed by an investor under the regional center project).

V. Designee's Responsibilities in the Operations of the Regional Center

As provided in 8 CFR § 204.6 (m)(6), to ensure that the regional center continues to meet the requirements of section 610(a) of the Appropriations Act, a regional center must provide USCIS with updated information to demonstrate the regional center is continuing to promote economic growth, improved regional productivity, job creation, and increased domestic capital investment in the approved geographic area. Such information must be submitted to USCIS on an annual basis or as otherwise requested by USCIS. The applicant must monitor all investment activities under the sponsorship of the regional center and to maintain records in order to provide the information required on the Form I-924A Supplement to Form I-924. Form I-924A, Supplement to Form I-924 Application is available in the "Forms" section on the USCIS website at www.uscis.gov.

Regional centers that remain designated for participation in the Immigrant Investor Program as of September 30th of a calendar year are required to file Form I-924A Supplement in that year. The Form I-924A Supplement with the required supporting documentation must be filed on or before December 29th of the same calendar year.

The failure to timely file a Form I-924A Supplement for each fiscal year in which the regional center has been designated for participation in the Immigrant Investor Program will result in the issuance of an intent to terminate the participation of the regional center in the Immigrant Investor Program, which may ultimately result in the termination of the designation of the regional center.

The regional center designation is non-transferable.

VI. Legal Notice

This approval and designation of a Regional Center under the Immigrant Investor Program does not constitute or imply an endorsement or recommendation by USCIS, the United States Government or any instrumentality thereof, of the investment opportunities, projects or other business activities related to or undertaken by such Regional Center. Except as expressly set forth in this approval and designation, USCIS has not reviewed any information provided in connection with or otherwise related to the Regional Center for compliance with relevant securities laws or any other laws unrelated to eligibility for designation as a Regional Center. Accordingly USCIS makes no determination or representation whatsoever regarding the compliance of either the Regional Center or associated New Commercial Enterprises with such laws.

Each Regional Center designated by USCIS must monitor and oversee all investment offerings and activities associated with, through or under the sponsorship of the Regional Center. The failure of an associated New Commercial Enterprise to comply with all laws and regulations related to such investment offerings and activities may result in the issuance by USCIS of a notice of intent to terminate the Regional Center designation.

If the applicant has any questions concerning the regional center designation under the Immigrant Investor Program, please contact the USCIS by email at USCIS.ImmigrantInvestorProgram@uscis.dhs.gov.

Sincerely,

Nicholas Colucci
Chief, Immigrant Investor Program

cc: Mehreen Shah, Esq.
299 Broadway, Suite 1005
New York, NY 10007

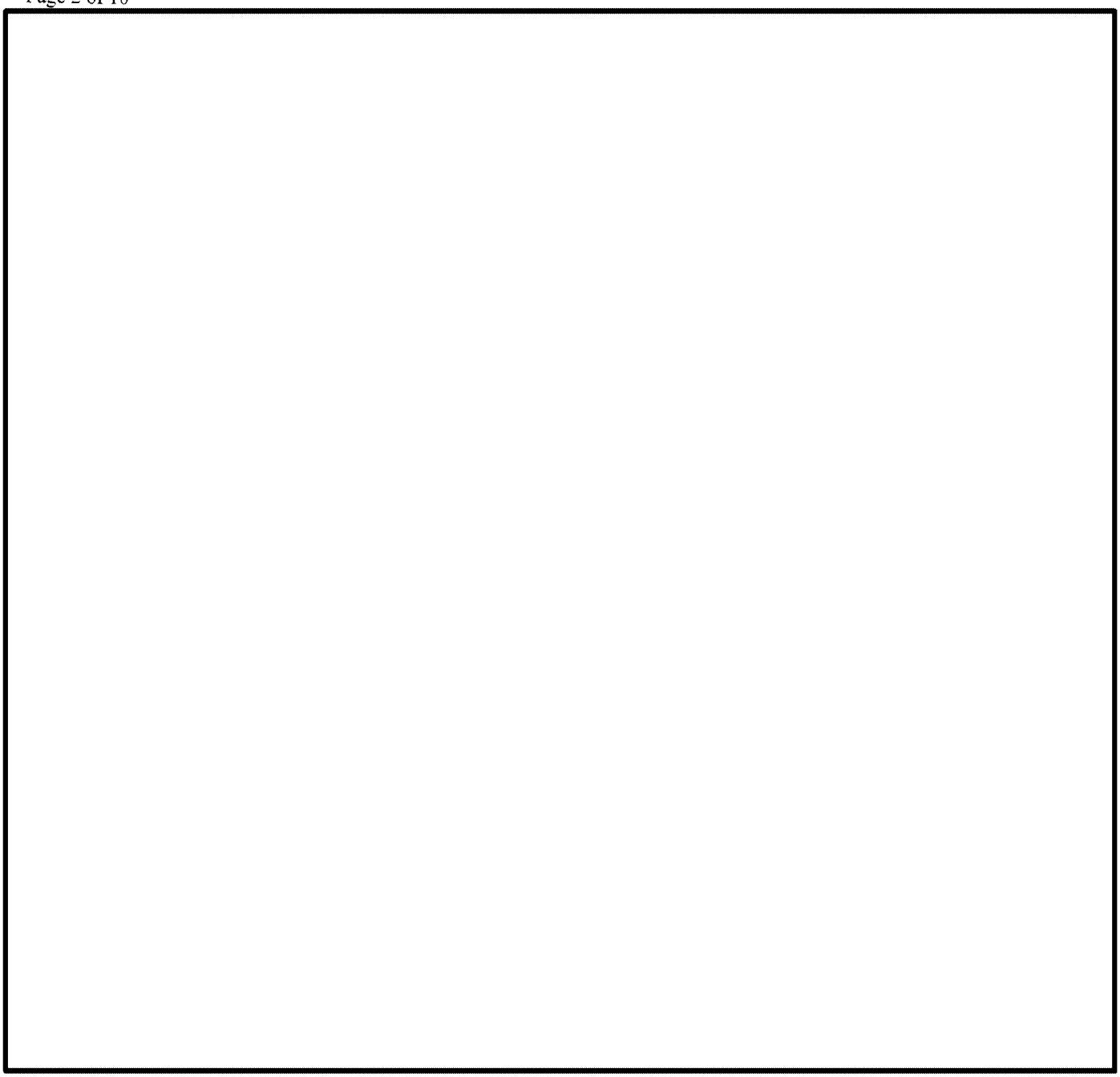
REGIONAL CENTER SPONSORSHIP AGREEMENT

among

(b)(4) Century New York City Regional Center LLC and QB Ventures EB5 Capital, LLC

September 15, 2015

(b)(4)



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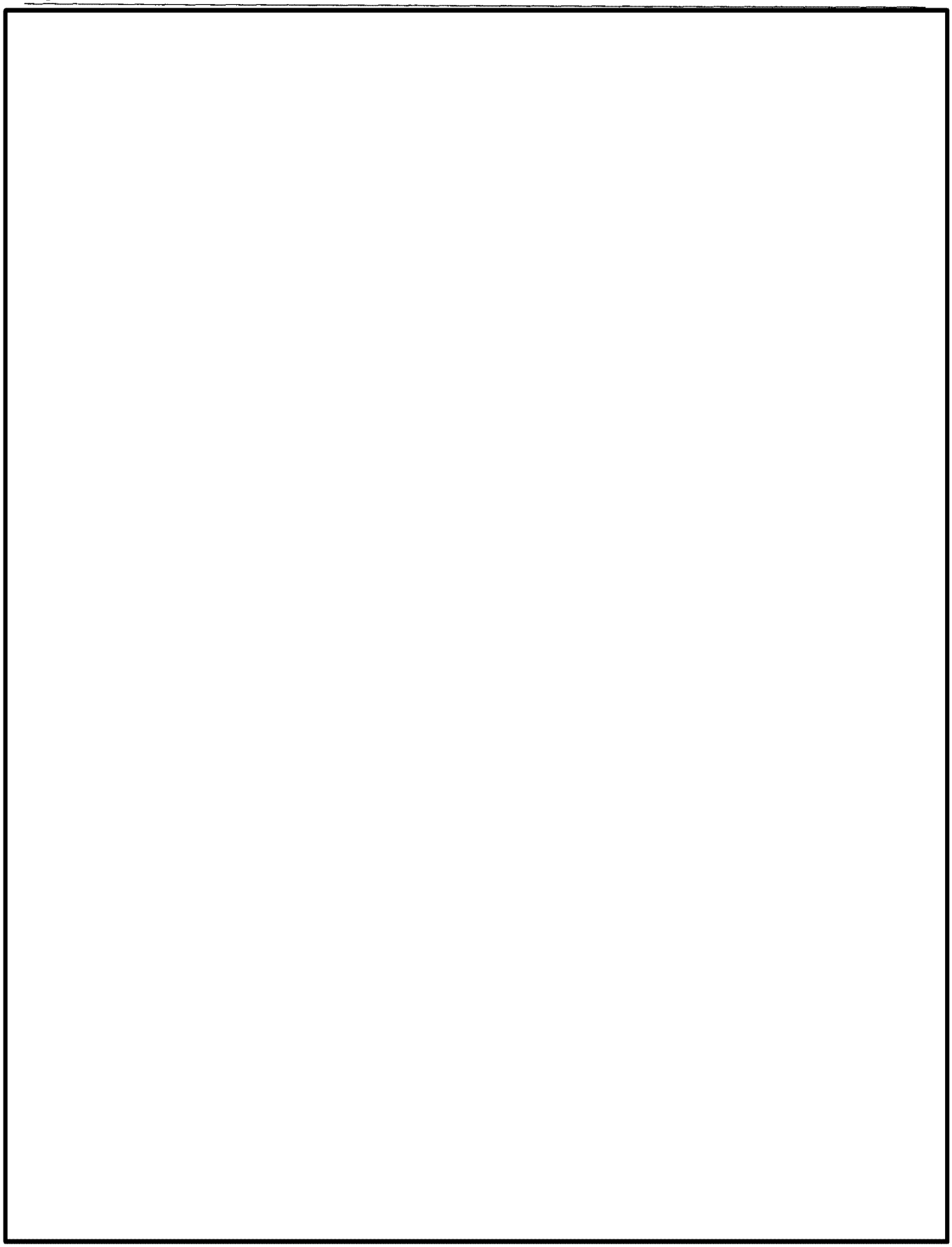

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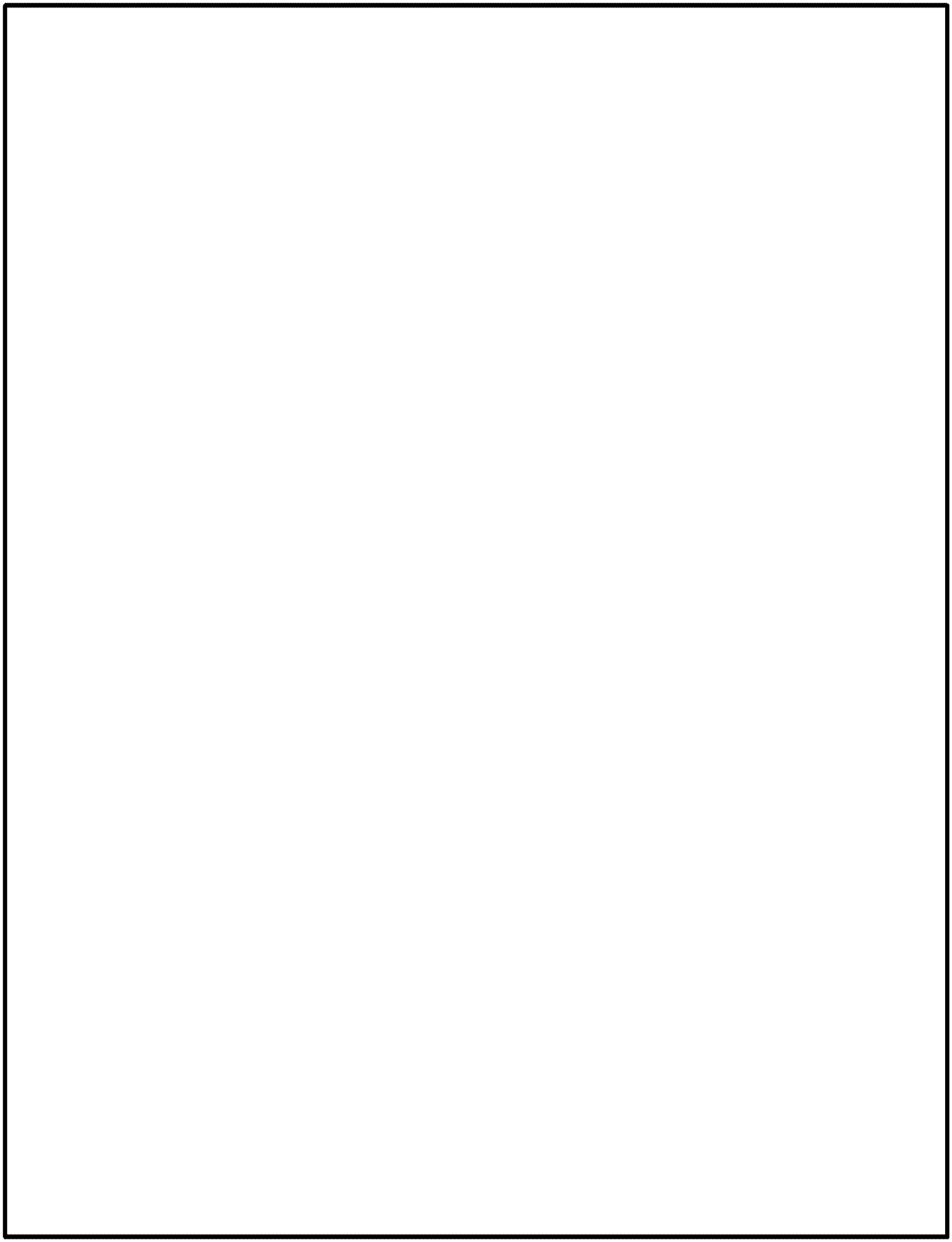

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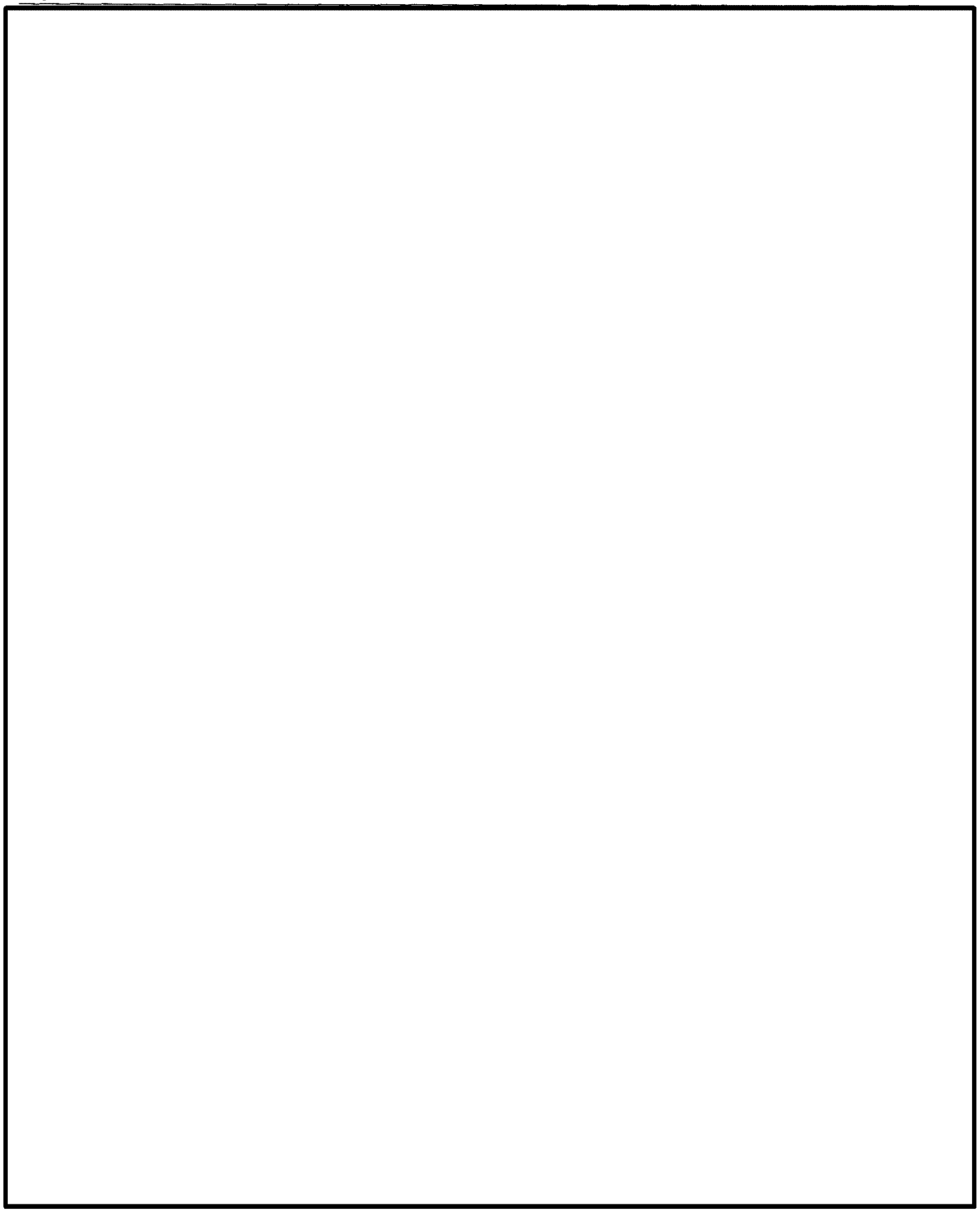

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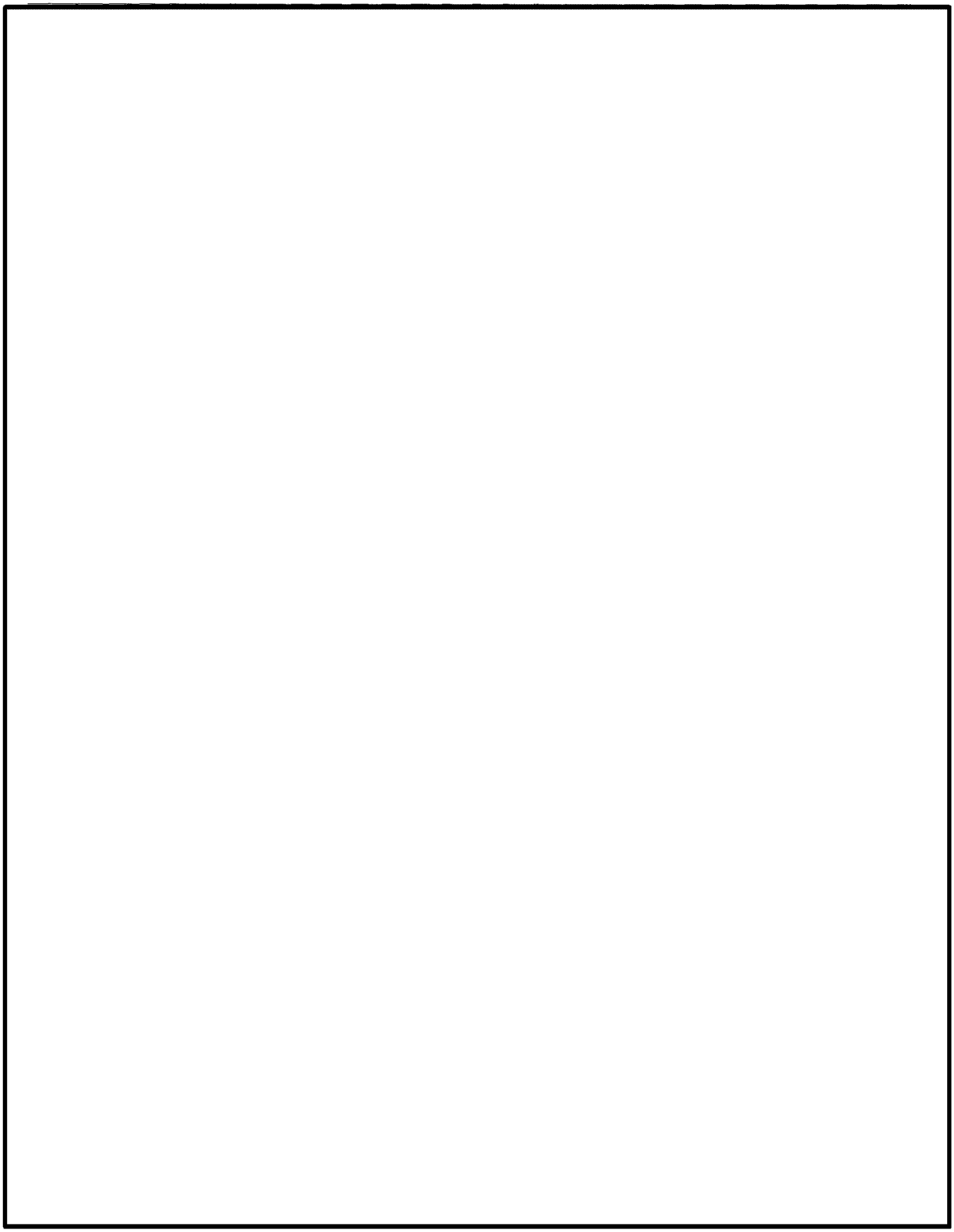

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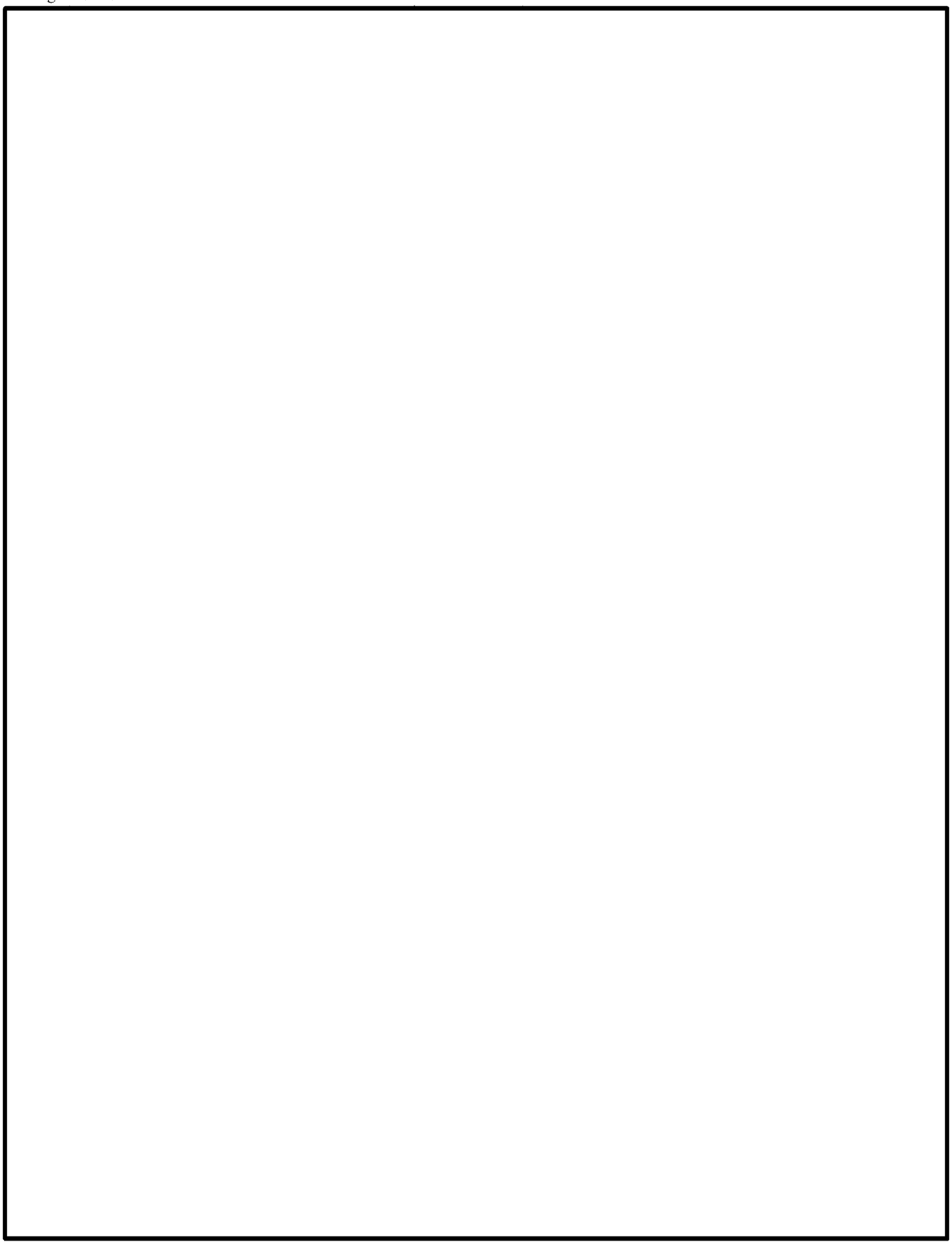

(b)(4)

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IN WITNESS WHEREOF, the Parties have caused this Regional Center Sponsorship Agreement to be executed by their duly authorized representatives as of the signature dates set forth below.

"Company"
Century New York City Regional Center, LLC

By:_____
George Xu, Principal

"QB Ventures"
QB Ventures EB5 Capital, LLC

By:_____
George Xu, Principal

[redacted] CITY REGIONAL CENTER, LLC
[redacted]20251818
[redacted]5 CAPITAL, LLC

[redacted]N DOE

[redacted]it 2:

[redacted]rcial Enterprise (NCE):
[redacted]ventures EB5 Capital, LLC, filed
[redacted]tate of New York
[redacted]LC, Dated August 10, 2015

[redacted]ens Blvd Ventures, LLC, filed on
[redacted]e of New York
[redacted], dated March 7, 2014

[redacted]ntury New York City Regional
[redacted]014, issued by the State of New

[redacted]gional Center, LLC, dated May 2,

N.Y.S. DEPARTMENT OF STATE
DIVISION OF CORPORATIONS AND STATE RECORDS ALBANY, NY 12231-0001

ONLINE FILING RECEIPT

ENTITY NAME: QB VENTURES EB5 CAPITAL, LLC

DOCUMENT TYPE: ARTICLES OF ORGANIZATION (DOM. LLC) COUNTY: QUEE

FILED:08/07/2015 DURATION:********** CASH#:150807010021 FILE#:150807010021
DOS ID:4801364

FILER:	EXIST DATE
SERVICO, INC. 283 WASHINGTON AVE. ALBANY, NY 12206	08/07/2015

ADDRESS FOR PROCESS:
THE LIMITED LIABILITY COMPANY
35-06 LEAVITT ST, SUITE CF-A
FLUSHING, NY 11354

REGISTERED AGENT:

The limited liability company is required to file a Biennial Statement with the Department of State every two years pursuant to Limited Liability Company Law Section 301. Notification that the Biennial Statement is due will only be made via email. Please go to www.email.ebiennial.dos.ny.gov to provide an email address to receive an email notification when the Biennial Statement is due.

SERVICE COMPANY: SERVICO, INC.-35
SERVICE CODE: 35

FEE:	200.00	PAYMENTS	200.00
FILING:	200.00	CHARGE	0.00
TAX:	0.00	DRAWDOWN	200.00
PLAIN COPY:	0.00		
CERT COPY:	0.00		
CERT OF EXIST:	0.00		

59232 DOS-1025 (04/2007)

Authentication Number: 1508070023 To verify the authenticity of this document you may access the Division of Corporation's Document Authentication Website at http://ecorp.dos.ny.gov

ACKNOWLEDGEMENT COPY

ARTICLES OF ORGANIZATION
OF
QB VENTURES EB5 CAPITAL, LLC

Under Section 203 of the Limited Liability Company Law

THE UNDERSIGNED, being a natural person of at least eighteen (18) years of age, and acting as the organizer of the limited liability company hereby being formed under Section 203 of the Limited Liability Company Law of the State of New York certifies that:

FIRST: The name of the limited liability company is:

QB VENTURES EB5 CAPITAL, LLC

SECOND: To engage in any lawful act or activity within the purposes for which limited liability companies may be organized pursuant to Limited Liability Company Law provided that the limited liability company is not formed to engage in any act or activity requiring the consent or approval of any state official, department, board, agency, or other body without such consent or approval first being obtained.

THIRD: The county, within this state, in which the office of the limited liability company is to be located is QUEENS.

FOURTH: The Secretary of State is designated as agent of the limited liability company upon whom process against it may be served. The address within or without this state to which the Secretary of State shall mail a copy of any process against the limited liability company served upon him or her is:

THE LIMITED LIABILITY COMPANY
35-06 LEAVITT ST, SUITE CF-A
FLUSHING, NY 11354

FIFTH: The limited liability company is to be managed by: ONE OR MORE MEMBERS.

SIXTH: The limited liability company shall have a perpetual existence.

SEVENTH: The limited liability company shall defend, indemnify and hold harmless all members, managers, and former members and managers of the limited liability company against expenses (including attorney's fees, judgments, fines, and amounts paid in settlement) incurred in connection with any claims, causes of action, demands, damages, liabilities of the limited liability company, and any pending or threatened action, suit, or proceeding. Such indemnification shall be made to the fullest extent permitted by the laws of the State of New York, provided that such acts or omissions which gives rise to the cause of action or proceedings occurred while the Member or Manager was in performance of his or her duties for the limited liability company and was not as a result of his or her fraud, gross negligence, willful misconduct or a wrongful taking. The indemnification provided herein shall inure to the benefit of successors, assigns, heirs, executors, and the administrators of any such person.

I certify that I have read the above statements, I am authorized to sign these Articles of Organization, that the above statements are true and correct to the best of my knowledge and belief and that my signature typed below constitutes my signature.

SCOTT J. SCHUSTER, ORGANIZER (signature)

SCOTT J. SCHUSTER , ORGANIZER
283 WASHINGTON AVE.
ALBANY, NY 12206

Filed by:
SERVICO, INC.
283 WASHINGTON AVE.
ALBANY, NY 12206

SERVICO, INC. (35)
DRAWDOWN
CUSTOMER REF# 59232

ACKNOWLEDGEMENT COPY

WAIVER OF NOTICE OF ORGANIZATION MEETING

OF

QB VENTURES EB5 CAPITAL, LLC

I, The undersigned, being the Sole Organizer named in the Articles of Organization of the above limited liability company hereby agree and consent that the organization meeting thereof be held on the date and at the time and place stated below and hereby waive all notice of such meeting and of any adjournment thereof.

Place of Meeting

Date of Meeting

Time of Meeting

Sole Organizer
Scott J. Schuster

Legal Documents

SERVICO®
SINCE 1924

PO Box 871
Albany, NY 12201
www.servico.com

IRS DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

Date of this notice: 08-10-2015

Employer Identification Number:
[redacted] (b)(3)
Form: SS-4

Number of this notice: CP 575 B

QB VENTURES EB5 CAPITAL LLC
GEORGE XU MBR
3506 LEAVITT ST STE CFA
FLUSHING, NY 11354

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB AT THE END OF THIS NOTICE.

WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

(b)(3) Thank you for applying for an Employer Identification Number (EIN). We assigned you EIN [redacted] This EIN will identify you, your business accounts, tax returns, and documents, even if you have no employees. Please keep this notice in your permanent records.

When filing tax documents, payments, and related correspondence, it is very important that you use your EIN and complete name and address exactly as shown above. Any variation may cause a delay in processing, result in incorrect information in your account, or even cause you to be assigned more than one EIN. If the information is not correct as shown above, please make the correction using the attached tear off stub and return it to us.

Based on the information received from you or your representative, you must file the following form(s) by the date(s) shown.

Form 1065 04/15/2016

If you have questions about the form(s) or the due date(s) shown, you can call us at the phone number or write to us at the address shown at the top of this notice. If you need help in determining your annual accounting period (tax year), see Publication 538, *Accounting Periods and Methods*.

We assigned you a tax classification based on information obtained from you or your representative. It is not a legal determination of your tax classification, and is not binding on the IRS. If you want a legal determination of your tax classification, you may request a private letter ruling from the IRS under the guidelines in Revenue Procedure 2004-1, 2004-1 I.R.B. 1 (or superseding Revenue Procedure for the year at issue). Note: Certain tax classification elections can be requested by filing Form 8832, *Entity Classification Election*. See Form 8832 and its instructions for additional information.

A limited liability company (LLC) may file Form 8832, *Entity Classification Election*, and elect to be classified as an association taxable as a corporation. If the LLC is eligible to be treated as a corporation that meets certain tests and it will be electing S corporation status, it must timely file Form 2553, *Election by a Small Business Corporation*. The LLC will be treated as a corporation as of the effective date of the S corporation election and does not need to file Form 8832.

To obtain tax forms and publications, including those referenced in this notice, visit our Web site at www.irs.gov. If you do not have access to the Internet, call 1-800-829-3676 (TTY/TDD 1-800-829-4059) or visit your local IRS office.

(IRS USE ONLY) 575B 08-10-2015 QBVE B 9999999999 SS-4

IMPORTANT REMINDERS:

* Keep a copy of this notice in your permanent records. **This notice is issued only one time and the IRS will not be able to generate a duplicate copy for you.** You may give a copy of this document to anyone asking for proof of your EIN.

* Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.

* Refer to this EIN on your tax-related correspondence and documents.

If you have questions about your EIN, you can call us at the phone number or write to us at the address shown at the top of this notice. If you write, please tear off the stub at the bottom of this notice and send it along with your letter. If you do not need to write us, do not complete and return the stub.

Your name control associated with this EIN is QBVE. You will need to provide this information, along with your EIN, if you file your returns electronically.

Thank you for your cooperation.

Keep this part for your records. CP 575 B (Rev. 7-2007)

Return this part with any correspondence so we may identify your account. Please correct any errors in your name or address.

CP 575 B

9999999999

(b)(3)

Your Telephone Number ( ) -

Best Time to Call

DATE OF THIS NOTICE: 08-10-2015
EMPLOYER IDENTIFICATION NUMBER: [redacted]
FORM: SS-4 NOBOD

INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

QB VENTURES EB5 CAPITAL LLC
GEORGE XU MBR
3506 LEAVITT ST STE CFA
FLUSHING, NY 11354

STATE OF NEW YORK

DEPARTMENT OF STATE

I hereby certify that the annexed copy has been compared with the original document in the custody of the Secretary of State and that the same is a true copy of said original.

WITNESS my hand and official seal of the Department of State, at the City of Albany, on March 10, 2014.

Anthony Giardina
Executive Deputy Secretary of State

Rev. 06/13

140307000007

New York State Department of State
Division of Corporations, State Records
and Uniform Commercial Code
One Commerce Plaza, 99 Washington Avenue
Albany, NY 12231
www.dos.ny.gov

(This form must be printed or typed in black ink)

ARTICLES OF ORGANIZATION OF

Queens Blvd Ventures, LLC

(Insert name of Limited Liability Company)

Under Section 203 of the Limited Liability Company Law

FIRST: The name of the limited liability company is: Queens Blvd Ventures, LLC

SECOND: The county within this state in which the office of the limited liability company is to be located is: Queens

THIRD: The Secretary of State is designated as agent of the limited liability company upon whom process against it may be served. The address within or without this state to which the Secretary of State shall mail a copy of any process against the limited liability company served upon him or her is:

George Xu

35-06 Leavitt Street, Suite CF-A

Flushing, NY 11354

(signature of organizer)

George Xu

(print or type name of organizer)

DOS-1336 (Rev. 2/12)

140307000007

007

ARTICLES OF ORGANIZATION
OF

Queens Blvd Ventures, LLC

(Insert name of Limited Liability Company)

Under Section 203 of the Limited Liability Company Law

LLC

STATE OF NEW YORK
DEPARTMENT OF STATE
FILED MAR 07 2014
TAX $
BY:

FILED
2014 MAR -7 AM 7:45

Filed by: George Xu
(Name)
35-06 Leavitt Street, Suite CF-A
(Mailing address)
Flushing, NY 11354
(City, State and ZIP code)

NOTE: This form was prepared by the New York State Department of State for filing articles of organization for a domestic limited liability company. It does not contain all optional provisions under the law. You are not required to use this form. You may draft your own form or use forms available at legal stationery stores. The Department of State recommends that legal documents be prepared under the guidance of an attorney. The certificate must be submitted with a $200 filing fee made payable to the Department of State.

RECEIVED
2014 MAR -6 PM 3:10

006

DOS-1336 (Rev. 2/12)

IRS DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

Date of this notice: 03-07-2014

Employer Identification Number:
[redacted]

Form: SS-4 (b)(3)

Number of this notice: CP 575 B

QUEENS BLVD VENTURES LLC
% GQ HOLDINGS LLC MBR
3506 LEAVITT ST STE CFA
FLUSHING, NY 11354

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB AT THE END OF THIS NOTICE.

(b)(3) WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

Thank you for applying for an Employer Identification Number (EIN). We assigned you EIN [redacted] This EIN will identify you, your business accounts, tax returns, and documents, even if you have no employees. Please keep this notice in your permanent records.

When filing tax documents, payments, and related correspondence, it is very important that you use your EIN and complete name and address exactly as shown above. Any variation may cause a delay in processing, result in incorrect information in your account, or even cause you to be assigned more than one EIN. If the information is not correct as shown above, please make the correction using the attached tear off stub and return it to us.

Based on the information received from you or your representative, you must file the following form(s) by the date(s) shown.

Form 1065 04/15/2015

If you have questions about the form(s) or the due date(s) shown, you can call us at the phone number or write to us at the address shown at the top of this notice. If you need help in determining your annual accounting period (tax year), see Publication 538, *Accounting Periods and Methods*.

We assigned you a tax classification based on information obtained from you or your representative. It is not a legal determination of your tax classification, and is not binding on the IRS. If you want a legal determination of your tax classification, you may request a private letter ruling from the IRS under the guidelines in Revenue Procedure 2004-1, 2004-1 I.R.B. 1 (or superseding Revenue Procedure for the year at issue). Note: Certain tax classification elections can be requested by filing Form 8832, *Entity Classification Election*. See Form 8832 and its instructions for additional information.

A limited liability company (LLC) may file Form 8832, *Entity Classification Election*, and elect to be classified as an association taxable as a corporation. If the LLC is eligible to be treated as a corporation that meets certain tests and it will be electing S corporation status, it must timely file Form 2553, *Election by a Small Business Corporation*. The LLC will be treated as a corporation as of the effective date of the S corporation election and does not need to file Form 8832.

To obtain tax forms and publications, including those referenced in this notice, visit our Web site at www.irs.gov. If you do not have access to the Internet, call 1-800-829-3676 (TTY/TDD 1-800-829-4059) or visit your local IRS office.

(IRS USE ONLY) 575B 03-07-2014 QUEE B 9999999999 SS-4

IMPORTANT REMINDERS:

* Keep a copy of this notice in your permanent records. **This notice is issued only one time and the IRS will not be able to generate a duplicate copy for you.** You may give a copy of this document to anyone asking for proof of your EIN.

* Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.

* Refer to this EIN on your tax-related correspondence and documents.

If you have questions about your EIN, you can call us at the phone number or write to us at the address shown at the top of this notice. If you write, please tear off the stub at the bottom of this notice and send it along with your letter. If you do not need to write us, do not complete and return the stub.

Your name control associated with this EIN is QUEE. You will need to provide this information, along with your EIN, if you file your returns electronically.

Thank you for your cooperation.

Keep this part for your records. CP 575 B (Rev. 7-2007)

Return this part with any correspondence so we may identify your account. Please correct any errors in your name or address.

CP 575 B

9999999999

(b)(3)

Your Telephone Number Best Time to Call
( ) -
_____ _____

DATE OF THIS NOTICE: 03-07-2014
EMPLOYER IDENTIFICATION NUMBER: [redacted]
FORM: SS-4 NOBOD

INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

QUEENS BLVD VENTURES LLC
% GQ HOLDINGS LLC MBR
3506 LEAVITT ST STE CFA
FLUSHING, NY 11354

N.Y.S. DEPARTMENT OF STATE
DIVISION OF CORPORATIONS AND STATE RECORDS **ALBANY, NY 12231-0001**

ONLINE FILING RECEIPT

ENTITY NAME: CENTURY NEW YORK CITY REGIONAL CENTER, LLC

DOCUMENT TYPE: ARTICLES OF ORGANIZATION (DOM. LLC) COUNTY: QUEE

FILED:03/25/2014 DURATION:********** CASH#:140325010322 FILE#:140325010322
DOS ID:4550615

FILER:
SERVICO INC.
283 WASHINGTON AVE.
ALBANY, NY 12206

EXIST DATE
03/25/2014

ADDRESS FOR PROCESS:
THE LIMITED LIABILITY COMPANY
35-06 LEAVITT STREET
SUITE CF-A
FLUSHING, NY 11354

REGISTERED AGENT:

The limited liability company is required to file a Biennial Statement with the Department of State every two years pursuant to Limited Liability Company Law Section 301. Notification that the Biennial Statement is due will only be made via email. Please go to www.email.ebiennial.dos.ny.gov to provide an email address to receive an email notification when the Biennial Statement is due.

SERVICE COMPANY: SERVICO, INC.-35
SERVICE CODE: 35

FEE:	200.00	PAYMENTS	200.00
FILING:	200.00	CHARGE	0.00
TAX:	0.00	DRAWDOWN	200.00
PLAIN COPY:	0.00		
CERT COPY:	0.00		
CERT OF EXIST:	0.00		

53195

DOS-1025 (04/2007)

Authentication Number: 1403250336 To verify the authenticity of this document you may access the Division of Corporation's Document Authentication Website at

ACKNOWLEDGEMENT COPY

ARTICLES OF ORGANIZATION
OF
CENTURY NEW YORK CITY REGIONAL CENTER, LLC

Under Section 203 of the Limited Liability Company Law

THE UNDERSIGNED, being a natural person of at least eighteen (18) years of age, and acting as the organizer of the limited liability company hereby being formed under Section 203 of the Limited Liability Company Law of the State of New York certifies that:

FIRST: The name of the limited liability company is:

CENTURY NEW YORK CITY REGIONAL CENTER, LLC

SECOND: To engage in any lawful act or activity within the purposes for which limited liability companies may be organized pursuant to Limited Liability Company Law provided that the limited liability company is not formed to engage in any act or activity requiring the consent or approval of any state official, department, board, agency, or other body without such consent or approval first being obtained.

THIRD: The county, within this state, in which the office of the limited liability company is to be located is QUEENS.

FOURTH: The Secretary of State is designated as agent of the limited liability company upon whom process against it may be served. The address within or without this state to which the Secretary of State shall mail a copy of any process against the limited liability company served upon him or her is:

THE LIMITED LIABILITY COMPANY
35-06 LEAVITT STREET
SUITE CF-A
FLUSHING, NY 11354

FIFTH: The limited liability company is to be managed by: ONE OR MORE MEMBERS.

SIXTH: The limited liability company shall defend, indemnify and hold harmless all members, managers, and former members and managers of the limited liability company against expenses (including attorney's fees, judgments, fines, and amounts paid in settlement) incurred in connection with any claims, causes of action, demands, damages, liabilities of the limited liability company, and any pending or threatened action, suit, or proceeding. Such indemnification shall be made to the fullest extent permitted by the laws of the State of New York, provided that such acts or omissions which gives rise to the cause of action or proceedings occurred while the Member or Manager was in performance of his or her duties for the limited liability company and was not as a result of his or her fraud, gross negligence, willful misconduct or a wrongful taking. The indemnification provided herein shall inure to the benefit of successors, assigns, heirs, executors, and the administrators of any such person.

I certify that I have read the above statements, I am authorized to sign these Articles of Organization, that the above statements are true and correct to the best of my knowledge and belief and that my signature typed below constitutes my signature.

SCOTT J SCHUSTER, ORGANIZER (signature)

SCOTT J SCHUSTER , ORGANIZER
283 WASHINGTON AVE.
ALBANY, NY 12206

Filed by:
SERVICO INC.
283 WASHINGTON AVE.
ALBANY, NY 12206

SERVICO, INC. (35)
DRAWDOWN
CUSTOMER REF# 53195

ACKNOWLEDGEMENT COPY

WAIVER OF NOTICE OF ORGANIZATION MEETING

OF

CENTURY NEW YORK CITY REGIONAL CENTER, LLC

I, The undersigned, being the Sole Organizer named in the Articles of Organization of the above limited liability company hereby agree and consent that the organization meeting thereof be held on the date and at the time and place stated below and hereby waive all notice of such meeting and of any adjournment thereof.

Place of Meeting

Date of Meeting

Time of Meeting

Sole Organizer
Scott J. Schuster

IRS DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

Date of this notice: 05-02-2014

Employer Identification Number:
[redacted]

Form: SS-4 (b)(3)

Number of this notice: CP 575 B

CENTURY NEW YORK CITY REGIONAL
CENTER
GEORGE XU GEN PTR
3506 LEAVITT ST
FLUSHING, NY 11354

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB AT THE END OF THIS NOTICE.

WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

(b)(3) Thank you for applying for an Employer Identification Number (EIN). We assigned you EIN [redacted] This EIN will identify you, your business accounts, tax returns, and documents, even if you have no employees. Please keep this notice in your permanent records.

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Based on the information received from you or your representative, you must file the following form(s) by the date(s) shown.

Form 1065 04/15/2015

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(IRS USE ONLY) 575B 05-02-2014 CENT B 9999999999 SS-4

IMPORTANT REMINDERS:

* Keep a copy of this notice in your permanent records. **This notice is issued only one time and the IRS will not be able to generate a duplicate copy for you.** You may give a copy of this document to anyone asking for proof of your EIN.

* Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.

* Refer to this EIN on your tax-related correspondence and documents.

If you have questions about your EIN, you can call us at the phone number or write to us at the address shown at the top of this notice. If you write, please tear off the stub at the bottom of this notice and send it along with your letter. If you do not need to write us, do not complete and return the stub.

Your name control associated with this EIN is CENT. You will need to provide this information, along with your EIN, if you file your returns electronically.

Thank you for your cooperation.

Keep this part for your records. CP 575 B (Rev. 7-2007)

Return this part with any correspondence so we may identify your account. Please correct any errors in your name or address.

CP 575 B

9999999999

Your Telephone Number ( ) -

Best Time to Call

DATE OF THIS NOTICE: 05-02-2014
EMPLOYER IDENTIFICATION NUMBER: [redacted] (b)(3)
FORM: SS-4 NOBOD

INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

CENTURY NEW YORK CITY REGIONAL CENTER
GEORGE XU GEN PTR
3506 LEAVITT ST
FLUSHING, NY 11354

TY REGIONAL CENTER, LLC
51818
APITAL, LLC

OE

t 3:

t risk"

een JCE and NCE

QB Ventures EB5 Capital, LLC
A New York Limited Liability Company

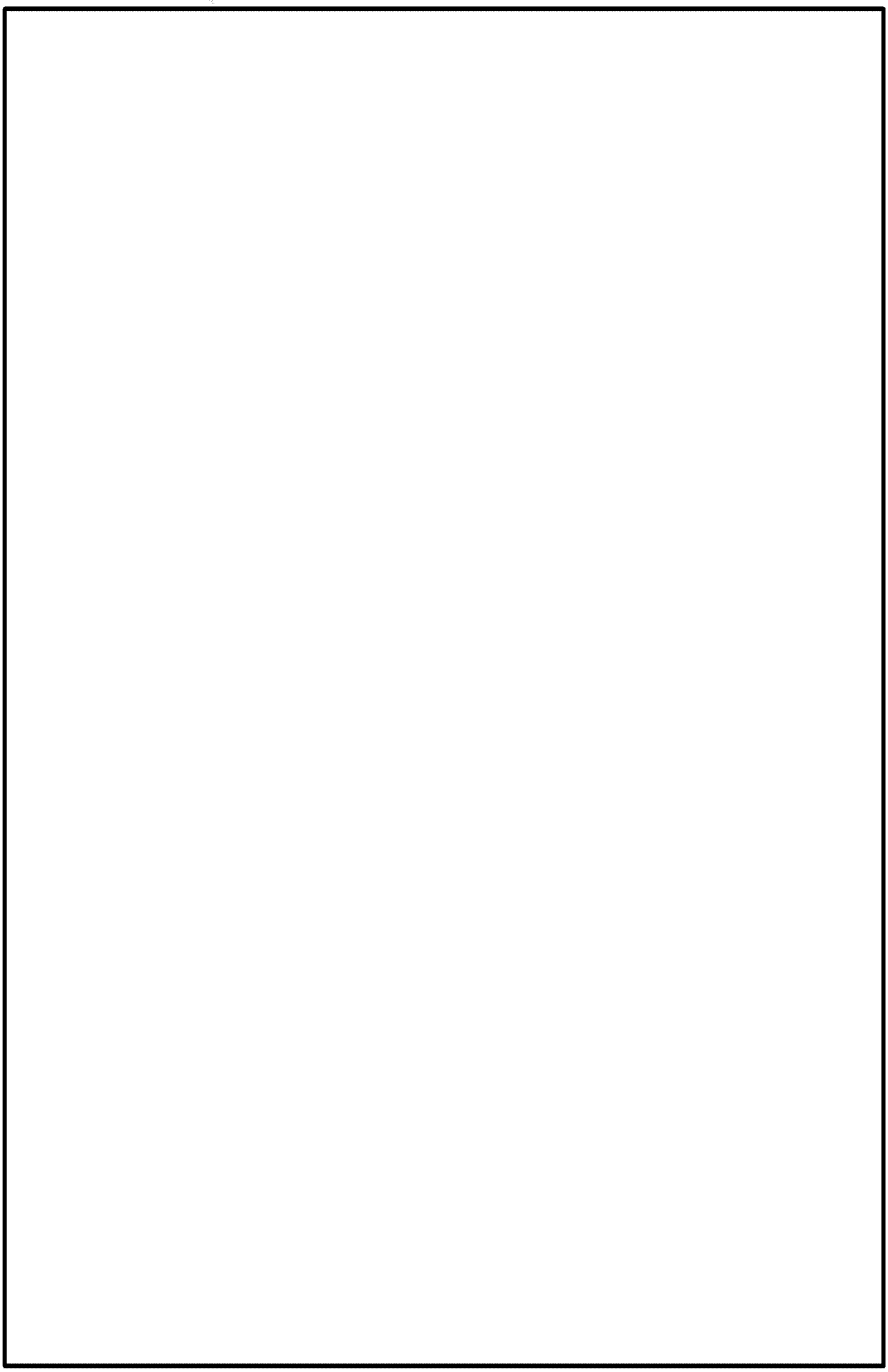
And

Queens Blvd Ventures, LLC
A New York Limited Liability Company

Loan Agreement

QB Ventures EB5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
Attn: George Xu
centurygroup88@yahoo.com
718.939.1060

(b)(4)



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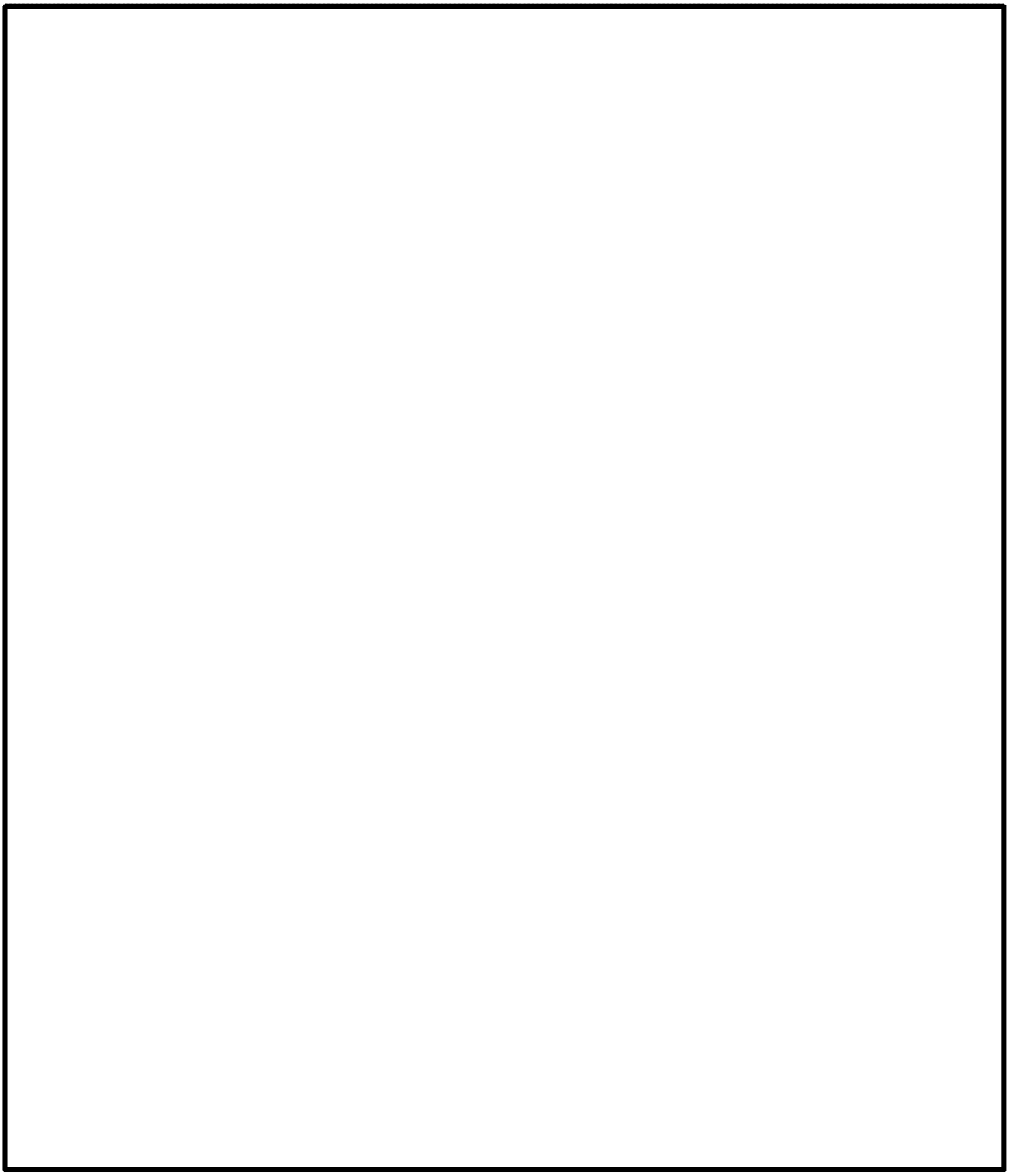


Sincerely yours,

QB Ventures EB5 Capital, LLC.
By George Xu

Dated: 9/16/2015

By: _____

ACCEPTED
Queens Blvd Ventures, LLC

By: _____ Dated: 9/16/2015

STATE OF NEW YORK:
: SS.
COUNTY OF : QUEENS

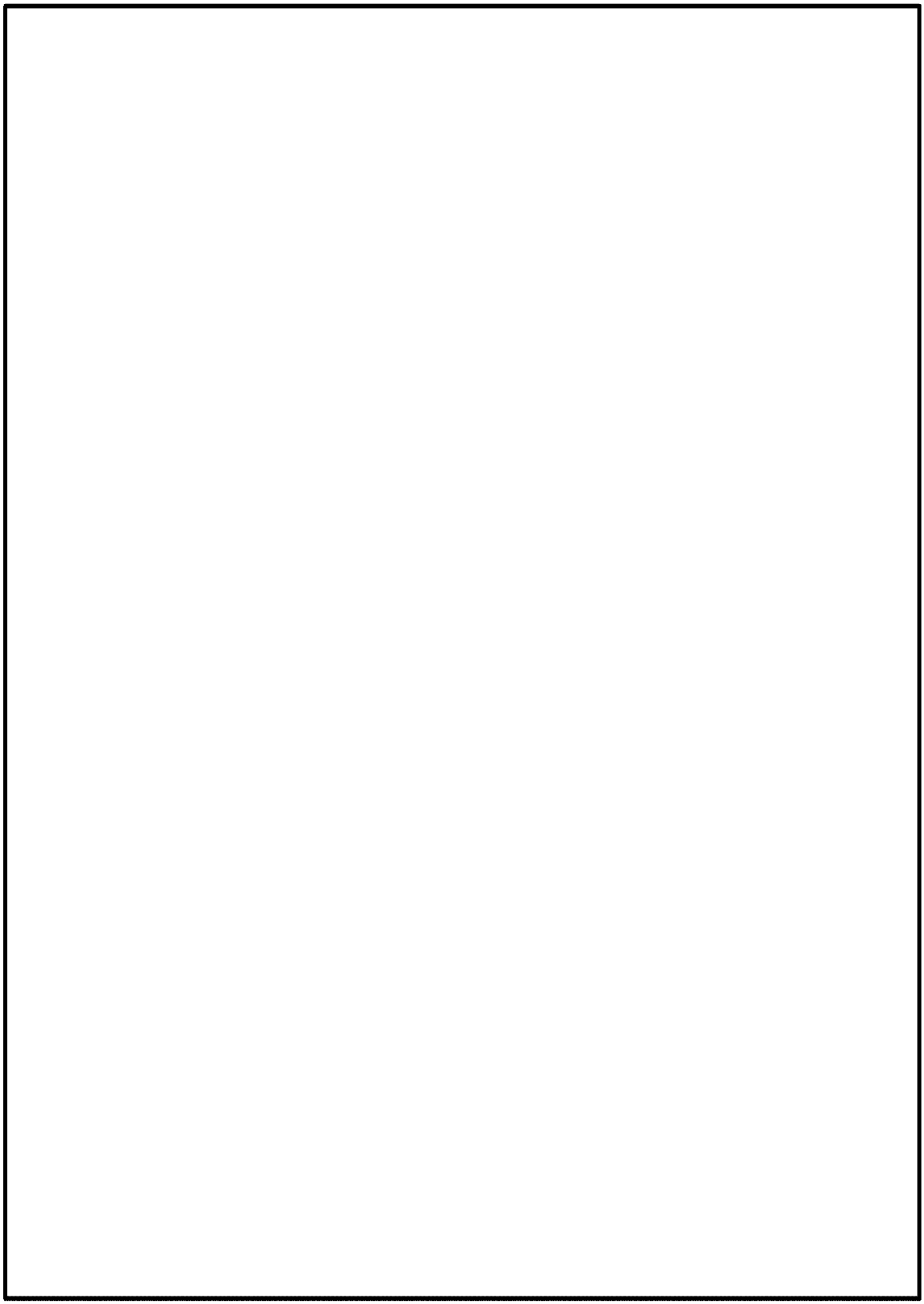
On this, the 16 day of September, 2015 before me, the undersigned officer, personally appeared GEORGE XU who acknowledged himself to be the Manager of **QB Ventures EB5 CAPITAL, LLC** a New York limited liability company of 64-06 Queens Blvd., Woodside, NY 11377 and being authorized to do so, executed the foregoing instrument, freely and voluntarily, for the purposes therein contained by signing the name of the company in the capacity of Partner. IN WITNESS WHEREOF, I have hereunto set my hand and notarial seal.

Notary Public _____
My Commission Expires: April 15, 2017

TRACY LAW
NOTARY PUBLIC-STATE OF NEW YORK
No. 01LA6279977
Qualified in Queens County
My Commission Expires April 15, 2017.

(b)(4)

LOAN AND SECURITY AGREEMENT



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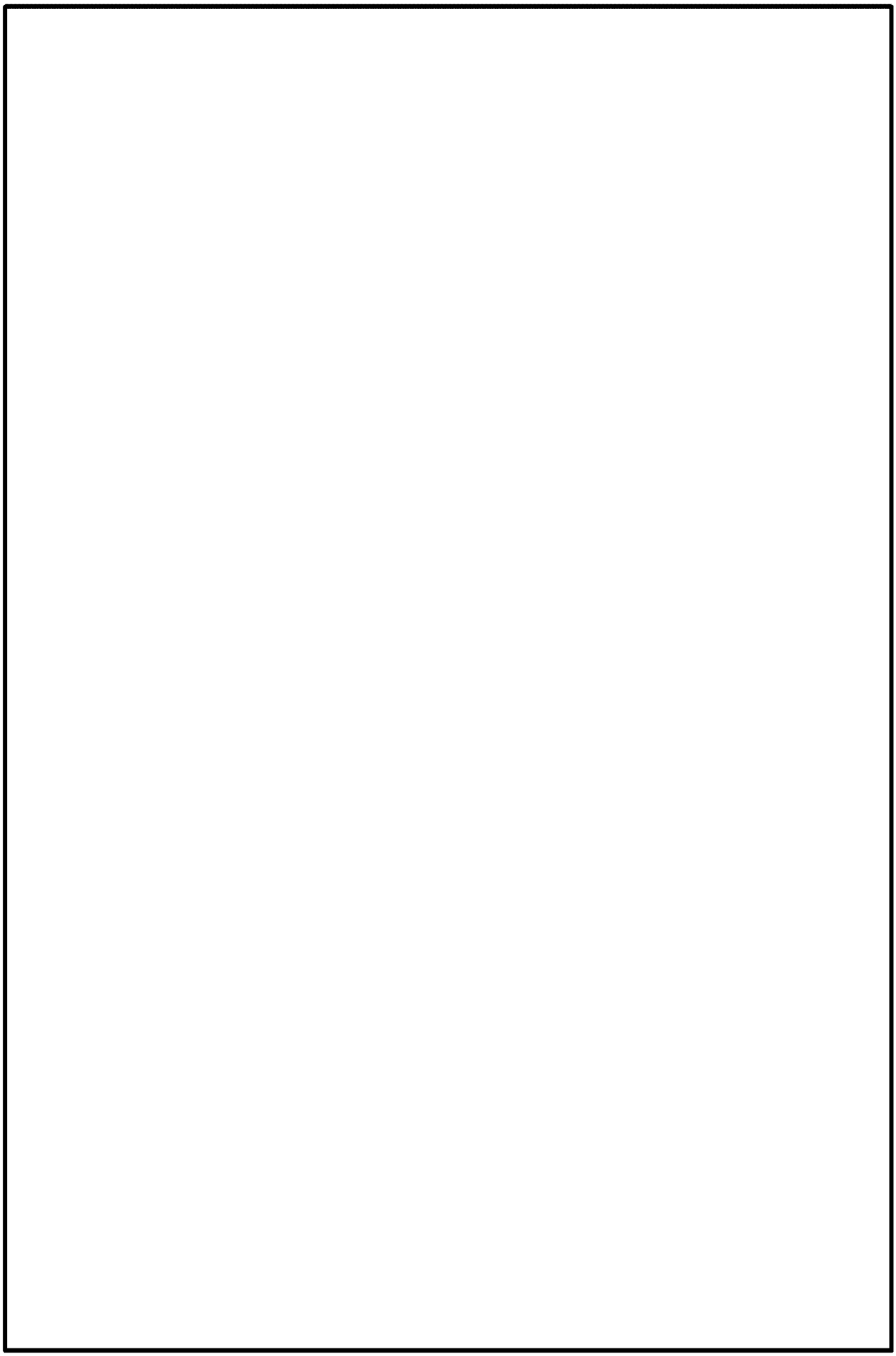

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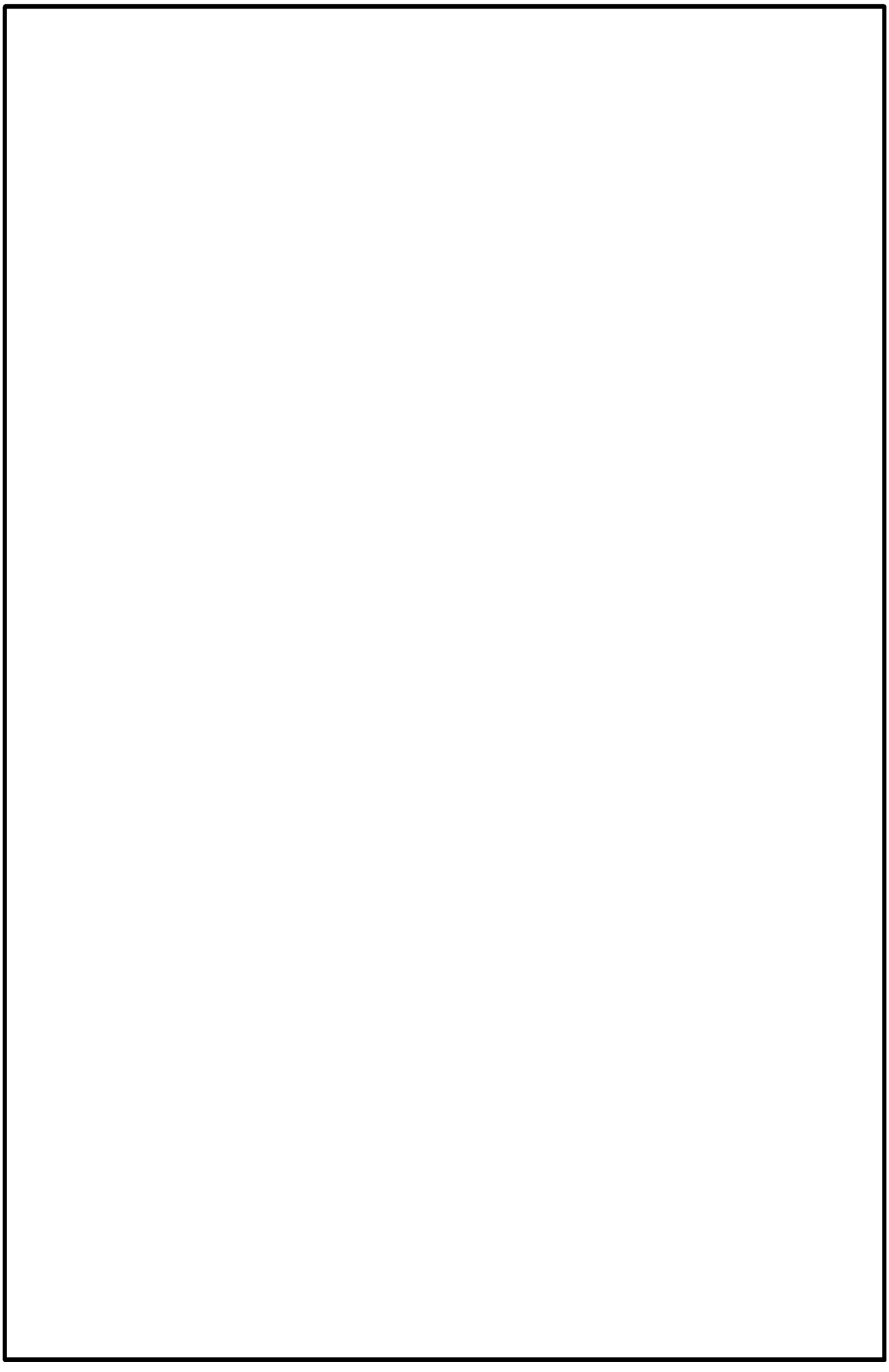

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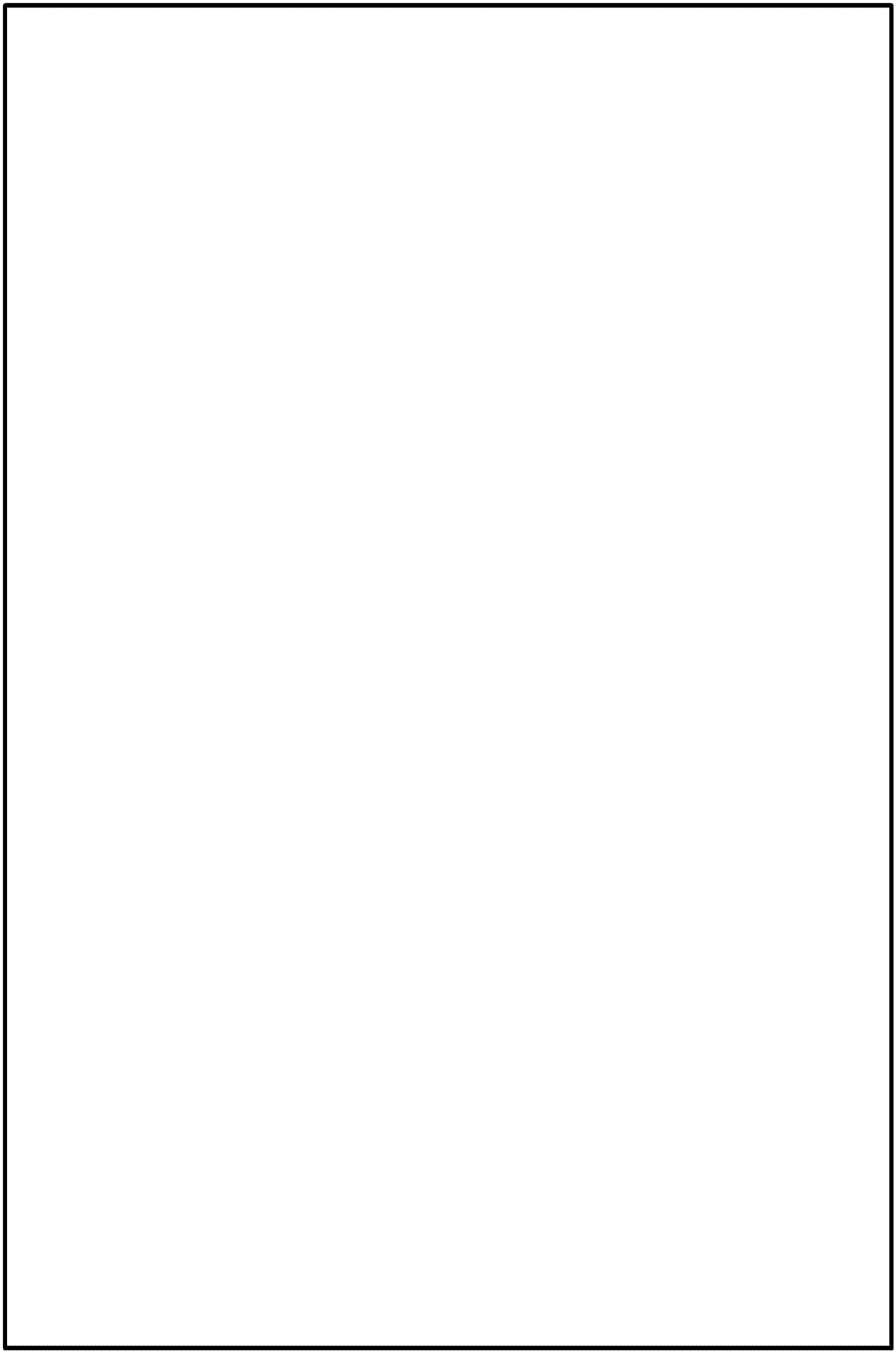

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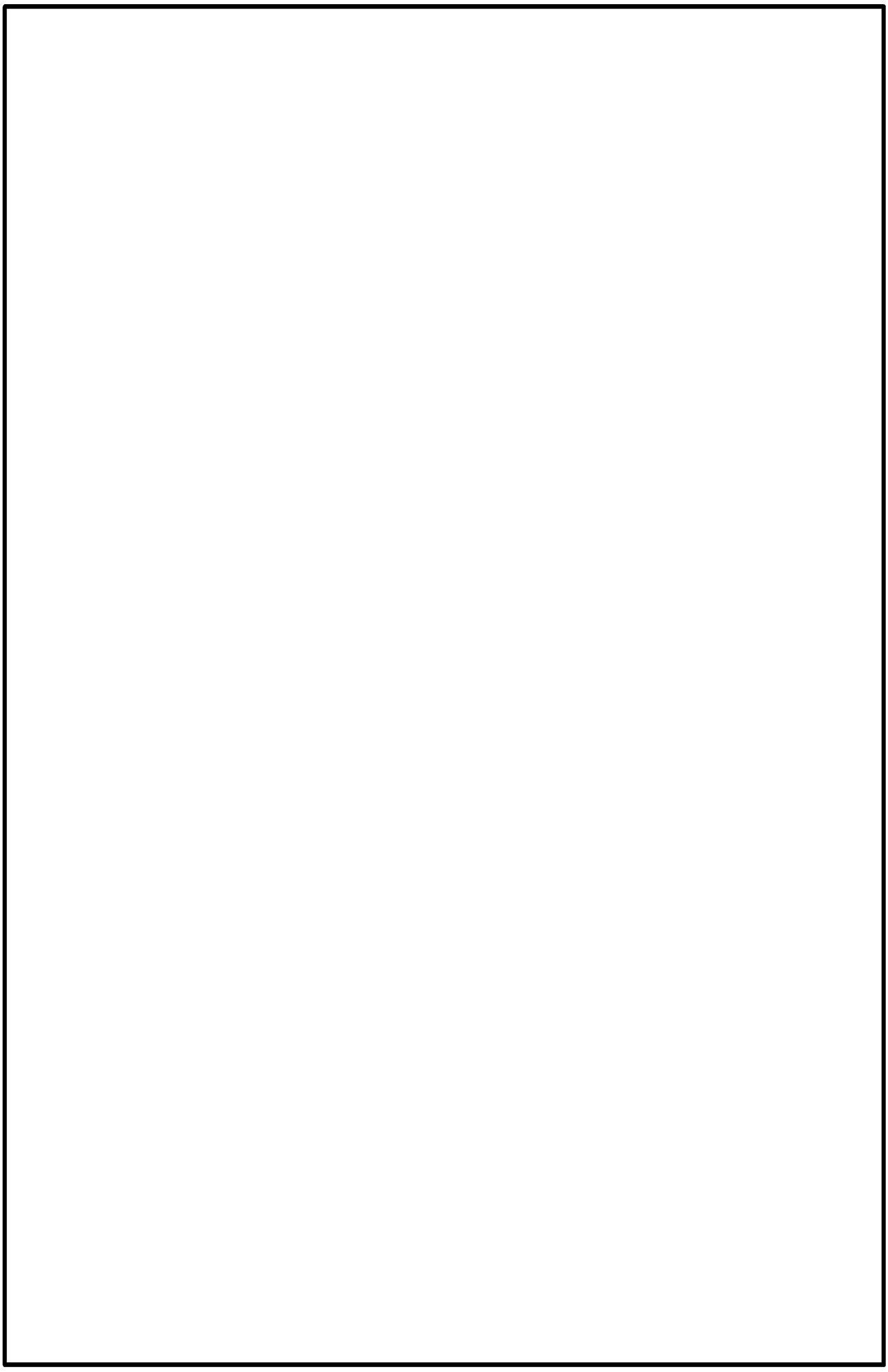

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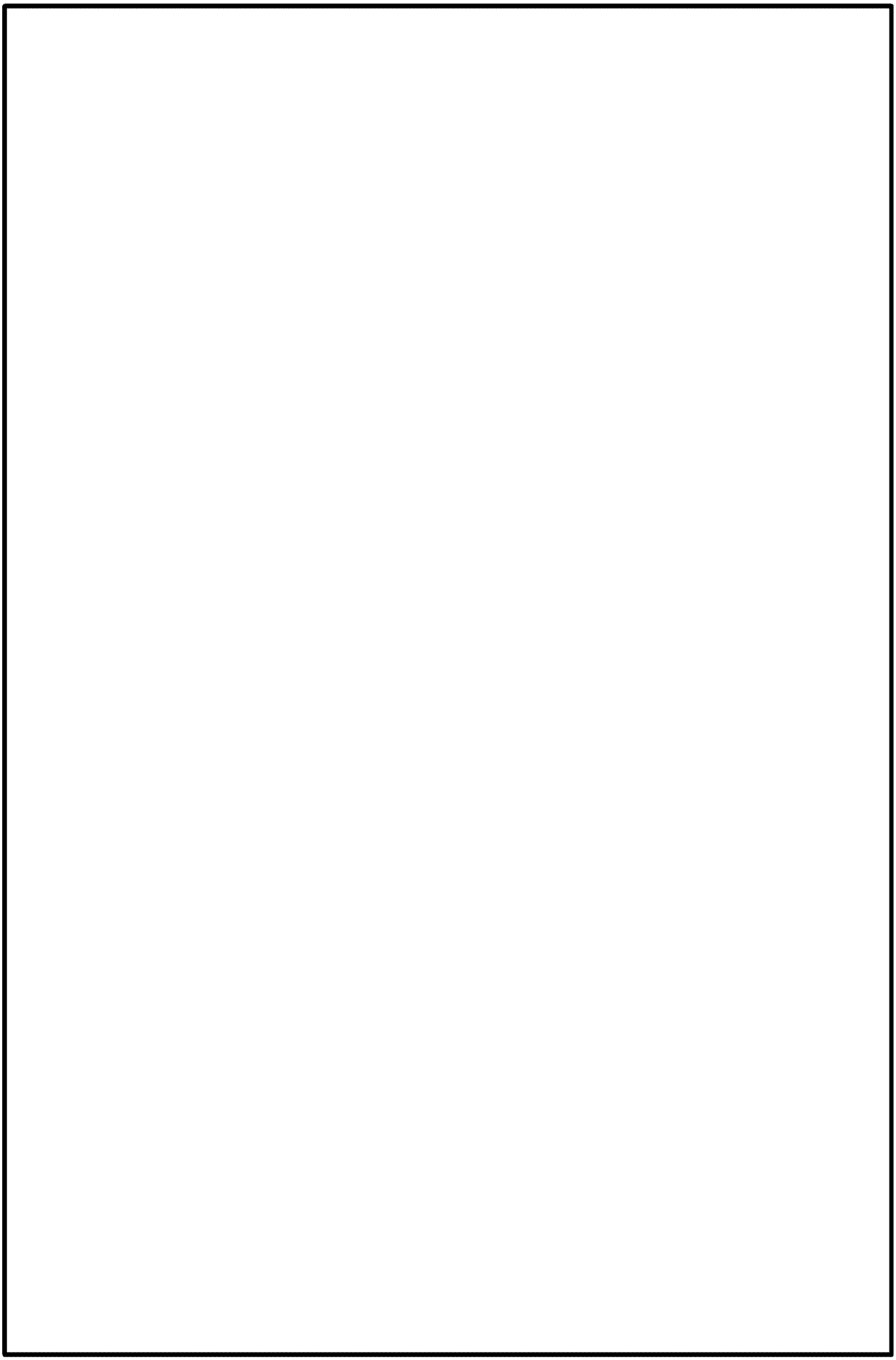

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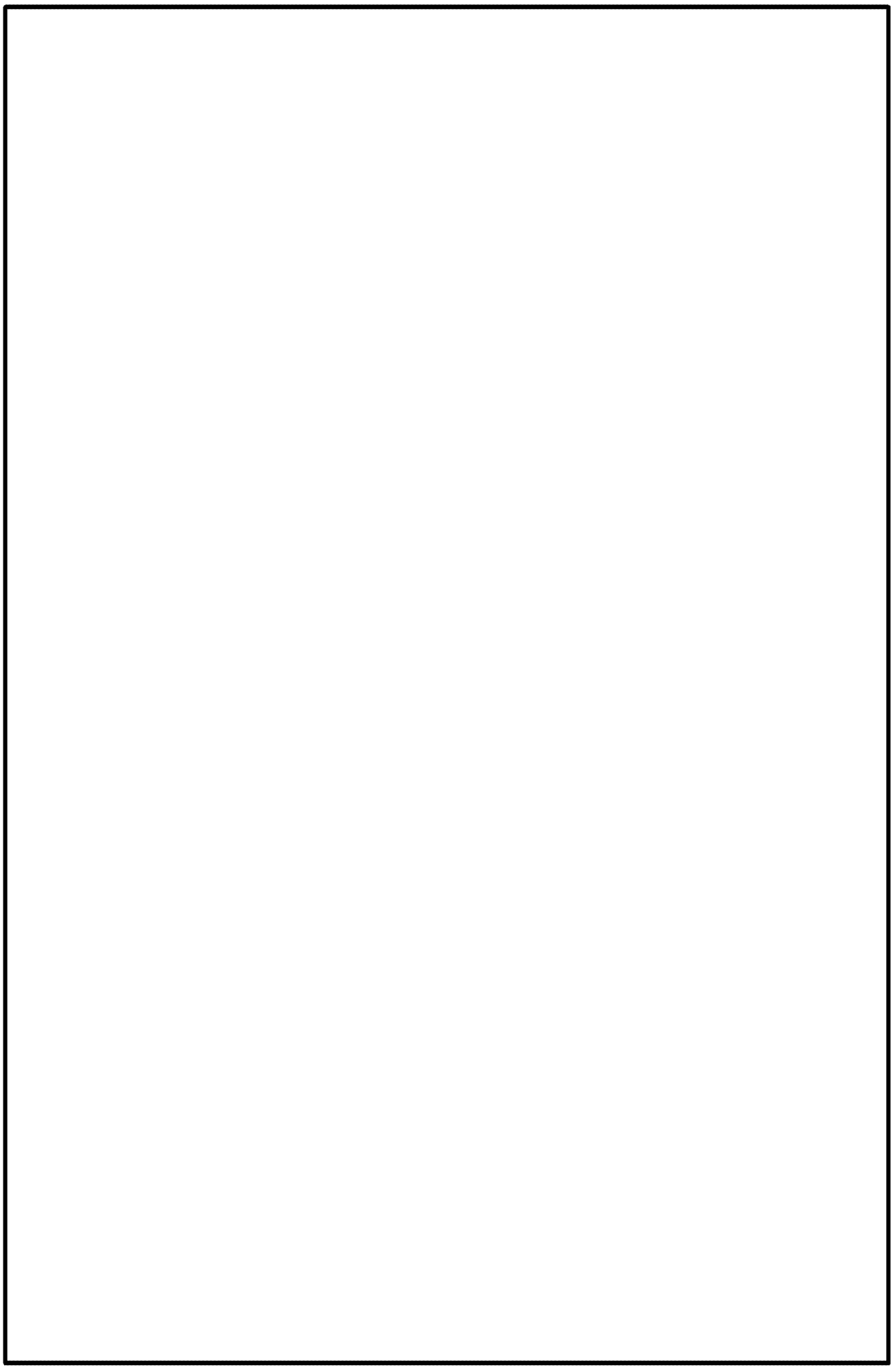

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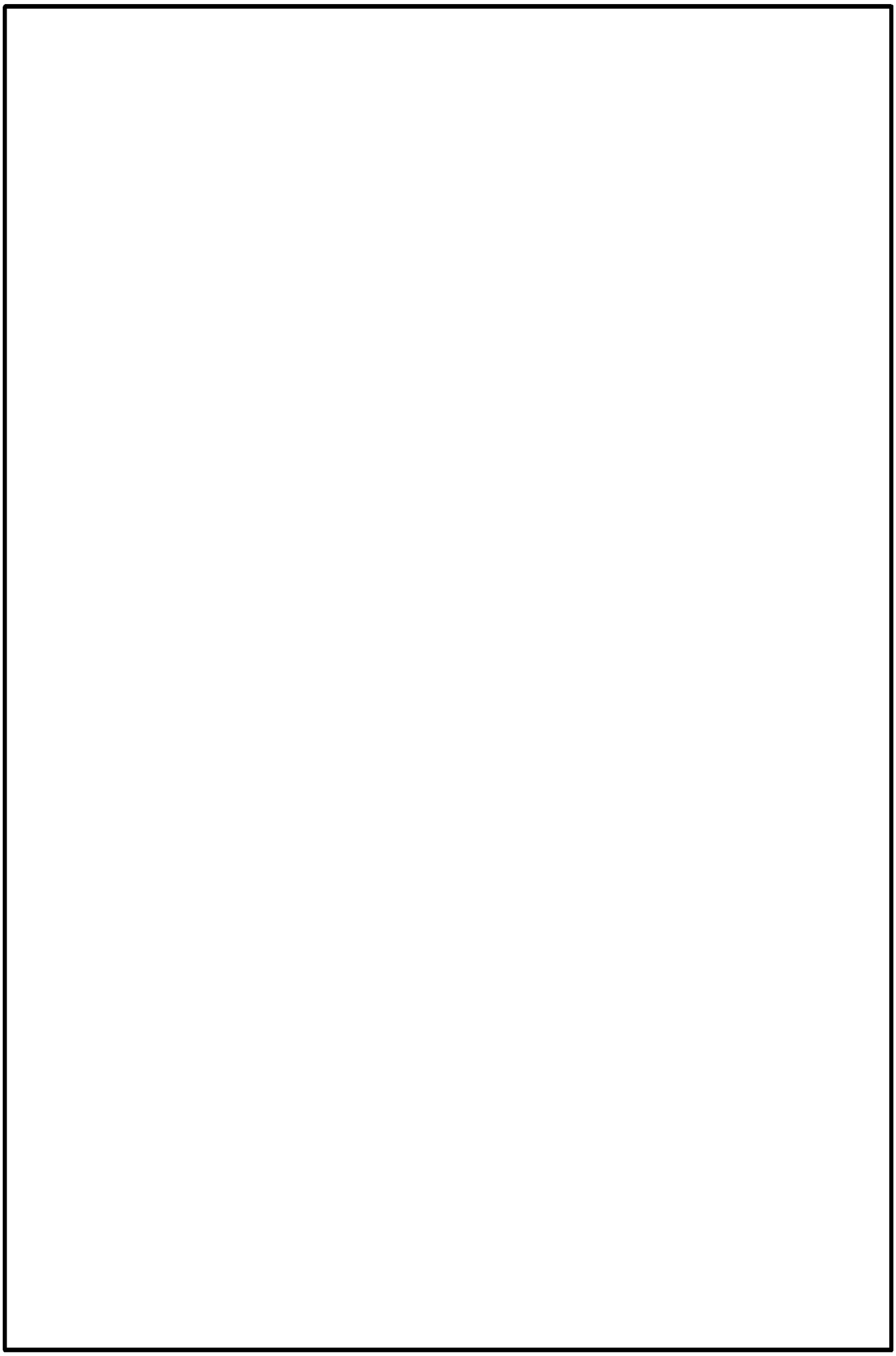

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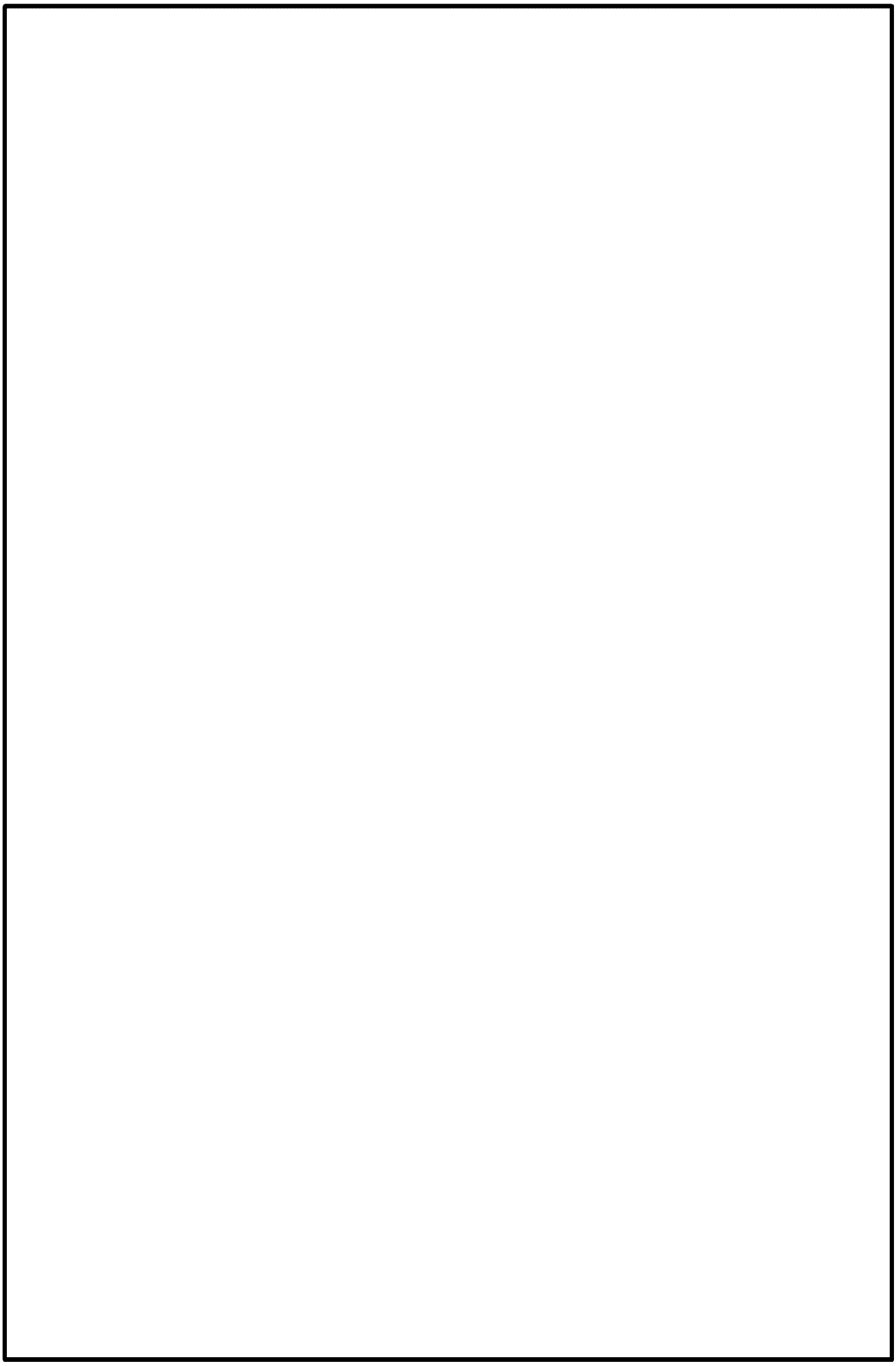

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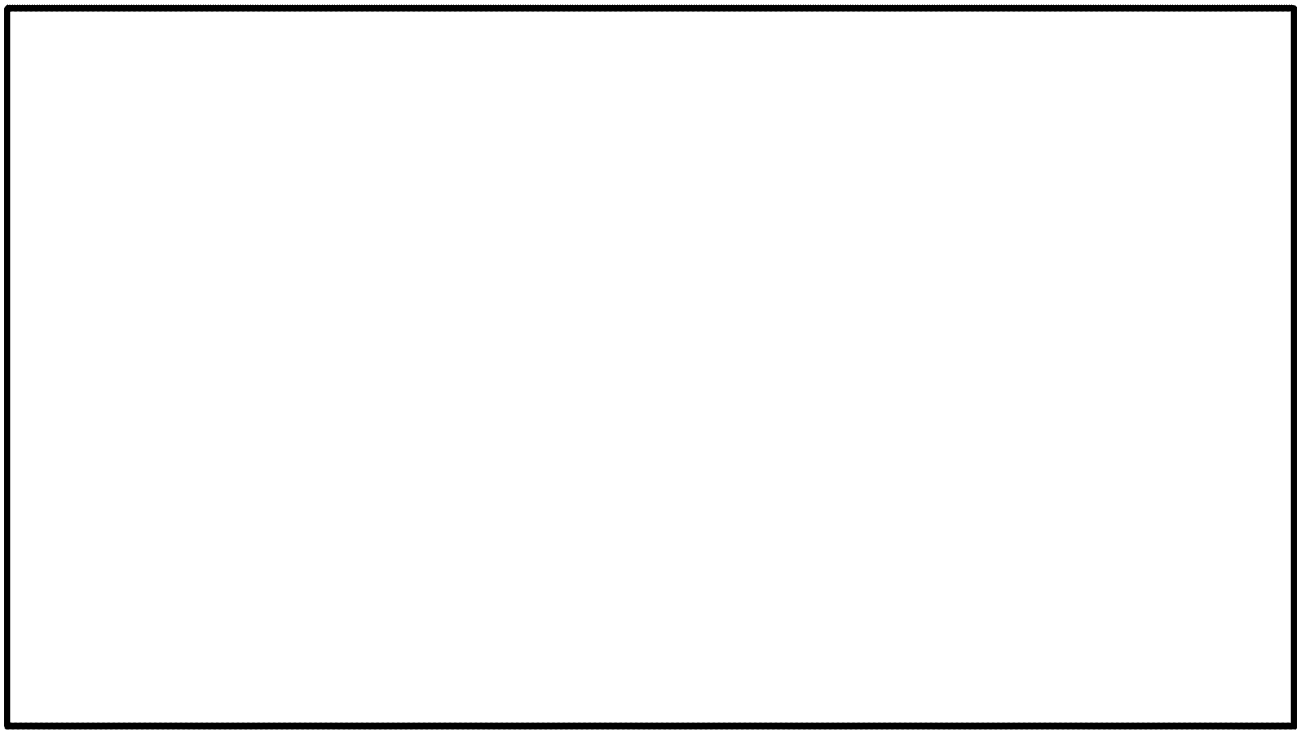


[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the undersigned executes this Agreement as an instrument under seal as of the date first set forth above.

Borrower: **QUEENS BLVD VENTURES, LLC**

By: _____

Manager

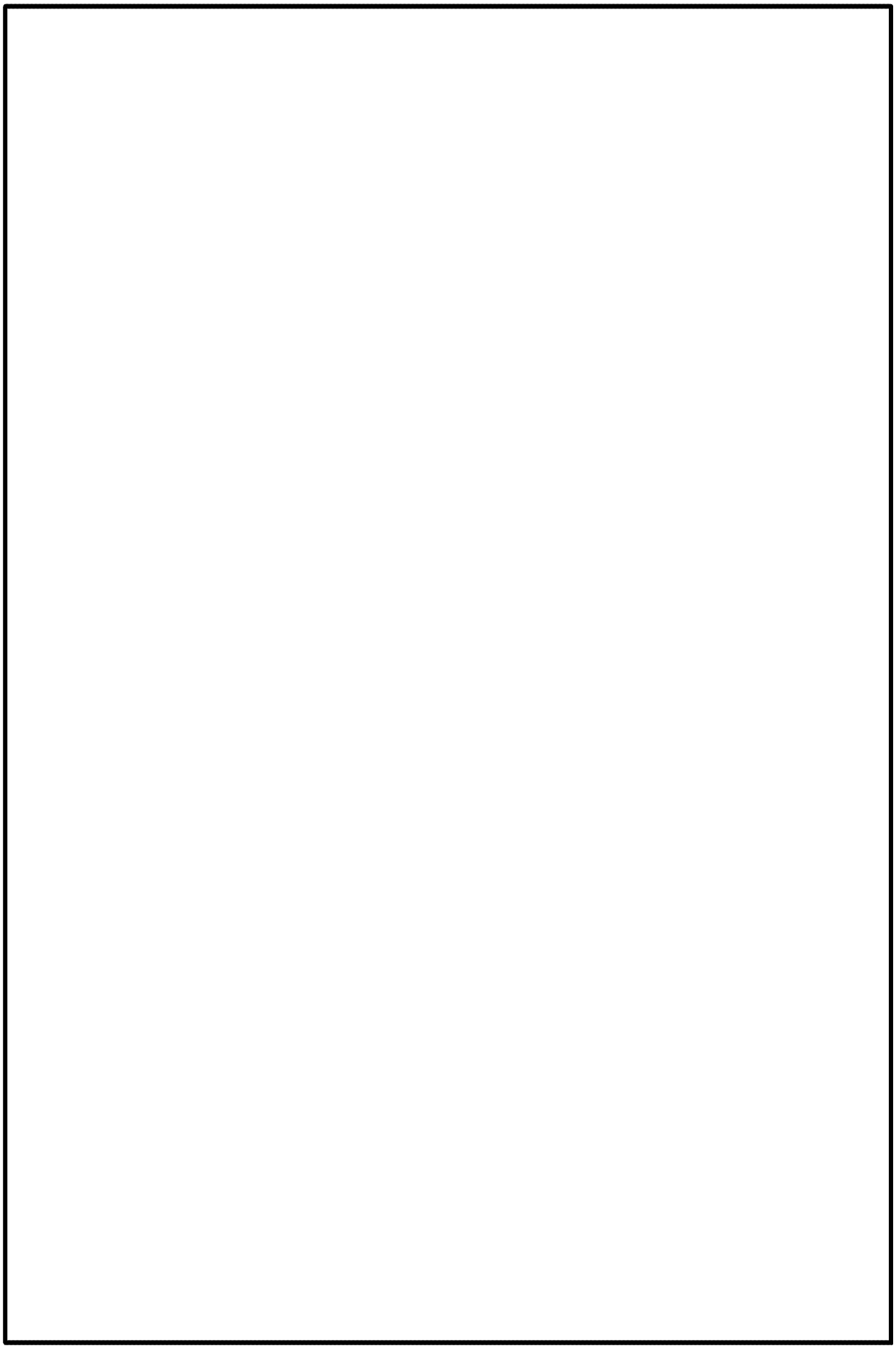
Lender: **QB VENTURES EB5 CAPITAL, LLC**

By: _____

Manager

(b)(4)

PROMISSORY NOTE



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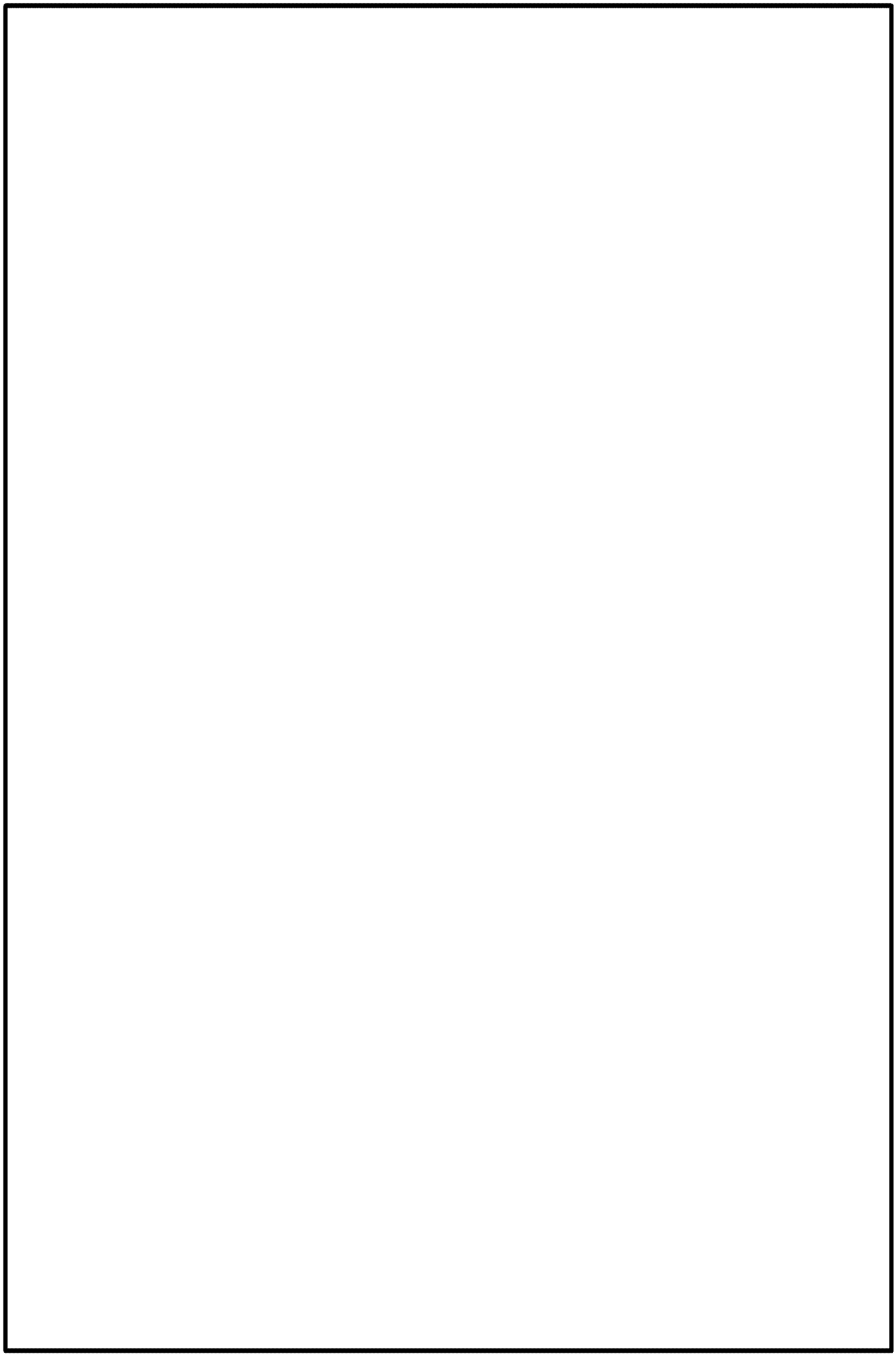

(b)(4)

[SIGNATURE PAGE FOLLOWS]

QB VENTURES EB5 CAPITAL, LLC
By George Xu

By: _____ Dated: Sep 16th, 2015
Manager

Borrower:

QUEENS BLVD VENTURES, LLC

By: _____ Dated: Sep 16th, 2015

STATE OF NEW YORK:

COUNTY OF : Queens

On this, the 16 day of September, 2015 before me, the undersigned officer, personally appeared George Xu who acknowledged himself to be the Manager of **QB VENTURES EB5 CAPITAL, LLC,** a New York limited liability company of 35-06 Leavitt St, Suite CF-A Flushing, NY 11354, and as Manager, being authorized to do so, executed the foregoing instrument freely and voluntarily for the purposes therein contained by signing the name of the company in the capacity of Partner. IN WITNESS WHEREOF, I have hereunto set my hand and notarial seal.

Notary Public _____
My Commission Expires: April 15, 2016.

TRACY LAW
NOTARY PUBLIC-STATE OF NEW YORK
No. 01LA6279977
Qualified in Queens County
My Commission Expires April 15, 2017

Y YORK CITY REGIONAL CENTER, LLC
CW1420251818
ES EB5 CAPITAL, LLC

R: JOHN DOE

bit 4:

located in Targeted Economic
TEA)

rom the New York State Department
ated August 20, 2015

NEW YORK STATE OF OPPORTUNITY. | New York State Department of Economic Development

August 20, 2015

Mr. Hassan Mokaddam
Paralegal
Mona Shah & Associates, PLLC
299 Broadway, Suite 1005
New York, New York 10007

Dear Mr. Mokaddam:

Attached is a letter from Mr. Joseph Nardone, of the New York State Department of Labor, identifying an area including census tract 245 in Queens County. Based on 2014 annual average labor force data, the Department of Labor has determined that this area meets the minimum threshold of unemployment to qualify as a Targeted Employment Area.

Based on the Labor Department's determination, I am able to certify that the area described in the attached letter qualifies as a Targeted Employment Area.

Census tract 245, in Queens County, contains the address, 64-06 Queens Blvd., Queens, New York 11377.

Please feel free to contact me if you have any questions.

Sincerely,

Ms. Kay Alison Wilkie
Economic Development Program Administrator

cc: Joseph Nardone, DOL

Joseph Nardone
Associate Economist

Department of Labor
W. Averell Harriman State Office Campus
Building 12, Room 490, Albany, NY 12240
www.labor.ny.gov

August 19, 2015

Kay Alison Wilkie
Director for International Policy
Division of Business Advocacy and Research
Empire State Development | NYS Department of Economic Development
625 Broadway
Albany, NY 12245

Dear Ms. Wilkie:

The 2014 average unemployment rate for census tract 245 in Queens County that contains the address, 64-06 Queens Blvd., Queens, NY 11377, as you requested is 9.6 percent. The current minimum threshold to qualify as a Targeted Employment Area is 9.3 percent.

2010 census tract boundaries, 2013 American Community Survey five-year estimate labor force data, and 2014 annual average Local Area Unemployment Statistics (LAUS) data were used in this estimate. These data were ACS-shared as described by the U.S. Bureau of Labor Statistics in LAUS Technical Memorandum No. S-13-17.

Please feel free to contact me if you have any questions.

Sincerely,

Joseph Nardone

NEW YORK STATE OF OPPORTUNITY. Department of Labor

GIONAL CENTER, LLC
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Dated: _____ __, 2015 Name: _____

No.: ____ of ____

CONFIDENTIAL PRIVATE OFFERING MEMORANDUM
[redacted] LIMITED LIABILITY COMPANY INTERESTS

(b)(4) **OF**

QB VENTURES EB5 CAPITAL, LLC
A New York Limited Company LLC

Up to [redacted] (b)(4)
of
Member Interests
$500,000.00 per Interest

Minimum Investment of 1 Interest ($500,000.00)

QB Ventures EB5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
718.939.1060
Attn: George Xu
centurygroup88@yahoo.com

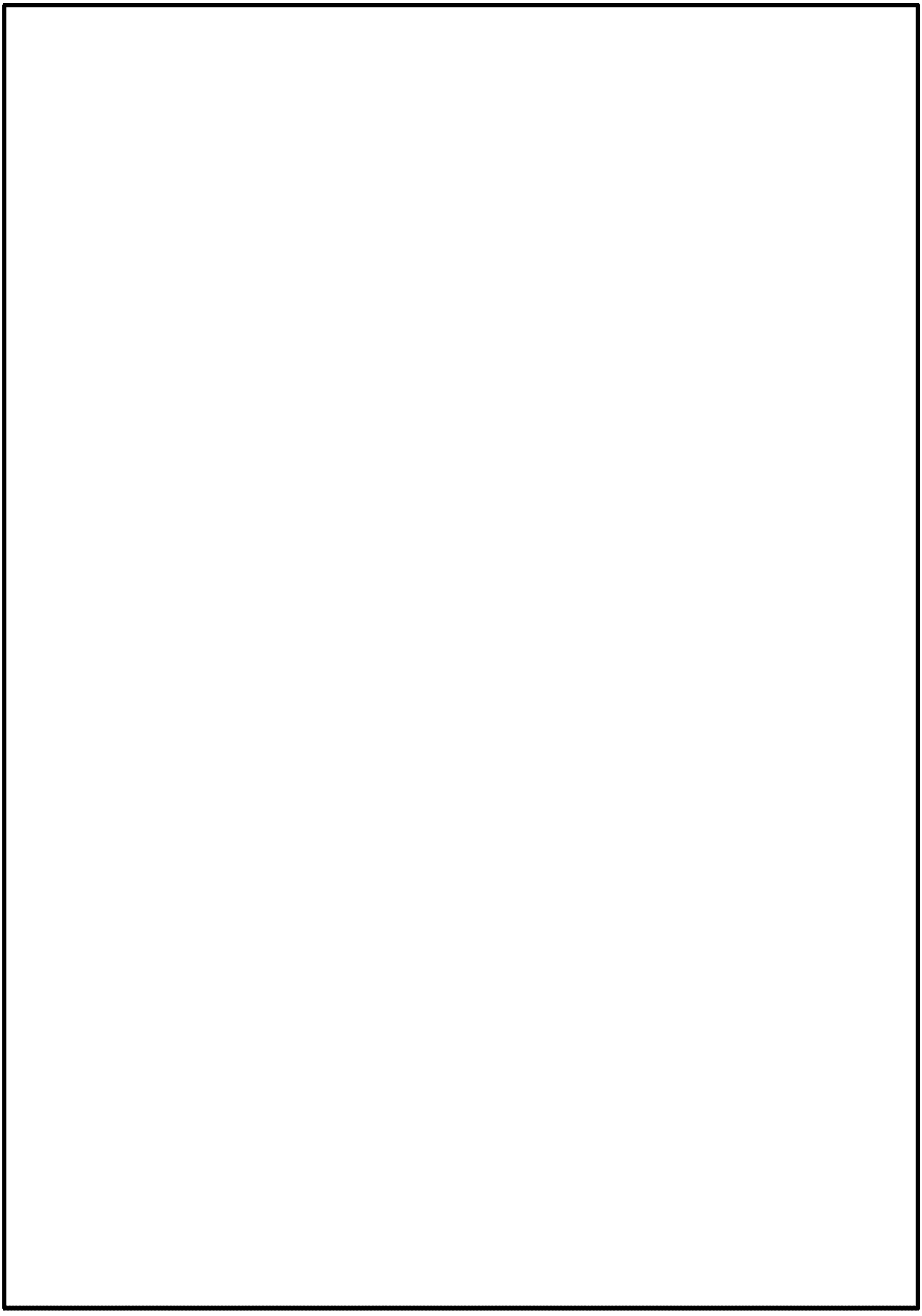
CONFIDENTIAL PRIVATE OFFERING MEMORANDUM

[redacted] LIMITED LIABILITY COMPANY INTERESTS

OF

(b)(4) QB Ventures EB5 CAPITAL, LLC

A New York Limited Liability Company



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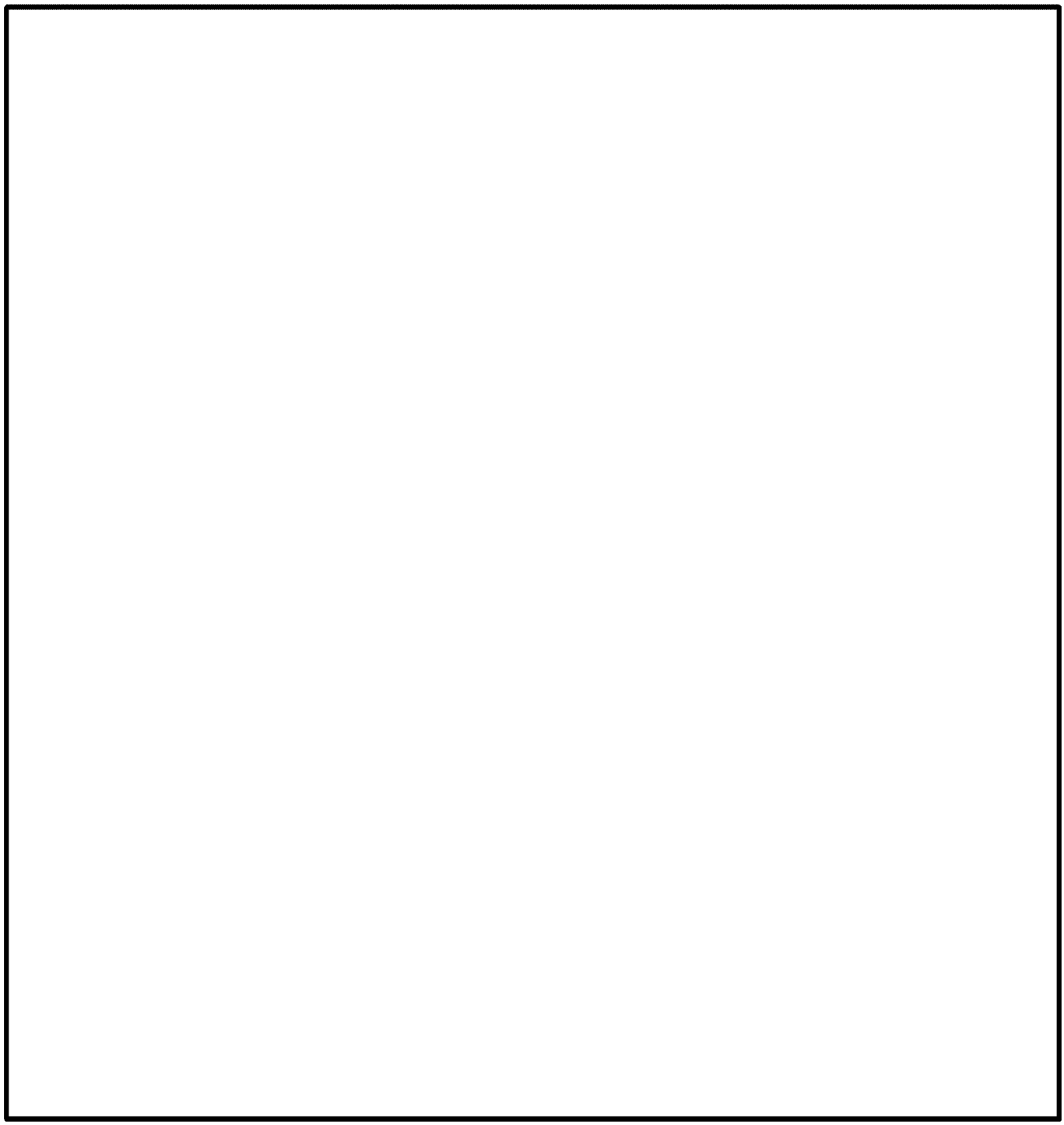

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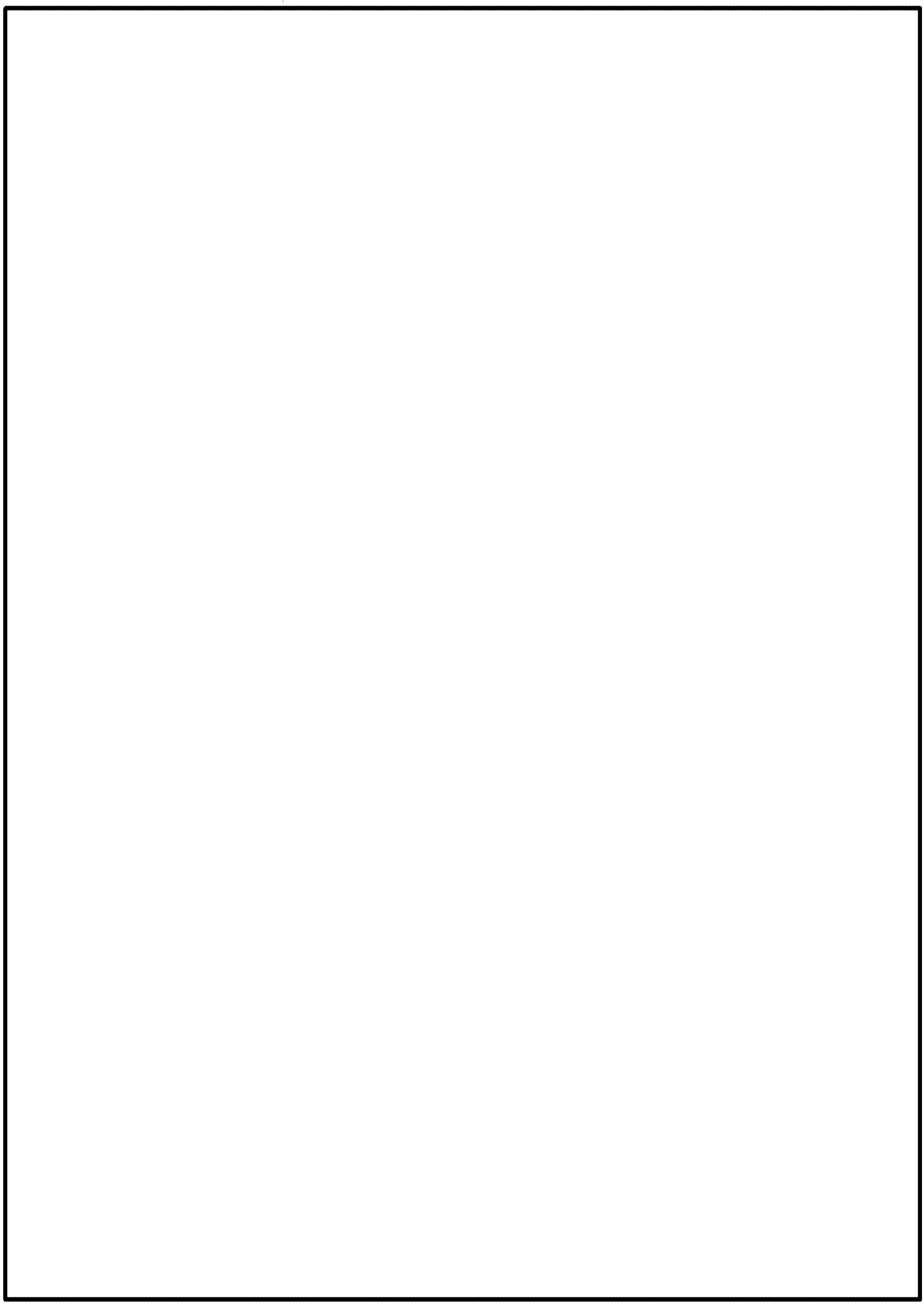

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* * * * *

Circular 230 Disclosure

Pursuant to U.S. Internal Revenue Service Circular 230, the statements set forth herein with respect to Federal Tax Issues, as defined below, were not intended nor written to be used, and such statements cannot be used by any taxpayer for the purpose of avoiding any penalties that may be imposed on the taxpayer under the U.S. Internal Revenue Code. Such statements were written to support the marketing of the LLC or matters addressed herein. It is possible that additional issues may exist that would affect the federal tax treatment of an investment in the LLC and the statements contained herein do not consider or provide any conclusions with respect to such additional issues. Each taxpayer should seek advice based on the taxpayer's particular circumstances from an independent tax advisor. A "Federal Tax Issue" is a question concerning the federal tax treatment of any item of income, gain, loss, deduction or credit, the existence or absence of a taxable transfer of property, or the value of property for purposes of any tax imposed by or pursuant to the U.S. Internal Revenue Code.

* * * * *

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Exhibit A – Operating Agreement
Exhibit B – Subscription Agreement
Exhibit C – Investor Eligibility Questionnaire
Exhibit D – Escrow Agreement
Exhibit E – Comprehensive EB-5 Business Plan
Exhibit F – Targeted Employment Area Designation Letter

SUMMARY OF OFFERING TERMS

The following is only a summary of certain of the information contained in this Memorandum, and is qualified in its entirety by reference to the more detailed discussions contained in this Memorandum below, as well as to the Exhibits hereto (all of which are incorporated fully herein by this reference). In the case of any conflict between the summary, below, and the more detailed discussion in the body of the Memorandum, the latter shall control. Similarly, this Memorandum, its exhibits, and certain other documents related thereto have been initially written in the English language; in the event of any conflict between the original English versions and any translations into other languages, the former shall control. (b)(4)

The plan is to construct and develop a Holiday Inn Express & Suites (the "Project") in New York City.

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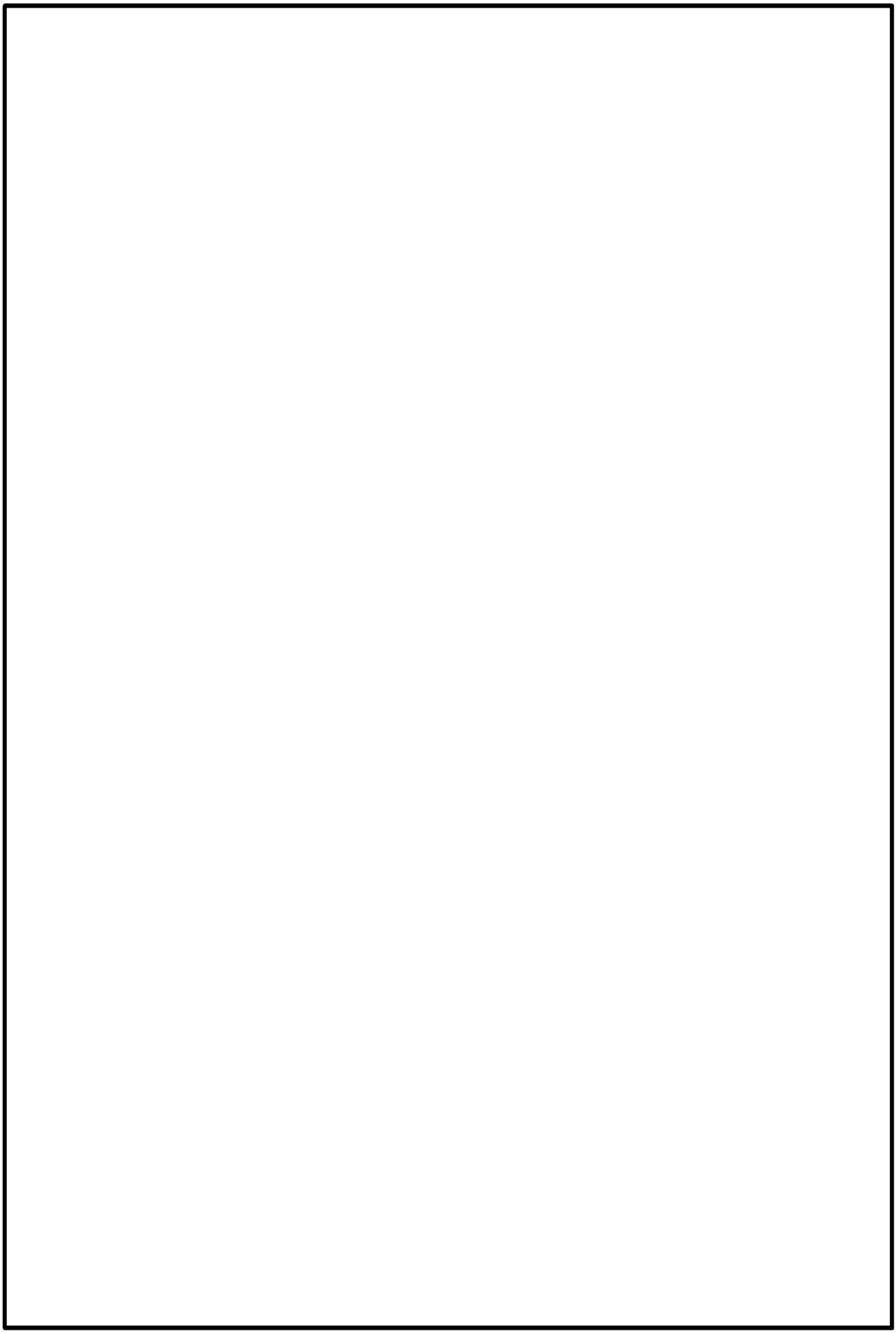

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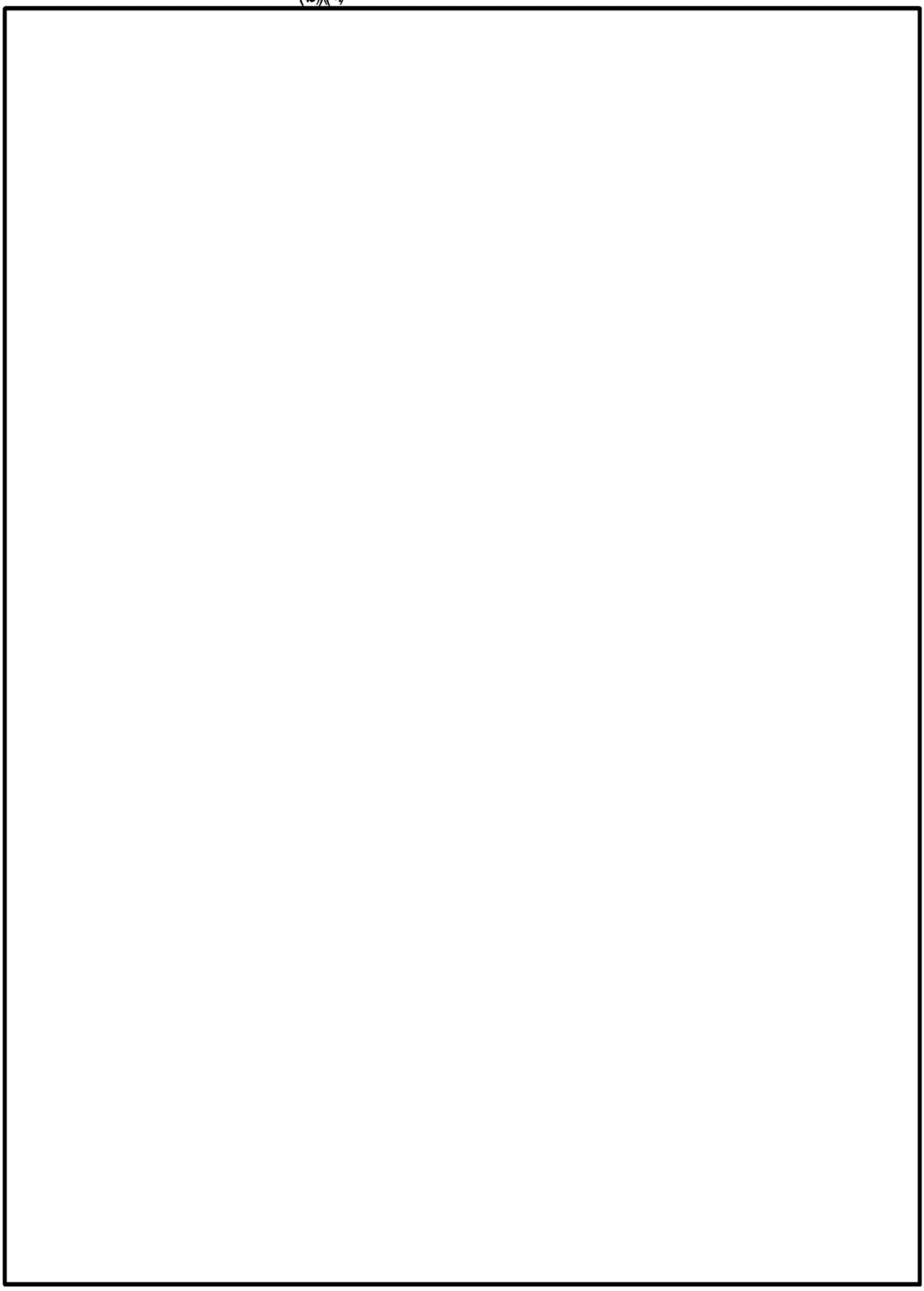

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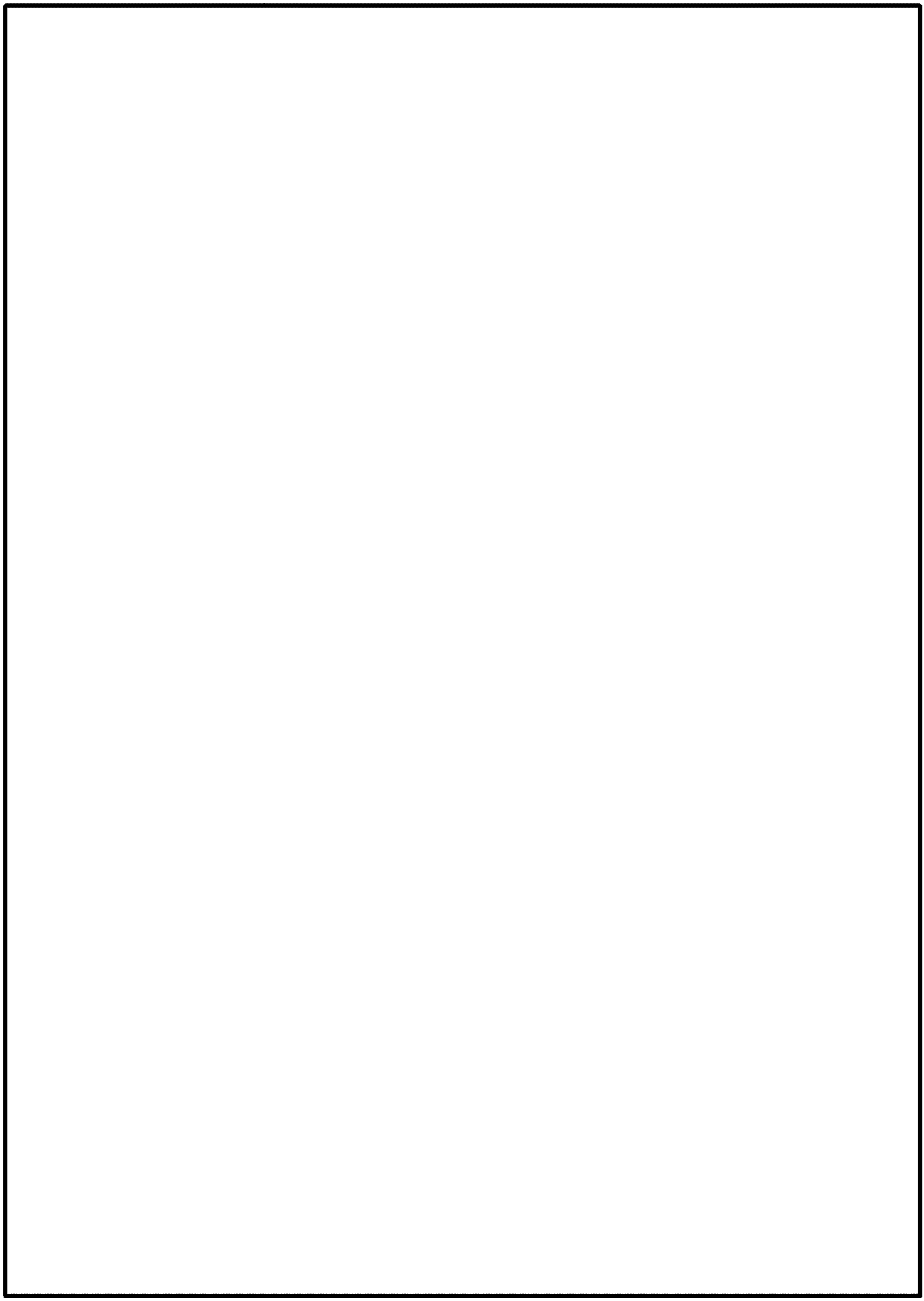

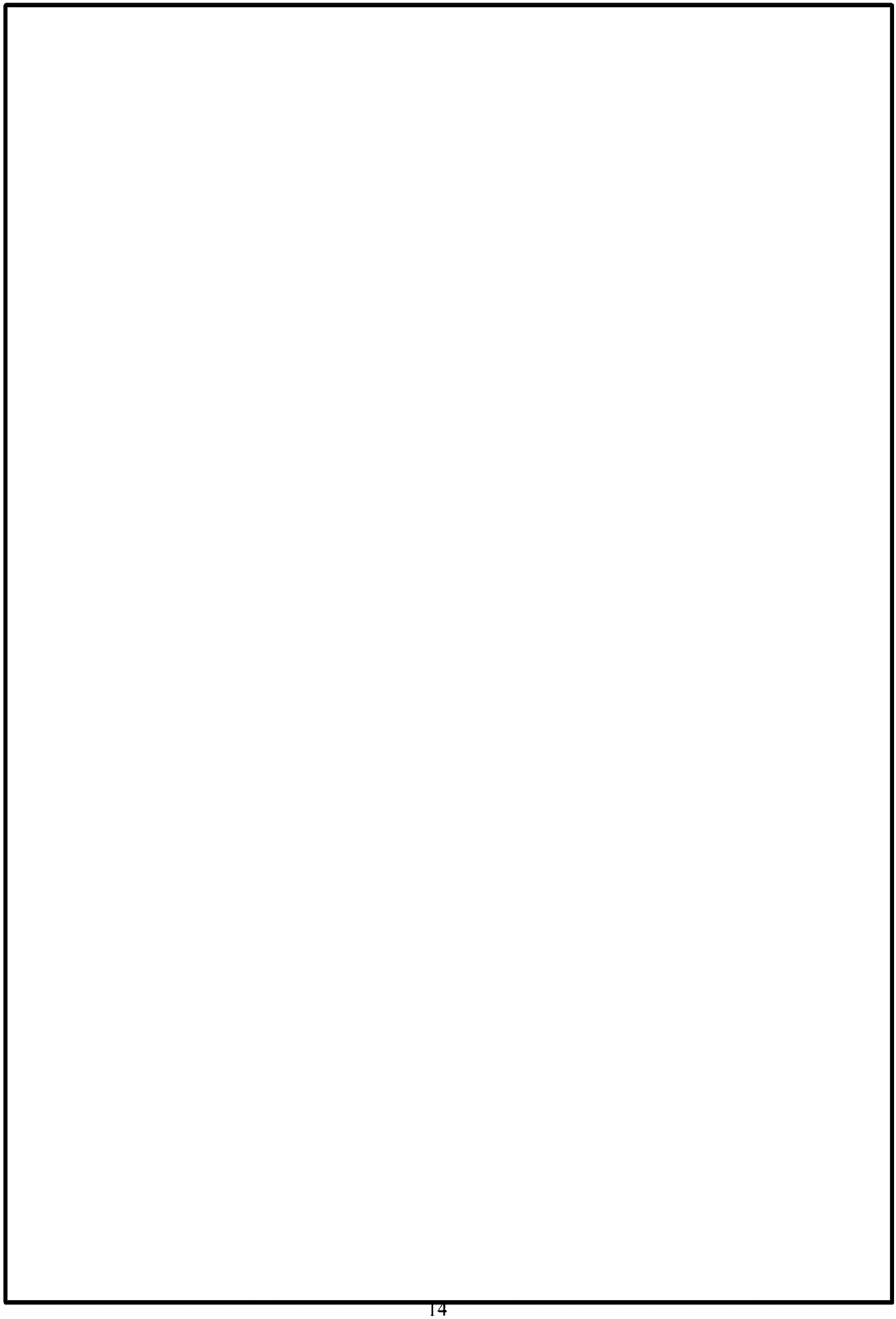

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* * * * *

DESCRIPTION OF THE BUSINESS

BUSINESS OVERVIEW

The Holiday Inn Express & Suites is located in Woodside, Queens in New York City. The project site is located at 64-06 Queens Blvd in Woodside, NY 11377. The New York State Department of Labor designated the area where the Project is located as a Targeted Employment Area ("TEA") as of August 20, 2015. See TEA Designation Letter in Exhibit F. The proposed Holiday Inn Express & Suites is a hotel building which consists of a 135-room and suites hotel. The Project is seeking to raise a maximum of $8 million in investor capital from 16 EB-5 investors for the EB-5 Immigrant Investor Program (hereinafter "EB-5") for the The Holiday Inn Express & Suites hotel in New York City.

The Holiday Inn Express & Suites EB-5 Project entails a new construction of a hotel building which consists of a 135-room hotel in Woodside, Queens, one of the five boroughs of New York City. The Holiday Inn Express & Suites is an upper-midscale, limited-service hotel brand by InterContinental Hotels Group (IHG), offering a full-service hotel experience at a reasonable price. The construction and operation of the regional base of invested capital, the creation of new jobs, and the associated economic growth effects will be put into effect with the capital raised from immigrant investors through the EB-5 Program.

TARGETED EMPLOYMENT AREA AND $500,000 INVESTMENT

The project is located at 64-06 Queens Blvd in Woodside, New York 11377. The location is in census tract 245 in Queens County. The New York State Department of Labor designated the area where the Project is located as a TEA as of August 20, 2015. As of the date of this Memorandum, the minimum Capital Contribution of $500,000 equals the minimum investment that must be made by an investor into a job creating project located in a targeted employment area seeking a visa under the EB-5 Program.

THE EB-5 PROGRAM AND JOB CREATION

The EB-5 Program provides lawful permanent resident status in the United States to foreign investors who, among other things, make qualifying investments under the provisions of the relevant immigration law, 8 U.S.C. §1153 (b)(5)(A) - (D); Immigration and Nationality Act § 203 (B)(5)(A) - (D) (the "Immigration Act"). To obtain the benefit of lawful permanent resident status in the United States under the EB-5 Program, a foreign investor must, among other things, make a qualified investment, such as an investment in the Company, into a new commercial enterprise and comply with the requisite immigration procedures (see "Immigration Matters" on page 60 for a summary of immigration procedures). Pursuant to the Immigration Act, a qualified immigrant investor must invest (a) an amount of at least $1 million or (b) if made in a "targeted employment area" (defined as a rural location or an area of high unemployment which is at least 150% of the national average), then in an amount of at least $500,000. August 20, 2015, the New York State Department of Labor certified the area encompassing the Project as a high unemployment area, therefore qualifying it as "targeted employment area". See Exhibit E attached hereto.

The Regional Center was designated as a "regional center" on May 14, 2015. The benefit of achieving "regional center" status is that any project that is both sponsored by the Regional Center and satisfies certain other EB-5 Program criteria may count indirect or induced (as opposed to only direct) jobs towards satisfying the job creation requirements of the EB-5 Program. The EB-5 Program requires that the Company create at least 10 full-time jobs for each investor admitted as a Member in connection with this Offering. The Company believes that it will create, directly and/or indirectly, a sufficient number of jobs to satisfy the employment requirements of the EB-5 Program for all Members. However, investors must be aware that there are numerous other factors that could lead to the grant or denial of an EB-5 immigrant visa based upon the job creating performance of the Project as well as on the personal facts and circumstances of each investor.

The Company engaged Evans, Carroll & Associates, Inc. ("ECA") to analyze the economic and job creation impacts of the participation in the construction and operations phases of the Project and to prepare an economic impact report (the "Economic Impact Report").

(b)(4)

The analysis prepared by ECA used the Regional Input Output Modeling System for calculating job creation by the Project. According to the analysis, ECA estimates that the likely job impacts from the Company's participation in the Project will be [redacted] new jobs generated, which, assuming full subscription, equates to [redacted] jobs per Member, above the USCIS-required 10 jobs per Member.

The qualifying jobs created by the Offering proceeds shall be allocated to the Investors on a first-in, first-out basis tied to the later date on which both of the following shall have occurred: (a) the LLC has accepted an Investor's subscription, and (b) the Investor's Capital Contribution and Administrative Fee have been released to the LLC or deposited into escrow. This allocation process will continue until all jobs have been allocated to the Members.

Below is a table summarizing the employment and revenue estimes from the Economic Impact Report.

Table A. Summary of Employment and Revenue Estimates

Activity	Exp/Rev mil cur $	Exp/Rev mil 2010 $	RIMS II Mult	Total Jobs	Direct Jobs
Hard construction costs	[redacted]	[redacted]	13.2149	[redacted]	[redacted]
Architect & Engineering Svcs			11.9014		
Purchase of FF&E *			5.6974		
Hotel Operations			15.0799		
Total					

All figures based on unrounded numbers

* Indirect and induced jobs only

ORGANIZATIONAL STRUCTURE

QB Ventures EB5 Capital, LLC will be the new commercial enterprise, (hereinafter the "NCE") a newly formed entity for the purpose of raising EB-5 investment capital. Queens Blvd Ventures LLC is the job creating entity (hereinafter "JCE") which owns and operates the project. The NCE will be managed by Century New York City Regional Center, LLC (hereinafter the "Manager" or the "RC"). The NCE will lend the funds to JCE. The NCE is managed by RC. Mr. George Xu is the owner and principal of RC and JCE.

TARGET MARKET (b)(4)

The Project, the Holiday Inn Express & Suites, is located in Woodside, New York. Located in the Woodside district of New York City's Queens Borough, the site is readily accessible to a variety of local, county, state, and interstate highways. Major interstates, such as Interstates 278, 495, and 95, connect Woodside to other major cities – New Haven, Connecticut; Philadelphia, Pennsylvania; not mention its close proximity to Manhattan, New York. Transportation to Manhattan, the commercial center of New York City, may be easily accomplished via the Long Island Expressway, the Grand Central Parkway, the New York City Subway, and the Long Island Rail Road. Guests will have access to the hotel on Queens Blvd., between 64th Street and 65th Street. The project's location is in a commercially active area in Woodside.

In 2014, New York City was estimated to have accommodated roughly 56 million visitors. New York City maintains its ranking as the number one U.S. destination for overseas travelers, hailing roughly 12 million from

international markets. According to most market observers, such levels could not been realized without the expanded availability of hotel rooms in New York City.

COMPLETION GUARANTEE

The principal of the Developer, George Xu has entered into a construction guarantee. Under the terms of the construction guarantee, George Xu has guaranteed that the Project will be completed in accordance with the term of the loan agreement between the Company and the JCE, and to indemnify the Company for any damages resulting from the failure of the Project to be completed in accordance with the terms of the loan agreement.

BRANDING AND PROJECT HIGHLIGHTS

Branding:

Holiday Inn Express (and Holiday Inn Express Hotel & Suites) is an upper-midscale, limited-service hotel brand by InterContinental Hotels Group (IHG). According to IHG, Holiday Inn Express is one of the fastest growing hotel brands in its segment. Holiday Inn Express offers competitive rates for both business and leisure travelers. All locations provide the complimentary "Express Start" breakfast bar, and many locations offer recreational amenities such as a swimming pool and/or fitness room. As of year-end 2014, there were 2,060 properties spanning 182,601 rooms in the Americas. In 2014, Holiday Inn Express hotels operated at an average occupancy rate of 68.5%, with an average daily rate of $108.48 and an average RevPAR of $74.26 in the Americas.

Project Highlights:

- Close proximity to Manhattan, New York
- Proximity to Flushing Main Street, major commercial and residential areas with high concentrations of Chinese and Korean population
- Proximity to two major airports in New York City
- Holiday Inn Express, an upper-midscale hotel brand offering a full-service hotel experience at a sensible price
- Century Construction Group is an established developer in NY
- 135-rooms

(b)(4)

USE OF PROCEEDS

The total cost of the Project is estimated at [redacted] consisting of, consisting of land costs of approximately [redacted] hard construction costs of approximately [redacted] and soft and other costs of approximately [redacted] The owner's equity is [redacted] which is approximately [redacted] of the development costs. The maximum raise of EB-5 investment funds will be [redacted]

The EB-5 investment funds raised will be in amount up to [redacted] to construct and develop the Holiday Inn Express & Suites. The project developers already have traditional bank financing in place for the remainder of the financing. Thus, intermediary short-term bridge financing may used to complete the construction. EB-5 investment may be used to replace a bridge loan from other commercial lenders. As necessary, the JCE may also provide temporary short-term bridge financing through member loans in order to commence construction and create jobs in advance of EB-5 funding.

Below are the construction budgets and the projections:

(b)(4)

(b)(4)

FIGURE 11-8 TEN-YEAR FORECAST OF INCOME AND EXPENSE

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Number of Rooms:										
Occupied Rooms:										
Occupancy:										
Average Rate:										
RevPAR:										
OPERATING REVENUE										
Rooms										
Miscellaneous Income										
Total Operating Revenue										
DEPARTMENTAL EXPENSES*										
Rooms										
Total										
DEPARTMENTAL INCOME										
UNDISTRIBUTED OPERATING EXPENSES										
Administrative & General										
Marketing										
Franchise Fee										
Prop. Operations & Maint.										
Utilities										
Total										
GROSS HOUSE PROFIT										
Management Fee										
INCOME BEFORE NON-OPER. INC. & EXP.										
NON-OPERATING INCOME AND EXPENSE										
Property Taxes										
Insurance										
Reserve for Replacement										
Total										
EBITDA LESS RESERVE										

*Departmental expenses are expressed as a percentage of departmental revenues.

FIGURE 13-1 DEVELOPMENT COST SUMMARY

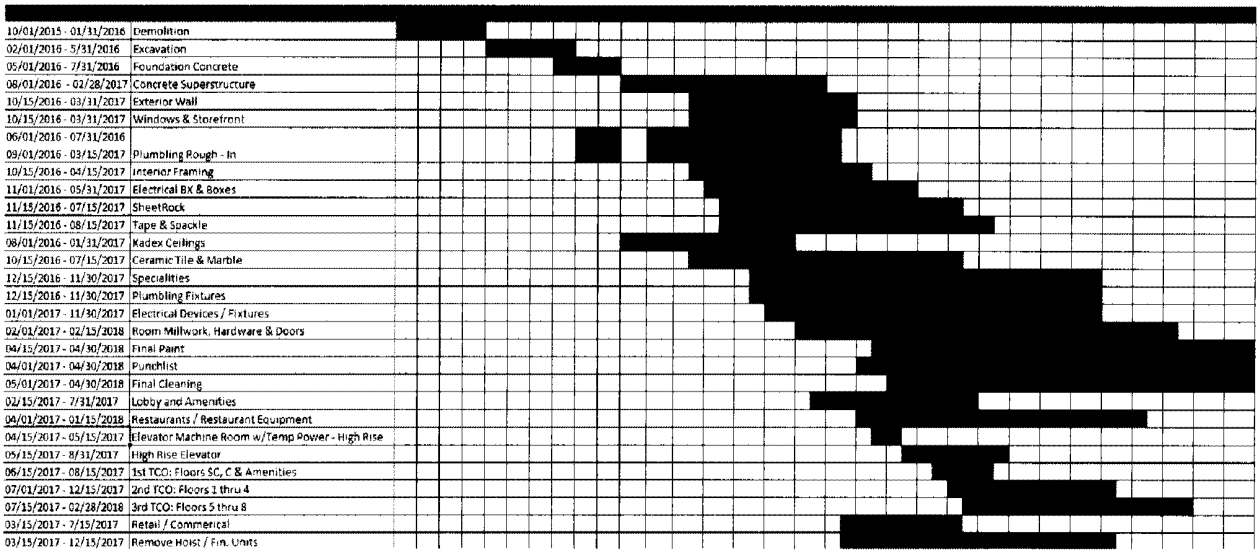
Component	Cost	Cost per Room
Construction		
General		
Sitework		
Masonry		
Concrete		
Metals		
Thermal & Moisture Protection		
Doors & Windows		
Finishes		
Conveying System		
Equipment		
Mechanical		
Fire Syste		
Electrical		
Plumbing Work		
Furniture, Fixtures & Equipment		
Soft Cost		
Total, Without Land		

(b)(4)

CONSTRUCTION OF THE PROJECT

The construction of the Holiday Inn Express & Suites project will take approximately 27 months to complete. The developer already has obtained the architectural designs, fabrications, excavations, and procurement and will apply for all necessary permit and licenses in place. The actual construction is expected to begin in the near future. The timeline at provides the particulars of the various phases of the construction over a period of project months from the commencement of the construction. For example, the early months will consist of the excavation and necessary foundation work.

The construction of the Holiday Inn Express & Suites project will take approximately 27-months to complete starting with excavation. The demolition phase of the project is scheduled to begin in October of 2015. The construction timeline is presented below.



The developer has obtained all necessary permits and licenses to begin construction and development of the project. Construction is expected to begin in October of 2015, and it is anticipated to be completed by mid-2018.

CONSTRUCTION PERMITS AND LICENSES

In New York City the construction is "as of-right" development which complies with all applicable zoning regulations and does not require any discretionary action (special permit or variance) by the City Planning Commission or Board of Standards and Appeals for approval. Assuming that the project complies with all other Code and Zoning regulations, the NYC Department of Buildings Plan Examiner Plan Examiner will approve the Plans, further to the architect's construction detailed blueprints and renditions.

It is not necessary for the project to seek the additional approvals of the City Planning Commission, or of the Local Community Board, or of any other outside party of interest. If the project complies with the applicable Zoning Laws currently in force, the developer is entitled to build.

* * * * *

MANAGEMENT BIOGRAPHIES AND INTERRELATIONS

The following paragraphs set forth the Officers of the Issuer and its Manager.

The amounts and percentage of Units beneficially owned are reported on the basis of regulations of the SEC governing the determination of beneficial ownership of securities. Under the rules of the SEC, a person is deemed to be a "beneficial owner" of a security if that person has or shares "voting power," which includes the power to vote or to direct the voting of such security, or "investment power," which includes the power to dispose of or to direct the disposition of such security. A person is also deemed to be a beneficial owner of any securities of which that person has a right to acquire beneficial ownership within 60 days. Under these rules, more than one person may be deemed a beneficial owner of the same securities and a person may be deemed a beneficial owner of securities as to which he has no economic interest.

MANAGEMENT BIOGRAPHIES

Mr. George Xu, CEO/Regional Center Principal

George Xu is the founder and a principal of the Century New York City Regional Center ("CNYCRC"). Mr. Xu is also the founder and the President of Century Development Group, a real estate development company based in New York City. With nearly 20 years of real estate holding and development experience, he has worked on over a million square feet of real estate developments; mixed-use developments including residential, hospitality, office, and retail. He has also worked in all phases of assembly, acquisition, finance, design, construction, marketing, and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters, and he provides marketing oversight and policy guidance for the Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and Computer Science and a Master of Science degree in Computer Science from Polytechnic University, New York.

Qili Li, MD, Regional Center Principal

Qili Li, MD, FACOG, is a principal of CNYCRC. Dr. Li has been in private practice for more than 15 years specializing in the field of Obstetrics and Gynecology in downtown Flushing, Queens County, New York City. Dr. Li attended the Sophie Davis School of Biomedical Education. She graduated Magna Cum Laude. After receiving her Medical Doctor degree from New York Medical College, Dr.Li completed her internship and residency training in Obstetrics/Gynecology at North Shore University Hospital at Manhasset, New York. Dr.Li is board certified in the specialty of Obstetrics/Gynecology. She is also a fellow of the American College of Obstetrics/Gyneoclogy (ACOG). In recent years, Dr. Li has expanded her interest/investment into real estate. She is currently involved in several real estate development projects ranging from high end condominiums to hotel construction.

David Pan, Vice President

David Pan is a vice president of CNYCRC. He has over 15 years of experience in fixed-income securities trading and risk management. Mr. Pan has worked in various roles at Credit Suisse, Citigroup, Deutsche Bank and the hedge fund industry. Formerly a Director at Credit Suisse in the Strategic Risk Management division covering Residential Mortgage Backed Security (RMBS) business, he was instrumental in developing models and methodologies in assessing the firm's risk exposure to the mortgage security market. Prior to his Wall Street career, Mr. Pan spent 10 years as a senior software engineer responsible for the development of the state-of-the-art fixed-income security trading and analytics software systems. He graduated with a Bachelor's degree in Computer Science from Queens College, City University of New York.

James Ho, Vice President

James Ho is a vice president of CNYCRC. Mr. Ho's role in the CNYCRC is to provide oversight of operations, maintain cohesion between the project's developer, general contractor, law and accounting firms, and to ensure overall compliance. Mr. Ho has extensive experience in computer programming, securities trading, and security related business. Currently, he is involved in real estate development of several projects in the New York City area. Mr. Ho graduated from Polytechnic University with a major in Electrical Engineering and Computer Science.

Robert Chen Vice President

Robert Chen is a vice president of CNYCRC, and oversees the overall operations of the Regional Center. He's also in charge of due diligence and evaluating potential projects and determining business feasibilities. Prior to joining CNYCRC, Mr. Chen had over 10 years' experience in a senior management position with FedEx. He has owned, managed, and operated companies in computer wholesale and repair business. Mr. Chen received his Bachelor of Science degree in Environmental Health Science from City University of New York.

Anthea Quan, Accounting Controller

Anthea Quan serves as the director of accounting controller for CNYCRC. She is responsible for the accounting, financial reporting, and audit functions. Ms. Quan also performs management of operating cash flow and financial analysis for development projects and investor distribution. She is passionate about accounting and has experience working with a variety of small businesses. Ms. Quan graduated from Yanbian University in China with a bachelor of mathematics. She is fluent in Chinese, English and Korean. She currently resides in New York City with her husband.

Tracy Law, Director of Project Management

Tracy Law is the director of project management of CNYCRC. Ms. Law is responsible for a full spectrum of the operation to ensure projects are done on time and within budget. Her constant communication with contractors and architects provides a strong network of relationships in the field. She is responsible for supervising and coordinating OS&E and FF&E. She is integral in bringing new hotels to full operation. Ms. Law graduated with a Bachelor of Science degree in Accounting from Queens College, City University of New York.

Lynn Wei, Director of Marketing and Business Development

Lynn Wei is CNYCRC's director of marketing and business development. Ms. Wei is responsible for a full spectrum of business development initiatives including creating and overseeing international marketing strategies for all CNYCRC project offerings. She is also involved in managing client relations. Ms. Wei is also a senior business development associate at the Century Development Group. In this capacity, she focuses on creating Request for Proposals and general marketing materials, as well as developing a customer analytical database, and implementing strategic marketing and communication initiatives. Ms. Wei graduated with a Master of Science degree in Economics from Brooklyn College, City University of New York and a Bachelor of Administrative Degree in Marketing from Shanghai Finance University.

* * * * *

(b)(4)

CONFLICTS OF INTEREST

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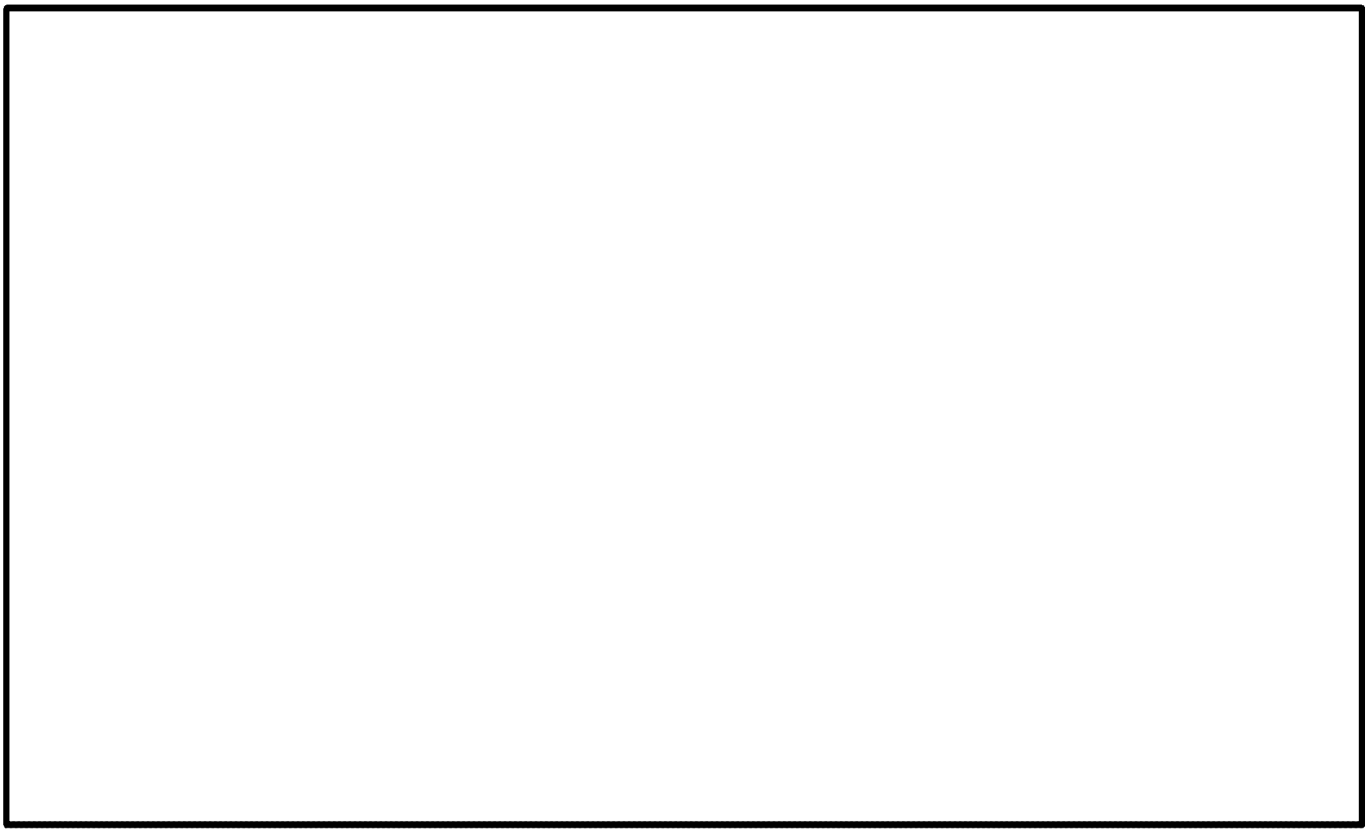

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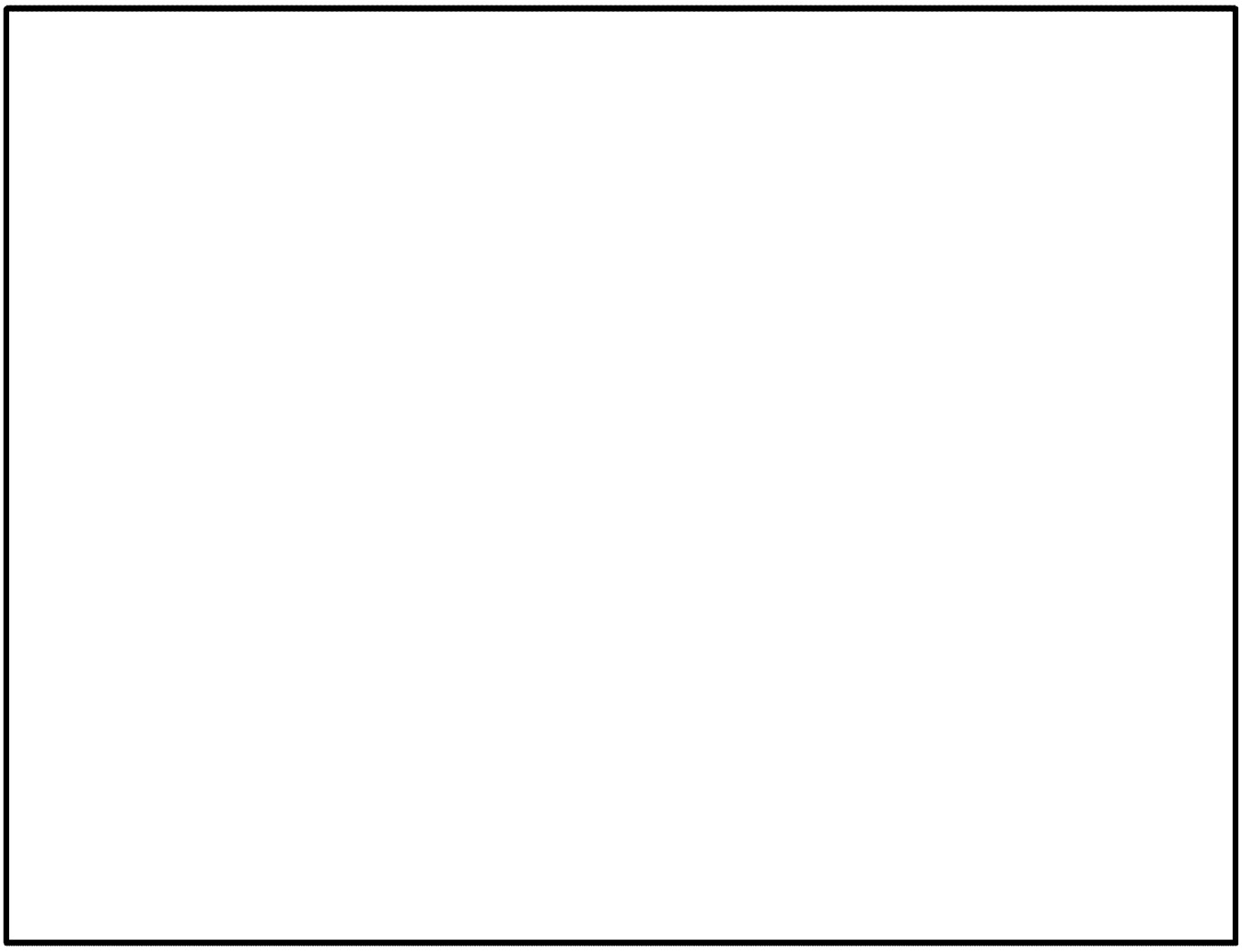

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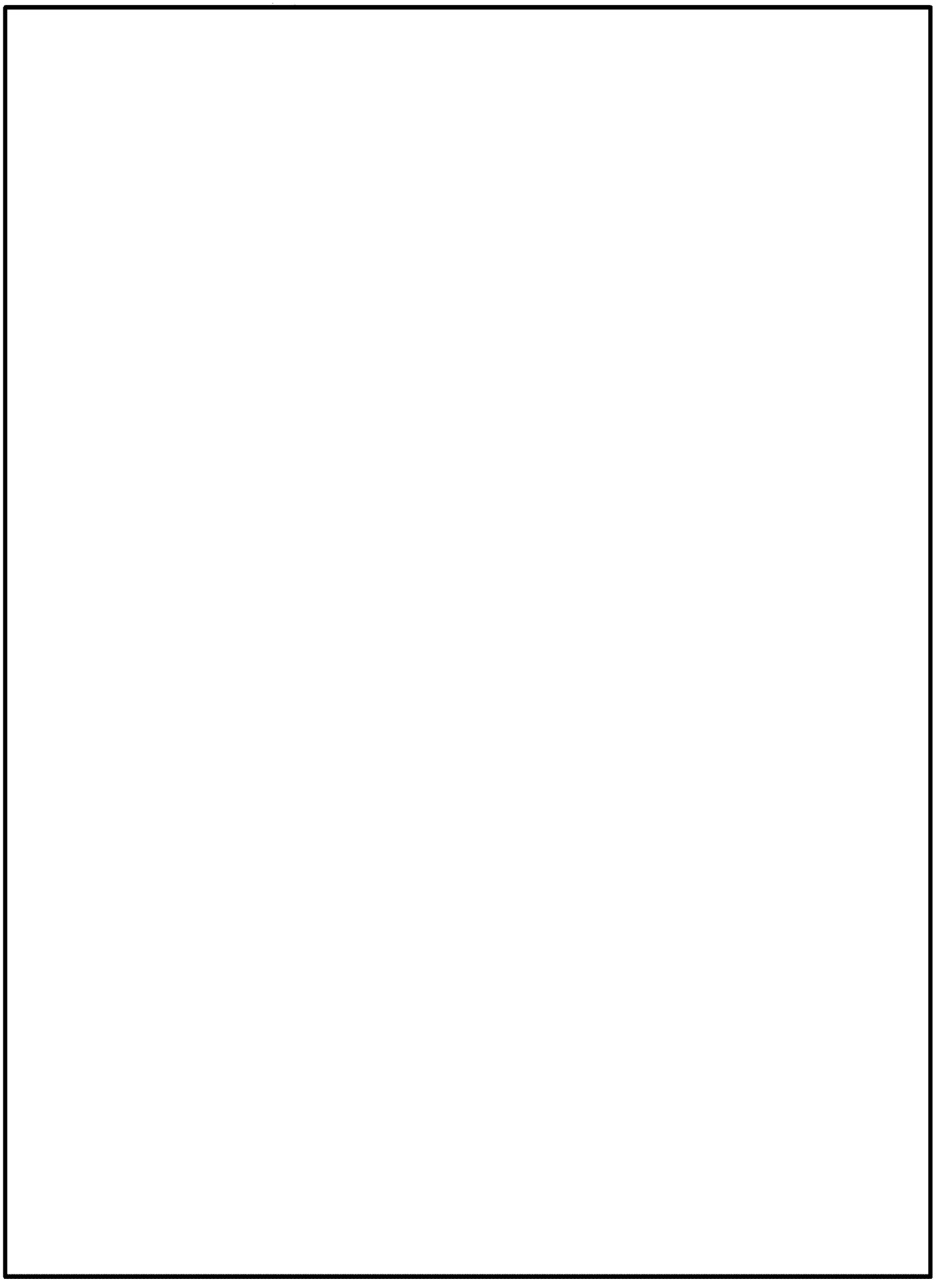

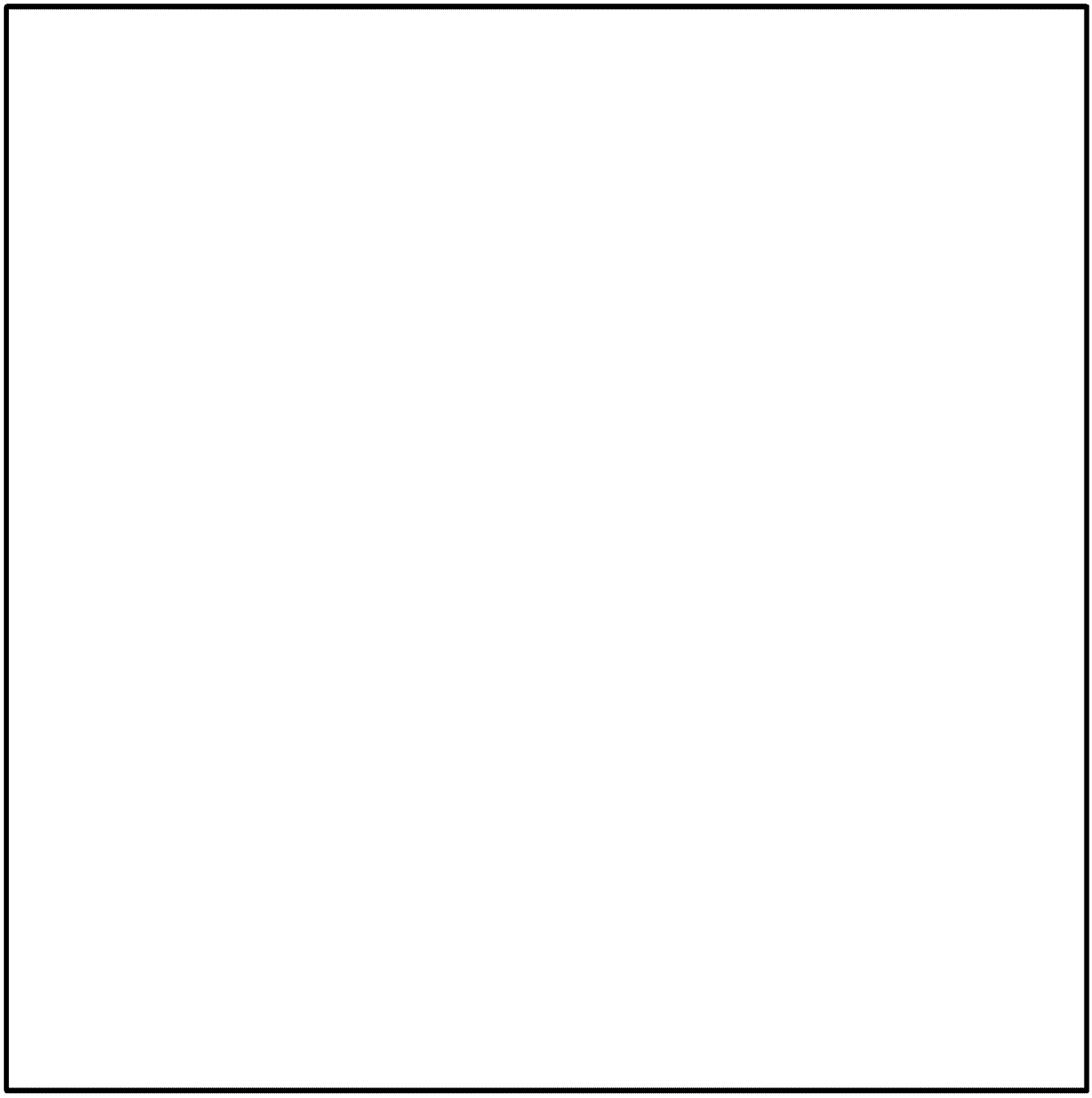

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TAX CONSIDERATIONS

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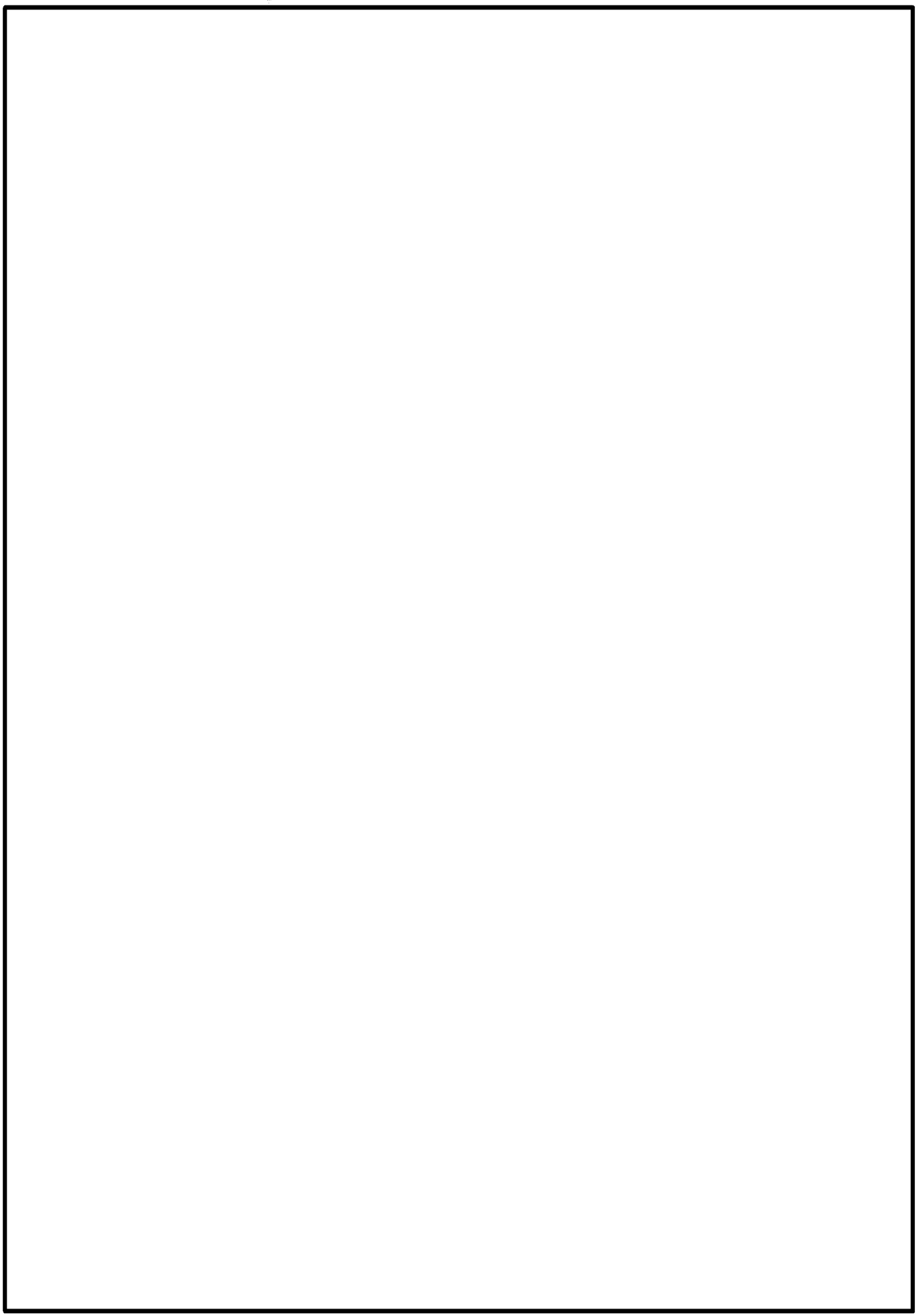

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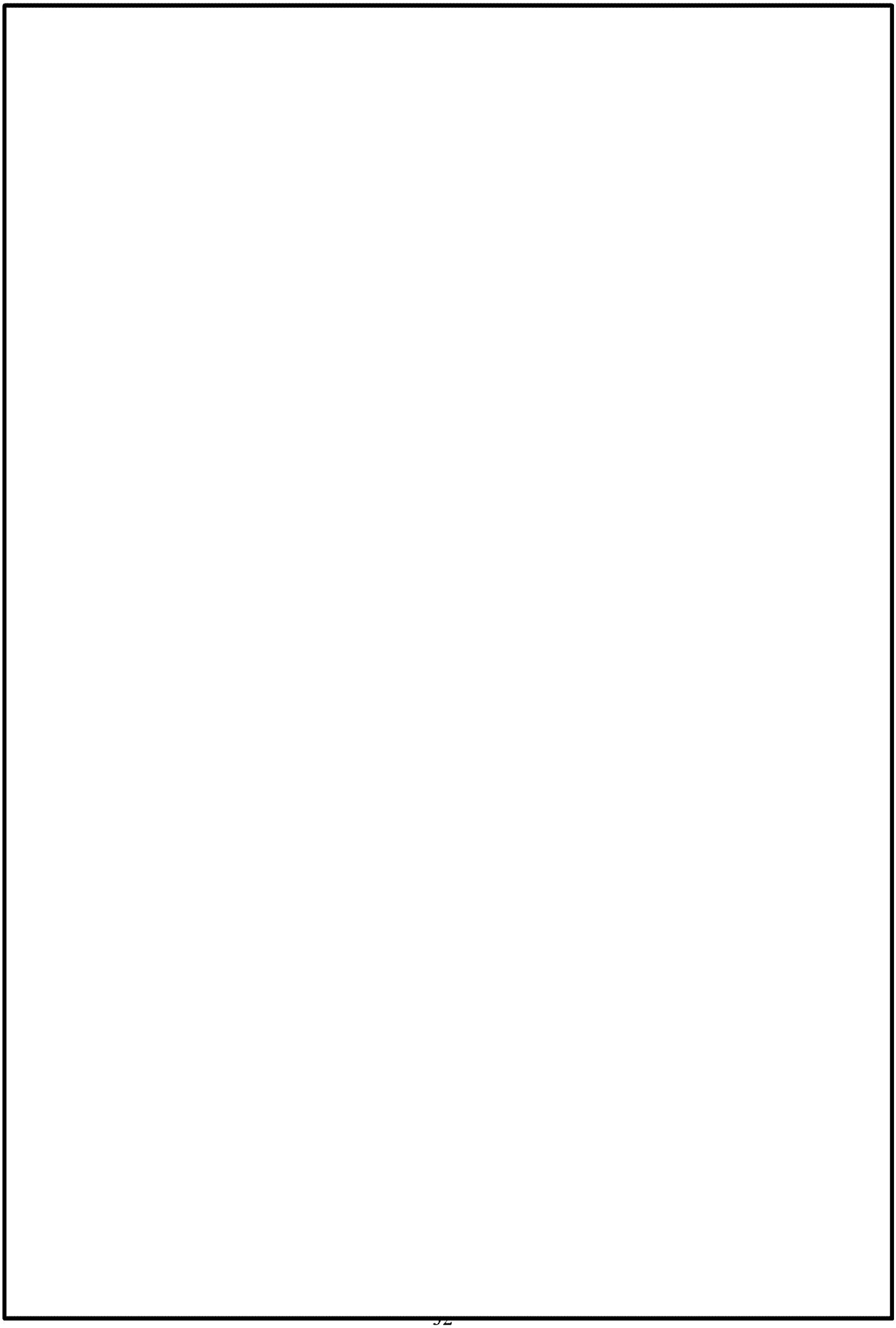

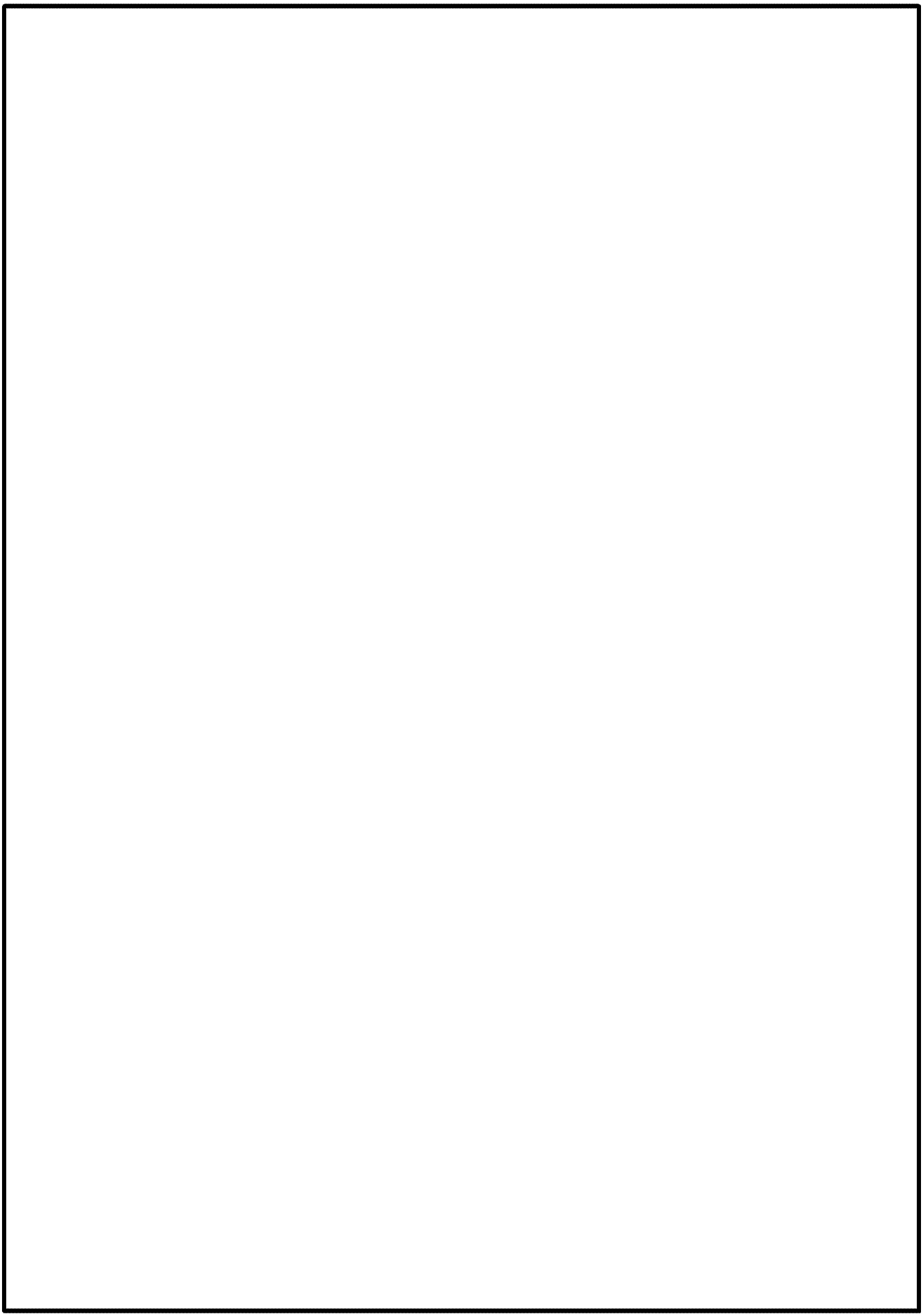

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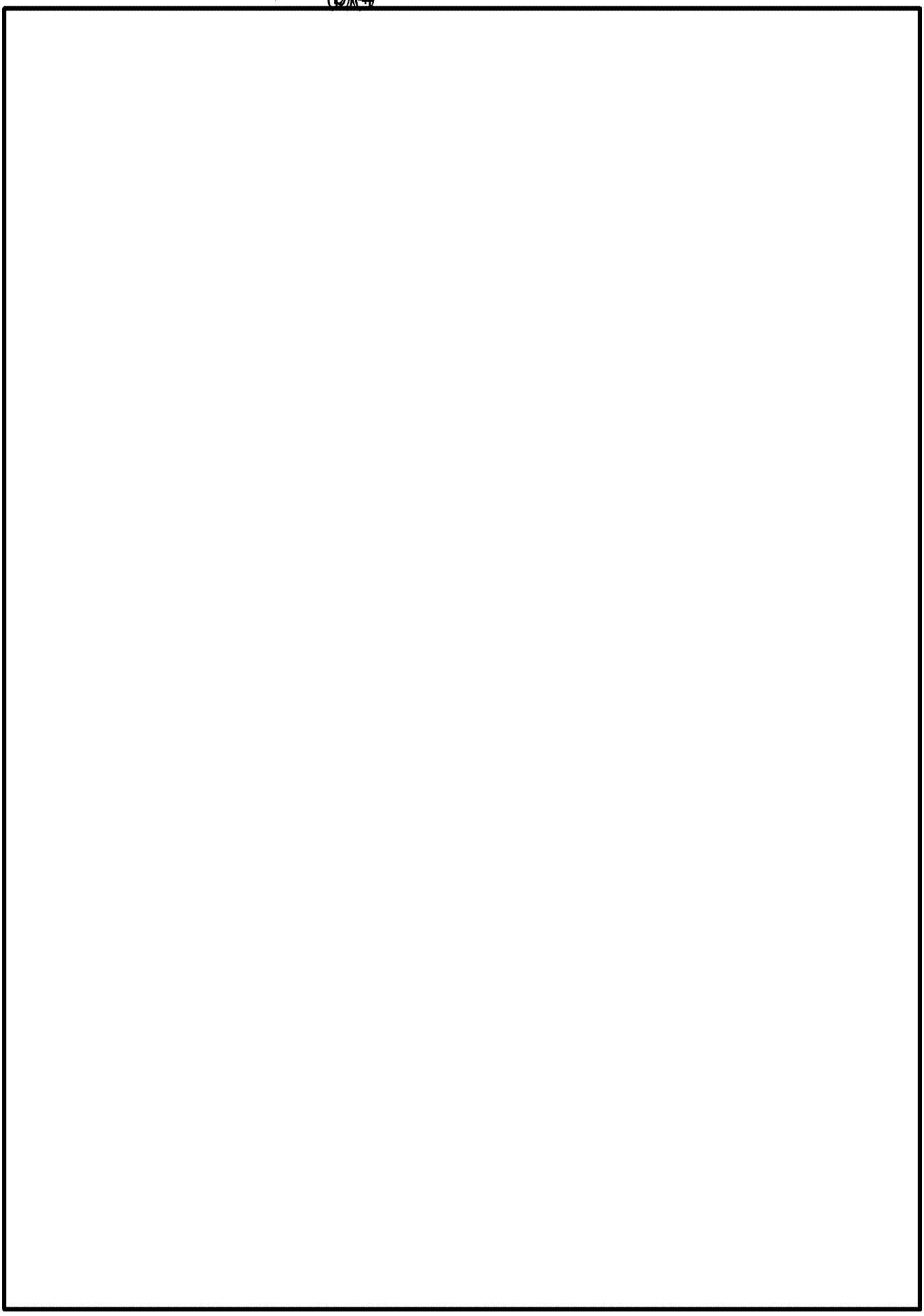

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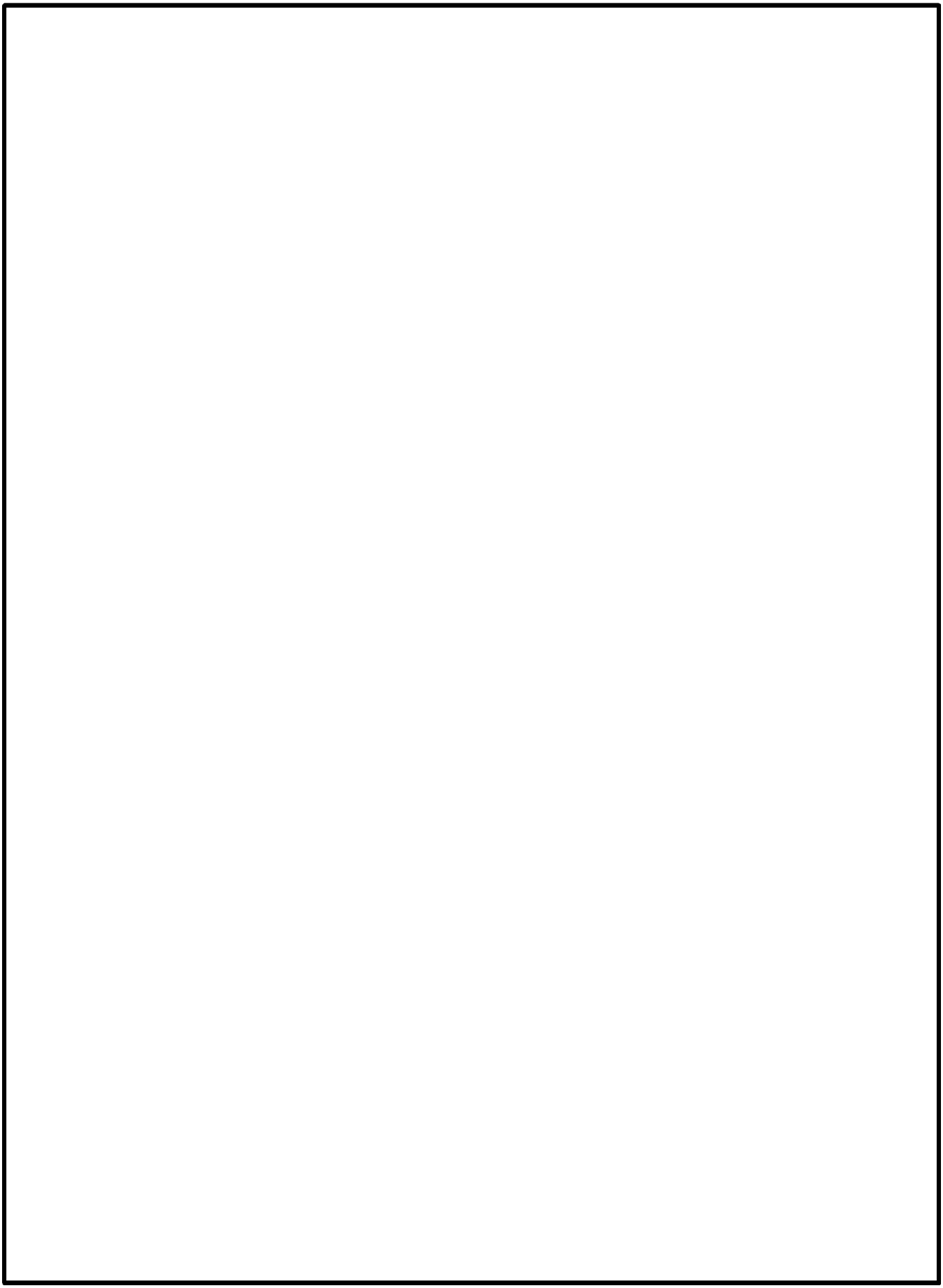

EB-5 IMMIGRATION DISCLOSURES AND RISK FACTORS

While the Company intends that this Offering and the provisions of the Company Agreement will enable the Members to satisfy the EB-5 requirements related to investment and job creation under USCIS law and regulations, there are no assurances that a Member's I-526 petition will be granted by USCIS or that a Member will be able to obtain an immigrant visa or unconditional lawful permanent resident status.

TEA Designation

USCIS regulations and interpretations hold that the targeted employment area (the "TEA") is not decided until the time that an investor's I-526 Petition is filed with USCIS. The unemployment statistics used to determine the TEA could change based on new data with respect to unemployment rates and, at the time of the investor's filing of his or her I-526 Petition, the area may no longer qualify as a TEA (*i.e.* an area that has experienced unemployment at a rate that is at least 150% of the national average). The New York State Department of Labor has designated the area where the Project is located as a TEA as of August 20, 2015. See TEA Designation Letter in Exhibit B.

TEA Deference

USCIS may not give deference in the future to state designation letters with respect to geographical areas or census tracts that were aggregated to form a TEA. As such, the Company cannot assure you that USCIS will continue to accept the designation of the area encompassing the Project as located as within a TEA.

Bridge Financing

The Project Company, may use some, if not all, of the Loan Amount to repay debt obtained from the Senior Lender and/or debt and equity obtained or contributed by the Sponsor to bridge construction and development expenses in anticipation of the proceeds of Loan, which is currently permitted by USCIS' May 30, 2013 Policy Memorandum. USCIS may change its position on the use of bridge financing and determine that the use of these proceeds to repay a portion of such bridge financing does not satisfy the job creation requirements of the EB-5 Program and/or USCIS may determine that there is no nexus between the proceeds and the creation of jobs, resulting in no credit given to investors for job creation necessary to support approval of the I-526 Petition(s) or the I-829 Petition(s) of all or a portion of the investors in the EB-5 Program.

Highly Regulated Program

The EB-5 Program was created in 1990 by the U.S. Congress, which has accorded broad regulatory powers to the Department of Homeland Security and, in particular, to USCIS in administering the EB-5 Program. While the Company will strive to coordinate with USCIS to achieve the investors' immigration goals, there can be no assurance that USCIS examiners will take a consistent position as to many of the issues arising under the EB-5 Program, and there can be no assurance that USCIS regulations, precedent case law and policies will remain the same in the future. Since the laws, regulations and USCIS interpretations of the EB-5 Program are subject to change at any time, there can be no assurance that the Loan to the Project will meet USCIS criteria.

Visa Unavailability; Retrogression.

The current law applies a country quota if the 10,000 visa cap is reached on an annual fiscal basis. The U.S. State Department's Visa Office in its July 2015 Visa Bulletin established a cut-off date for Chinese nationals of September 1, 2013. This means effective July 1, 2015, visa numbers will be unavailable for Chinese nationals having a priority date (I-526 Petition filing date) of September 1, 2013 or later. These investors will be required to wait until their priority date becomes "current" or is reached under the Visa Bulletin after I-526 petition approval to proceed to immigrant visa processing or adjustment of status. Members who are also Chinese nationals will be affected by visa unavailability as the July 2015 Visa Bulletin currently predicts that the EB-5 category will be subject to cut-off dates or visa unavailability "indefinitely." This may have a serious and adverse effect on EB-5 Program marketing in China, thereby potentially preventing the Company from raising the maximum amount of capital needed to complete the Project and from creating the necessary number of jobs estimated by the economic study. Visa unavailability could also result in Chinese nationals having to wait an extended period of time before they can complete the Visa Process and gain lawful permanent resident status. Visa unavailability may also limit the visa availability for the child of a Member if the child is under the age of 21 years at the time of the Member's filing of the I-526 Petition but over the age of 21 when a visa becomes available. Additionally, because a Member's investment in the Company must be "sustained" during the two years of their conditional residence, the time period before which a Member

can have his or her investment capital returned may be extended by the length of the visa unavailability subject to USCIS's adjudication standards to emerge during visa unavailability. This may require Member capital investment to be maintained in the Company or the Project for an extended period of time until the approval by USCIS to remove the Member's conditions on his or her permanent residence, thereby delaying the Member's "exit strategy". In addition, to the extent the repayment of the Loan predates the expiration of the conditional residence period, as extended by the length of the visa unavailability period, the Member may not be able to demonstrate that his or her investment in the Company was "sustained" during the entirety of the conditional residence period, subject to USCIS's adjudication standards to emerge during visa unavailability. USCIS has not issued any guidance regarding the impact of visa unavailability or retrogression on I-829 Petition adjudication. While legislation has previously been proposed to eliminate the per country quota to expand the number of visas available to Chinese nationals, there are no assurances that such legislation may ultimately become law.

Delay in Obtaining Conditional Lawful Permanent Resident Status

USCIS processing times are fluid; the processing times found on USCIS website are not always accurate. USCIS may issue a Request for Evidence ("RFE") or a Notice of Intent to Deny ("NOID") during the adjudication of the investor's I-526 Petition. The RFE or NOID can result in extensive delays in the adjudication of an individual's I-526 Petition. Likewise, USCIS may delay adjudications associated with a securities offering, such as this Offering, to consider policy issues related to the offering which may result in extensive delays in adjudication. USCIS delays could also result in long lapses of time between admitting investors into the Company as members which, in turn, could delay job creation, impacting an investor's ability to have his or her I-829 Petition approved.

USCIS Action to Terminate the Regional Center's Designation

USCIS may *sua sponte* terminate the Regional Center's designation as a regional center under the EB-5 Program at any time and for any reason, including concerns regarding job creating activities, economic development activities for which it was designated, or concerns over the immigration, securities or corporate formation documents submitted to USCIS at the time of the Regional Center's initial application to be designated as a regional center or at the time of any subsequent amendment filings.

General Immigration Risks

The process of obtaining conditional resident status and permanent resident status involves many factors and circumstances that are not within the Company's control. These include, among others, the investor's past history, history of alcohol and drug use, criminal history, past membership or association with certain political, social or religious groups, immigration visa backlogs, potential changes in immigration laws and regulations (including laws and regulations specific to the EB-5 Program), and quotas established by the U.S. government limiting the number of immigrant visas available to qualified individuals seeking permanent resident status under the EB-5 Program. Although the Company has been structured with the objective of providing the Members with eligibility for conditional and permanent resident status under the EB-5 Program, no assurance can be given that a Member will obtain approval of his or her particular immigrant application. Purchase of Interests does not guarantee temporary, conditional or permanent residence status in the U.S. Furthermore, no assurances or advice can be given that conditional resident status, if granted, will be converted to permanent resident status.

Job Creation and Retention Requirements

Under the EB-5 Program, the Company, by virtue of its Loan to the Borrower, must create 10 direct, indirect or induced full-time U.S. jobs per immigrant investor during a specified two year period in order for each such immigrant investor to have the conditions removed from that investor's conditional permanent resident status. For example, if the Company raises the anticipated offering amount of $8 million from 16 Investors seeking immigration benefits, the Company will be required to create at least 160 direct, indirect and/or induced jobs. The Company will rely on the Project, which may or may not hire or create the required number of jobs even if all of the Interests are sold. Additionally, job creation from the Project is estimated using the Regional Input/Output Model ("RIMS II"). Job creation based on RIMS II is evaluated based on economic activity of the Project such as construction expenditures and operating revenues. If the Project generates less initial economic activity than estimated for use in the RIMS II model, USCIS may conclude that the Project creates fewer jobs than initially anticipated. If an investor receives conditional lawful permanent resident status, but later does not receive lawful permanent resident status, the Company has no obligation to refund any of the investor's Capital Contribution to the Company or otherwise redeem the investor's Interests.

Allocation of Jobs

Jobs will be allocated to the Members for EB-5 purposes on a first-in, first-out basis tied to the date of the commencement of each Member's period of conditional residence in the U.S. (either the date of admission from outside the U.S. using the immigrant visa, or else the date of approval of adjustment of status for Member's located within the U.S.). This allocation process will continue until all jobs have been allocated to the Members and there is no guaranty that one or more Members will receive legal permanent residency in the United States as a result of his or her investment in the Company.

Background Check

According to USCIS policy, no application for lawful permanent residence will be approved until a definitive FBI fingerprint check and Interagency Border Inspection Services (IBIS) check are completed and resolved favorably. An EB-5 immigrant investor's background (or that of an immediate family member) may not meet USCIS or Department of State criteria for conditional or permanent residency in the U.S. For example, among other criteria, the following may be grounds for denial of immigration benefits for the immigrant, and/or other members of the immigrant's family: having a communicable disease or other dangerous contagious disease; having been at any time involved with, trafficking in, or taking, illegal drugs; having been convicted of certain crimes; having committed fraud or misrepresentation to a U.S. Government official; or having violated U.S. immigration laws in the past. If an investor receives I-526 Petition approval but later does not receive conditional or unconditional lawful permanent resident status, the Company has no obligation to refund any of the investor's Capital Contribution or Administrative Fee or otherwise redeem the investor's Interests. Other security checks could be required by USCIS, Department of State or other governmental agencies which could delay adjudication of the I-526 Petition or the subsequent application for conditional lawful permanent resident status.

Source of Funds

Immigrant investors must demonstrate to USCIS that the funds they intend to invest (or have invested) in the Company were obtained through lawful means. Further, each immigrant investor must document, to the satisfaction of USCIS, the source of these funds (e.g., whether the funds were income from a salary, sale of real estate, sale of stock, gifted, a loan, divorce settlement, etc.). The investor also must, to the best of his or her ability, trace the funds from the time they were obtained through the time they were invested in the Company. USCIS will retain ultimate authority in deciding whether the investor has met his or her burden of proof with respect to such tracing of funds and demonstrating the lawful source of such funds. Prior to subscribing for Interests, the investor must be prepared to present all documents relevant to lawful source of funds and tracing of these funds to the Manager. If the investor is unable or unwilling to provide timely to the Manager and/or USCIS evidence, satisfactory to the Manager, regarding the source and lawful nature of that Member's Capital Contribution, then, according to the terms of the Company Agreement, the Manager may expel the investor as a Member of the Company.

U.S. Immigration Residency Requirements

Immigrant investors who obtain conditional or lawful permanent resident status under the EB-5 Program must intend to make the U.S. their primary residence. Lawful permanent residents who maintain their primary residence outside the U.S. risk revocation of their U.S. residence status. Each prospective immigrant investor should consult a competent immigration attorney to review the likelihood that the investor's immigration objectives will be achieved. The Company must satisfy the job creation and retention requirements of the EB-5 Program at the time when the investors file for the removal of the condition of their permanent residency. If an investor fails to obtain or later loses his or her lawful permanent resident status because of a failure to comply with the residency requirements of the EB-5 Program, the Company has no obligation to refund any portion of that investor's investment in the Interests or otherwise redeem the investor's Interests regardless of whether the investor requests a refund of his or her investment.

Material Change in Business Plan

The Company's or the Project Company's business operations may not proceed according to the business plan submitted with the investor's original I-526 Petition because of economic conditions, weather conditions, labor conditions, competitive conditions or other factors. A material change from the Project Company's original business plan after I-526 submission and prior to obtaining conditional permanent residence could result in denial or even revocation of the initial I-526 petition and the need to file a new I-526 Petition, resulting in a delay in the immigration process as well as the possibility of qualifying children reaching the age of 21 to become disqualified from obtaining immigration benefits along with the principal petitioner. A material change from the Project Company's original business plan between the time of I-526 Petition approval and I-829 Petition approval may lead to the denial of an investor's I-829 Petition. USCIS' May 30, 2013 Policy Memorandum states that USCIS will review I-829 Petitions for compliance with the regulations even if there is a material change in the business plan. However, it is not known whether USCIS will follow this new policy or how it will apply this policy, and USCIS has

not defined a "material change." If the I-829 Petition is denied on this basis, USCIS can place the investor into removal proceedings where the investor's conditional lawful permanent resident status may be terminated, making the investor deportable.

Incorrect Job Creation Analysis

The estimated number of jobs to be created by the Project is based on the findings of an economic impact analysis (the "Analysis") prepared by Evans, Carroll & Associates, Inc. The estimates are based on assumptions and projections that may be rejected by USCIS as incorrect or insufficient. If the projected number of jobs to be created is incorrect, the fulfillment of the conditions of the EB-5 Program could be placed in jeopardy. Further, this could result in the denial of the removal of conditions on your residency in the U.S. (*i.e.*, I-829 petition denial). The Company will provide a copy of the Analysis to all investors on request, and in connection with the filing of their I-526 petitions with USCIS.

Visa Eligibility

Even after approval of the I-526 Petition, there is no guarantee that the Member, his or her spouse or any of their minor, unmarried children will be granted lawful permanent residence. The grant of such immigration status is dependent, among other things, upon the personal and financial history of each applicant. Any one of several government agencies may determine in its discretion, sometimes without the possibility of appeal, that an applicant for lawful permanent residence is excludable from the United States. In limited instances, a waiver of a ground of exclusion may be available under the law, but adjudications of waiver applications are themselves made in the unreviewable discretion of the United States.

Statutory Presumption of Inadmissibility

Persons applying for lawful permanent residence must overcome the statutory presumption of inadmissibility. Applicants must demonstrate, affirmatively, that they are admissible to the United States. There are many grounds of inadmissibility that the government may cite as a basis to deny admission for lawful permanent residence. Various statutes, including for example Sections 212, 237 & 241 of the Immigration Act, the Antiterrorism & Effective Death Penalty Act of 1996 and the Illegal Immigration Reform & Immigrant Responsibility Act of 1996 set forth grounds of inadmissibility, which may prevent an otherwise eligible applicant from receiving an immigrant visa, entering the United States or adjusting to lawful permanent residence.

Examples of aliens precluded from entering the United States include:

(a) persons who are determined to have a communicable disease of public health significance;

(b) persons who are found to have, or have had, a physical or mental disorder and behavior associated with the disorder which poses or may pose, a threat to the property, safety, or welfare of the alien or of others, or have had a physical or mental disorder and a history of behavior associated with the disorder, which behavior has posed a threat to the property, safety, or welfare of the immigrant alien or others, and which behavior is likely to recur or to lead to other harmful behavior;

(c) persons who have been convicted of a crime involving moral turpitude (other than a purely political offense), or persons who admit having committed the essential elements of such a crime;

(d) persons who have been convicted of any law or regulation relating to a controlled substance, admitted to having committed or admits committing acts which constitute the essential elements of same;

(e) persons who are convicted of multiple crimes (other than purely political offenses) regardless of whether the conviction was in a single trial or whether the offenses arose from a single scheme of misconduct and regardless of whether such offenses involved moral turpitude;

(f) persons who are known, or for whom there is reason to believe, are, or have been, traffickers in controlled substances;

(g) persons engaged in prostitution or commercialized vice;

(h) persons who have committed in the United States certain serious criminal offenses, regardless of whether such offense was not prosecuted as a result of diplomatic immunity;

(i) persons excludable on grounds related to national security, related grounds, or terrorist activities;

(j) persons determined to be excludable by the secretary of state of the United States on grounds related to foreign policy;

(k) persons who are or have been a member of a totalitarian party, or persons who have participated in Nazi persecutions or genocide;

(l) persons who are likely to become a public charge at any time after entry;

(m) persons who were previously deported or excluded and deported from the United States;

(n) persons who by fraud or willfully misrepresenting a material fact, seek to procure (or have procured) a visa, other documentation or entry into the United States or other benefit under the Act;

(o) persons who have at any time assisted or aided any other alien to enter or try to enter the United States in violation of law;

(p) certain aliens who have departed the United States to avoid or evade U.S. Military service or training;

(q) persons who are practicing polygamists; and

(r) persons who were unlawfully present in the United States for continuous or cumulative periods in excess of 180 days.

Conditional Residency

Lawful permanent residence status granted initially to the Member, his or her spouse and their qualifying children is "conditional." The Member, his or her spouse and their qualifying children must seek removal of conditions before the second anniversary of lawful permanent admission to the United States. There is no assurance that USCIS will grant the removal of conditions as to the Member, his or her spouse and their qualifying children. If the Member fails to have conditions removed, the Member, his or her spouse and their qualifying children will be required to leave the United States and may be placed in removal proceedings. Even if the Member succeeds in having conditions removed, the Member, his or her spouse and each of their qualifying children, separately, must have conditions removed. Failure to have conditions removed as to any of these members of the Member's family may require some members to depart from the United States and such family members may be placed in removal proceedings. Examples of possible reasons for denial of the Member's petition to remove conditions from permanent residence include:

- failure to sustain the investment for the required two years, such as through return of the Member's capital before the time for removal of conditions on the Member's residence, even if 10 jobs were created;
- failure to maintain investment according to USCIS due to a repayment of the Loan to the Company even though such a repayment may not result in any return of the Member's capital;
- failure of the Project to use all of the Member's Capital Contribution in job creating activity, according to technical requirements of USCIS (some of which are not clearly articulated and which could change over time), even if 10 jobs were created;
- failure to show that the Member's investment has created 10 new jobs for U.S. workers that can be allocated to such Member (which may result from failure to meet the Project's economic milestones that were used as assumptions in projection of the direct, indirect and induced jobs that would be created by the Member's investment); and
- even if the required 10 jobs were created, the Project's material departure from the business plan presented to USCIS in obtaining approval of the Member's I-526 Petition.

Removal of Conditions

USCIS regulations governing lawful permanent residence for foreign investors do not state specifically the criteria which USCIS must apply to determine eligibility for the removal of conditions to lawful permanent resident status. U.S. courts have determined some standards to be followed by USCIS in some, but not all, circumstances. The Company may make certain management decisions in the absence of these specific eligibility criteria. The Company will seek as much information as possible from USCIS in an effort to assist Members in their attempts to qualify for the removal of conditions, where good business practices permit. Notwithstanding the foregoing, Members should become educated about the standards that will determine eligibility to achieve unconditional lawful permanent residence in the United States pursuant to this program which currently is in a state of evolution.

EB-5 Regional Center Pilot Program

In 1992, the U.S. Congress enacted the EB-5 Regional Center Program to stimulate interest in the EB-5 program. As a "pilot," the Regional Center Pilot Program is not yet permanent, and consequently requires periodic renewal by Congress. The Regional Center Pilot Program has been renewed several times by Congress and is currently due to expire or "sunset" on September 30, 2015. Congress is expected to renew this program prior to its expiration, or make the program permanent by removing its "pilot" designation. However, there is a risk that Congress may not renew, or not renew before the current expiration date. If the Regional Center Pilot Program is not renewed before expiration, the effect of the gap on pending immigration petitions is unknown. In the past, USCIS indicated that it would hold pending I-526 Petitions "in abeyance" for an indeterminate period of time until USCIS renewed the Regional Center Pilot Program. USCIS may or may not follow the same procedure. With respect to Immigrant Visa issuance, in the past the U.S. State Department announced that it would issue regional center-based EB-5 immigrant visas until close of business on the sunset date. The U.S. State Department may or may not follow the same procedure. Finally, with respect to admission to the U.S., in the past U.S Customs and Border Protection announced that it would admit EB-5 immigrant visa holders after the sunset date during the full validity period of the immigrant visa. U.S. Customs and Border Protection may or may not follow the same procedure.

It connection with any renewal of the Regional Center Pilot Program, Congress may impose new requirements or modify existing requirements. For example, Congress may change the TEA definition or raise the minimum capital investment amount. It is uncertain at this time whether Congress will impose any of these or any other new or changed requirement and when such new or changed requirement will be made effective. Any such requirement imposed in connection with the renewal of the Regional Center Pilot Program could adversely affect a Member's immigration process or benefit.

Change in Legislation or Policy

There may be change in U.S. laws or policy after the date of this Memorandum. The immigration laws and the corresponding rules, regulations and USCIS interpretations related to the EB-5 Program and the corresponding applications are in a constant state of flux, and there are no assurances that new laws and/or interpretations will result that will otherwise modify the disclosures and information set forth in this Memorandum.

Admissible to the U.S.: Foreign persons applying for a U.S. Green Card must demonstrate that they are admissible to the U.S. Section 212 of the Immigration and Nationality Act sets forth various grounds of inadmissibility, which may prevent an otherwise eligible applicant from receiving a green card or entering the U.S. Foreign individuals who are ineligible to receive a Green Card or to be admitted to the U.S. include, but are not limited to, an individual who (1) is determined to have a communicable disease of public health significance, which shall include infection with the etiologic agent for acquired immune deficiency syndrome; (2) is determined to have a physical or mental disorder and behavior associated with the disorder that may pose, or has posed, a threat to the property, safety, or welfare of the individual or others; (3) is determined to have had a physical or mental disorder and a history of behavior associated with the disorder, which behavior has posed a threat to the property, safety, or welfare of the individual or others, and which behavior is likely to recur or to lead to other harmful behavior; (4) is determined to be a drug abuser or addict; (5) has been convicted of committing, or who admits having committed, acts which constitute the essential elements of a crime involving moral turpitude (other than a purely political offense), or a violation of (or a conspiracy or attempt to violate) any law or regulation of a State, the United States, or a foreign country relating to a controlled substance; (6) has been convicted of 2 or more offenses (other than purely political offenses), regardless of whether the conviction was in a single trial or whether the offenses arose from a single scheme of misconduct and regardless of whether the offenses involved moral turpitude, for which the aggregate sentences to confinement were 5 years or more; (7) is or has been an illicit trafficker in any controlled substance or in any listed chemical (as defined in section 102 of the Controlled Substances Act (21 U.S.C. § 802), or is or has been a knowing aider, abettor, assister, conspirator, or colluder with others in the illicit trafficking in any such controlled or listed substance or chemical, or endeavored to do so; (8) is the spouse, son, or daughter of an alien inadmissible under clause (7) and has, within the previous 5 years, obtained any financial or other benefit from the illicit activity of that alien, and knew or reasonably should have known that the financial or other benefit was the product of such illicit activity; (9) is coming to the U.S. solely, principally, or incidentally to engage in prostitution, or has engaged in prostitution within 10 years of the date of application for a visa, admission, or adjustment of status; (10) directly or indirectly procures or attempts to procure, or (within 10 years of the date of application for a visa, admission, or adjustment of status) procured or attempted to procure or to import, prostitutes or persons for the purpose of prostitution, or receives or (within such 10 year period) received, in whole or in part, the proceeds of prostitution; (11) is coming to the United States to engage in any other unlawful commercialized vice, whether or not related to prostitution; (12) has committed in the U.S. a serious criminal offense, regardless of whether such offense was prosecuted as a result of diplomatic immunity; (13) is excludable from the U.S. on grounds relating to national security, related grounds, or terrorist activities; (14) is excludable from the U.S. on grounds relating to foreign policy; (15) is or has been a member of or affiliated with the Communist or any other totalitarian party or who has participated in Nazi prosecutions or genocide; (16) is likely to become a public charge at any time after entry; (17) by fraud or willfully misrepresenting a material fact, seeks to procure (or has sought to procure or has procured) a visa, other documentation, or admission into the U.S.; (18) illegally entered into the U.S.; or (19) has at any time knowingly encouraged, induced, assisted, abetted, or aided any other alien to enter or to try to enter the U.S. in violation of law.

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RISK FACTORS

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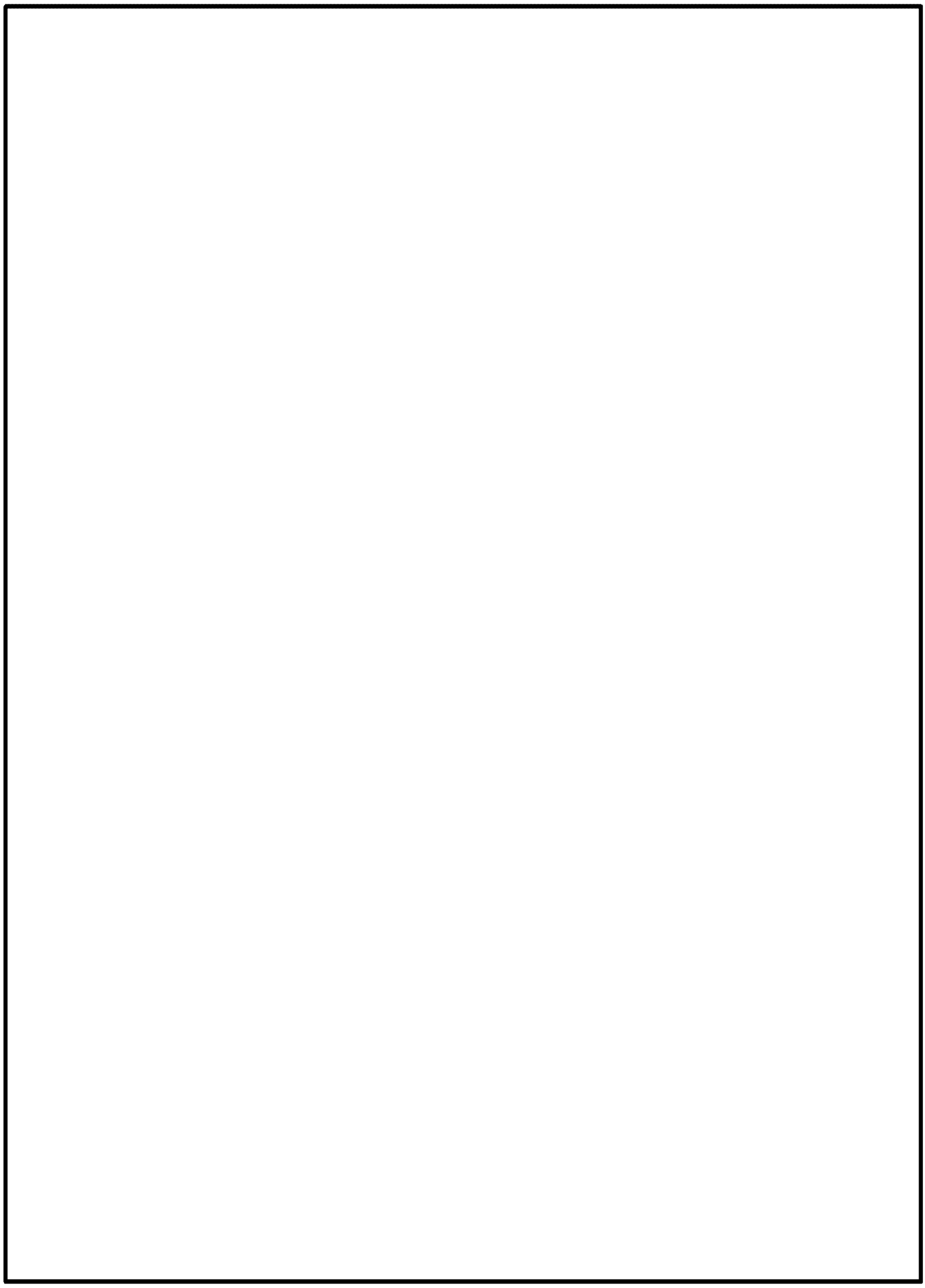

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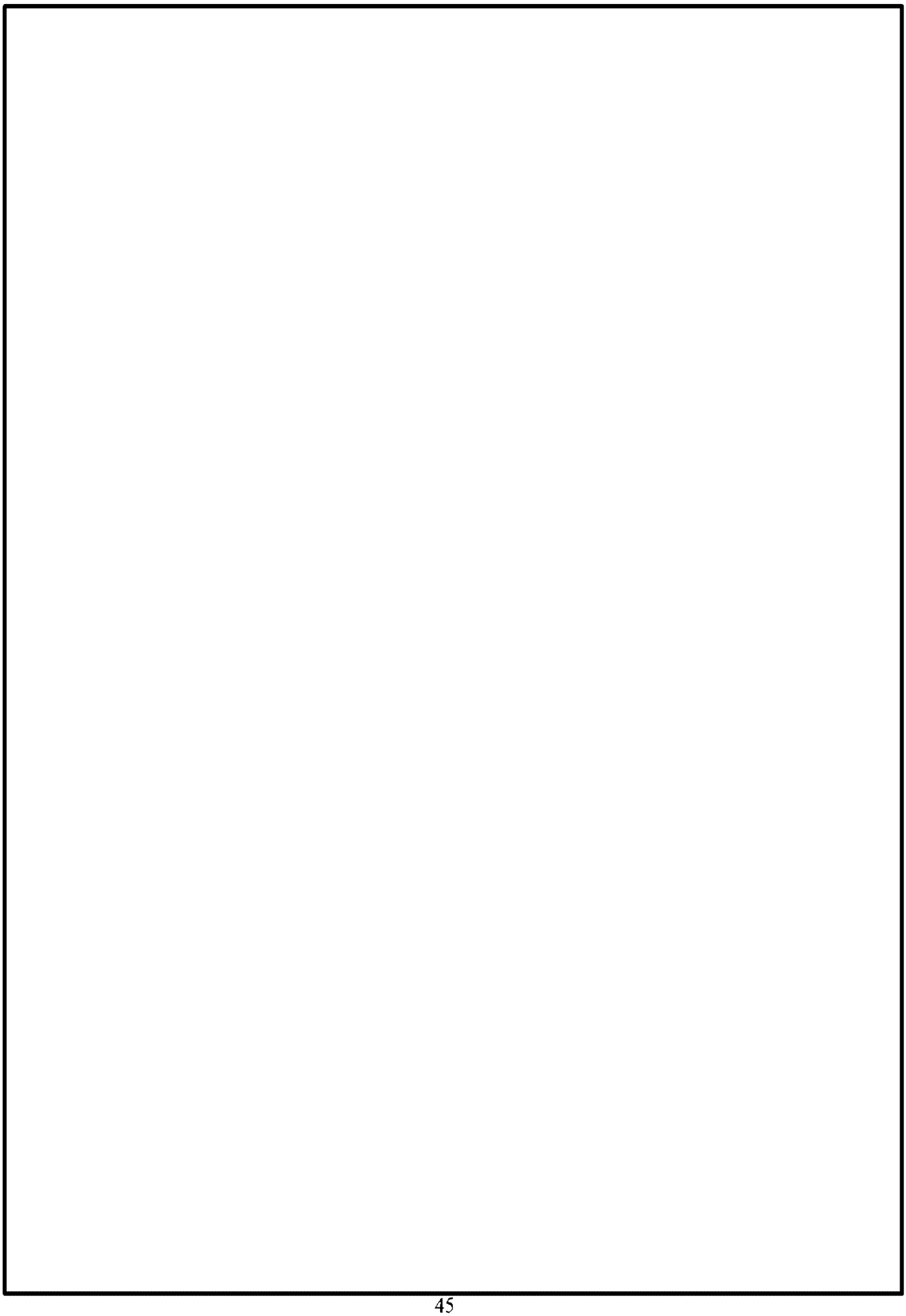

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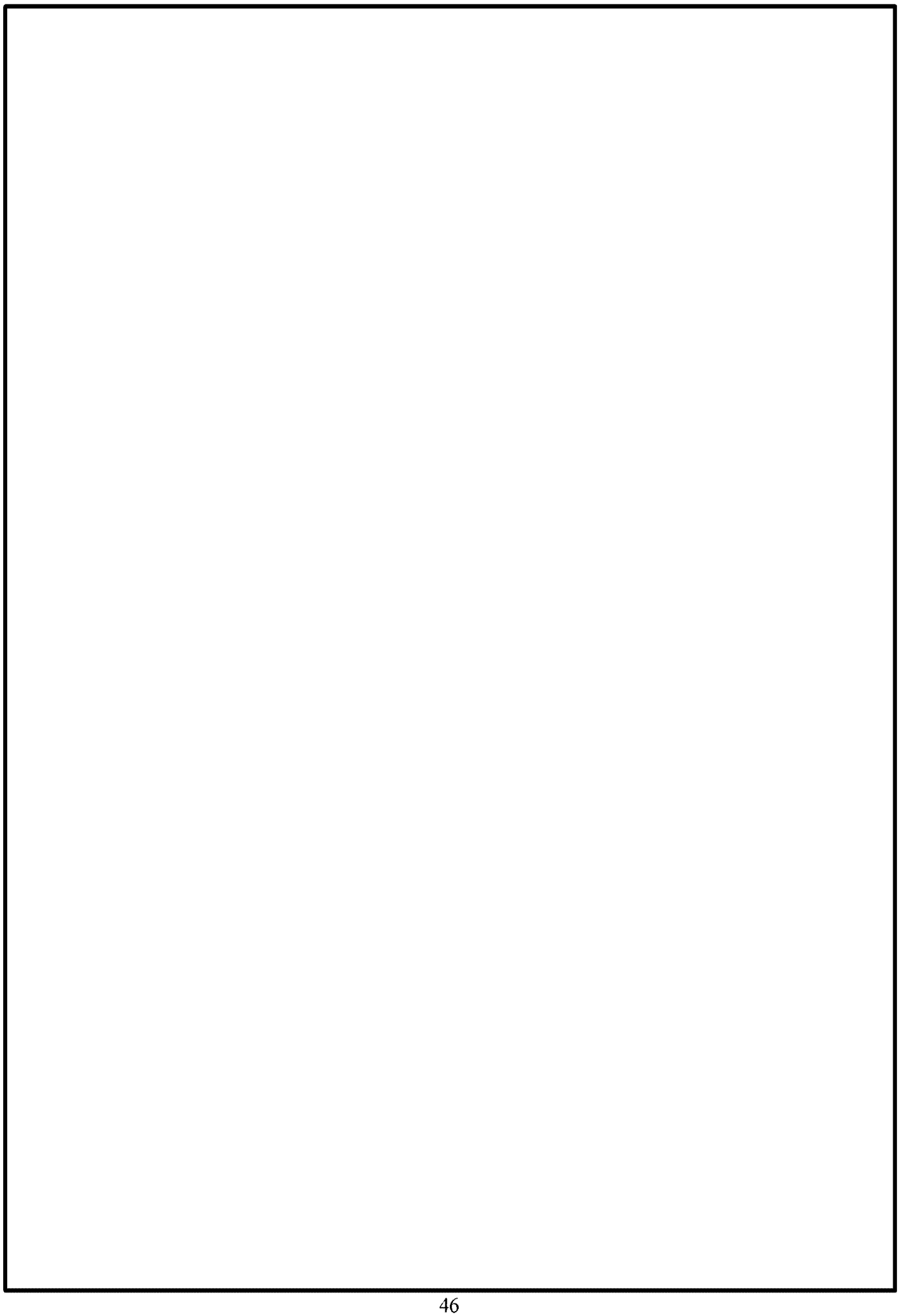

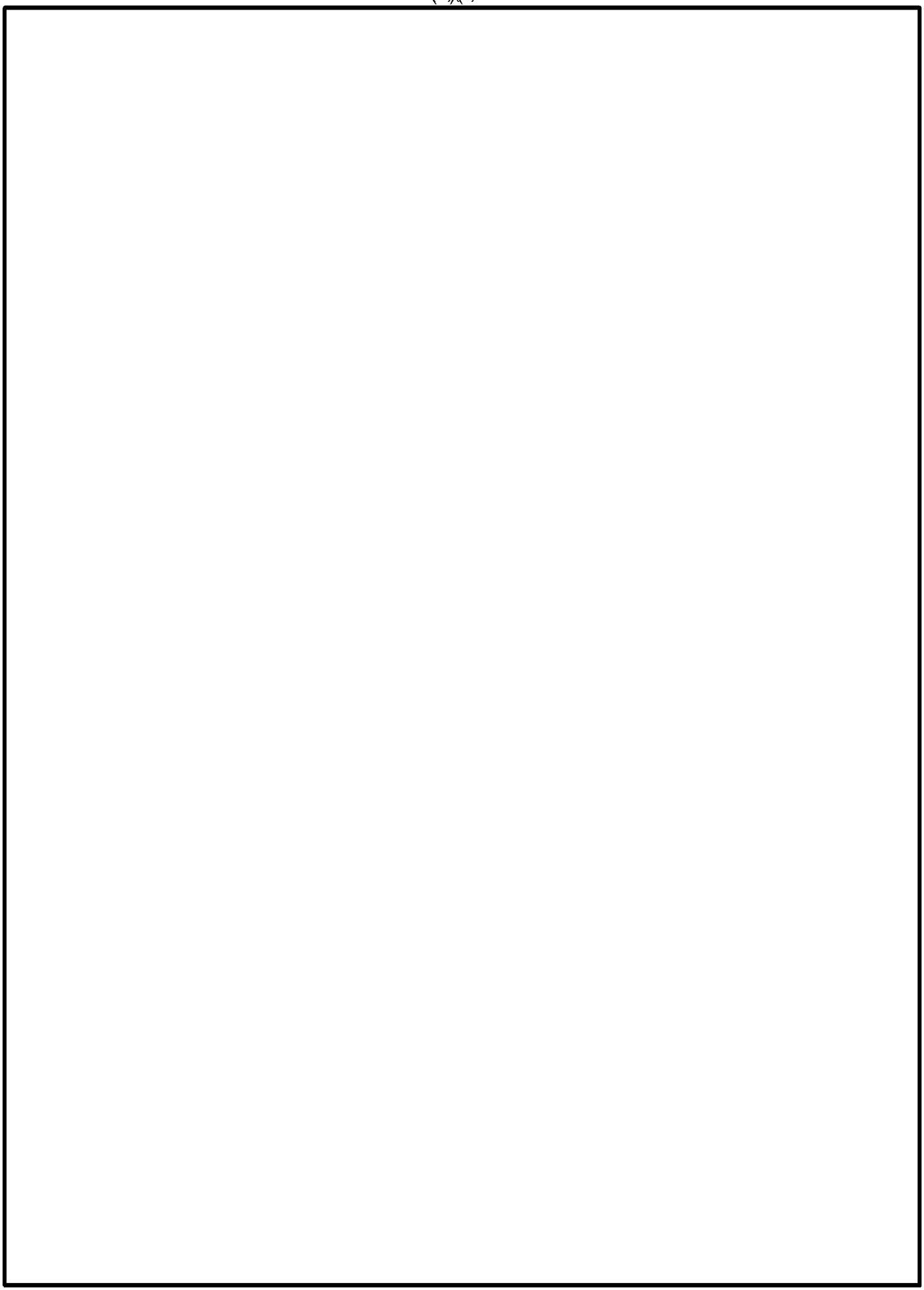

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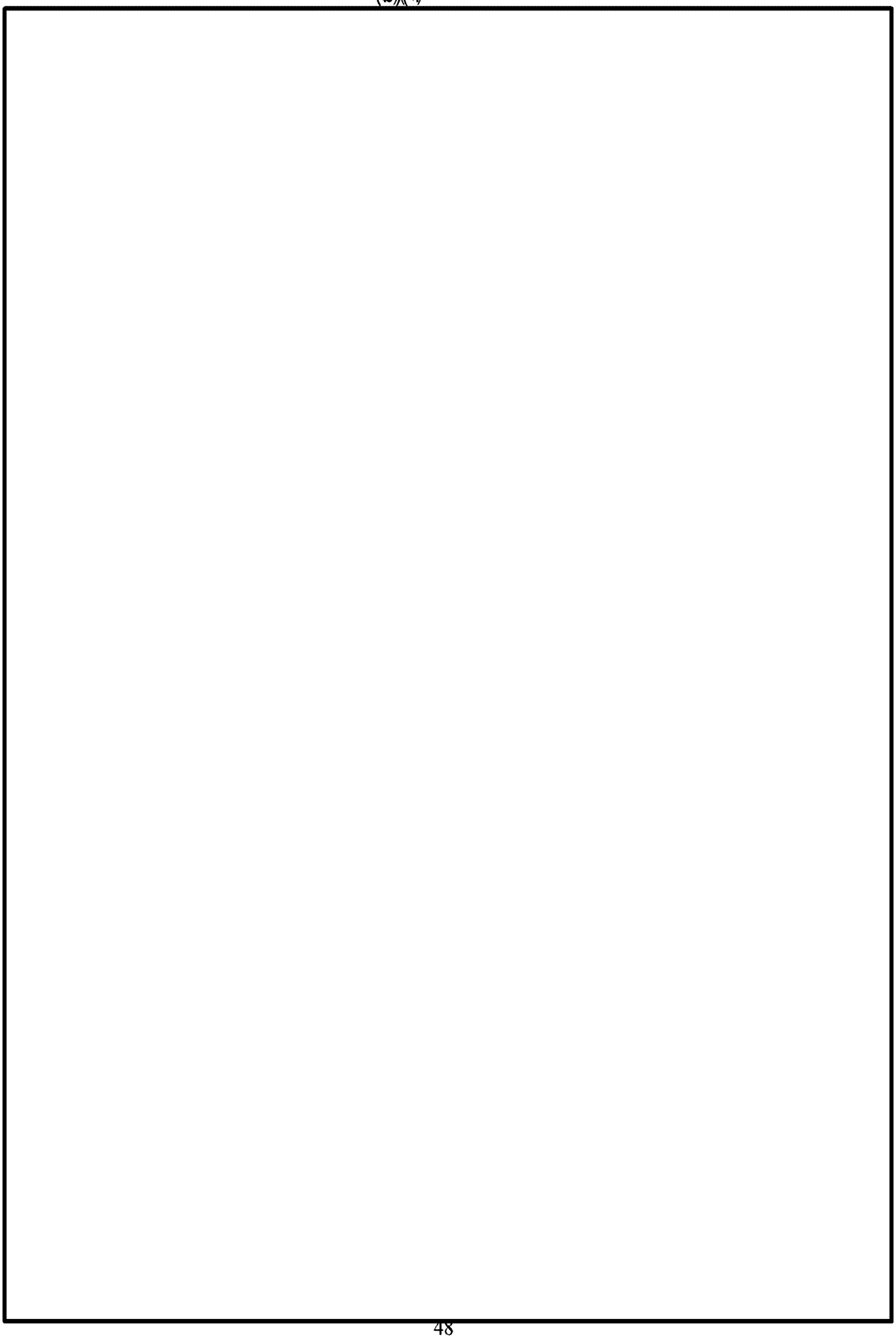

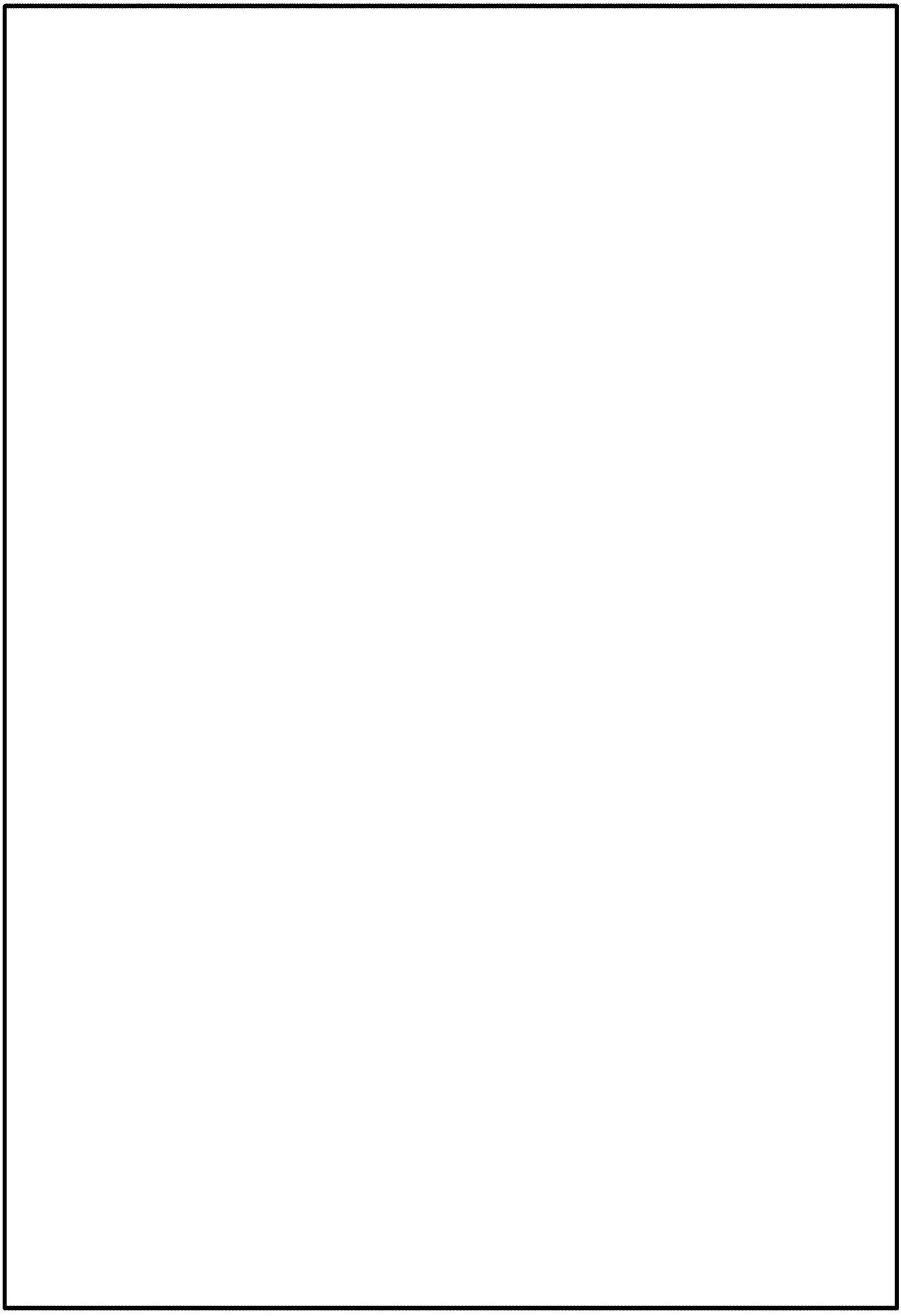

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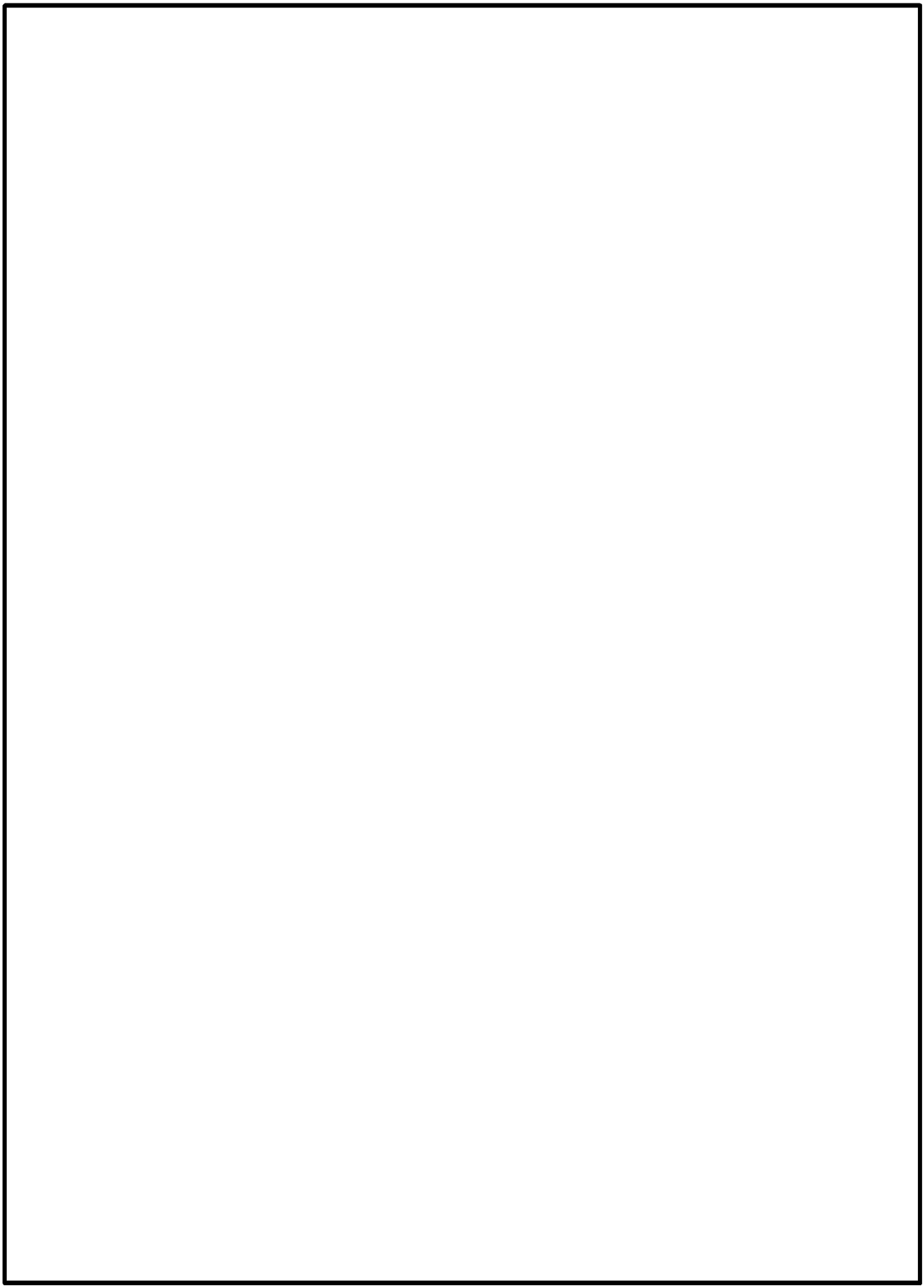

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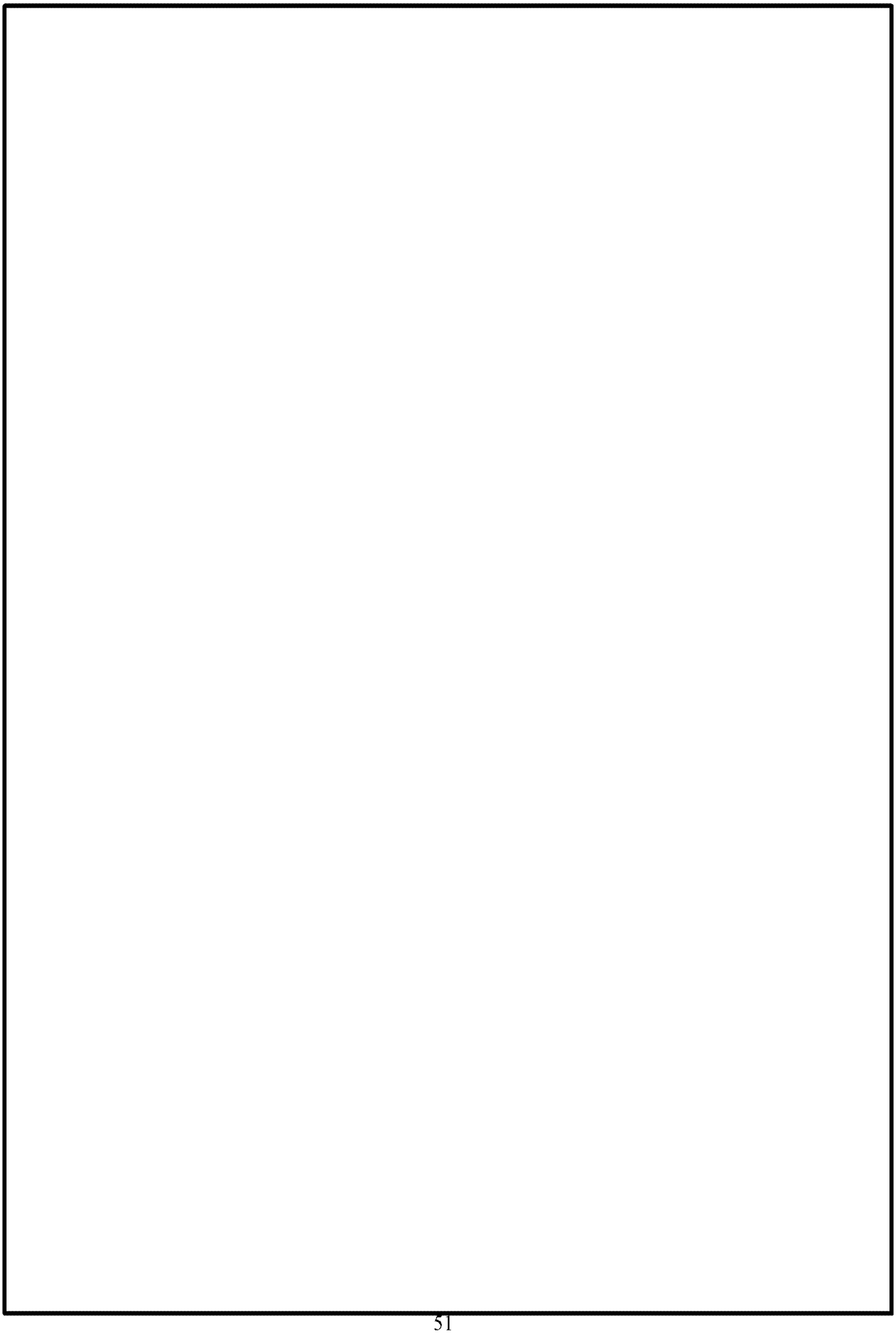

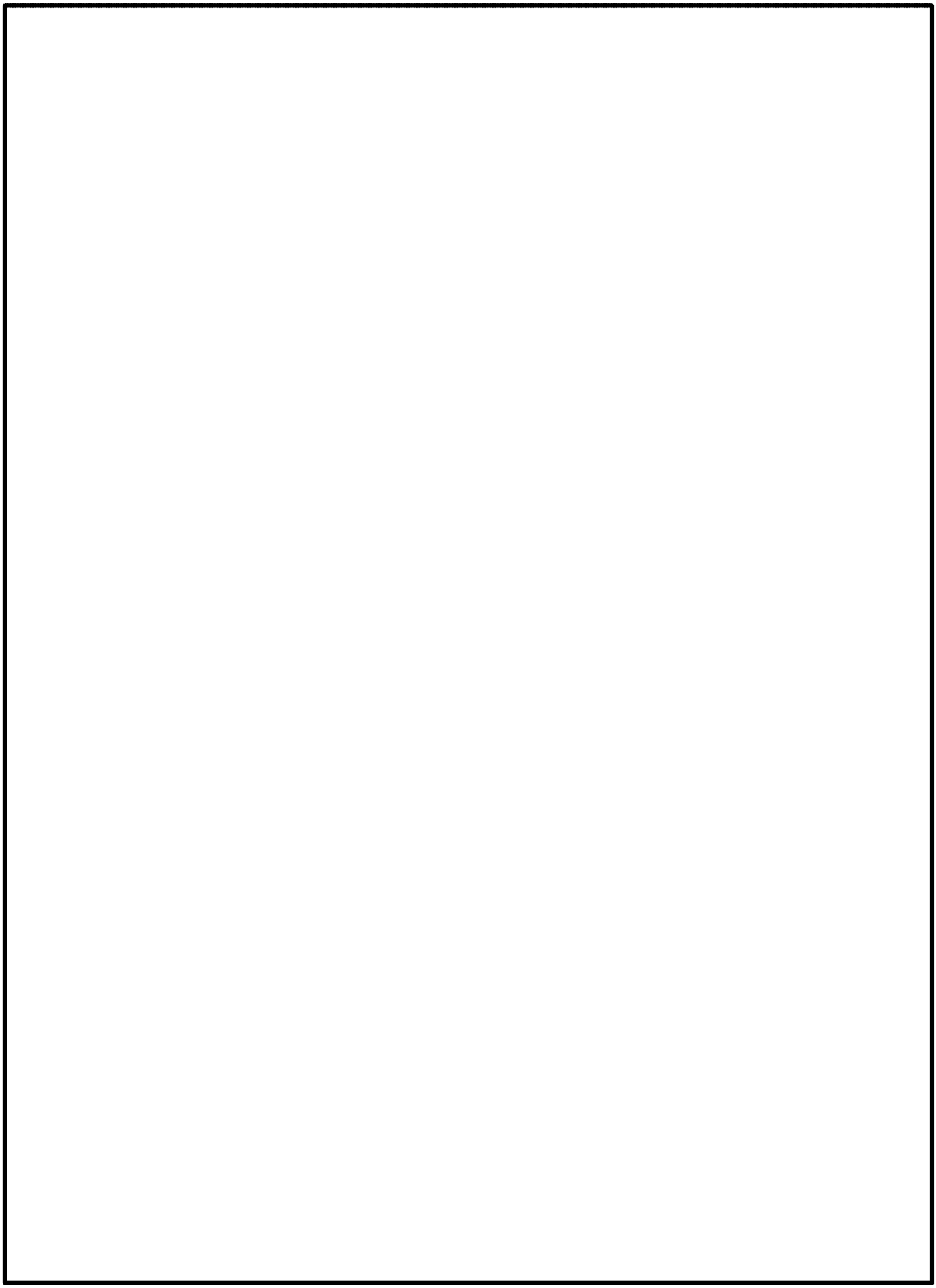

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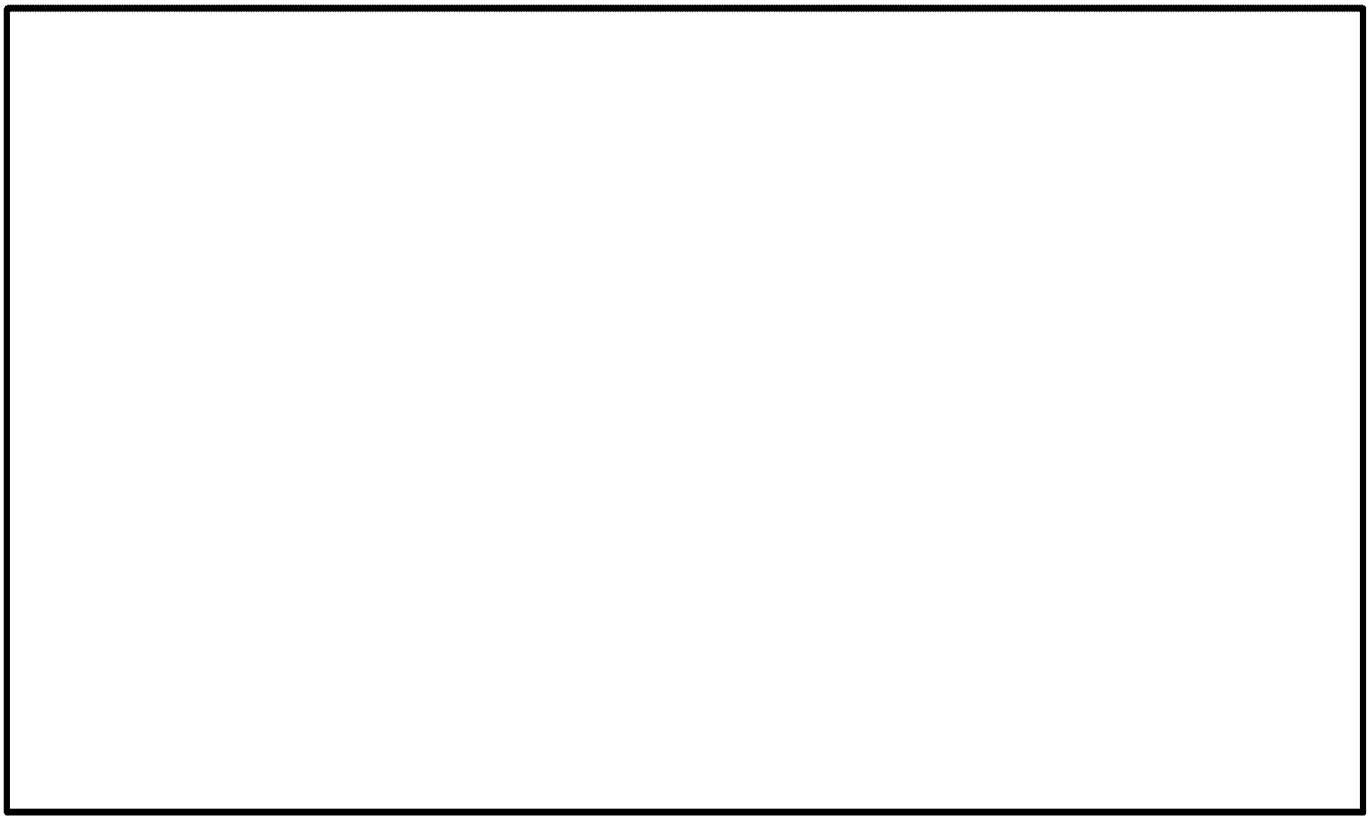

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SUBSCRIPTION PROCEDURES

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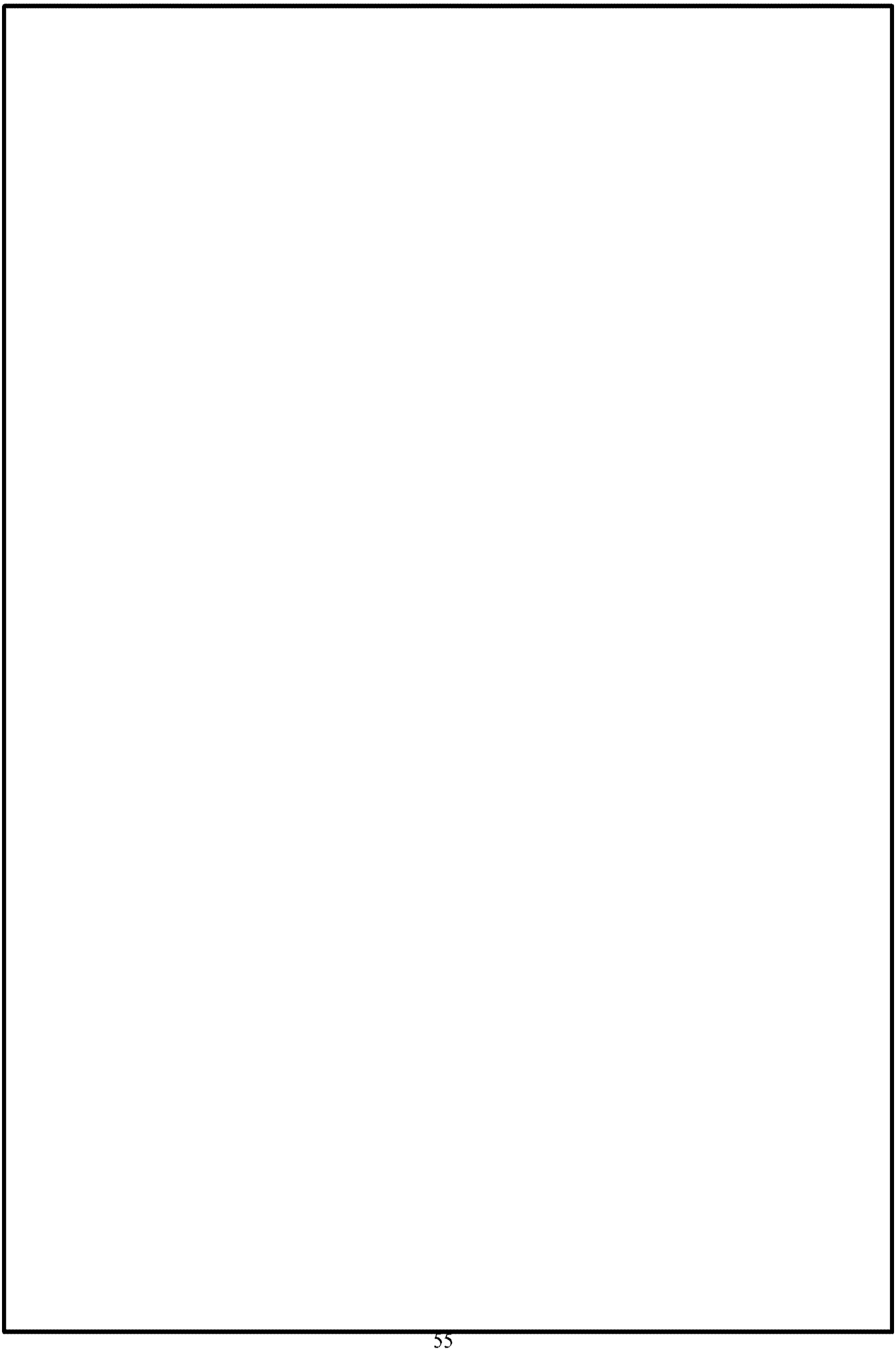

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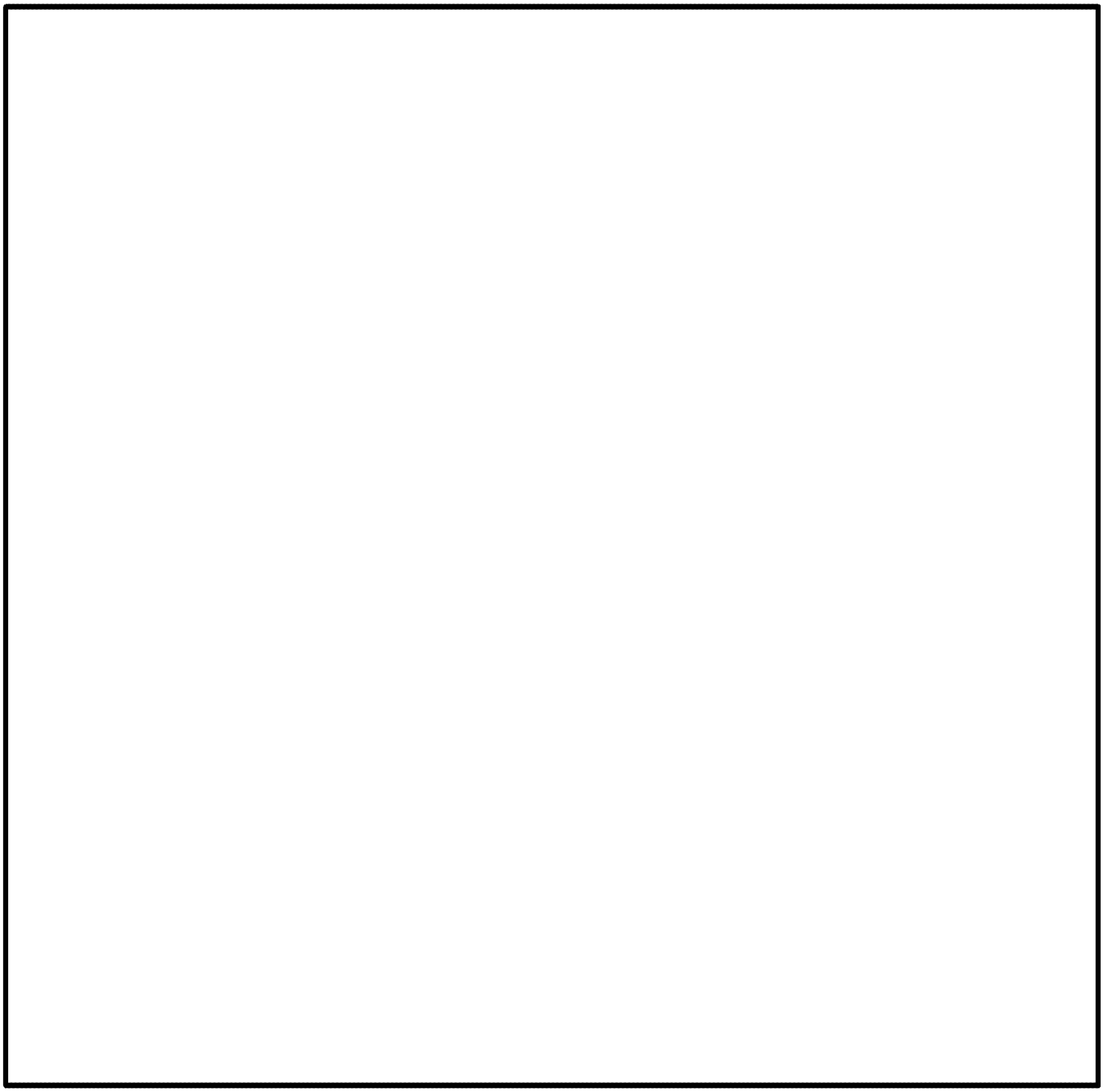

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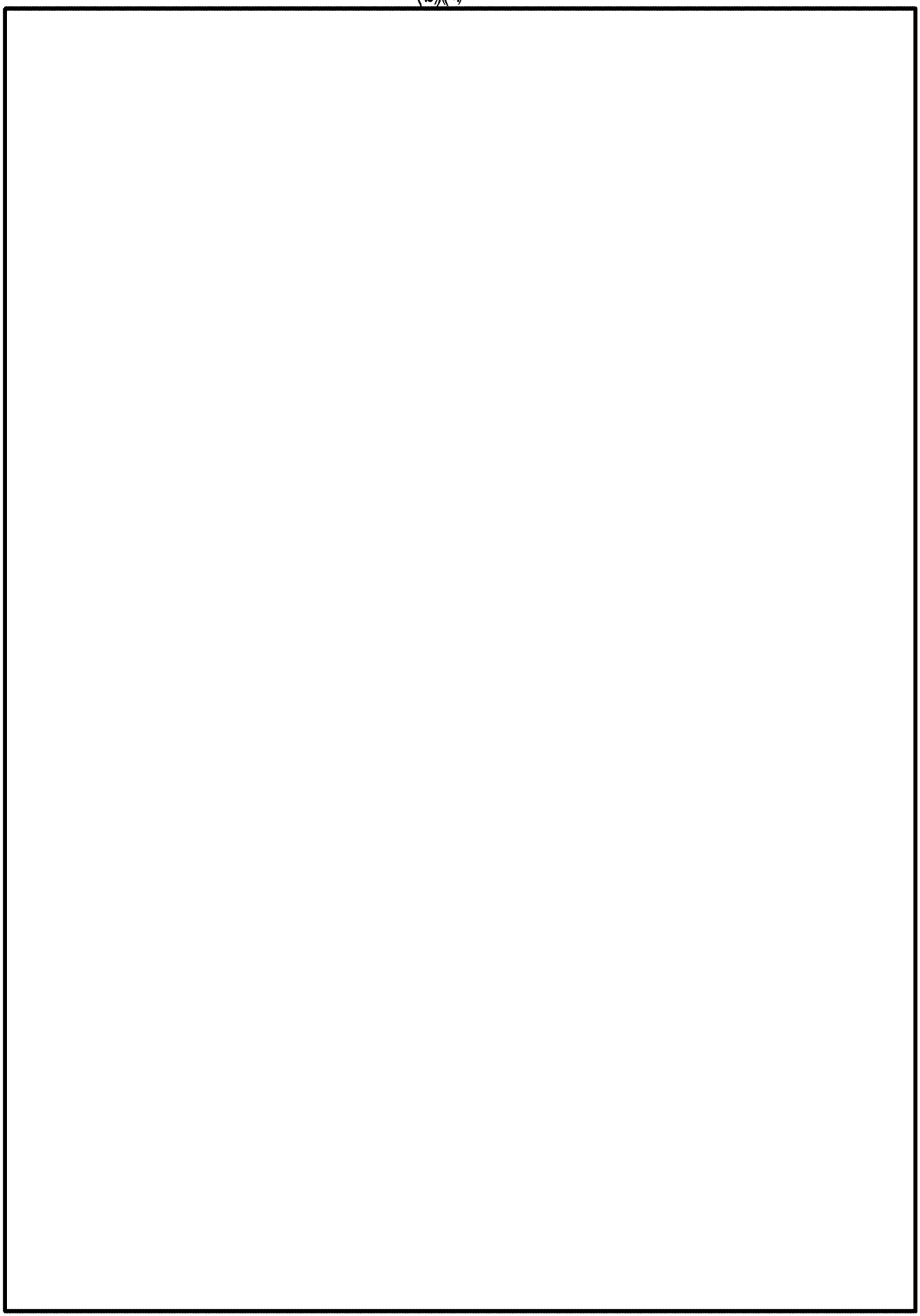
SECURITIES LAW LEGENDS NOTICE TO NON-U.S. INVESTORS GENERALLY



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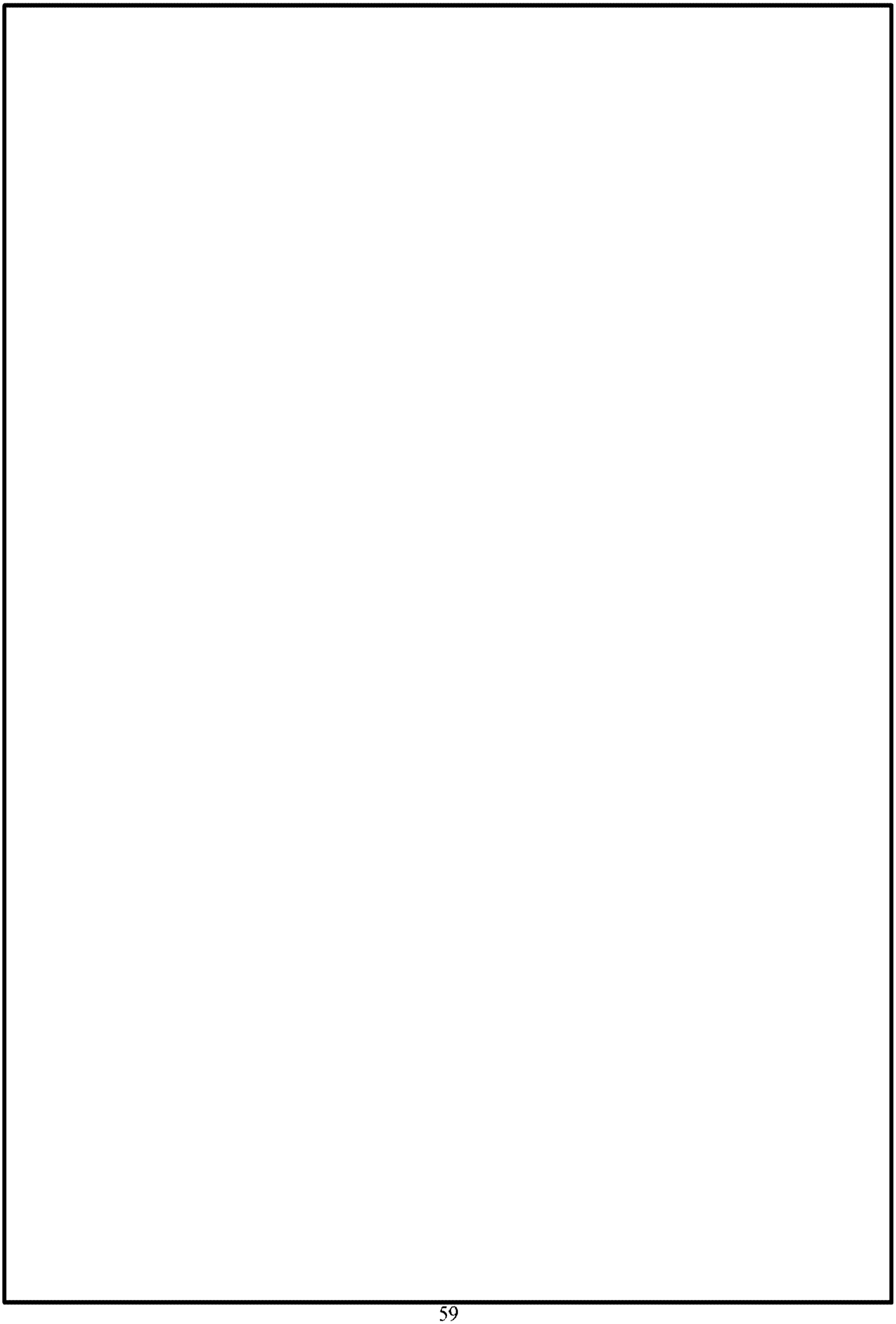

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EXHIBIT C
INVESTOR ELIGIBILITY QUESTIONNAIRE

EXHIBIT D
ESCROW AGREEMENT

EXHIBIT E
COMPREHENSIVE EB-5 BUSINESS PLAN

EXHIBIT F
TARGETED EMPLOYMENT AREA DESIGNATION LETTER

All Exhibits are available for review upon request. Requests should be directed to our Manager, Attn: George Xu, Century New York Regional Center LLC, 35-06 Keavutt St, Suite CF-A, Flushing, NY 11354. Our Manager's telephone number is 718.939.1060. Copies of all exhibits will be delivered before execution of the subscription agreement.

OPERATING AGREEMENT OF

QB VENTURES EB5 CAPITAL, LLC

A New York Limited Liability Company

Dated August 8, 2015

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OPERATING AGREEMENT OF

QB5 VENTURES EB5 CAPITAL, LLC

a New York Limited Liability Company

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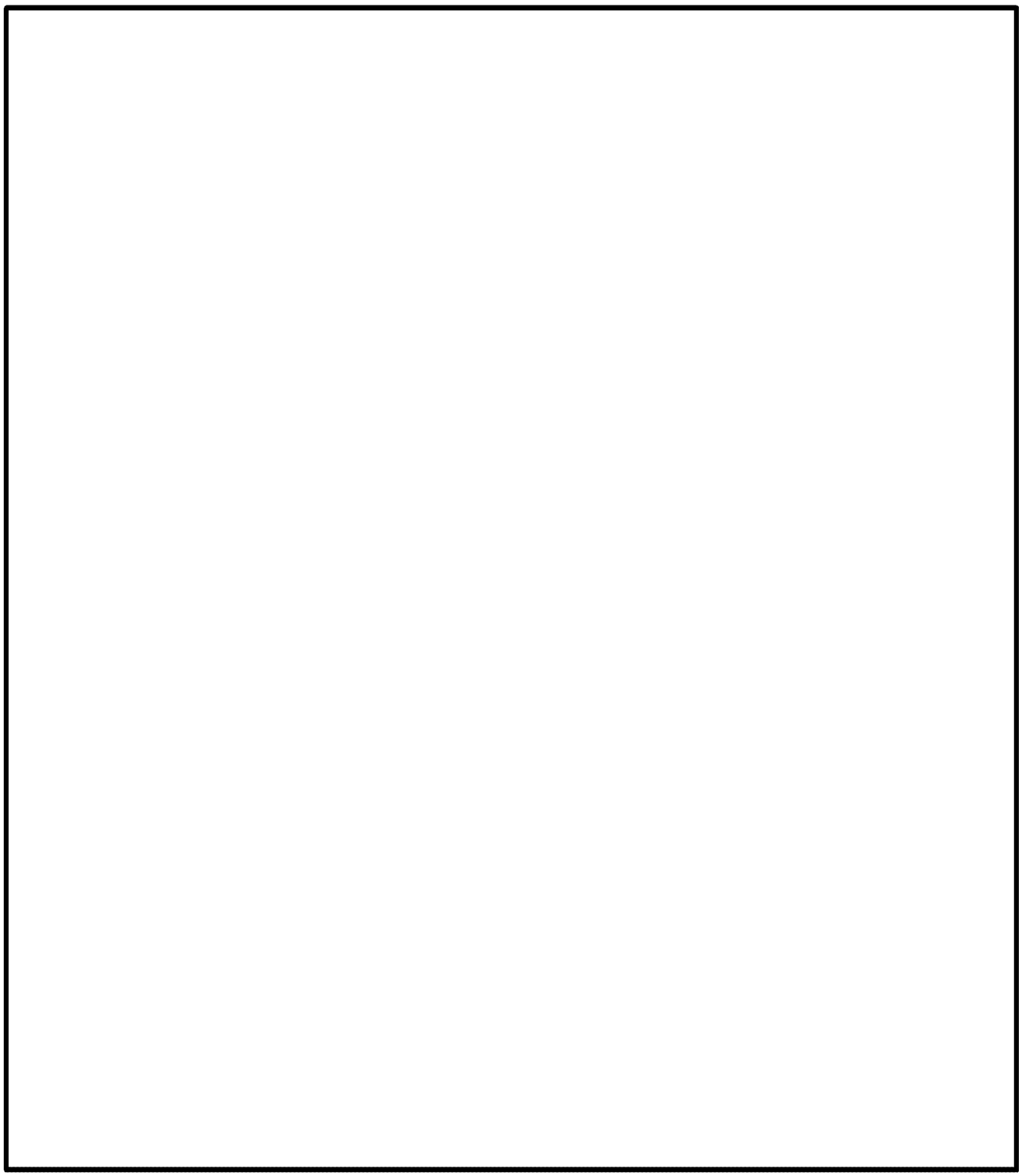
Dated August 8, 2015



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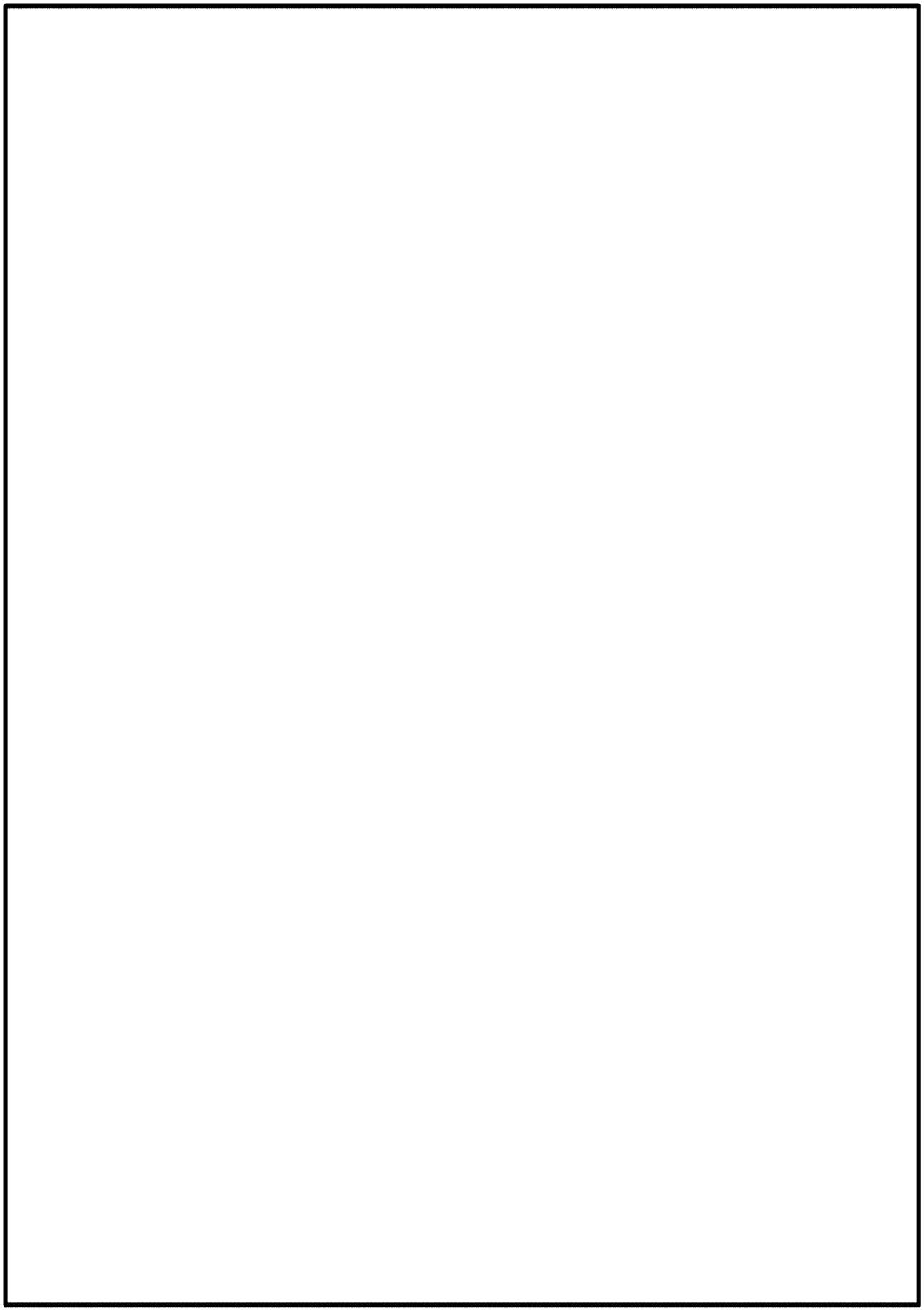

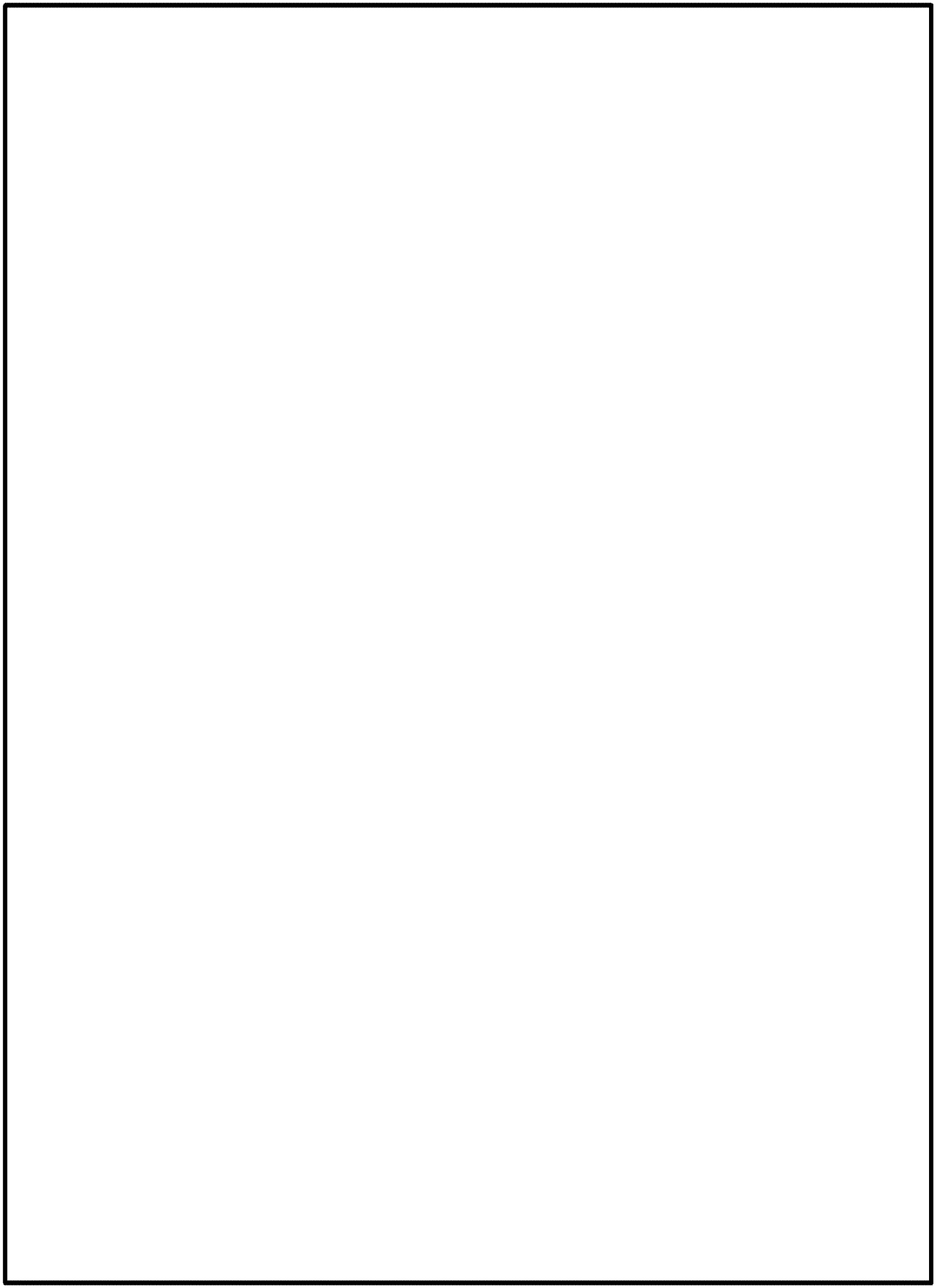

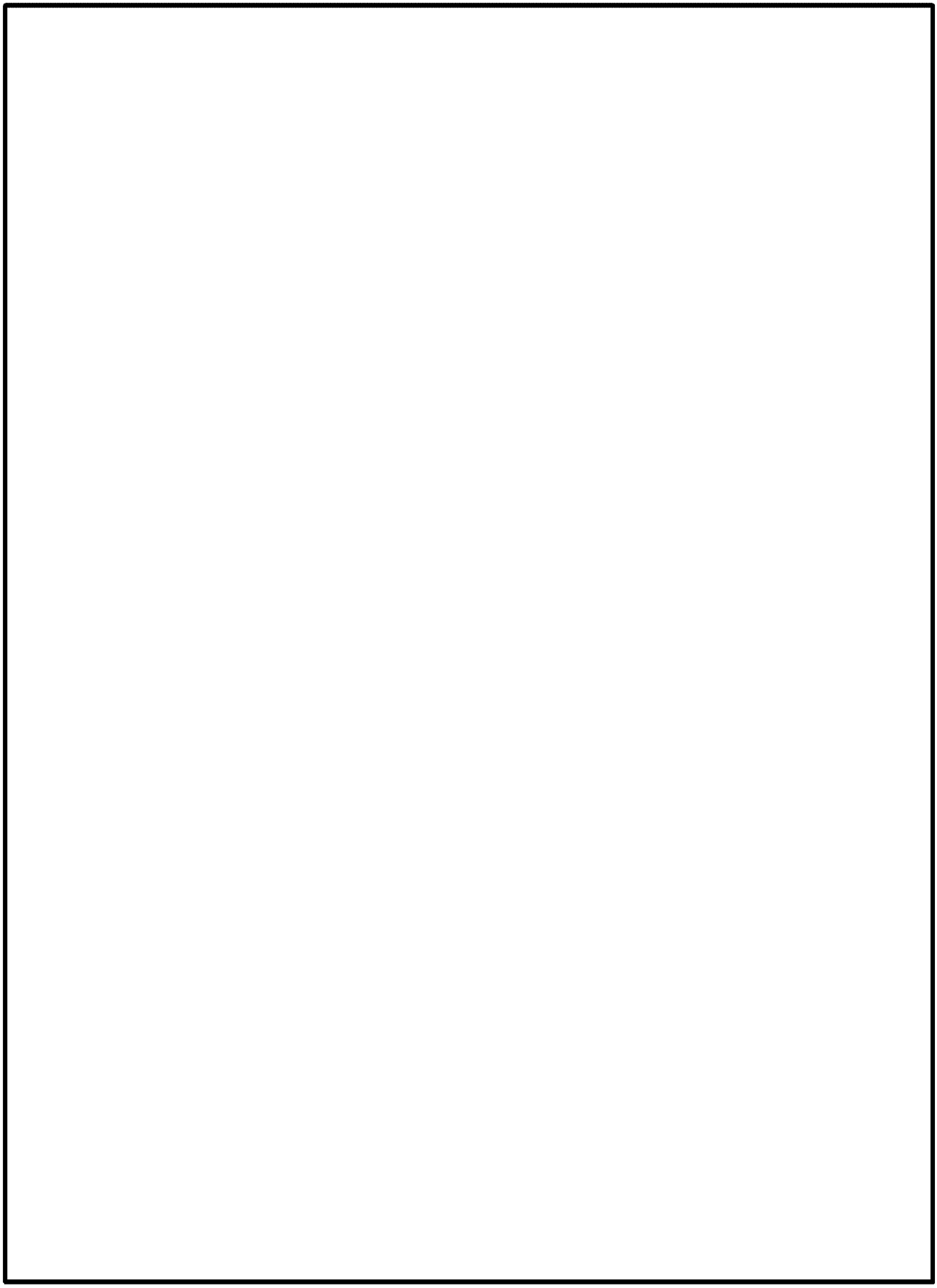

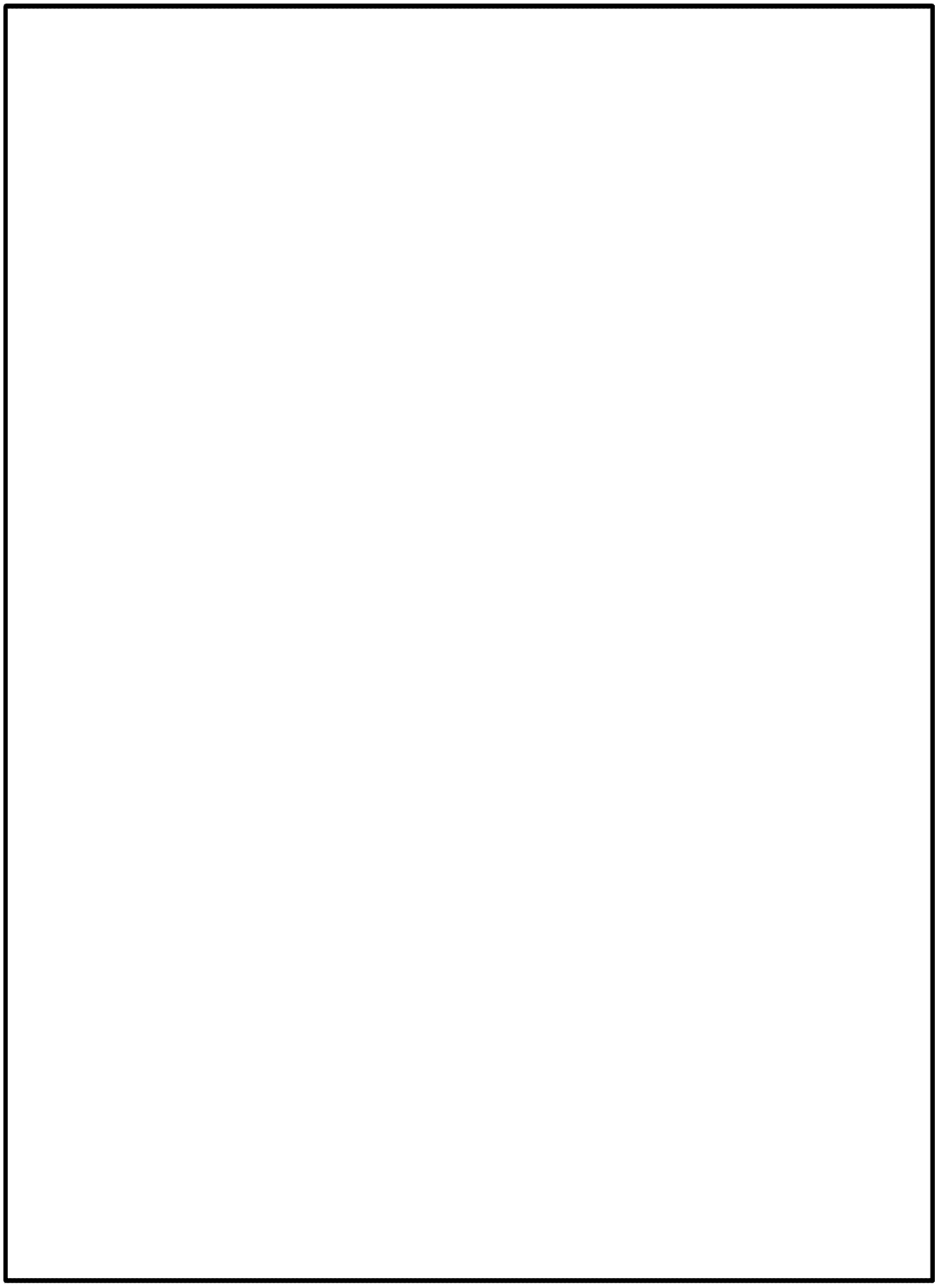

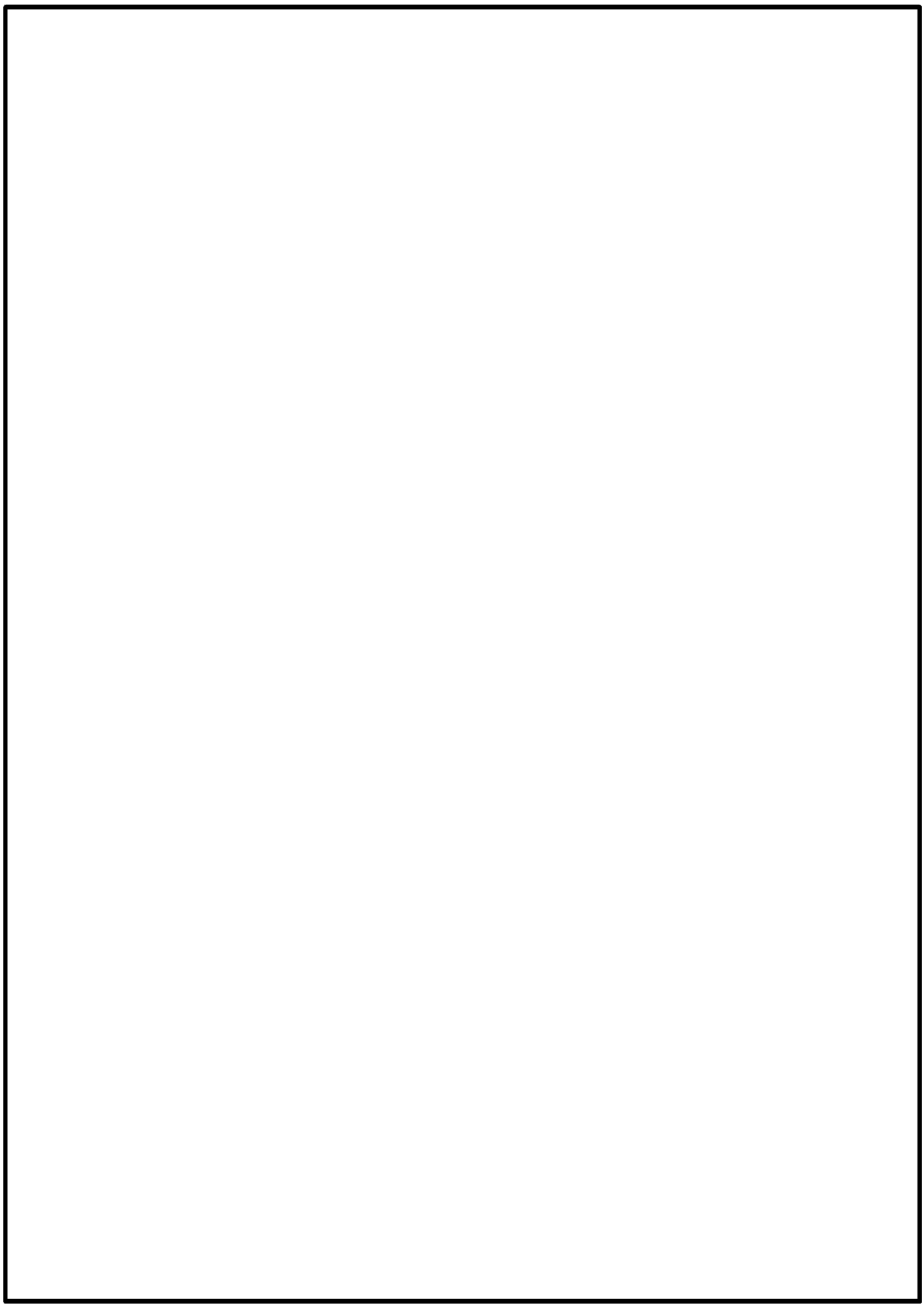

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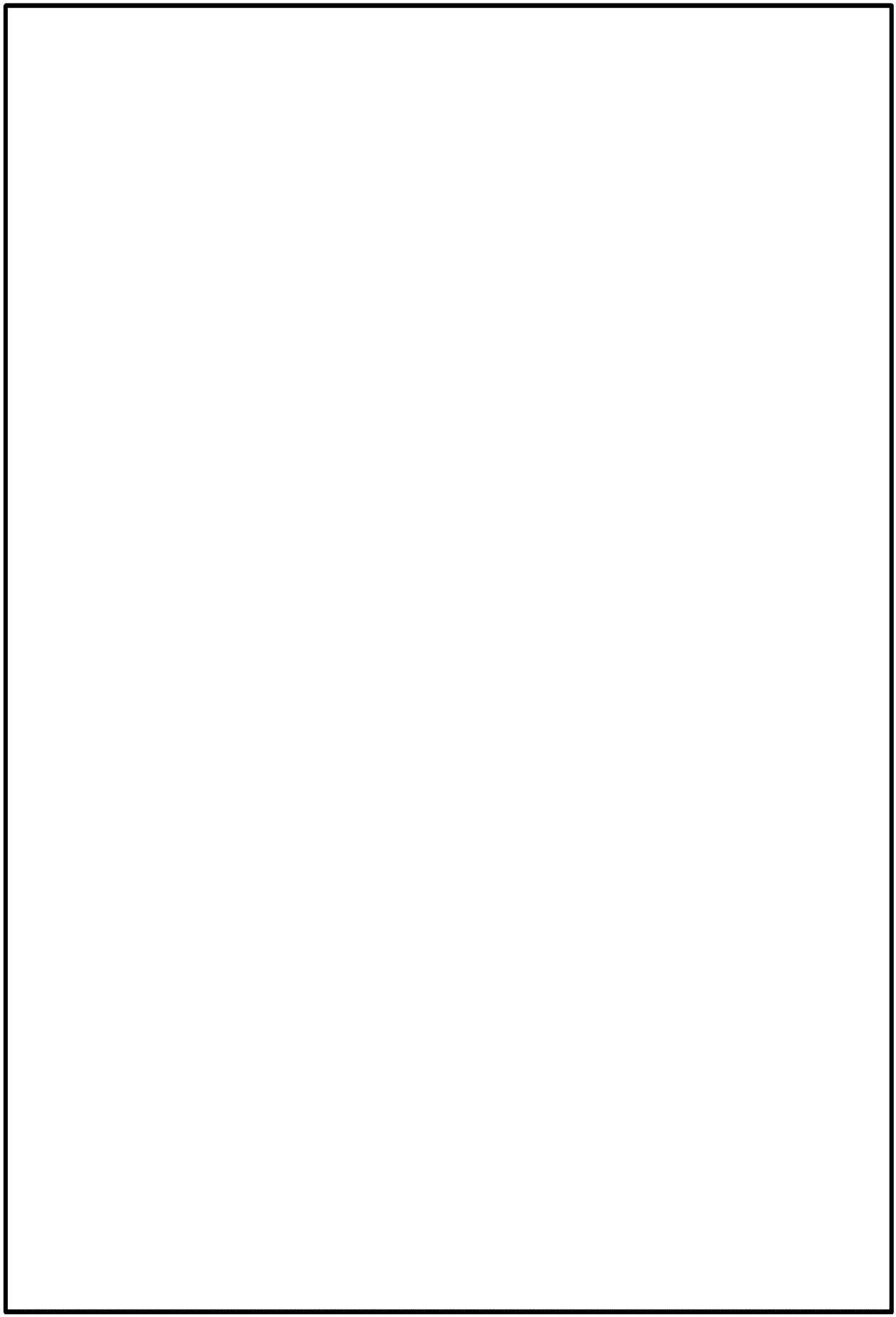

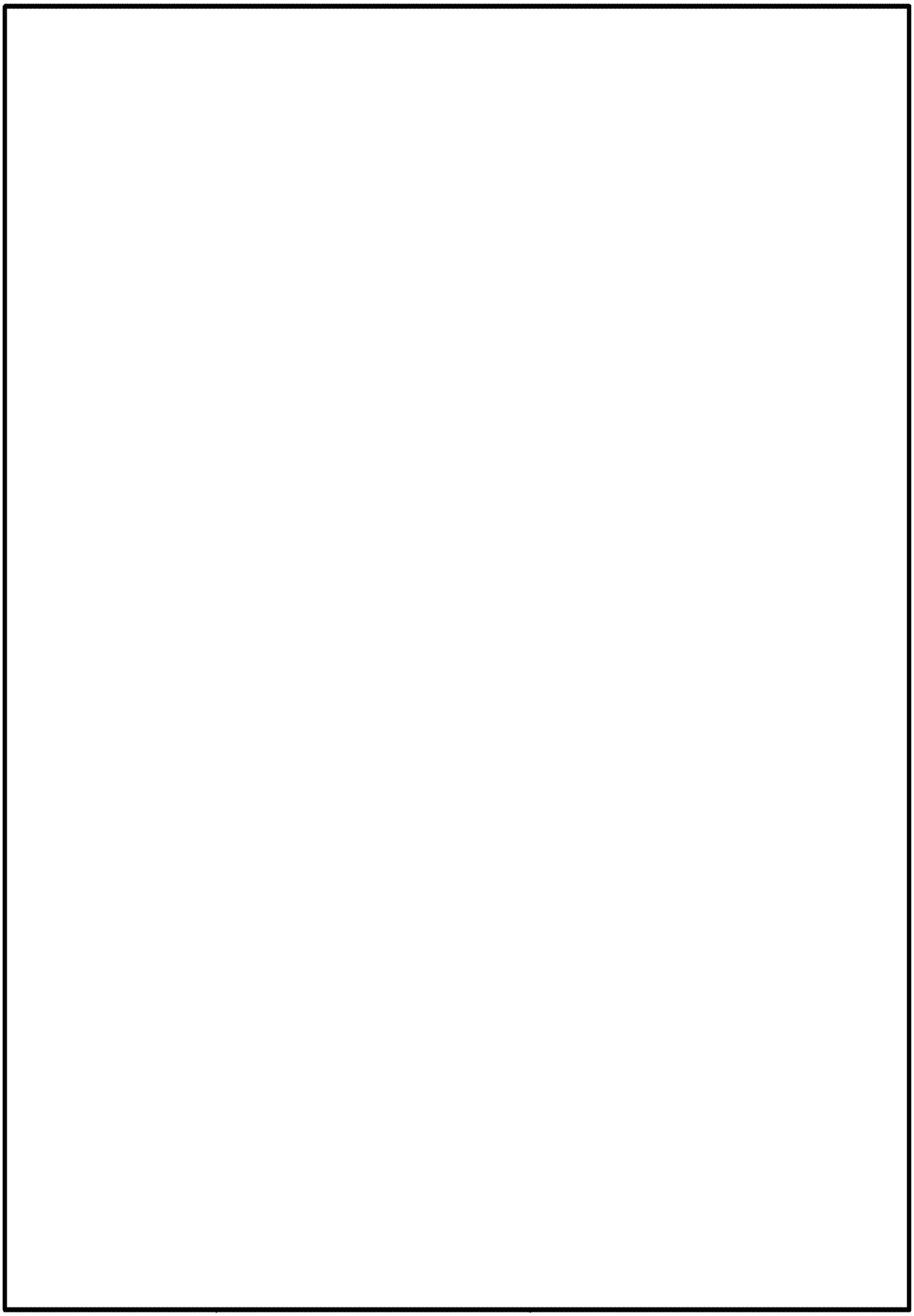

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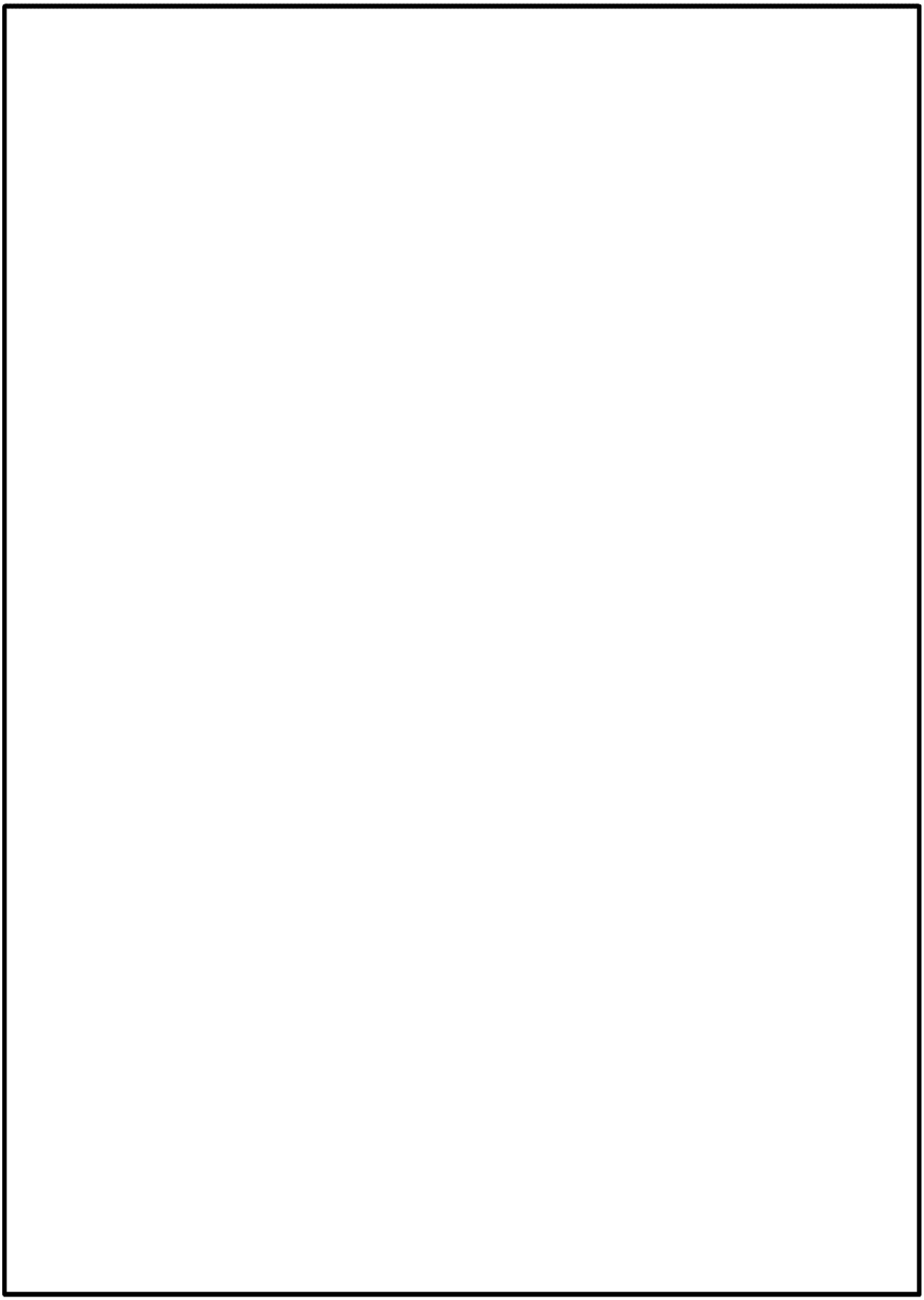

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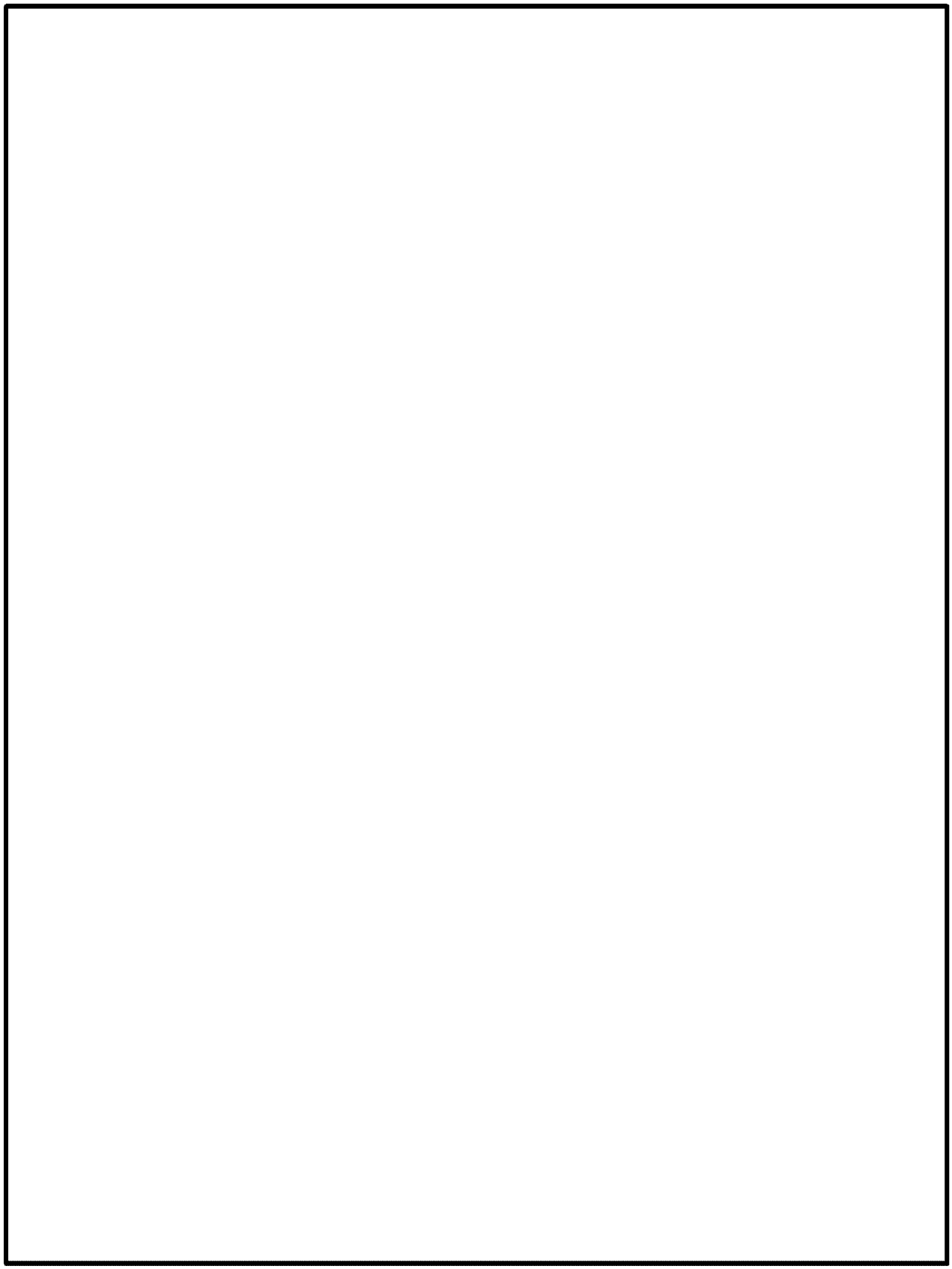

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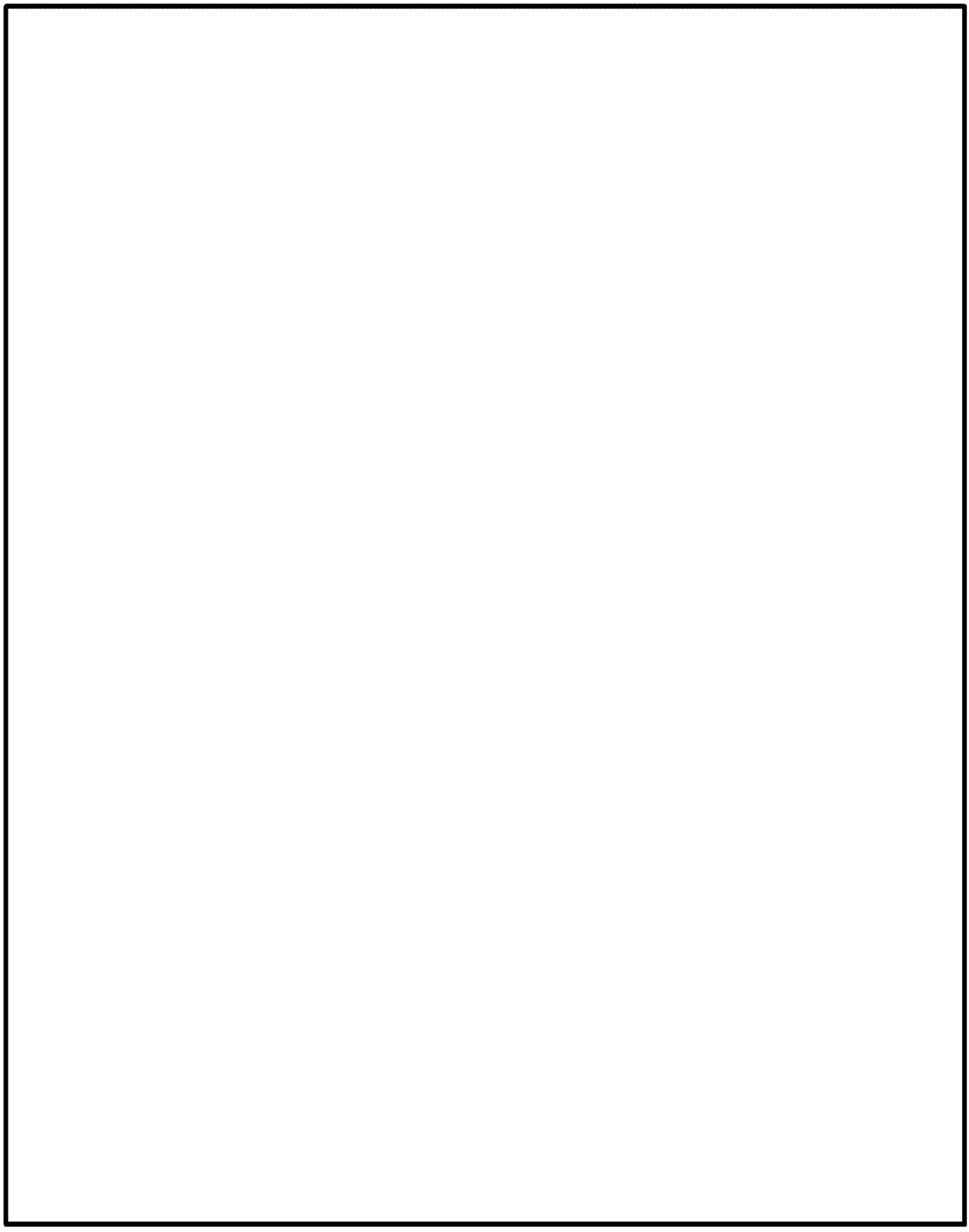
ARTICLE 4
MANAGEMENT



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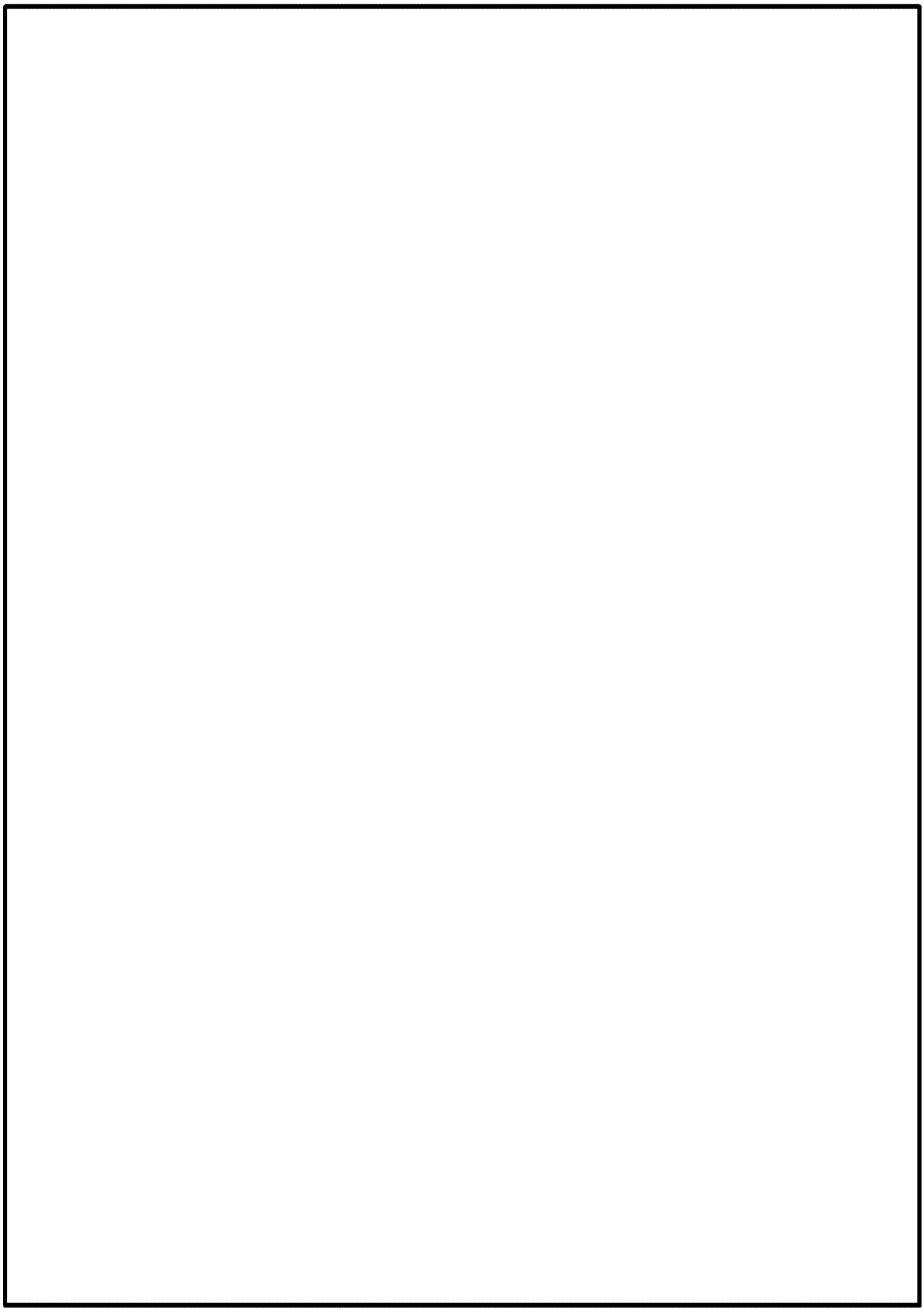

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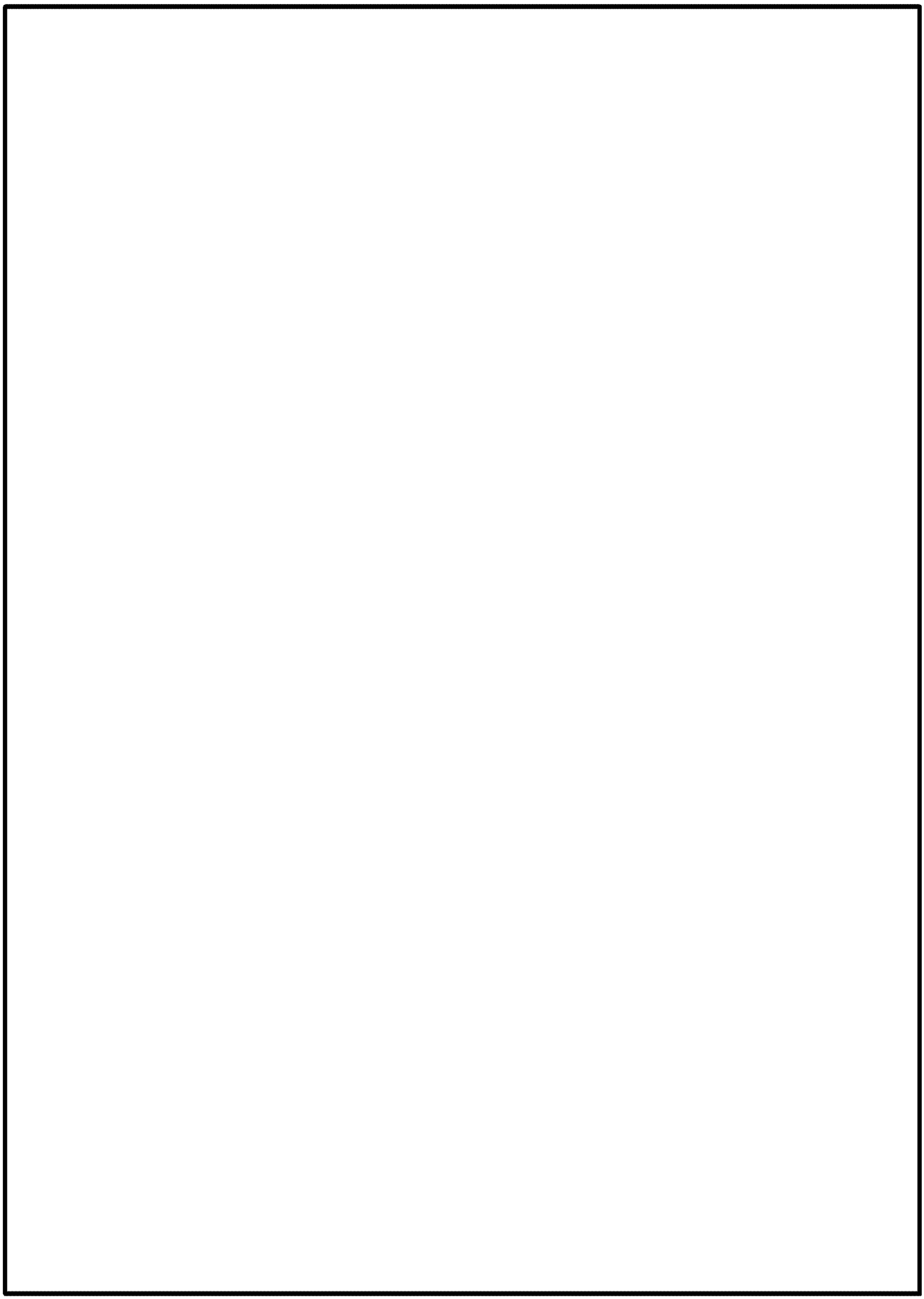

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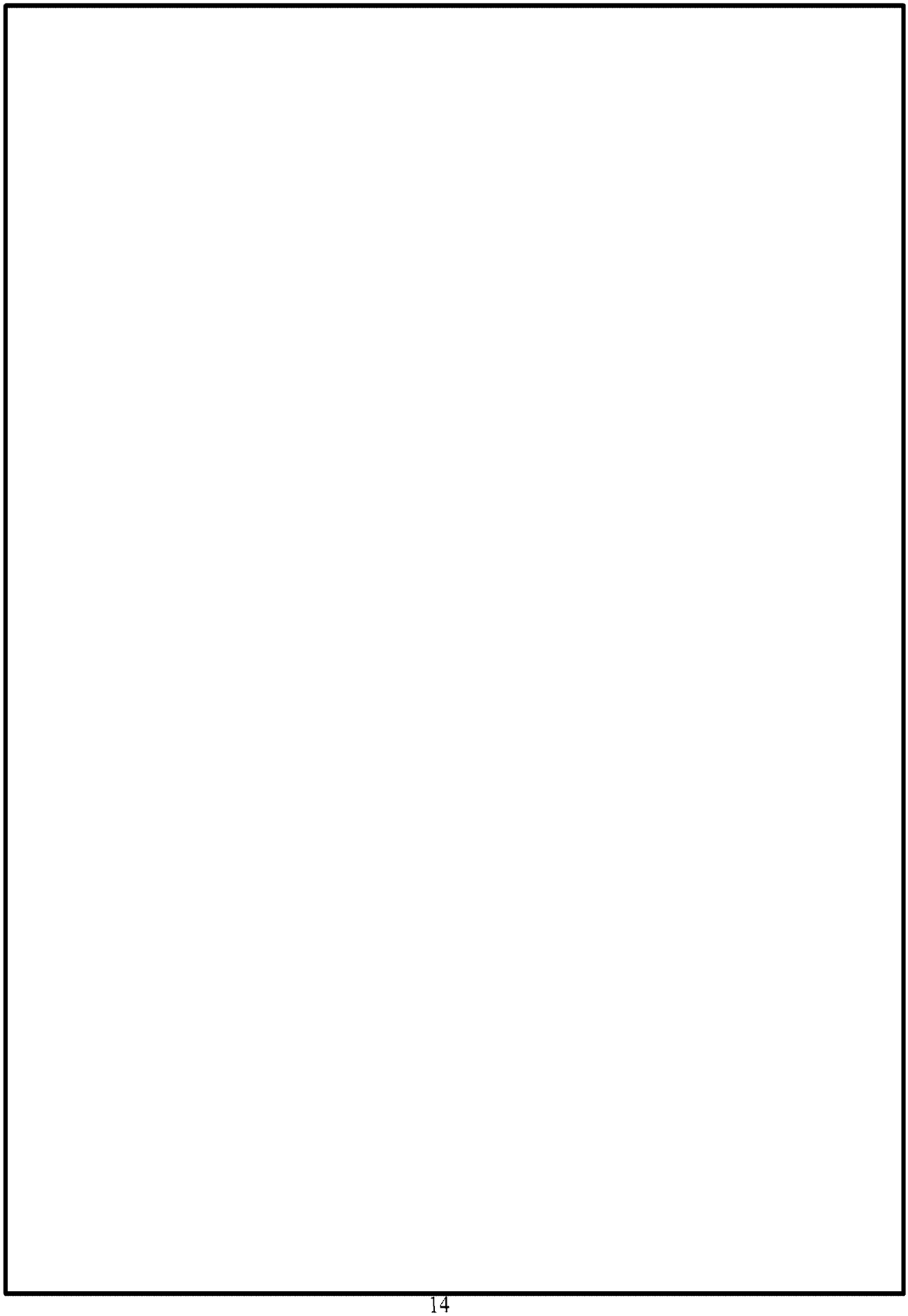

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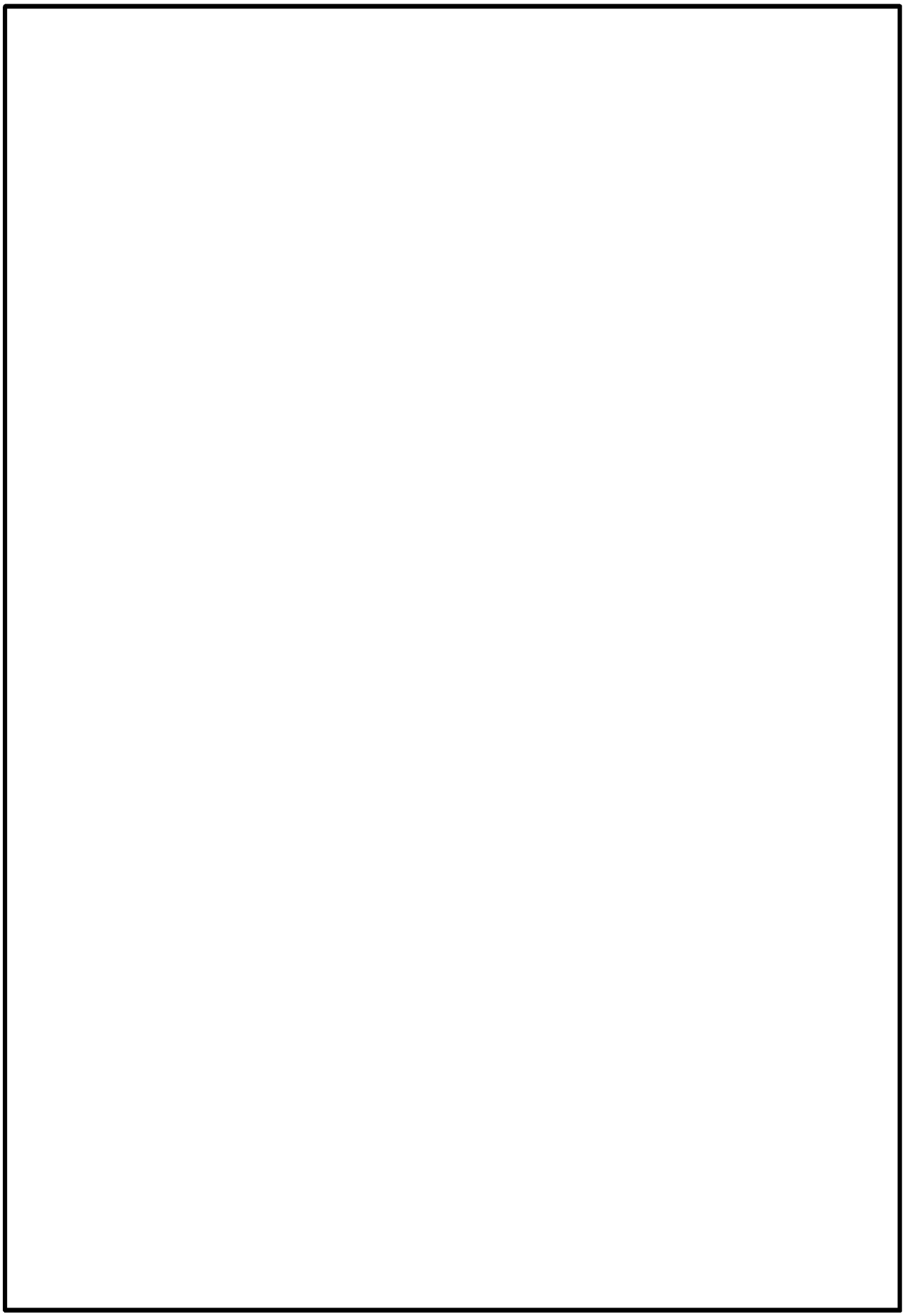

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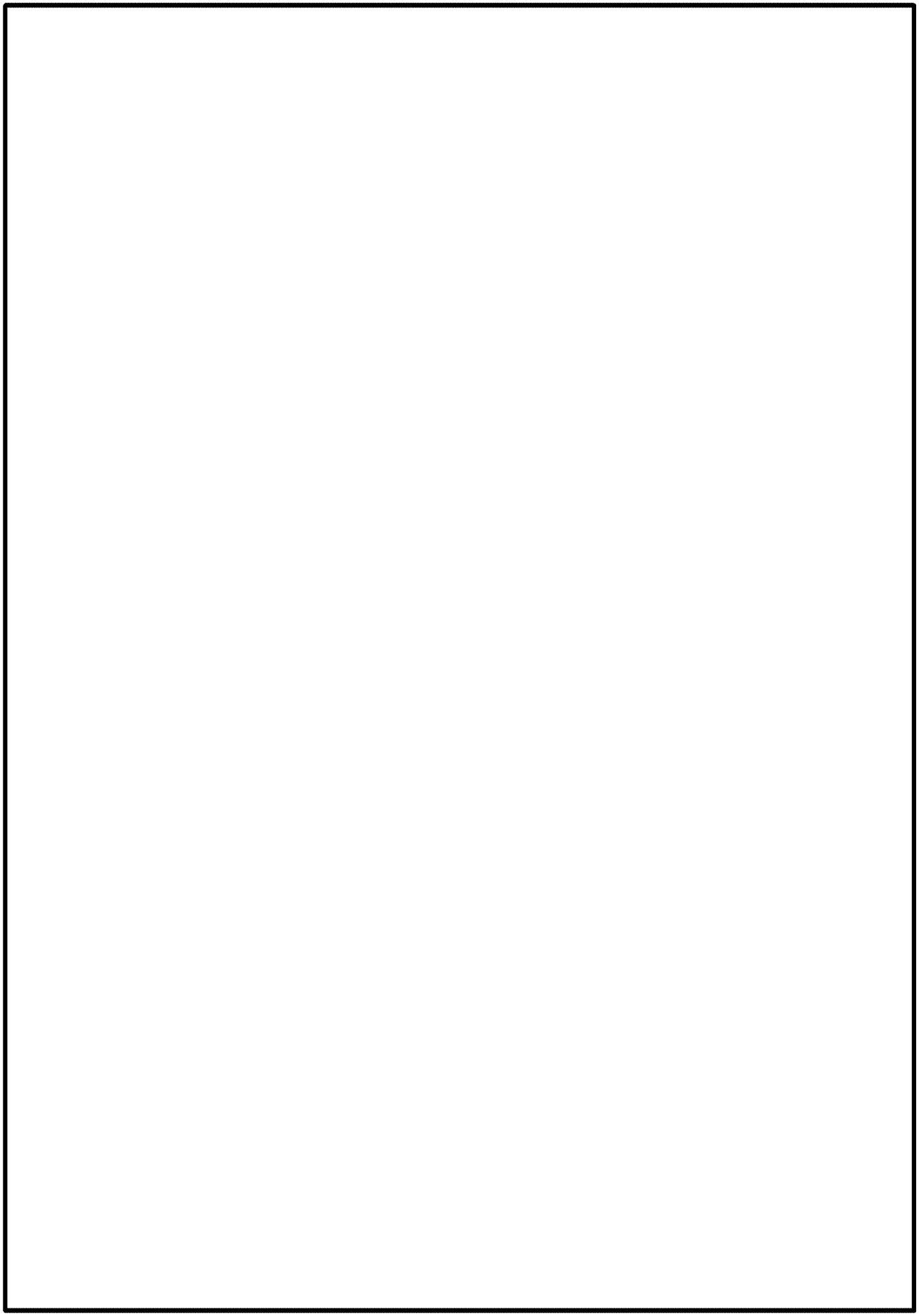

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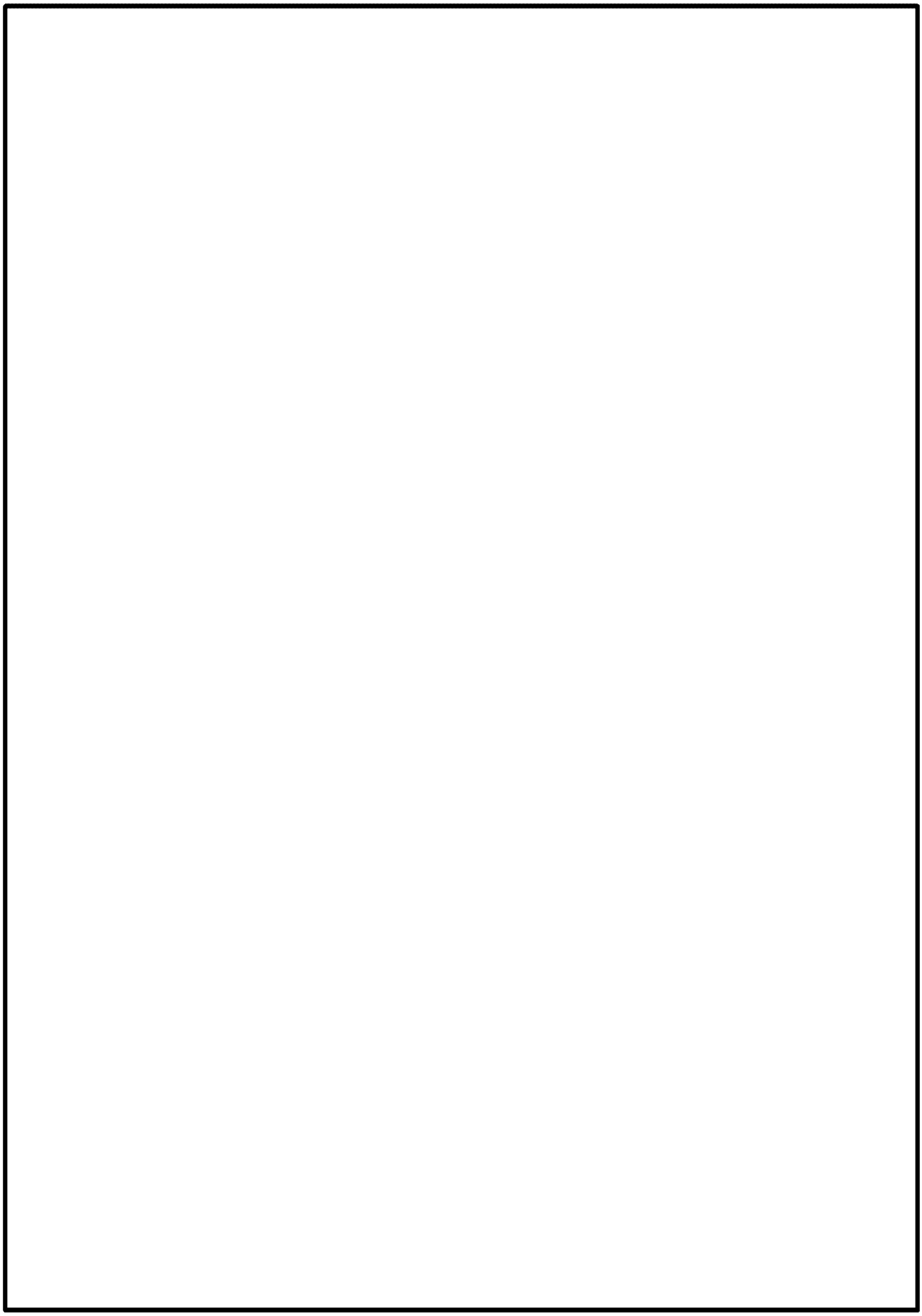

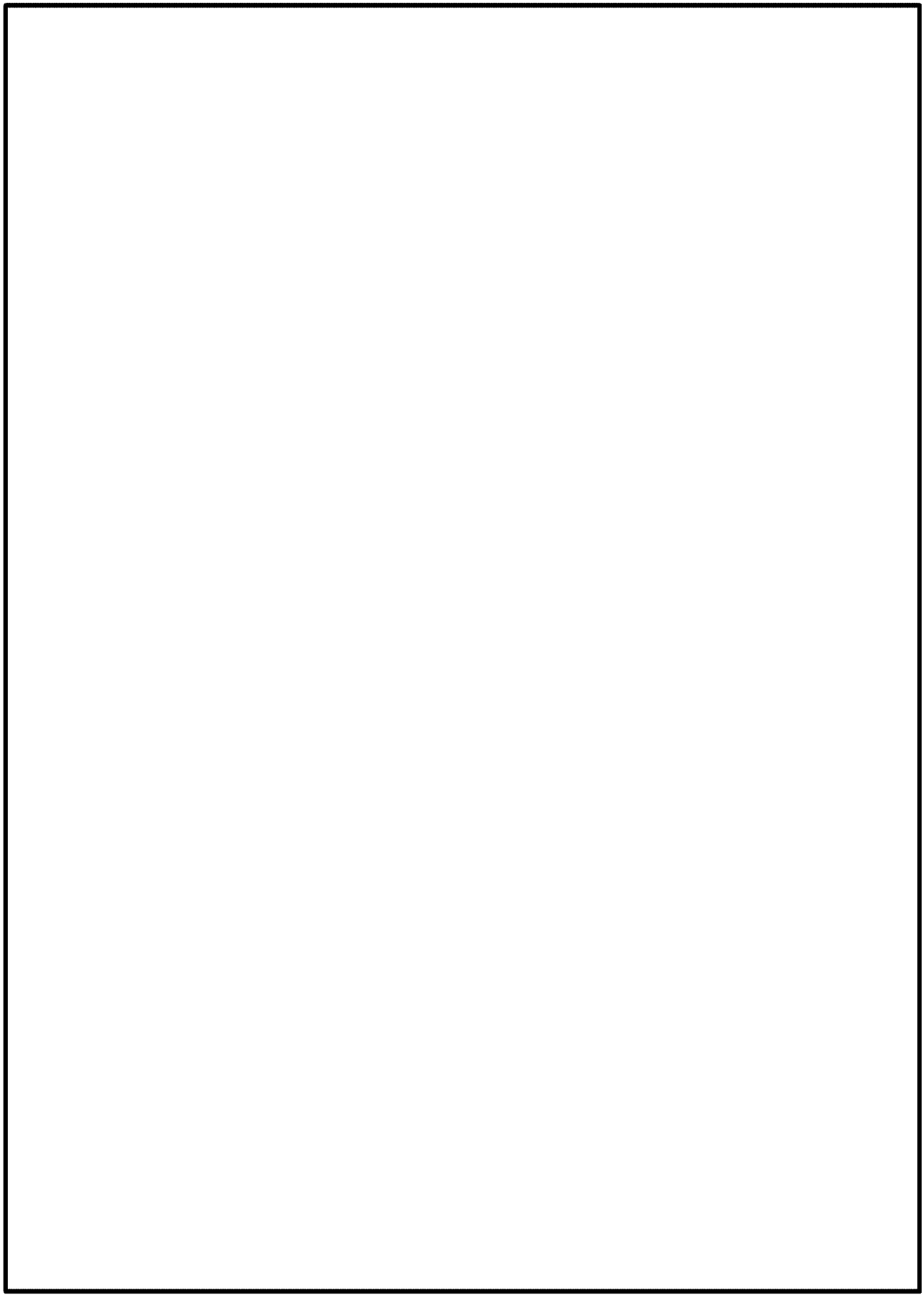

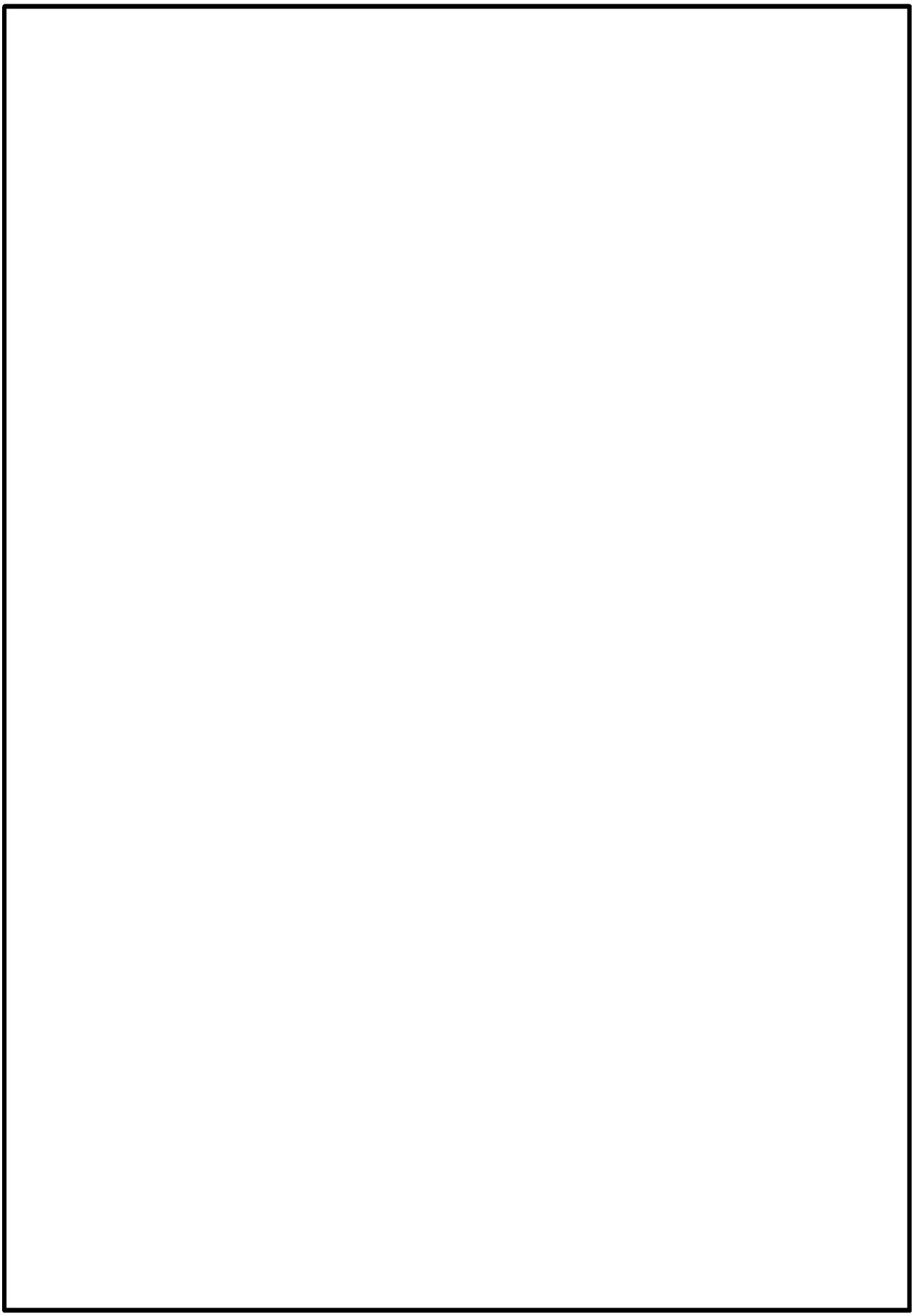

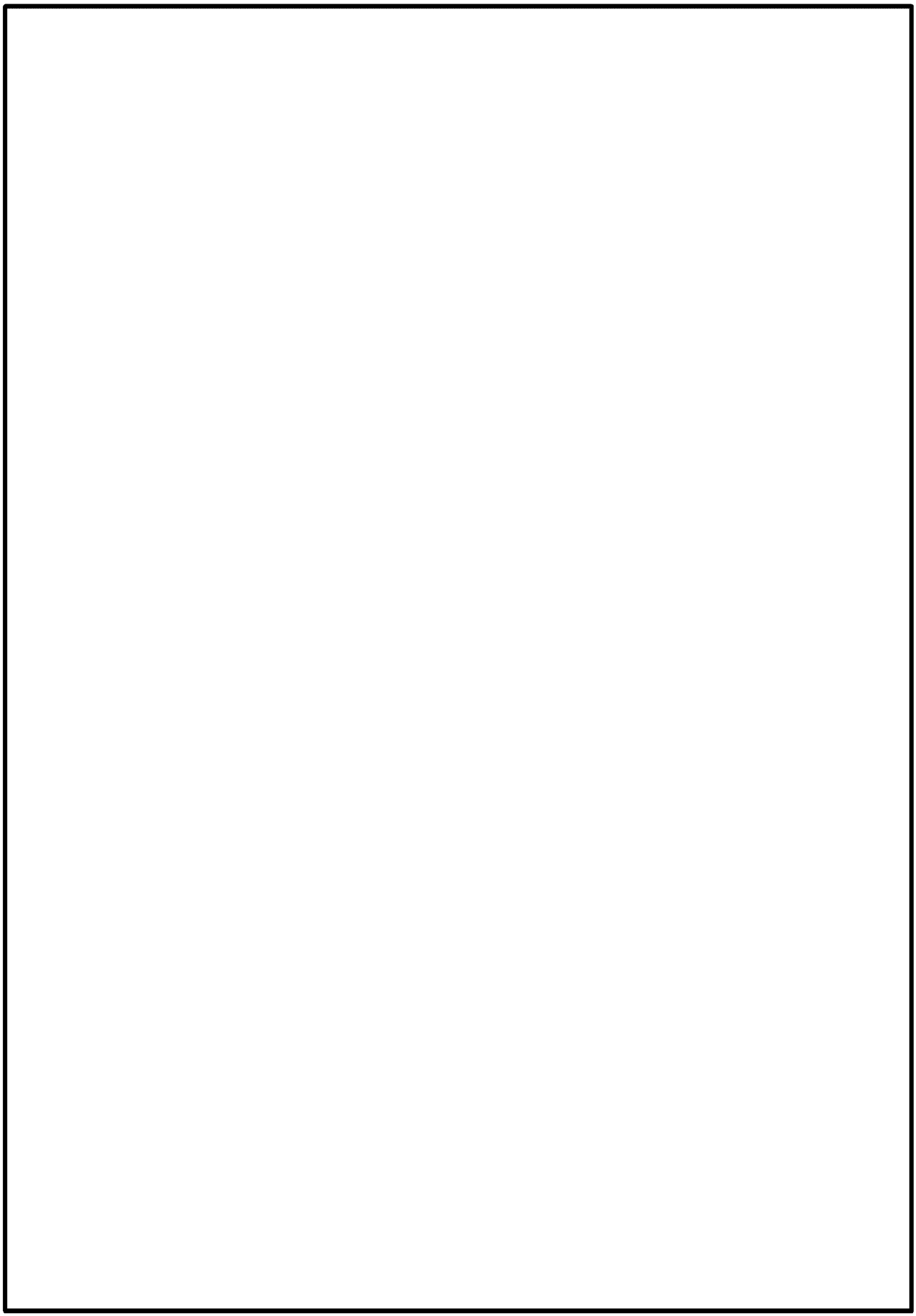

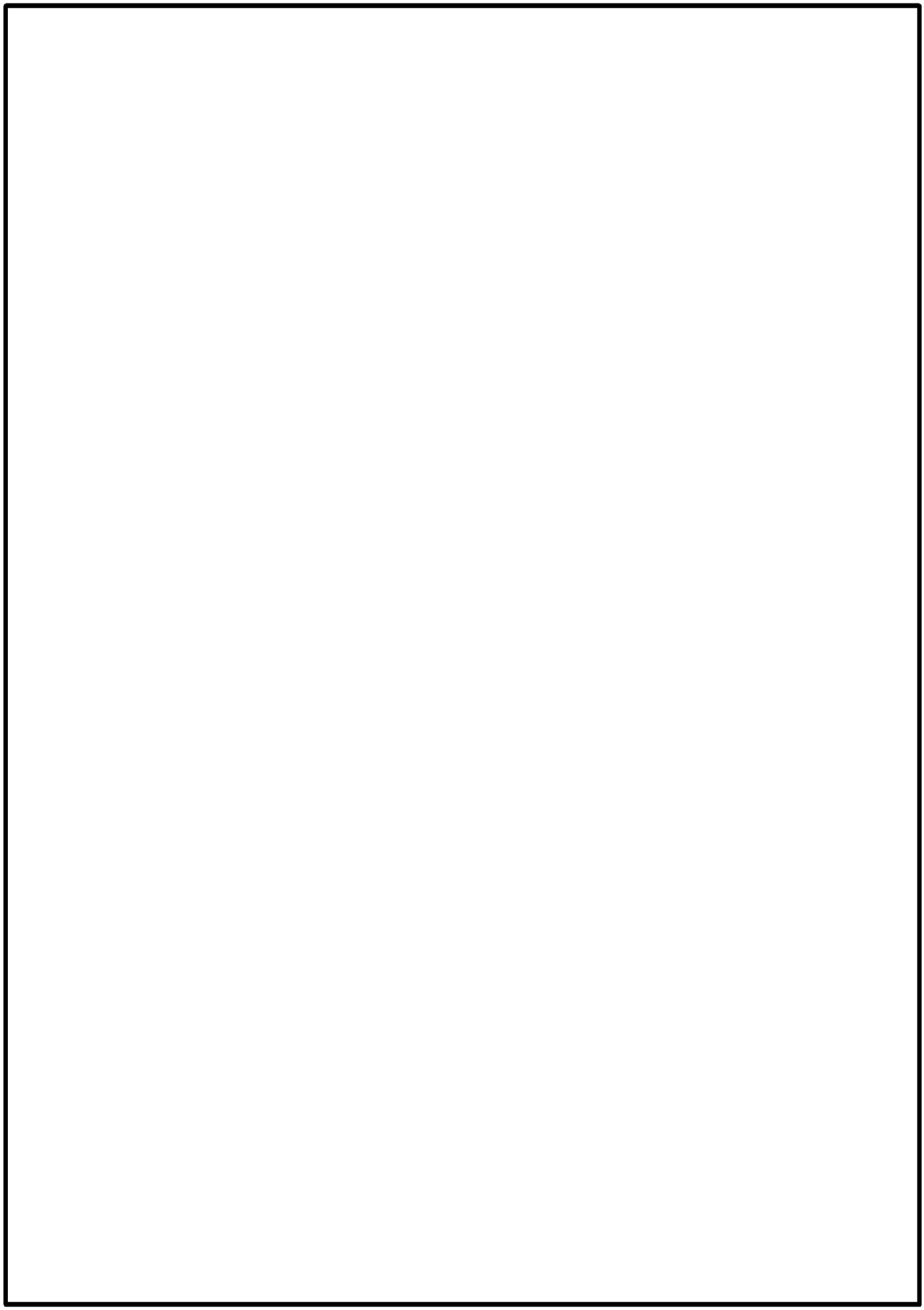

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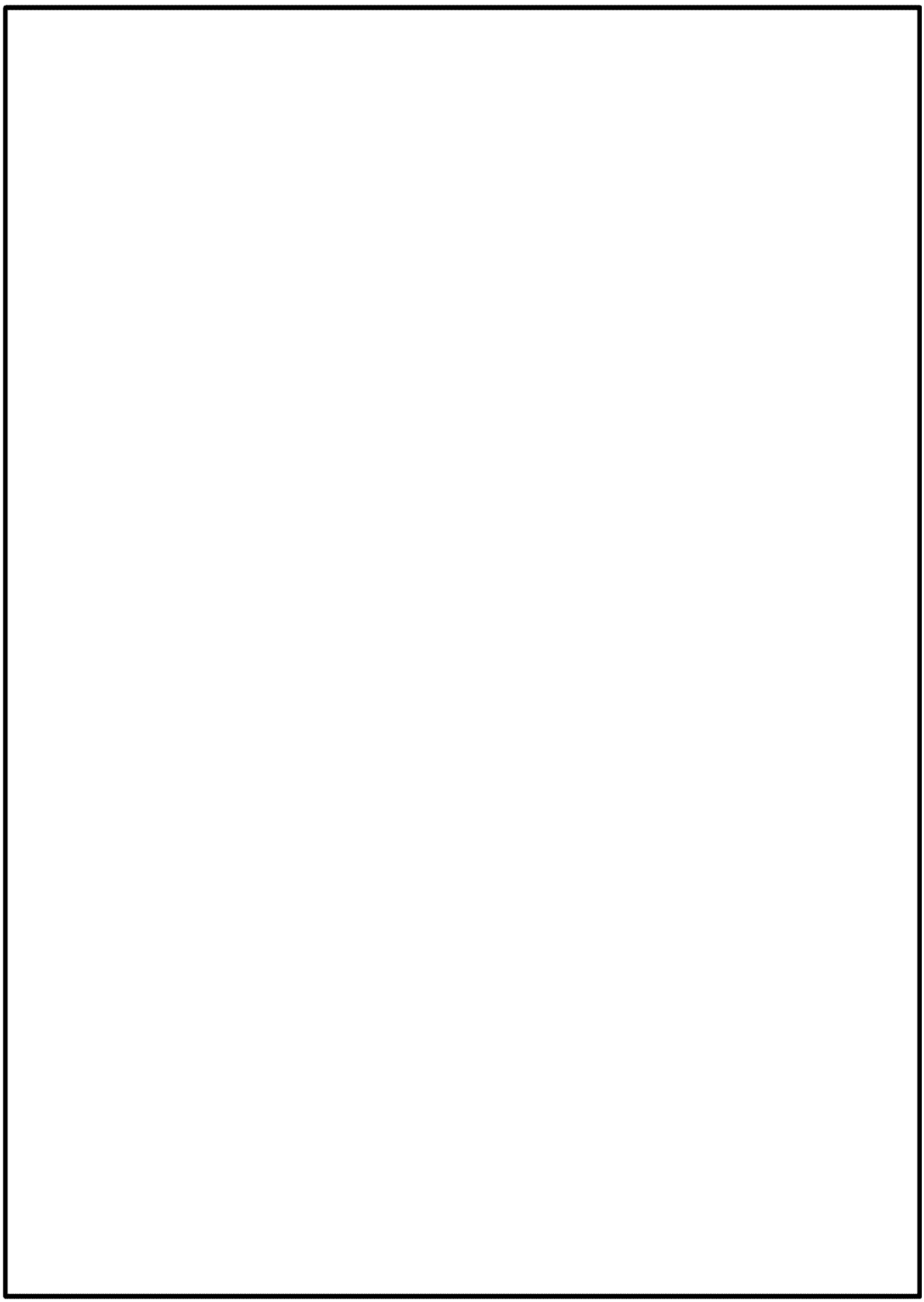

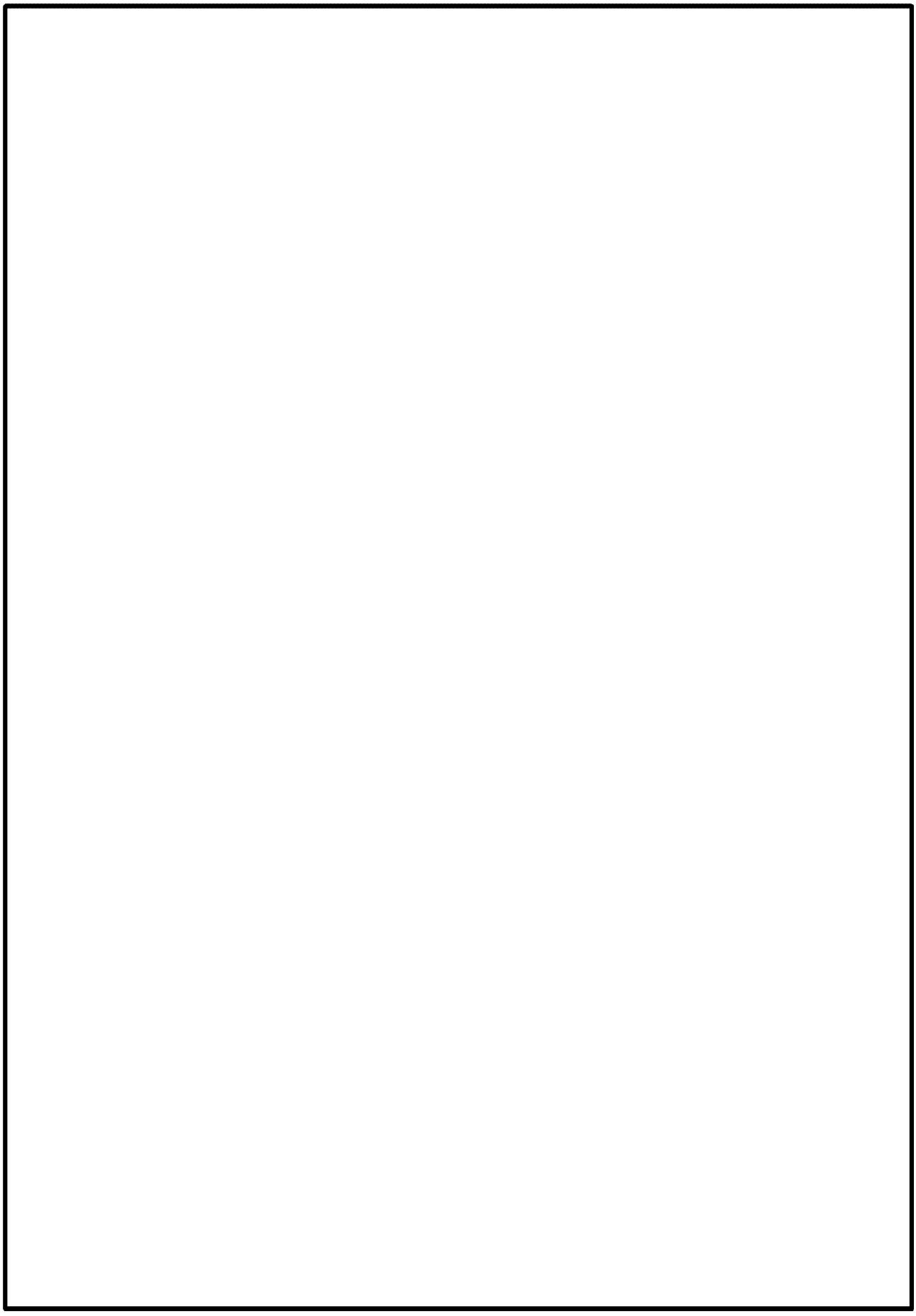

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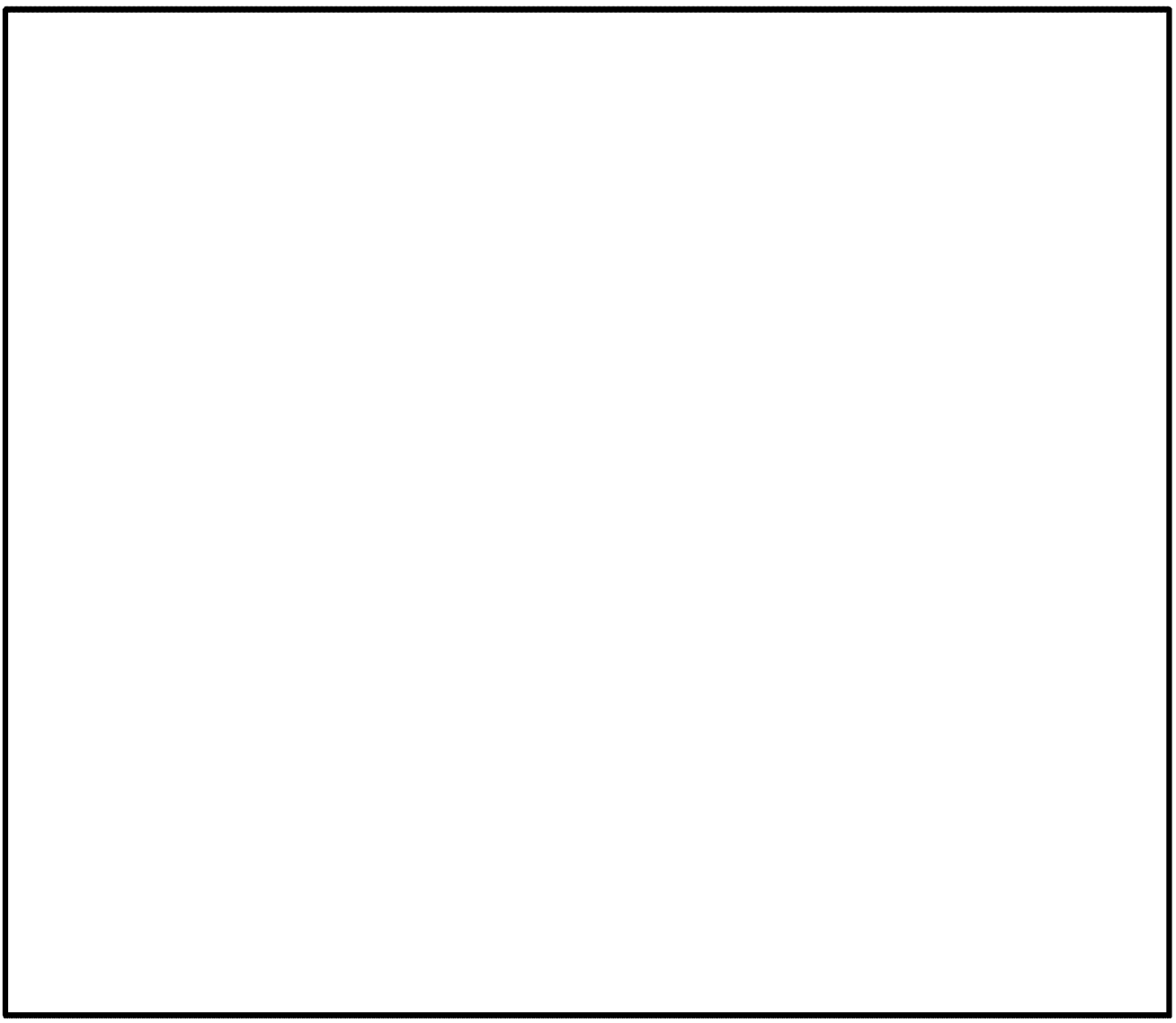

IN WITNESS WHEREOF, the Manager has executed this Operating Agreement on the day and year first written above and each Member has executed a Signature Page indicating such Member's agreement to be bound by the terms of this Agreement, effective as of the date that the Member's Subscription Agreement is accepted by the Manager.

Century New York City Regional Center, LLC
a New York limited liability company, Manager

By:_____
George Xu, Principal

QB VENTURES EB5 CAPITAL, LLC
OPERATING AGREEMENT
MEMBER SIGNATURE PAGE

(b)(4)

IN WITNESS WHEREOF, the undersigned has executed this Member Signature Page to the Operating Agreement as of the date written below, which shall become effective as of the date the undersigned is accepted as a Member of the Company, as indicated by the Manager's signature below.

_____
Signature of Member

_____
Print Name of Member

INVESTOR ACCEPTED AND ADMITTED
AS A MEMBER:

Century New York City Regional Center, LLC
a New York limited liability company,
Manager

By:_____
George Xu, Principal

Date:_____

QB Ventures EB5 Capital, LLC
A New York Limited Liability Company

Limited Liability Company Interests

Subscription Agreement

If you decide not to participate in this offering, please return the Confidential Private Offering Memorandum (together with all amendments, appendices, and supplements thereto), this Subscription Agreement, and any copies of the aforementioned documentation (and any portions thereof) to:

QB Ventures EB5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
718.939.1060

Copy No. _____

QB Ventures EB5 Capital, LLC
Subscription Instructions

Subscriber info: _____

(Name of Subscriber for Account)

QB Ventures EB5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
718.939.1060
Attn: George Xu
Email: centurygroup88@yahoo.com

Re: QB Ventures EB5 Capital, LLC – Subscription for Interests (b)(4)

(b)(4)

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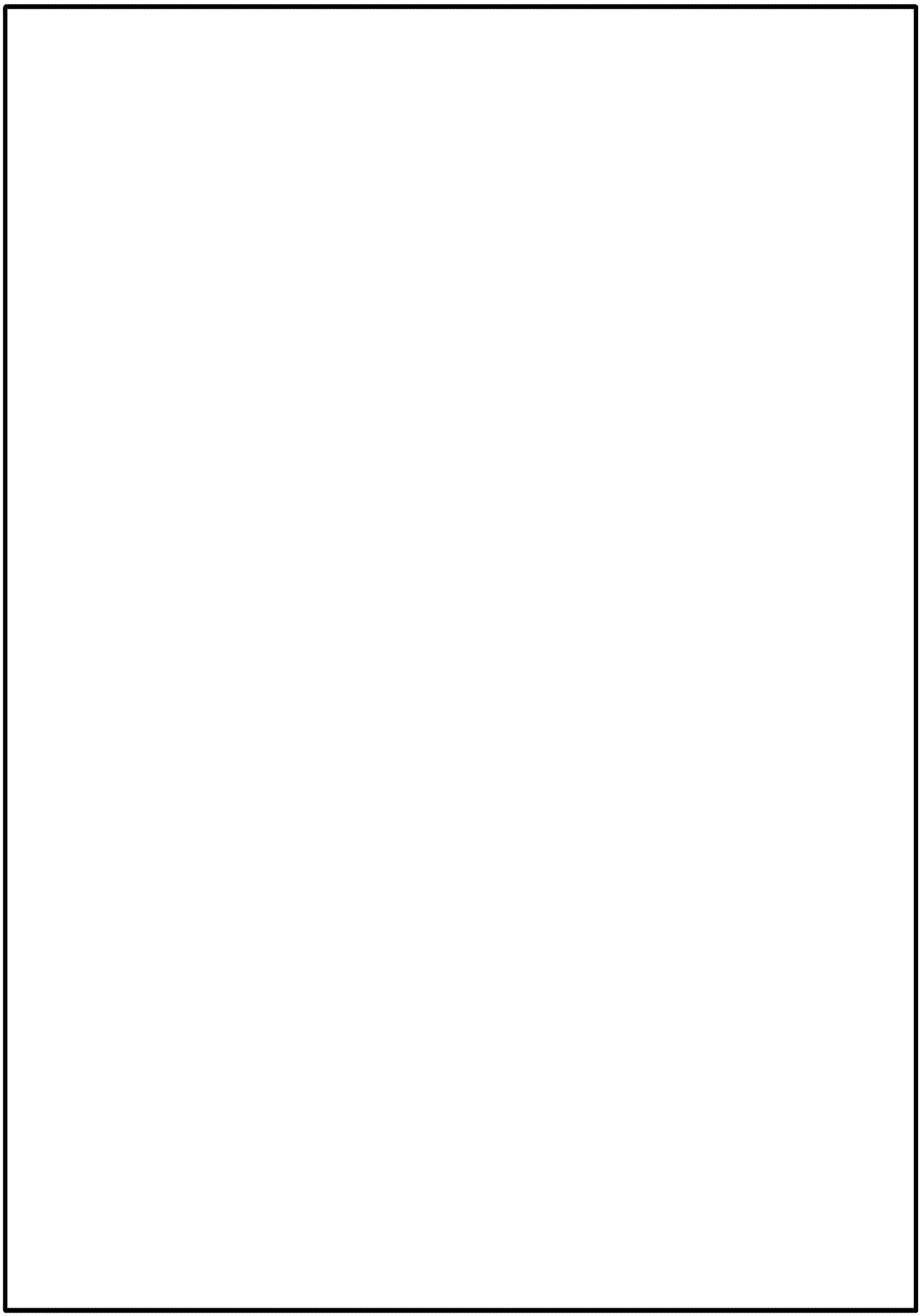

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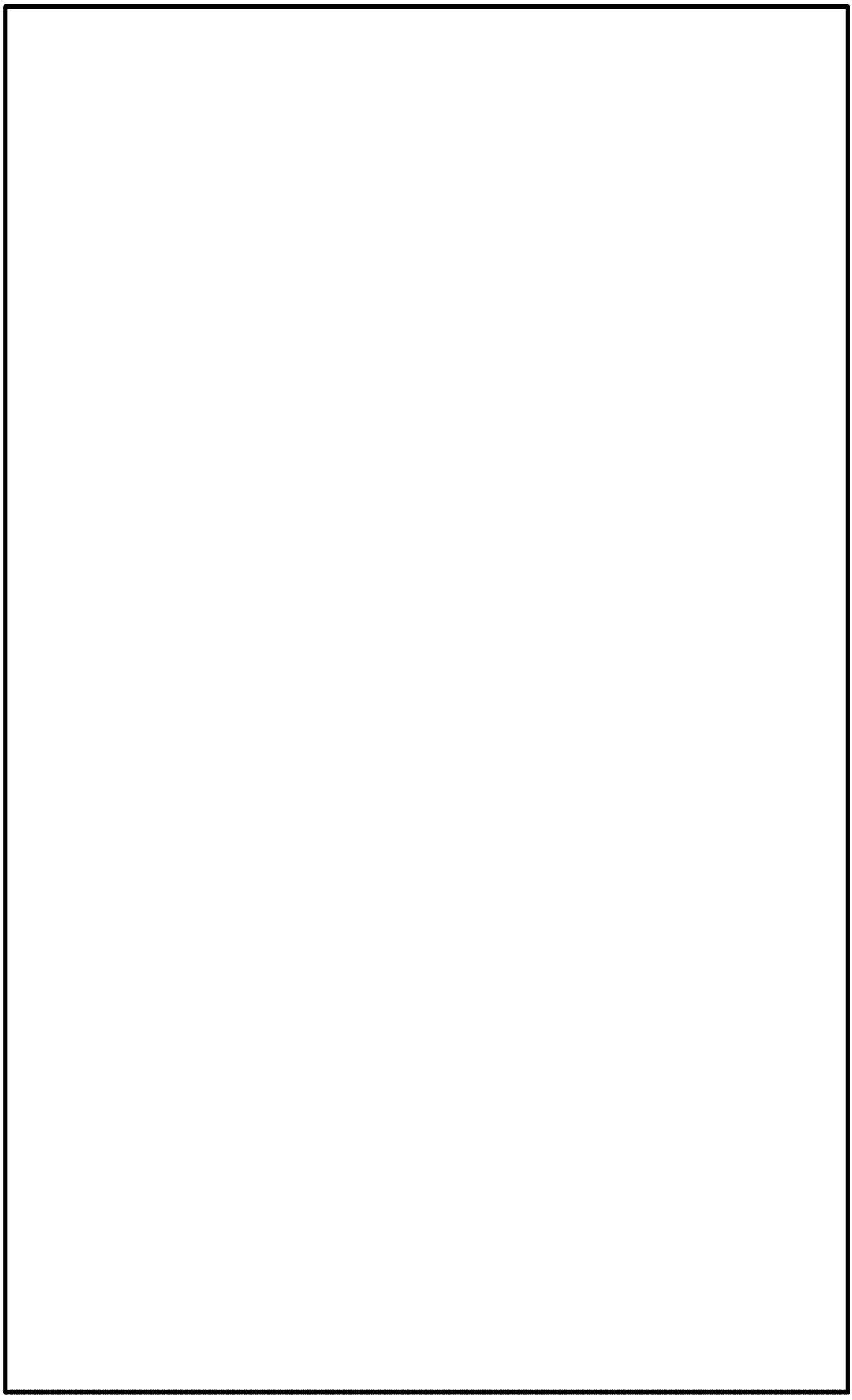

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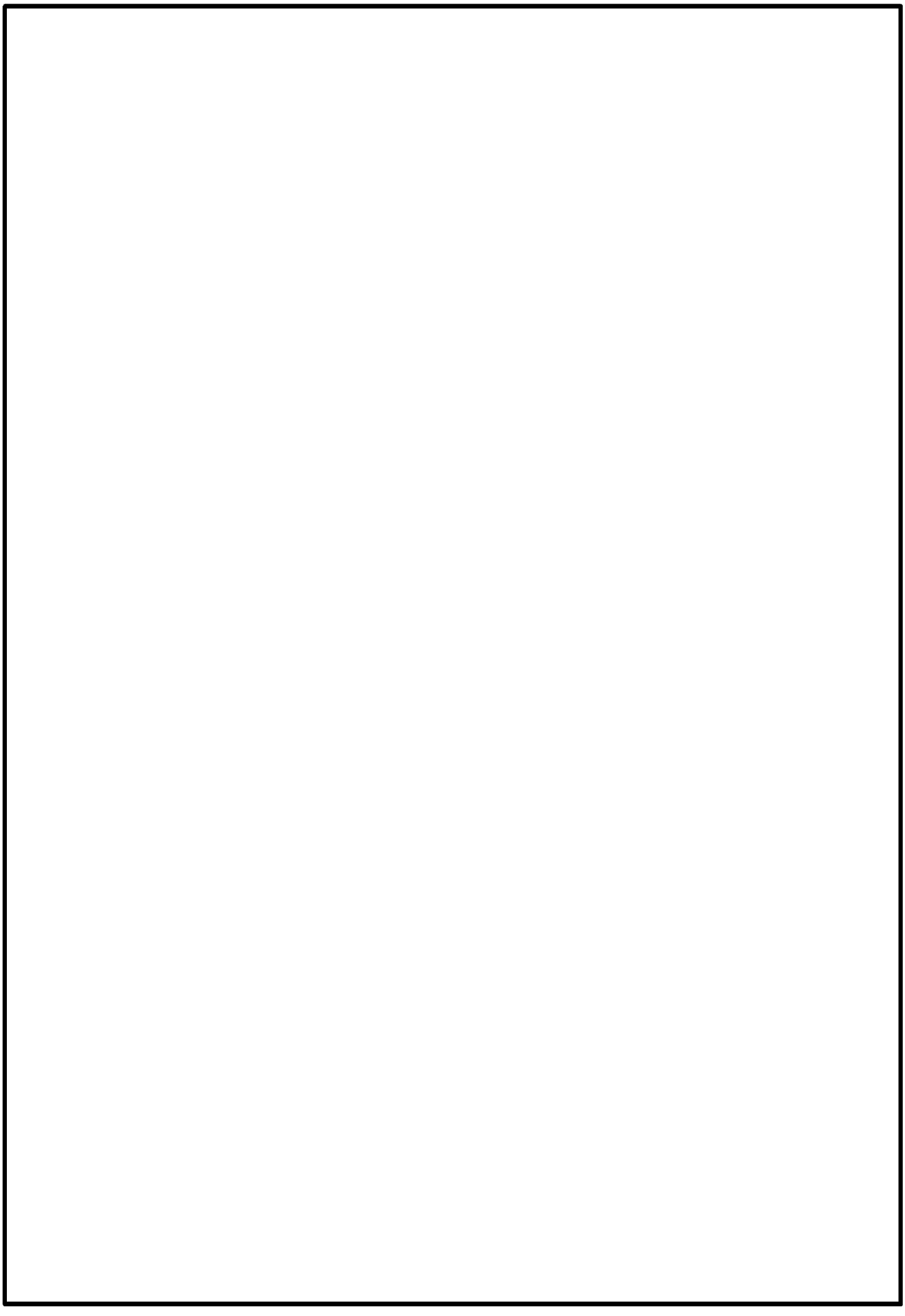

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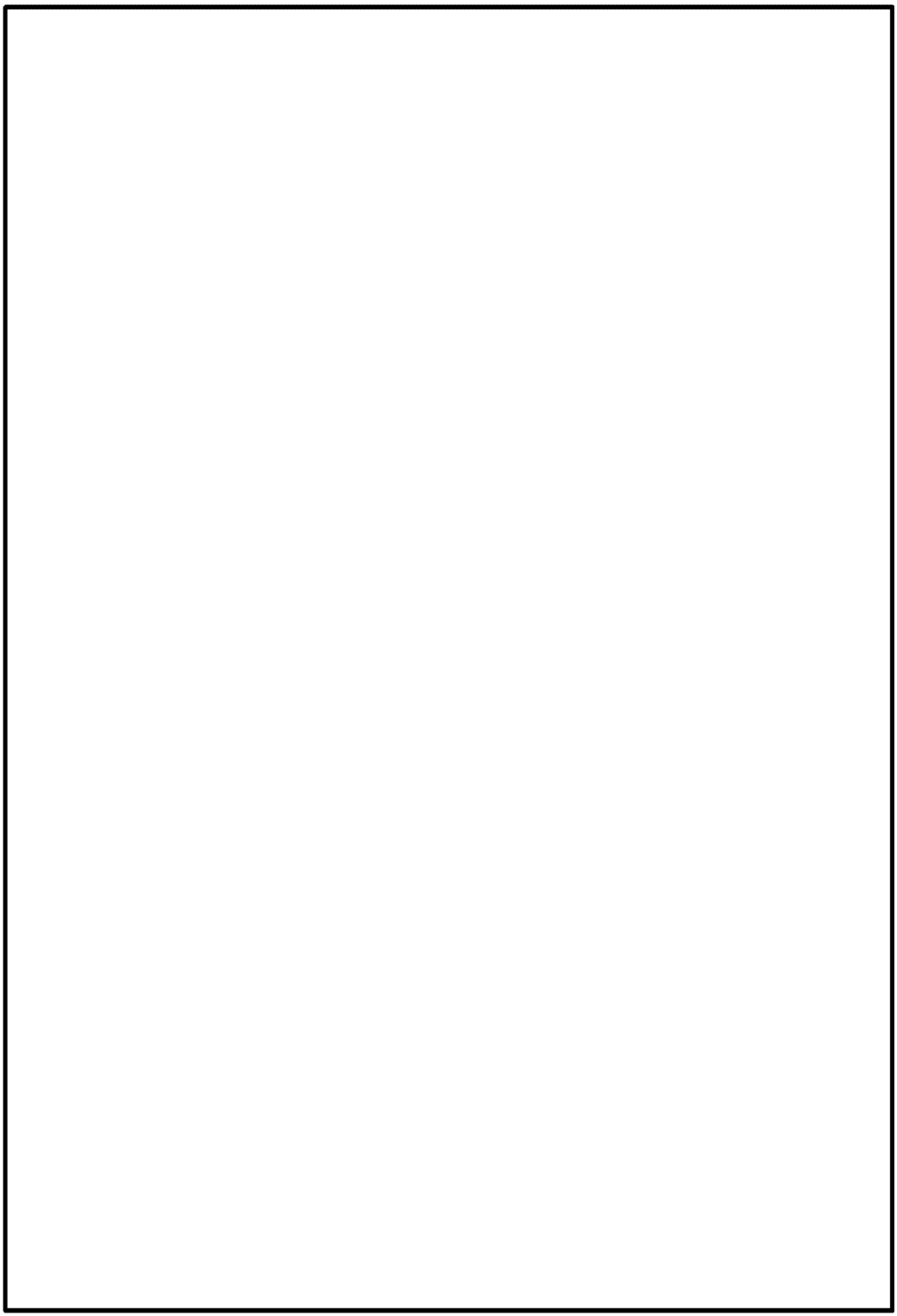

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IN WITNESS WHEREOF, the undersigned has executed this Subscription Agreement as of _____ __, 2015.

SIGNATURE FOR INVESTOR

_____
(Signature)

_____
(Print Name)

ACCEPTANCE

Century New York City Regional Center, LLC, as Manager of the QB Ventures EB5 Capital, LLC, hereby accepts the above subscription to acquire Interests.

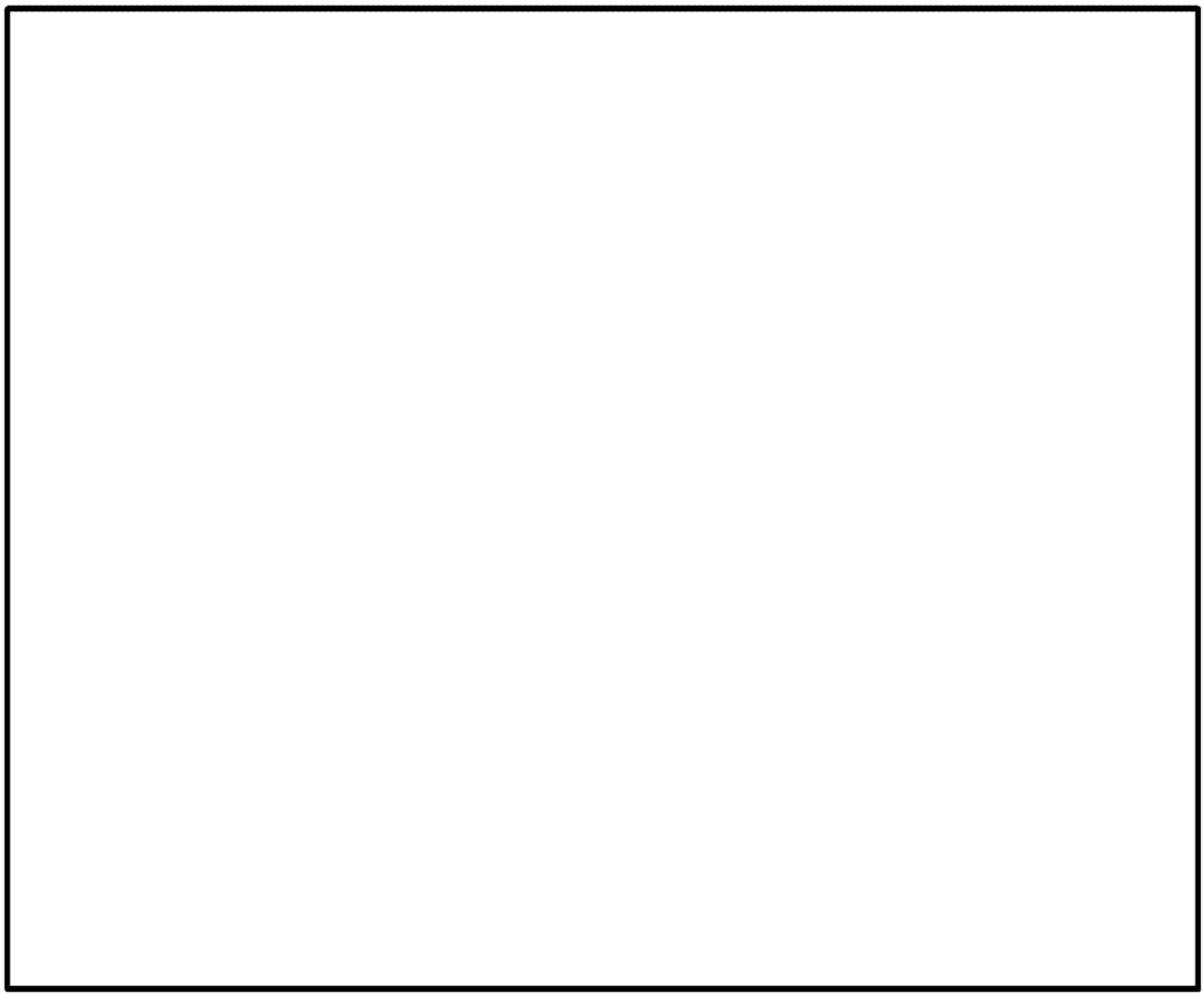
Dated: _____ __, 2015

QB Ventures EB5 Capital, LLC

By:_____
Name: George Xu
Title: Manager

ACKNOWLEDGMENT OF RECEIPT OF

(b)(4) SUBSCRIPTION ESCROW AGREEMENT



Subscriber Signature: _____

Subscriber Name: _____

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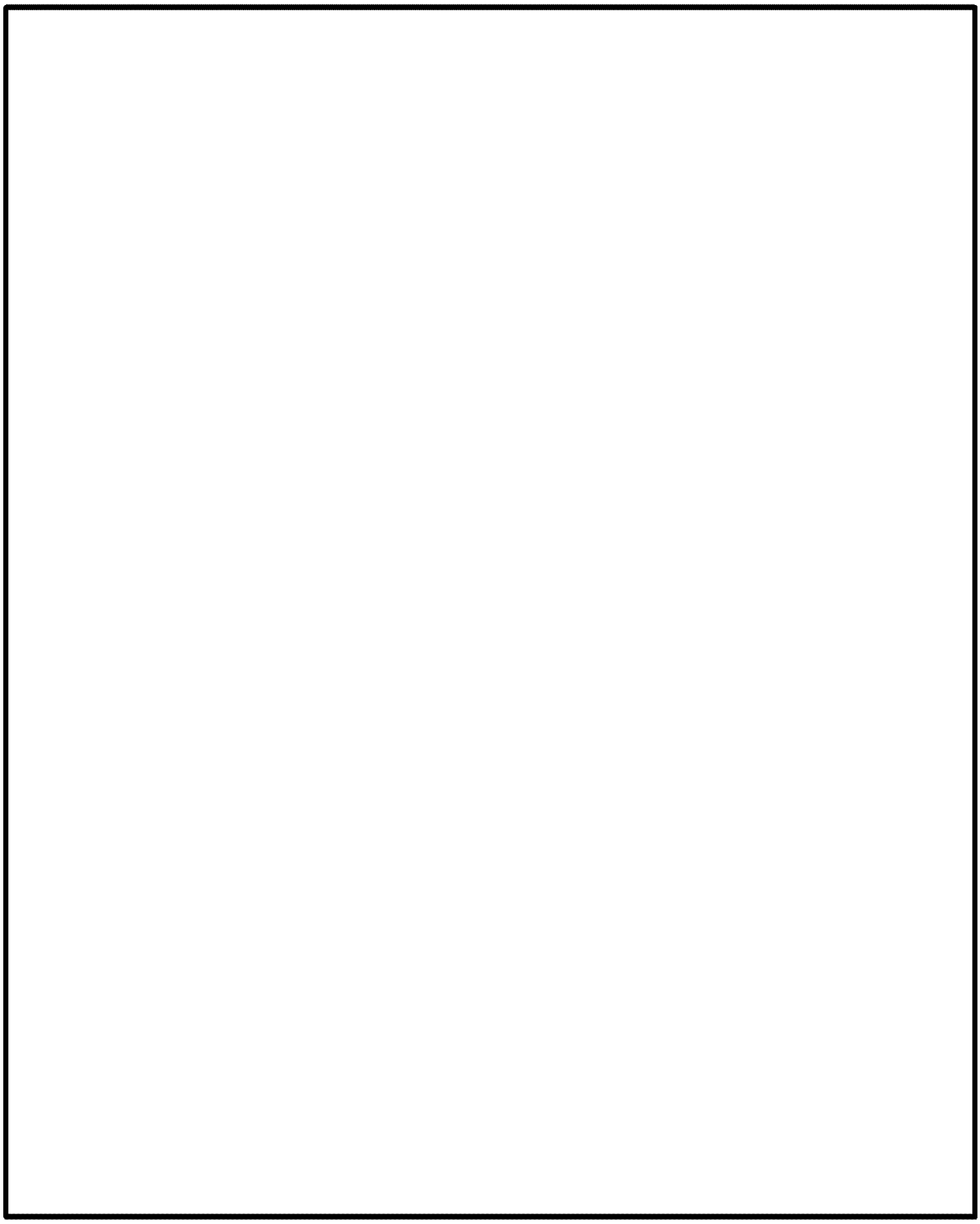
SUBSCRIPTION ESCROW AGREEMENT



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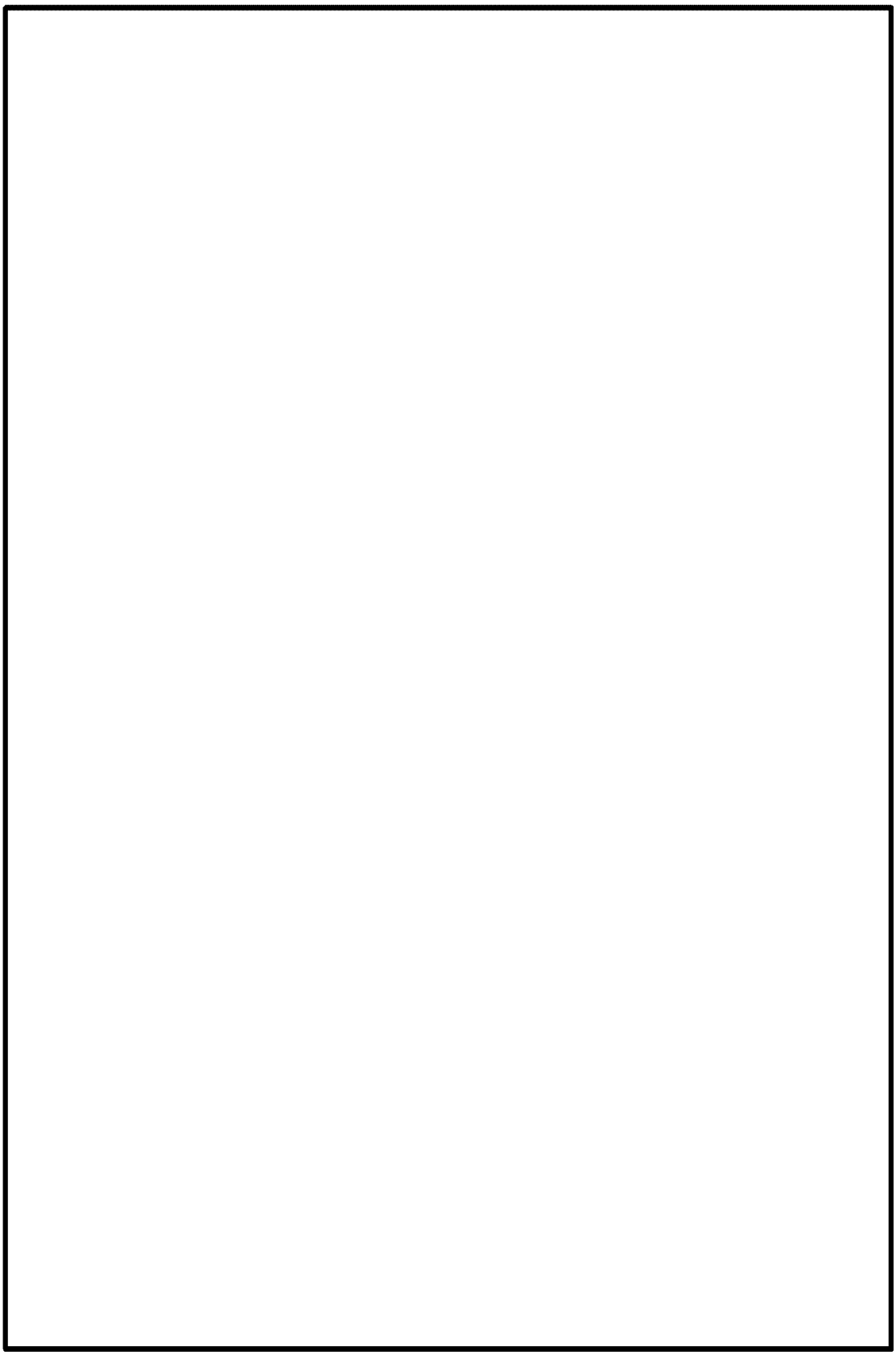

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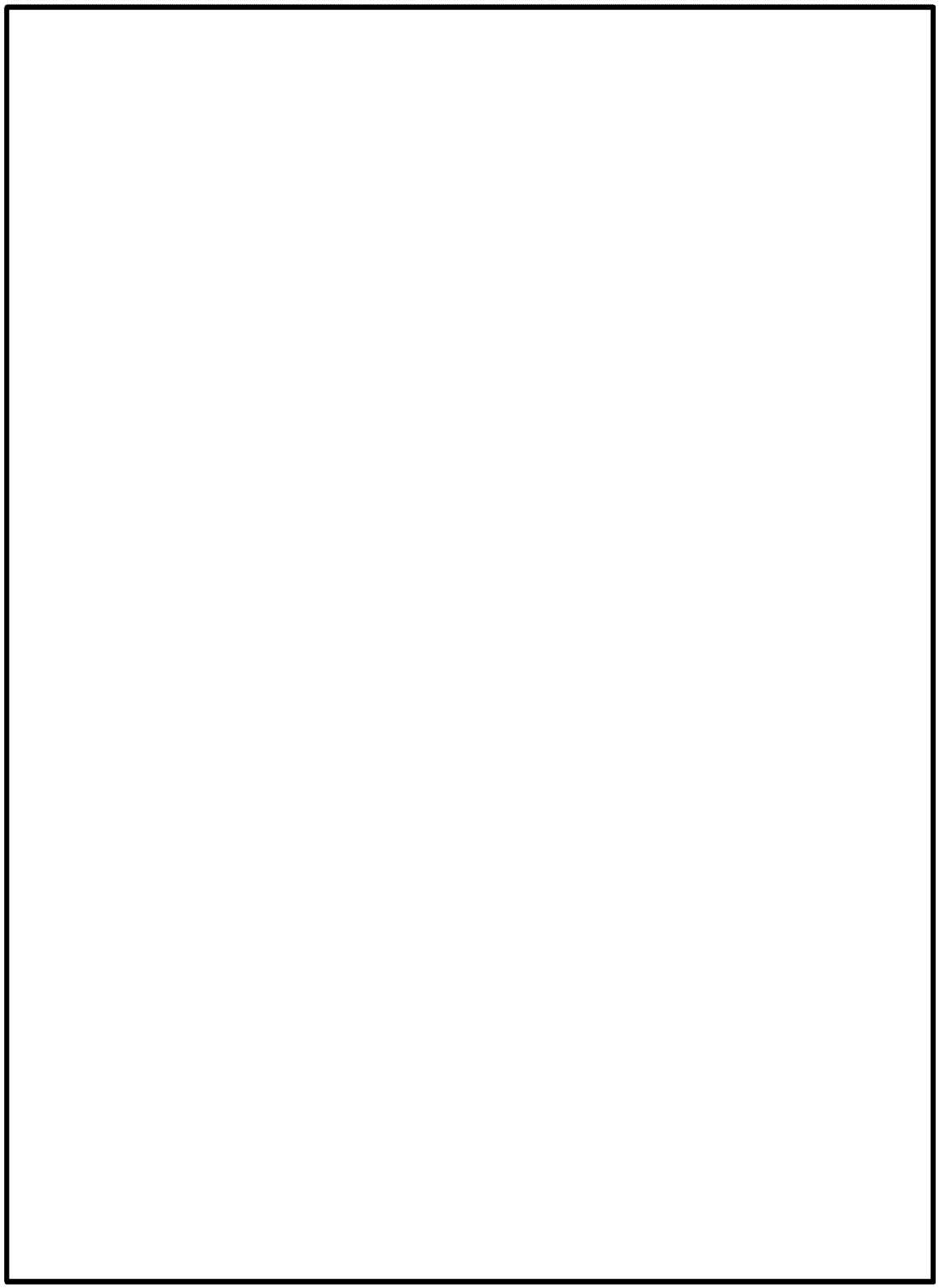

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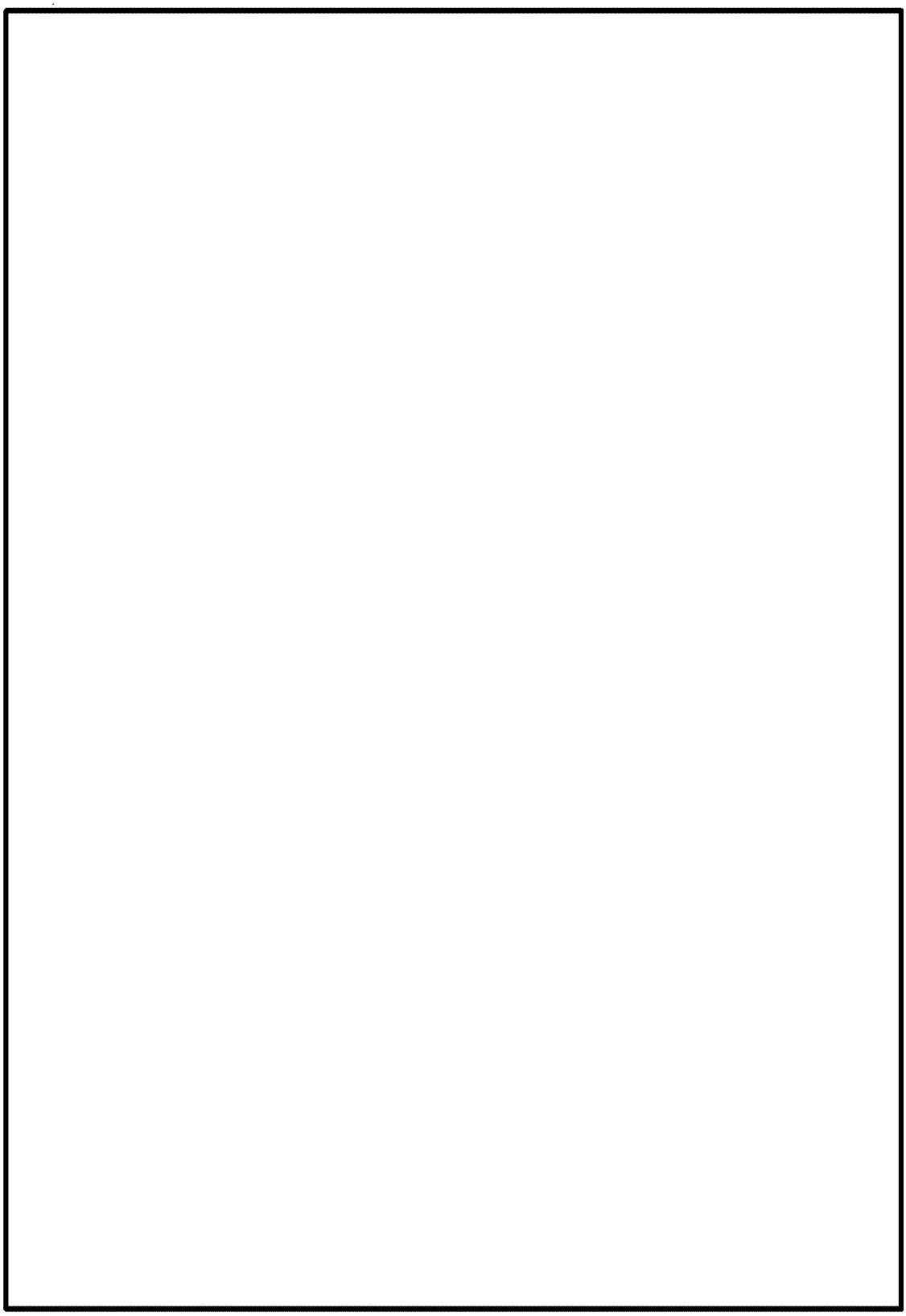

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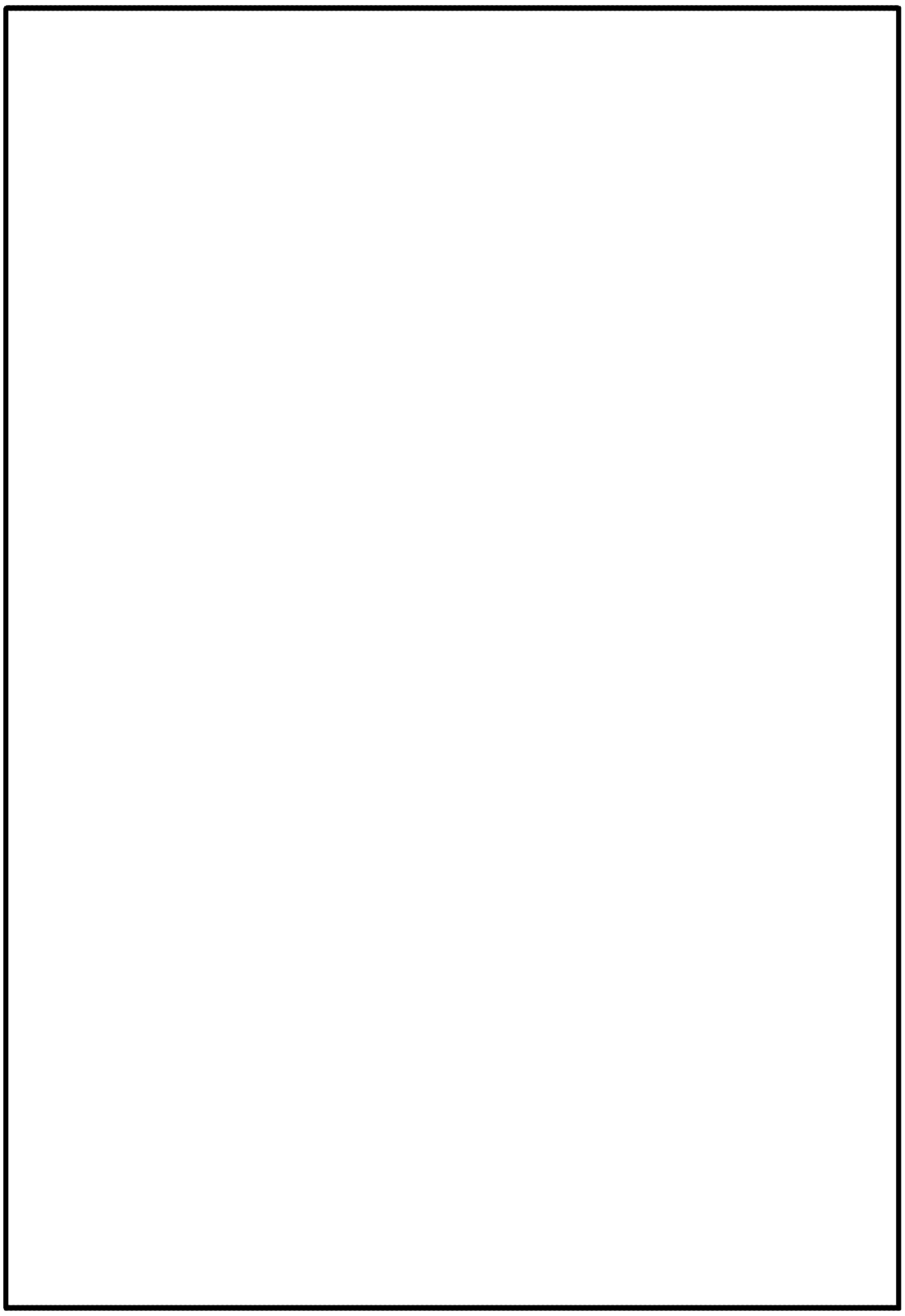

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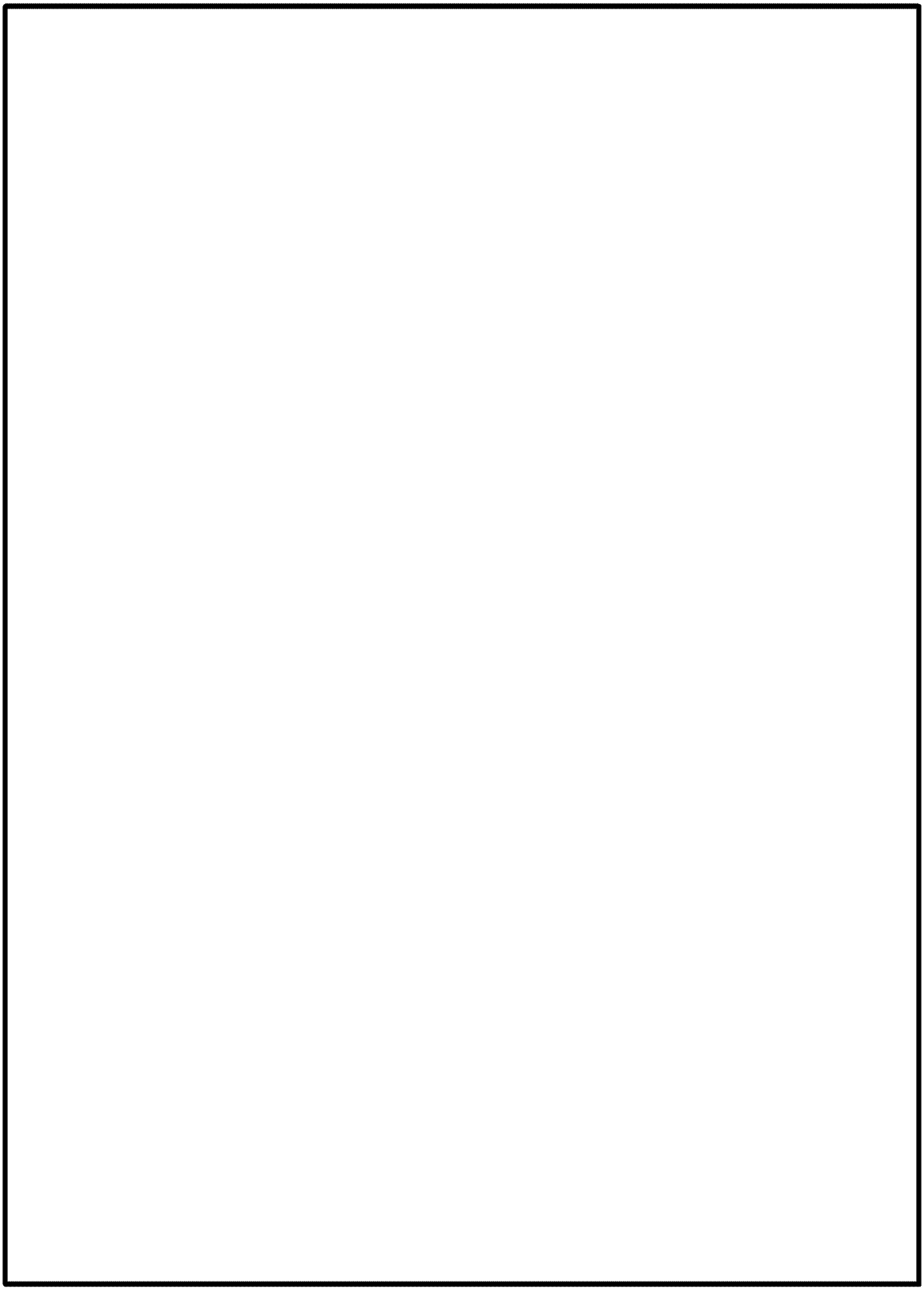

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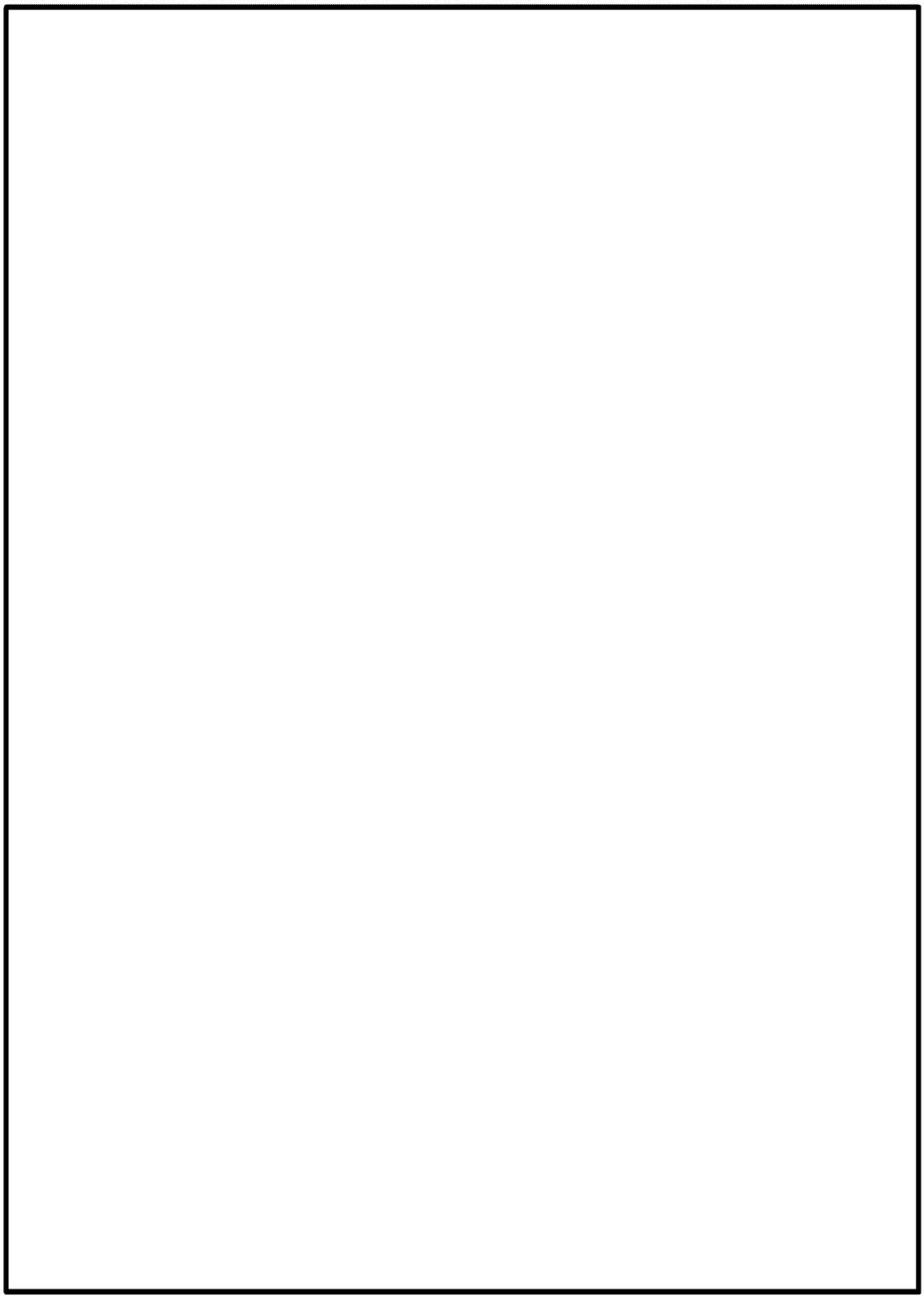

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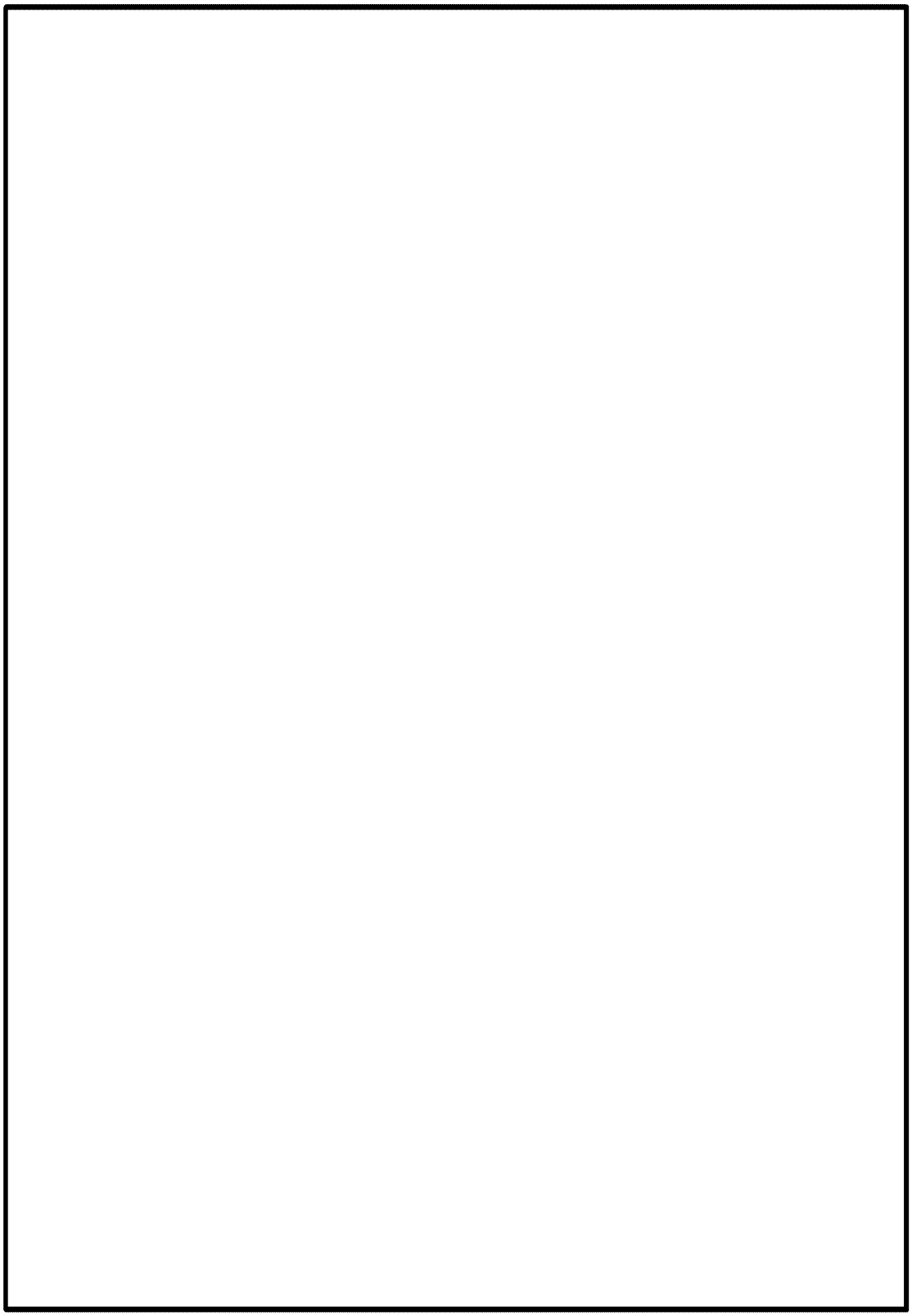

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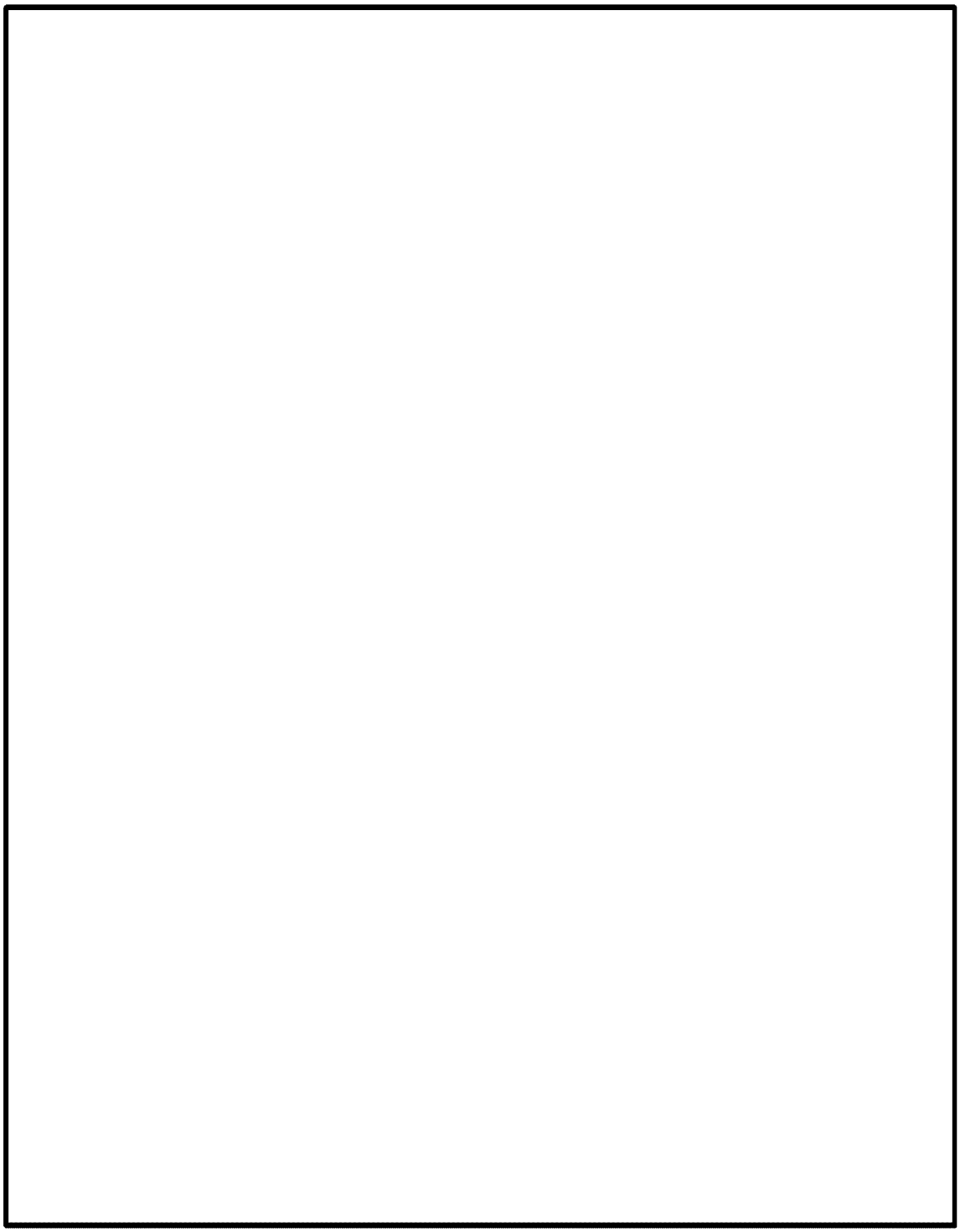

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IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

"LLC"

QB Venture EB5 Capital, LLC

By: _____
Name: George Xu
Title: Managing Member

"SUBSCRIBER REPRESENTATIVE"

Century New York Regional Center LLC

By: _____
Name: George Xu
Title: President

"ADMINISTRATIVE AGENT"

NESF Escrow Services Corp.

By: _____
Name: Dan Yoder
Title: President

"ESCROW AGENT"

Peapack-Gladstone Bank

By: _____
Name: [illegible]
Title: Senior Managing Director

EXHIBIT A-1

Certificate of Incumbency
(List of Authorized Representatives)

Client Name: QB Venture EB5 Capital, LLC

As an Authorized Officer of the above referenced entity, I hereby certify that each person listed below is an authorized signor for such entity, and that the title and signature appearing beside each name is true and correct.

Name	Title	Signature	Contact Number
George Xu	Managing Member		718-939-1660
Qili Li	Managing Member		718-939-1660

IN WITNESS WHEREOF, this certificate has been executed by a duly authorized officer by:

By: _____ Date: _____
Title: _____

EXHIBIT A-2

Certificate of Incumbency
(List of Authorized Representatives)

Client Name: Century New York Regional Center LLC

As an Authorized Officer of the above referenced entity, I hereby certify that each person listed below is an authorized signor for such entity, and that the title and signature appearing beside each name is true and correct.

Name	Title	Signature	Contact Number
George Xu	President		718-939-1060
Dili Li	President		718-939-1060

IN WITNESS WHEREOF, this certificate has been executed by a duly authorized officer by:

By: Tracy Law Date: 9/18/2015.
Title: Project Manager

TRACY LAW
NOTARY PUBLIC-STATE OF NEW YORK
No. 01LA6279977
Qualified in Queens County
My Commission Expires April 15, 2018

EXHIBIT B (b)(4)

Schedule of Escrow Agent Fees

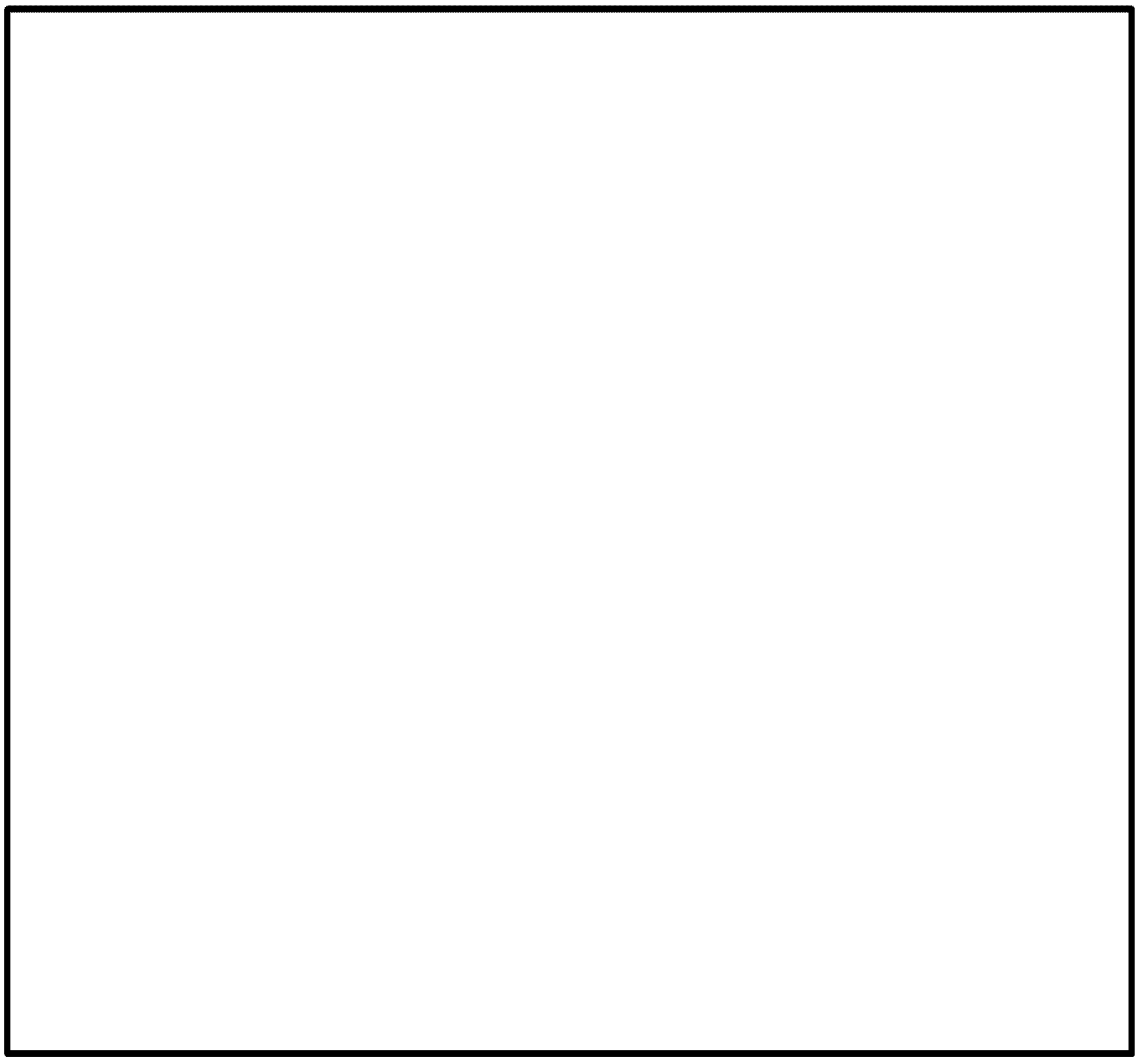

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EXHIBIT C

WRITTEN IINSTRUCTIONS TO RELEASE ESCROW FUNDS

[Project Name]

REGIONAL CENTER: CENTURY

RECEIPT NO:

PROJECT: QB VEN

PETITIO

Exhi

Economic Analysis Showi

- **The Economic Impac**
  Hotel, located in Woo
  K. Evans, dated August

Economic Impact of Construction and Operation of a Hotel Located at 64-06 Queens Blvd, Woodside, Queens, NY, as Part of an EB-5 Regional Center for the New York City Area

Prepared for:

Mona Shah and Associates

Prepared by:

Michael K. Evans

Evans, Carroll & Associates, Inc.

2785 NW 26th St.

Boca Raton, FL 33434

561-470-9035

mevans@evanscarrollecon.com

August 25, 2015

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1. Executive Summary

• Mona Shah and Associates plans to raise EB-5 funds for the development and operation of a Holiday Inn Express, to be located at 64-06 Queens Blvd, Woodside, NY. The hotel will have 135 rooms and suites. This report contains the economic impact analysis for the hard and soft costs of construction, purchases of FF&E, and hotel operations. The developer will maintain an ownership interest in the hotel, so direct jobs can be counted for that activity.

• The calculations are based on the RIMS II input/output model for 23 of the 30 counties in the New York Combined Statistical Area (CSA). This area has already been approved by USCIS for a regional center. These counties are as follows:

1. NYC—New York, Bronx, Richmond, Kings, Queens, Westchester, Rockland
2. Upstate New York Suburbs —Putnam, Dutchess, Orange, Ulster
3. Long Island—Nassau, Suffolk
4. Connecticut—Litchfield, New Haven, Fairfield
5. New Jersey —Bergen, Essex, Hudson, Morris, Passaic, Sussex, Union

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• For EB-5 purposes, some hard and soft costs listed by the developer are not eligible for job creation. The EB-5 eligible figures are [redacted] for hard costs, [redacted] for architectural and engineering fees, and [redacted] for purchases of FF&E. Further details are found in Section (8).

• All these figures are given in 2015 dollars, and should be deflated to 2010 dollars, since the input/output data are in 2010 dollars. Using the appropriate PPI indexes, the estimated cost of nonresidential construction would be expected to rise 13.3% over the five-year period, the cost of architectural and engineering fees would rise 7.7%, and the cost of FF&E would rise 4.0%; further details are discussed in Section (8). Thus in 2010 dollars, the EB-5 eligible figures would be [redacted] for hard costs, [redacted] for EB-5 eligible soft costs, and [redacted] for purchases of FF&E.

• Since the project will take 27 months to construct, direct as well as indirect and induced jobs may be included in the EB-5 job count for hard and soft construction costs. The final demand multipliers are 13.2149 and 11.9014 respectively. For the purchases of FF&E, direct jobs are excluded, so that multiplier would be 5.6974. Hence 184 new jobs would be created from hard construction costs, [redacted] new jobs from soft costs, and [redacted] new jobs from the purchases of FF&E, for a total of [redacted] new jobs from all facets of construction expenditures.

• The pro forma income statement provided by the developer indicates an ADR of [redacted] in 2018 and an occupancy rate of 75%. Since there are 135 rooms, that would be [redacted] in hotel room revenues. When ancillary revenues are added, the figure rises to [redacted] Assuming a 3% annual inflation rate for hotel room prices, that would be deflated to [redacted] in 2010 dollars. The final demand multiplier is 15.0799, so that would create another [redacted] new jobs, of which [redacted] are direct jobs. That

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would be about [redacted] direct employees per room, which is consistent with industry standards for a limited-service hotel.

- **Summing these three components, there would be a total of [redacted] permanent new jobs created for the hotel at 64-06 Queens Blvd, Woodside, NY, which is located in census tract (CT) 245 in Queens County. When combined with contiguous CTs, an area can be formed with an unemployment rate exceeding 9.3% in 2014, which qualifies as a TEA. Hence up to [redacted] EB-5 investors can each raise $500,000, for a total of up to [redacted] in EB-5 funds for this project.**

2. Tabulation of Principal Results

Table A shows the annual expenditures and revenue, the final demand multiplier, and the total number of jobs created by the construction, hotel operation, and rental income of the building. All figures are permanent jobs. Direct jobs are calculated as total jobs divided by the employment multipliers given in Column (6) of Table B-2.

Table A. Summary of Employment and Revenue Estimates

Activity	Exp/Rev mil cur $	Exp/Rev mil 2010 $	RIMS II Mult	Total Jobs	Direct Jobs
Hard construction costs	[redacted]		13.2149	[redacted]	
Architect & Engineering Svcs			11.9014		
Purchase of FF&E *			5.6974		
Hotel Operations			15.0799		
Total					

All figures based on unrounded numbers

* Indirect and induced jobs only

Table B1 shows the NAICS codes for each type of economic activity. The descriptions are taken from: (b)(4) http://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2012. Table B-2 shows the print screen of all the RIMS II multipliers used in this study, based on the 23-county area listed below

Table B-1. NAICS Codes for Each Type of Activity

2361	Residential Building Construction
2362	Nonresidential Building Construction
5413	Architectural, Engineering, and Related Services
4232	Furniture and Home Furnishing Merchant Wholesalers
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers
4236	Household Appliances and Electrical and Electronic Goods Merchant Wholesalers
5311	Lessors of Real Estate
7211	Traveler Accommodation

Table B2. Print Screen of Multipliers

	(1)	(2)	(3)	(4)	(5)	(6)
230000 Construction	1.9404	0.6293	13.2149	1.0609	1.7263	1.8832
541300 Architectural, engineering, and related services	2.0077	0.6555	11.9014	1.2448	1.8409	2.5144
420000 Wholesale trade	1.8552	0.5547	9.9594	1.2018	1.8136	2.3368
7211A0 Hotels and motels, including casino hotels	1.9158	0.5678	15.0799	1.2064	1.8831	1.6881

Region Definition: Fairfield, CT; Litchfield, CT; New Haven, CT; Bergen, NJ; Essex, NJ; Hudson, NJ; Morris, NJ; Passaic, NJ; Sussex, NJ; Union, NJ; Bronx, NY; Dutchess, NY; Kings, NY; Nassau, NY; New York, NY; Orange, NY; Putnam, NY; Queens, NY; Richmond, NY; Rockland, NY; Suffolk, NY; Ulster, NY; Westchester, NY

*Includes Government enterprises.

1. Each entry in column 1 represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
2. Each entry in column 2 represents the total dollar change in earnings of households employed by all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
3. Each entry in column 3 represents the total change in number of jobs that occurs in all industries for each additional 1 million dollars of output delivered to final demand by the industry corresponding to the entry. Because the employment multipliers are based on 2010 data, the output delivered to final demand should be in 2010 dollars.
4. Each entry in column 4 represents the total dollar change in value added that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
5. Each entry in column 5 represents the total dollar change in earnings of households employed by all industries for each additional dollar of earnings paid directly to households employed by the industry corresponding to the entry.
6. Each entry in column 6 represents the total change in number of jobs in all industries for each additional job in the industry corresponding to the entry.

NOTE.--Multipliers are based on the 2002 Benchmark Input-Output Table for the Nation and 2010 regional data. Industry List A identifies the industries corresponding to the entries.

SOURCE.--Regional Input-Output Modeling System (RIMS II), Regional Product Division, Bureau of Economic Analysis.

Table C shows the annual level of household income, and the output for utilities, maintenance and repair construction, manufacturing output, and professional and business support services for the construction of the building and hotel operations.

Table C. Summary Measures of Economic Impact for Construction and Hotel Operations

All figures in thousands of dollars

Household Income from	
Hard construction costs	
Architect & Engineering Svcs	
Purchases of FF&E	(b)(4)
Hotel operations	
Total these 4 categories	
Demand (output) for:	
Utilities	
Maintenance and repair construction	
Supplier/vendor links with manufacturers	
Professional and business support services	
Total these 4 categories	

Household Earnings (Labor Income) (b)(4)

The jobs created by the project subsequently create new sources of household income. The household income created within the regional center by the construction of the building and hotel operations is about [redacted]

The details used to calculate these figures are given throughout the report. Separate tables are provided for the total number of jobs created, the average earnings per new worker, and the total increase in earnings for construction and hotel operations. In each case, the RIMS II input/output model has been used to calculate the number of jobs in each major industrial classification, the average earnings per employee, and hence total earnings. The number of jobs by industrial classification is based on calculations imbedded in the RIMS II model for each of the activities as summarized in Table A and documented in detail throughout this report.

Demand for Business Services, Utilities, Maintenance and Construction, and New Supplier/Vendor Relationships Created with Manufacturers

The total economic impact of the regional center from the supplier purchases and business relationships for the construction and hotel operations would create approximately [redacted] in additional economic activity across the region for the project. These supplier purchases are calculated from the indirect increase in output generated by the RIMS II model. It should be noted that some of these supplier industries might potentially locate within the regional center, and their economic output is included in this total.

The estimate of supplier purchases is based on the commodity data in the RIMS II input-output model. This data specifies the amount and type of commodity input needed to maintain specific types of business operations. The model estimates the supplier purchases based on the types of jobs and number of jobs that will be created within the regional center. In addition, the model allocates the supplier purchases to businesses within the region, based on trade flow data from the U.S. Bureau of Economic Analysis.

Utilities include services such as electricity, natural gas, and water and sewer facilities. The economic impact on utility services totals about [redacted]

Maintenance and repair services include some building and construction activity on existing buildings. The regional center would create an economic impact of about [redacted] These expenditures represent permanent, ongoing maintenance on the building after it is completed; they do not reflect the initial construction costs.

New supplier/vendor relationships with manufacturers would create an economic impact of about [redacted] This output primarily represents purchases of locally produced materials and parts for the construction of the building, although it also includes locally produced goods used in the hotel operations.

(b)(4)

The regional center will also create demand for various types of business services, including professional and scientific services, management of companies, administrative services, and building support and waste management services. The impact of this activity totals about [redacted] (b)(4) This primarily represents payments to architects and engineers for the construction activities, and also includes outsourcing of professional services, such as legal and accounting, by the hotel and rental income management.

The figures given in Table C represent only a brief summary of the detailed calculations that have been undertaken and are reported in tabular format throughout the report. The figure for utility output, for example, represents the sum of utility output for each of the categories of economic activity listed in Table A. For repair and maintenance construction office, this figure represents the amount spent times he input/output coefficient showing the total amount of output per $1 million of construction expenditures. The same methodology applies to all the other figures given in Table C. Detailed figures may be found in the tables in Section (8), which provide estimates of employment, output, and household earnings, and output and earnings per new worker, for the 20 major industrial classifications in the RIMS II input/output model.

3. Introduction and Scope of Work

Mona Shah and Associates plans to raise EB-5 funds for the development and operation of a Holiday Inn Express, to be located at 64-06 Queens Blvd, Woodside, NY. The hotel will have 135 rooms and suites. This report contains the economic impact analysis for the hard and soft costs of construction, purchases of FF&E, and hotel operations. The developer will maintain an ownership interest in the hotel, so direct jobs can be counted for that activity.

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1. NYC—New York, Bronx, Richmond, Kings, Queens, Westchester, Rockland
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3. Long Island—Nassau, Suffolk
4. Connecticut—Litchfield, New Haven, Fairfield
5. New Jersey —Bergen, Essex, Hudson, Morris, Passaic, Sussex, Union

Section (4) contains a brief description of the RIMS II models and its various multipliers, and Section (5) contains additional information explaining how the indirect jobs are calculated.

Section (6) contains and analyzes the key statistics for the 23-county area used to calculate the RIMS II multipliers. It is subdivided into five subsections, corresponding to the five groups shown above. Each subsection contains tables showing the following information: (1) data for employment by major occupation and industrial classification, income distribution by deciles, mean and median household and family income, and poverty rates, with these figures compared to the U.S. totals or averages; (2) key labor market statistics over the past decade for each county and the county group total; and (3) level and growth rate of population and personal income for these same areas. Section (7) shows the commuting patterns for New York City, maps of the area, and TEA analysis.

Section (8) presents the economic impact tables for the hard costs, EB-5 eligible soft costs, and purchases of FF&E. Separate sets of tables are presented for each category of construction for the increase in employment, output, and earnings, and the average level of output and earnings per new worker, for the 20 major industrial classifications in the RIMS II input/output model. Section (9) contains similar tables for hotel operations. Section (10) contains the summary tables for the project.

4. Brief Guide to RIMS II Input/Output Model

The following material has been condensed from the RIMS II User Handbook.

Introduction and General Comments

Effective planning for public- and private-sector projects and programs at the State and local levels requires a systematic analysis of the economic impacts of these projects and programs on affected regions. In turn, systematic analysis of economic impacts must account for the inter-industry relationships within regions because these relationships largely determine how regional economies are likely to respond to project and program changes. Thus, regional input-output (I-O) multipliers, which account for inter-industry relationships within regions, are useful tools for conducting regional economic impact analysis.

In the 1970s, the Bureau of Economic Analysis (BEA) developed a method for estimating regional I-O multipliers known as RIMS (Regional Industrial Multiplier System), which was based on the work of Garnick and Drake. In the 1980s, BEA completed an enhancement of RIMS, known as RIMS II (Regional Input-Output Modeling System), and published a handbook for RIMS II users. In 1992, BEA published a second edition of the handbook in which the multipliers were based on more recent data and improved methodology. In 1997, BEA published a third edition of the handbook that provides more detail on the use of the multipliers and the data sources and methods for estimating them.

RIMS II is based on an accounting framework called an I-O table. For each industry, an I-O table shows the industrial distribution of inputs purchased and outputs sold. A typical I-O table in RIMS II is derived mainly from two data sources: BEA's national I-O table, which shows the input and output structure of nearly 500 U.S. industries, and BEA's regional economic accounts, which are used to adjust the national I-O table to show a region's industrial structure and trading patterns.

Using RIMS II for impact analysis has several advantages. RIMS II multipliers can be estimated for any region composed of one or more counties and for any industry, or group of industries, in the national I-O table. The accessibility of the main data sources for RIMS II keeps the cost of estimating regional multipliers relatively low. Empirical tests show that estimates based on relatively expensive surveys and RIMS II-based estimates are similar in magnitude.

BEA's RIMS multipliers can be a cost-effective way for analysts to estimate the economic impacts of changes in a regional economy. However, it is important to keep in mind that, like all economic impact models, RIMS provides approximate order-of-magnitude estimates of impacts. RIMS multipliers are best suited for estimating the impacts of small changes on a regional economy. For some applications, users may want to supplement RIMS estimates with information they gather from the region undergoing the potential change. To use the multipliers for impact analysis effectively,

users must provide geographically and industrially detailed information on the initial changes in output, earnings, or employment that are associated with the project or program under study. The multipliers can then be used to estimate the total impact of the project or program on regional output, earnings, and employment.

RIMS II is widely used in both the public and private sector. In the public sector, for example, the Department of Defense uses RIMS II to estimate the regional impacts of military base closings. State transportation departments use RIMS II to estimate the regional impacts of airport construction and expansion. In the private-sector, analysts and consultants use RIMS II to estimate the regional impacts of a variety of projects, such as the development of shopping malls and sports stadiums.

RIMS II Methodology

RIMS II uses BEA's benchmark and annual I-O tables for the nation. Since a particular region may not contain all the industries found at the national level, some direct input requirements cannot be supplied by that region's industries. Input requirements that are not produced in a study region are identified using BEA's regional economic accounts.

The RIMS II method for estimating regional I-O multipliers can be viewed as a three-step process. In the first step, the producer portion of the national I-O table is made region-specific by using six-digit NAICS location quotients (LQs). The LQs estimate the extent to which input requirements are supplied by firms within the region. RIMS II uses LQs based on two types of data: BEA's personal income data (by place of residence) are used to calculate LQs in the service industries; and BEA's wage-and-salary data (by place of work) are used to calculate LQs in the non-service industries.

In the second step, the household row and the household column from the national I-O table are made region-specific. The household row coefficients, which are derived from the value-added row of the national I-O table, are adjusted to reflect regional earnings leakages resulting from individuals working in the region but residing outside the region. The household column coefficients, which are based on the personal consumption expenditure column of the national I-O table, are adjusted to account for regional consumption leakages stemming from personal taxes and savings. In the last step, the Leontief inversion approach is used to estimate multipliers. This inversion approach produces output, earnings, and employment multipliers, which can be used to trace the impacts of changes in final demand on and indirectly affected industries.

Advantages of RIMS II

There are numerous advantages to using RIMS II. First, the accessibility of the main data sources makes it possible to estimate regional multipliers without conducting relatively expensive surveys. Second, the level of industrial detail used in RIMS II helps avoid aggregation errors, which often occur when industries are combined. Third, RIMS II multipliers can be compared across areas because they are based on a consistent set

of estimating procedures nationwide. Fourth, RIMS II multipliers are updated to reflect the most recent local-area wage-and-salary and personal income data.

Overview of Different Multipliers

RIMS II provides users with five types of multipliers: final demand multipliers for output, for earnings, and for employment; and direct-effect multipliers for earnings and for employment. These multipliers measure the economic impact of a change in final demand, in earnings, or in employment on a region's economy.

The final demand multipliers for output are the basic multipliers from which all other RIMS II multipliers are derived. In this table, each column entry indicates the change in output in each row industry that results from a $1 change in final demand in the column industry. The impact on each row industry is calculated by multiplying the final demand change in the column industry by the multiplier for each row. The total impact on regional output is calculated by multiplying the final demand change in the column industry by the sum of all the multipliers for each row except the household row.

RIMS II provides two types of multipliers for estimating the impacts of changes on earnings: final demand multipliers and direct effect multipliers. These multipliers are derived from the table of final demand output multipliers.

The final demand multipliers for earnings can be used if data on final demand changes are available. In the final demand earnings multiplier table, each column entry indicates the change in earnings in each row industry that results from a $1 change in final demand in the column industry. The impact on each row industry is calculated by multiplying the final demand change in the column industry by the multipliers for each row. The total impact on regional earnings is calculated by multiplying the final demand change in the column industry by the sum of the multipliers for each row.

Employment Multipliers

RIMS II provides two types of multipliers for estimating the impacts of changes on employment: final demand multipliers and direct effect multipliers. These multipliers are derived from the table of final demand output multipliers.

The final demand multipliers for employment can be used if the data on final demand changes are available. In the final demand employment multiplier table, each column entry indicates the change in employment in each row industry that results from a $1 million change in final demand in the column industry. The impact on each row industry is calculated by multiplying the final demand change in the column industry by the multiplier for each row. The total impact on regional employment is calculated by multiplying the final demand change in the column industry by the sum of the multipliers for each row.

The direct effect multipliers for employment can be used if the data on the initial changes in employment by industry are available. In the direct effect employment multiplier table, each entry indicates the total change in employment in the region that results from a change of one job in the row industry. The total impact on regional employment is calculated by multiplying the initial change in employment in the row industry by the multiplier for the row.

Choosing a Multiplier

The choice of multiplier for estimating the impact of a project on output, earnings, and employment depends on the availability of estimates of the initial changes in final demand, earnings, and employment. If the estimates of the initial changes in all three measures are available, the RIMS II user can select any of the RIMS II multipliers. In theory, all the impact estimates should be consistent. If the available estimates are limited to initial changes in final demand, the user can select a final demand multiplier for impact estimation. If the available estimates are limited to initial changes in earnings or employment, the user can select a direct effect multiplier.

5. Methodology for Calculating Indirect Job Gains

In spite of the explanation of the RIMS II model given directly above, some USCIS adjudicators have asked for further clarification about how that model is used to determine the increase in the number of indirect jobs. That is an important issue because, unlike the direct job count, which can be verified by USCIS from various payroll and withholding documents, the calculation of indirect jobs cannot be verified directly but depends on mathematical calculations.

The general concept is based on the coefficients in the input/output model itself (the same methodology applies to RIMS II, IMPLAN, or any other generally recognized and accepted input/output model). In any given year, the government calculates how much input is used for a given production of output. The detailed figures are taken from the Economic Censuses taken once every five years; the figures are then updated from various annual supplements.

Basically the process has two steps, each of which is described next in greater detail. The first is to determine the amount of output, and hence the number of jobs, required to produce a given amount (say $1 million) of the final product or service. These are national coefficients. The second is to determine what proportion of those goods and services are purchased within the local region (the regional purchase coefficients, or RPCs).

In the case of a manufacturing process, the national coefficients are based on production functions: how much coke per ton of steel, how much steel per motor vehicle, how much flour for a loaf of bread, and so on. However, most of the jobs are created in the service sector, where Commerce Department data are used to determine, for example, how much restaurants spend on laundry services, how much airlines

spend for attorneys, and so on. These figures are based on information contained in the various Economic Censuses. The national coefficients would also determine, for example, how many architects and engineers would be hired for a construction project of a given scope and size, and how many new employees at financial institutions would be required to handle the additional cash flow generated by the new business. Both of these are discussed below in greater detail.

Even after these coefficients are determined, however, the regional purchase coefficients (RPC) must still be estimated. If, for example, a trucking firm spends 1% of its revenue on accountants, how much of that money is spent on local firms, and how much is spent outside the region?

That answer depends on various factors. The most important is the amount of the good or service produced within the region. If a trucking firm, for example, were located in a small county with no accountants, obviously it would not spend any of that money locally. That sets a lower limit but is not generally the case. Instead, a balancing algorithm is used.

Suppose, for example, that all the firms producing, distributing, or selling goods and services in a given county spent $10 million on accounting services. Also, suppose that total billings of all accountants in the county were $20 million. In that case, local accountants could handle all the local business, plus business from neighboring counties. If, on the other hand, total accountant billings in the county were only $5 million, local firms could not spend more than half of the money on local accountants.

Of course it is possible that there are adequate resources in the county but local firms choose to use companies outside the county; perhaps prices or service is better. No input/output model can account for such anomalies. On the other hand, given transportation costs, it would be highly unusual for a firm to be located in a given location and not serve the nearby businesses, instead choosing only those clients who were farther away.

The RIMS II model – and other regional input/output models – assigns regional purchase coefficients (RPCs) in all cases where the local industry purchases goods and services from local firms. This matrix could have as many as 406 * 406 = 164,836 elements, although in practice many of them are zero. Large counties with a wide variety of businesses have more non-zero elements than small counties with relatively few businesses.

In general, the RPCs tend to be close to zero for most manufactured goods, and close to unity for most services. While there are many exceptions to this rule, most firms will use financial, professional, business, and health care services that are located in that county or contiguous areas.

To take just one example of many, consider the number of new jobs created by architects and engineers for a new construction project of any given size. Most construction cost manuals, such as those published by R. S. Means, indicate that those

costs are usually about 5% to 9% of the total job. According to the national input/output file, the figures are 9.2% for commercial construction and 4.5% for industrial construction.

To summarize to this point, the number of indirect jobs as a proportion of direct jobs depends on (a) the national relationships, and (b) the regional purchase coefficients. In our presentation for the businesses in this report, we provide further discussion of those industries with the largest number of indirect jobs. However, there are a few industries that produce relatively large numbers of jobs in almost all cases, and these can be generally discussed at this stage in order to avoid repeating this information several times. The industries discussed here include banking, real estate, legal and accounting, architects and engineers, other professional services, employment services, other business services, restaurants, and government. In all of these cases, the vast majority of workers are hired locally. Our comments for the rest of this section are based on the assumption of a $10 million investment; the results are linear.

Banking and credit: On an aggregate basis, for every $10 million in deposits, very broadly defined (M3), there is about 1 new banking employee. As a rough rule of thumb, the size of M3 is roughly equal to the size of GDP. Hence we would expect about 1 new banking employee for every $10 million increase in output, as calculated from the RIMS II model.

Real estate: Additional real estate employees are based on two factors. One is the leasing activity of the new building, and the other is the increase in residential real estate activity as people get new jobs, either within the area or by moving into the area. On a lease basis, a $10 million investment is likely to result in a building of 80,000 square feet. If it leases for $40/square foot, that would be $3.2 million in annual lease payments, and with a 6% commission would generate $192,000 in revenues, which would account for about 2 new real estate employees (the figure would be less for industrial buildings). The increase in employment would also result in some real estate activity as workers moved into better housing in the same location, or moved in from other areas. In a normal year, there are about 7 million sales of new and existing homes for a labor force of about 140 million, or 5%. Hence if the total increase in employment were 200, that would imply 10 real estate transactions; if they average $200,000 at a 6% commission, that would be $12,000 per home or a total of $120,000, which would support approximately 1 new real estate job.

Legal & Accounting: Each of these accounts for about 1% of total employment; so if there were a total increase of 200 jobs, we would expect an average of 4 new employees in this classification.

Architects & Engineers: almost all of these jobs stem from the new construction activity. This category has already been discussed above; for a $10 million construction project, which would create about 80 new construction jobs, we would expect about 7 new jobs in architects and engineers for a commercial project and 3 to 4 new jobs for an industrial project.

Other professional services: This category includes employees in consulting, scientific research and development, advertising, and management, as well as several other smaller, specialized categories. In general, consulting, management, and the all other category each account for about 1% of total employment, and R&D and advertising account for about ½% of total employment, for a total of about 4% of total employment. This figure will vary widely depending on the degree to which consultants and R&D are used by the new business.

Employment services: On a national average basis, 1 out of every 45 people is employed by this industry. Here again, the figures will vary widely depending on (a) the proportion of people who are hired through employment agencies, and (b) the proportion of the work that is outsourced to employment services.

Business support services include office management, travel arrangement, security, credit bureaus, telemarketing, and back-office jobs that are outsourced, such as direct mail, copying, and duplicating services. The back-office services would vary widely depending on the type of new business; retail stores, for example, would print and distribute more advertising brochures than a manufacturing operation. On a national average basis, these jobs account for about 2% of total employment.

Building support services, which includes janitorial services, lawn maintenance, and waste management. For an office building of 80,000 square feet, the cost would be approximately $2/sq ft per year for maintenance, or $160,000, which would support about 4 new jobs; here again, the figure would be lower for industrial buildings.

Restaurants: This category reflects business meals. Of course the number of business meals depends greatly on the type of business; lawyers, accountants, and consultants will have more business meals than manufacturing plants or water treatment facilities. On a national average basis, Commerce Department figures show that total restaurant sales in 2007 were $580 billion, while consumer expenditures at restaurants were $500 billion. However, that figure also includes tips, which are not included in restaurant sales. After subtracting 15% for tips, that indicates about $425 billion in food and beverage purchases by consumers, indicating about $155 billion for business expenses. With a labor force of approximately 140 million, that is equivalent to about $1,100 per employee. Hence if 200 new jobs were created, business meal expenses would rise an average of $221,000, which would imply about 4.5 new indirect jobs in the restaurant industry. These figures are likely to be somewhat higher when direct jobs are created for office buildings and hotels.

Government: The increase in public sector employees represents the amount funded by increased real estate taxes. For a construction project with $10 million in hard costs, the total value is likely to be between $15 and $20 million when one includes furniture, fixtures, equipment, and land values. Using a national average property tax rate of 1%, that would raise $150,000 to $200,000, which would create 1 to 2 new jobs in the public sector.

6. Economic Parameters for 23 Counties in the New York Metropolitan Area

This section contains information about employment, income distribution, labor market parameters, the level and growth rate of population and personal income, and commuting patterns around New York City for 23 counties in the New York metropolitan area. This list is similar to, although not exactly the same as the NYC metro area as defined by Census, but it is smaller than the Consolidated Statistical Area or the BEA Economic Area for NYC. For ease of exposition we have divided the tables, commentary, and analysis into the five sub-groups. These subgroups are as follows:

A. NYC and Nearby Northern Suburbs — New York, Bronx, Richmond, Kings, Queens, Westchester, and Rockland
B. Upstate New York—Putnam, Dutchess, Orange, Ulster
C. Long Island—Nassau, Suffolk
D. New Jersey North—Bergen, Essex, Hudson, Morris, Passaic, Sussex, Union
E. Connecticut—Litchfield, New Haven, Fairfield

The analysis thus proceeds as follows. For each of these 5 subgroups, the following tables are presented:

1. Employment by major industrial classification, income distribution by household and families, mean and median levels of income and poverty rates. In general, there are 2 to 3 counties in each table, so there are anywhere from 1 to 4 tables for each subgroup in this category.

2. Labor market statistics: size of labor force, number of employed and unemployed, and unemployment rate

3. Level and growth rate of population

4. Level and growth rate of personal income

Group A. New York, Bronx, Kings, Queens, Richmond, Westchester, and Rockland Counties

Table 6-1. Key Economic Statistics for Kings and Queens Counties Compared to the U. S. Economy, 2013 Data

	Kings		Queens		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	2,051,110	100.0%	1,877,857	100.0%	250,835,999	100.0%
In labor force	1,299,296	63.3%	1,205,667	64.2%	159,484,493	63.6%
Civilian labor force	1,298,411	63.3%	1,205,352	64.2%	158,498,347	63.2%
Employed	1,163,409	56.7%	1,098,023	58.5%	145,128,676	57.9%
Unemployed	135,002	6.6%	107,329	5.7%	13,369,671	5.3%
Armed Forces	885	0.0%	315	0.0%	986,146	0.4%
Not in labor force	751,814	36.7%	672,190	35.8%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	1,163,409	100.0%	1,098,023	100.0%	145,128,676	100.0%
Management & professional	446,592	38.4%	355,866	32.4%	52,753,573	36.3%
Service occupations	284,838	24.5%	270,545	24.6%	26,654,335	18.4%
Sales and office occupations	256,073	22.0%	261,563	23.8%	35,109,334	24.2%
Construction, maintenance, repair	76,599	6.6%	94,686	8.6%	12,924,043	8.9%
Production & transportation	99,307	8.5%	115,363	10.5%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	1,163,409	100.0%	1,098,023	100.0%	145,128,676	100.0%
Agriculture & mining	771	0.1%	2,184	0.2%	2,883,101	2.0%
Construction	62,111	5.3%	72,948	6.6%	8,930,742	6.2%
Manufacturing	48,499	4.2%	49,619	4.5%	15,226,862	10.5%
Wholesale trade	28,979	2.5%	30,419	2.8%	3,944,833	2.7%
Retail trade	109,274	9.4%	112,185	10.2%	16,844,787	11.6%
Transportation & utilities	71,126	6.1%	80,604	7.3%	7,083,841	4.9%
Information	48,706	4.2%	31,160	2.8%	3,086,265	2.1%
Finance, insurance, & real estate	87,862	7.6%	92,524	8.4%	9,562,287	6.6%
Professional & administrative	148,130	12.7%	129,831	11.8%	16,038,857	11.1%
Educational services & health care	332,954	28.6%	252,697	23.0%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	118,464	10.2%	129,718	11.8%	14,019,659	9.7%
Other private services	64,312	5.5%	72,614	6.6%	7,203,232	5.0%
Public administration	42,221	3.6%	41,520	3.8%	6,864,026	4.7%
INCOME AND BENEFITS						

Total households	925,489	100.0%	784,243	100.0%	116,291,033	100.0%
Less than $10,000	108,318	11.7%	57,242	7.3%	8,783,120	7.6%
$10,000 to $14,999	62,956	6.8%	36,334	4.6%	6,246,216	5.4%
$15,000 to $24,999	100,034	10.8%	79,861	10.2%	12,575,679	10.8%
$25,000 to $34,999	91,703	9.9%	72,342	9.2%	11,964,268	10.3%
$35,000 to $49,999	112,562	12.2%	103,848	13.2%	15,840,707	13.6%
$50,000 to $74,999	150,225	16.2%	136,045	17.3%	20,820,510	17.9%
$75,000 to $99,999	95,643	10.3%	103,872	13.2%	13,823,793	11.9%
$100,000 to $149,999	109,352	11.8%	114,622	14.6%	14,749,902	12.7%
$150,000 to $199,999	45,105	4.9%	45,649	5.8%	5,644,221	4.9%
$200,000 or more	49,591	5.4%	34,428	4.4%	5,842,617	5.0%
Median household income (dollars)	47,520	90.9%	56,599	108.3%	52,250	
Mean household income (dollars)	71,501	96.9%	73,656	99.8%	73,767	
Families	586,156	100.0%	522,704	100.0%	76,680,463	100.0%
Less than $10,000	43,498	7.4%	24,197	4.6%	3,743,131	4.9%
$10,000 to $14,999	35,700	6.1%	16,337	3.1%	2,493,840	3.3%
$15,000 to $24,999	64,753	11.0%	49,390	9.4%	6,284,315	8.2%
$25,000 to $34,999	62,632	10.7%	47,723	9.1%	6,972,739	9.1%
$35,000 to $49,999	71,344	12.2%	69,272	13.3%	10,067,795	13.1%
$50,000 to $74,999	97,859	16.7%	91,950	17.6%	14,569,480	19.0%
$75,000 to $99,999	63,684	10.9%	70,679	13.5%	10,652,848	13.9%
$100,000 to $149,999	76,349	13.0%	88,325	16.9%	12,092,458	15.8%
$150,000 to $199,999	32,776	5.6%	37,061	7.1%	4,793,949	6.3%
$200,000 or more	37,561	6.4%	27,770	5.3%	5,009,908	6.5%
Median family income (dollars)	52,929	82.7%	63,030	98.4%	64,030	
Mean family income (dollars)	78,776	91.6%	81,203	94.4%	86,046	
Per capita income (dollars)	26,641	94.5%	26,463	93.9%	28,184	
Median earnings for workers	31,909	104.8%	32,002	105.1%	30,454	
Median earnings for male full-time	44,777	93.1%	42,366	88.1%	48,099	
Median earnings for female full-time	42,021	110.3%	43,353	113.8%	38,097	
PERCENTAGE BELOW POVERTY LEVEL						
All families	19.5%	168.1%	12.3%	106.0%	11.6%	
All people	23.3%	147.5%	15.3%	96.8%	15.8%	

Note that in these and succeeding tables, the figures in the percentage column in black refer to the group total, whereas the figures in red refer to the U. S. averages

Relative to the U.S., Queens County has a higher than average proportion of the workforce in transportation, representing the two airports; and also in financial services,

entertainment and leisure, and other private services. The major shortfall is in manufacturing, with only 4.5% of the workforce engaged, compared to 10.5% nationally.

In terms of income distribution, Queens is the quintessential "middle class" county, with median and mean household and family income narrowly straddling the national average; the average of the median household and family income is 3% higher, while the average of the mean household and family income is 3% below the average. Also, the poverty rate for all families is 106% of the national average, while the rate for all people is 97% of that average. The income distribution is also very similar to the national average.

The occupational distribution in Kings County is similar in many ways to Queens except that there are proportionately more employees in health care and information services, which includes newspapers, the Internet, and movie production. It also has a higher proportion in professional services, reflecting the large number of professionals who live "across the bridge" in Brooklyn. The proportions are lower than Queens and the U.S. for manufacturing and wholesale and retail trade; they are lower than Queens but higher than the U.S. average for transportation and other private services.

While Kings County has close to the average proportion of individuals and families in the upper income brackets, it has far more than average in the lower brackets. As a result, the poverty rate is well above the national average, at 168% for all families and 148% for all people. The larger proportions at the lower end of the income scale means that while all broad-based levels of income are below average, the figures are lower for median incomes than for mean incomes.

Table 6-2. Key Economic Statistics for New York and Bronx Counties Compared to the U. S. Economy, 2013 Data

	New York County		Bronx		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	1,412,105	100.0%	1,093,503	100.0%	250,835,999	100.0%
In labor force	949,725	67.3%	645,475	59.0%	159,484,493	63.6%
Civilian labor force	949,550	67.2%	644,781	59.0%	158,498,347	63.2%
Employed	878,397	62.2%	550,661	50.4%	145,128,676	57.9%
Unemployed	71,153	5.0%	94,120	8.6%	13,369,671	5.3%
Armed Forces	175	0.0%	694	0.1%	986,146	0.4%
Not in labor force	462,380	32.7%	448,028	41.0%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	878,397	100.0%	550,661	100.0%	145,128,676	100.0%
Management & professional	525,693	59.8%	131,581	23.9%	52,753,573	36.3%
Service occupations	122,088	13.9%	184,758	33.6%	26,654,335	18.4%
Sales and office occupations	180,928	20.6%	134,898	24.5%	35,109,334	24.2%

Construction, maintenance, repair	17,197	2.0%	36,633	6.7%	12,924,043	8.9%
Production & transportation	32,491	3.7%	62,791	11.4%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	878,397	100.0%	550,661	100.0%	145,128,676	100.0%
Agriculture & mining	1,076	0.1%	280	0.1%	2,883,101	2.0%
Construction	15,165	1.7%	27,086	4.9%	8,930,742	6.2%
Manufacturing	22,961	2.6%	23,258	4.2%	15,226,862	10.5%
Wholesale trade	17,902	2.0%	9,381	1.7%	3,944,833	2.7%
Retail trade	77,296	8.8%	65,617	11.9%	16,844,787	11.6%
Transportation & utilities	19,864	2.3%	35,179	6.4%	7,083,841	4.9%
Information	55,822	6.4%	9,620	1.7%	3,086,265	2.1%
Finance, insurance, & real estate	147,111	16.7%	37,667	6.8%	9,562,287	6.6%
Professional & administrative	171,850	19.6%	43,186	7.8%	16,038,857	11.1%
Educational services & health care	204,080	23.2%	177,992	32.3%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	94,010	10.7%	65,550	11.9%	14,019,659	9.7%
Other private services	32,841	3.7%	34,270	6.2%	7,203,232	5.0%
Public administration	18,419	2.1%	21,575	3.9%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	726,357	100.0%	481,143	100.0%	116,291,033	100.0%
Less than $10,000	73,812	10.2%	80,215	16.7%	8,783,120	7.6%
$10,000 to $14,999	35,786	4.9%	43,684	9.1%	6,246,216	5.4%
$15,000 to $24,999	63,474	8.7%	66,323	13.8%	12,575,679	10.8%
$25,000 to $34,999	48,287	6.6%	56,834	11.8%	11,964,268	10.3%
$35,000 to $49,999	61,634	8.5%	62,081	12.9%	15,840,707	13.6%
$50,000 to $74,999	86,401	11.9%	72,942	15.2%	20,820,510	17.9%
$75,000 to $99,999	68,038	9.4%	42,810	8.9%	13,823,793	11.9%
$100,000 to $149,999	100,715	13.9%	36,797	7.6%	14,749,902	12.7%
$150,000 to $199,999	57,555	7.9%	11,498	2.4%	5,644,221	4.9%
$200,000 or more	130,655	18.0%	7,959	1.7%	5,842,617	5.0%
Median household income (dollars)	72,190	138.2%	33,009	63.2%	52,250	
Mean household income (dollars)	134,222	182.0%	48,800	66.2%	73,767	
Families	293,761	100.0%	314,768	100.0%	76,680,463	100.0%
Less than $10,000	19,990	6.8%	38,583	12.3%	3,743,131	4.9%
$10,000 to $14,999	12,591	4.3%	24,318	7.7%	2,493,840	3.3%
$15,000 to $24,999	25,013	8.5%	43,613	13.9%	6,284,315	8.2%
$25,000 to $34,999	21,176	7.2%	40,224	12.8%	6,972,739	9.1%
$35,000 to $49,999	23,774	8.1%	43,620	13.9%	10,067,795	13.1%
$50,000 to $74,999	30,443	10.4%	50,355	16.0%	14,569,480	19.0%
$75,000 to $99,999	23,003	7.8%	30,942	9.8%	10,652,848	13.9%
$100,000 to $149,999	38,902	13.2%	26,905	8.5%	12,092,458	15.8%

$150,000 to $199,999	24,305	8.3%	9,472	3.0%	4,793,949	6.3%
$200,000 or more	74,564	25.4%	6,736	2.1%	5,009,908	6.5%
Median family income (dollars)	88,247	137.8%	37,357	58.3%	64,030	
Mean family income (dollars)	177,804	206.6%	53,695	62.4%	86,046	
Per capita income (dollars)	63,336	224.7%	17,907	63.5%	28,184	
Median earnings for workers	51,527	169.2%	25,385	83.4%	30,454	
Median earnings for male full-time	82,087	170.7%	35,637	74.1%	48,099	
Median earnings for female full-time	65,369	171.6%	35,989	94.5%	38,097	
PERCENTAGE BELOW POVERTY LEVEL						
All families	14.8%	127.6%	27.6%	237.9%	11.6%	
All people	18.9%	119.6%	30.9%	195.6%	15.8%	

It is not surprising to find that in New York County (Manhattan), the proportion of the workforce engaged in financial services is more than twice the national average, standing at 16.7% compared to 6.6% nationally. Similarly, the proportion of the workforce in professional and administrative services is 19.6%, compared to 11.1% nationally, and the proportion in information services is 6.4%, compared to 2.1% nationally. Offsetting these sharp divergences on the positive side, there are a far smaller proportion of workers in construction, manufacturing, retail trade, and transportation services.

New York County has the greatest skewed income distribution of any county at the upper end, with 25.4% of families with incomes of over $200,000, compared to 6.5% nationally. As a result, mean family income is 207% of the national average; median family income is a far more moderate 138% of the average. However, there are also a higher than average proportion of households and families in the two lowest income brackets, with the result that the poverty levels are above average, at 128% of the national average for all families and 120% for all people. The "fat tails" of the income distribution at both ends leads to a shortfall in the middle of the distribution, with only 10.4% of the families with income between $50,000 and $75,000 per year, compared to 19% nationally.

The stark comparison between New York and Bronx counties can be seen by noting that whereas 25.4% of the families in New York County have incomes of over $200,000, the figure is only 2.1% for the Bronx. The Bronx also has a preponderance of households and families in the lower income brackets, with the result that the poverty rates are twice the national average. In terms of occupational distribution, nearly one-third of the workforce is employed in education and health care services, compared to 23% nationally; the major shortfall is in manufacturing.

Table 6-3. Key Economic Statistics for Richmond and Westchester Counties Compared to the U. S. Economy, 2013 Data

	Richmond		Westchester		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	379,237	100.0%	771,040	100.0%	250,835,999	100.0%
In labor force	227,147	59.9%	513,644	66.6%	159,484,493	63.6%
Civilian labor force	226,903	59.8%	513,492	66.6%	158,498,347	63.2%
Employed	210,276	55.4%	470,180	61.0%	145,128,676	57.9%
Unemployed	16,627	4.4%	43,312	5.6%	13,369,671	5.3%
Armed Forces	244	0.1%	152	0.0%	986,146	0.4%
Not in labor force	152,090	40.1%	257,396	33.4%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	210,276	100.0%	470,180	100.0%	145,128,676	100.0%
Management & professional	83,846	39.9%	219,290	46.6%	52,753,573	36.3%
Service occupations	42,215	20.1%	90,569	19.3%	26,654,335	18.4%
Sales and office occupations	49,673	23.6%	101,875	21.7%	35,109,334	24.2%
Construction, maintenance, repair	17,964	8.5%	28,443	6.0%	12,924,043	8.9%
Production & transportation	16,578	7.9%	30,003	6.4%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	210,276	100.0%	470,180	100.0%	145,128,676	100.0%
Agriculture & mining	141	0.1%	1,487	0.3%	2,883,101	2.0%
Construction	15,057	7.2%	28,718	6.1%	8,930,742	6.2%
Manufacturing	4,992	2.4%	18,945	4.0%	15,226,862	10.5%
Wholesale trade	4,018	1.9%	9,427	2.0%	3,944,833	2.7%
Retail trade	18,808	8.9%	44,014	9.4%	16,844,787	11.6%
Transportation & utilities	15,585	7.4%	18,117	3.9%	7,083,841	4.9%
Information	5,873	2.8%	14,563	3.1%	3,086,265	2.1%
Finance, insurance, & real estate	22,425	10.7%	45,885	9.8%	9,562,287	6.6%
Professional & administrative	24,617	11.7%	69,553	14.8%	16,038,857	11.1%
Educational services & health care	58,480	27.8%	135,517	28.8%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	14,920	7.1%	39,265	8.4%	14,019,659	9.7%
Other private services	10,688	5.1%	26,139	5.6%	7,203,232	5.0%
Public administration	14,672	7.0%	18,550	3.9%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	167,629	100.0%	341,755	100.0%	116,291,033	100.0%
Less than $10,000	11,574	6.9%	16,392	4.8%	8,783,120	7.6%
$10,000 to $14,999	6,161	3.7%	13,319	3.9%	6,246,216	5.4%

$15,000 to $24,999	14,818	8.8%	24,824	7.3%	12,575,679	10.8%
$25,000 to $34,999	12,024	7.2%	22,403	6.6%	11,964,268	10.3%
$35,000 to $49,999	16,109	9.6%	30,996	9.1%	15,840,707	13.6%
$50,000 to $74,999	28,714	17.1%	46,811	13.7%	20,820,510	17.9%
$75,000 to $99,999	20,186	12.0%	39,347	11.5%	13,823,793	11.9%
$100,000 to $149,999	30,194	18.0%	59,202	17.3%	14,749,902	12.7%
$150,000 to $199,999	15,154	9.0%	31,710	9.3%	5,644,221	4.9%
$200,000 or more	12,695	7.6%	56,751	16.6%	5,842,617	5.0%
Median household income (dollars)	69,633	133.3%	84,220	161.2%	52,250	
Mean household income (dollars)	90,193	122.3%	130,639	177.1%	73,767	
Families	122,079	100.0%	238,518	100.0%	76,680,463	100.0%
Less than $10,000	5,946	4.9%	6,140	2.6%	3,743,131	4.9%
$10,000 to $14,999	2,780	2.3%	5,898	2.5%	2,493,840	3.3%
$15,000 to $24,999	7,699	6.3%	12,861	5.4%	6,284,315	8.2%
$25,000 to $34,999	7,269	6.0%	12,129	5.1%	6,972,739	9.1%
$35,000 to $49,999	11,038	9.0%	19,412	8.1%	10,067,795	13.1%
$50,000 to $74,999	19,432	15.9%	30,012	12.6%	14,569,480	19.0%
$75,000 to $99,999	15,083	12.4%	26,473	11.1%	10,652,848	13.9%
$100,000 to $149,999	26,662	21.8%	46,442	19.5%	12,092,458	15.8%
$150,000 to $199,999	14,153	11.6%	27,402	11.5%	4,793,949	6.3%
$200,000 or more	12,017	9.8%	51,749	21.7%	5,009,908	6.5%
Median family income (dollars)	86,077	134.4%	104,983	164.0%	64,030	
Mean family income (dollars)	104,824	121.8%	156,979	182.4%	86,046	
Per capita income (dollars)	32,375	114.9%	47,305	167.8%	28,184	
Median earnings for workers	42,119	138.3%	41,850	137.4%	30,454	
Median earnings for male full-time	61,244	127.3%	70,603	146.8%	48,099	
Median earnings for female full-time	50,407	132.3%	55,907	146.7%	38,097	
PERCENTAGE BELOW POVERTY LEVEL						
All families	10.3%	88.8%	7.2%	62.1%	11.6%	
All people	12.8%	81.0%	9.7%	61.4%	15.8%	

Richmond County (Staten Island) has a disproportionately high share of its workforce in health care, finance, and public administration; this is offset by lower than average shares in manufacturing and leisure. Median household and family income levels are 33% above the comparable national figures; mean income levels are about 22% higher. Richmond County has 27.8% of the workforce in education and healthcare services, compared to 23.0% nationally, which is largely offset by only 2.4% in manufacturing, compared to 10.5% nationally.

Westchester County is a very affluent, white-collar suburban county; 46.6% of its workforce is in management and professional jobs, compared to 36.3% for the nation, while only 7.9% work in production and transportation, versus 12.2% nationally. Median income levels are 61% to 64% above the national figures, with mean income levels are 77 to 82% higher. Consistent with this, 21.7% of the families in Westchester County earn over $200,000 per year, well above the U.S. average of 6.5%.

Table 6-4. Key Economic Statistics for Rockland County Compared to the U. S. Economy, 2012 Data

	Rockland		USA	
	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS				
Population 16 years and over	243,141	100.0%	250,835,999	100.0%
In labor force	160,935	66.2%	159,484,493	63.6%
Civilian labor force	160,895	66.2%	158,498,347	63.2%
Employed	146,028	60.1%	145,128,676	57.9%
Unemployed	14,867	6.1%	13,369,671	5.3%
Armed Forces	40	0.0%	986,146	0.4%
Not in labor force	82,206	33.8%	91,351,506	36.4%
OCCUPATION				
Civilian employed population 16+	146,028	100.0%	145,128,676	100.0%
Management & professional	61,118	41.9%	52,753,573	36.3%
Service occupations	30,277	20.7%	26,654,335	18.4%
Sales and office occupations	34,309	23.5%	35,109,334	24.2%
Construction, maintenance, repair	9,934	6.8%	12,924,043	8.9%
Production & transportation	10,390	7.1%	17,687,391	12.2%
INDUSTRY				
Civilian employed population 16+	146,028	100.0%	145,128,676	100.0%
Agriculture & mining	159	0.1%	2,883,101	2.0%
Construction	7,359	5.0%	8,930,742	6.2%
Manufacturing	9,096	6.2%	15,226,862	10.5%
Wholesale trade	4,702	3.2%	3,944,833	2.7%
Retail trade	14,136	9.7%	16,844,787	11.6%
Transportation & utilities	5,938	4.1%	7,083,841	4.9%
Information	4,425	3.0%	3,086,265	2.1%
Finance, insurance, & real estate	9,546	6.5%	9,562,287	6.6%
Professional & administrative	16,946	11.6%	16,038,857	11.1%
Educational services & health care	47,245	32.4%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	11,964	8.2%	14,019,659	9.7%
Other private services	8,822	6.0%	7,203,232	5.0%

Public administration	5,690	3.9%	6,864,026	4.7%
INCOME AND BENEFITS				
Total households	98,294	100.0%	116,291,033	100.0%
Less than $10,000	4,625	4.7%	8,783,120	7.6%
$10,000 to $14,999	5,337	5.4%	6,246,216	5.4%
$15,000 to $24,999	8,296	8.4%	12,575,679	10.8%
$25,000 to $34,999	6,072	6.2%	11,964,268	10.3%
$35,000 to $49,999	8,092	8.2%	15,840,707	13.6%
$50,000 to $74,999	13,193	13.4%	20,820,510	17.9%
$75,000 to $99,999	12,492	12.7%	13,823,793	11.9%
$100,000 to $149,999	18,594	18.9%	14,749,902	12.7%
$150,000 to $199,999	9,932	10.1%	5,644,221	4.9%
$200,000 or more	11,661	11.9%	5,842,617	5.0%
Median household income (dollars)	80,942	154.9%	52,250	
Mean household income (dollars)	105,528	143.1%	73,767	
Families	73,854	100.0%	76,680,463	100.0%
Less than $10,000	1,818	2.5%	3,743,131	4.9%
$10,000 to $14,999	2,426	3.3%	2,493,840	3.3%
$15,000 to $24,999	5,400	7.3%	6,284,315	8.2%
$25,000 to $34,999	4,296	5.8%	6,972,739	9.1%
$35,000 to $49,999	4,929	6.7%	10,067,795	13.1%
$50,000 to $74,999	9,039	12.2%	14,569,480	19.0%
$75,000 to $99,999	9,873	13.4%	10,652,848	13.9%
$100,000 to $149,999	16,063	21.7%	12,092,458	15.8%
$150,000 to $199,999	9,212	12.5%	4,793,949	6.3%
$200,000 or more	10,798	14.6%	5,009,908	6.5%
Median family income (dollars)	98,045	153.1%	64,030	
Mean family income (dollars)	120,394	139.9%	86,046	
Per capita income (dollars)	33,429	118.6%	28,184	
Median earnings for workers	36,588	120.1%	30,454	
Median earnings for male full-time	59,591	123.9%	48,099	
Median earnings for female full-time	50,896	133.6%	38,097	
PERCENTAGE BELOW POVERTY LEVEL				
All families	10.5%	90.5%	11.6%	
All people	15.0%	94.9%	15.8%	

Rockland County is to the west of Westchester, and while the section of Rockland County that is closest to Westchester – and the Hudson River – maintains the same upscale characteristics, the western part of the county has a much lower level of income and higher incidence of poverty. Hence we find that mean family income is 153% of the national average, compared to over 182% in Westchester, and the poverty rate for all families is 91%, compared to 62%.

In terms of employment distribution, the proportion of workers in most sectors is close to the national average except for education and health care services, which employ 32.4% of the workforce, compared to 23.0% nationally. Offsetting that, the proportions in other industry sectors except construction are all slightly lower, with the biggest decrement occurring in manufacturing.

Table 6-5. Labor Market Statistics for 7 New York Counties in the NYC Area, 2005-2014 Data

	Labor Force	Employed	Unemployed	Un Rate, %
	7 counties			
2005	4,435,662	4,190,071	245,591	5.5
2006	4,456,199	4,242,381	213,818	4.8
2007	4,502,059	4,283,664	218,395	4.9
2008	4,578,225	4,326,312	251,913	5.5
2009	4,602,267	4,187,884	414,383	9.0
2010	4,579,094	4,155,868	423,226	9.2
2011	4,582,019	4,177,671	404,348	8.8
2012	4,654,334	4,232,110	422,224	9.1
2013	4,704,511	4,306,957	397,554	8.5
2014	4,744,340	4,413,720	330,620	7.0
	Bronx			
2005	507229	468809	38,420	7.6
2006	505378	471748	33,630	6.7
2007	512479	477487	34,992	6.8
2008	523746	484145	39,601	7.6
2009	533866	469624	64,242	12.0
2010	582289	512479	69,810	12.0
2011	584027	514108	69,919	12.0
2012	595812	521490	74,322	12.5
2013	602625	531890	70,735	11.7
2014	606630	547151	59,479	9.8
	Kings			
2005	1070528	1003685	66,843	6.2

2006	1073743	1016247	57,496	5.4
2007	1086423	1027298	59,125	5.4
2008	1106224	1039579	66,645	6.0
2009	1119823	1008638	111,185	9.9
2010	1163500	1047979	115,521	9.9
2011	1169931	1057568	112,363	9.6
2012	1192035	1074789	117,246	9.8
2013	1210844	1097519	113,325	9.4
2014	1222973	1128931	94,042	7.7
	New York			
2005	902717	857093	45,624	5.1
2006	909103	869930	39,173	4.3
2007	917566	877728	39,838	4.3
2008	931595	885850	45,745	4.9
2009	931604	852963	78,641	8.4
2010	881202	805553	75,649	8.6
2011	881143	812437	68,706	7.8
2012	895427	823912	71,515	8.0
2013	902951	836046	66,905	7.4
2014	915344	859957	55,387	6.1
	Queens			
2005	1,090,028	1,032,819	57,209	5.2
2006	1,091,546	1,042,607	48,939	4.5
2007	1,102,350	1,052,959	49,391	4.5
2008	1,120,482	1,064,170	56,312	5.0
2009	1,129,395	1,034,421	94,974	8.4
2010	1,106,461	1,011,049	95,412	8.6
2011	1,107,831	1,018,203	89,628	8.1
2012	1,125,279	1,032,011	93,268	8.3
2013	1,141,925	1,053,630	88,295	7.7
2014	1,157,675	1,083,808	73,867	6.4
	Richmond			
2005	231455	219267	12,188	5.3
2006	236624	226076	10,548	4.5
2007	239789	228808	10,981	4.6
2008	244150	231712	12,438	5.1
2009	246087	225883	20,204	8.2
2010	216953	196493	20,460	9.4
2011	216332	196673	19,659	9.1
2012	218140	197777	20,363	9.3

2013	220219	201035	19,184	8.7
2014	222974	206826	16,148	7.2
	Rockland			
2005	151,221	145,210	6,011	4.0
2006	152,379	146,739	5,640	3.7
2007	153,871	147,944	5,927	3.9
2008	156,197	148,768	7,429	4.8
2009	153,851	143,259	10,592	6.9
2010	149,986	138,812	11,174	7.5
2011	148,889	138,344	10,545	7.1
2012	150,294	139,418	10,876	7.2
2013	150,126	140,784	9,342	6.2
2014	148,428	140,828	7,600	5.1
	Westchester			
2005	482,484	463,188	19,296	4.0
2006	487,426	469,034	18,392	3.8
2007	489,581	471,440	18,141	3.7
2008	495,831	472,088	23,743	4.8
2009	487,641	453,096	34,545	7.1
2010	478,703	443,503	35,200	7.4
2011	473,866	440,338	33,528	7.1
2012	477,347	442,713	34,634	7.3
2013	475,821	446,053	29,768	6.3
2014	470,316	446,219	24,097	5.1

New York City and the close-in suburbs were not particularly hard hit by the financial collapse in spite of Wall Street being the epicenter of that meltdown. However, the unemployment rate in the 7-county region rose only to 9.0% in 2009 and 9.2% in 2010, compared to 9.3% and 9.6% nationally; it then fell to 8.8% in 2011, which was also slightly below the 8.9% national average rate. However, it then took a surprising jump up in 2012, when the rest of the economy continued to improve; the 7-county average rose from 8.8% to 9.1%, with a rise in each county in this group. The rate then fell proportionately with the national average in 2013 and 2014. The unemployment rate in the Bronx remained high at 9.8% in 2014, however, meaning that the entire county qualified as a TEA.

Table 6-6. Level and Growth Rate of Population, 7 New York Counties in the NYC Area, and the Total of these Counties, 2004-2013

	Bronx	Kings	New York	Queens	Richmond	Rockland	Westchester	7 counties
2013	1,418,733	2,592,149	1,626,159	2,296,175	472,621	320,903	968,802	9,695,542
2012	1,407,939	2,568,435	1,621,323	2,275,889	470,811	317,702	961,106	9,623,205
2011	1,395,933	2,541,018	1,607,316	2,257,837	471,026	315,588	956,791	9,545,509
2010	1,387,709	2,509,591	1,588,129	2,234,935	469,691	312,502	950,517	9,453,074
2009	1,376,261	2,487,751	1,583,431	2,217,166	466,965	308,652	944,201	9,384,427
2008	1,363,488	2,460,361	1,587,022	2,193,623	463,701	305,413	937,449	9,311,057
2007	1,354,056	2,441,324	1,581,402	2,177,351	459,642	301,668	933,414	9,248,857
2006	1,348,164	2,436,132	1,578,171	2,173,862	457,577	299,390	931,426	9,224,722
2005	1,351,736	2,445,809	1,573,573	2,185,222	457,028	298,737	933,401	9,245,506
2004	1,358,963	2,459,094	1,569,947	2,198,516	456,846	297,562	935,457	9,276,385
2013/12	0.77%	0.92%	0.30%	0.89%	0.38%	1.01%	0.80%	0.75%
2012/11	0.86%	1.08%	0.87%	0.80%	-0.05%	0.67%	0.45%	0.81%
2011/10	0.59%	1.25%	1.21%	1.02%	0.28%	0.99%	0.66%	0.98%
2010/09	0.83%	0.88%	0.30%	0.80%	0.58%	1.25%	0.67%	0.73%
2009/08	0.94%	1.11%	-0.23%	1.07%	0.70%	1.06%	0.72%	0.79%
2008/07	0.70%	0.78%	0.36%	0.75%	0.88%	1.24%	0.43%	0.67%
2007/06	0.44%	0.21%	0.20%	0.16%	0.45%	0.76%	0.21%	0.26%
2006/05	-0.26%	-0.40%	0.29%	-0.52%	0.12%	0.22%	-0.21%	-0.22%
2005/04	-0.53%	-0.54%	0.23%	-0.60%	0.04%	0.39%	-0.22%	-0.33%
2013/04	0.48%	0.59%	0.39%	0.48%	0.38%	0.84%	0.39%	0.49%

Population growth in New York City was quite sluggish over the past decade, but starting in 2008 has picked up sharply, with growth rates for the past six years averaging about 0.8%, only slightly less than the 0.93% national average growth rate. Growth peaked in 2011, as it slightly exceeded the national average, although it has backed off slightly. However, growth in Kings and Queens has remained strong throughout 2013, due in part to increased immigration and in part to the overall strength bolstered by the recovery in the stock market. For the next few years, population growth for this 7-county area will probably remain close to, but slightly below, the expected national average gain of about 0.9% per year.

Table 6-7. Level and Growth Rate of Personal Income (Billion $), 7 New York Counties in the NYC Area, and the Total of these Counties

	Bronx	Kings	New York	Queens	Richmond	Rockland	Westchester	7 counties
2013	46.61	109.66	197.79	103.25	24.26	18.18	77.86	577.61
2012	46.01	108.42	195.18	101.12	24.12	18.03	77.37	570.25
2011	45.46	104.28	186.98	97.40	23.48	17.13	72.04	546.77
2010	43.43	97.15	176.21	92.45	22.53	16.40	68.64	516.82
2009	41.77	92.53	161.73	89.72	22.19	16.24	66.73	490.91
2008	40.38	90.81	176.65	89.46	22.29	16.55	71.93	508.08
2007	39.07	86.06	181.98	86.67	21.56	16.38	72.07	503.78
2006	36.11	79.54	162.28	79.83	19.94	15.22	67.78	460.69
2005	33.81	74.19	144.14	74.69	18.67	14.14	61.73	421.37
2004	33.15	71.80	133.98	72.19	17.85	13.49	56.66	399.12
2013/12	1.30%	1.15%	1.34%	2.11%	0.59%	0.85%	0.62%	1.29%
2012/11	1.22%	3.97%	4.39%	3.82%	2.73%	5.22%	7.41%	4.29%
2011/10	4.66%	7.34%	6.11%	5.36%	4.19%	4.46%	4.95%	5.79%
2010/09	3.98%	4.99%	8.96%	3.04%	1.54%	1.00%	2.87%	5.28%
2009/08	3.43%	1.90%	-8.45%	0.29%	-0.46%	-1.90%	-7.23%	-3.38%
2008/07	3.36%	5.52%	-2.92%	3.22%	3.40%	1.06%	-0.19%	0.85%
2007/06	8.21%	8.20%	12.14%	8.56%	8.14%	7.62%	6.34%	9.35%
2006/05	6.79%	7.22%	12.59%	6.88%	6.79%	7.62%	9.79%	9.33%
2005/04	1.99%	3.33%	7.58%	3.47%	4.56%	4.83%	8.95%	5.57%
2013/04	3.85%	4.81%	4.42%	4.05%	3.46%	3.37%	3.59%	4.19%

The financial meltdown in New York City put a huge dent in Manhattan income in 2009, but the city bounced back quickly the following year, with the 2010 gain exceeding the 2009 loss; for the overall economy, the percentage increase in personal income in 2010 was the same as the decline in 2009. Growth also remained strong in 2011 and 2012, but then showed almost no gain in 2013, with sharp declines in each of the 7 counties listed above except the Bronx, which failed to share in the 2012 gains. This slowdown occurred even though the stock market rose 30% in 2013; however, financial institution profits were hurt by a variety of other factors, including fewer mega-mergers, foreign weakness, and continuing attacks on bank profits through various Federal lawsuits and Dodd-Frank legislation designed to curb trading excesses. As a result, many bonuses were smaller, and hence the growth in income was curtailed.

Group B. Dutchess, Putnam, Orange, and Ulster Counties

Table 6-8. Key Economic Statistics for Dutchess and Putnam Counties Compared to the U. S. Economy, 2013 Data

	Dutchess		Putnam		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	244,236	100.0%	81,295	100.0%	250,835,999	100.0%
In labor force	159,903	65.5%	56,268	69.2%	159,484,493	63.6%
Civilian labor force	159,717	65.4%	56,235	69.2%	158,498,347	63.2%
Employed	146,654	60.0%	53,348	65.6%	145,128,676	57.9%
Unemployed	13,063	5.3%	2,887	3.6%	13,369,671	5.3%
Armed Forces	186	0.1%	33	0.0%	986,146	0.4%
Not in labor force	84,333	34.5%	25,027	30.8%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	146,654	100.0%	53,348	100.0%	145,128,676	100.0%
Management & professional	59,645	40.7%	20,593	38.6%	52,753,573	36.3%
Service occupations	29,193	19.9%	10,092	18.9%	26,654,335	18.4%
Sales and office occupations	34,248	23.4%	13,752	25.8%	35,109,334	24.2%
Construction, maintenance, repair	11,474	7.8%	6,432	12.1%	12,924,043	8.9%
Production & transportation	12,094	8.2%	2,479	4.6%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	146,654	100.0%	53,348	100.0%	145,128,676	100.0%
Agriculture & mining	1,337	0.9%	338	0.6%	2,883,101	2.0%
Construction	9,237	6.3%	5,632	10.6%	8,930,742	6.2%
Manufacturing	11,176	7.6%	1,648	3.1%	15,226,862	10.5%
Wholesale trade	2,955	2.0%	817	1.5%	3,944,833	2.7%
Retail trade	16,993	11.6%	7,228	13.5%	16,844,787	11.6%
Transportation & utilities	7,100	4.8%	1,626	3.0%	7,083,841	4.9%
Information	3,712	2.5%	1,798	3.4%	3,086,265	2.1%
Finance, insurance, & real estate	8,272	5.6%	4,758	8.9%	9,562,287	6.6%
Professional & administrative	15,240	10.4%	7,315	13.7%	16,038,857	11.1%
Educational services & health care	42,903	29.3%	12,605	23.6%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	14,087	9.6%	4,197	7.9%	14,019,659	9.7%
Other private services	6,034	4.1%	1,882	3.5%	7,203,232	5.0%
Public administration	7,608	5.2%	3,504	6.6%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	107,752	100.0%	32,251	100.0%	116,291,033	100.0%
Less than $10,000	4,378	4.1%	1,171	3.6%	8,783,120	7.6%

$10,000 to $14,999	3,213	3.0%	386	1.2%	6,246,216	5.4%
$15,000 to $24,999	9,486	8.8%	2,119	6.6%	12,575,679	10.8%
$25,000 to $34,999	10,473	9.7%	2,191	6.8%	11,964,268	10.3%
$35,000 to $49,999	10,476	9.7%	1,727	5.4%	15,840,707	13.6%
$50,000 to $74,999	18,318	17.0%	4,804	14.9%	20,820,510	17.9%
$75,000 to $99,999	16,122	15.0%	4,503	14.0%	13,823,793	11.9%
$100,000 to $149,999	18,742	17.4%	7,384	22.9%	14,749,902	12.7%
$150,000 to $199,999	9,258	8.6%	4,131	12.8%	5,644,221	4.9%
$200,000 or more	7,286	6.8%	3,835	11.9%	5,842,617	5.0%
Median household income (dollars)	70,056	134.1%	93,746	179.4%	52,250	
Mean household income (dollars)	89,242	121.0%	116,185	157.5%	73,767	
Families	72,476	100.0%	25,632	100.0%	76,680,463	100.0%
Less than $10,000	2,003	2.8%	394	1.5%	3,743,131	4.9%
$10,000 to $14,999	861	1.2%	128	0.5%	2,493,840	3.3%
$15,000 to $24,999	3,197	4.4%	1,001	3.9%	6,284,315	8.2%
$25,000 to $34,999	5,038	7.0%	1,535	6.0%	6,972,739	9.1%
$35,000 to $49,999	6,008	8.3%	1,376	5.4%	10,067,795	13.1%
$50,000 to $74,999	11,961	16.5%	3,871	15.1%	14,569,480	19.0%
$75,000 to $99,999	12,200	16.8%	4,145	16.2%	10,652,848	13.9%
$100,000 to $149,999	16,678	23.0%	6,196	24.2%	12,092,458	15.8%
$150,000 to $199,999	7,972	11.0%	3,725	14.5%	4,793,949	6.3%
$200,000 or more	6,558	9.0%	3,261	12.7%	5,009,908	6.5%
Median family income (dollars)	89,678	140.1%	102,453	160.0%	64,030	
Mean family income (dollars)	106,021	123.2%	124,999	145.3%	86,046	
Per capita income (dollars)	33,716	119.6%	40,315	143.0%	28,184	
Median earnings for workers	31,576	103.7%	40,963	134.5%	30,454	
Median earnings for male full-time	61,408	127.7%	69,613	144.7%	48,099	
Median earnings for female full-time	46,606	122.3%	48,150	126.4%	38,097	
PERCENTAGE BELOW POVERTY LEVEL						
All families	5.9%	50.9%	3.2%	27.6%	11.6%	
All people	9.1%	57.6%	4.4%	27.8%	15.8%	

Both these counties are directly north of Westchester, but while Putnam County, which directly borders on Westchester, is essentially a continuation of upscale suburban living, the income levels in Dutchess County are more moderate although still above average. Thus median family income in Putnam is 160% of the national average, compared to 140% for Dutchess. Similarly, the poverty rate for all families is an exceptionally low 28% for Putnam, compared to 51% for Dutchess County.

For the employment distribution by industry, Putnam County is very similar to Westchester, with a preponderance of employees in financial and professional services,

and a very small manufacturing sector. Dutchess County, on the other hand, has more manufacturing and a below-average proportion of employment in those service industries. Relative to national average figures, the biggest bulge in employment in that county occurs in education and health care.

Table 6-9. Key Economic Statistics for Orange and Ulster Counties Compared to the U. S. Economy

	Orange		Ulster		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	287,826	100.0%	150,634	100.0%	250,835,999	100.0%
In labor force	193,253	67.1%	94,674	62.9%	159,484,493	63.6%
Civilian labor force	188,802	65.6%	94,527	62.8%	158,498,347	63.2%
Employed	173,704	60.4%	86,254	57.3%	145,128,676	57.9%
Unemployed	15,098	5.2%	8,273	5.5%	13,369,671	5.3%
Armed Forces	4,451	1.5%	147	0.1%	986,146	0.4%
Not in labor force	94,573	32.9%	55,960	37.1%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	173,704	100.0%	86,254	100.0%	145,128,676	100.0%
Management & professional	59,748	34.4%	35,855	41.6%	52,753,573	36.3%
Service occupations	32,171	18.5%	14,617	16.9%	26,654,335	18.4%
Sales and office occupations	47,474	27.3%	18,973	22.0%	35,109,334	24.2%
Construction, maintenance, repair	14,535	8.4%	8,385	9.7%	12,924,043	8.9%
Production & transportation	19,776	11.4%	8,424	9.8%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	173,704	100.0%	86,254	100.0%	145,128,676	100.0%
Agriculture & mining	1,936	1.1%	1,302	1.5%	2,883,101	2.0%
Construction	9,667	5.6%	6,063	7.0%	8,930,742	6.2%
Manufacturing	11,576	6.7%	6,579	7.6%	15,226,862	10.5%
Wholesale trade	5,731	3.3%	1,836	2.1%	3,944,833	2.7%
Retail trade	26,821	15.4%	10,854	12.6%	16,844,787	11.6%
Transportation & utilities	10,972	6.3%	3,034	3.5%	7,083,841	4.9%
Information	3,859	2.2%	2,219	2.6%	3,086,265	2.1%
Finance, insurance, & real estate	10,151	5.8%	3,942	4.6%	9,562,287	6.6%
Professional & administrative	15,532	8.9%	7,463	8.7%	16,038,857	11.1%
Educational services & health care	43,645	25.1%	26,615	30.9%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	14,269	8.2%	8,771	10.2%	14,019,659	9.7%
Other private services	7,989	4.6%	3,098	3.6%	7,203,232	5.0%
Public administration	11,556	6.7%	4,478	5.2%	6,864,026	4.7%

INCOME AND BENEFITS						
Total households	123,977	100.0%	68,650	100.0%	116,291,033	100.0%
Less than $10,000	6,483	5.2%	3,808	5.5%	8,783,120	7.6%
$10,000 to $14,999	4,291	3.5%	3,513	5.1%	6,246,216	5.4%
$15,000 to $24,999	11,381	9.2%	6,046	8.8%	12,575,679	10.8%
$25,000 to $34,999	9,687	7.8%	8,388	12.2%	11,964,268	10.3%
$35,000 to $49,999	14,414	11.6%	7,106	10.4%	15,840,707	13.6%
$50,000 to $74,999	20,702	16.7%	14,357	20.9%	20,820,510	17.9%
$75,000 to $99,999	16,155	13.0%	8,231	12.0%	13,823,793	11.9%
$100,000 to $149,999	21,577	17.4%	9,748	14.2%	14,749,902	12.7%
$150,000 to $199,999	11,328	9.1%	4,311	6.3%	5,644,221	4.9%
$200,000 or more	7,959	6.4%	3,142	4.6%	5,842,617	5.0%
Median household income (dollars)	68,950	132.0%	58,429	111.8%	52,250	
Mean household income (dollars)	89,071	120.7%	75,070	101.8%	73,767	
Families	89,052	100.0%	43,124	100.0%	76,680,463	100.0%
Less than $10,000	3,010	3.4%	1,094	2.5%	3,743,131	4.9%
$10,000 to $14,999	2,396	2.7%	910	2.1%	2,493,840	3.3%
$15,000 to $24,999	6,771	7.6%	2,265	5.3%	6,284,315	8.2%
$25,000 to $34,999	5,250	5.9%	4,778	11.1%	6,972,739	9.1%
$35,000 to $49,999	9,596	10.8%	3,663	8.5%	10,067,795	13.1%
$50,000 to $74,999	15,282	17.2%	9,152	21.2%	14,569,480	19.0%
$75,000 to $99,999	12,473	14.0%	6,132	14.2%	10,652,848	13.9%
$100,000 to $149,999	17,763	19.9%	8,158	18.9%	12,092,458	15.8%
$150,000 to $199,999	9,680	10.9%	4,197	9.7%	4,793,949	6.3%
$200,000 or more	6,831	7.7%	2,775	6.4%	5,009,908	6.5%
Median family income (dollars)	79,574	124.3%	73,985	115.5%	64,030	
Mean family income (dollars)	99,370	115.5%	91,565	106.4%	86,046	
Per capita income (dollars)	30,587	108.5%	29,821	105.8%	28,184	
Median earnings for workers	31,854	104.6%	30,039	98.6%	30,454	
Median earnings for male full-time	53,706	111.7%	46,415	96.5%	48,099	
Median earnings for female full-time	41,182	108.1%	36,888	96.8%	38,097	
PERCENTAGE BELOW POVERTY LEVEL						
All families	10.2%	87.9%	5.1%	44.0%	11.6%	
All people	13.4%	84.8%	11.3%	71.5%	15.8%	

Orange and Ulster counties are more exurban or rural counties, and have less in common with the big city, although they still supply significant numbers of commuters. The income levels are moderately above the national averages, with mean and median household and family incomes averaging 128% of national levels for Orange County

and a somewhat less impressive 113% for Ulster County. However, the poverty rates in Ulster County are slightly lower than in Orange County, as there are fewer rich and poor people in Ulster.

The employment profile for the two counties is fairly similar, with a smaller than average proportion of the workforce in manufacturing, financial services, and professional services, and a higher than average proportion in education and health care. The only major difference is Ulster County has a higher than average proportion of workers in arts, entertainment and leisure, while the proportion is below average for Orange County.

Table 6-10. Labor Market Statistics for 4 Upstate New York Counties, 2005-2014 Data

	4 counties			
2005	472,488	453,170	19,318	4.1
2006	476,210	457,329	18,881	4.0
2007	470,903	451,720	19,183	4.1
2008	475,002	450,305	24,697	5.2
2009	470,279	434,454	35,825	7.6
2010	476,694	439,629	37,065	7.8
2011	468,369	432,794	35,575	7.6
2012	468,524	431,703	36,821	7.9
2013	464,539	433,078	31,461	6.8
2014	456,230	431,480	24,750	5.4
	Dutchess			
2005	147,009	141,260	5,749	3.9
2006	147,568	141,973	5,595	3.8
2007	145,515	139,838	5,677	3.9
2008	146,689	139,178	7,511	5.1
2009	144,842	133,744	11,098	7.7
2010	149,194	137,677	11,517	7.7
2011	146,415	135,416	10,999	7.5
2012	146,347	134,958	11,389	7.8
2013	145,001	135,363	9,638	6.6
2014	142,053	134,483	7,570	5.3
	Orange			
2005	177,596	170,098	7,498	4.2
2006	179,908	172,387	7,521	4.2
2007	179,230	171,540	7,690	4.3
2008	181,533	171,776	9,757	5.4

2009	180,483	166,368	14,115	7.8
2010	181,305	166,840	14,465	8.0
2011	179,006	165,189	13,817	7.7
2012	179,570	165,371	14,199	7.9
2013	178,277	166,075	12,202	6.8
2014	175,742	166,109	9,633	5.5
	Putnam			
2005	56067	53984	2,083	3.7
2006	56183	54225	1,958	3.5
2007	55673	53787	1,886	3.4
2008	56065	53581	2,484	4.4
2009	55010	51328	3,682	6.7
2010	52593	48806	3,787	7.2
2011	51595	48012	3,583	6.9
2012	51563	47888	3,675	7.1
2013	51167	48067	3,100	6.1
2014	50203	47752	2,451	4.9
	Ulster			
2005	91,816	87,828	3,988	4.3
2006	92,551	88,744	3,807	4.1
2007	90,485	86,555	3,930	4.3
2008	90,715	85,770	4,945	5.5
2009	89,944	83,014	6,930	7.7
2010	93,602	86,306	7,296	7.8
2011	91,353	84,177	7,176	7.9
2012	91,044	83,486	7,558	8.3
2013	90,094	83,573	6,521	7.2
2014	88,232	83,136	5,096	5.8

This part of New York State was fairly well insulated from the collapse of the financial sector in late 2008 and was not particularly hard hit by the recession. The unemployment rate for the 4-county region rose to 7.6% in 2009 and 7.8% in 2010 before declining moderately to 7.6% in 2011, but these figures were below the 9.3%, 9.6% and 9.0% figures for the overall U. S. economy. Similar to the pattern for New York City, the unemployment rate for this 4-county region then took an upward bump to 7.9% in 2011 before declining sharply to 6.8% in 2013 and 5.4% in 2014

Table 6-11. Level and Growth Rate of Population, 4 Upstate New York Counties and the Total of These Counties, 2003-2012 Data

	Dutchess	Orange	Putnam	Ulster	4 counties
2013	297,322	374,512	99,607	181,791	953,232
2012	298,209	374,438	99,916	182,582	955,145
2011	297,772	373,524	99,784	182,395	953,475
2010	296,887	372,079	99,666	182,638	951,270
2009	296,267	370,201	99,537	183,174	949,179
2008	295,319	368,464	99,454	182,818	946,055
2007	294,712	366,908	99,357	182,845	943,822
2006	294,362	364,522	99,575	182,438	940,897
2005	292,859	362,934	99,468	181,847	937,108
2004	290,781	358,727	98,964	180,942	929,414
2013/12	-0.30%	0.02%	-0.31%	-0.43%	-0.20%
2012/11	0.15%	0.24%	0.13%	0.10%	0.18%
2011/10	0.30%	0.39%	0.12%	-0.13%	0.23%
2010/09	0.21%	0.51%	0.13%	-0.29%	0.22%
2009/08	0.32%	0.47%	0.08%	0.19%	0.33%
2008/07	0.21%	0.42%	0.10%	-0.01%	0.24%
2007/06	0.12%	0.65%	-0.22%	0.22%	0.31%
2006/05	0.51%	0.44%	0.11%	0.32%	0.40%
2005/04	0.71%	1.17%	0.51%	0.50%	0.83%
2013/04	0.25%	0.48%	0.07%	0.05%	0.28%

Unlike the growth rate in the 7-county area described above, population growth in these 4 counties tailed off in latter half of the previous decade and then failed to improve at all, with anemic growth rates of 0.2% in 2011 and 2012 followed by an actual decline of 0.2% in 2013; the slump occurred in all four counties. Exurban living lost some of its charms, and tourism to these counties also suffered as cheaper airfares led to more exotic vacation preferences.

Table 6-12. Level and Growth Rate of Personal Income, Billions of Dollars, 4 Upstate New York Counties, and the Total of these Counties

	Dutchess	Orange	Putnam	Ulster	4 counties
2013	14.74	16.45	5.87	8.06	30.38
2012	14.67	16.34	5.87	8.01	30.21
2011	14.04	15.74	5.58	7.64	28.96
2010	13.33	15.06	5.34	7.37	27.77

2009	13.08	14.64	5.26	7.07	26.97
2008	13.30	14.61	5.48	7.09	27.17
2007	12.87	14.02	5.34	6.71	26.07
2006	12.07	13.19	4.95	6.34	24.48
2005	11.29	12.49	4.61	5.87	22.97
2004	10.56	11.89	4.40	5.52	21.81
2013/12	0.42%	0.67%	0.16%	0.67%	0.57%
2012/11	4.50%	3.79%	5.12%	4.80%	4.31%
2011/10	5.37%	4.49%	4.50%	3.66%	4.27%
2010/09	1.87%	2.88%	1.56%	4.29%	2.99%
2009/08	-1.68%	0.25%	-3.99%	-0.28%	-0.75%
2008/07	3.41%	4.20%	2.47%	5.64%	4.21%
2007/06	6.58%	6.25%	7.92%	5.87%	6.49%
2006/05	6.89%	5.62%	7.51%	7.94%	6.59%
2005/04	6.98%	5.07%	4.66%	6.34%	5.31%
2013/04	3.77%	3.67%	3.26%	4.29%	3.75%

The decline in income in 2009 due to the financial plunge was not very serious for these counties, but the rebound was not very robust either, and by 2013, growth in income had also come to a halt, in line with the declining population.

Group C. Long Island: Nassau and Suffolk Counties

Table 6-13. Key Economic Statistics for Nassau and Suffolk Counties Compared to the U. S. Economy, 2013 Data

	Nassau		Suffolk		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	1,089,615	100.0%	1,203,740	100.0%	250,835,999	100.0%
In labor force	708,169	65.0%	788,888	65.5%	159,484,493	63.6%
Civilian labor force	707,844	65.0%	788,597	65.5%	158,498,347	63.2%
Employed	661,194	60.7%	734,458	61.0%	145,128,676	57.9%
Unemployed	46,650	4.3%	54,139	4.5%	13,369,671	5.3%
Armed Forces	325	0.0%	291	0.0%	986,146	0.4%
Not in labor force	381,446	35.0%	414,852	34.5%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	661,194	100.0%	734,458	100.0%	145,128,676	100.0%
Management & professional	287,718	43.5%	271,315	36.9%	52,753,573	36.3%
Service occupations	111,852	16.9%	126,949	17.3%	26,654,335	18.4%
Sales and office occupations	170,249	25.7%	195,339	26.6%	35,109,334	24.2%

Construction, maintenance, repair	45,862	6.9%	71,319	9.7%	12,924,043	8.9%
Production & transportation	45,513	6.9%	69,536	9.5%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	661,194	100.0%	734,458	100.0%	145,128,676	100.0%
Agriculture & mining	716	0.1%	3,983	0.5%	2,883,101	2.0%
Construction	40,860	6.2%	56,233	7.7%	8,930,742	6.2%
Manufacturing	30,459	4.6%	55,911	7.6%	15,226,862	10.5%
Wholesale trade	20,341	3.1%	24,761	3.4%	3,944,833	2.7%
Retail trade	64,619	9.8%	86,307	11.8%	16,844,787	11.6%
Transportation & utilities	32,597	4.9%	39,190	5.3%	7,083,841	4.9%
Information	21,222	3.2%	18,097	2.5%	3,086,265	2.1%
Finance, insurance, & real estate	64,768	9.8%	52,453	7.1%	9,562,287	6.6%
Professional & administrative	89,067	13.5%	83,787	11.4%	16,038,857	11.1%
Educational services & health care	187,381	28.3%	198,390	27.0%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	45,919	6.9%	48,704	6.6%	14,019,659	9.7%
Other private services	30,408	4.6%	33,137	4.5%	7,203,232	5.0%
Public administration	32,837	5.0%	33,505	4.6%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	438,588	100.0%	496,958	100.0%	116,291,033	100.0%
Less than $10,000	13,824	3.2%	18,129	3.6%	8,783,120	7.6%
$10,000 to $14,999	10,943	2.5%	15,849	3.2%	6,246,216	5.4%
$15,000 to $24,999	28,361	6.5%	32,020	6.4%	12,575,679	10.8%
$25,000 to $34,999	23,942	5.5%	33,850	6.8%	11,964,268	10.3%
$35,000 to $49,999	38,073	8.7%	45,366	9.1%	15,840,707	13.6%
$50,000 to $74,999	57,909	13.2%	74,219	14.9%	20,820,510	17.9%
$75,000 to $99,999	53,674	12.2%	67,485	13.6%	13,823,793	11.9%
$100,000 to $149,999	88,345	20.1%	102,711	20.7%	14,749,902	12.7%
$150,000 to $199,999	51,129	11.7%	52,195	10.5%	5,644,221	4.9%
$200,000 or more	72,388	16.5%	55,134	11.1%	5,842,617	5.0%
Median household income (dollars)	96,193	184.1%	85,439	163.5%	52,250	
Mean household income (dollars)	125,744	170.5%	106,778	144.8%	73,767	
Families	332,159	100.0%	367,123	100.0%	76,680,463	100.0%
Less than $10,000	6,387	1.9%	8,478	2.3%	3,743,131	4.9%
$10,000 to $14,999	3,047	0.9%	5,219	1.4%	2,493,840	3.3%
$15,000 to $24,999	13,368	4.0%	14,366	3.9%	6,284,315	8.2%
$25,000 to $34,999	13,742	4.1%	19,234	5.2%	6,972,739	9.1%
$35,000 to $49,999	24,034	7.2%	28,167	7.7%	10,067,795	13.1%
$50,000 to $74,999	41,193	12.4%	55,673	15.2%	14,569,480	19.0%
$75,000 to $99,999	43,073	13.0%	54,912	15.0%	10,652,848	13.9%
$100,000 to $149,999	75,777	22.8%	86,844	23.7%	12,092,458	15.8%

$150,000 to $199,999	44,799	13.5%	45,527	12.4%	4,793,949	6.3%
$200,000 or more	66,739	20.1%	48,703	13.3%	5,009,908	6.5%
Median family income (dollars)	111,908	174.8%	98,447	153.8%	64,030	
Mean family income (dollars)	142,148	165.2%	120,474	140.0%	86,046	
Per capita income (dollars)	42,183	149.7%	36,639	130.0%	28,184	
Median earnings for workers	41,940	137.7%	40,234	132.1%	30,454	
Median earnings for male full-time	70,287	146.1%	64,522	134.1%	48,099	
Median earnings for female full-time	52,814	138.6%	49,371	129.6%	38,097	
PERCENTAGE BELOW POVERTY LEVEL						
All families	4.4%	37.9%	5.5%	47.4%	11.6%	
All people	6.1%	38.6%	7.3%	46.2%	15.8%	

Nassau County is another wealthy suburban county of New York City, but the figures are not quite as affluent as for Manhattan (at the upper end) or Westchester. Thus median family income is 175% of the national average, but mean income is a slightly lower 165%, as the income distribution is not as skewed as in Manhattan. The poverty rates are quite low, at 38% for all families and all people. Employment in information, financial, and professional and administrative services are all well above average, while the proportions for manufacturing, and for entertainment and leisure, are below average.

Residents of Suffolk County are not quite as affluent as their neighbors in Nassau County, as mean and median income levels are about 21 percentage points below the Nassau figures in all cases. The distribution of the workforce is quite similar to the national averages, with deviations only in construction (7.7% vs. 6.2% for the U.S.), manufacturing (7.6% vs. 10.5%), and leisure and entertainment (6.9% vs. 9.7%).

Table 6-14. Labor Market Statistics for 2 Long Island Counties, 2005-2014 Data

	2 counties			
2005	1,467,327	1,406,938	60,389	4.1
2006	1,483,546	1,427,098	56,448	3.8
2007	1,482,855	1,426,892	55,963	3.8
2008	1,500,688	1,427,408	73,280	4.9
2009	1,484,786	1,379,371	105,415	7.1
2010	1,469,361	1,359,779	109,582	7.5
2011	1,454,938	1,349,622	105,316	7.2
2012	1,472,686	1,363,482	109,204	7.4
2013	1,472,831	1,381,107	91,724	6.2
2014	1,451,572	1,378,129	73,443	5.1

	Nassau			
2005	689,655	661,861	27,794	4.0
2006	696,480	670,604	25,876	3.7
2007	694,915	669,351	25,564	3.7
2008	700,692	667,509	33,183	4.7
2009	692,905	645,100	47,805	6.9
2010	691,464	642,147	49,317	7.1
2011	683,792	637,159	46,633	6.8
2012	693,359	644,777	48,582	7.0
2013	694,605	653,605	41,000	5.9
2014	684,861	652,211	32,650	4.8
	Suffolk			
2005	777,672	745,077	32,595	4.2
2006	787,066	756,494	30,572	3.9
2007	787,940	757,541	30,399	3.9
2008	799,996	759,899	40,097	5.0
2009	791,881	734,271	57,610	7.3
2010	777,897	717,632	60,265	7.7
2011	771,146	712,463	58,683	7.6
2012	779,327	718,705	60,622	7.8
2013	778,226	727,502	50,724	6.5
2014	766,711	725,918	40,793	5.3

As was generally the case for the New York City suburbs, unemployment rose moderately in the recession but remained well below the national averages. The one anomaly here is that unemployment in Suffolk County inched higher in 2010 as the rest of the economy recovered, but it then fell in line with national averages in 2011. Both counties then posted a 0.2% gain before falling sharply in 2013 and 2014, with the Nassau unemployment rate down from 7.0% to 5.9% and 4.8%; and the Suffolk unemployment rate down from 7.8% to 6.5% and 5.3% in 2013 and 2014 respectively.

Table 6-15. Level and Growth Rate of Population, 2 Long Island Counties and the Total of These Counties, 2003-2012 Data

	Nassau	Suffolk	2 counties
2013	1,349,233	1,499,273	2,848,506
2012	1,345,827	1,500,338	2,846,165
2011	1,341,285	1,494,763	2,836,048
2010	1,332,088	1,487,206	2,819,294
2009	1,325,129	1,480,218	2,805,347
2008	1,322,048	1,475,255	2,797,303

2007	1,324,905	1,475,626	2,800,531
2006	1,332,318	1,477,687	2,810,005
2005	1,337,964	1,478,215	2,816,179
2004	1,339,761	1,470,849	2,810,610
2013/12	0.25%	-0.07%	0.08%
2012/11	0.34%	0.37%	0.36%
2011/10	0.69%	0.51%	0.59%
2010/09	0.53%	0.47%	0.50%
2009/08	0.23%	0.34%	0.29%
2008/07	-0.22%	-0.03%	-0.12%
2007/06	-0.56%	-0.14%	-0.34%
2006/05	-0.42%	-0.04%	-0.22%
2005/04	-0.13%	0.50%	0.20%
2013/04	0.08%	0.21%	0.15%

In the previous section we noted that the northern counties lost population in 2013 as the charms of exurban living diminished. The same pattern is seen here, with Suffolk County losing population in 2013, while Nassau County posted a 0.25% gain, anemic relative to the nation but about par for the overall region.

Table 6-16. Level and Growth Rate of Personal Income (Billion $), 2 Long Island Counties and the Total of These Counties

	Nassau	Suffolk	2 counties
2013	98.10	85.40	183.49
2012	97.70	85.11	182.81
2011	92.80	80.64	173.43
2010	88.19	77.24	165.43
2009	88.20	75.29	163.49
2008	90.51	77.71	168.22
2007	88.03	76.43	164.46
2006	82.88	70.75	153.63
2005	77.59	65.60	143.19
2004	71.57	61.43	133.00
2013/12	0.41%	0.33%	0.37%
2012/11	5.28%	5.55%	5.41%
2011/10	5.22%	4.40%	4.84%
2010/09	-0.01%	2.59%	1.19%
2009/08	-2.55%	-3.11%	-2.81%
2008/07	2.82%	1.67%	2.29%

2007/06	6.21%	8.03%	7.04%
2006/05	6.83%	7.85%	7.30%
2005/04	8.41%	6.78%	7.66%
2013/04	3.56%	3.72%	3.64%

Growth in personal income in these two counties did far better than the national average through 2007 in spite of a decline in population, but that boom came to an abrupt end during the recession. Since then, the percentage increase in personal income has averaged slightly less than 3%, compared to 3.5% for the national economy. Given the lack of any growth in population, the increase in personal income is also likely to remain below average.

Group D. New Jersey: 7 Counties in Northern New Jersey: Essex, Hudson, Bergen, Morris, Passaic, Sussex, and Union Counties

Table 6-17. Economic Profile of Essex and Hudson Counties, NJ and Comparison with the U.S Data, 2012 Data

	Essex		Hudson		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	619,783	100.0%	539,758	100.0%	250,835,999	100.0%
In labor force	411,346	66.4%	371,896	68.9%	159,484,493	63.6%
Civilian labor force	411,346	66.4%	371,800	68.9%	158,498,347	63.2%
Employed	354,509	57.2%	336,685	62.4%	145,128,676	57.9%
Unemployed	56,837	9.2%	35,115	6.5%	13,369,671	5.3%
Armed Forces	0	0.0%	96	0.0%	986,146	0.4%
Not in labor force	208,437	33.6%	167,862	31.1%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	354,509	100.0%	336,685	100.0%	145,128,676	100.0%
Management & professional	129,991	36.7%	130,490	38.8%	52,753,573	36.3%
Service occupations	71,828	20.3%	64,148	19.1%	26,654,335	18.4%
Sales and office occupations	83,745	23.6%	75,870	22.5%	35,109,334	24.2%
Construction, maintenance, repair	28,016	7.9%	19,466	5.8%	12,924,043	8.9%
Production & transportation	40,929	11.5%	46,711	13.9%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	354,509	100.0%	336,685	100.0%	145,128,676	100.0%
Agriculture & mining	510	0.1%	337	0.1%	2,883,101	2.0%
Construction	21,311	6.0%	14,876	4.4%	8,930,742	6.2%
Manufacturing	24,384	6.9%	22,929	6.8%	15,226,862	10.5%
Wholesale trade	10,118	2.9%	13,276	3.9%	3,944,833	2.7%

Retail trade	35,388	10.0%	35,120	10.4%	16,844,787	11.6%
Transportation & utilities	25,562	7.2%	29,132	8.7%	7,083,841	4.9%
Information	9,626	2.7%	10,195	3.0%	3,086,265	2.1%
Finance, insurance, & real estate	27,706	7.8%	36,710	10.9%	9,562,287	6.6%
Professional & administrative	44,146	12.5%	51,417	15.3%	16,038,857	11.1%
Educational services & health care	92,522	26.1%	63,789	18.9%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	26,980	7.6%	32,362	9.6%	14,019,659	9.7%
Other private services	21,291	6.0%	17,371	5.2%	7,203,232	5.0%
Public administration	14,965	4.2%	9,171	2.7%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	277,102	100.0%	247,490	100.0%	116,291,033	100.0%
Less than $10,000	26,546	9.6%	21,443	8.7%	8,783,120	7.6%
$10,000 to $14,999	14,139	5.1%	13,270	5.4%	6,246,216	5.4%
$15,000 to $24,999	31,927	11.5%	28,881	11.7%	12,575,679	10.8%
$25,000 to $34,999	26,167	9.4%	20,632	8.3%	11,964,268	10.3%
$35,000 to $49,999	33,304	12.0%	26,730	10.8%	15,840,707	13.6%
$50,000 to $74,999	42,492	15.3%	40,876	16.5%	20,820,510	17.9%
$75,000 to $99,999	27,193	9.8%	27,339	11.0%	13,823,793	11.9%
$100,000 to $149,999	34,195	12.3%	33,447	13.5%	14,749,902	12.7%
$150,000 to $199,999	16,473	5.9%	16,136	6.5%	5,644,221	4.9%
$200,000 or more	24,666	8.9%	18,736	7.6%	5,842,617	5.0%
Median household income (dollars)	53,610	102.6%	56,079	107.3%	52,250	
Mean household income (dollars)	86,464	117.2%	82,118	111.3%	73,767	
Families	185,121	100.0%	149,585	100.0%	76,680,463	100.0%
Less than $10,000	11,871	6.4%	8,148	5.4%	3,743,131	4.9%
$10,000 to $14,999	7,521	4.1%	6,402	4.3%	2,493,840	3.3%
$15,000 to $24,999	17,459	9.4%	17,822	11.9%	6,284,315	8.2%
$25,000 to $34,999	16,011	8.6%	12,566	8.4%	6,972,739	9.1%
$35,000 to $49,999	20,338	11.0%	18,173	12.1%	10,067,795	13.1%
$50,000 to $74,999	28,081	15.2%	25,027	16.7%	14,569,480	19.0%
$75,000 to $99,999	19,930	10.8%	16,596	11.1%	10,652,848	13.9%
$100,000 to $149,999	26,534	14.3%	21,267	14.2%	12,092,458	15.8%
$150,000 to $199,999	14,937	8.1%	10,704	7.2%	4,793,949	6.3%
$200,000 or more	22,439	12.1%	12,880	8.6%	5,009,908	6.5%
Median family income (dollars)	65,415	102.2%	59,891	93.5%	64,030	
Mean family income (dollars)	104,283	121.2%	88,560	102.9%	86,046	
Per capita income (dollars)	31,595	112.1%	32,136	114.0%	28,184	
Median earnings for workers	32,402	106.4%	35,308	115.9%	30,454	
Median earnings for male full-time	52,023	108.2%	50,143	104.2%	48,099	
Median earnings for female full-time	43,802	115.0%	46,429	121.9%	38,097	

PERCENTAGE BELOW POVERTY LEVEL					
All families	14.2%	122.4%	16.8%	144.8%	11.6%
All people	17.8%	112.7%	19.7%	124.7%	15.8%

The income distributions in Essex and Hudson Counties can best be described as "fat-tailed", with greater than average percentages in the highest and lowest income brackets. To elaborate, 10% of families in each of the two counties earn less than $15,000 a year, compared to 8% nationally – while 12% of Essex families and 9% of Hudson families earn $200,000 or more, compared to 6.5% for the U.S. This dichotomy can also be seen in the high mean family incomes ($104,300 in Essex and $88,600 in Hudson, versus $86,000 for the U.S.) and large share of families living in poverty (14.2% in Essex and 16.8% in Hudson County, versus 11.6% for the nation).

Turning to the occupation data, both counties have lower than average shares in manufacturing as well as the arts, entertainment, hotel, and food service industries – and higher than average shares in transportation and finance. The counties differ in the mix of workers in the education and health care industries, as Essex (26.1%) has a higher proportion than average and Hudson has a lower proportion at 18.9%.

Table 6-18. Economic Profile of Bergen and Morris Counties, NJ and Comparison with the U.S Data

	Bergen		Morris		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	747,911	100.0%	399,742	100.0%	250,835,999	100.0%
In labor force	487,298	65.2%	276,135	69.1%	159,484,493	63.6%
Civilian labor force	487,057	65.1%	276,049	69.1%	158,498,347	63.2%
Employed	452,274	60.5%	259,541	64.9%	145,128,676	57.9%
Unemployed	34,783	4.7%	16,508	4.1%	13,369,671	5.3%
Armed Forces	241	0.0%	86	0.0%	986,146	0.4%
Not in labor force	260,613	34.8%	123,607	30.9%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	452,274	100.0%	259,541	100.0%	145,128,676	100.0%
Management & professional	215,452	47.6%	128,618	49.6%	52,753,573	36.3%
Service occupations	65,329	14.4%	34,536	13.3%	26,654,335	18.4%
Sales and office occupations	109,281	24.2%	65,139	25.1%	35,109,334	24.2%
Construction, maintenance, repair	26,305	5.8%	14,548	5.6%	12,924,043	8.9%
Production & transportation	35,907	7.9%	16,700	6.4%	17,687,391	12.2%
INDUSTRY						

Civilian employed population 16+	452,274	100.0%	259,541	100.0%	145,128,676	100.0%
Agriculture & mining	893	0.2%	671	0.3%	2,883,101	2.0%
Construction	23,303	5.2%	13,076	5.0%	8,930,742	6.2%
Manufacturing	39,974	8.8%	27,674	10.7%	15,226,862	10.5%
Wholesale trade	19,244	4.3%	7,723	3.0%	3,944,833	2.7%
Retail trade	44,203	9.8%	26,052	10.0%	16,844,787	11.6%
Transportation & utilities	20,076	4.4%	9,501	3.7%	7,083,841	4.9%
Information	15,634	3.5%	10,757	4.1%	3,086,265	2.1%
Finance, insurance, & real estate	40,573	9.0%	25,758	9.9%	9,562,287	6.6%
Professional & administrative	60,182	13.3%	41,305	15.9%	16,038,857	11.1%
Educational services & health care	111,818	24.7%	61,228	23.6%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	39,956	8.8%	17,201	6.6%	14,019,659	9.7%
Other private services	22,004	4.9%	10,486	4.0%	7,203,232	5.0%
Public administration	14,414	3.2%	8,109	3.1%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	338,063	100.0%	178,951	100.0%	116,291,033	100.0%
Less than $10,000	15,425	4.6%	4,358	2.4%	8,783,120	7.6%
$10,000 to $14,999	10,806	3.2%	4,464	2.5%	6,246,216	5.4%
$15,000 to $24,999	23,184	6.9%	8,651	4.8%	12,575,679	10.8%
$25,000 to $34,999	22,873	6.8%	8,507	4.8%	11,964,268	10.3%
$35,000 to $49,999	33,941	10.0%	13,382	7.5%	15,840,707	13.6%
$50,000 to $74,999	49,195	14.6%	24,247	13.5%	20,820,510	17.9%
$75,000 to $99,999	41,418	12.3%	25,554	14.3%	13,823,793	11.9%
$100,000 to $149,999	57,305	17.0%	36,859	20.6%	14,749,902	12.7%
$150,000 to $199,999	35,966	10.6%	20,874	11.7%	5,644,221	4.9%
$200,000 or more	47,950	14.2%	32,055	17.9%	5,842,617	5.0%
Median household income (dollars)	81,670	156.3%	100,176	191.7%	52,250	
Mean household income (dollars)	116,561	158.0%	137,202	186.0%	73,767	
Families	241,689	100.0%	127,593	100.0%	76,680,463	100.0%
Less than $10,000	6,455	2.7%	1,315	1.0%	3,743,131	4.9%
$10,000 to $14,999	5,146	2.1%	1,381	1.1%	2,493,840	3.3%
$15,000 to $24,999	10,773	4.5%	3,458	2.7%	6,284,315	8.2%
$25,000 to $34,999	10,946	4.5%	4,525	3.5%	6,972,739	9.1%
$35,000 to $49,999	21,911	9.1%	7,884	6.2%	10,067,795	13.1%
$50,000 to $74,999	33,899	14.0%	14,956	11.7%	14,569,480	19.0%
$75,000 to $99,999	31,453	13.0%	17,405	13.6%	10,652,848	13.9%
$100,000 to $149,999	45,996	19.0%	29,029	22.8%	12,092,458	15.8%
$150,000 to $199,999	31,445	13.0%	18,134	14.2%	4,793,949	6.3%
$200,000 or more	43,665	18.1%	29,506	23.1%	5,009,908	6.5%
Median family income (dollars)	100,242	156.6%	120,268	187.8%	64,030	
Mean family income (dollars)	136,333	158.4%	161,494	187.7%	86,046	

Per capita income (dollars)	43,412	154.0%	50,154	178.0%	28,184
Median earnings for workers	45,901	150.7%	51,144	167.9%	30,454
Median earnings for male full-time	67,791	140.9%	80,154	166.6%	48,099
Median earnings for female full-time	53,953	141.6%	58,195	152.8%	38,097
PERCENTAGE BELOW POVERTY LEVEL					
All families	6.4%	55.2%	2.9%	25.0%	11.6%
All people	8.2%	51.9%	4.3%	27.2%	15.8%

Bergen and Morris counties are two of the more affluent counties in New Jersey; mean household and family income levels are 56% above the national figures in Bergen County and 89% above the national figures in Morris County. Along the same lines, the poverty rates in both counties are quite low, at 55% for Bergen County and an unusually low 25% for Morris County.

Consistent with its high-income profile, about half of the workforce is in management and professional jobs – 48% in Bergen and 50% in Morris, well above the national percentage of 36.3%. On the other side of the coin, each county has a smaller mix of workers in service occupations and production and transportation compared to the rest of the nation.

Table 6-19. Economic Profile of Passaic and Sussex Counties, NJ and Comparison with the U.S. Data

	Passaic		Sussex		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	397,011	100.0%	117,784	100.0%	250,835,999	100.0%
In labor force	250,782	63.2%	82,417	70.0%	159,484,493	63.6%
Civilian labor force	250,782	63.2%	82,284	69.9%	158,498,347	63.2%
Employed	230,149	58.0%	76,476	64.9%	145,128,676	57.9%
Unemployed	20,633	5.2%	5,808	4.9%	13,369,671	5.3%
Armed Forces	0	0.0%	133	0.1%	986,146	0.4%
Not in labor force	146,229	36.8%	35,367	30.0%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	230,149	100.0%	76,476	100.0%	145,128,676	100.0%
Management & professional	71,794	31.2%	30,969	40.5%	52,753,573	36.3%
Service occupations	41,055	17.8%	11,400	14.9%	26,654,335	18.4%
Sales and office occupations	59,787	26.0%	19,716	25.8%	35,109,334	24.2%
Construction, maintenance, repair	16,102	7.0%	6,624	8.7%	12,924,043	8.9%
Production & transportation	41,411	18.0%	7,767	10.2%	17,687,391	12.2%

INDUSTRY						
Civilian employed population 16+	230,149	100.0%	76,476	100.0%	145,128,676	100.0%
Agriculture & mining	132	0.1%	244	0.3%	2,883,101	2.0%
Construction	13,705	6.0%	5,363	7.0%	8,930,742	6.2%
Manufacturing	27,783	12.1%	8,795	11.5%	15,226,862	10.5%
Wholesale trade	9,279	4.0%	2,223	2.9%	3,944,833	2.7%
Retail trade	32,477	14.1%	8,570	11.2%	16,844,787	11.6%
Transportation & utilities	13,709	6.0%	4,103	5.4%	7,083,841	4.9%
Information	4,809	2.1%	2,088	2.7%	3,086,265	2.1%
Finance, insurance, & real estate	15,062	6.5%	5,367	7.0%	9,562,287	6.6%
Professional & administrative	26,716	11.6%	9,075	11.9%	16,038,857	11.1%
Educational services & health care	50,014	21.7%	17,914	23.4%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	19,937	8.7%	5,832	7.6%	14,019,659	9.7%
Other private services	9,650	4.2%	3,164	4.1%	7,203,232	5.0%
Public administration	6,876	3.0%	3,738	4.9%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	161,331	100.0%	54,765	100.0%	116,291,033	100.0%
Less than $10,000	12,074	7.5%	1,566	2.9%	8,783,120	7.6%
$10,000 to $14,999	9,212	5.7%	1,897	3.5%	6,246,216	5.4%
$15,000 to $24,999	16,105	10.0%	2,633	4.8%	12,575,679	10.8%
$25,000 to $34,999	14,606	9.1%	3,783	6.9%	11,964,268	10.3%
$35,000 to $49,999	19,268	11.9%	4,998	9.1%	15,840,707	13.6%
$50,000 to $74,999	23,714	14.7%	8,832	16.1%	20,820,510	17.9%
$75,000 to $99,999	18,856	11.7%	8,058	14.7%	13,823,793	11.9%
$100,000 to $149,999	24,612	15.3%	11,216	20.5%	14,749,902	12.7%
$150,000 to $199,999	11,758	7.3%	6,236	11.4%	5,644,221	4.9%
$200,000 or more	11,126	6.9%	5,546	10.1%	5,842,617	5.0%
Median household income (dollars)	58,898	112.7%	88,407	169.2%	52,250	
Mean household income (dollars)	82,360	111.6%	105,480	143.0%	73,767	
Families	120,135	100.0%	40,823	100.0%	76,680,463	100.0%
Less than $10,000	6,298	5.2%	947	2.3%	3,743,131	4.9%
$10,000 to $14,999	4,916	4.1%	442	1.1%	2,493,840	3.3%
$15,000 to $24,999	10,233	8.5%	1,468	3.6%	6,284,315	8.2%
$25,000 to $34,999	11,626	9.7%	1,568	3.8%	6,972,739	9.1%
$35,000 to $49,999	13,848	11.5%	3,651	8.9%	10,067,795	13.1%
$50,000 to $74,999	17,029	14.2%	6,098	14.9%	14,569,480	19.0%
$75,000 to $99,999	15,838	13.2%	6,369	15.6%	10,652,848	13.9%
$100,000 to $149,999	20,330	16.9%	10,032	24.6%	12,092,458	15.8%
$150,000 to $199,999	10,550	8.8%	5,348	13.1%	4,793,949	6.3%
$200,000 or more	9,467	7.9%	4,900	12.0%	5,009,908	6.5%
Median family income (dollars)	67,796	105.9%	99,198	154.9%	64,030	

Mean family income (dollars)	90,046	104.6%	114,933	133.6%	86,046
Per capita income (dollars)	27,892	99.0%	39,225	139.2%	28,184
Median earnings for workers	32,052	105.2%	41,905	137.6%	30,454
Median earnings for male full-time	50,407	104.8%	70,611	146.8%	48,099
Median earnings for female full-time	39,682	104.2%	50,873	133.5%	38,097
PERCENTAGE BELOW POVERTY LEVEL					
All families	14.0%	120.7%	4.5%	38.8%	11.6%
All people	16.6%	105.1%	5.8%	36.7%	15.8%

While both of these are suburban counties in Northern New Jersey, Passaic has significant pockets of poverty, pushing the poverty rate for all families to 121% of the national average even though median and mean household and family income are slightly higher than average. On the other hand, Sussex County has median household and family income that are 169% and 155% of the national average, although the mean income figures are somewhat lower at 143% and 134%; these above-average figures are accompanied by poverty rates that are 39% and 37% of the national level for all families and all people respectively.

The proportions of employment by major industrial sector are generally close to national averages except that manufacturing is higher in both counties, and arts, entertainment and leisure is below average.

Table 6-20. Economic Profile of Union County, NJ and Comparison with the U.S. Data

	Union		USA	
	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS				
Population 16 years and over	430,590	100.0%	250,835,999	100.0%
In labor force	295,512	68.6%	159,484,493	63.6%
Civilian labor force	295,458	68.6%	158,498,347	63.2%
Employed	265,949	61.8%	145,128,676	57.9%
Unemployed	29,509	6.9%	13,369,671	5.3%
Armed Forces	54	0.0%	986,146	0.4%
Not in labor force	135,078	31.4%	91,351,506	36.4%
OCCUPATION				
Civilian employed population 16+	265,949	100.0%	145,128,676	100.0%
Management & professional	94,366	35.5%	52,753,573	36.3%
Service occupations	48,878	18.4%	26,654,335	18.4%
Sales and office occupations	65,579	24.7%	35,109,334	24.2%
Construction, maintenance, repair	20,504	7.7%	12,924,043	8.9%

Production & transportation	36,622	13.8%	17,687,391	12.2%
INDUSTRY				
Civilian employed population 16+	265,949	100.0%	145,128,676	100.0%
Agriculture & mining	311	0.1%	2,883,101	2.0%
Construction	14,611	5.5%	8,930,742	6.2%
Manufacturing	25,179	9.5%	15,226,862	10.5%
Wholesale trade	9,251	3.5%	3,944,833	2.7%
Retail trade	27,773	10.4%	16,844,787	11.6%
Transportation & utilities	21,898	8.2%	7,083,841	4.9%
Information	6,707	2.5%	3,086,265	2.1%
Finance, insurance, & real estate	25,159	9.5%	9,562,287	6.6%
Professional & administrative	33,756	12.7%	16,038,857	11.1%
Educational services & health care	58,120	21.9%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	19,086	7.2%	14,019,659	9.7%
Other private services	13,257	5.0%	7,203,232	5.0%
Public administration	10,841	4.1%	6,864,026	4.7%
INCOME AND BENEFITS				
Total households	186,951	100.0%	116,291,033	100.0%
Less than $10,000	12,171	6.5%	8,783,120	7.6%
$10,000 to $14,999	7,665	4.1%	6,246,216	5.4%
$15,000 to $24,999	17,732	9.5%	12,575,679	10.8%
$25,000 to $34,999	14,279	7.6%	11,964,268	10.3%
$35,000 to $49,999	22,209	11.9%	15,840,707	13.6%
$50,000 to $74,999	31,413	16.8%	20,820,510	17.9%
$75,000 to $99,999	20,383	10.9%	13,823,793	11.9%
$100,000 to $149,999	28,383	15.2%	14,749,902	12.7%
$150,000 to $199,999	13,043	7.0%	5,644,221	4.9%
$200,000 or more	19,673	10.5%	5,842,617	5.0%
Median household income (dollars)	64,593	123.6%	52,250	
Mean household income (dollars)	97,757	132.5%	73,767	
Families	131,662	100.0%	76,680,463	100.0%
Less than $10,000	6,040	4.6%	3,743,131	4.9%
$10,000 to $14,999	2,641	2.0%	2,493,840	3.3%
$15,000 to $24,999	10,057	7.6%	6,284,315	8.2%
$25,000 to $34,999	8,518	6.5%	6,972,739	9.1%
$35,000 to $49,999	14,853	11.3%	10,067,795	13.1%
$50,000 to $74,999	21,331	16.2%	14,569,480	19.0%
$75,000 to $99,999	15,149	11.5%	10,652,848	13.9%
$100,000 to $149,999	23,480	17.8%	12,092,458	15.8%
$150,000 to $199,999	11,535	8.8%	4,793,949	6.3%

$200,000 or more	18,058	13.7%	5,009,908	6.5%
Median family income (dollars)	79,855	124.7%	64,030	
Mean family income (dollars)	114,596	133.2%	86,046	
Per capita income (dollars)	34,929	123.9%	28,184	
Median earnings for workers	36,224	118.9%	30,454	
Median earnings for male full-time	53,596	111.4%	48,099	
Median earnings for female full-time	44,831	117.7%	38,097	
PERCENTAGE BELOW POVERTY LEVEL				
All families	8.9%	76.7%	11.6%	
All people	11.5%	72.8%	15.8%	

Mean household and family income levels in Union County are about one-third higher than the national averages; however, median earnings for male full-time workers ($53,600) are only about 11% higher than the comparable U.S. figure ($48,100). Poverty rates in Union County for both families and households are about 25% lower than the national rates.

The mix of occupations in Union County is relatively similar to the U.S., with slightly more workers in wholesale trade, transportation, information, and finance – and slightly fewer in mining, retail, education, health care, and hospitality.

Table 6-21. Labor Market Statistics for 7 Northern New Jersey Counties and Total Area, 2005-2014 Data

	Labor Force	Employed	Unemployed	Un Rate, %
	7 Counties			
2005	1,963,802	1,872,884	90,918	4.6
2006	1,981,487	1,886,340	95,147	4.8
2007	1,982,487	1,896,264	86,223	4.3
2008	2,010,114	1,901,153	108,961	5.4
2009	2,028,799	1,842,527	186,272	9.2
2010	2,094,022	1,897,611	196,411	9.4
2011	2,104,478	1,912,751	191,727	9.1
2012	2,115,839	1,924,329	191,510	9.1
2013	2,088,560	1,921,071	167,489	8.0
2014	2,083,245	1,947,561	135,684	6.5
	Bergen			
2005	465,823	448,415	17,408	3.7
2006	471,181	452,733	18,448	3.9
2007	471,472	455,223	16,249	3.4

2008	478,208	457,226	20,982	4.4
2009	481,104	443,640	37,464	7.8
2010	478,578	440,132	38,446	8.0
2011	481,449	444,411	37,038	7.7
2012	484,151	447,068	37,083	7.7
2013	479,476	447,447	32,029	6.7
2014	479,448	453,688	25,760	5.4
	Essex			
2005	360,801	340,502	20,299	5.6
2006	362,670	341,287	21,383	5.9
2007	361,575	342,249	19,326	5.3
2008	365,516	341,987	23,529	6.4
2009	367,513	329,542	37,971	10.3
2010	382,559	341,115	41,444	10.8
2011	383,477	342,214	41,263	10.8
2012	384,514	343,448	41,066	10.7
2013	377,878	341,529	36,349	9.6
2014	375,861	346,237	29,624	7.9
	Hudson			
2005	287,475	271,796	15,679	5.5
2006	288,996	272,886	16,110	5.6
2007	290,029	275,553	14,476	5.0
2008	294,030	275,774	18,256	6.2
2009	300,162	268,583	31,579	10.5
2010	352,642	318,890	33,752	9.6
2011	357,300	324,530	32,770	9.2
2012	361,039	328,351	32,688	9.1
2013	358,912	330,025	28,887	8.0
2014	357,862	334,604	23,258	6.5
	Morris			
2005	267,019	258,297	8,722	3.3
2006	271,011	261,872	9,139	3.4
2007	271,713	263,489	8,224	3.0
2008	275,403	264,632	10,771	3.9
2009	275,319	255,852	19,467	7.1
2010	265,171	245,539	19,632	7.4
2011	265,907	247,240	18,667	7.0
2012	267,692	248,876	18,816	7.0
2013	263,630	247,523	16,107	6.1
2014	263,878	250,919	12,959	4.9

	Passaic			
2005	234,831	221,929	12,902	5.5
2006	236,210	222,817	13,393	5.7
2007	236,506	223,853	12,653	5.3
2008	240,502	224,531	15,971	6.6
2009	245,108	218,128	26,980	11.0
2010	253,190	224,427	28,763	11.4
2011	253,480	225,657	27,823	11.0
2012	253,694	225,720	27,974	11.0
2013	249,870	225,177	24,693	9.9
2014	248,437	228,264	20,173	8.1
	Sussex			
2005	82,976	79,727	3,249	3.9
2006	84,041	80,543	3,498	4.2
2007	84,106	80,801	3,305	3.9
2008	85,205	81,001	4,204	4.9
2009	85,607	78,265	7,342	8.6
2010	82,352	74,595	7,757	9.4
2011	81,875	74,346	7,529	9.2
2012	81,319	74,052	7,267	8.9
2013	78,962	72,764	6,198	7.8
2014	78,651	73,737	4,914	6.2
	Union			
2005	264,877	252,218	12,659	4.8
2006	267,378	254,202	13,176	4.9
2007	267,086	255,096	11,990	4.5
2008	271,250	256,002	15,248	5.6
2009	273,986	248,517	25,469	9.3
2010	279,530	252,913	26,617	9.5
2011	280,990	254,353	26,637	9.5
2012	283,430	256,814	26,616	9.4
2013	279,832	256,606	23,226	8.3
2014	279,108	260,112	18,996	6.8

On balance, the unemployment rate for these 7 counties in Northern New Jersey is close to the national average, but there are significant differences among individual counties. In 2014, Essex (Newark), Hudson (Jersey City) Passaic (Patterson) and Union (Elizabeth) all had unemployment rates well above average, with rates of 7.9%, 6.5%, 8.1% and 6.8% respectively. On the other hand, the unemployment rates in Bergen and Morris Counties were 5.4% and 4.9%, compared to 6.2% nationally.

Table 6-22. Level and Growth Rate of Population, 7 Northern New Jersey Counties and the Total of These Counties

	Bergen	Essex	Hudson	Morris	Passaic	Sussex	Union	7 counties
2013	925,328	789,565	660,282	499,397	505,672	145,992	548,256	4,074,492
2012	919,010	786,943	653,369	497,632	504,245	147,192	544,102	4,052,493
2011	912,808	786,337	645,113	495,744	503,508	148,157	540,311	4,031,978
2010	906,509	784,476	635,691	492,755	502,203	148,792	537,736	4,008,162
2009	900,319	781,943	628,572	490,779	498,641	149,487	532,434	3,982,175
2008	895,328	778,165	619,533	489,743	494,904	150,145	527,528	3,955,346
2007	890,817	778,996	613,637	488,355	492,886	150,600	524,960	3,940,251
2006	889,406	781,027	613,577	487,486	492,730	150,508	525,153	3,939,887
2005	891,446	786,341	614,664	485,472	493,600	150,192	526,161	3,947,876
2004	893,378	791,305	614,607	483,997	493,981	149,906	526,916	3,954,090
2013/12	0.69%	0.33%	1.06%	0.35%	0.28%	-0.82%	0.76%	0.54%
2012/11	0.68%	0.08%	1.28%	0.38%	0.15%	-0.65%	0.70%	0.51%
2011/10	0.69%	0.24%	1.48%	0.61%	0.26%	-0.43%	0.48%	0.59%
2010/09	0.69%	0.32%	1.13%	0.40%	0.71%	-0.46%	1.00%	0.65%
2009/08	0.56%	0.49%	1.46%	0.21%	0.76%	-0.44%	0.93%	0.68%
2008/07	0.51%	-0.11%	0.96%	0.28%	0.41%	-0.30%	0.49%	0.38%
2007/06	0.16%	-0.26%	0.01%	0.18%	0.03%	0.06%	-0.04%	0.01%
2006/05	-0.23%	-0.68%	-0.18%	0.41%	-0.18%	0.21%	-0.19%	-0.20%
2005/04	-0.22%	-0.63%	0.01%	0.30%	-0.08%	0.19%	-0.14%	-0.16%
2013/04	0.39%	-0.02%	0.80%	0.35%	0.26%	-0.29%	0.44%	0.33%

In terms of population growth, this is a sluggish section of both the overall economy and the NYC metropolitan area, with average annual growth of only 0.33%. Even so, the population growth follows the pattern for New York City; an actual decline or very sluggish growth in the first half of the previous decade, followed by a significant improvement starting in 2009. The most impressive increase has occurred in Hudson County, as many financial firms move some of their operations across the river to Jersey City. On the other hand, population growth in Morris County has declined, and it has remained negative in Sussex County, once again reinforcing the decline in population in exurban counties in the New York City area.

Table 6-23. Level and Growth Rate of Personal Income (Billion $), 7 Northern New Jersey Counties and the Total of These Counties

	Bergen	Essex	Hudson	Morris	Passaic	Sussex	Union	7 counties
2013	64.31	43.11	33.13	37.48	22.60	7.73	29.82	238.17
2012	63.67	42.74	32.65	37.24	22.49	7.74	29.18	235.72
2011	61.38	42.15	31.68	35.65	22.08	7.53	28.26	228.73
2010	57.91	40.34	29.27	33.83	21.06	7.30	26.83	216.54
2009	57.51	38.90	27.46	33.22	20.47	7.21	26.24	211.02
2008	60.28	39.72	26.95	35.23	20.62	7.47	27.24	217.51
2007	60.17	38.92	24.66	34.11	20.13	7.36	26.61	211.96
2006	56.12	37.18	23.21	32.55	19.01	6.95	25.60	200.62
2005	51.41	34.56	21.72	30.18	17.84	6.52	23.57	185.81
2004	49.35	33.25	20.55	29.11	16.88	6.26	22.81	178.22
2013/12	1.00%	0.87%	1.45%	0.66%	0.48%	-0.13%	2.16%	1.04%
2012/11	3.72%	1.42%	3.07%	4.45%	1.85%	2.85%	3.28%	3.06%
2011/10	6.00%	4.48%	8.23%	5.38%	4.84%	3.14%	5.31%	5.63%
2010/09	0.71%	3.70%	6.58%	1.82%	2.89%	1.15%	2.25%	2.62%
2009/08	-4.61%	-2.05%	1.92%	-5.69%	-0.71%	-3.42%	-3.68%	-2.98%
2008/07	0.19%	2.05%	9.26%	3.29%	2.42%	1.43%	2.40%	2.62%
2007/06	7.21%	4.68%	6.27%	4.80%	5.88%	5.90%	3.94%	5.65%
2006/05	9.16%	7.58%	6.84%	7.83%	6.57%	6.57%	8.61%	7.97%
2005/04	4.17%	3.95%	5.68%	3.68%	5.66%	4.20%	3.31%	4.26%
2013/04	2.98%	2.93%	5.44%	2.85%	3.29%	2.37%	3.02%	3.27%

The growth in income for these 7 counties was well below the national and metropolitan average. The more rapid growth in population in Hudson County was also reflected in the growth in income, due to the expansion of jobs in the financial services area. Sussex County posted the lowest growth rates over the decade, reflecting the actual decline in population, while growth in Essex, Morris, and Union counties were all well below average.

Group E. Fairfield, New Haven, and Litchfield Counties

Table 6-24. Key Economic Statistics for Fairfield and New Haven Counties Compared to the U. S. Economy, 2013 Data

	Fairfield		New Haven		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						

Population 16 years and over	743,289	100.0%	702,408	100.0%	250,835,999	100.0%
In labor force	512,260	68.9%	457,843	65.2%	159,484,493	63.6%
Civilian labor force	512,094	68.9%	456,776	65.0%	158,498,347	63.2%
Employed	463,442	62.4%	415,518	59.2%	145,128,676	57.9%
Unemployed	48,652	6.5%	41,258	5.9%	13,369,671	5.3%
Armed Forces	166	0.0%	1,067	0.2%	986,146	0.4%
Not in labor force	231,029	31.1%	244,565	34.8%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	463,442	100.0%	415,518	100.0%	145,128,676	100.0%
Management & professional	195,997	42.3%	161,151	38.8%	52,753,573	36.3%
Service occupations	85,986	18.6%	78,094	18.8%	26,654,335	18.4%
Sales and office occupations	111,197	24.0%	103,229	24.8%	35,109,334	24.2%
Construction, maintenance, repair	34,938	7.5%	29,582	7.1%	12,924,043	8.9%
Production & transportation	35,324	7.6%	43,462	10.5%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	463,442	100.0%	415,518	100.0%	145,128,676	100.0%
Agriculture & mining	1,459	0.3%	855	0.2%	2,883,101	2.0%
Construction	30,528	6.6%	19,017	4.6%	8,930,742	6.2%
Manufacturing	40,503	8.7%	45,619	11.0%	15,226,862	10.5%
Wholesale trade	10,433	2.3%	11,400	2.7%	3,944,833	2.7%
Retail trade	51,523	11.1%	48,368	11.6%	16,844,787	11.6%
Transportation & utilities	13,655	2.9%	15,422	3.7%	7,083,841	4.9%
Information	12,006	2.6%	8,951	2.2%	3,086,265	2.1%
Finance, insurance, & real estate	53,224	11.5%	25,697	6.2%	9,562,287	6.6%
Professional & administrative	78,627	17.0%	40,647	9.8%	16,038,857	11.1%
Educational services & health care	96,915	20.9%	130,661	31.4%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	39,670	8.6%	33,041	8.0%	14,019,659	9.7%
Other private services	24,986	5.4%	20,579	5.0%	7,203,232	5.0%
Public administration	9,913	2.1%	15,261	3.7%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	328,062	100.0%	321,048	100.0%	116,291,033	100.0%
Less than $10,000	17,652	5.4%	22,544	7.0%	8,783,120	7.6%
$10,000 to $14,999	10,766	3.3%	16,828	5.2%	6,246,216	5.4%
$15,000 to $24,999	26,000	7.9%	29,872	9.3%	12,575,679	10.8%
$25,000 to $34,999	20,943	6.4%	28,775	9.0%	11,964,268	10.3%
$35,000 to $49,999	32,063	9.8%	38,899	12.1%	15,840,707	13.6%
$50,000 to $74,999	45,302	13.8%	54,676	17.0%	20,820,510	17.9%
$75,000 to $99,999	36,933	11.3%	37,818	11.8%	13,823,793	11.9%
$100,000 to $149,999	52,665	16.1%	50,157	15.6%	14,749,902	12.7%
$150,000 to $199,999	26,109	8.0%	22,319	7.0%	5,644,221	4.9%

$200,000 or more	59,629	18.2%	19,160	6.0%	5,842,617	5.0%
Median household income (dollars)	82,084	157.1%	58,571	112.1%	52,250	
Mean household income (dollars)	136,019	184.4%	81,252	110.1%	73,767	
Families	229,730	100.0%	204,533	100.0%	76,680,463	100.0%
Less than $10,000	6,625	2.9%	7,629	3.7%	3,743,131	4.9%
$10,000 to $14,999	3,958	1.7%	5,921	2.9%	2,493,840	3.3%
$15,000 to $24,999	11,083	4.8%	12,448	6.1%	6,284,315	8.2%
$25,000 to $34,999	13,152	5.7%	15,063	7.4%	6,972,739	9.1%
$35,000 to $49,999	20,668	9.0%	20,321	9.9%	10,067,795	13.1%
$50,000 to $74,999	29,918	13.0%	35,389	17.3%	14,569,480	19.0%
$75,000 to $99,999	26,974	11.7%	27,515	13.5%	10,652,848	13.9%
$100,000 to $149,999	41,084	17.9%	43,108	21.1%	12,092,458	15.8%
$150,000 to $199,999	21,981	9.6%	20,248	9.9%	4,793,949	6.3%
$200,000 or more	54,287	23.6%	16,891	8.3%	5,009,908	6.5%
Median family income (dollars)	101,721	158.9%	78,879	123.2%	64,030	
Mean family income (dollars)	163,857	190.4%	100,077	116.3%	86,046	
Per capita income (dollars)	49,129	174.3%	31,896	113.2%	28,184	
Median earnings for workers	39,144	128.5%	35,576	116.8%	30,454	
Median earnings for male full-time	71,768	149.2%	56,243	116.9%	48,099	
Median earnings for female full-time	51,813	136.0%	44,617	117.1%	38,097	
PERCENTAGE BELOW POVERTY LEVEL						
All families	6.8%	58.6%	8.9%	76.7%	11.6%	
All people	9.6%	60.8%	12.9%	81.6%	15.8%	

Please note that in these tables, the percentage figures in regular type refer to the overall category in that column, while the figures in red are relative to the U.S. average figures

Fairfield County is sometimes considered the quintessential bedroom community for New York City, and has unusually high incomes. Besides being the home of many wealthy communities, a burgeoning venture capital and hedge fund industry has grown up around Greenwich and Stamford, although it took a severe hit in 2009. Still, there are 3.6 times as many households and families in the top income bracket as is the case nationally. As a result, while median family income is 159% of the national average, mean income is even higher, at 190%; the figures are roughly the same for household income. The poverty rate for families is only about half the national average rate; but there are substantial pockets of poverty in Bridgeport, so the poverty rate is somewhat higher than would ordinarily be expected with such a high a mean income.

In terms of employment by major industry sector, the financial sector scores very strongly, with 11.5% of the workforce, compared to 6.6% nationally. The county also has a relatively robust manufacturing sector, employing 8.7% of the workforce, although

it fell off sharply during the recession and is now significantly below the 10.5% national average. There are also higher than average proportions of the workforce in information, and in professional services. Offsetting these, there are fewer than average workers in tourism and leisure, and public administration.

The economy of New Haven is dominated by Yale University, as can be seen by the 31.4% of the workforce in education and health care services, compared to 23.0% nationally. Except for that, however, the economy of the rest of the county is not in particularly good shape. There are substantial pockets of poverty scattered throughout the county, which brings the poverty rate for all families up to 82% of the national average; and mean family income is a relatively modest 116% of the national average.

Besides the bulge in employment in educational services, there are proportionately more than the average number in manufacturing, at 11.0% of the workforce, compared to 10.5% nationally. Most of the other industry groups have fewer than proportional numbers of employees, particularly tourism and leisure.

Table 6-25. Key Economic Statistics for Litchfield County Compared to the U. S. Economy

	Litchfield		USA	
	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS				
Population 16 years and over	154,827	100.0%	250,835,999	100.0%
In labor force	107,561	69.5%	159,484,493	63.6%
Civilian labor force	107,561	69.5%	158,498,347	63.2%
Employed	99,698	64.4%	145,128,676	57.9%
Unemployed	7,863	5.1%	13,369,671	5.3%
Armed Forces	0	0.0%	986,146	0.4%
Not in labor force	47,266	30.5%	91,351,506	36.4%
OCCUPATION				
Civilian employed population 16+	99,698	100.0%	145,128,676	100.0%
Management & professional	37,712	37.8%	52,753,573	36.3%
Service occupations	21,193	21.3%	26,654,335	18.4%
Sales and office occupations	20,572	20.6%	35,109,334	24.2%
Construction, maintenance, repair	8,946	9.0%	12,924,043	8.9%
Production & transportation	11,275	11.3%	17,687,391	12.2%
INDUSTRY				
Civilian employed population 16+	99,698	100.0%	145,128,676	100.0%
Agriculture & mining	1,269	1.3%	2,883,101	2.0%

Construction	6,408	6.4%	8,930,742	6.2%
Manufacturing	13,948	14.0%	15,226,862	10.5%
Wholesale trade	1,496	1.5%	3,944,833	2.7%
Retail trade	10,321	10.4%	16,844,787	11.6%
Transportation & utilities	2,952	3.0%	7,083,841	4.9%
Information	2,152	2.2%	3,086,265	2.1%
Finance, insurance, & real estate	7,066	7.1%	9,562,287	6.6%
Professional & administrative	9,641	9.7%	16,038,857	11.1%
Educational services & health care	27,726	27.8%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	7,995	8.0%	14,019,659	9.7%
Other private services	4,306	4.3%	7,203,232	5.0%
Public administration	4,418	4.4%	6,864,026	4.7%
INCOME AND BENEFITS				
Total households	75,029	100.0%	116,291,033	100.0%
Less than $10,000	3,331	4.4%	8,783,120	7.6%
$10,000 to $14,999	1,908	2.5%	6,246,216	5.4%
$15,000 to $24,999	6,474	8.6%	12,575,679	10.8%
$25,000 to $34,999	5,544	7.4%	11,964,268	10.3%
$35,000 to $49,999	8,813	11.7%	15,840,707	13.6%
$50,000 to $74,999	13,413	17.9%	20,820,510	17.9%
$75,000 to $99,999	11,518	15.4%	13,823,793	11.9%
$100,000 to $149,999	13,061	17.4%	14,749,902	12.7%
$150,000 to $199,999	6,402	8.5%	5,644,221	4.9%
$200,000 or more	4,565	6.1%	5,842,617	5.0%
Median household income (dollars)	70,981	135.8%	52,250	
Mean household income (dollars)	90,110	122.2%	73,767	
Families	50,896	100.0%	76,680,463	100.0%
Less than $10,000	1,004	2.0%	3,743,131	4.9%
$10,000 to $14,999	785	1.5%	2,493,840	3.3%
$15,000 to $24,999	1,715	3.4%	6,284,315	8.2%
$25,000 to $34,999	2,620	5.1%	6,972,739	9.1%
$35,000 to $49,999	5,570	10.9%	10,067,795	13.1%
$50,000 to $74,999	8,986	17.7%	14,569,480	19.0%
$75,000 to $99,999	9,081	17.8%	10,652,848	13.9%
$100,000 to $149,999	11,904	23.4%	12,092,458	15.8%
$150,000 to $199,999	5,039	9.9%	4,793,949	6.3%
$200,000 or more	4,192	8.2%	5,009,908	6.5%
Median family income (dollars)	87,052	136.0%	64,030	
Mean family income (dollars)	107,113	124.5%	86,046	
Per capita income (dollars)	36,561	129.7%	28,184	

Median earnings for workers	39,566	129.9%	30,454
Median earnings for male full-time	54,809	114.0%	48,099
Median earnings for female full-time	48,500	127.3%	38,097
PERCENTAGE BELOW POVERTY LEVEL			
All families	4.1%	35.3%	11.6%
All people	6.7%	42.4%	15.8%

Litchfield County is perhaps best known for the upscale community of Litchfield, where many wealthy New Yorkers have second homes. However, that represents only a small proportion of the total economic activity, and the rest of the county has only average levels of income. These second-residencers do not bring much to the economy of the county, and most of them have their primary homes elsewhere, so the income figures are not strongly tilted up by these households. In terms of the workforce, the higher than average proportions occur in manufacturing, 14.0% compared to 10.5% nationally, and education and health care, 27.8% compared to 23.0%. By comparison, the proportion of the workforce in tourism and leisure is only 8.0% compared to 9.7% nationally in spite of all those vacationing New Yorkers.

As noted above, there are very few poor people in Litchfield County, so the poverty rate for families is only 35% of the national average, compared to 59% for Fairfield County. There are enough upscale residents to push median household and family income to 136% of the national average; but in sharp contrast with Fairfield County, the mean income figures are about 12% below these levels instead of being substantially higher.

Table 6-26. Labor Market Statistics for 3 Connecticut Counties in the NYC Area, 2005-2014 Data

	3 counties			
2005	983,951	936,546	47,405	4.8
2006	1,001,068	958,416	42,652	4.3
2007	1,015,290	970,568	44,722	4.4
2008	1,026,351	968,420	57,931	5.6
2009	1,028,530	946,260	82,270	8.0
2010	1,045,127	949,735	95,392	9.1
2011	1,047,959	955,460	92,499	8.8
2012	1,036,940	950,761	86,179	8.3
2013	1,027,670	948,377	79,293	7.7
2014	1,037,370	968,803	68,567	6.6
	Fairfield			
2005	451,803	431,973	19,830	4.4

2006	459,839	442,204	17,635	3.8
2007	466,532	448,188	18,344	3.9
2008	471,297	447,013	24,284	5.2
2009	471,953	436,665	35,288	7.5
2010	474,669	434,845	39,824	8.4
2011	477,888	438,851	39,037	8.2
2012	474,205	437,315	36,890	7.8
2013	470,777	436,766	34,011	7.2
2014	475,888	446,528	29,360	6.2
	Litchfield			
2005	102,186	97,509	4,677	4.6
2006	103,802	99,647	4,155	4.0
2007	104,535	100,133	4,402	4.2
2008	105,675	100,072	5,603	5.3
2009	105,724	97,384	8,340	7.9
2010	108,137	98,814	9,323	8.6
2011	107,758	99,089	8,669	8.0
2012	105,941	98,019	7,922	7.5
2013	104,646	97,393	7,253	6.9
2014	105,945	99,650	6,295	5.9
	New Haven			
2005	429,962	407,064	22,898	5.3
2006	437,427	416,565	20,862	4.8
2007	444,223	422,247	21,976	4.9
2008	449,379	421,335	28,044	6.2
2009	450,853	412,211	38,642	8.6
2010	462,321	416,076	46,245	10.0
2011	462,313	417,520	44,793	9.7
2012	456,794	415,427	41,367	9.1
2013	452,247	414,218	38,029	8.4
2014	455,537	422,625	32,912	7.2

In the 2001 recession, the unemployment rate in Fairfield County rose only to 5%, but in the more recent recession, Wall Street was harder hit, and that rate rose to 8.4%; however, that was the lowest in the three-county area and well below the 9.6% national average. The unemployment rate in Litchfield County rose to 8.6%, while New Haven was harder hit at 10.0%, well above the national average. Yale did not lay anyone off but they did reduce the breakfast portions for the students. The rest of the county was harder hit by the manufacturing slump. Recently, the unemployment rate in these three counties has declined during the recovery, but the reduction has been only from 9.1% to 6.6%, compared to a drop from 9.6% to 6.2% in the national economy from 2010 to 2014

Table 6-27. Level and Growth Rate of Population, 3 Connecticut Counties in the NYC Area, and the Total of these Counties

	Fairfield	Litchfield	New Haven	3 counties
2013	939,904	186,924	862,287	1,989,115
2012	933,733	187,516	863,604	1,984,853
2011	927,744	188,946	863,761	1,980,451
2010	919,365	189,746	863,380	1,972,491
2009	910,421	190,015	860,025	1,960,461
2008	903,824	190,175	856,622	1,950,621
2007	897,498	189,866	853,598	1,940,962
2006	896,254	189,682	850,207	1,936,143
2005	897,653	188,912	847,162	1,933,727
2004	897,472	188,601	844,505	1,930,578
2013/12	0.66%	-0.32%	-0.15%	0.21%
2012/11	0.65%	-0.76%	-0.02%	0.22%
2011/10	0.91%	-0.42%	0.04%	0.40%
2010/09	0.98%	-0.14%	0.39%	0.61%
2009/08	0.73%	-0.08%	0.40%	0.50%
2008/07	0.70%	0.16%	0.35%	0.50%
2007/06	0.14%	0.10%	0.40%	0.25%
2006/05	-0.16%	0.41%	0.36%	0.12%
2005/04	0.02%	0.16%	0.31%	0.16%
2013/04	0.51%	-0.10%	0.23%	0.33%

Population growth in both the state of Connecticut and this three-county area remained sluggish over the past decade, with growth rates only about 1/3 of the national average. However, there were substantial differences in the individual county patterns. Fairfield County continued to post respectable, if somewhat below-average, increases in population, as hedge funds and other boutique financial organizations continued to thrive (as opposed to the problems encountered by big banks). New Haven and Litchfield County, on the other hand, suffered from the exurban pattern seen throughout this section for other counties in the area, with Litchfield County posting an actual decline in population ever since the recession.

Table 6-28. Level and Growth Rate of Personal Income (Billion $), 3 Connecticut Counties in the NYC Area, and the Total of these Counties

	Fairfield	Litchfield	New Haven	3 counties
2013	77.08	10.61	44.57	132.26
2012	76.33	10.52	44.15	130.99

2011	73.02	9.94	42.27	125.23
2010	68.03	9.63	40.93	118.59
2009	64.22	9.49	40.12	113.84
2008	69.95	9.87	40.38	120.20
2007	70.60	9.64	39.31	119.55
2006	67.43	9.03	36.79	113.25
2005	61.36	8.36	34.57	104.30
2004	57.59	8.01	33.28	98.88
2013/12	0.99%	0.89%	0.94%	0.97%
2012/11	4.53%	5.76%	4.46%	4.60%
2011/10	7.33%	3.24%	3.27%	5.60%
2010/09	5.94%	1.46%	2.00%	4.18%
2009/08	-8.19%	-3.86%	-0.64%	-5.30%
2008/07	-0.92%	2.44%	2.71%	0.55%
2007/06	4.70%	6.72%	6.86%	5.56%
2006/05	9.89%	8.03%	6.42%	8.59%
2005/04	6.55%	4.38%	3.90%	5.48%
2013/04	3.29%	3.17%	3.30%	3.28%

It does not come as any surprise that personal income in Fairfield County nosedived in 2009 along with the financial crash, with a drop almost double the national average rate; Litchfield was also hard hit, as the residents depend on the summer traffic to boost their incomes. However, even excluding 2009, the growth in personal income was below average; strong growth through 2007 disappeared and did not return. For the decade-long averages, all three counties have had almost identical growth rates in income, but Fairfield County has far outpaced the other two counties in recent years.

7. Commuting Patterns, Maps of Area, and TEA Analysis

We now turn to the commuting patterns in this area. In determining the economic impact of new job creation, it is necessary to choose the counties that form the relevant area for analysis. The economic multipliers will be higher as the number of counties included in the area increases. Hence the commuting patterns of the workforce data from the 2006-10 American Community Survey are used to determine the optimal mix of counties to be included in the multiplier calculations. These commuters spend most of their paychecks in the counties where they live, so the economic impact of the new project creates some new induced jobs in bordering counties. Also, some of the goods and services purchased by the new businesses are produced or purchased from establishments in neighboring counties.

The following list includes all the counties included in the New York City metropolitan area, according to the latest figures available from the Census website.

35620 New York-Northern New Jersey-Long Island, NY-NJ-PA Metropolitan Statistical Area Principal Cities: New York, NY; Newark, NJ; Edison, NJ; White Plains, NY; Wayne, NJ; Union, NJ; New Brunswick, NJ

20764 Edison-New Brunswick, NJ Metropolitan Division *Middlesex County*, *Monmouth County*, *Ocean County*, *Somerset County* 35004 Nassau-Suffolk, NY Metropolitan Division *Nassau County*, *Suffolk County*

35084 Newark-Union, NJ-PA Metropolitan Division *Essex County, NJ*; *Hunterdon County, NJ*; *Morris County, NJ*; *Sussex County, NJ*; *Union County, NJ*; Pike County, PA

35644 New York-White Plains-Wayne, NY-NJ Metropolitan Division *Bergen County, NJ*; *Hudson County, NJ*; *Passaic County, NJ*; *Bronx County, NY*; *Kings County, NY*; *New York County, NY*; *Putnam County, NY*; *Queens County, NY*; *Richmond County, NY*; *Rockland County, NY*; *Westchester County, NY*

The figures shown below are based on the commuting patterns for New York County (Manhattan) and Queens County. Commuting figures for other counties would show different patterns, but in general, these figures indicate that the large New York City metropolitan area not only covers the counties in this report, but additional counties that have not been included in our calculations because of their more tenuous nature to the overall region. In Table 7-1, the first column shows the county where people live who work in New York County; the second column shows the number of people working in New York County. For example, 696,081 people live and work in New York County; 391,008 live in Kings County but work in New York County, and so on; these 23 counties include 94.9% of the New York County workforce. For Queens County, as shown in Table 7-2, the total workforce is 678,019, so these 23 counties include 97.9% of the Queens County workforce.

Table 7-1. Commuting Patterns for New York County, NY					
696,081	696,081	29.9%	29.9%	New York	New York County
391,008	1,087,089	16.8%	46.7%	New York	Kings County
370,243	1,457,332	15.9%	62.6%	New York	Queens County
191,620	1,648,952	8.2%	70.9%	New York	Bronx County
95,332	1,744,284	4.1%	75.0%	New York	Nassau County
82,796	1,827,080	3.6%	78.5%	New York	Westchester County
75,830	1,902,910	3.3%	81.8%	New Jersey	Hudson County
66,530	1,969,440	2.9%	84.6%	New Jersey	Bergen County
52,940	2,022,380	2.3%	86.9%	New York	Richmond County
40,320	2,062,700	1.7%	88.7%	New York	Suffolk County
34,210	2,096,910	1.5%	90.1%	New Jersey	Essex County
27,264	2,124,174	1.2%	91.3%	Connecticut	Fairfield County
19,084	2,143,258	0.8%	92.1%	New Jersey	Union County
14,894	2,158,152	0.6%	92.8%	New York	Rockland County
12,504	2,170,656	0.5%	93.3%	New Jersey	Morris County
10,971	2,181,627	0.5%	93.8%	New York	Orange County
10,108	2,191,735	0.4%	94.2%	New Jersey	Passaic County
5,484	2,197,219	0.2%	94.4%	New York	Dutchess County
4,186	2,201,405	0.2%	94.6%	New York	Putnam County
2,929	2,204,334	0.1%	94.7%	Connecticut	New Haven County
2,078	2,206,412	0.1%	94.8%	New York	Ulster County
1,778	2,208,190	0.1%	94.9%	Sussex	New Jersey
1,243	2,207,655	0.1%	94.9%	Connecticut	Litchfield County

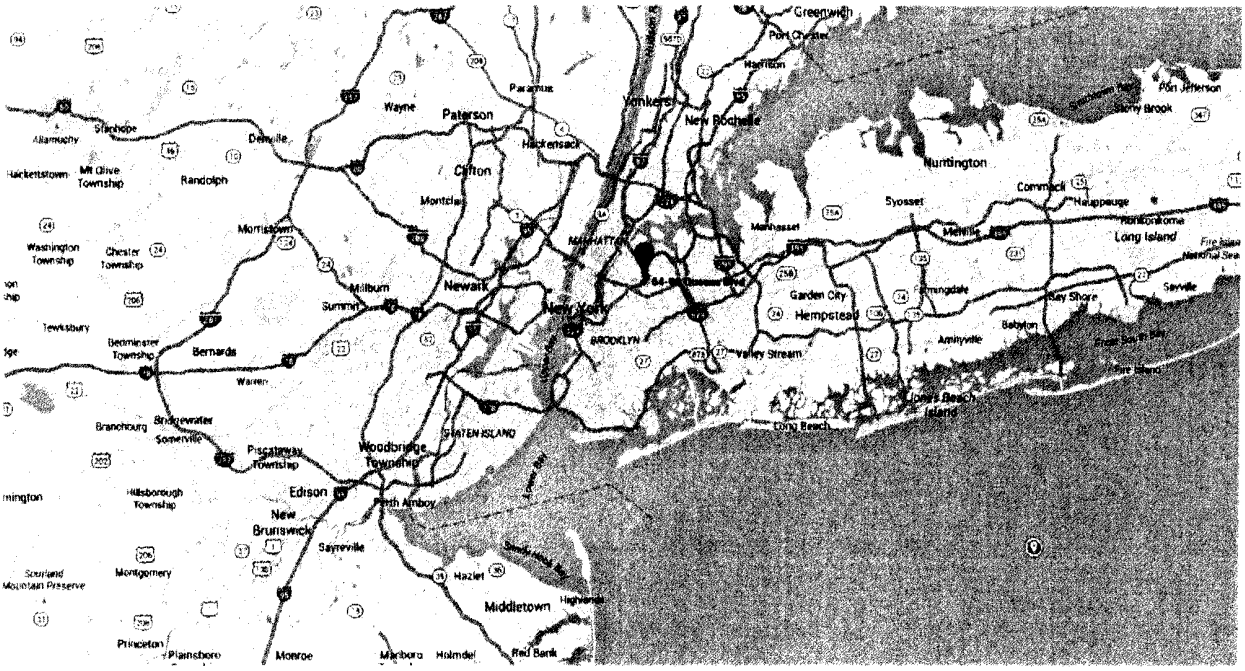
Table 7-2. Commuting Patterns for Queens County, NY					
430,249	430,249	63.5%	63.5%	New York	Queens County
70,433	500,682	10.4%	73.8%	New York	Nassau County
69,681	570,363	10.3%	84.1%	New York	Kings County
25,052	595,415	3.7%	87.8%	New York	Suffolk County
21,564	616,979	3.2%	91.0%	New York	Bronx County
20,087	637,066	3.0%	94.0%	New York	New York County
5,698	642,764	0.8%	94.8%	New York	Richmond County
5,452	648,216	0.8%	95.6%	New York	Westchester County
4,229	652,445	0.6%	96.2%	New Jersey	Bergen County
2,269	654,714	0.3%	96.6%	New Jersey	Hudson County
1,744	656,458	0.3%	96.8%	New Jersey	Essex County
1,525	657,983	0.2%	97.0%	New York	Rockland County
1,230	659,213	0.2%	97.2%	New York	Orange County

1,102	660,315	0.2%	97.4%	Connecticut	Fairfield County
761	661,076	0.1%	97.5%	New Jersey	Passaic County
741	661,817	0.1%	97.6%	New Jersey	Union County
551	662,368	0.1%	97.7%	New York	Dutchess County
484	662,852	0.1%	97.8%	New Jersey	Morris County
354	663,206	0.1%	97.8%	Connecticut	New Haven County
315	663,521	0.0%	97.9%	New York	Putnam County
240	663,761	0.0%	97.9%	New York	Ulster County
160	663,921	0.0%	97.9%	New Jersey	Sussex County
105	664,026	0.0%	97.9%	Connecticut	Litchfield County

Figures 7-1 and 7-2 show the location of the new building. Figure 7-3 shows Census Tracts near the building; the TEA certification letter from the State of New York will be added when it becomes available. Figure 7-4 shows the map of the New York Consolidated Statistical Area.

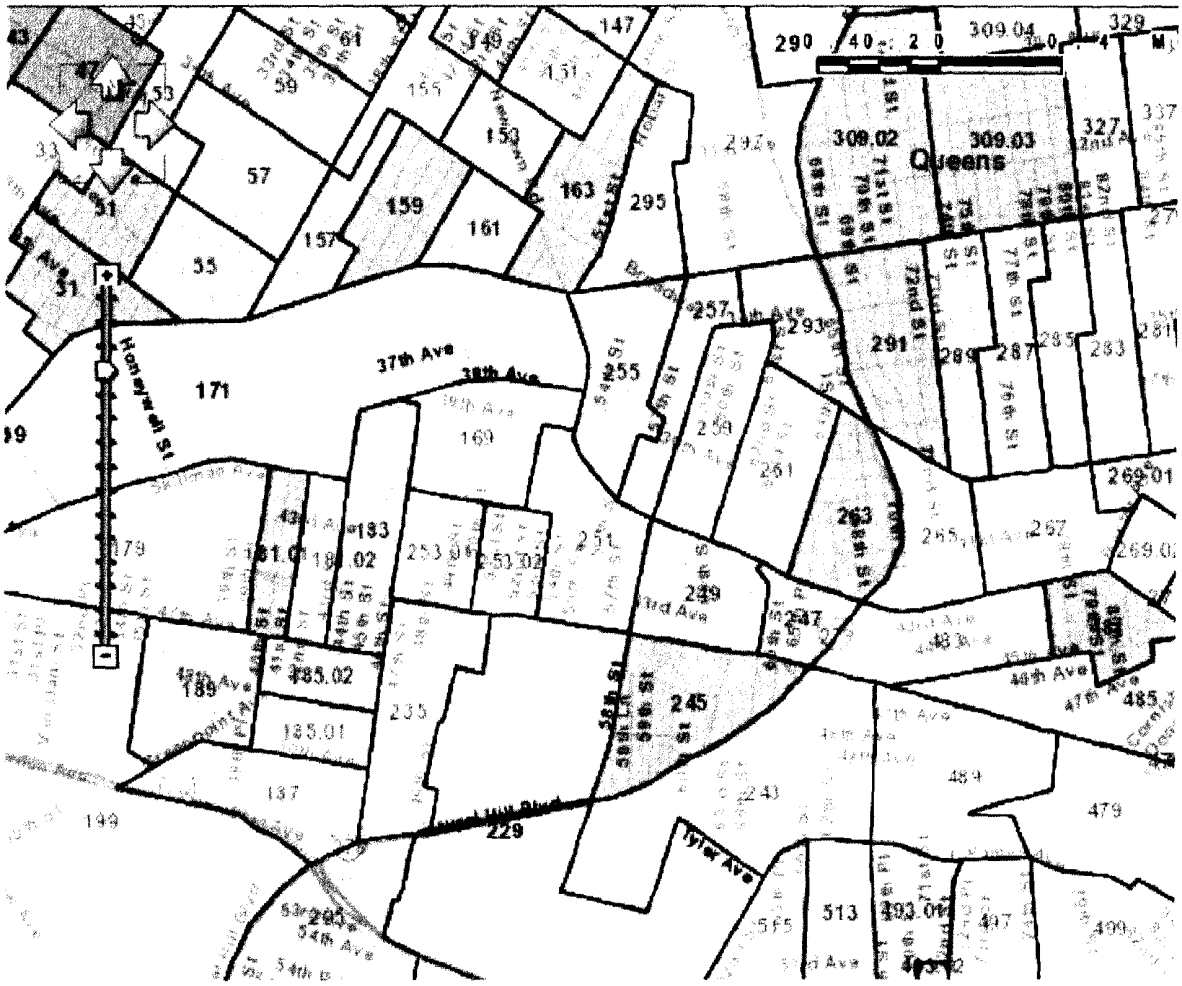
Figure 7-1. Location of Building at 64-06 Queens Blvd, Woodside, NY

Figure 7-2. Location of Building in the NYC Metropolitan Area



The building is located in Census Tract (CT) 245 in Queens County. When combined with contiguous CTs, a TEA can be formed with an unemployment rate of at least 9.3% in 2014, based on the Census Share method of calculation. A letter of certification from the Empire State Development Agency of New York State will attest to this finding and will be added to the report when it is received.

Figure 7-3. Census Tracts near the Building



NEW YORK STATE OF OPPORTUNITY

New York State
Department
of Economic
Development

August 20, 2015

Mr. Hassan Mokaddam
Paralegal
Mona Shah & Associates, PLLC
299 Broadway, Suite 1005
New York, New York 10007

Dear Mr. Mokaddam:

Attached is a letter from Mr. Joseph Nardone, of the New York State Department of Labor, identifying an area including census tract 245 in Queens County. Based on 2014 annual average labor force data, the Department of Labor has determined that this area meets the minimum threshold of unemployment to qualify as a Targeted Employment Area.

Based on the Labor Department's determination, I am able to certify that the area described in the attached letter qualifies as a Targeted Employment Area.

Census tract 245, in Queens County, contains the address, 64-06 Queens Blvd., Queens, New York 11377

Please feel free to contact me if you have any questions.

Sincerely,

Ms. Kay Alison Wilkie
Economic Development Program Administrator

cc: Joseph Nardone, DOL

Joseph Nardone
Associate Economist

Department of Labor
W. Averell Harriman State Office Campus
Building 12, Room 490, Albany, NY 12240
www.labor.ny.gov

August 19, 2015

Kay Alison Wilkie
Director for International Policy
Division of Business Advocacy and Research
Empire State Development | NYS Department of Economic Development
625 Broadway
Albany, NY 12245

Dear Ms. Wilkie:

The 2014 average unemployment rate for census tract 245 in Queens County that contains the address, 64-06 Queens Blvd., Queens, NY 11377, as you requested is 9.6 percent. The current minimum threshold to qualify as a Targeted Employment Area is 9.3 percent.

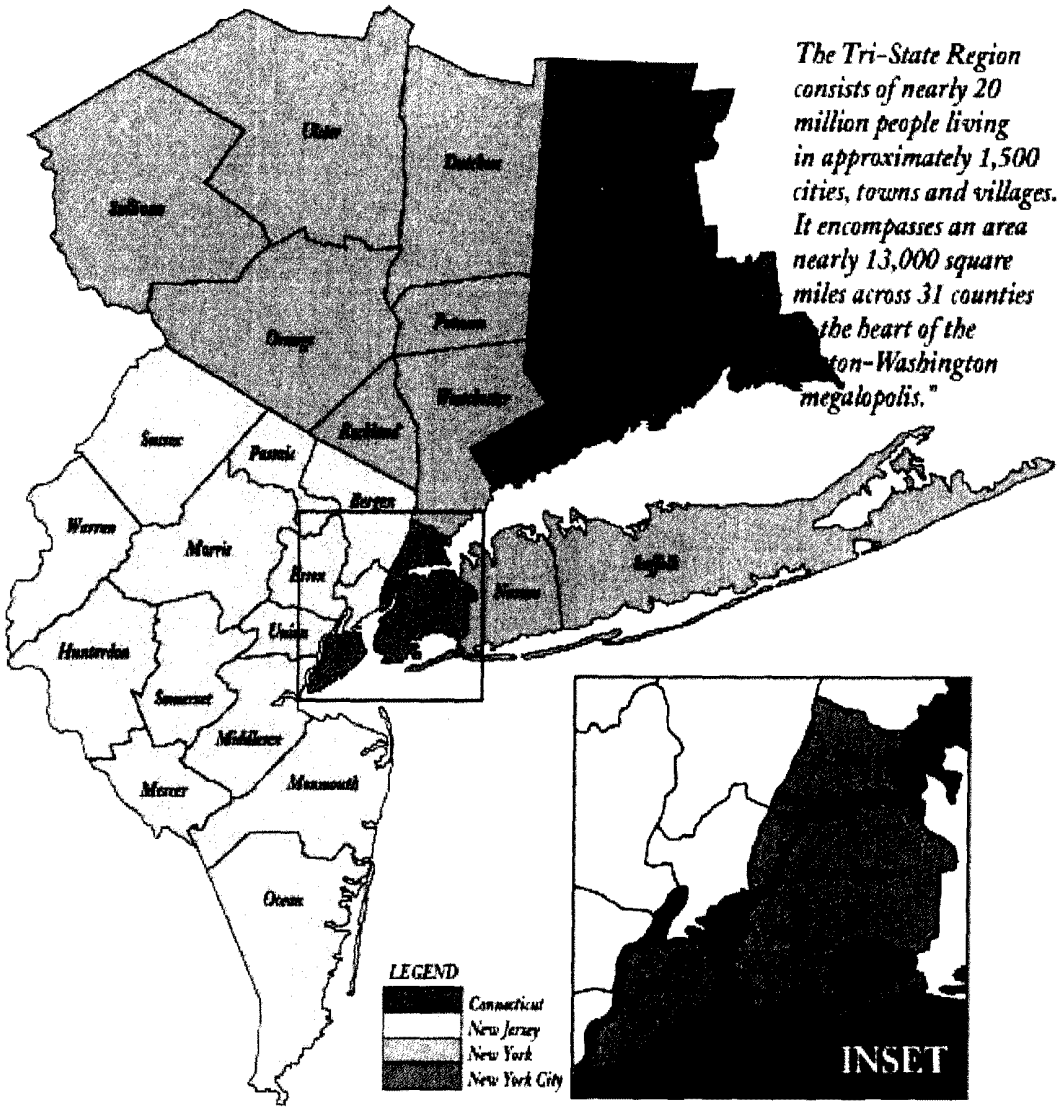
2010 census tract boundaries, 2013 American Community Survey five-year estimate labor force data, and 2014 annual average Local Area Unemployment Statistics (LAUS) data were used in this estimate. These data were ACS-shared as described by the U.S. Bureau of Labor Statistics in LAUS Technical Memorandum No. S-13-17.

Please feel free to contact me if you have any questions.

Sincerely,

Joseph Nardone

Figure 7-4. Map of New York Consolidated Statistical Area



8. Economic Impact of Construction Expenditures

The construction budget provided by the developer is summarized below in Table 8-1; this table is also shown in the Executive Summary. The EB-5 hard cost figure used for the calculations excludes the contingency. Soft costs are shown in detail in Table 8-2; only architecture and engineering costs are EB-5 eligible. FF&E costs include procurement consultant and installation.

Table 8-1. Summary of Construction and Development Budget

Queens Blvd Ventures LLC
35-06 Leavitt Street, Suite CF-A, Flushing NY 11354
Tel: 718.939.1060 Fax: 718.939.1036
Email: centurygroup88@yahoo.com

Project Location : 64-06 Queens Blvd, Woodside, NY
Project Description : 135 rooms of Holiday Inn Express & Suites (b)(4)

CONSTRUCTION COST:

SCOPE OF WORK:

1. GENERAL

1.01 Mobilization & preparation
1.02 Insurance-general liability 25M & workmen comp
1.03 Sign-offs
1.04 Permit applications
1.05 Provide all necessary SOE inspections
1.06 Provide all necessary TR-2 TR-3
1.07 Provide engineer on site for supervision of all foundation and shoring work
1.08 Provide all necessary surveys
1.09 Provide all necessary shop drawings

2. SITEWORK

2.01 Provide and Install roof protection on adjacent buildings
2.02 Scaffold
  a. Provide and install Sidewalk Bridge
  b. Provide and install scaffold to roof
  c. Provide and install protection net to roof
  d. Scaffold reinforcement
2.03 Shoring, Sheeting & Lagging as per SOE
2.04 Temporary Protection Plywood Fence
2.05 Provide and install exterior material hoist
2.06 Excavation and backfill as necessary
2.07 Provide and install sidewalk, trees, curb and curb as per approved BPP

3. MASONRY

3.01 Concrete block as per drawings
3.02 Stucco in rear of building
3.03 Stone on first floor as per rendering

4. CONCRETE

4.01 Foundation wall, straps beams and pile caps
4.02 Concrete Slabs
4.03 Roof Bulkhead
4.04 Sidewalk, curbs and pavement
4.05 Surveys and stakeout
4.06 All waterproofing of exterior foundation walls

5. METALS

5.01 Concrete filled metal pan stairs
5.02 Metal framing and gates
5.03 Roof, railing and ladder
5.04 Structural metal framing
5.05 Provide and install steel dunnage
5.06 Omagalite exterior aluminum panel front and 2 sides

Queens Blvd Ventures LLC
35-06 Leavitt Street, Suite CF-A, Flushing NY 11354
Tel: 718.939.1060 Fax: 718.939.1036
Email: centurygroup88@yahoo.com (b)(4)

6. THERMAL & MOISTURE PROTECTION

- 6.01 Roof waterproofing
  - a. Six-ply rubber roofing
  - b. 2" rigid insulation
  - c. Vent sheet
  - d. Fire Stone 12 year labor and material warranty
- 6.02 Insulation
  - a. Exterior wall insulation close cell sprayed on
  - b. Interior wall insulation open cell sprayed on

7. DOORS & WINDOWS

- 7.01 Doors 1 3/4 " solid core doors, frames and hardware
- 7.02 Aluminum windows & storefront entrance by crystal or equal
- 7.03 All window system by crystal or equal per window schedule
- 7.04 All hollow metal door per schedule
- 7.05 Thermacore 490 garage door
- 7.06 Provide and install glass railing as per rendering

8. FINISHES

- 8.01 Gypsum board ceiling w / paint finished
- 8.02 Gypsum board wall w / paint finished
- 8.03 Epoxy paint for areaway, Elec.meter Rm., water meter Rm.
- 8.04 All apartment interior as per finish schedule
- 8.05 All hallways as per plan and finish schedule
- 8.06 All commercial, lobby as per design

9. CONVEYING SYSTEM

- 9.01 Provide and install Thyssen Krupp MRL 250FPM 2300# elevator
- 9.02 Standard cab $20,000 allowance

10. EQUIPMENT

- 10.01 Kitchen cabinets allowance is $5,000 per unit
- 10.02 All appliances
- 10.03 Bathroom accessories
- 10.04 Trash chute and compactor
- 10.05 Kitchen counter top to be Caesar Stone

11. MECHANICAL

- 11.01 HVAC system as per drawings
- 11.02 Provide and install exhaust & fresh air system as per drawings
- 11.03 Provide and install LG PTAC unit
- 11.04 Provide and install all kitchen and bath exhaust duct and fans
- 11.05 Provide and install HVAC system for lobby, trash storage and rec room PTAC

12. FIRE SYSTEM

- 12.01 Sprinkler system as per drawings
- 12.02 Stand Pipe system as per drawings
- 12.03 Provide and install sprinkler alarm system as per DOB and FDNY code

Queens Blvd Ventures LLC
35-06 Leavitt Street, Suite CF-A, Flushing NY 11354
Tel: 718.939.1060 Fax: 718.939.1036
Email: centurygroup88@yahoo.com

(b)(4)

13. ELECTRICAL

13.01 Apply and install all electrical meters
13.02 Provide and install electrical panels
13.03 Provide and install lighting fixtures as per plan
13.04 Provide and install emergency exit lights
13.05 Provide and install receptacles
13.06 Provide and install Aiphone color audio / video intercom system
13.07 Provide and install all Verizon, TimeWarner lines
13.08 Provide and install 100 Amp panels in every Apt. unit
13.09 Provide and install 1600 ConEd SEB
13.10 Provide temporary electrical service

14. PLUMBING WORK

14.01 Provide all utility services and meters
14.02 Install copper water supply & no-hub drainage system and all vent pipes
14.03 Supply & install plumbing fixtures as per owner's schedule
14.04 Install new gas main service with meters
14.05 All supply and return water lines
14.06 All kitchen gas pipes to all equipment in builing
14.07 Provide and install 1 duplex water booster and sewer ejector booster pump
14.08 Provide and install RZP as per design
14.09 Provide and install 3 150 Gal HWH and 1 25 Gal electrical HWH per residential
14.10 Provide and install all incoming water, sewer main as per plans

Total Hard Construction Cost :

FURNITURE, FIXTURES & EQUIPMENT (FF&E)

SOFT COST:
Architect & Engineer
Environmental
Interest Reserve

Total Soft Construction Cost :

Total Construction Cost :

LAND COST :

Total Project Cost :

All these figures are given in 2015 dollars, and should be deflated to 2010 dollars, since the input/output data are in 2010 dollars. Using the appropriate PPI indexes, the estimated cost of nonresidential construction would be expected to rise 13.3% over the five-year period, the cost of architectural and engineering fees would rise 7.7%, and the cost of FF&E would rise 4.0%; In all cases, the actual percentage increase in the PPIs from 2010 through 2014 were calculated, and it was then assumed the same rate of inflation would continue in 2015. The PPIs used ware (a) nonresidential construction, (b) architectural and engineering services, and (c) an

average of institutional furniture and audio/visual equipment. Thus in 2010 dollars, the EB-5 eligible figures would be [redacted] for hard costs, [redacted] for EB-5 eligible soft costs, and [redacted] for purchases of FF&E.

USCIS has requested information showing these construction costs are consistent with industry standards. Total hard construction cost is [redacted] and there are 135 rooms, which would be about [redacted] per room. However, construction costs in the Queens are 30% above the national average, according to RS Means, Square Foot Costs, 36th Annual Edition (2015), which would reduce this figure to about [redacted] very close to the average of midscale hotels with and without food and beverage, as shown in Table 8-2. The figure for purchases of FF&E is [redacted] for 135 rooms, or about [redacted] which is somewhat below the HVS figure.

Table 8-2. Cost of Construction per Room by Component and Class of Hotel

EXHIBIT 2: 2014/15 HOTEL DEVELOPMENT COST PER ROOM AMOUNTS

	Land	Building and Site Improvements	Soft Costs	FF&E	Pre-Opening and Working Capital	Total
[redacted] Average						
Allocation						
Midscale Hotels w/o F&B						
Average						
Allocation						
[redacted] Average						
Allocation						
Midscale Hotels w/ F&B						
Average						
Allocation						
[redacted] Average						
Allocation						
Luxury Hotels and Resorts						
Average						
Allocation						

The next six tables show the economic impact of hard construction costs, EB-5 eligible soft costs, and purchases of FF&E. The tables show the impact for the 20 major industrial classifications in the RIMS II input/output model; because the project will take more than two years, direct as well as indirect and induced impacts are included for hard and soft costs, although not for FF&E. Please note that in these and succeeding tables, output and earnings are in thousands of dollars.

Table 8-3. Increase in Employment, Output, and Earnings for Hard Construction Costs for Building			
Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

Table 8-3 shows there will be a total of about [ ] jobs created from the hard construction costs of the building. Output would rise about [ ] while household earnings would increase by about [ ] Table 8-4 shows the average output per new worker is about [ ] while average earnings are about [ ]

Table 8-4. Output and Earnings Per New Worker, Hard Construction Costs for Building			
Industry group	Employment	Output/Empl	Earnings/Empl
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			

(b)(4)

Transportation and warehousing	
Information	
Finance and insurance	
Real estate and rental and leasing	
Professional and scientific services	
Management of companies	
Admin and waste mgmt services	
Educational services	
Health care and social assistance	
Arts, entertainment, and recreation	
Accommodation	
Food services and drinking places	
Other services	
Household	
Total	

The next two tables show the detailed industry results for soft costs.

Table 8-5. Increase in Employment, Output, and Earnings for Soft Construction Costs for Building

Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			

(b)(4)

Total	

Table 8-5 shows there will be a total of [redacted] jobs created from the soft construction costs of the building. Output would rise about [redacted] while household earnings would increase by about [redacted] Table 8-6 shows the average output per new worker is about [redacted] while average earnings are about [redacted]

Table 8-6. Output and Earnings per New Worker for Soft Construction Costs for Building

Industry group	Employment	Output/Empl	Earnings/Empl
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

The next two tables show the detailed industry results for soft costs. In these tables, only indirect and induced effects are included.

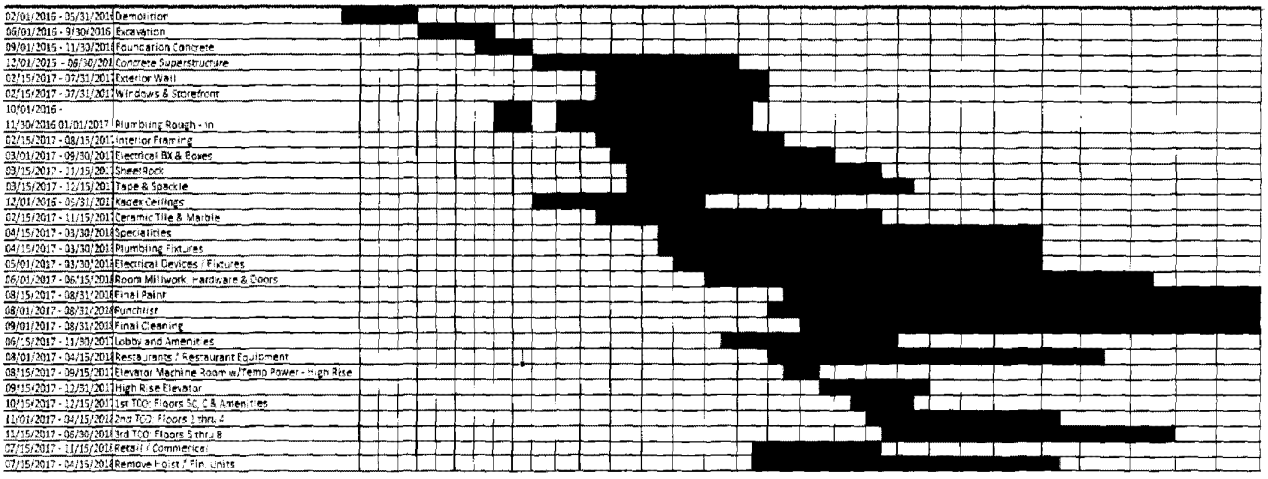
Table 8-7. Increase in Employment, Output, and Earnings for Purchases of FF&E for Hotel			
Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

Table 8-7 shows there will be a total of [redacted] jobs created from the purchases of FF&E for the hotel. Output would rise about [redacted] while household earnings would increase by about [redacted] Table 8-8 shows the average output per new worker is about [redacted] while average earnings are about [redacted]

Table 8-8. Output and Earnings per New Worker for Purchases of FF&E for Hotel			
Industry group	Employment	Output/Empl	Earnings/Empl
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			

Finance and insurance	
Real estate and rental and leasing	
Professional and scientific services	
Management of companies	
Admin and waste mgmt services	
Educational services	
Health care and social assistance	
Arts, entertainment, and recreation	
Accommodation	
Food services and drinking places	
Other services	
Household	
Total	

The Gantt Chart for this project is shown below, indicating a total time span of 27 months. Since the numbers on the left are difficult to read, they have been reproduced in a larger format. As seen below, construction is expected to start on 2/1/16 and the building is expected to be completed on 4/15/18, for a period of 27 months.



02/01/2016 - 05/31/2016	Demolition
06/01/2016 - 9/30/2016	Excavation
09/01/2016 - 11/30/2016	Foundation Concrete
12/01/2016 - 06/30/2017	Concrete Superstructure
02/15/2017 - 07/31/2017	Exterior Wall
02/15/2017 - 07/31/2017	Windows & Storefront
10/01/2016 - 11/30/2016 01/01/2017 - 07/15/2017	Plumbling Rough - In
02/15/2017 - 08/15/2017	Interior Framing
03/01/2017 - 09/30/2017	Electrical BX & Boxes
03/15/2017 - 11/15/2017	SheetRock
03/15/2017 - 12/15/2017	Tape & Spackle
12/01/2016 - 05/31/2017	Kadex Ceilings
02/15/2017 - 11/15/2017	Ceramic Tile & Marble
04/15/2017 - 03/30/2018	Specialities
04/15/2017 - 03/30/2018	Plumbling Fixtures
05/01/2017 - 03/30/2018	Electrical Devices / Fixtures
06/01/2017 - 06/15/2018	Room Millwork, Hardware & Doors
08/15/2017 - 08/31/2018	Final Paint
08/01/2017 - 08/31/2018	Punchlist
09/01/2017 - 08/31/2018	Final Cleaning
06/15/2017 - 11/30/2017	Lobby and Amenities
08/01/2017 - 04/15/2018	Restaurants / Restaurant Equipment
08/15/2017 - 09/15/2017	Elevator Machine Room w/Temp Power - High Rise
09/15/2017 - 12/31/2017	High Rise Elevator
10/15/2017 - 12/15/2017	1st TCO: Floors SC, C & Amenities
11/01/2017 - 04/15/2018	2nd TCO: Floors 1 thru 4
11/15/2017 - 06/30/2018	3rd TCO: Floors 5 thru 8
07/15/2017 - 11/15/2018	Retail / Commerical
07/15/2017 - 04/15/2018	Remove Hoist / Fin. Units

9. Economic Impact of Hotel Operations and Rental Income

Table 9-1 shows the pro forma income statement for hotel operations for the first two years and the stabilized value. For EB-5 purposes, the figures used are for the first year.

Table 9-1. Pro Forma Income Statement for Hotel Operations, First Two Years and Stabilized Rates

(b)(4)

	2018/19 Begins March				2019/20				Stabilized			
Number of Rooms:	135				135				135			
Occupancy:	75%				83%				86%			
Average Rate:	$168.81				$173.87				$179.09			
RevPAR:	$126.61				$144.32				$154.02			
Days Open:	365				365				365			
Occupied Rooms:	36,956	%Gross	PAR	POR	40,898	%Gross	PAR	POR	42,377	%Gross	PAR	POR
OPERATING REVENUE												
Rooms												
Miscellaneous Income												
Total Operating Revenues												
DEPARTMENTAL EXPENSES *												
Rooms												
Total												
DEPARTMENTAL INCOME												
UNDISTRIBUTED OPERATING EXPENSES												
Administrative & General												
Marketing												
Franchise Fee												
Prop. Operations & Maint.												
Utilities												
Total												
GROSS HOUSE PROFIT												
Management Fee												
INCOME BEFORE NON-OPER. INC. & EXP.												
NON-OPERATING INCOME AND EXPENSE												
Property Taxes												
Insurance												
Reserve for Replacement												
Total												
EBITDA LESS RESERVE												

*Departmental expenses are expressed as a percentage of departmental revenues.

The ADR is given at [redacted] in 2018 dollars, with an occupancy rate of 75%. Since there are 135 rooms, that would be about [redacted] in room rates; when ancillary revenues are added, that figure rises to [redacted] That figure is in 2018 dollars, so it is deflated to 2010 dollars based on the assumption that the PPI for hotel room rates will rise an average of 3% per year for the 2010-2018 period. The deflated number is entered into the RIMS II model, and the detailed industry results are shown in the next two tables. After that, it is shown that (a) the ADR and occupancy rates are consistent with other similar Queens hotels, and (b) the number of direct employees per room is consistent with industry standards for this class of hotel.

(b)(4)

Table 9-2. Increase in Employment, Output, and Earnings for Hotel Operations			
Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

Table 9-2 shows there will be a total of about [ ] jobs created from the hotel operations, of which about [ ] are direct employees. Output would rise about [ ] while household earnings would increase by about [ ] Table 9-3 shows the average output per new worker is about [ ] while average earnings are about [ ]

Table 9-3. Output and Earnings per New Worker for Hotel Operations			
Industry group	Employment	Output/Empl	Earnings/Empl
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			

Finance and insurance	
Real estate and rental and leasing	
Professional and scientific services	
Management of companies	
Admin and waste mgmt services	
Educational services	
Health care and social assistance	
Arts, entertainment, and recreation	
Accommodation	
Food services and drinking places	
Other services	
Household	
Total	

The ADR and occupancy rate can be compared to the competitive set of similar Queens hotels, which has been prepared by HVS in a comprehensive appraisal report. The competitive set of hotels used for this study is shown in Table 9-4. On that basis, the ADR in 2014 was $162.46, and the occupancy rate (RevPAR/ADR) was 84.2%. Assuming a 3% annual rate of inflation for hotel room prices from 2014 to 2018 would boost the ADR figure to $182.85, compared to $168.81 used for the first year pro forma in Table 9-1. Also, the first year occupancy rate used of 75% is well below the 84.2% average. Hence both these figures are conservative.

Table 9-4. Competitive Set of Hotels Used to Determine ADR and RevPAR

Property	Estimated 2014 Average Room Rate	Average Room Rate Penetration	Rooms Revenue Per Available Room (RevPAR)	RevPAR Penetration

(b)(4)

(b)(4)

(b)(4) As noted above, there are an estimated [redacted] direct employees for 135 rooms, or about [redacted] per room. It has already been shown in the previous section that this hotel qualifies as a mid-scale hotel based on the cost of construction. We next consider the nunber of employees per hotel room for various classes based on the following surveys. Where appropriate these are explained below and citations are provided. Luxury hotels are not included in this list.

1. Smith Travel Research (STR), full-service hotels.
2. HVS International Survey, full-service and lower
3. ECA survey, based on actual data for over 50 EB-5 hotel projects for which economic impact analyses have been prepared, all classes

The STR figure for direct employees per room for full-service hotels is calculated as follows. According to the data given in Table 9-6, total revenues per occupied room are $240 per night, and payroll and related expenses (including fringe benefits) are 33.5% of this amount, or $77.53 per day, which is $28,300 per year. BEA data for 2011 shows the average annual wages and salaries for full-time equivalent hotel workers is $34,314, and including fringe benefits is $39,775. Hence the ratio of actual expenses to FTE compensation is 28300/39775, or 0.71 employees per room for full-service hotels. For limited-service hotels, similar calculations yield 0.28 direct employees per room.

Table 9-5. Revenue and Costs per Room for Full and Limited-Service Hotels

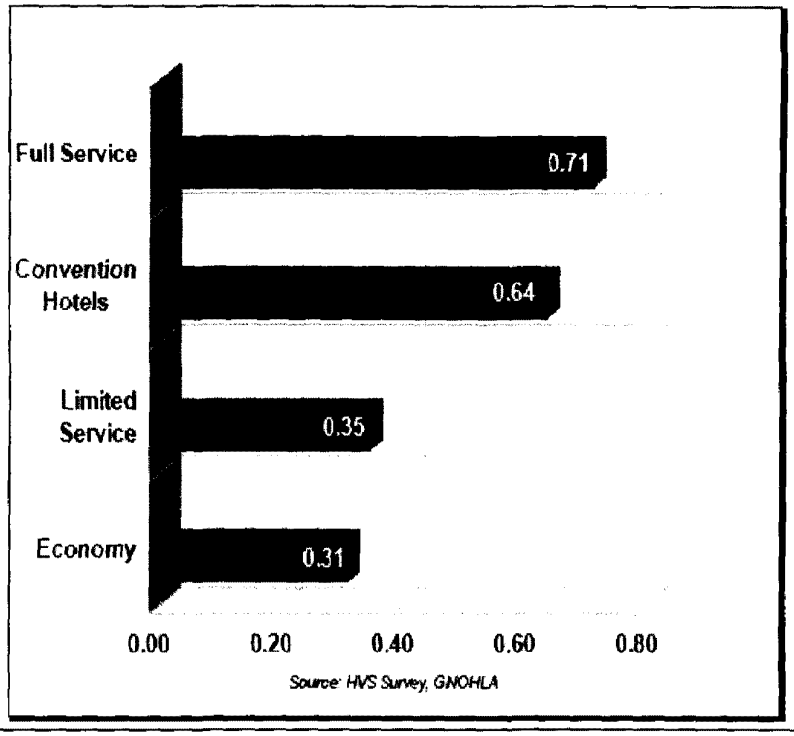
2012 HOST Highlights

Total U.S. Results

		2011 Full-Service Hotels			2011 Limited-Service Hotels		
Occupancy (of Sample)		**68.6%**			**70.0%**		
Average Size Of Property (Rooms)		**290**			**114**		
Average Daily Rate	(b)(4)	**$153.81**			**$89.95**		
		Ratio to Sales	Per Available Room	Per Occupied Room Night	Ratio to Sales	Per Available Room	Per Occupied Room Night
REVENUE							
Rooms							
Food							
Beverage							
Other Food & Beverage							
Telecommunications							
Other Operated Departments							
Rentals & Other Income							
Cancellation Fee							
Total Revenue							
DEPARTMENTAL EXPENSES							
Rooms							
Food & Beverage							
Telecommunications							
Other Operated Depts & Rentals							
Total Departmental Expenses							
Total Departmental Profit							
UNDISTRIBUTED OPERATING EXPENSES							
Administrative & General							
Marketing							
Utility Costs							
Property Operations & Maintenance							
Total Undistributed Operating Expenses							
GROSS OPERATING PROFIT							
Franchise Fees (Royalty)							
Management Fees							
INCOME BEFORE FIXED CHARGES							
Selected Fixed Charges							
Property Taxes							
Insurance							
Reserve For Capital Replacement							
AMOUNT AVAILABLE FOR DEBT SERVICE & OTHER FIXED CHARGES							
PAYROLL & RELATED EXPENSES**							
Rooms							
Food & Beverage							
Telecommunications							
Other Operated Departments							
Administrative & General							
Marketing							
Property Operations & Maintenance							
Total Payroll & Related Expenses							

The HVS survey shows 0.35 direct employees per room for limited-service hotels, which is above the STR results.

Employees per Room by Hotel Service Category



Finally, we turn to the survey undertaken by Evans, Carroll & Associates (ECA) based on more than 50 actual case studies undertaken by the company for EB-5 economic impact analysis; a complete list of EB-5 projects done by the company is shown in the appendix. These surveys were undertaken from 2008 through 2013.

ECA has calculated the likely breakdown of the 62 employees per 100 hotel rooms for standard and upscale hotels. The maid service figure is based on each maid cleaning 12 rooms per day; in some hotels, the figure is as high as 15 rooms per day, but that is unusual. This figure declines as the size of the room increases, and is estimated to be 8.3 rooms per day for luxury establishments. The front desk figure for a standard hotel assumes 3 people for each of 2 shifts and 2 people for the third shift; this figure also includes receptionists and people who answer the phone.

For a luxury hotel, we found there are 6 people per shift at the front desk, and the addition of concierge and bellhop personnel throughout the day and night. The food service figures have been expanded to include room service and an extensive trade in meeting and banquet facilities. Three employees are available on each shift for customer relations instead of one. Similarly, three employees instead of two are available per shift for management, security, engineering, and inside maintenance, and janitorial services and outside maintenance, In addition, two employees per shift are added for reservations and for meeting and banquet facilities. All these results are summarized in Table 9-6.

Table 9-6. Hotel Employees Per 100 Rooms

Category	Budget	Standard	Upscale	Semi Luxury	True Luxury
Maid Service					
Front Desk					
Doormen					
Bellhops					
Parking Valets					
Concierge					
Food Service					
Customer relations					
Management					
Security					
Engineering/inside maint					
Janitor/outside maint					
Reservations					
Meeting & Banquet					
Total					

(b)(4)

Based on the construction costs, this hotel is close to what would be called a "standard" or "midscale" hotel; but based on the minuscule proportion of revenues derived from ancillary services, it would be closer to the limited-service category. For the limited-service category, the three surveys show 0.28, 0.35, and 0.32 direct employees per room, for an average of [redacted] direct employees per room. That is the same figure as is calculated from the RIMS II model.

(b)(4)

(b)(4)

10. Summary Tables for the Entire Project

The two tables in this section show the combined effects of hard and soft construction costs and hotel operations for the Holiday Inn Express hotel located at 64-06 Queens Ave., Woodside, NY. The sums (or averages) are the aggregates of the tabular results shown in Sections (8) and (9) and are shown here for ease of exposition.

Table 10-1. Increase in Employment, Output, and Earnings for Construction, Hotel Operation, and Rental Income

Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

Table 10-1 shows there will be a total of [redacted] jobs created from the construction and hotel operations. Output would rise about [redacted] while household earnings would increase by about $[redacted] Table 10-2 shows the average output per new worker is about [redacted] while average earnings are about [redacted]

(b)(4)

Table 10-2. Output and Earnings Per New Worker, Construction, Hotel Operation, and Rental Income			
Industry group	Employment	Output/Empl	Earnings/Empl
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

Appendix: Resume of Dr. Michael K. Evans

mevans@evanscarrollecon.com

CURRENT AND PREVIOUS POSITIONS

• Chairman, *Evans, Carroll & Associates, Inc.*, 1980-present (previously Evans Economics)

Economic consulting firm specializing in EB-5 immigration analysis, economic impact studies of development projects and new construction, models of state and local tax receipts, impact of current and proposed government legislation, and construction of econometric models for individual industries and companies.

• Chief Economist, *American Economics Group*, 2000-2008.

Built a comprehensive state modeling system that provides economic analysis for a variety of consulting projects (see below).

• Clinical Professor of Economics, Department of Managerial Economics and Decision Sciences (MEDS), Kellogg Graduate School of Management, Northwestern University, 1996-99.

Taught courses in macroeconomics and business forecasting. Wrote textbooks for both courses.

• Winner of Blue Chip Economic Indicator Award for most accurate macroeconomic forecasts during the past four years, November 1999

• Founder and President, *Chase Econometric Associates*, 1970-1980

• Assistant and Associate Professor of Economics, Wharton School, University of Pennsylvania, 1964-69. Co-developer of the original Wharton Model.

• Visiting Professor, Radford University, (Radford, VA), 1987

Chairman of Institute for International Economic Competitiveness

• Visiting Lecturer, Hebrew University (Jerusalem), 1966-67

Built econometric model of the Israeli economy

• Ph. D. in Economics, Brown University. Dissertation, "A Postwar Quarterly Model of the United States Economy, 1948-1962". A. B. in Mathematical Economics, Brown University

PREVIOUS ACTIVITIES AND EDUCATION

• Contributing Editor, *Industry Week*

Wrote a column in each issue on economic and financial trends as they impact the manufacturing sector.

• Editor, *The Evans Report*

Weekly newsletter discussing economic trends and financial markets. Pioneered the concept of the Monthly Tracking Model to incorporate recent economic releases into the overall economic forecast, including methods to predict these economic data.

• Consultant, *National Printing Equipment and Supply Association*

Prepared quarterly forecasts of shipments of printing equipment and graphic arts supplies by product line, based on an econometric model constructed for NPES. Also prepares analysis and forecasts of exports and imports by principal product line.

• Consultant, *APICS -- The Educational Society for Resource Management*,

Designed and developed the *APICS Business Outlook Index*, which used survey data collected by the Evans Group to measure current production, production plans, shipments, employment, new orders, unfilled orders, inventory stocks, and the comparison of the actual to desired inventory/sales ratio to predict short-term changes in manufacturing sector activity. The results of this survey appeared every month in *APICS: The Performance Advantage*

• Consultant, *American Hardware Manufacturing Association*

Wrote a separate weekly edition of the Evans Report analyzing recent trends in the hardware and housing industries, including forecasts of the hardware industry based on an econometric model developed for AHMA.

• Board of Economists, *Los Angeles Times*

Wrote column every 6 weeks (5 other economists on the Board)

• Columnist, *United Press International*

Wrote twice-weekly column, "Dollars and Trends"

• Consultant, Senate Finance Committee,

Built the first large-scale supply-side model of the U. S. economy

- Consultant, Environmental Protection Agency and Council on Environmental Quality

  Estimated inflationary impact of government regulations

- Consultant, National Aeronautics and Space Administration

  Estimate impact of R&D spending on productivity growth

- Consultant, U. S. Treasury

  Estimated impact of investment tax credit and accelerated depreciation on capital spending by industry

- Consultant, U. S. Department of Agriculture

  Built large-scale econometric model of agricultural sector of U. S. economy

- Consultant, Organization of Economic Cooperation and Development

  Built econometric model of the French economy

SAMPLE OF RECENT CONSULTING PROJECTS

A. Economic Impact of EB-5 Immigrant Investor Programs and New Markets Tax Credits

For more information on these projects, see www.evanseb5.com

Key to symbols: N, new regional center, E, extension of existing center

List is current as of July 20, 2014. There are over 500 projects listed, but while the list is extensive, it is not complete. In cases where the results are very similar, they are either grouped together or omitted entirely

E • Calculated the economic impact of construction and operation of medical college in Sacramento, CA.

E • Calculated the economic impact of construction and operation of mixed-use building in Madison County, AL.

E • Calculated the economic impact of construction and operation of hotels in the Dallas/Fort Worth, Houston, San Antonio, and Austin metropolitan areas as part of the 43-county "Texas Triangle" (2 projects)

E • Calculated the economic impact of construction and operation of boutique hotel in Flushing, Queens, NY

E • Calculated the economic impact of construction and operation of several fast-food seafood restaurants in Miami/Dade County, FL

N • Calculated the economic impact of construction and operation of technology incubator in the Boston, MA area.

E • Calculated the economic impact of construction and operation of various hotels in Brooklyn and Queens, NY (3 projects)

E • Calculated the economic impact of construction and operation of a hotel and restaurants in Rancho Cucamonga, FL (2 projects)

E • Calculated the economic impact of construction and operation of assisted living center in Las Vegas, NV

N • Calculated the economic impact of expansion of a manufacturing plant to produce electric vehicles and parts, Jackson County, OR

E • Calculated the economic impact of construction and operation of residential housing development in South Florida (2 projects)

E • Calculated the economic impact of construction and operation of the Orlando Skypark in Orlando, FL

E • Calculated the economic impact of construction and operation of drilling and operating oil and gas wells in Texas (3 projects)

E • Calculated the economic impact of construction and operation of senior living facility in Flushing, Queens, NY

E • Calculated the economic impact of renovating and expanding the Queen Mary ship and adding various entertainment facilities

E • Calculated the economic impact of construction and operation of a water park in Temecula, CA

E • Calculated the economic impact of construction and operation of a hotel and conference center in Rockford, IL

E • Calculated the economic impact of construction and rental income from an apartment building in Portland, OR, and Glendale, CA (2 projects)

E • Calculated the economic impact of expansion of the Atlantic Yards project in Brooklyn, NY

E • Calculated the economic impact of construction and operation of a luxury office building and a luxury condominium building in mid-town Manhattan (2 projects)

E • Calculated the economic impact of construction and operation of a biofuels plant, converting sugar to fuels in South Florida

E • Calculated the economic impact of renovation and expansion of a Blue Cross Call center in Columbus, GA

E • Calculated the economic impact of construction and operation of the Brooklyn Bridge marina and yacht club

E • Calculated the economic impact of construction and rental income of an apartment building in Houston, TX

E • Calculated the economic impact of construction and operation of a hotel building in Nashville, TN

E • Calculated the economic impact of construction and operation of a hotel in the NoMad district of Manhattan

E • Calculated the economic impact of construction and rental income of a townhouse development in Dublin, CA

E • Calculated the economic impact of construction and rental income of an housing development in Dallas, TX

E • Calculated the economic impact of construction and operation of a Times Square hotel in Manhattan

E • Calculated the economic impact of construction and operation of hotels in various counties in the Permian Basin in West Texas

E • Calculated the economic impact of construction and operation of a hotel building in Houston, TX

E • Calculated the economic impact of construction and rental income of high-rise hotels in downtown Chicago (3 projects)

N • Calculated the economic impact of construction and operation of an amusement park in suburban Phoenix, AZ

E • Calculated the economic impact of construction and operation of a mixed-use building in Stamford, CT

E • Calculated the economic impact of construction and operation of a hotel, resort, and casino in the Commonwealth of the Mariana Islands (CNMI).

E • Calculated the economic impact of construction and operation of a mixed-use building in Stamford, CT

E • Calculated the economic impact of construction and operation of a combined hotel and day care center, Queens, NY

E • Calculated the economic impact of construction and operation of a charter school in Broward County, FL

E • Calculated the economic impact of construction and operation of a mixed-use building in Stamford, CT

E • Calculated the economic impact of construction and rental income of an apartment building in Hollywood, CA.

E • Calculated the economic impact of development of a sports stadium in Los Angeles

E • Calculated the economic impact of construction and operation of a hotel in Tacoma, WA

E • Calculated the economic impact of construction and operation of a hotel in Nyack, NY

E • Calculated the economic impact of construction and operation of a mixed-use building in Atlanta, GA

E • Calculated the economic impact of construction and operation of a charter school in Palm Beach County, FL

E • Calculated the economic impact of construction and operation of mixed-use buildings in Chicago (2 projects)

N • Calculated the economic impact of construction and operation of a sawmill in Arkansas

E • Calculated the economic impact of construction and operation of a hotel in Miami, FL

E • Calculated the economic impact of construction and operation of a hotel on the West Side of Manhattan

E • Calculated the economic impact of construction and operation of a mixed-use building in Temecula, CA

E • Calculated the economic impact of construction and operation of a charter school in Sarasota, FL

E • Calculated the economic impact of construction and operation of a gold mine in Washoe County, NV

E • Calculated the economic impact of construction of luxury housing development in Northern Virginia

E • Calculated the economic impact of renovating part of the Oakland, CA waterfront

E • Calculated the economic impact of construction and operation of a hotel in Puerto Rico

E • Calculated the economic impact of construction and operation of a warehouse in Chicago

E • Calculated the economic impact of renovation and expansion of the Nassau Coliseum, Nassau County, NY

N • Calculated the economic impact of construction and operation of country and western Music center in Riverside County, CA

E • Calculated the economic impact of construction and operation of mixed-use commercial building, Staten Island, NY

E • Calculated the economic impact of construction and operation of hotel in Queens, NY

N • Calculated the economic impact of construction and operation of hotel and resort on the U. S. Virgin Islands

E • Calculated the economic impact of construction and operation of geothermal energy project in Nevada

E • Calculated the economic impact of construction and operation of hotel in Kenosha, WI

E • Calculated the economic impact of construction and operation of hotel in Hudson County, NJ (2 projects)

E • Calculated the economic impact of construction and operation of hospital in Chicago

E • Calculated the economic impact of renovation of old luxury hotel in Yonkers, NY

E • Calculated the economic impact of construction and rental income of apartment in Seattle, WA

E • Calculated the economic impact of construction and operation of restaurant in Las Vegas

E • Calculated the economic impact of construction and operation of bottle cap manufacturing plant

E • Calculated the economic impact of construction and operation of hotel in Michigan

E • Calculated the economic impact of construction and operation of charter school in South Florida (2 projects)

E • Calculated the economic impact of construction and rental income of apartment building in Jersey City

E • Calculated the economic impact of construction and operation of hotel in Brooklyn

E • Calculated the economic impact of construction and operation of hotel in Oakland, CA

E • Calculated the economic impact of construction and operation of hotel in Queens, NY

E • Calculated the economic impact of construction and operation of hotel and resort in the Mariana Islands

E • Calculated the economic impact of renovation and operation of hotel in Adams Morgan section of Washington, DC

E • Calculated the economic impact of construction and operation of hotel in Farmers Market section of Dallas

E • Calculated the economic impact of renovation of old Taystee Baking facility in Harlem, Manhattan, NY

E • Calculated the economic impact of development of master plan project for Treasure Island, San Francisco

E • Calculated the economic impact of construction and operation of hotel and resort in Puerto Rico

E • Calculated the economic impact of construction and operation of hotel in Yonkers, NY

E • Calculated the economic impact of construction and operation of "Discovery New York" entertainment center

E • Calculated the economic impact of construction and operation of hotel in Los Angeles (2 projects)

N • Calculated the economic impact of construction and operation of plant for steel fabrication in Alabama.

E • Calculated the economic impact of construction and operation of hotel and condominium in San Bernardino county, CA

N • Calculated the economic impact of construction and operation of a chain of frozen yogurt restaurants in the Gulf Coast area stretching from Florida to Texas

E • Calculated the economic impact of construction and operation of drilling for oil and gas wells in Texas

E • Calculated the economic impact of construction and operation of proton cancer center in Los Angeles County

E • Calculated the economic impact of construction and operation of hotels in Los Angeles (3 projects)

E • Calculated the economic impact of construction and operation former Deauville hotel in Miami Beach, FL

E • Calculated the economic impact of construction and operation of boutique hotel in Ontario, CA.

E • Calculated the economic impact of construction and operation of hotel in mid-town Manhattan.

E • Calculated the economic impact of renovation and operation of a commercial mixed-use building in San Francisco.

E • Calculated the economic impact of construction and operation of luxury condominium building in downtown Manhattan.

E • Calculated the economic impact of construction and rental income of a medical facility in Winston-Salem, NC

E • Calculated the economic impact of construction and rental income of office building in mid-town Manhattan.

E • Calculated the economic impact of construction and rental income of office building in downtown Cleveland, OH.

E • Calculated the economic impact of construction and operation of mixed-use commercial and residential project in Tacoma, WA.

E • Calculated the economic impact of construction and operation of senior living facility in Chicago.

N • Calculated the economic impact of construction and operation of manufacturing plant to produce synthetic coke fuel for steel manufacturing in rural West Virginia.

E • Calculated the economic impact of construction and operation of apartment building in Washington, DC.

E • Calculated the economic impact of construction and operation of medical complex in Flushing, Queens, NY.

E • Calculated the economic impact of construction and operation of hotel in Chicago

E • Calculated the economic impact of construction and operation of insurance plan for pets, headquartered in New York City.

E • Calculated the economic impact of construction and operation of hotel in the Gowanus district of Brooklyn.

E • Calculated the economic impact of construction and operation of hotel near Times Square, Manhattan

E • Calculated the economic impact of construction and operation of 3 senior living and residential facilities in Southeast FL.

E • Calculated the economic impact of construction and operation of senior living and residential facilities in Seattle WA.(3 different projects)

E • Calculated the economic impact of construction and operation of charter school in Palm Beach County, FL

E • Calculated the economic impact of construction of mixed-use commercial project and infrastructure in New York City.

N • Calculated the economic impact of construction and operation of pellet mill in Arkansas, used to make fuel pellets mainly for export to Europe.

E • Calculated the economic impact of construction of senior living facilities in Houston, Texas

E • Calculated the economic impact of construction of skilled nursing facility in Las Vegas, NV

E • Calculated the economic impact of construction and operation of hotel in Chicago

E • Calculated the economic impact of construction and operation of wholesale distribution center and retail outlets in Queens, NYC

E • Calculated the economic impact of construction and operation of New Quincy Market in Quincy, MA.

E • Calculated the economic impact of operation of fund for providing capital for production of films in New Orleans, LA

E • Calculated the economic impact of renovation and operation of mixed-use facilities and rebuilding of infrastructure in Harlem, Manhattan, NYC

E • Calculated the economic impact of construction and operation of mixed-use residential and commercial buildings in New York City (2 projects)

N • Calculated the economic impact of construction and operation of sports complex in Attleboro, MA.

E • Calculated the economic impact of construction and operation of sports stadium and related retail ventures in Las Vegas, NV

E • Calculated the economic impact of construction and operation of resort complex in Hawaii

E • Calculated the economic impact of construction and operation of mixed-use commercial and residential property in Emerald Falls, OK

E • Calculated the economic impact of construction and operation of five hotels in rural Texas

N • Calculated the economic impact of developing and operating oil wells in the Bakken Formation in North Dakota.

E • Calculated the economic impact of construction and operation of 4 mixed-use buildings in the New York City metropolitan area.

E • Calculated the economic impact of construction and operation of a hotel in Queens, NYC

E • Calculated the economic impact of constructing and operating a hotel near LaGuardia airport, New York

E • Calculated the economic impact of constructing and operating a restaurant and wine bar on the Las Vegas strip.

E • Calculated the economic impact of constructing a medical complex in the Bronx, NY

E • Calculated the economic impact of constructing and operating a theme park restaurant in Downtown Disney World, Orlando, FL

E • Calculated the economic impact of constructing and operating an oil refinery in the Houston, TX metropolitan area

N • Calculated the economic impact of developing a planned town with single and multi-family residences, commercial space, and solar energy on a ranch in Hendry County, FL

E • Calculated the economic impact of developing a luxury condominium in Miami, FL

E • Calculated the economic impact of constructing and operating a hotel near Times Square, New York City

E • Calculated the economic impact of constructing and operating a hotel in Pascagoula, MS

E • Calculated the economic impact of constructing and operating a hotel in Orlando, FL

E • Calculated the economic impact of constructing and operating a senior living facility in suburban Atlanta, GA

E • Calculated the economic impact of expansion of commercial facilities in Cleveland, OH in (a) the area around University Circle, and (b) the downtown Flats area.

N • Calculated the economic impact of constructing and operating a geothermal power plant in Oregon.

E • Calculated the economic impact of constructing and operating a luxury apartment building in downtown Manhattan

E • Calculated the economic impact of constructing and operating a senior living facility in Palm Beach County, FL

E • Calculated the economic impact of constructing several multi-family residential buildings in Texas (3 separate projects)

E • Calculated the economic impact of operating a home insurance company to relieve the burden of Citizens Insurance in the State of Florida.

E • Calculated the economic impact of constructing and operating a restaurant chain specializing in high-quality health foods, Palm Beach County, FL

E • Calculated the economic impact of constructing and operating multi-family residential properties, hotels, and senior living facilities in the Denver metropolitan area.

E • Calculated the economic impact of constructing and operating multi-family residential properties, hotels, and senior living facilities in the Atlanta metropolitan area.

E • Calculated the economic impact of constructing and operating multi-family residential properties, hotels, and senior living facilities in the Atlanta metropolitan area.

E • Calculated the economic impact of constructing and operating multi-family residential properties, hotels, and senior living facilities in the Miami metropolitan area.

E • Calculated the economic impact of producing a series of 10 major motion pictures ($100 million or more each) in the New York City area.

E • Calculated the economic impact of constructing luxury homes on Key Largo, FL

N • Calculated the economic impact of construction and operation of three projects in Puerto Rico: a hotel in San Juan, a condo/hotel village in Arecibo, and a power plant in Loiza. Used Puerto Rico input/output model updated by ECA.

N • Calculated the economic impact of construction and operation of a time-sharing condominium in Hawaii.

E • Calculated the economic impact of constructing and operating a large Ferris Wheel on the Las Vegas strip, including the impact of advertising revenues and ancillary retail space.

E • Calculated the impact of operating an insurance company in South Florida.

N • Calculated the economic impact of constructing and operating a medical complex in the Houston, TX metropolitan area.

N • Calculated the economic impact of constructing a new interchange for the Pennsylvania Turnpike and I-95.

E • Calculated the economic impact of constructing and operating a mixed-use commercial facility in Newark, NJ

E • Calculated the economic impact of improving the infrastructure at the waterfront in Oakland, CA

E • Calculated the economic impact of constructing and operating a hotel in San Diego CA.

E • Calculated the economic impact of constructing and operating a hotel in downtown Cleveland, OH

E • Calculated the economic impact of constructing three multi-family residential properties in Austin, TX.

E • Calculated the economic impact of renovating and operating the former Wilshire hotel in Los Angeles.

E • Calculated the economic impact of constructing and operating a luxury hotel in Austin, TX

E • Calculated the economic impact of constructing a mixed-use industrial facility in Pflugerville, TX

E • Calculated the economic impact of constructing and operating charter schools in several different locations in Florida, and in Chicago (5 separate projects).

N • Calculated the economic impact of constructing and operating a manufacturing plant for wood pellets used for heating in Southern Georgia

E • Calculated the economic impact of constructing and operating a wind farm in the Texas panhandle.

E • Calculated the economic impact of constructing several luxury apartment buildings and hotels in Manhattan (4 separate projects)

E • Calculated the economic impact of operating a steel distribution center in Palm Beach County, FL

N • Calculated the economic impact of operating a boat for cleaning and processing fish anchored off the Mississippi River in Kentucky.

E • Calculated the economic impact of constructing and operating hotels in Seattle, WA (2 separate projects)

N • Calculated the economic impact of operation of a facility for bio-science trials, Newark, NJ

N • Calculated the economic impact of building and operating a steel mill in Northeast Arkansas.

E • Calculated the economic impact of drilling and extracting oil, natural gas, and natural gas liquids, Oklahoma (2 projects)

E • Calculated the economic impact of expanding a golf and ski resort, and a furniture manufacturing plant, in Northern New Hampshire

E • Calculated the economic impact of constructing and operating a medical facility and student dormitory in Brooklyn, NY

N • Calculated the economic impact of oil drilling and extraction in Marion County, TX

E • Calculated the economic impact of developing and operating mixed-use facilities in Los Angeles

N • Updated an input/output model for Puerto Rico, and used this model to determine the economic impact of constructing and operating a resort in Boqueron Bay

E • Calculated the economic impact of renovating properties for Mississippi State University and adding a hotel

E • Calculated the economic impact of renovating an assisted living facility in Anniston, AL

E • Calculated the economic impact of constructing an apartment tower in Phoenix, AZ

E • Calculated the economic impact of constructing and operating a hotel in Dallas, TX. Also calculated the impact of two assisted living centers in Dallas.

N • Calculated the economic impact of a mixed-use commercial facility in New London, CT.

N • Calculated the economic impact of a mixed-use commercial facility in suburban Chicago, IL

• Calculated the economic impact of a hotel, casino, and commercial mixed-use properties on the island of Matsu, Taiwan Republic (not an EB-5 project but similar methodology was used)

N • Calculated the economic impact of extracting lithium compounds from the Salton Sea in Imperial County, CA

N • Calculated the economic impact of constructing and operating geothermal power plants in southern CA

E • Calculated the economic impact of constructing luxury hotels and condominiums in Manhattan (6 separate projects)

N • Calculated the economic impact of producing motion pictures and TV programs in Miami, FL

E • Calculated the economic impact of constructing and operating a hotel, shopping center, and residences in Boca Raton, FL

E • Calculated the economic impact of developing and operating a time-sharing resort on Lake Tahoe, CA

N • Calculated the economic impact of a series of child day care and learning centers in San Antonio and Austin, TX

N • Calculated the economic impact of a mixed-use commercial and cultural center in Chinatown, Philadelphia

E • Calculated the economic impact of developing and operating charter schools in Florida (4 projects)

N • Calculated the economic impact of developing the Boston Seaport project near the Boston Harbor.

E • Calculated the economic impact of a mixed-use hotel and commercial project in downtown Boston, MA

E • Calculated the economic impact of expanding the Hialeah racetrack, Hialeah, FL

E • Calculated the economic impact of developing and expanding a resort area in Benton Harbor, MI

N • Calculated the economic impact of developing and operating a Holiday Inn near the World Trade Center, Manhattan

N • Calculated the economic impact of developing and operating a Marriott Courtyard hotel in downtown Houston.

N • Calculated the economic impact of building a greenhouse in Central California.

N. Calculated the economic impact of developing an aircraft manufacturing plant in Northeast Arkansas.

N. Calculated the economic impact of developing and operating alternative fuels plant in Clark County, NV.

N • Calculated the economic impact of a destination winery and associated attractions in North Carolina.

E • Calculated the economic impact of building and operating a luxury hotel in Palm Beach, FL

N • Calculated the economic impact of operating a Kosher cheese plant in upstate New York

E • Calculated the economic impact of developing and operating a hotel in Chicago, IL

N • Calculated the economic impact of expanding the operations of a plumbing and HVAC contractor

E • Calculated the economic impact for 4 separate projects in Guam, based on the input/output model previously developed by ECA

E • Calculated the economic impact of a resort in the Commonwealth of the Northern Mariana Islands, based on the input/output model previously developed by ECA.

E • Calculated the economic impact of several mixed-use commercial projects in Southern California (4 such projects, each one covering 4 to 6 counties, including Clark County, NV)

E • Calculated the economic impact of a hotel in Norwalk, CT

E • Calculated the economic impact of copper mines throughout the state of Arizona

E • Calculated the economic impact of water park and hotel in Arlington Heights, IL (suburban Chicago)

N • Calculated the economic impact of renovation and expansion of Las Vegas casino (3 separate projects)

N • Calculated the economic impact of construction and operation of mixed-use shopping and commercial center in Hollywood Park, FL

N • Calculated the economic impact of development of office building in South Union Lake region of Seattle, WA

E • Calculated the economic impact of Development of mixed-use commercial and residential building in downtown Seattle, WA

N. • Calculated the economic impact of commercial mixed-use projects in New York City, upstate New York, and Northern New Jersey (one project)

N • Calculated the economic impact of developing and operating a major amusement park complex (rival to Disney World) near Lake Okeechobee, FL

N•. Calculated the economic impact of constructing and operating a hotel and conference center in Toledo, Ohio.

N. • Calculated the economic impact of renovating and expanding the New York Military Academy in Newburgh, NY

N • Calculated the economic impact of developing a mixed-use commercial project in downtown Philadelphia, PA (2 separate projects)

N • Calculated the economic impact of a film studio to produce motion pictures and TV programs in Los Angeles, CA.

N • Calculated the economic impact of building student housing in Arlington, TX

N • Calculated the economic impact of developing and operating a manufacturing plant for sports medical devices in suburban Chicago, IL

N • Calculated the economic impact of developing natural gas wells and wind farm in the Pocono Mountains section of Pennsylvania.

N • Calculated the economic impact of an assisted living center, hotel, and water park in Eastern CT.

N • Calculated the economic impact of producing movies in New Mexico

N • Calculated the economic impact of developing and operating a chain of child learning centers in Houston, TX

N • Calculated the economic impact of developing and operating a chain of medical research and supply centers in Houston.

N • Calculated the economic impact of developing and operating a chain of frozen yogurt stores in a wide area along the Gulf of Mexico, including locations in Florida, Alabama, Mississippi, Louisiana, and Texas

N • Calculated the economic impact of developing and operating assisted living centers and ancillary activities for several locations in Northeast Florida.

N • Calculated the economic impact of the construction and operation of an assisted living center in Santa Ana, CA

N • Calculated the economic impact of the construction and operation of several BBQ restaurants in South Florida.

N • Calculated the economic impact of the drilling oil wells in 8 counties in Texas and Louisiana.

N • Calculated the economic impact of operating coal mines for metallurgical coal in West Virginia.

N • Calculated the economic impact of operating gold mines in Alaska.

N • Calculated the economic impact of constructing and operating a mixed-use commercial center in Flushing, NY

N • Calculated the economic impact of constructing and operating two hotels, one in downtown San Diego, and one in Escondido, CA

N • Calculated the economic impact of expanding and operating an auto racing track in Palm Beach, FL

N• Calculated the economic impact of building and operating mobile housing villages for disaster relief.

N• Calculated the economic impact of operating an "incubator" for research on medical devices, preparations, and services in Houston, TX.

N• Calculated the economic impact of constructing and operating a mixed-use commercial center in Denver, CO.

N• Calculated the economic impact of constructing and operating a charter school in Miami/Dade County, FL

E• Calculated the economic impact of constructing and operating a hotel in Manhattan, NY

N● Calculated the economic impact of constructing and operating hotels, assisted living centers, and mixed-use commercial buildings in 8 counties in Southern California

N● Calculated the economic impact of constructing and operating a charter school in Broward County, FL

N● Calculated the economic impact of renovating a former public housing project in Chicago, IL

N● Calculated the economic impact of starting a high-tech company for optical displays in Orlando and Gainesville, FL

N● Calculated the economic impact of constructing and operating luxury hotels in four Southern California counties

E● Calculated the economic impact of expanding a manufacturing company in Ann Arbor, MI

N● Calculated the economic impact of reconverting an old mill building into offices and other commercial uses in Bristol County, MA

N● Calculated the economic impact of a film and TV production studio in Los Angeles, CA

N● Calculated the economic impact of constructing and operating various residential and commercial buildings in 35 Texas counties.

N● Calculated the economic impact of constructing and operating the world's tallest residential structure in Chicago, IL

N● Calculated the economic impact of constructing and operating a mixed-use commercial and residential building in Seattle, WA

N● Calculated the economic impact of constructing and operating a hotel in Cleveland, OH

N● Calculated the economic impact of a research facility in Jupiter, FL

N● Calculated the economic impact of constructing and operating an assisted living center in Horry County, SC

N● Calculated the economic impact of constructing and operating a chain pharmacy in Chicago, IL

E● Calculated the economic impact of constructing and operating a high-end hotel and resort in Aspen, CO

N● Calculated the economic impact of constructing and operating an assisted living center in Dallas, TX

E● Calculated the economic impact of constructing and operating an medical assistance company in Bronx, NY

E● Calculated the economic impact of constructing and operating a mixed-use commercial building in Queens, NY

E● Calculated the economic impact of operating a livery service in Queens, NY

N● Calculated the economic impact of constructing and operating residential properties in Southern California

N● Calculated the economic impact of operating a film and TV production studio in Los Angeles, CA

N● Calculated the economic impact of drilling oil wells in Montana

N● Calculated the economic impact of constructing and operating various residential and commercial buildings for 43 counties in Texas

E● Calculated the economic impact of constructing and operating a restaurant and dinner theater in Guam

N● Constructed an input/output model for the Commonwealth of the Northern Mariana Islands, and used it to calculated the economic impact of constructing and operating a restaurant in Saipan.

E● Calculated the economic impact of constructing and operating a new hotel in Miami, FL

E● Calculated the economic impact of constructing and operating a resort and wellness center in South Florida

N● Calculated the economic impact of expanding and operating a ski resort in Vermont.

N● Calculated the economic impact of constructing and operating residential and commercial buildings in 20 counties in South Central Texas

N● Calculated the economic impact of constructing and operating a hotel near the Newark, NJ airport

E● Calculated the economic impact of constructing and operating a company to process health insurance benefits in South Florida

E● Calculated the economic impact of constructing and operating a veterinary hospital in Palm Beach County, FL

N● Calculated the economic impact of constructing and operating various residential and commercial buildings for all counties in MA, CT, RI, and NH

N● Calculated the economic impact of constructing and operating a residential construction company in Maryland

N● Calculated the economic impact of constructing and operating various residential and commercial buildings for the entire state of Oklahoma

N● Calculated the economic impact of constructing and operating a company for manufacturing dental implants in Cuyahoga County, OH

N● Calculated the economic impact of constructing and operating a mixed-use commercial facility in Brooklyn, NY

N● Calculated the economic impact of constructing and operating an office building for financial services in downtown Manhattan, NY

N● Calculated the economic impact of constructing and operating a mixed-use facility in Southern California

N● Calculated the economic impact of constructing and operating a retail shopping center in Tampa, FL

N● Calculated the economic impact of constructing and operating a retail shopping center in Tampa, FL

N● Calculated the economic impact of constructing and operating a mixed-use commercial building in Seattle, WA

N● Calculated the economic impact of constructing and operating a charter school in Arizona

N● Calculated the economic impact of constructing and operating a resort in northeastern Utah

N● Calculated the economic impact of operating an online video game company

N● Calculated the economic impact of constructing and operating a hotel in New York City

N● Calculated the economic impact of constructing and operating a fashion mall in South Florida

E● Calculated the economic impact of construction and operation of a new automobile assembly plant in Petersburg, VA

N● Calculated the economic impact of operating a call center for the U.S. government in Muskogee, OK

N● Calculated the economic impact of developing a mixed-use commercial and residential center in Scottsdale, AZ

N● Calculated the economic impact of constructing and operating a "Green Box" facility in New Jersey to process waste material on a pollution-free basis.

N● Calculated the economic impact of constructing and operating a "Green Box" facility in Washington State to process waste material on a pollution-free basis.

E● Calculated the economic impact of constructing and operating a new hotel in Coral Gables, FL

E● Calculated the economic impact of developing a new residential community in Brevard County, and retail stores and restaurants in St. Lucie County, FL

N • Calculated the economic impact of a new business to store and process field crops in Madison, MS

N• Calculated the economic impact of operating food service establishments and assisted living centers in 40 counties in Texas.

E• Calculated the economic impact of developing a mixed-use commercial center in Miami, FL

N• Calculated the economic impact of renovating a theater in New York City to show film highlights of previous Broadway hits.

N• Calculated the economic impact of renovating and operating distressed buildings in the San Francisco Bay area.

E• Calculated the economic impact of a mixed-use commercial center in Montgomery County, TX

E• Calculated the economic impact of expanding a manufacturing facility to produce more energy-efficient lighting in Sarasota, FL

N• Calculated the economic impact of developing facilities for amateur sporting events in northern GA

N• Calculated the economic impact of developing a mixed-use commercial center in Missoula, MT

N• Calculated the economic impact of operating call centers in Las Vegas, NV, and other western Nevada counties

E• Calculated the economic impact of constructing and operating a proton cancer treatment center in Boca Raton, FL

E• Calculated the economic impact of constructing and operating a "Green Box" facility in Detroit to process waste material on a pollution-free basis.

E• Calculated the economic impact of renovating and expanding commercial property in Lower Manhattan

N• Calculated the economic impact of constructing student housing and retail stores in Davie, FL

E• Calculated the economic impact of constructing residential housing near Harvard University

E• Calculated the economic impact of developing mixed-use commercial centers in Broward County, FL

E• Calculated the economic impact of renovating a Dallas apartment building

E• Calculated the economic impact of renovating and operating a nursing home in Las Vegas, NV

E• Calculated the economic impact of constructing a hotel and shopping center in Miami, FL

E• Calculated the economic impact of developing a design center in Miami/Dade county, FL

E● Calculated the economic impact of developing and operating a chain of children's playrooms and party facilities in South Florida

E● Calculated the economic impact of developing a new stadium for the Nets basketball team, to be located in Brooklyn, NY

E● Calculated the economic impact of developing a Marriott hotel in Washington, D.C.

E● Calculated the economic impact of developing and operating a casino for foreign patrons in Las Vegas, NV

E● Calculated the economic impact of operating a series of yogurt fast-food restaurants in South Florida

E● Calculated the economic impact of constructing steel homes and commercial buildings in South Florida

N● Calculated the economic impact of construction and operation of a farm distillery in Vermont

N● Calculated the economic impact of purchase and renovation of deeply discounted residential properties in South Florida

N● Calculated the economic impact of a hotel to be built near LaGuardia Airport in Queens, NY

N● Calculated the economic impact for several mixed-use commercial and residential properties for a regional center covering southern Wisconsin and northern Illinois.

N● Calculated the economic impact for mixed-use commercial project in Flushing, NY

E● Calculated the economic impact for major new hotel near the Washington, D. C. conference center

N● Calculated the economic impact of an assisted living center in suburban Atlanta, GA

N● Calculated the economic impact of an office tower in mid-town Manhattan for the diamond trade

N● Calculated the economic impact of three mixed-use commercial and residential projects in Santa Clara County, CA

N● Calculated the economic impact of six mixed-use commercial and residential projects in Los Angeles, Orange, Riverside, and San Bernardino counties

N● Calculated the economic impact of operating a chain of pizza restaurants in southern Florida.

N● Calculated the economic impact of constructing and operating an assisted living facility in Atlanta, GA

E● Calculated the economic impact of constructing and operating an expansion of University Hospital in Cleveland, OH

E● Calculated the economic impact of a wastewater treatment plant in Victorville, CA

N● Calculated the economic impact of drilling for geothermal energy and constructing and operating power plants in several counties in Nevada

E● Calculated the economic impact of a vacation club operation in Orlando, FL

E● Calculated the economic impact of constructing and operating an extended-stay hotel in Boston, MA

E● Calculated the economic impact of constructing and operating an assisted living facility in Walton County, FL

N● Calculated the economic impact of manufacturing and constructing residential and commercial steel modular buildings in Lee County, FL

E● Calculated the economic impact of a chain of yogurt and juice stores and restaurants in southern Florida

E● Calculated the economic impact of two mixed-use commercial developments in Orange County, CA.

E● Calculated a Targeted Employment Area by census tracts for six counties in the Houston, TX metropolitan area

E● Calculated the expansion of new hybrid car manufacturing facility from Mississippi to Tennessee and Virginia.

E● Calculated the economic impact of construction and operation of a skilled nursing facility in Las Vegas, NV.

N● Calculated the economic impact of construction and operation of a proton cancer treatment center and medical offices buildings in Los Angeles County, CA.

E● Determined the economic impact of improving facilities at the Port of Baltimore in order to attract more shipping from the Panama Canal when the locks are widened.

N● Calculated the economic impact of a major hotel and resort area in Ft. Lauderdale, FL.

N● Calculated the economic impact of building steel homes in South Florida, including the local manufacture of steel fabricated parts.

E● Calculated the economic impact of constructing and operating a hotel at Times Square in New York City.

N● Calculated the economic impact of a mixed-used residential and commercial project in Atlanta, GA.
E● Calculated the economic impact of expanding and opening new restaurants in Dallas, TX. In a separate project, calculated the economic impact of renovating, refurbishing, and operating a boutique hotel in Dallas, TX.

E● Calculated the economic impact of building and operating low-income housing in Boston, MA.

N● Calculated the economic impact of constructing and operating assisted living facilities in eight rural Texas counties.

N● Calculated the economic impact of a mixed-use commercial project in Riverside County, CA.

E● Calculated the economic impact of opening a manufacturing plant for "green" motor vehicles in the Detroit, MI area.

E● Calculated the economic impact of constructing and operating hotels and restaurants in Columbus, MS.

E● Calculated the economic impact of operating restaurants in the Hotel W in Hollywood, CA.

N● Calculated the economic impact of a mixed-use commercial project in McCook, IL (suburban Chicago).

N● Calculated the economic impact of constructing and operating a water-based amusement facility in San Diego, CA.

N● Calculated the economic impact of a mixed-use commercial facility in suburban Cincinnati, OH (project is in KY).

E● Calculated the economic impact of constructing and operating a casino, hotel, and restaurant in Las Vegas, NV.

N● Calculated the economic impact of a new academic institution for alternative energy in Santa Clarita, CA.

N● Calculated the economic impact of several mixed-used projects in San Francisco, Alameda County, Santa Clara County, and Fresno County.

N● Calculated the economic impact of a super energy store and solar farm in Riverside County, CA.

N● Calculated the economic impact of a prostate cancer treatment center in South Carolina.
E● Calculated the economic impact of refurbishing and expanding retail space at the George Washington Bridge in New York City.

E● Calculated the economic impact of building Atlantic Yards, new stadium for the New York Nets, in Brooklyn, NY

N● Calculated the economic impact of an assisted living center and several mixed-use commercial facilities in the Reno, NV area.

E● Calculated the economic impact of buying residential properties at deep discount prices, refurbishing and selling them, in South Florida.

N• Calculated the economic impact for a fractional-ownership marina in Port Charlotte, FL, plus office space, retail stores, restaurants, and a home brokerage office.

N• Calculated the economic impact of construction and operation of four retirement homes in Vermont.

E• Calculated the economic impact of an upscale retail shopping center in Vail, CO. and a medical office building in Edwards, CO (both in Eagle County).

E• Calculated economic impact of a wind turbine manufacturing plant in Larimer County, CO

N• Calculated economic impact of a hotel, retail stores, restaurants, office buildings, and bank facilities in Pasadena, CA

N• Calculated economic impact of a luxury hotel and condominiums in Destin, FL

N• Calculated economic impact of constructing and operating a mixed-use commercial project in Jupiter, FL

E• Determined whether 17 possible restaurant locations in Miami/Dade and Broward Counties qualified as Targeted Employment Areas.

E• Determined the economic impact of opening and operating a slot-machine casino in Hanover, MD, as part of a proposed EB-5 regional center for the Baltimore metropolitan area.

N• Calculated the economic impact of renovating and expanding a restaurant on Martha's Vineyard, MA, as part of an EB-5 regional center in that state.

N• Determined the economic impact of assembling and installing solar panels for residences in the state of LA.
E• Determined a Targeted Employment Area for Dallas, TX as part of a proposed EB-5 regional center for the Dallas area.

N• Calculated the economic impact for various mixed used projects for a proposed regional center for the entire State of Texas, including shopping centers, office buildings, restaurants, assisted living centers, medical technology facilities, and other personal and business services.

N• Calculated the economic impact for the construction and operation of several fast-food restaurants in 10 counties in central California.

N• Calculated the economic impact for the renovation and expansion of a shopping mall in Greenville, SC.

E• Calculated the economic impact of buying existing apartment buildings at deep discount prices, renovating and operating them, in 21 counties in FL.

N• Calculated the economic impact of building and operating an institute for proton cancer therapy for a proposed EB-5 regional center in Brooklyn, NY.

N• Calculated the economic impact of building and operating a mixed-use facility with medical offices, hotels, and apartments for a proposed EB-5 regional center in Queens, NY.

E• Determined a Targeted Employment Area for Philadelphia, PA as part of a proposed EB-5 regional center for the Philadelphia area.

N• Calculated the economic impact of a proposed office building and mixed-use facility for an EB-5 regional center in Dallas, Texas

N• Calculated the economic impact for various mixed-use projects for a proposed EB-5 regional center in the greater New York City area, including an extended stay hotel, urgent care center, financial lending firm for alternative assets, retail stores, apartments, office space, warehouses, industrial "flex" space, entertainment centers, restaurants, conference and convention centers, nursing home and assisted living facilities, medical offices, medical technology facilities, and high-tech manufacturing.

N• Calculated the economic impact of "green" hotels in 10 counties in Central California.

N• Calculated the economic impact of generic projects in manufacturing, financial services, health services, hotels, and restaurants for a proposed regional center for the state of Florida.

E• Calculated the economic impact of 12 different types of economic activity for an expansion of the Palm Beach Regional Center to five contiguous counties.

N• Calculated the economic impact of a new auto parts plant in Alabama to supply parts to Kia automobiles.

N• Calculated the economic impact of opening fast-food restaurants in Miami/Dade and Broward counties in FL.
N• Calculated the economic impact of a mixed-use commercial center in Flushing, Queens County, NY.

E• Calculated the economic impact of revitalizing and renovating part of the Brooklyn Navy Yard for "green" manufacturing facilities.

E• Calculated the economic impact of 12 different types of economic activity for various counties in Charlotte and Sarasota counties, FL

E• Calculated the economic impact of four new manufacturing and distribution companies in Palm Beach County, FL.

N• Calculated the economic impact of developing a resort area and building residences in rural Tennessee.

N• Calculated the economic impact of developing and operating a resort area in Southern Arizona.

N• Calculated the economic impact of revitalizing the depressed East Side of Cleveland, Ohio, with new commercial and industrial buildings.

N• Determined the nationwide economic impact of a $1 billion investment in Mississippi for a new hybrid motor vehicle plant.

N• Determined the economic impact of expanding a shipyard in Southeastern Louisiana.

N• Calculated the economic impact of a new shopping center in Buena Vista, California, and two other generic shopping centers in Los Angeles and San Bernardino counties.

E• Calculated the economic impact of enhancing resort areas in eight rural counties in Colorado.

N• Calculated the economic impact of the rehabilitation of Fitzsimons Village in Aurora, Colorado, by adding an office building with medical labs, hotel, shopping center, and residences.

E• Determined the economic impact of a mixed-use commercial center for the Kansas City metropolitan area.

N• Calculated the number of jobs created for a film production company in New York City.

N• Calculated economic impact of small-scale rooftop solar panels in various counties in California.

N• Calculated economic impact of 7 different types of proposed businesses for a proposed regional center in the Bay Area of California.

N• Determined the economic impact of a new biological research park, office building, and logistics center in Wooster, Ohio.

E• Calculated the economic effect of a mixed-use urban renewal project in Cleveland, Ohio.

N• Calculated economic impact of dairy farm and cheese processing plant in Northern California.

N• Determined economic impact of a shipyard, food processing plant, and semiconductor plant for a proposed regional center in Louisiana and Mississippi.

N• Calculated the economic impact of a new gaming casino in Natchez, Mississippi.

N• Developed an Input/output Model for Guam, which was then used to calculate the economic impact of several generic projects.

N• Calculated the economic impact of a retail shopping center in suburban Los Angeles County.

N• Prepared an economic impact analysis for the "timber to homes" project for a proposed regional center in Colorado.

N• Calculated the economic impact for a proposed regional center in Baltimore, Maryland that would include the rebuilding of depressed areas in East Baltimore and along the riverfront.

N• Prepared the economic analysis for a proposed EB-5 regional center for the entire state of Florida that included impact calculations for 14 different types of industries.

N• Prepared the economic analysis for a proposed EB-5 regional center in the San Francisco Bay area that included calculations for 10 different types of industries.

N• Prepared economic impact calculations for proposed EB-5 regional centers in New York City and Northeastern New Jersey.

• Calculated the economic impact of a rehabilitated office building in Albuquerque, New Mexico, including the increase in high quality jobs.

• Calculated the economic impact of a rehabilitated skilled nursing center in East Los Angeles, California, including the impact on nearby census tracts.

N• Calculated the economic impact of development of warehouse and light industrial manufacturing space in Las Vegas, Nevada.

N• Calculated the economic impact of rehabilitation and expansion of a vacation and health spa in Sharon Springs, New York

N• Calculated economic impact of revitalizing an old resort hotel and adding new facilities for Lake Geneva, WI.

• Calculated the employment and tax effects for a portfolio of projects undertaken under the New Market capital program.

E• Calculated generic employment changes for proposed EB-5 project for an Inland Port in Palm Beach County, FL

N• Calculated the economic impact of construction of El Monte Village in El Monte, CA.

• Calculated the economic impact of moving the Social Security Administration building in Birmingham, AL, and revitalizing the surrounding neighborhood.

• Calculated the economic impact of rehabbing and expanding the Everett Mall in Everett, WA.

• Determined the economic impact of building a new medical center in Charleston, SC

N• Calculated economic impact of expanding Sugarbush resort in VT. Study included expansion of existing facilities and addition of new facilities.

• Calculated economic impact for new market tax credit program in Portsmouth, N.H. Study included both overall economic impact, and the increase in employment and income and the decrease in the unemployment rate and incidence of poverty in individual census tracts.

N• Calculated the economic benefits of EB-5 programs for foreign investors for a mixed-use construction project, including a hotel, retail stores, apartments, and a sports stadium in the Washington, D. C. metropolitan area

N• Calculated the economic benefits of EB-5 programs for a mixed-used retail shopping center in the New York City metropolitan area.

N• Calculated the economic benefits of EB-5 programs for foreign investors for proposed shopping centers in five separate counties in Southern California, including differential impacts of building the shopping centers in different counties.

B. Projects for State and Local Governments

• Constructed an econometric model for the State of New York and determined the change in employment, labor income, and tax revenues for 43 different tax changes proposed by the Governor's office.

• Constructed a detailed econometric model for the State of Pennsylvania to determine the economic impact of the complete panoply of state taxes levied; the model contains over 1,000 equations. In cooperation with American Economics Group, the model was developed to simulate the effect of changes in any state tax rate on households and businesses by income deciles, household status, age of individuals, size of households, and many other demographic variables. The change in business taxes can also be simulated for detailed industry classifications.

• Determined whether the Washington, D.C. water and sewer authority should accept a high bid for a new waste disposal system. Decision to reject has saved the authority over $200 million, as construction prices turned down sharply as predicted.

• Built an econometric model to determine the "tax gap" caused by Internet sales for the state of Minnesota.

• Determined appropriate levels of shelter grants individual counties in New York State, and for utility allowances in New York City. Reviewed and prepared testimony in ongoing court cases in these areas.

• Calculated the economic impact of the revitalization of downtown Milwaukee, Wisconsin.

C. Economic Impact of Casino Gaming

• Built an econometric model to predict the growth of the gaming industry over the next decade, and the economic impact of that industry on employment and tax revenues at the Federal and state levels.

• Estimated the economic impact of Indian casino gaming nationally and for the State of Wisconsin.

• Determined the economic impact of the Oneida Indian gaming casino on the Green Bay metropolitan area.

• Estimated the negative economic impact on the Milwaukee area if a new Indian gaming casino were to be built in Kenosha, Wisconsin.

D. Economic Impact of Smoking Bans and Higher Taxes

• Testified on economic impact of smoking bans in Canada; certified as an expert witness by the Court.

• Examined the impact of smoking bans on restaurant sales in several different locations in the U.S. to determine how much sales changed when these bans were imposed, and the differential effects depending on whether these bans were partial or total.

• Determined the cross-border effects on retail sales from differential rates in cigarette, gasoline, and alcohol excise taxes

• Determined the economic impact of higher cigarette taxes on minority group employment.

• Estimated the economic impact and loss of Federal and state tax revenues when higher cigarette prices lead to increased smuggling.

E. Consulting Projects for Travel and Tourism

• Built an econometric model to predict tourism trips and revenues for the major regions of the U.S. economy.

• Constructed econometric models to predict tourism in Las Vegas and Orlando.

• Using the IMPLAN model, predicted economic impact of tourism and travel expenditures for all counties in Pennsylvania.

F. Other Private Sector Consulting Projects

• Calculated the revenue gain at the Federal, state and local level generated by domestic manufacturing of Airbus parts and equipment.

• Calculated the economic impact of proposed EPA bans on fluoropolymer production.

• Estimated the size and economic importance of the fluoropolymer industry, and calculated economic impact of shutting down domestic production.

• Built an econometric model to examine how U.S. tax and regulatory policies help determine whether the gold mining industry would invest in the U.S. or other countries. Testified before Congress to help defeat legislation inimical to the mining industry.

• Built an econometric model to predict consumer bankruptcies, based on recent growth in consumer credit outstanding, the overall economic environment, and recent changes in credit regulations

• Estimated the economic impact of the ethanol subsidy on the U.S. economy and Farm Belt States, including the impact on the balance of payments, employment, and tax receipts. Testified before Congress to help pass legislation to extent subsidies to the ethanol industry.

• Built an econometric model to determine the impact of updating and improving the system of locks on the Upper Mississippi River on corn prices and exports, farm income, and the overall economy.

BOOKS PUBLISHED

Macroeconomics for Managers, Blackwell, 2003

Practical Business Forecasting, Blackwell, 2002

Economic Impact of the Demand for Ethanol, Diane Publishing Company, 1998

How to Make Your Shrinking Salary Support You in Style for the Rest of Your Life, Random House, 1991

The Truth About Supply-Side Economics. Basic Books, 1983.

A Supply-Side Model of the U. S. Economy, mimeo (prepared for Senate Finance Committee), 1980.

An Econometric Model of the French Economy: A Short-Term Forecasting Model. O.E.C.D, March 1969.

Econometric Gaming (with L. R. Klein and M. J. Hartley). Random House, 1969.

Macroeconomic Activity: Theory, Forecasting and Control. Harper & Row, 1969.

The Wharton Econometric Forecasting Model (with L.R. Klein), Economics Research Unit, Wharton School: University of Pennsylvania Press, 1967. Enlarged edition, 1968.

Over 30 articles in major academic journals and publications (list on request)

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PETITIONER: JOHN

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DATE: October 24, 2014

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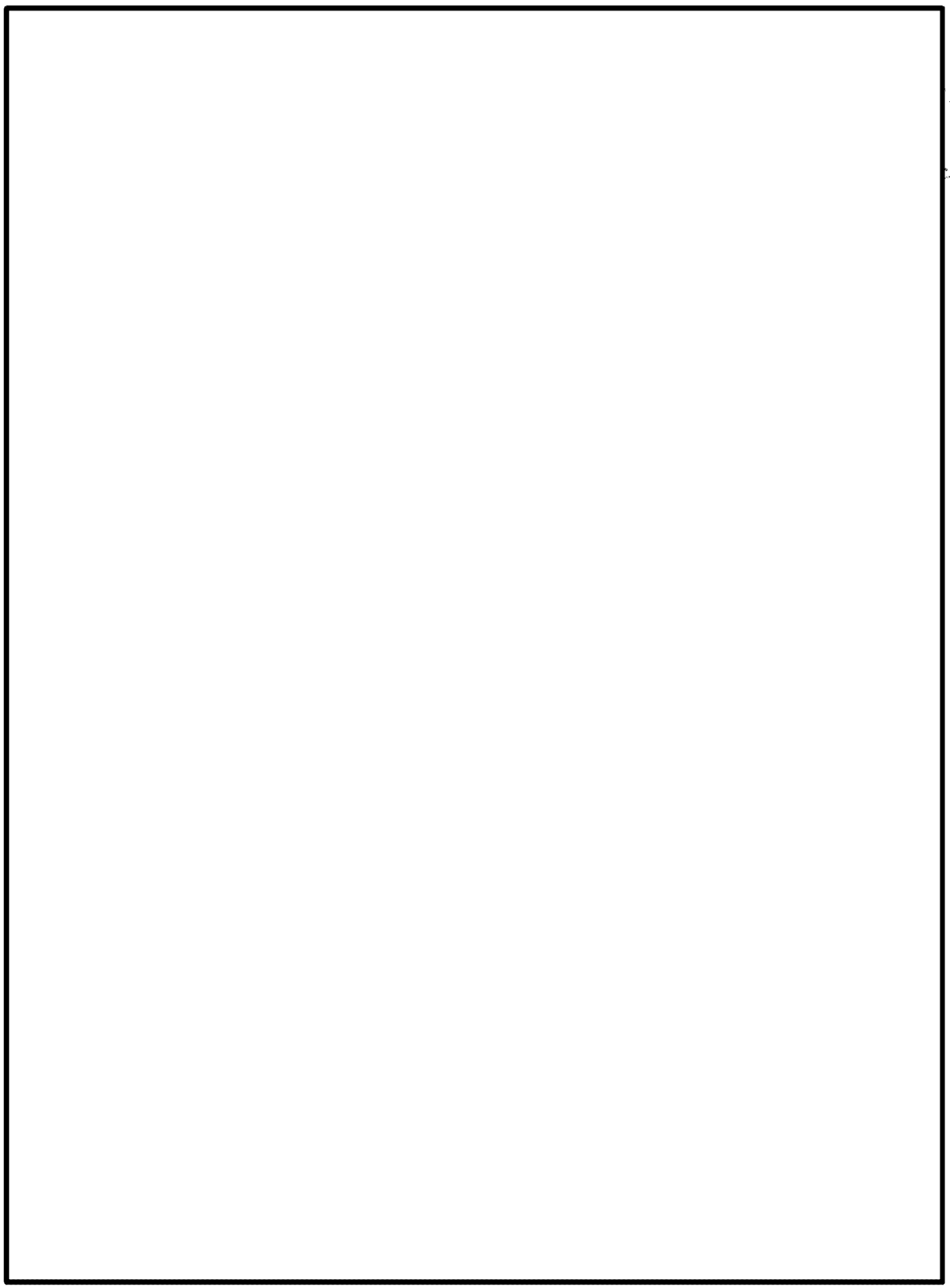
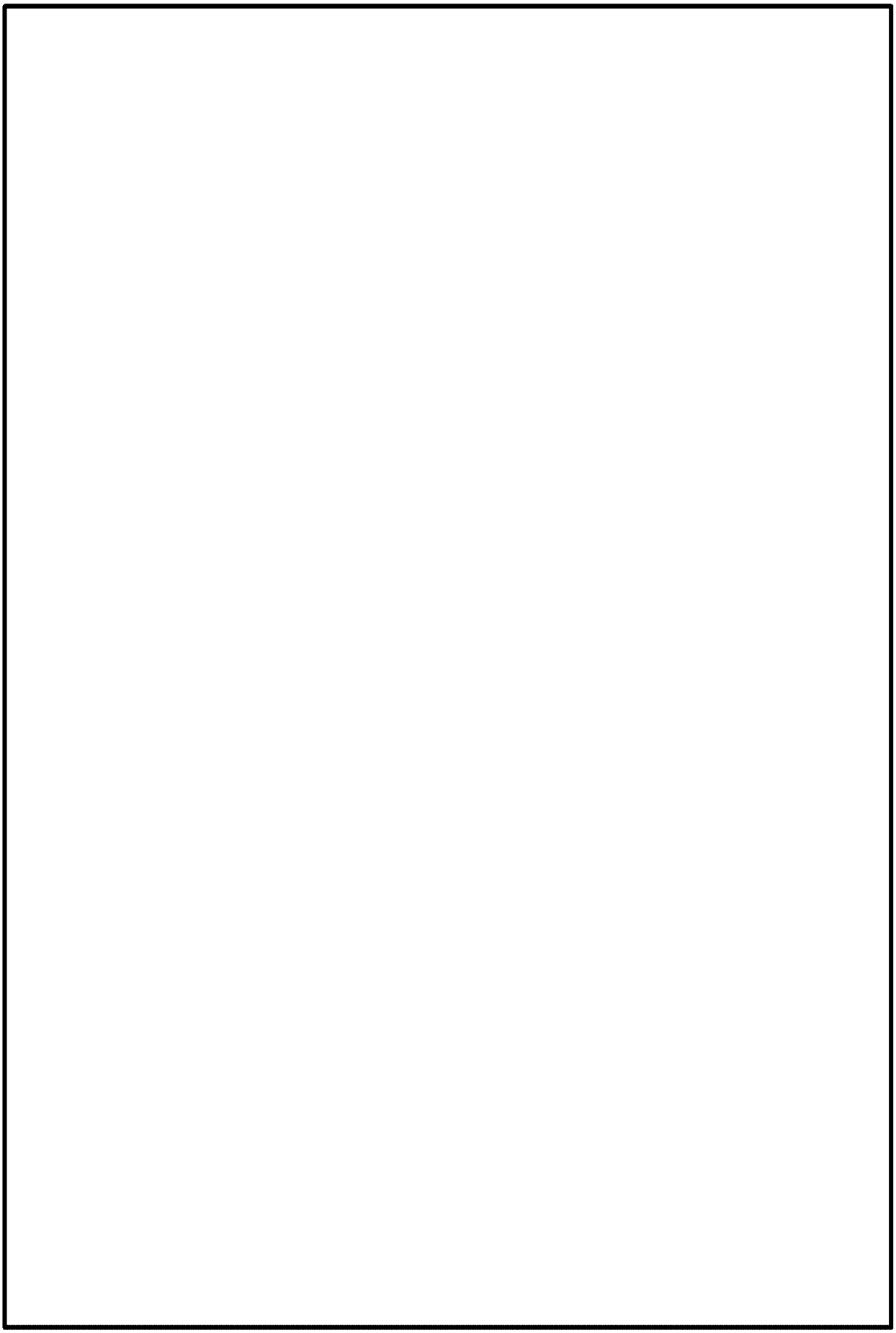
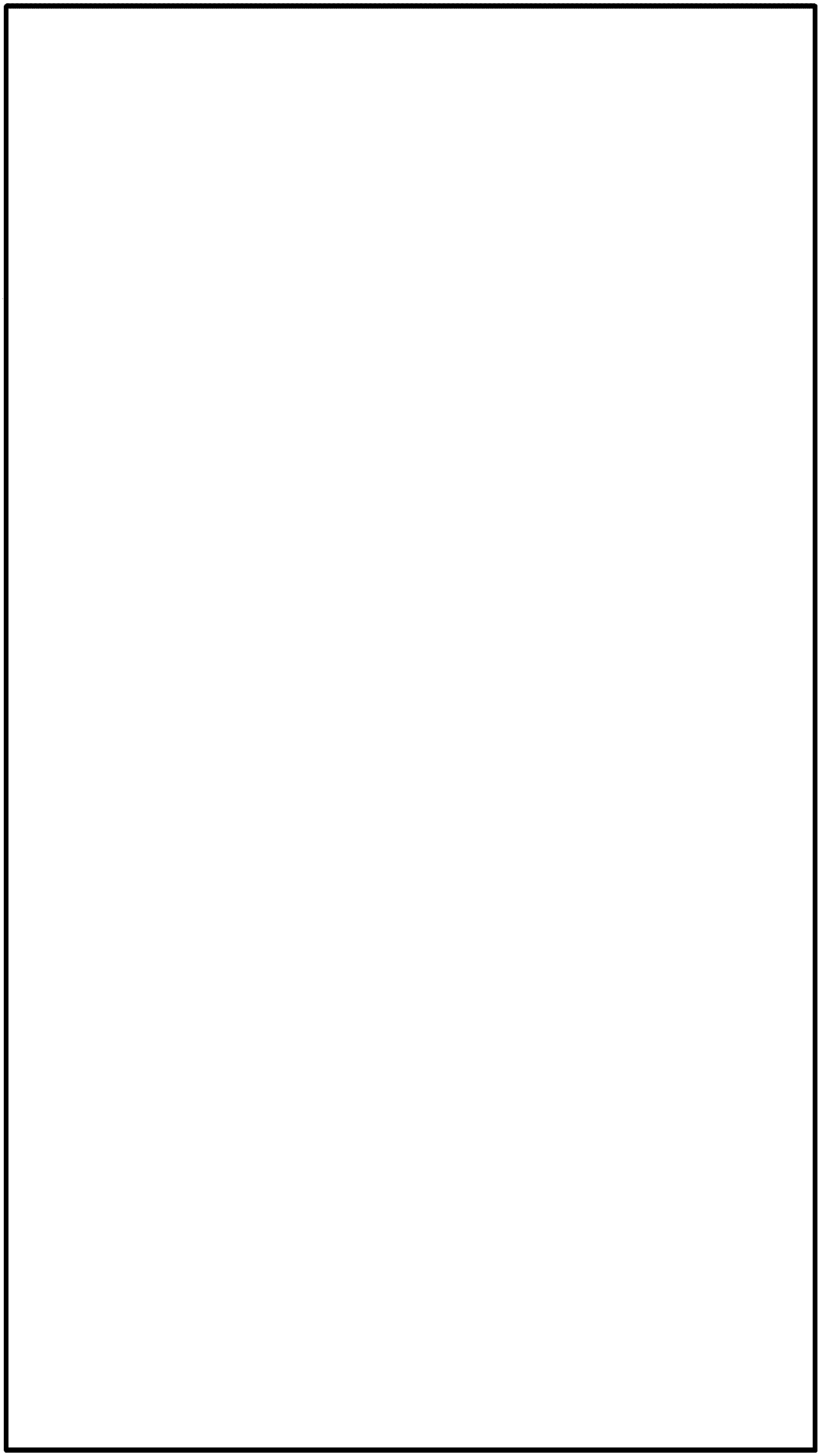
Holiday Hospitality Franchising, LLC
Three Ravinia Drive, Atlanta, Georgia 30346

(b)(4)

License Agreement







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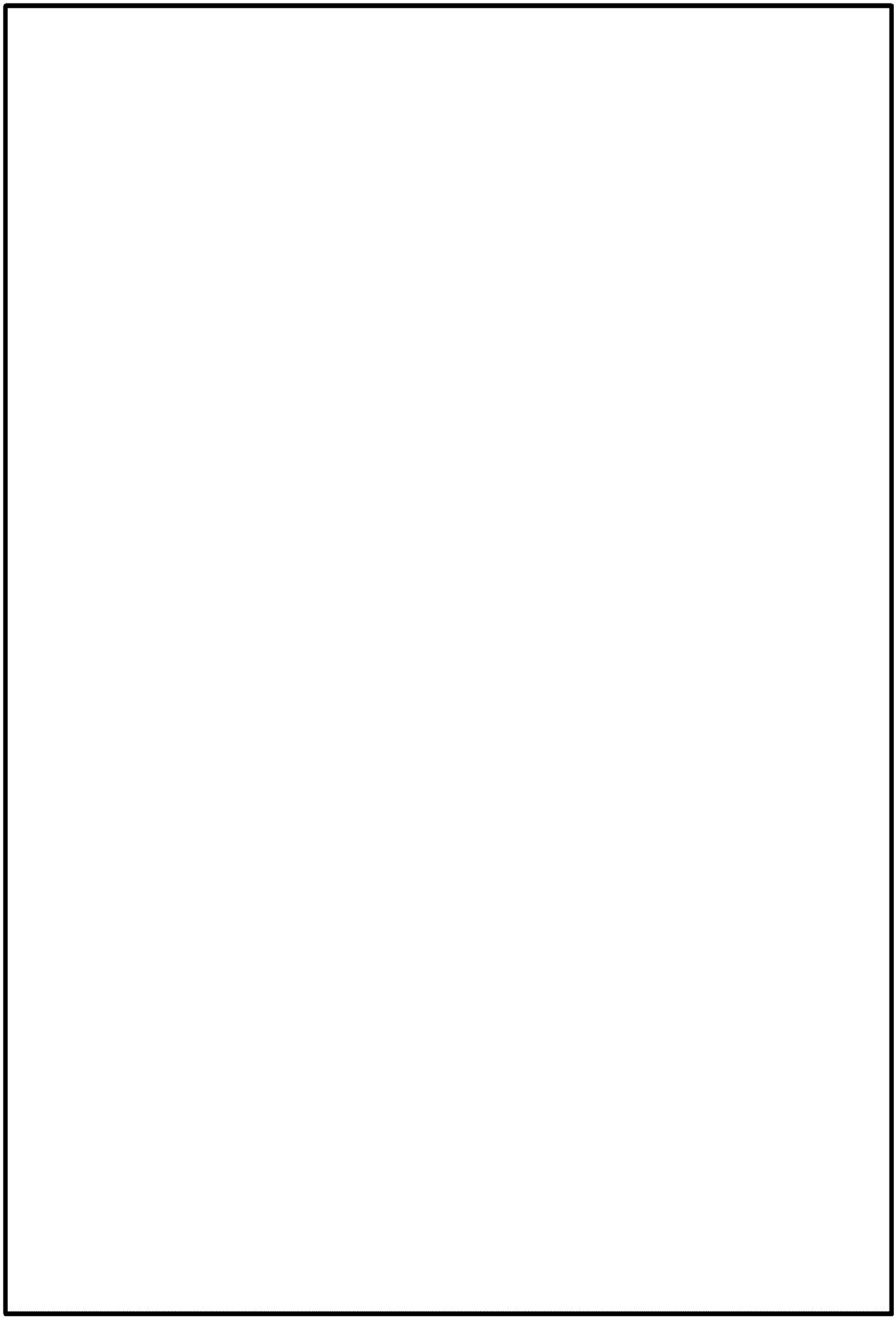

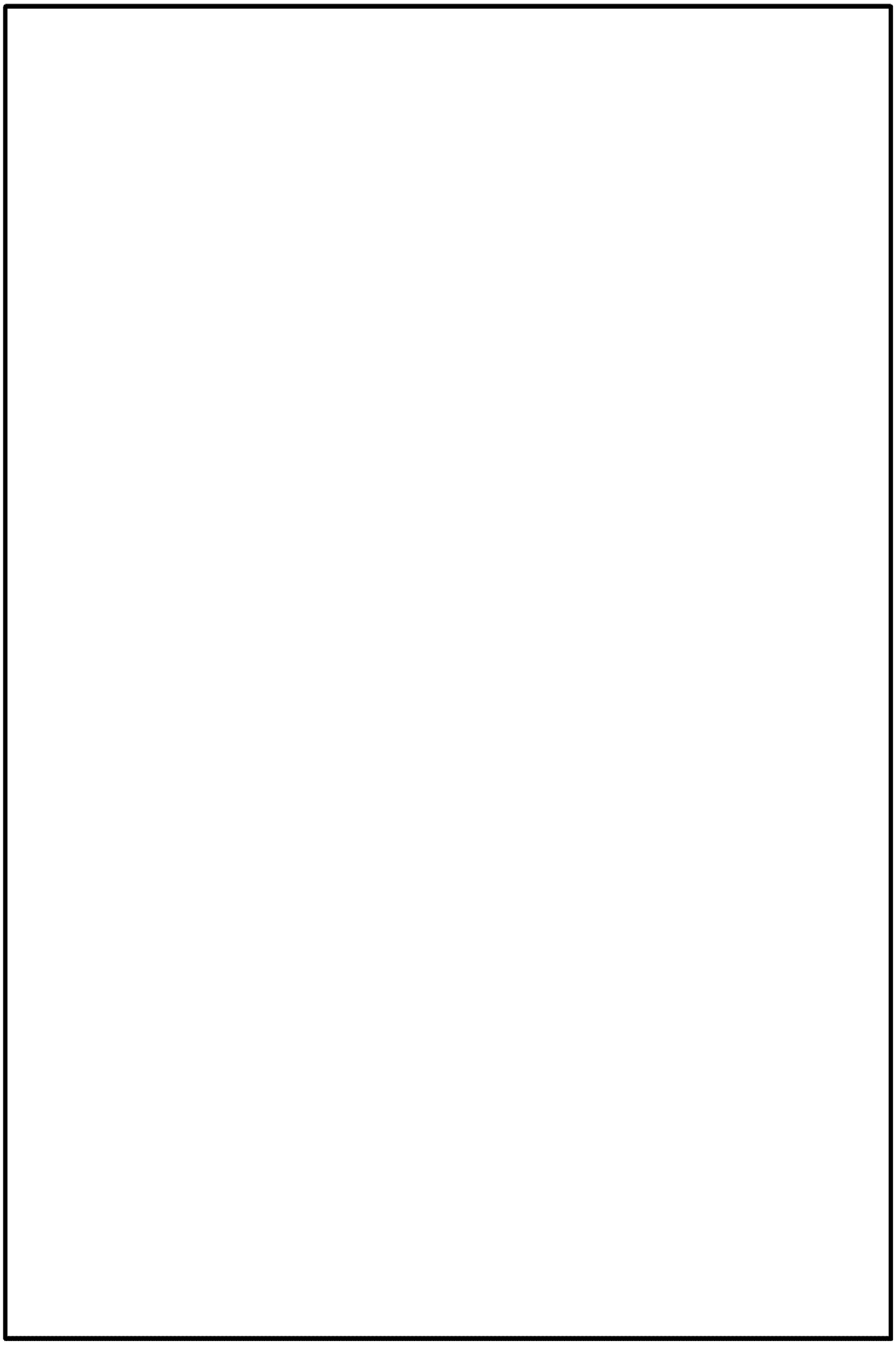

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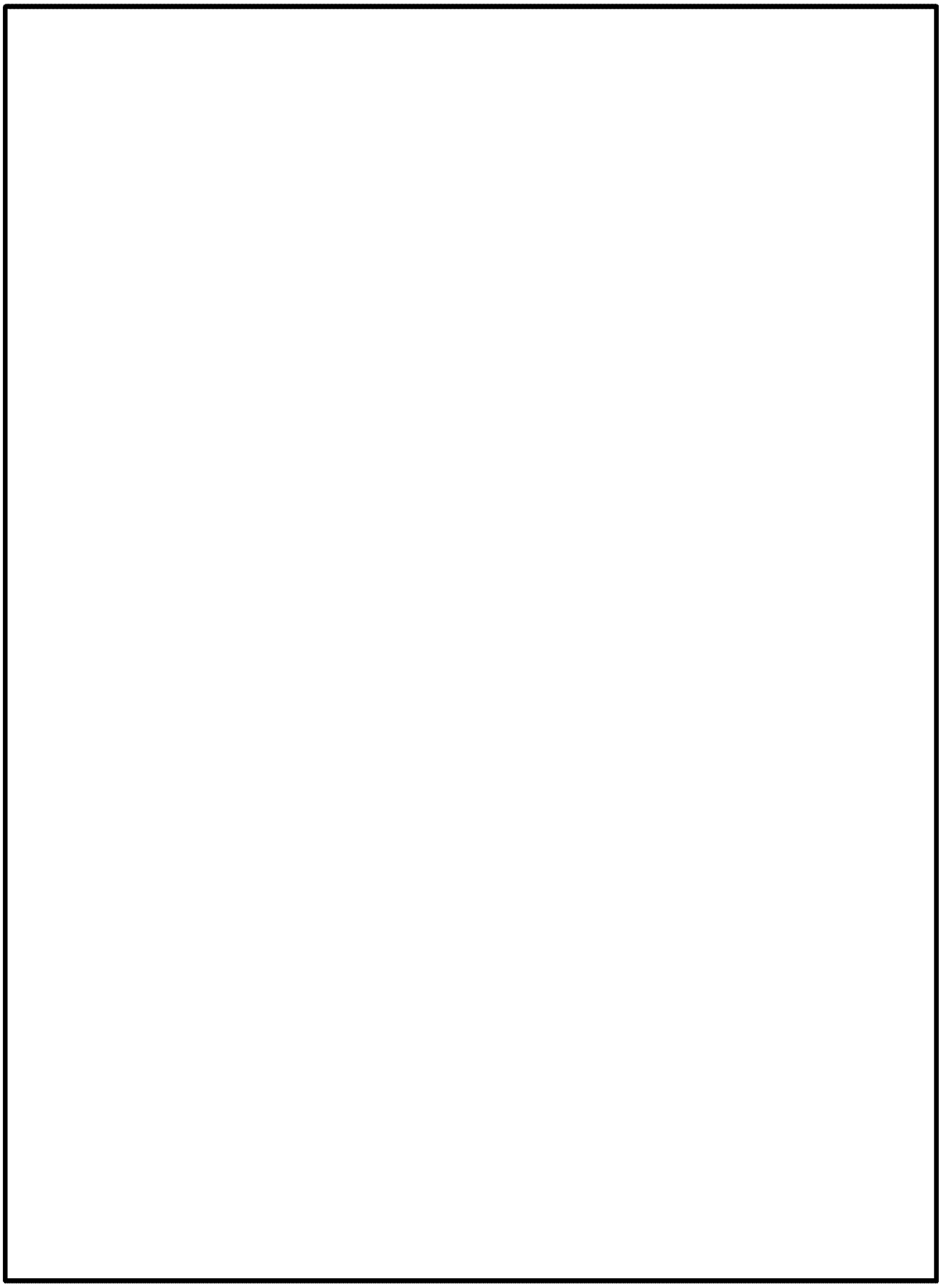

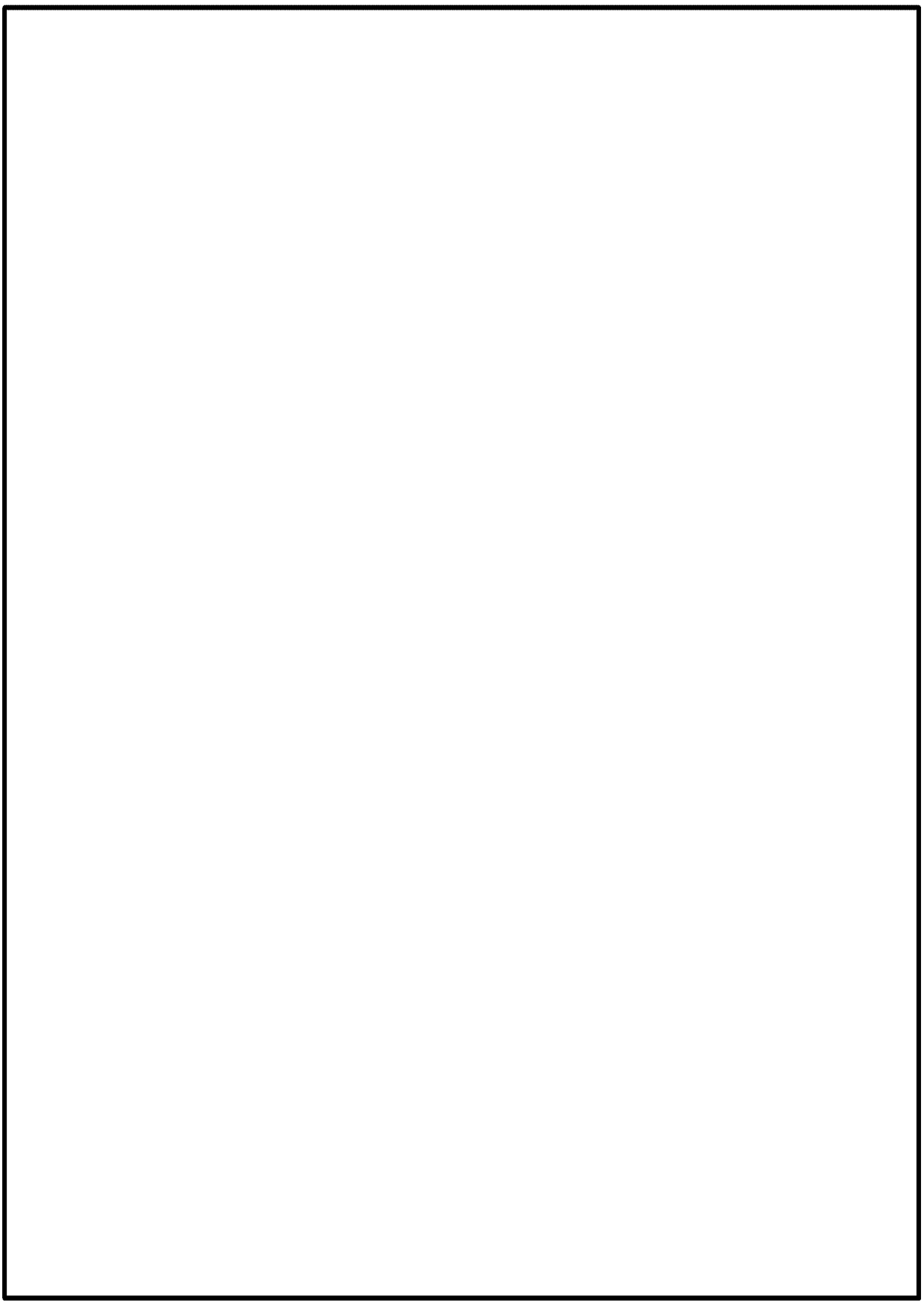

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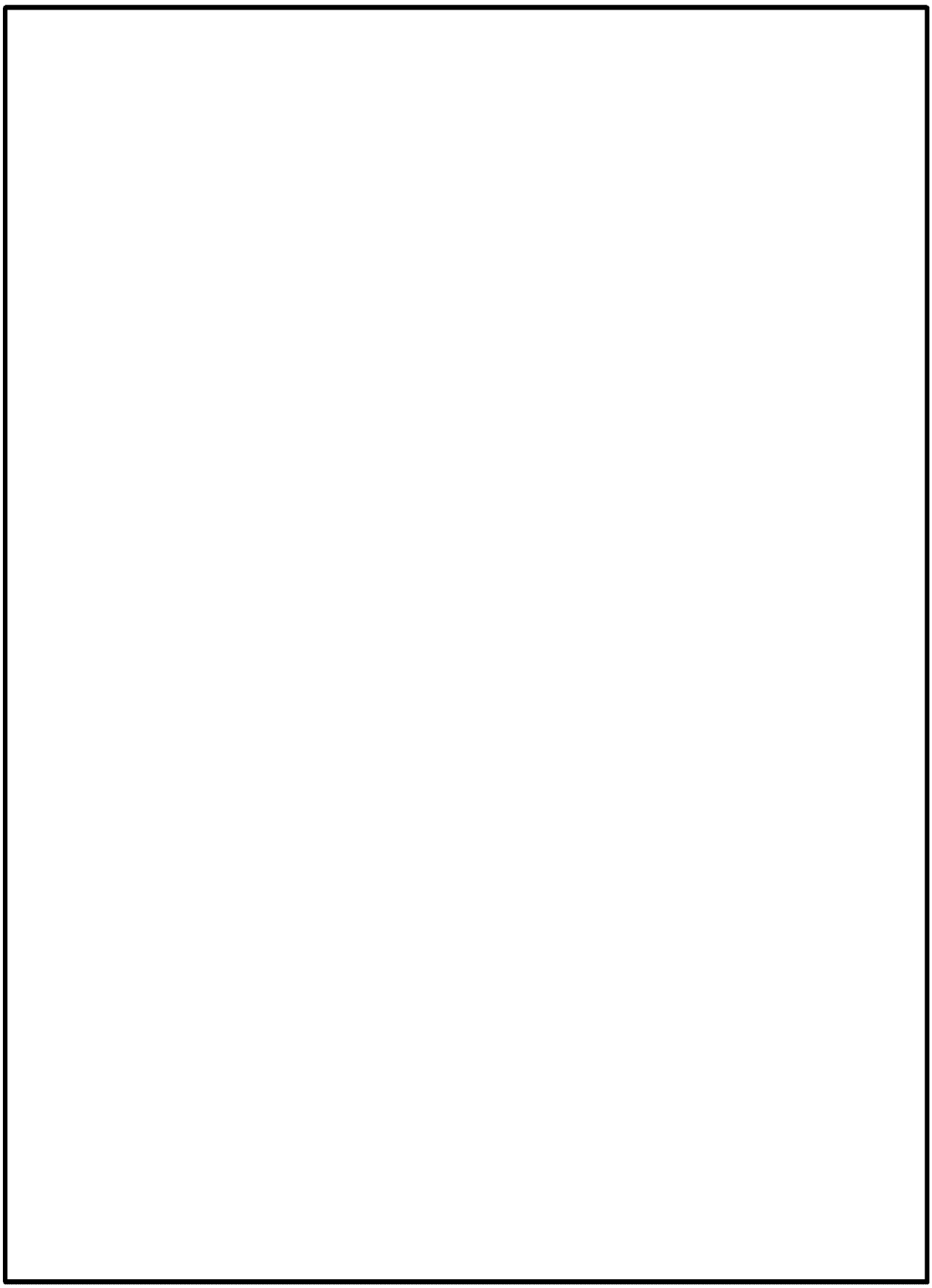

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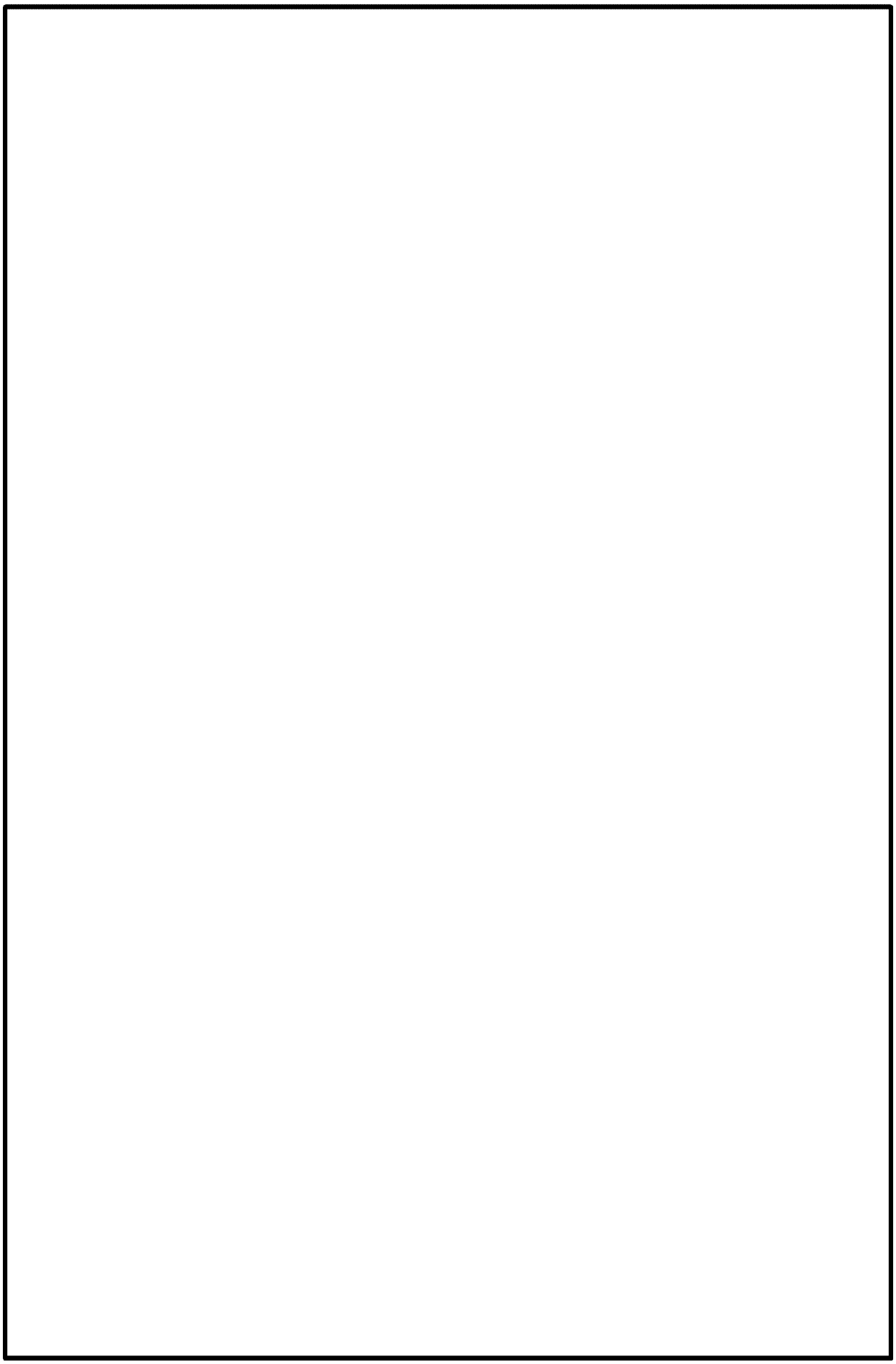

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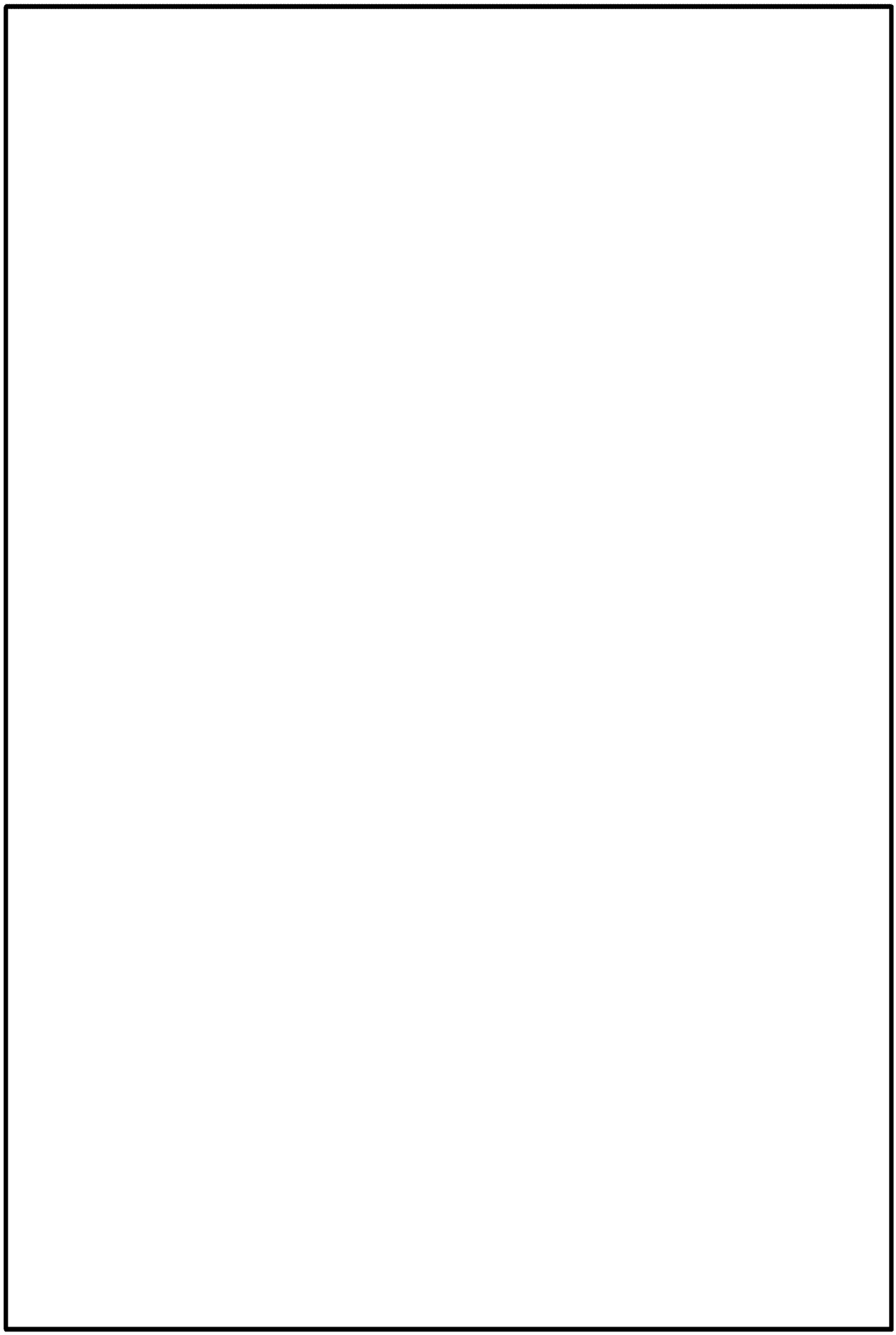

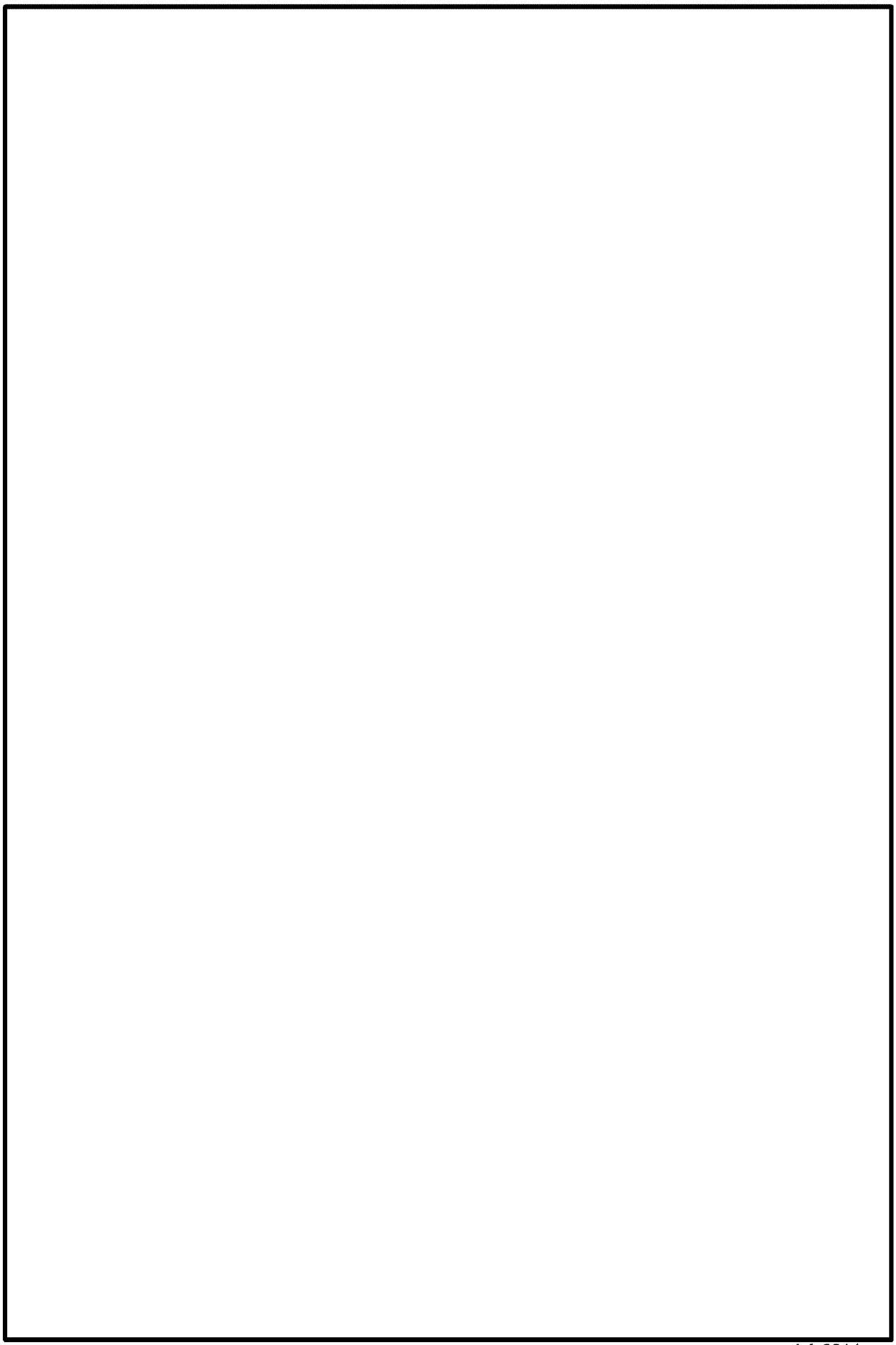

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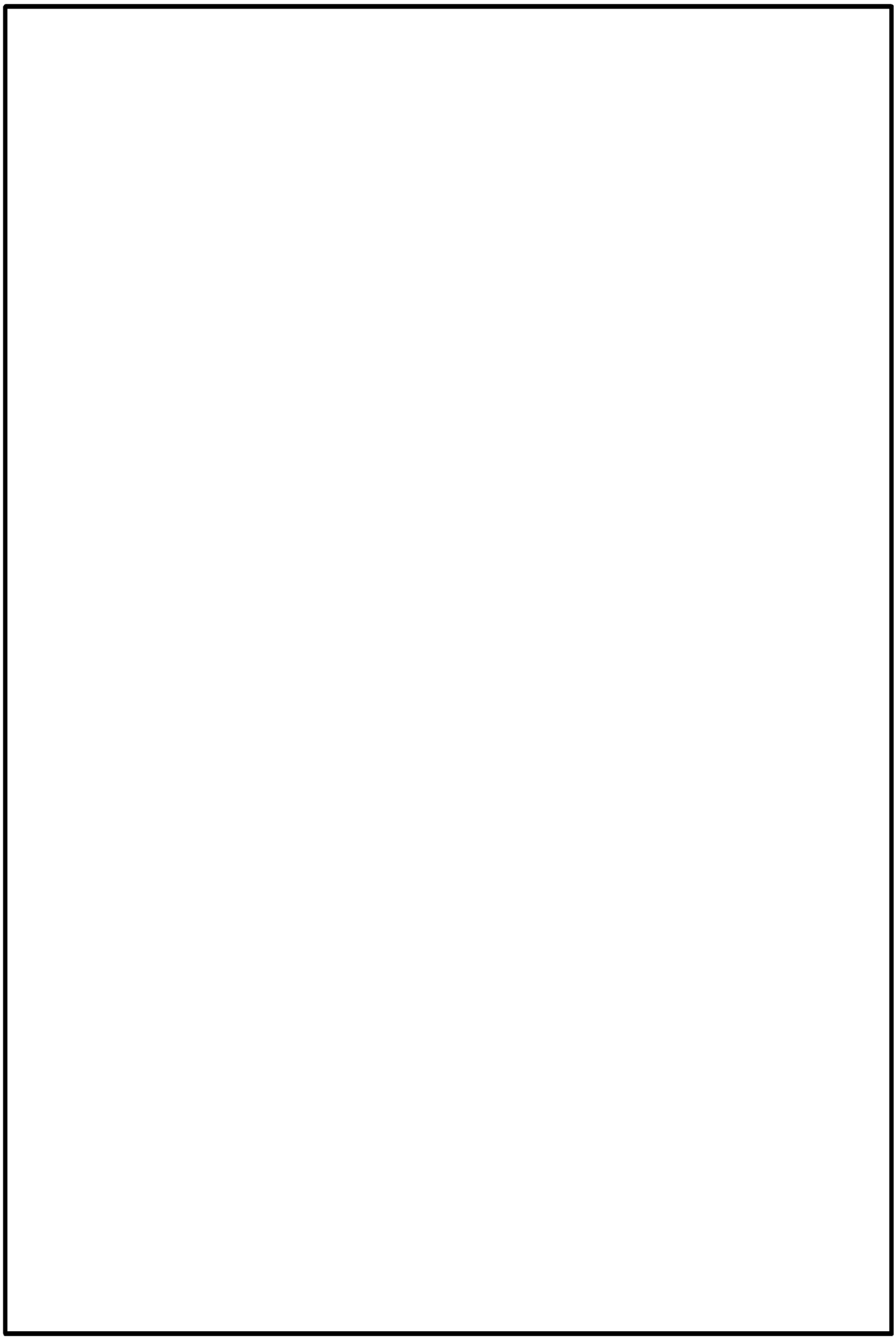

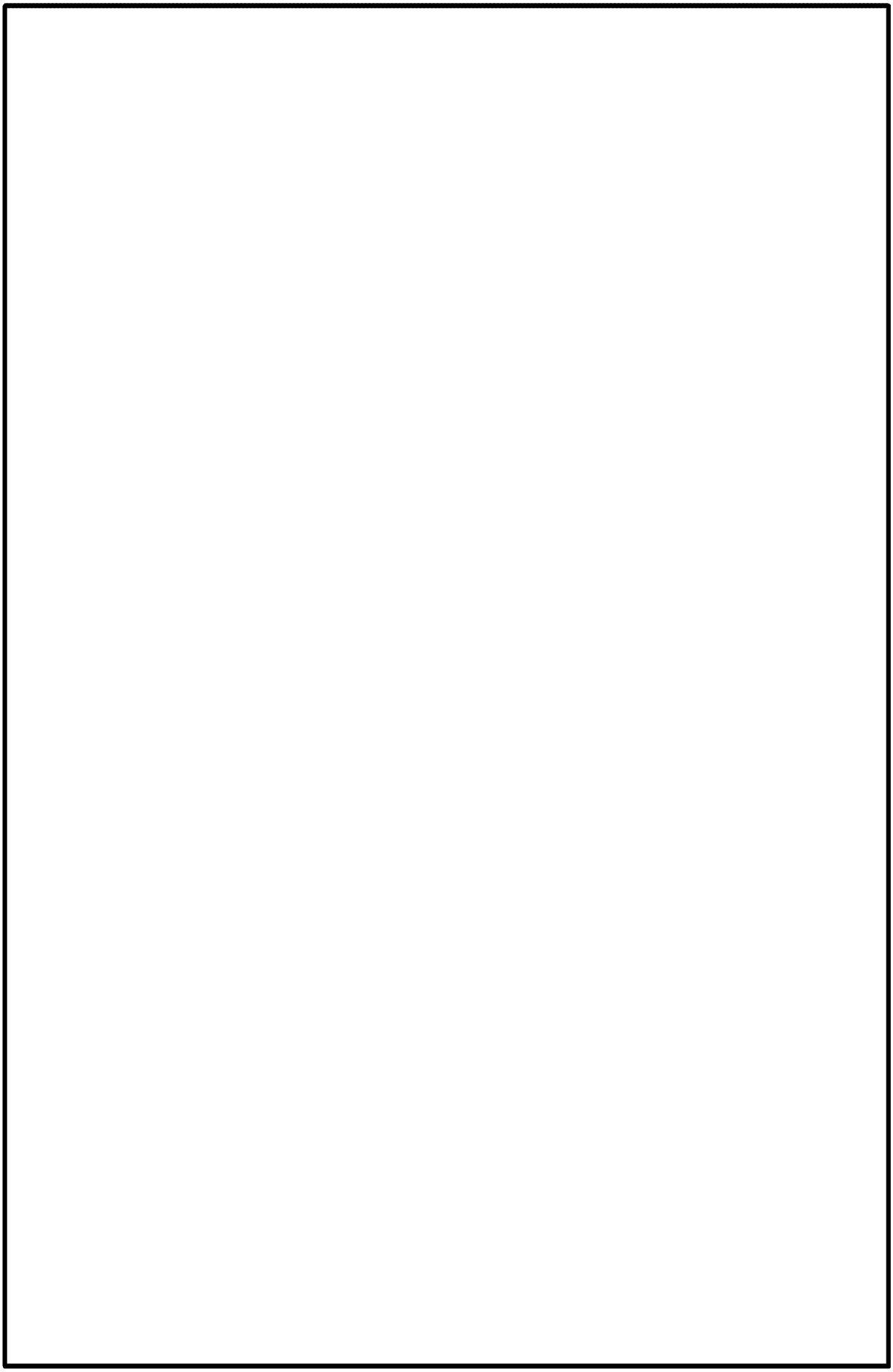

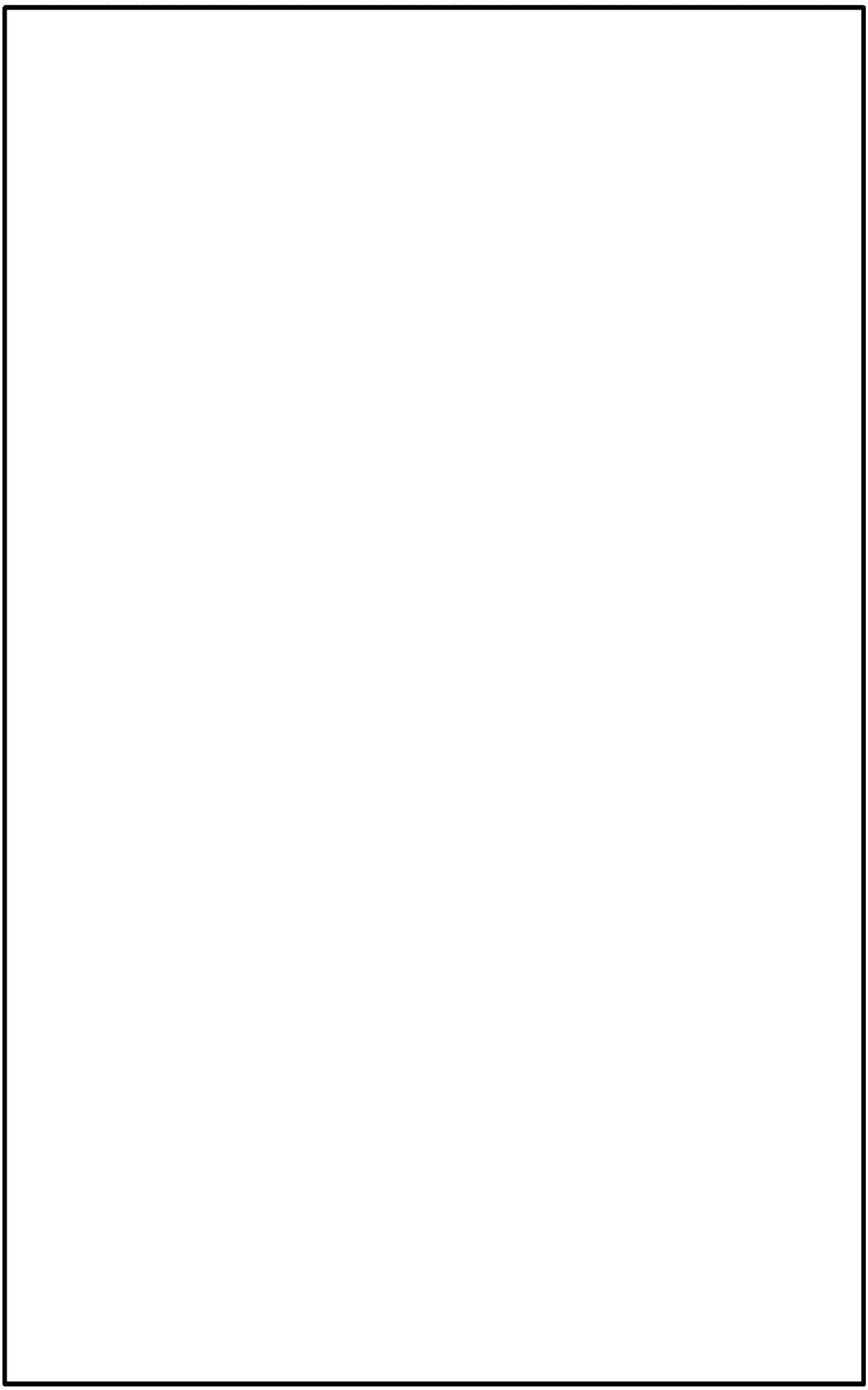

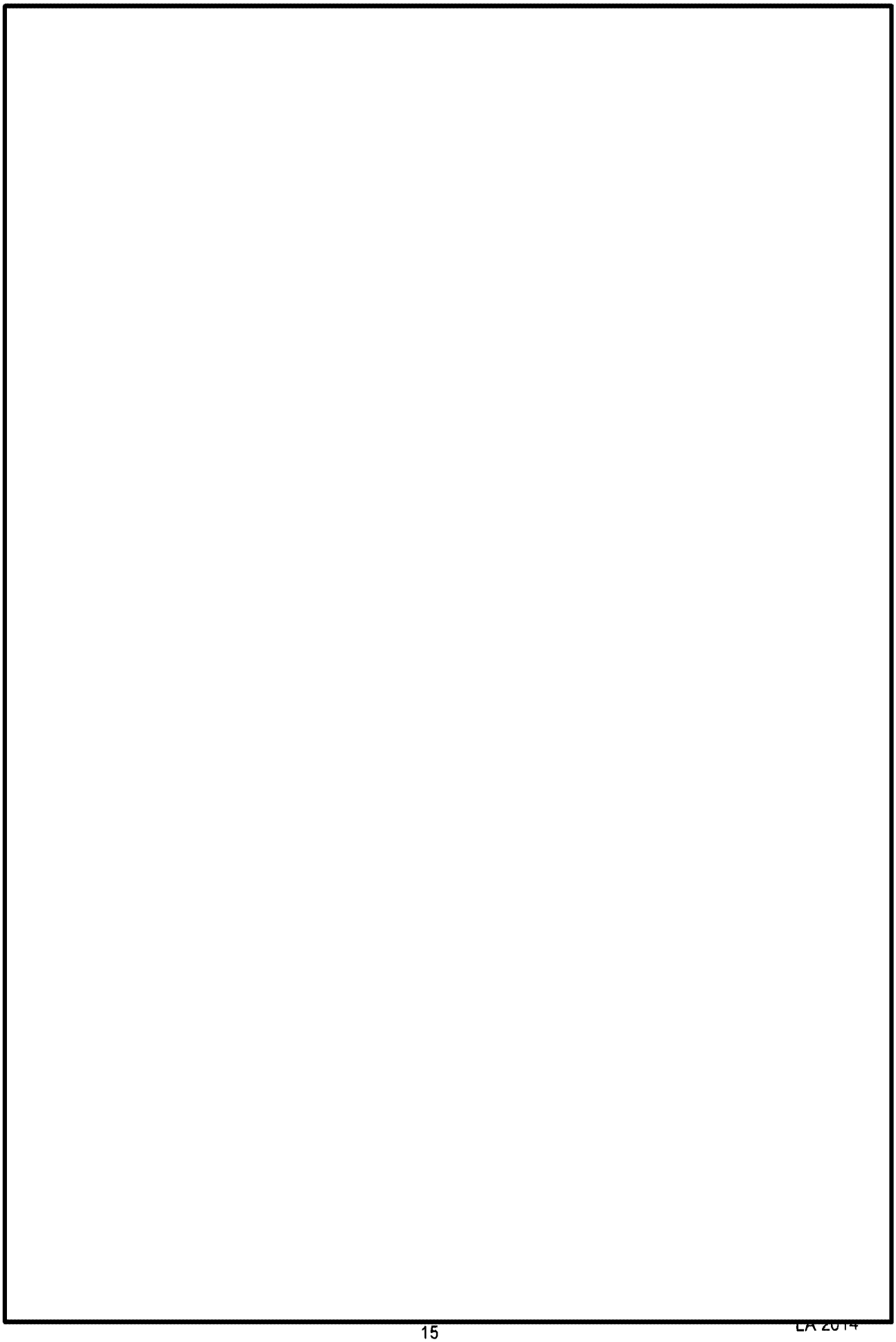

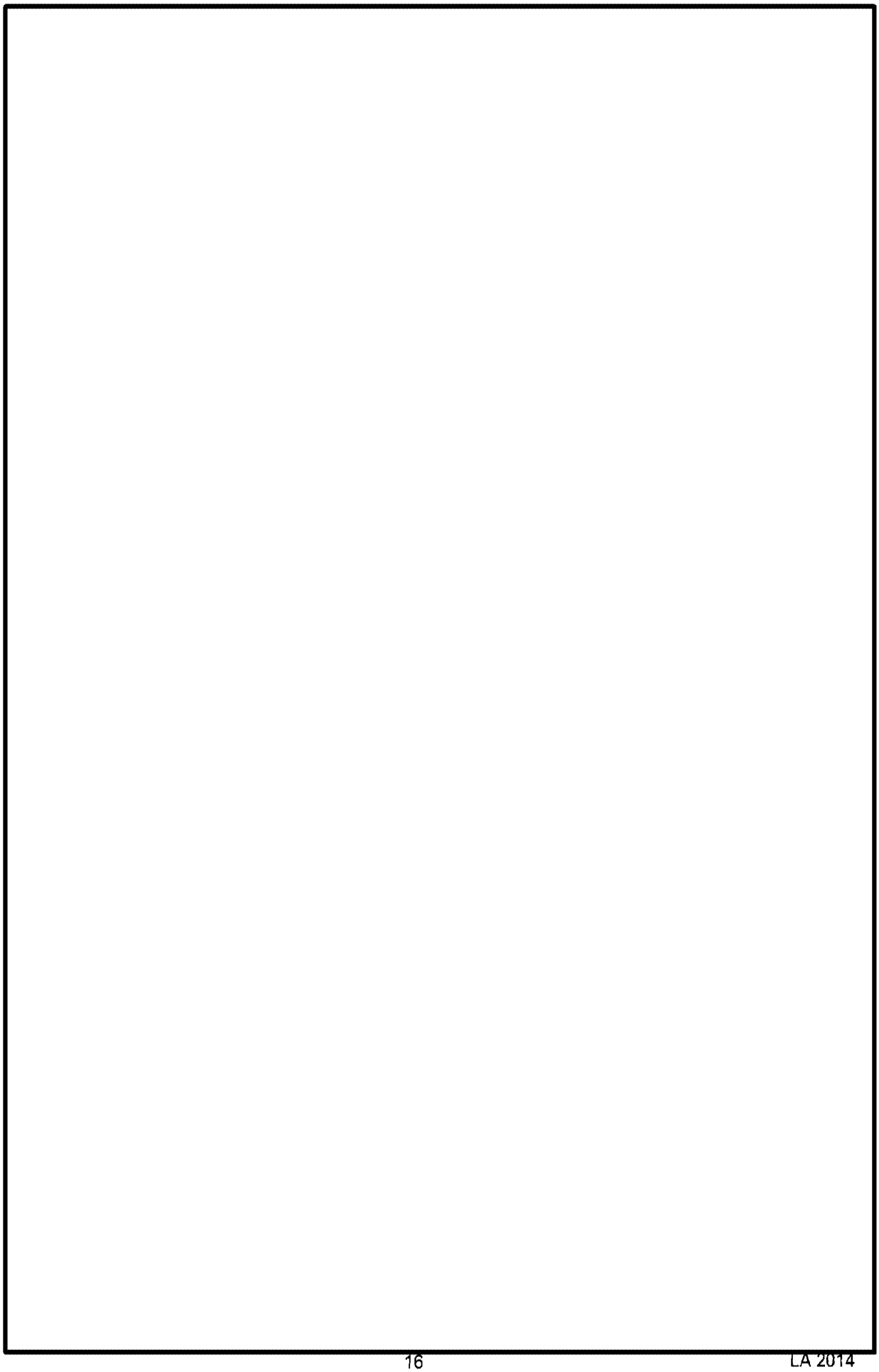

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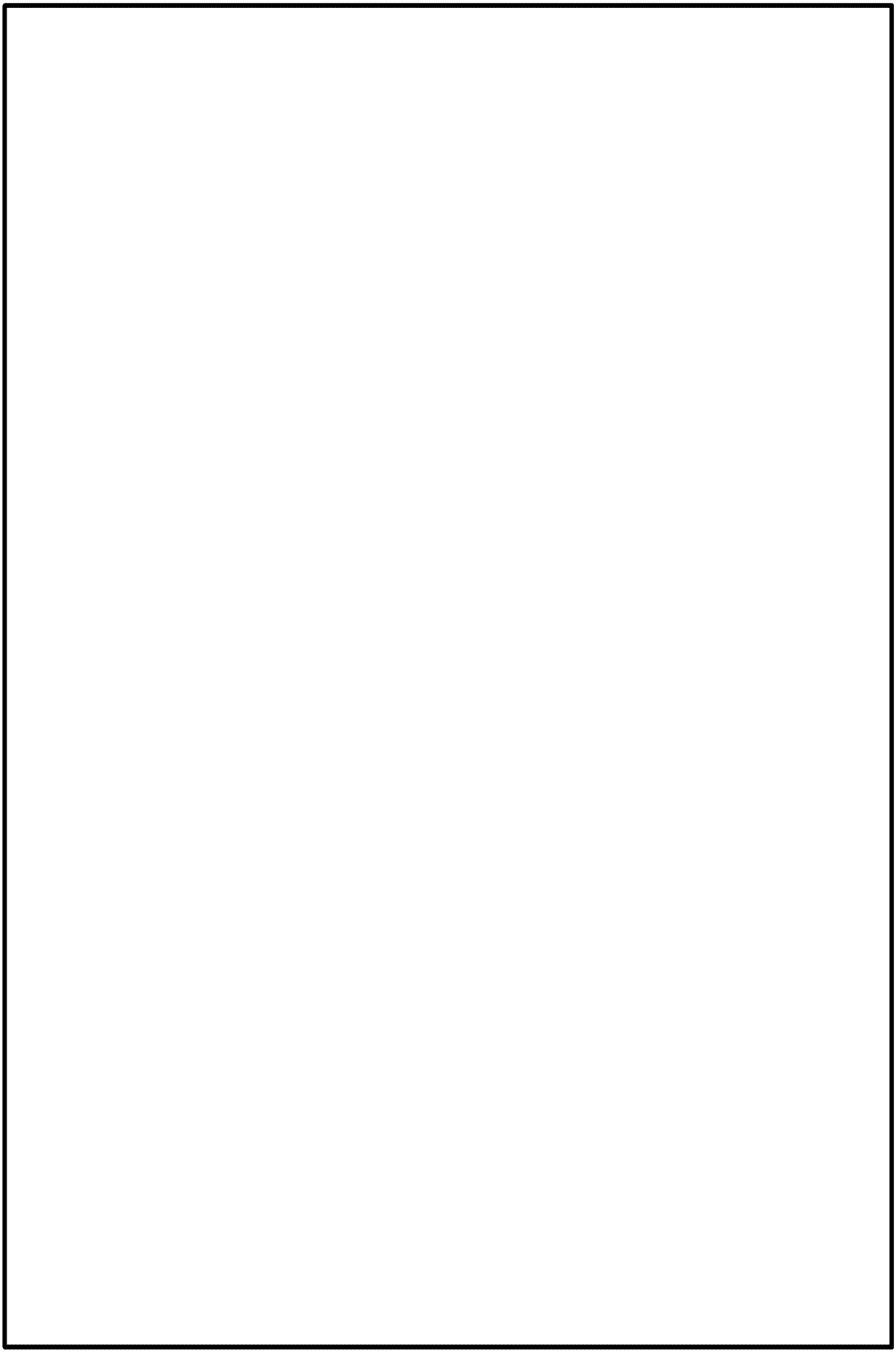

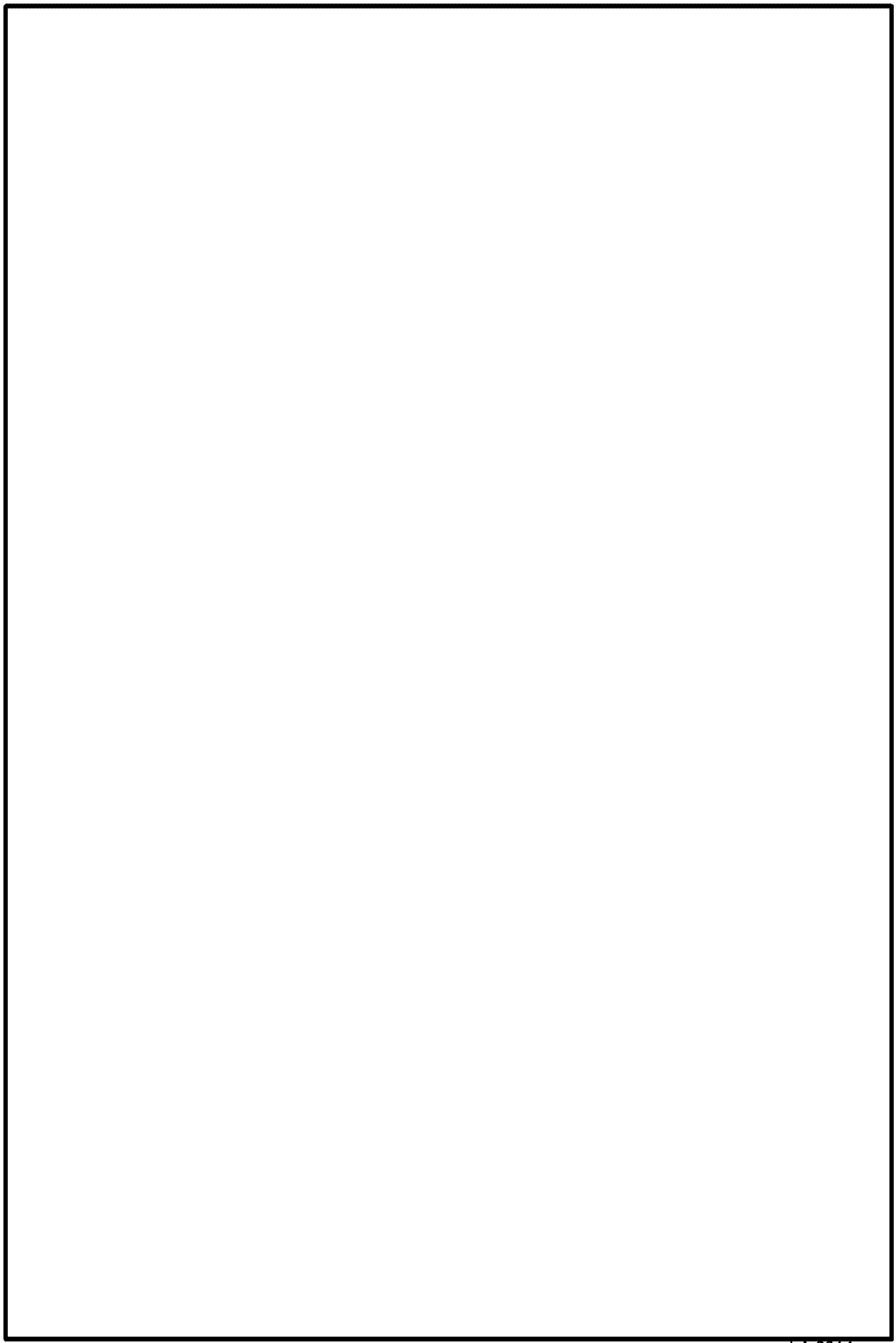

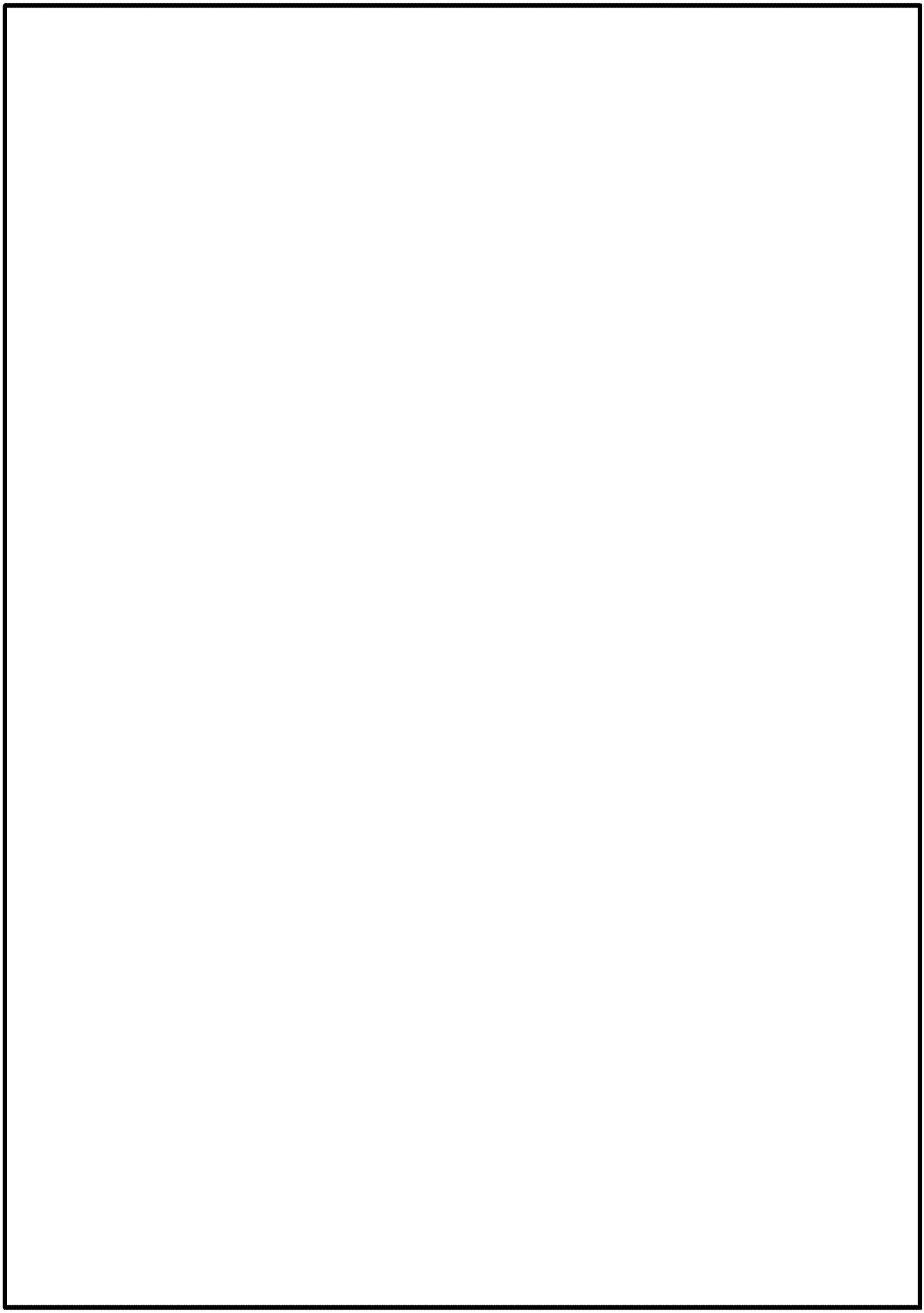

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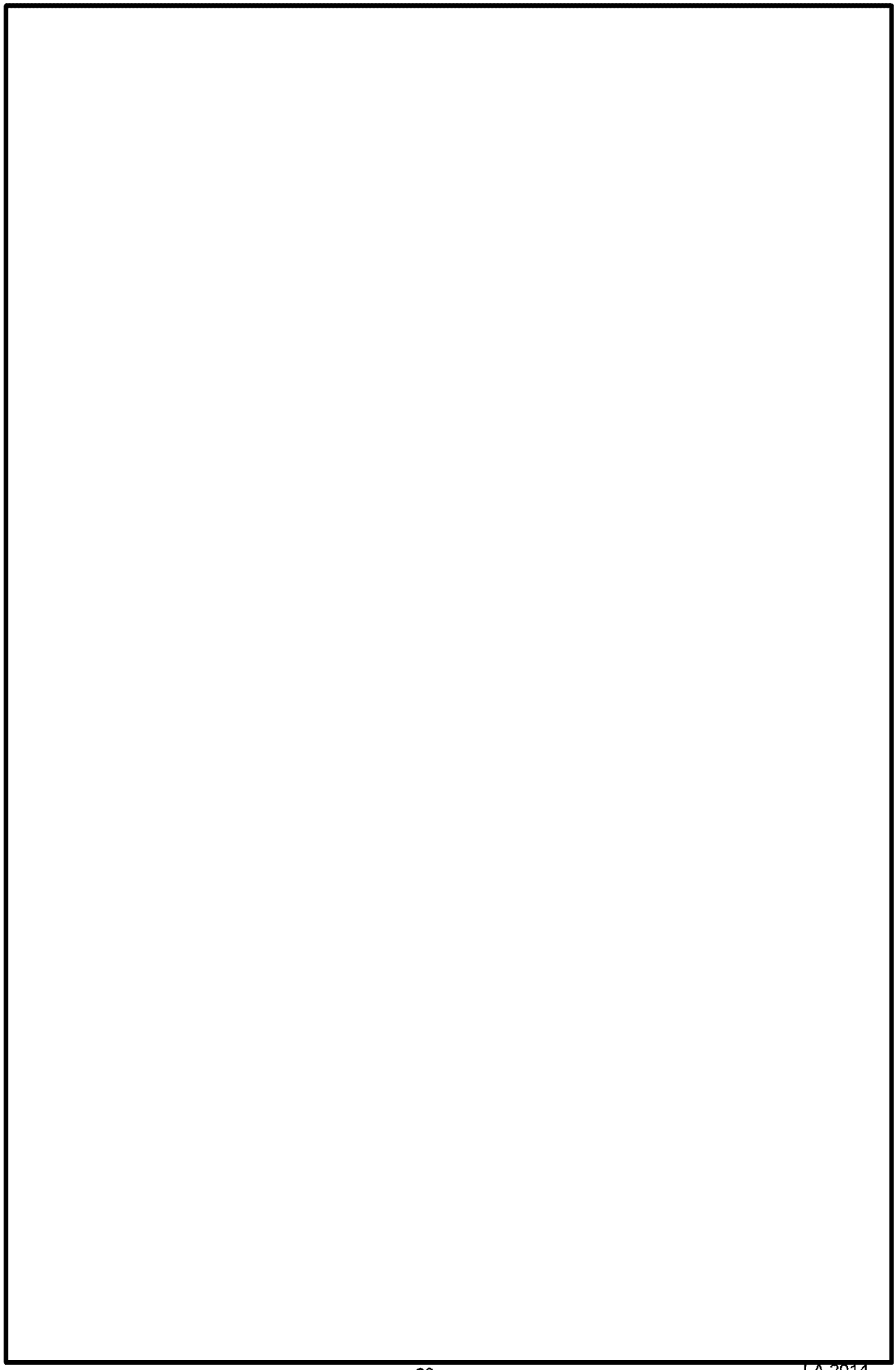

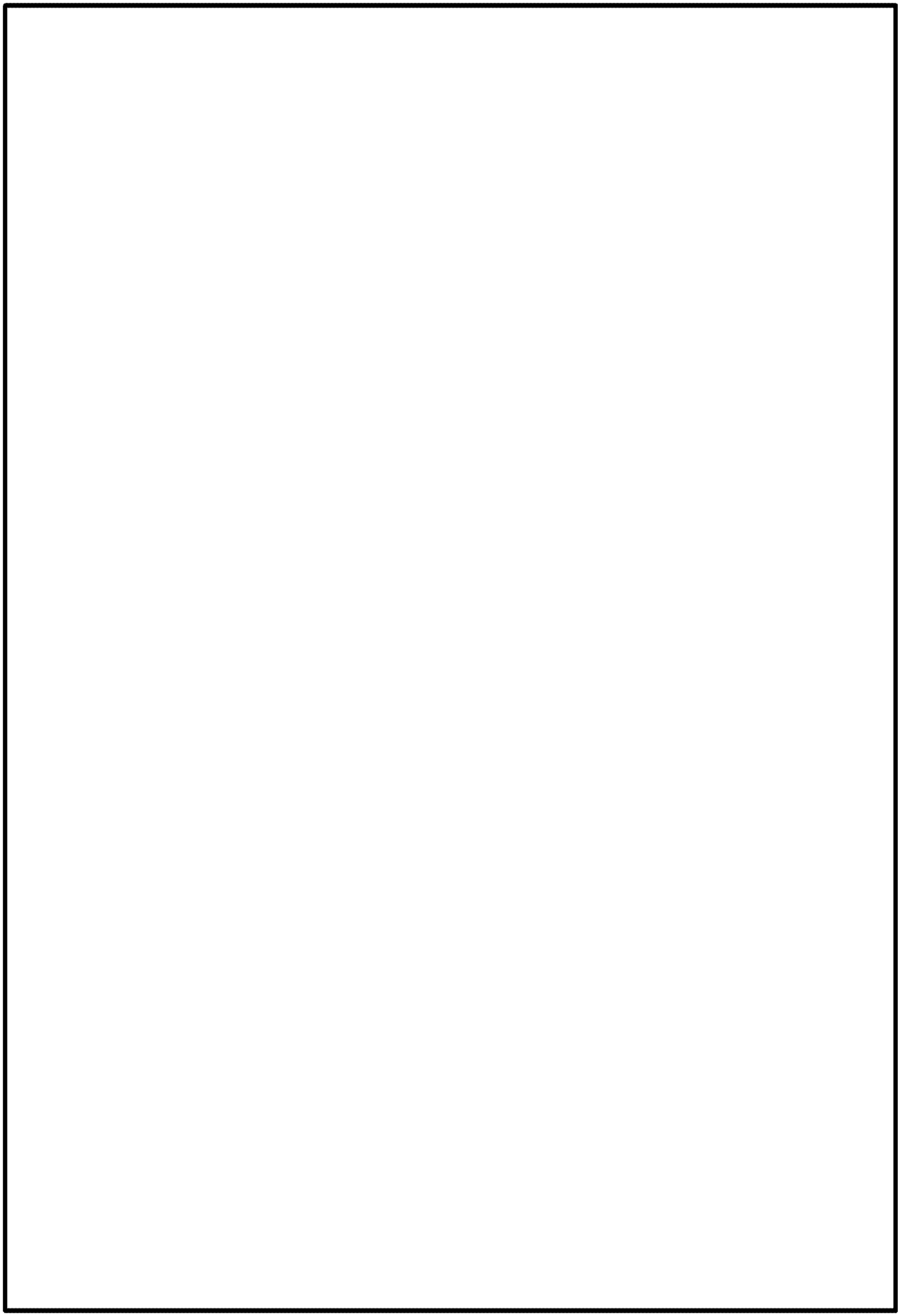

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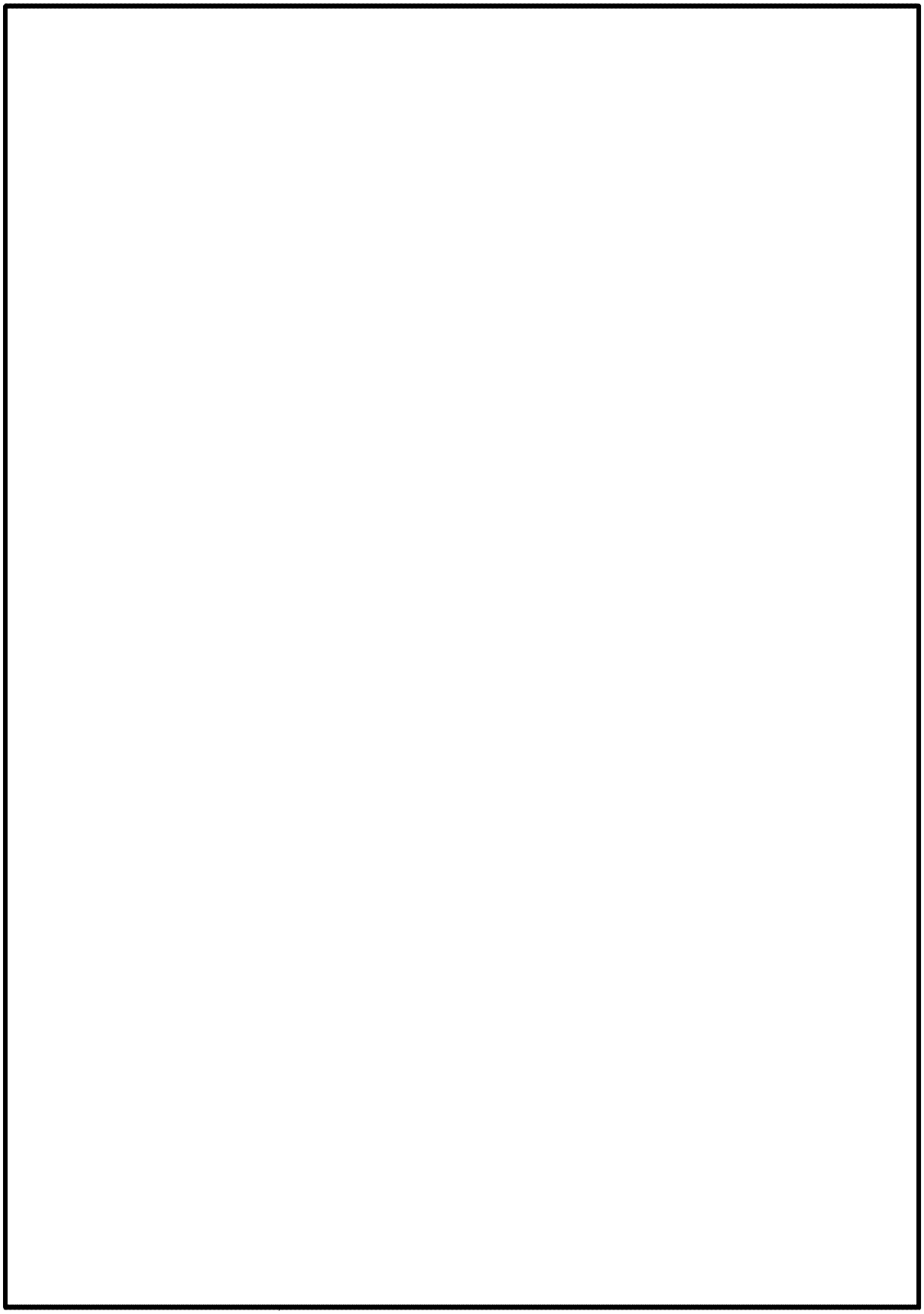

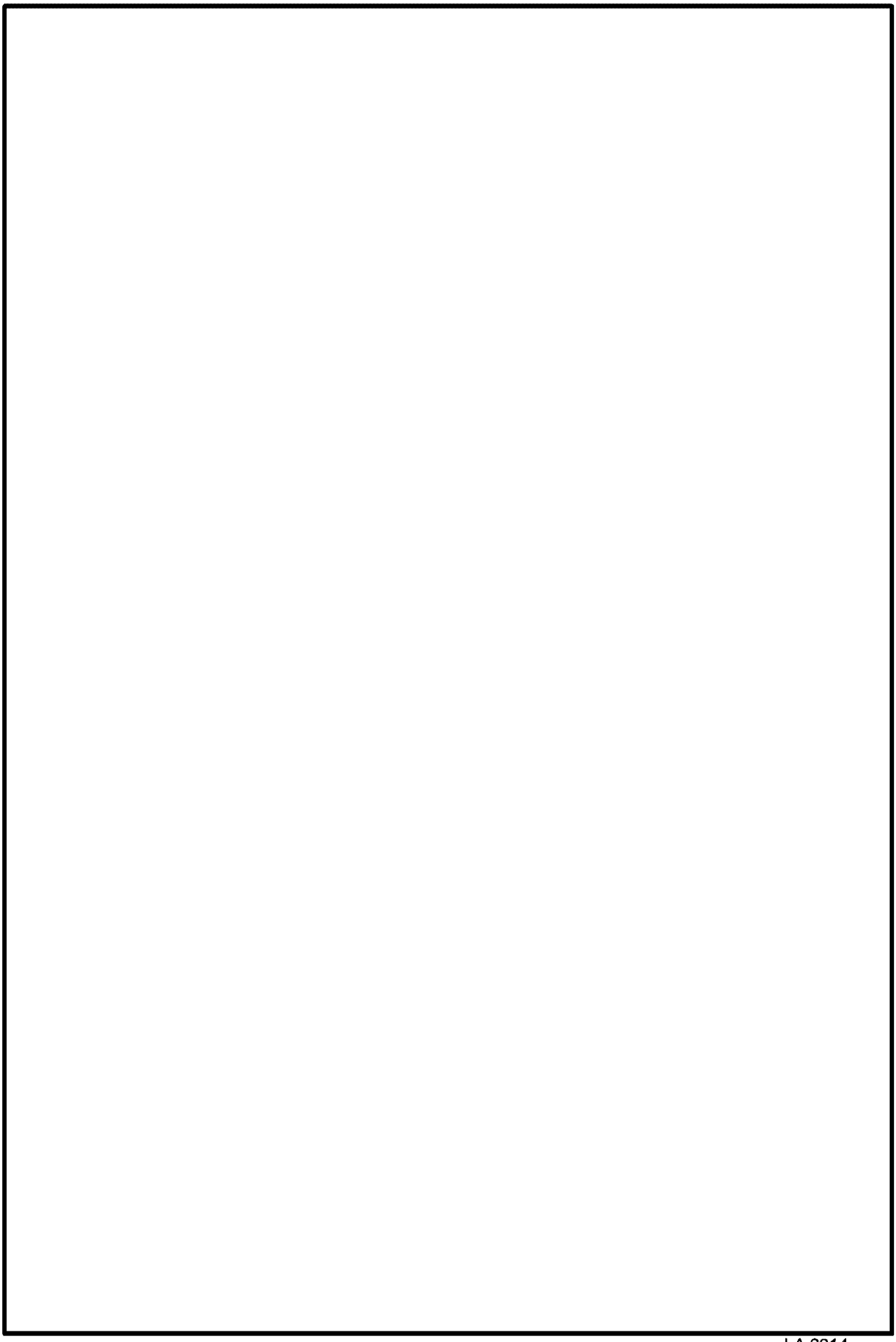

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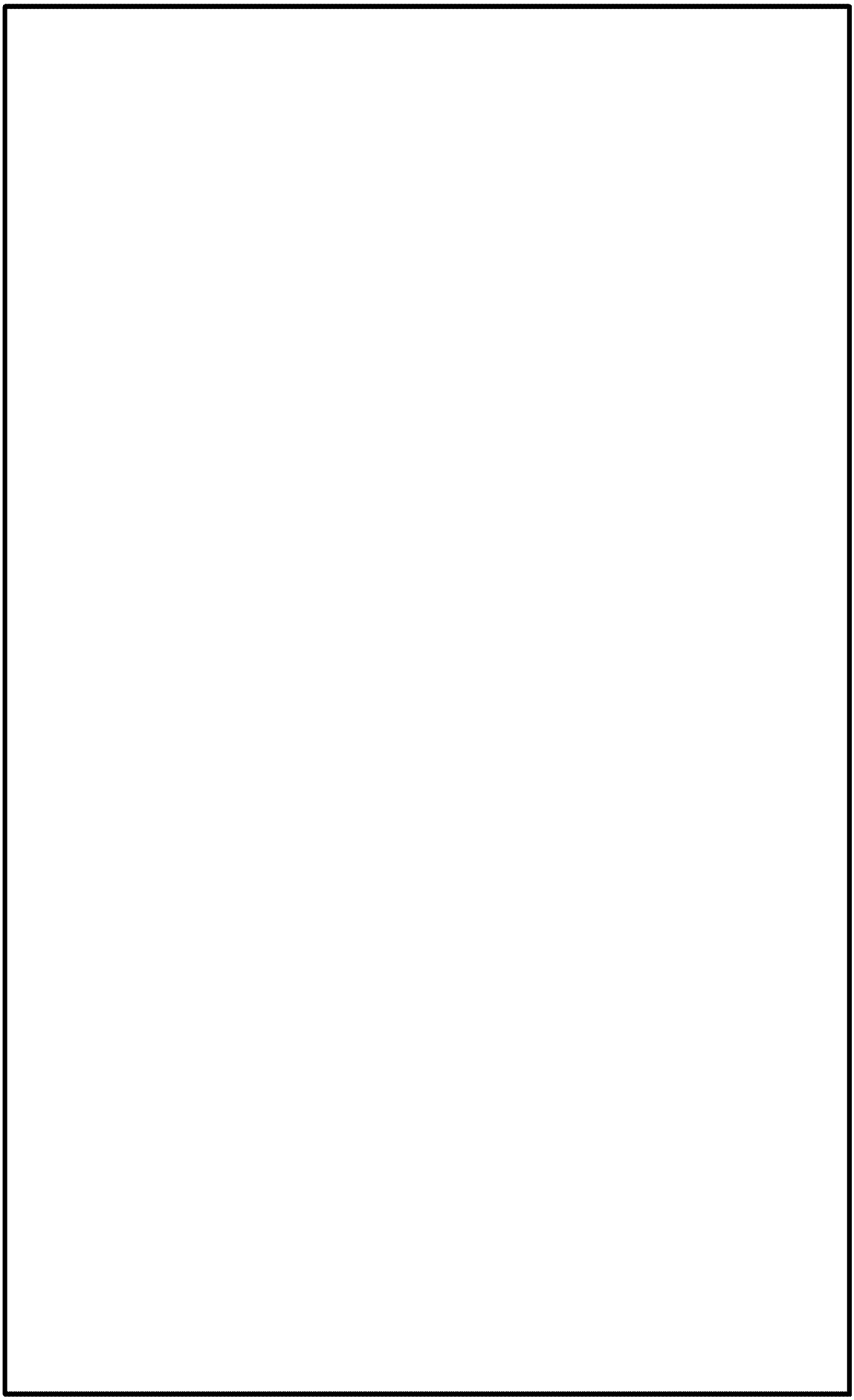

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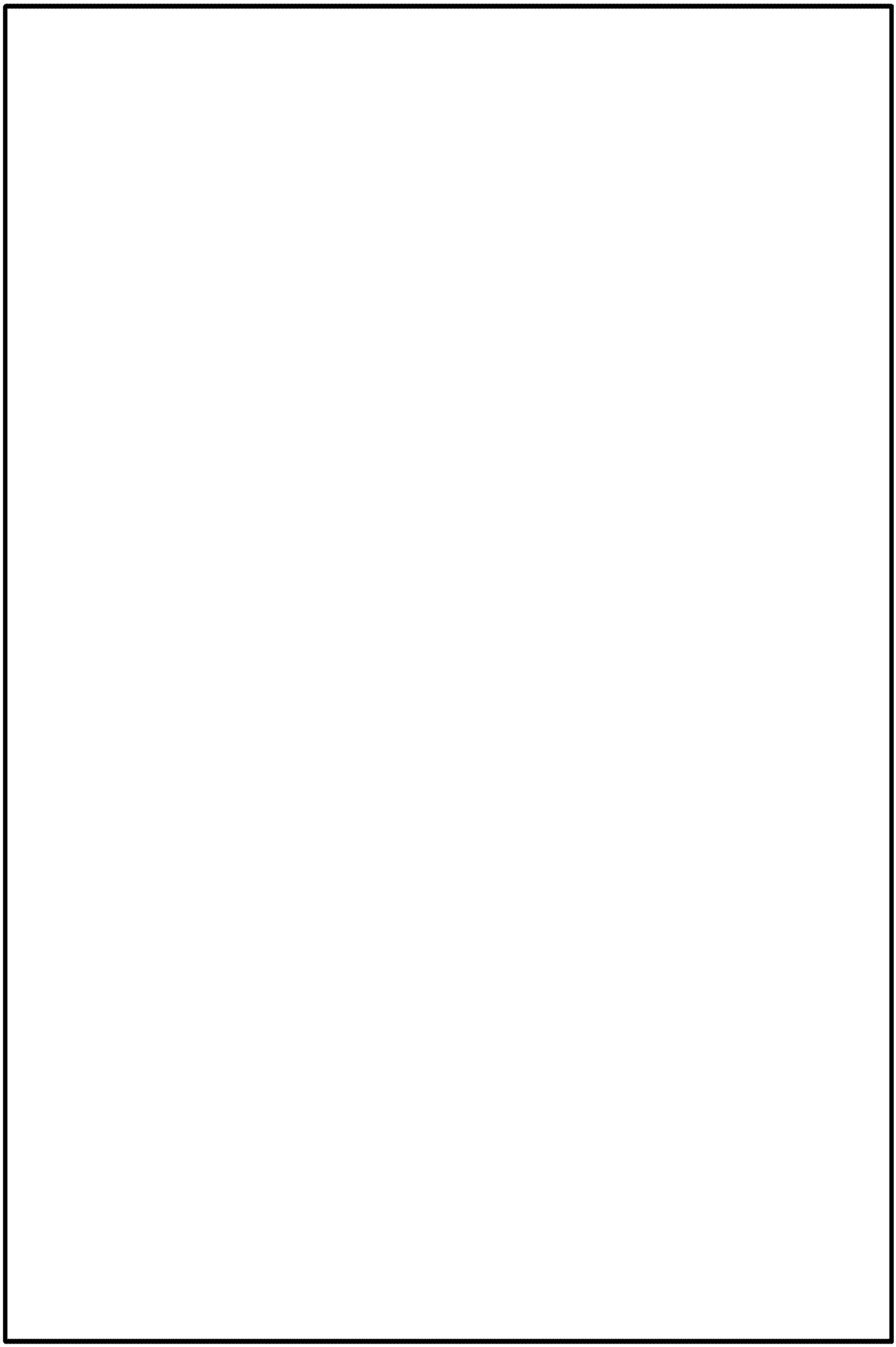

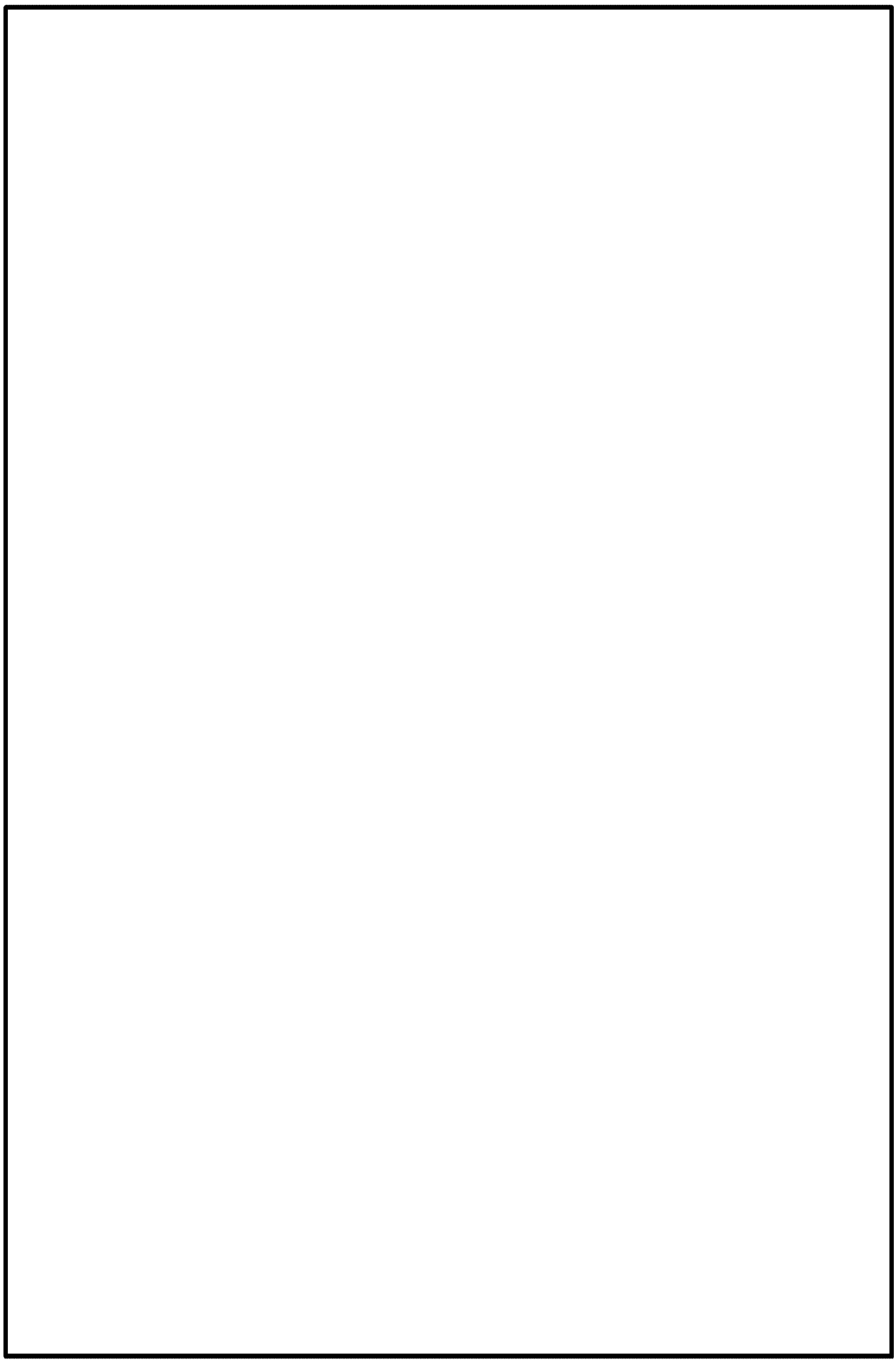

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(Signatures on the following page)

IN WITNESS WHEREOF, the parties have executed this License, as of the date first stated above

Licensee:

QUEENS BLVD VENTURES, LLC

By: _____
George Xu
Managing Member

Witness: _____

Licensor:

HOLIDAY HOSPITALITY FRANCHISING, LLC

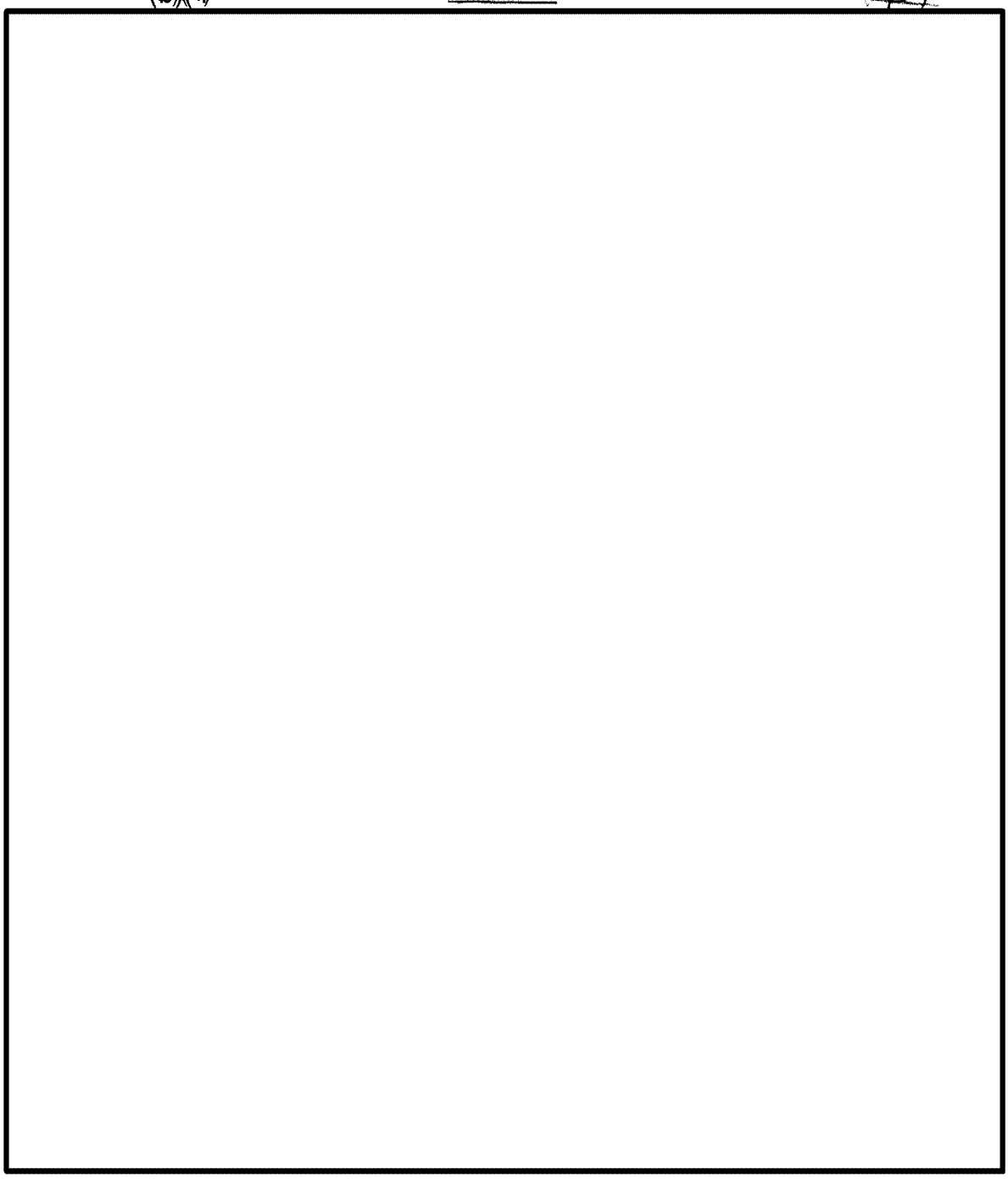
By: Six Continents Hotels, Inc., its sole managing member

By: _____
Jenny Tidwell
Vice President
Franchise Licensing and Compliance

Attest: _____
Assistant Secretary

(b)(4)

GUARANTY



IN WITNESS WHEREOF, each of the undersigned has signed this Guaranty under Seal, as of this _____ date of _____ 2014.

Witness:

Guarantor:

Legal signature,George Xu
Address: 382 EAST SHORE RD
GREAT NECK, NY 11024
SSN: 086-76-4226

ATTACHMENT "A"

Facilities and Services (paragraph 1):

Site-Area and general description:	8 story, Interior Corridor
Fee owners (names and addresses):	Queens Blvd Ventures, LLC 35-06 Leavitt Street, Suite CF- A Flushing, NY 11354
Separate parcels for signs:	NA
Number of approved guest rooms (including suites):	140
Number of approved suites:	42
Restaurants and lounges (number, seating capacity, names and description):	NA
Gift shop:	NA
Other concessions and shops:	NA
Parking facilities (number of spaces, description):	140 +/- parking spaces
Swimming pool:	NA
Other facilities and services:	Fitness Center Meeting Space. 500 sq. ft.

Ownership of Licensee (paragraph 10):

QUEENS BLVD VENTURES, LLC		**100%**
XU HOLDINGS, LLC, member		52%
George Xu,shareholder	1%	
Xu Family Holdings Trust, shareholder	99%	
Ching Yi Tseng, member		23%
HLH Golden Mountain, LLC, member		20%
Andrew Hwang, member	90%	
James Hwang, member	5%	
[illegible], member	5%	
Barbara Yee, member		5%

ATTACHMENT "B"

THE WORK

A. BEFORE CONSTRUCTION BEGINS.

Before starting construction of the Hotel, Licensee must (at Licensee's sole expense):

1. Submit to Licensor evidence of insurance as required under this License.

2. Submit to Licensor evidence that Licensee is entitled to possession of the premises on which the Hotel will be located, which documents shall be subject to Licensor's approval.

3. Obtain any and all approvals, permits or licenses required for construction to begin.

4. Submit for Licensor's review and approval, Preliminary Plans to Licensor at least two hundred and ten (210) days before Ground Break (no later than **February 1, 2015**) (**"Ground Break"** means the completion of the Hotel building foundation through ground-level or the completion of the finished ground floor slab) starting construction **or such other date as Licensor may agree with Licensee in writing** ("Preliminary Plans" means site plans, building floor plans (all floor levels), and exterior elevations as prepared by a qualified, licensed professional with knowledge of commercial building design and construction, including spatial relationships, and general quality of building systems, elements, products and materials, as is necessary to describe adequately the design of the Hotel).

5. Submit for Licensor's review and approval, Final Plans to Licensor at least one hundred and twenty (120) days before Ground Break (no later than **May 1, 2015**) and before final submittal to Licensee's local building authority **or such other date as Licensor may agree with Licensee in writing** ("Final Plans" means final versions of the Construction Plans and associated specifications including architectural, civil, structural, mechanical, electrical, plumbing, fire protection, landscape and other specialty consultant design documents with such detail and containing such information as Licensor may additionally request). The Final Plans as submitted to Licensor shall conform to then prevailing System standards, including the construction standards set forth in the Standards and address all revisions required by Licensor's review and approval of the Preliminary Plans.

6. Submit to Licensor a pre-construction disability compliance certification signed by an architect with professional experience applying the requirements of the Americans with Disabilities Act ("ADA") and the ADA Standards, in the form of **Attachment C** (the "**ADA Certificate**"). Such certification must confirm the qualifications of the architect and that the Final Plans, as designed, comply with Title III of the ADA and any other applicable accessibility laws, ordinances or requirements.

7. Preliminary Plans and Final Plans to Licensor in Adobe Acrobat PDF format and in paper, "hard copies" standard sized, scaled drawing sheets or such other format as Licensor may specify to Licensee in writing.

B. CONSTRUCTION.

1. Construction shall not begin unless and until Licensor has approved the Final Plans and Licensor has received the properly executed ADA Certificate. Thereafter, no change shall be made to the Final Plans without the prior written consent of Licensor. Notwithstanding the foregoing, after the Final Plans have been approved, if in the course of actual construction any change in the Final Plans occurs, Licensee shall notify Licensor promptly, and in no event later than ten (10) days after Licensee becomes aware of or should have been aware of any such change.

2. Licensee must complete Ground Break of the Hotel by **September 1, 2015.**

3. Licensee must submit for Licensor's review and approval any and all signage, shop drawings, guest room FF &E and common area FF & E plans and associated specifications ("FF & E Specs") to Licensor, as designed and prepared by a licensed or accredited design professional with commercial building design background, no later than thirty (30) days after Ground Break. Thereafter, no change shall be made to the FF &E Specs without the prior written consent of Licensor. Notwithstanding the foregoing, after the FF & E Specs have been approved, if in the course of actual construction any change in the FF & E Specs occurs, Licensee shall notify Licensor and submit changes, within ten (10) days of any such change, for Licensor's review and approval.

4. Licensee shall submit the FF & E Specs to Licensor in the following format: 30" x 24" color boards representing finishes for all guest room/suites and commercial areas with accompanying specifications for all products.

5. Licensee must notify Licensor if it elects to use any Licensor-pre-approved product, design, or FF&E package.

6. Licensee must submit shop drawings, color boards and specifications to Licensor for its review and approval before purchasing and installing any FF & E Specs, including without limitation, any signage.

7. Once the construction has commenced, it shall continue without interruption (except for interruption by reason of events constituting force majeure) until construction is completed.

8. Notwithstanding the occurrence of any events constituting force majeure, or any other cause, construction shall be completed and the Hotel shall be furnished, equipped and shall otherwise be made ready to open for business in accordance with the License not later than **July 16, 2016** (or such other date as Licensor and Licensee may agree in writing).

9. Licensee shall cause the Hotel to be constructed according to the Final Plans and the FF&E Specs approved by Licensor, and Licensor shall determine at its election whether construction has been completed in accordance with the Final Plans and the FF&E Specs.

10. Extension requests to the starting date of construction of a new development may be considered on a basis of monthly increments up to a twelve (12) month period for any one extension. Requests for less than six (6) months must be accompanied by a sum equal to the then current standard minimum Application Fee for the proposed number of rooms for the Hotel, prorated according to the period of time requested. Requests for a six (6) month extension must be accompanied by a sum equal to one half (1/2) of the then current standard minimum application fee for the proposed number of rooms for the Hotel. Requests for extensions of more than six (6) months and up to twelve (12) months must be accompanied by a sum equal to the then current standard minimum Application Fee for the proposed number of rooms for the Hotel. Approval of extension requests is not automatic. The Licensee will be responsible for any and all expenses that may be incurred by Licensor in the processing of an extension request.

11. If an extension request is approved and construction begins within the extension period, the extension fee paid will be refunded, without interest, less the expenses incurred in processing the extension request. If construction does not commence within the extension period, the extension fee will be deemed earned by Licensor and Licensor may, at its election, refund or retain all or any part of the extension fee.

C. OPENING OF THE HOTEL.

1. The Hotel shall not be opened for business under the System unless and until:

    (a) Licensor has approved and accepted, in advance, in writing:

(i) the construction of the Hotel in accordance with the Final Plans and the FF & E Specs and Licensor's requirements;

(ii) the installation of all items of equipment, furniture, signs, computer terminals and related supplies and other items; and

(iii) the staffing and training of such staff necessary to operate the Hotel in accordance with Licensor's requirements;

(b) no accounts of Licensee are past due to Licensor, its parents, subsidiaries or affiliated companies;

(c) Licensee is in full compliance with all of the terms of this License;

(d) Licensee has submitted to Licensor all certificates of insurance (and copies of insurance policies if requested by Licensor) as required under the License;

(e) Licensee has obtained all necessary governmental approvals, licenses and permits to possess, occupy and operate all areas of the Hotel, according to Licensor's requirements, including specifically without limitation, a permanent certificate of occupancy; and

(f) Licensee has submitted to Licensor a post–construction disability compliance certification signed by Licensee and an architect with professional experience applying the requirements of the ADA and the ADA Standards, in the form of **Attachment C** – ADA Certificate. Such certification must confirm the qualifications of the architect, the architect has inspected the as-built conditions of the Hotel and building site and that the Hotel and building site have been built in compliance with Title III of the ADA and any other applicable accessibility laws, ordinances or requirements

2. Notwithstanding anything else herein to the contrary, Licensor may, in its sole judgment, authorize Licensee to open and operate the Hotel as the brand of hotel specified in paragraph 15 of this License, even though Licensee has not fully complied with the terms of this License, provided that Licensee agrees to fulfill all remaining terms of this License on or before the dates established by Licensor as a condition to allowing opening of the Hotel when less than all of the required work has been completed.

3. Licensee acknowledges and agrees that: (a) Licensor's review of Preliminary Plans, Final Plans, FF & E Specs or other materials, documents or items submitted to Licensor for review and approval pursuant to this License (collectively "Licensee's Plans") is exclusively for determination of compliance with the Standards, the requirements of the System and the terms of this License and not for compliance with all applicable law or adequacy or suitability for the purpose intended, (b) no approval of Licensee's Plans by Licensor shall constitute, be deemed or construed in any way as, Licensor's consent, approval, acknowledgment or recognition that Licensee's Plans comply with applicable law or are adequate or suitable for the purpose intended, (c) Licensee shall have the sole responsibility for compliance with applicable law and for the adequacy and suitability for the purpose intended and (d) nothing in this License, and no review and approval (or opportunity for review) by Licensor of Licensee's Plans shall be deemed to create a duty on the part of Licensor that could give rise to any cause of action by Licensee or any of its affiliated entities or persons, or any other person or entity against Licensor or any of its parents, subsidiaries or affiliated entities nor their respective officers, directors or employees, based on any alleged deficiency in the adequacy, suitability or legality of Licensee's Plans.

ATTACHMENT "C"

InterContinental Hotels Group

ACCESSIBILITY CERTIFICATION

Holidex Code: _____

Location #: _____

Hotel Name (as it appears in the IHG Website): _____

Hotel Address: _____

Licensee: _____

This certification is intended to comply with the accessibility standards and/or the Travelers with Disabilities Section of the relevant brand standards as well as the InterContinental Hotels Group Design & Construction standards, all of which require compliance with Title III of the Americans with Disabilities Act (ADA), including the 1991 and/or 2010 ADA Standards for Accessible Design (ADA Standards), and all other applicable accessibility requirements. These standards require as follows:

a. For newly constructed hotels: (1) a pre-construction certification of the final plans for the building and building site submitted prior to the commencement of construction by an architect with professional experience applying the requirements of the ADA and the ADA Standards; and (2) a post-construction certification submitted after an inspection of as-built conditions signed by Licensee.

b. For renovations required for relicensing, conversions, brand changes or changes of ownership: a post-renovation certification submitted after an inspection of as-built conditions signed by Licensee.

c. For voluntary renovations: a post-renovation certification submitted after an inspection of as-built conditions signed by Licensee.

Please select the option for which this Certification is submitted:

☐ **Newly Constructed Hotel** (Must submit Certification Options A & B below)

☐ **Renovation Required for Relicensing, Conversion, Brand Change or Change of Ownership** (Must submit Certification Option B below)

☐ **Voluntary Renovation** (Must submit Certification Option B below)

CERTIFICATION

Please select the Option(s) for which Licensee is submitting this Certification.

☒ Option A: Newly Constructed Hotel - Pre-Construction Certification

The undersigned certifies that (1) he/she is an architect with professional experience applying the requirements of the ADA and the ADA Standards; and (2) the final plans for construction of this building and building site are in compliance with Title III of the ADA and any other applicable accessibility laws, ordinances or requirements, to the best of his/her knowledge, information, and belief.

Name of Architect: Raymond Chan

Name of Firm: Raymond Chan Architect

Signature: _____

Title: Architect Date: _____

☒ Option B: Licensee Post-Construction or Post-Renovation Certification

The undersigned Licensee, to the best of his/her knowledge, information, and belief, certifies that this building and building site have been built, renovated or altered in compliance with Title III of the ADA and any other applicable accessibility laws, ordinances or requirements, including, but not limited to, any accessibility laws or requirements regarding the following:

- The appropriate number and distribution of accessible guest rooms
- Features in accessible guest rooms
- Parking and exterior accessible routes
- Public entrances and interior accessible routes
- Service counters
- Public and common restrooms
- Meeting rooms
- Food and beverage establishments
- Swimming pools, spas, and fitness centers

Name of Licensee Principal Correspondent: George Lu

Signature: _____

Date: _____

By receiving or accepting this Certification, IHG is not confirming that Licensee and/or Licensee's property are in compliance with all applicable federal, state, and local accessibility requirements. Per the relevant license agreement, Licensee is solely responsible for compliance with all applicable accessibility requirements, including the ADA and the 1991 and/or 2010 ADA Standards for Accessible Design.

REGIONAL CEN I'ER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: QB VENTURES EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

MATTER OF HO ROADMAP

R: ENTURY NEW YORK CITY REGIONAL CENTER, LLC
EC IPT NO: RCW1420251818
2C : QB VENTURES EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

xhibit 8:

re ensive I-526 Business Plan

si e I-526 Business Plan in accordance with the

EB-5 BUSINESS PLA

Holiday Inn Express & Suites

QB Ventures EB5 Capital, LLC

64-06 Queens Blvd. Woodside, NY

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EXECUTIVE SUMMARY

The Holiday Inn Express & Suites plans to construct and develop a hotel building which consists of a 135-room and suites hotel, including a breakfast room, a fitness room, business center, market pantry, outdoor lounge, and vending areas (the "Project") in Woodside, Queens, one of the five boroughs of New York City. The project is located at 64-06 Queens Blvd in Woodside, New York. This area encompasses some of the most commercially active portions of downtown Flushing, including the majority of Chinese and Korean businesses. It is also a popular destination for Asian tourists. It has an excellent public transportation and roadway network and two major airports, La Guardia Airport and New York JFK Airport. The area surrounding the subject site is characterized by mid-rise apartment buildings, neighborhood businesses, and community facilities. Overall, the supportive nature of the development in the immediate area is considered appropriate for and conducive to the operation of a hotel.

QB Ventures EB5 Capital, LLC will be the new commercial enterprise, (hereinafter the "NCE") a newly formed entity for the purpose of raising EB-5 investment capital. Queens Blvd Ventures, LLC is the job creating entity (hereinafter "JCE") that owns and operates the project. The NCE will be managed by Mr. George Xu, the developer and owner of the Project. The business entity structure is outlined in the table below.

New Commercial Enterprise (NCE)	**QB Ventures EB5 Capital, LLC**
Regional Center (RC)	Century New York City Regional Center, LLC
Job Creating Entity (JCE)	Queens Blvd Ventures, LLC

The Holiday Inn Express & Suites EB-5 Project entails new construction of a hotel building which consists of a 135-room and suites hotel, including a breakfast room, a fitness room, business center, market pantry, outdoor lounge, and vending areas in Woodside, Queens, one of the five boroughs

of New York City. Holiday Inn Express (and Holiday Inn Express Hotel & Suites) is an upper-midscale, limited-service hotel brand by InterContinental Hotels Group (IHG). The construction and operation of the regional base of invested capital, the creation of new jobs, and the associated economic growth effects will be put into effect with the capital raised from immigrant investors through the EB-5 Program.

The NCE is seeking to raise a maximum of [redacted] in investor capital from [redacted] EB-5 investors for the EB-5 Immigrant Investor Program (hereinafter "EB-5") for the The Holiday Inn Express & Suites. According to the Economic Impact Report, the project will create [redacted] jobs, including [redacted] obs from direct and indirect from construction employment, and [redacted] jobs from hotel operations [redacted] direct jobs from operation, and [redacted] indirect jobs from operation).

LOCATION – TARGETED EMPLOYMENT AREA

The EB-5 investment within a targeted employment area is calculated at a ratio of $500,000 for every 10 jobs created. The maximum credited foreign investment the [redacted] jobs could support under the EB-5 Program is [redacted] capital raise. The Project is seeking to raise [redacted] from the EB-5 Program.

The project is located at 64-06 Queens Blvd in Woodside, NY 11377 . The location is in census tract 245 in Queens County, a designated Targeted Employment Area ("TEA") as of August 20, 2015, confirmed by the Empire State Development and New York State Department of Labor. Please see the TEA letters, attached at **Exhibit 4.**

Therefore, each EB-5 investor will be required to invest a minimum of $500,000 into the NCE.

DEVELOPMENT COSTS:

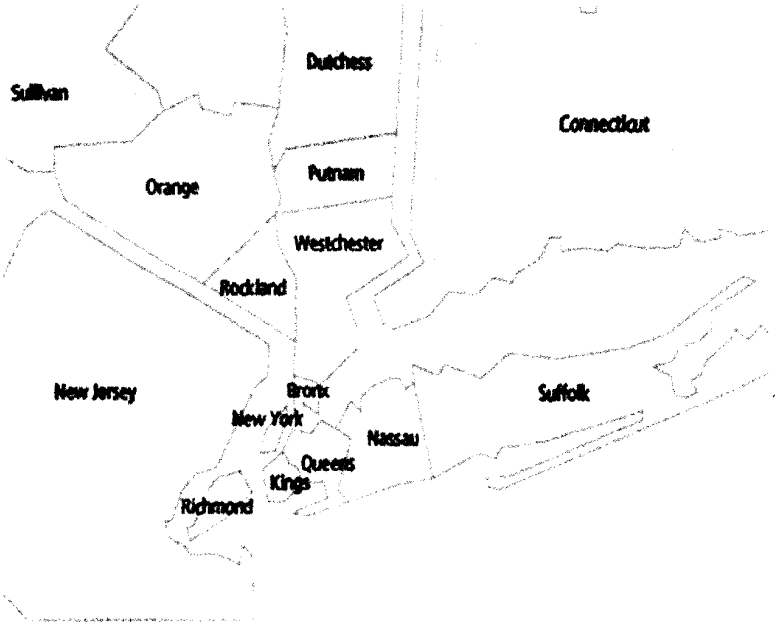
The total cost of the Project is estimated at [redacted] consisting of land costs of approximately [redacted] hard construction costs of approximately [redacted] and soft and other costs of approximately [redacted] The owner's equity in the Project is [redacted] which is approximately [redacted] of the development costs. The Project is seeking to raise [redacted] n EB-5 investment funds. The Project is currently negotiating with banks to provide a senior loan in an amount up to [redacted] As one of Queens' most active real estate developers that has completed projects valued at over [redacted] the project's principal is very well positioned to obtain a senior loan in this amount.

REGIONAL CENTER:

QB Ventures EB5 Capital, LLC ("NCE") is managed by Century New York City Regional Center, LLC. The Regional Center was designated as a "regional center" on May 14, 2015. The NCE was organized as a New York Limited Liability Company on March 31, 2014 with the primary business objective to raise EB-5 capital to fund real estate development projects such as the Holiday Inn Express & Suites located at 64-06 Queens Blvd in Woodside, New York. The project is owned by the project developer and JCE, Queens Blvd Ventures, LLC. Mr. George Xu is the principal of Queens Blvd Ventures, LLC.

GEOGRAPHIC SCOPE:

The Holiday Inn Express & Suites is located in Queens County. The RC requests the following seven (7) counties to be included in the RC's geographic boundaries: Queens County, New York County, Kings County, Bronx County, Richmond County, Westchester County and Nassau County. Please see the County map below.



Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment requirement is not required if investment opportunities arise outside the geographic area referenced above.

NAICS CODES:

The RC development project requests designation in the following industries based on the North America Industry Classification System **("NAICS")** Code:

Construction Hard Costs

- Construction (Building & Site) – 2362/23622
- Wholesale Trade (FF&E) – 42/4232
- Hotel and Motel (including Casino) – 72251
- Food Services and drinking places – 72251
- Real Estate – 53112/5313

Financing & Soft Costs

- Other government enterprises – 921
- Architectural, engineering and related services – 5413
- Insurance - 5241
- Accounting tax preparation, bookkeeping services – 5412
- Legal Services – 5411
- Monetary authorities and depository credit intermediation – 5222
- Other miscellaneous professional and technical services - 5419

SECTION I: THE BUSINESS

OVERVIEW OF THE EB-5 PROJECT
DESCRIPTION OF THE BUSINESS; SERVICES & OBJECTIVES

THE HOLIDAY INN EXPRESS & SUITES

The Holiday Inn Express & Suites EB-5 Project entails the construction of a hotel buidling which consists of a 135-room and suites hotel, including a breakfast room, a fitness room, business center, market pantry, outdoor lounge, and vending areas in Woodside, Queens, one of the five boroughs of New York City. The Holiday Inn Express & Suites is an upper-midscale, limited-service hotel brand by InterContinental Hotels Group (IHG), offering a full-service hotel experience at a reasonable price.

The Holiday Inn Express & Suites is located in Woodside, Queens in New York City. The project site is located at 64-06 Queens Blvd in Woodside, New York 11377. The location is designated as a targeted employment area ("TEA") as of August 20, 2015. The Holiday Inn Express & Suites will feature 135 rental units, including a breakfast room, a fitness room, business center, market pantry, outdoor lounge, and vending areas. The eight-story property will open on March 1, 2018.

Holiday Inn Express (and Holiday Inn Express Hotel & Suites) is an upper-midscale, limited-service hotel brand by InterContinental Hotels Group (IHG). According to IHG, Holiday Inn Express is one of the fastest growing hotel brands in its segment. Holiday Inn Express offers competitive rates for both business and leisure travelers. All locations provide the complimentary "Express Start" breakfast bar, and many locations offer recreational amenities such as a swimming pool and/or fitness room. As of year-end 2014, there were 2,060 properties spanning 182,601 rooms in the Americas. In 2014, Holiday Inn Express hotels operated at an average occupancy rate of 68.5%, with an average daily rate of $108.48 and an average RevPAR of $74.26 in the Americas.

PROJECT LOCATION AND TARGET EMPLOYMENT AREA

The project is located at 64-06 Queens Blvd in Woodside, New York 11377. The location is in census tract 245 in Queens County, a designated Targeted Employment Area ("TEA") as of August 20, 2015, confirmed by the Empire State Development and New York State Department of Labor. Please see the TEA letter, attached at **Exhibit 4.** Therefore, each EB-5 investor will be required to invest a minimum of $500,000 into the NCE.

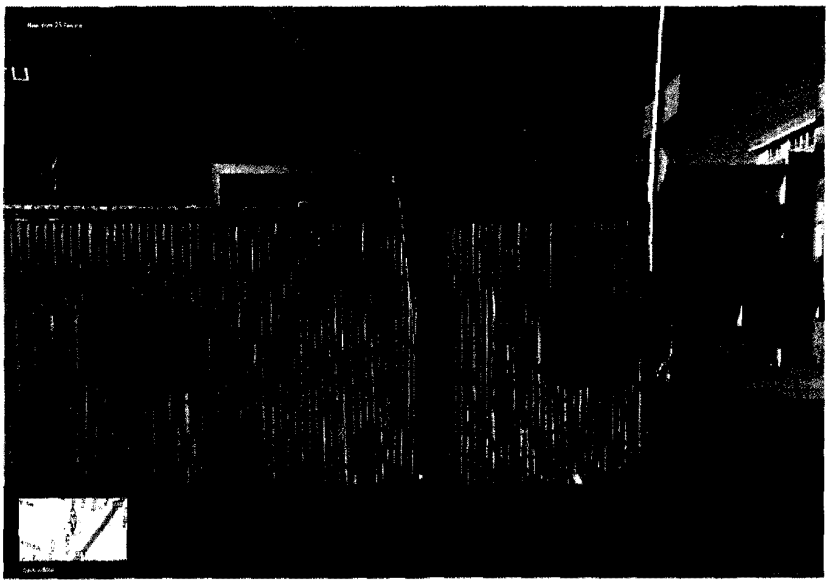


Image shows View of Project Site

The subject site's location currently contains a one-story retail structure which will be demolished to allow for the construction of the subject hotel.

Bird View

Parcel Map and Four Direct Views of the Project Site:

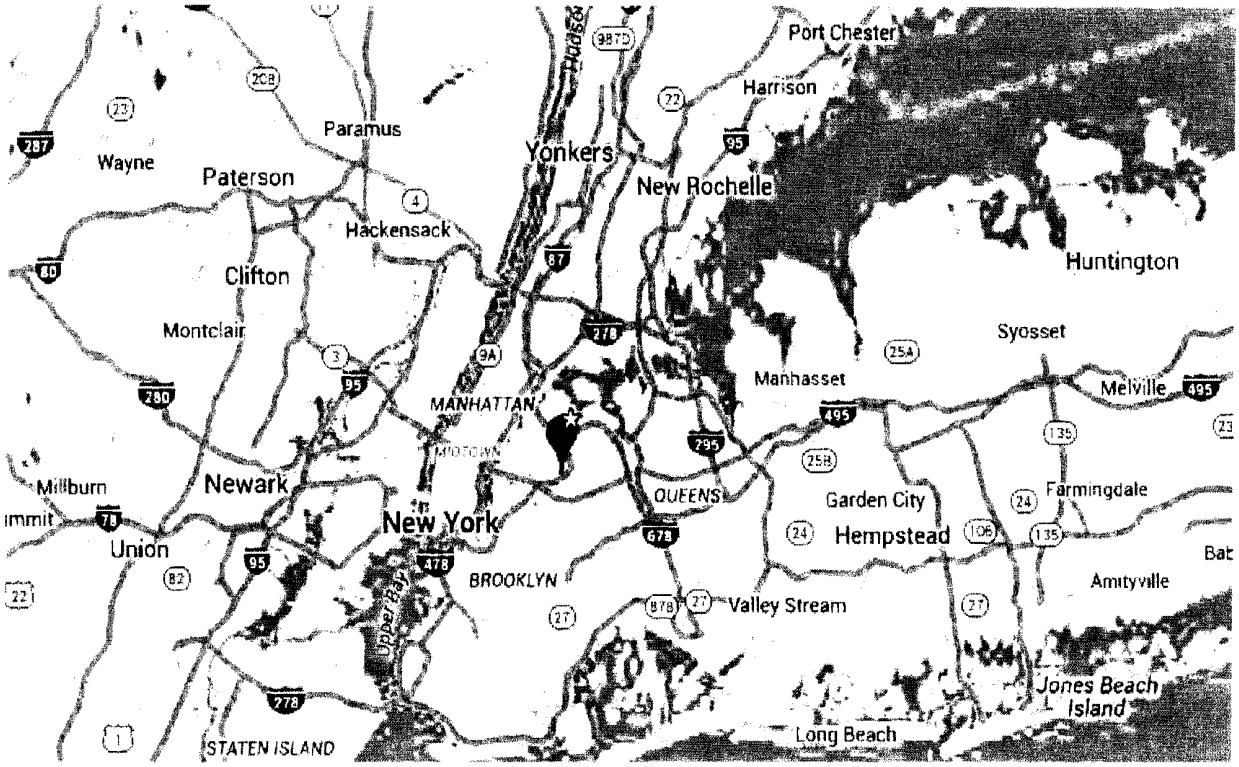
North

East

South

West

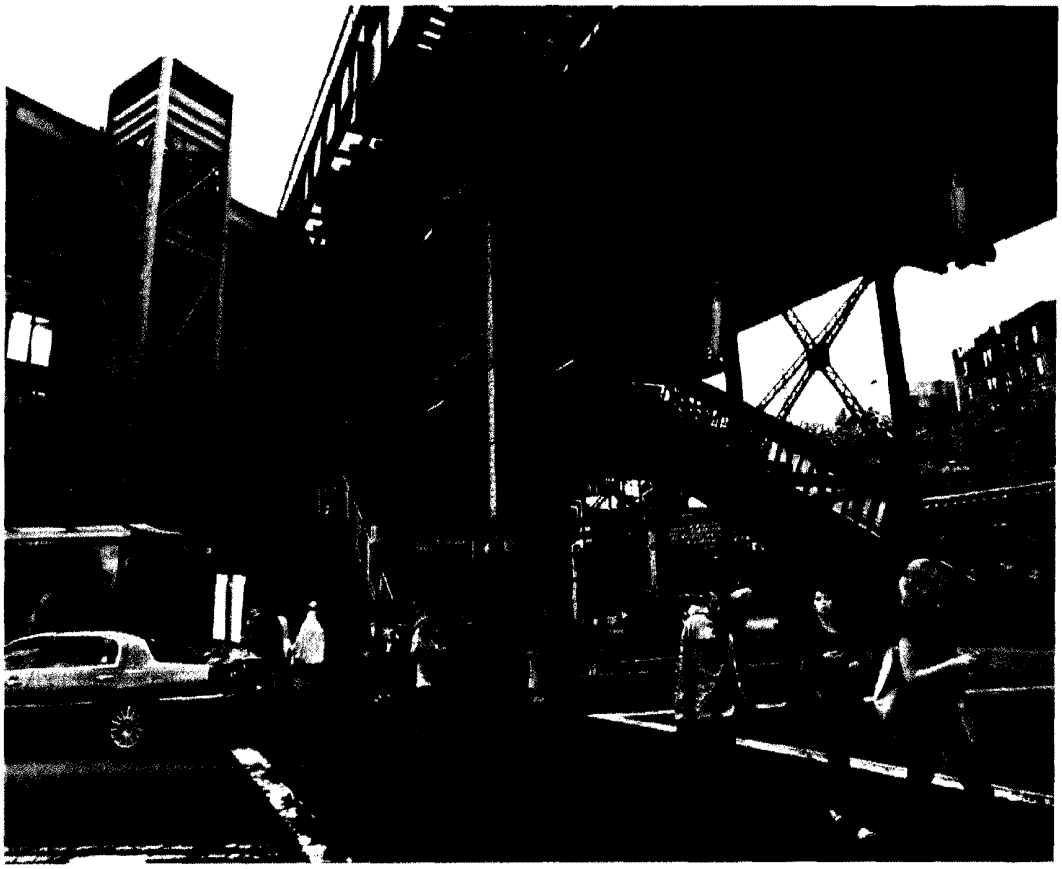
The Project Location



The Woodside, Queens neighborhood surrounding the proposed property is characterized by a densely developed mixture of retail and commercial space that is proximate to an excellent public transportation and roadway network and two major airports, La Guardia Airport and New York JFK Airport. This area encompasses some of the most commercially active portions of downtown Flushing, including the majority of Chinese and Korean businesses located in Flushing.

Woodside is primarily a residential neighborhood in the western portion of the New York City borough of Queens. It is bordered on the south by Maspeth, on the north by Astoria, on the west by Sunnyside and on the east by Elmhurst and Jackson Heights. The area surrounding the subject site is characterized by mid-rise apartment buildings, neighborhood businesses, and community facilities. Overall, the supportive nature of the development in the immediate area is considered appropriate for and conducive to the operation of a hotel.

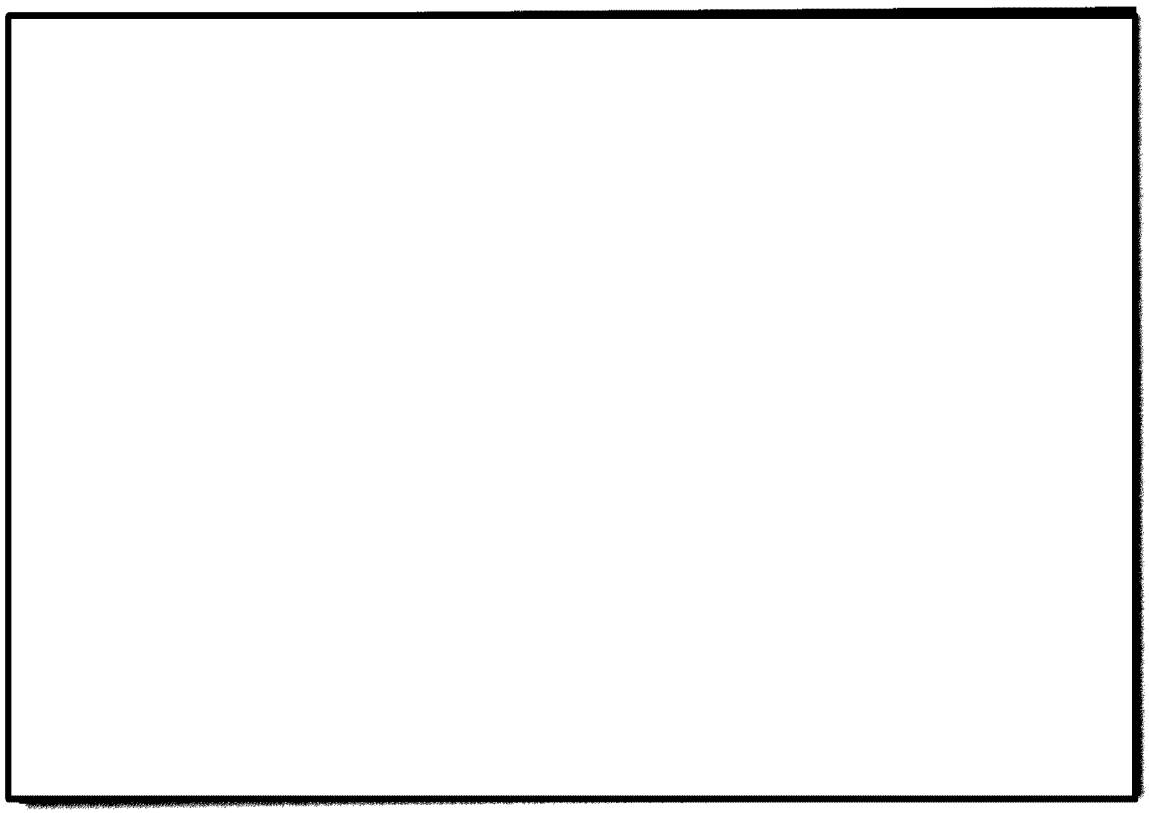
The following Images show Woodside, Queens:



Below are architectural rendering and floor plans of the Project:

Architectural Rendering of Holiday Inn Express & Suites

SITE PLAN



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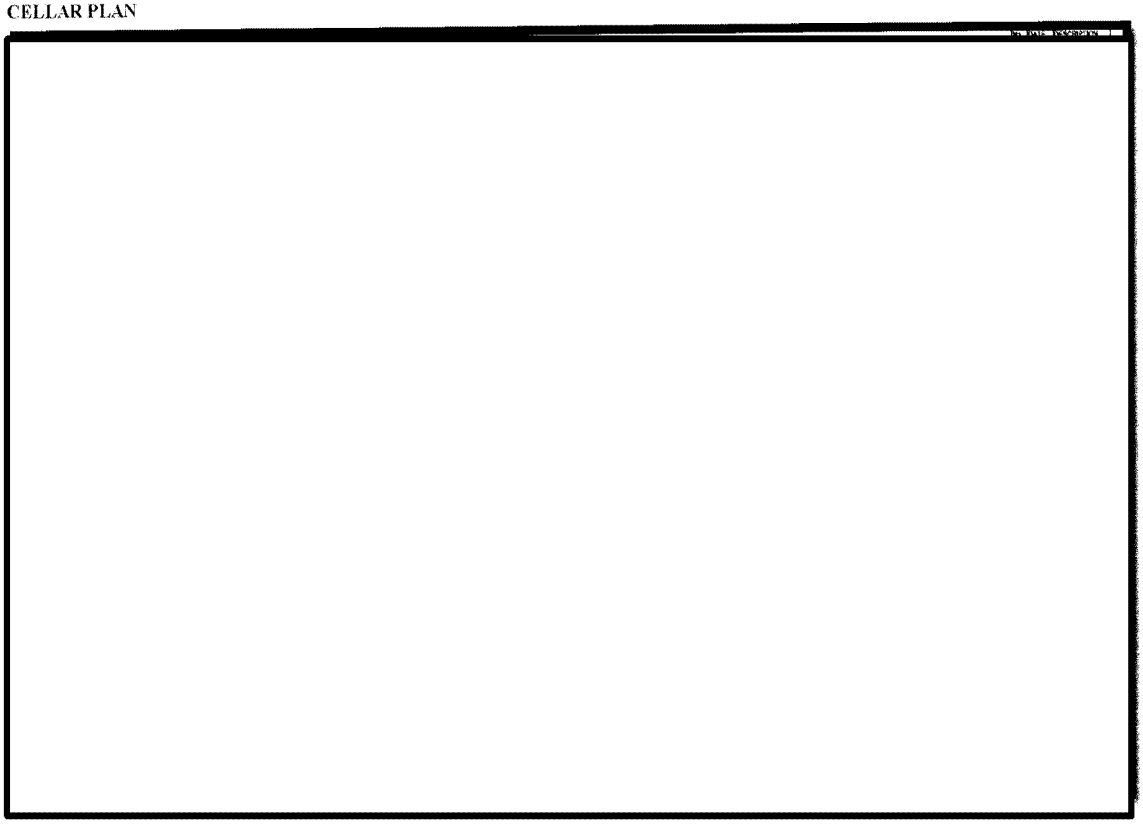
CELLAR PLAN



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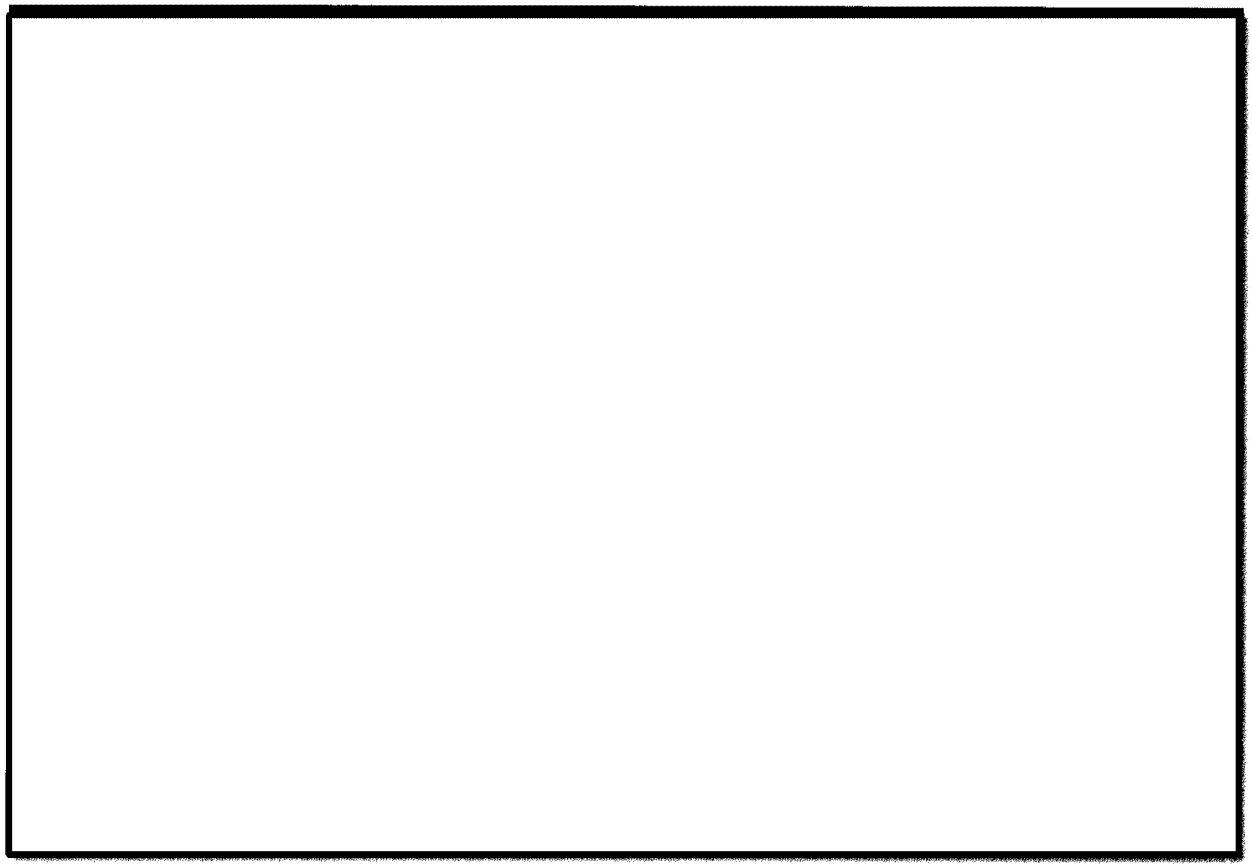
SUB CELLAR PLAN



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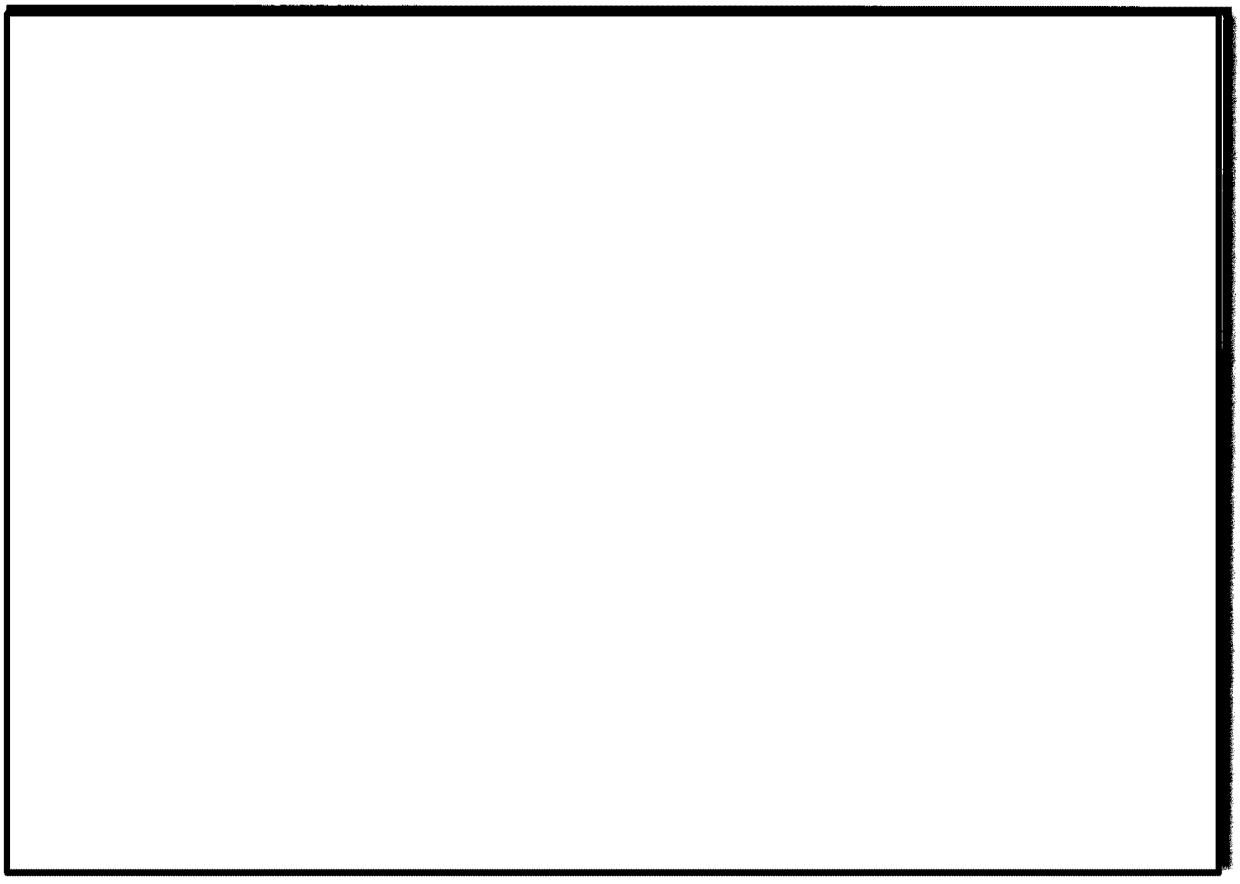
1ST FLOOR PLAN



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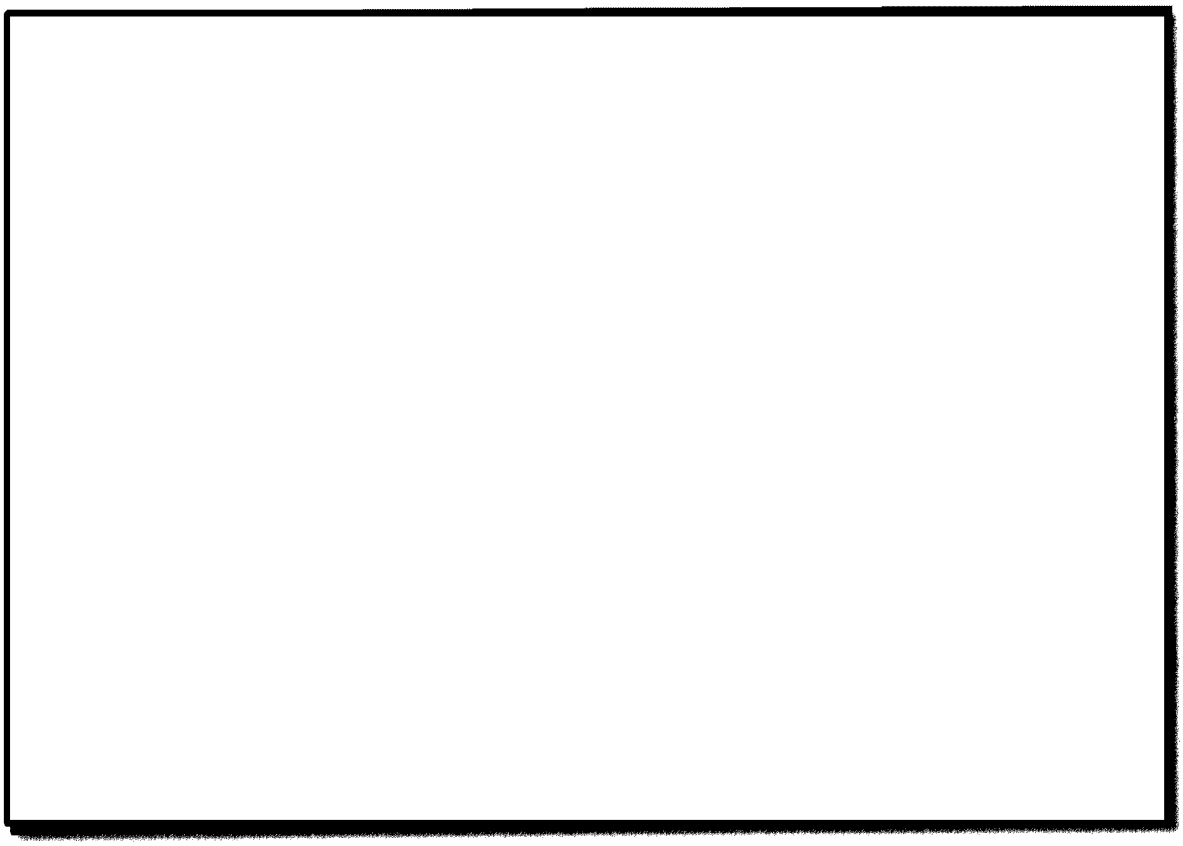
2ND & 3RD FLOOR PLAN



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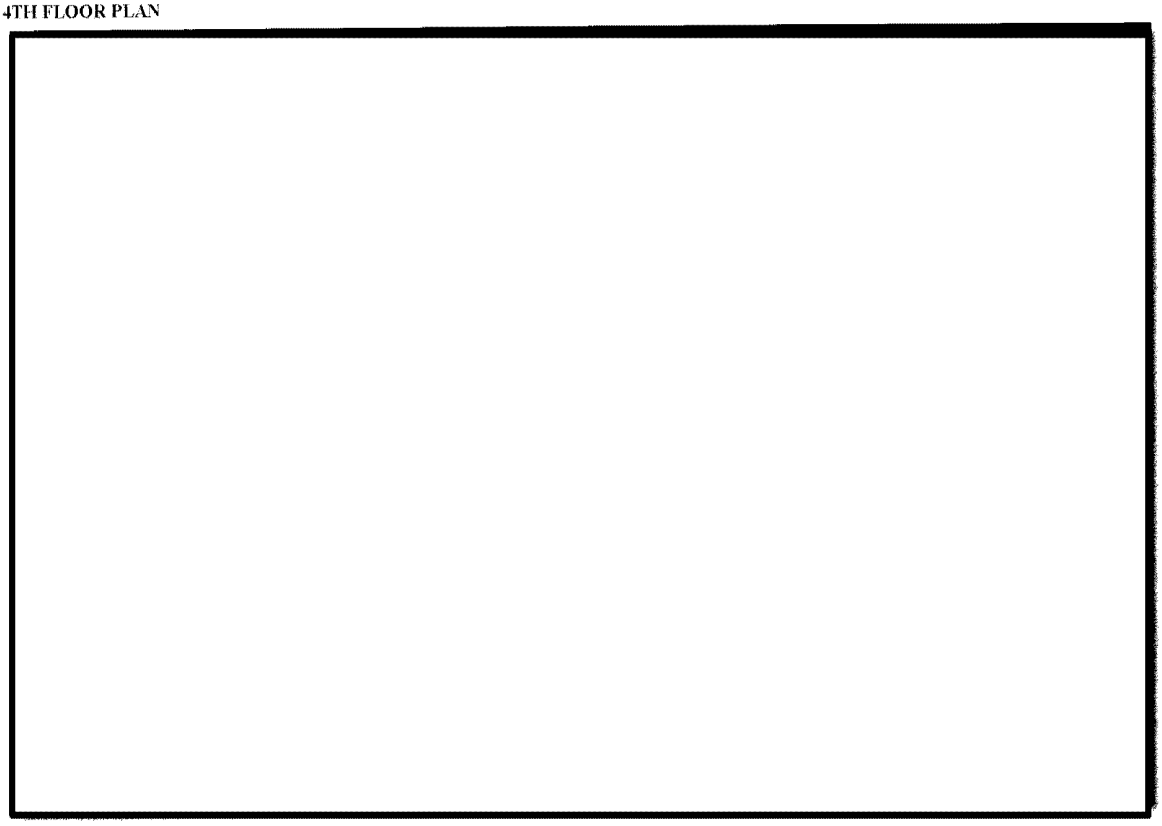
4TH FLOOR PLAN



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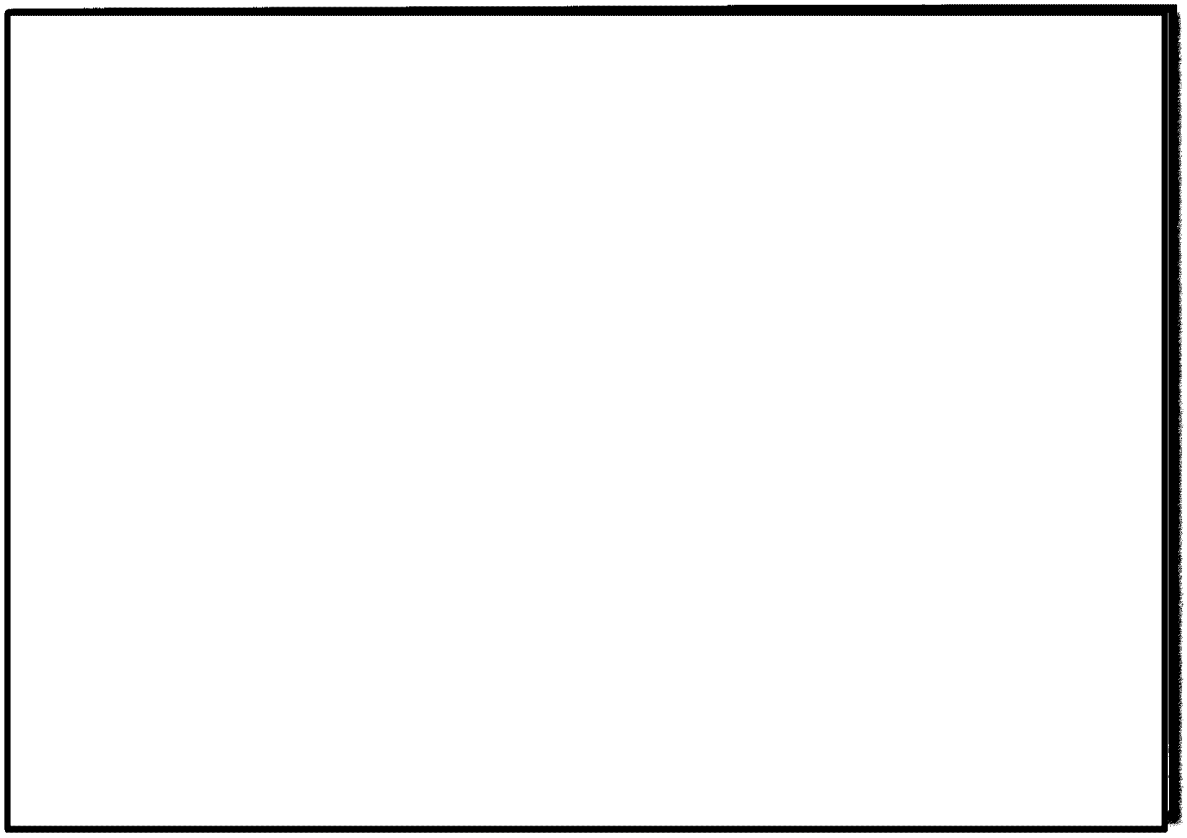
2ND

5TH & 7TH FLOOR PLAN



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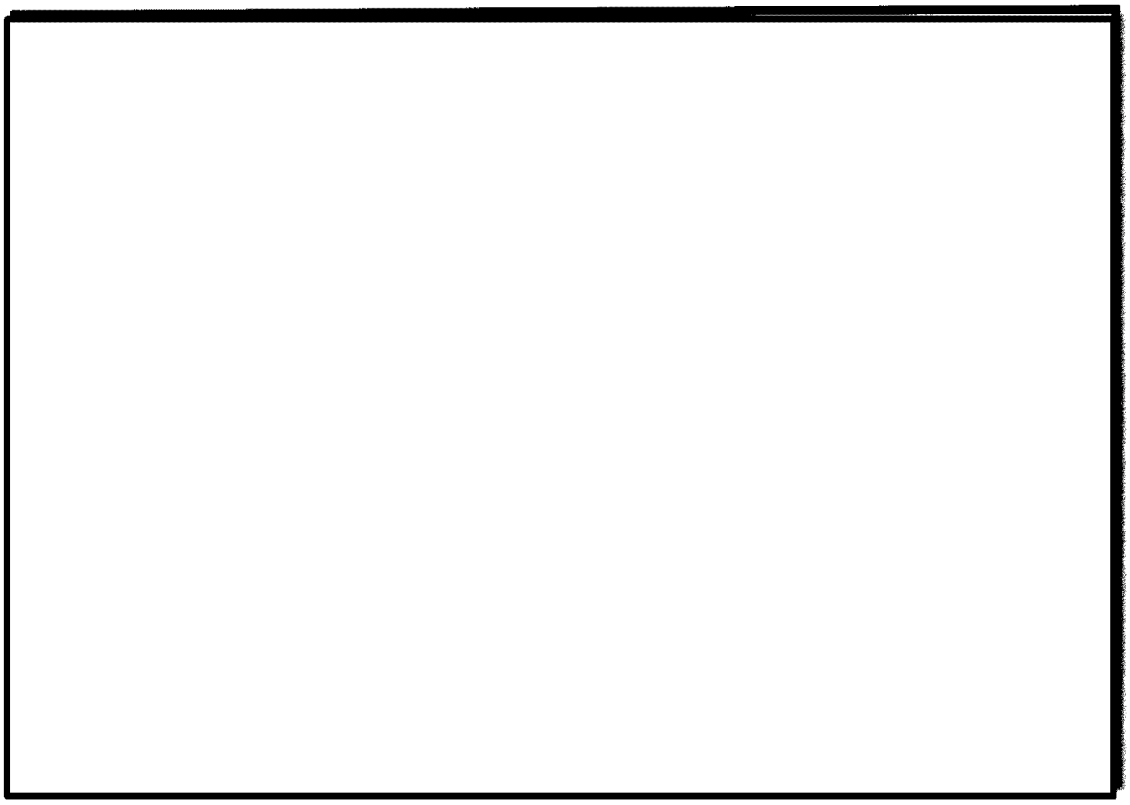
8TH FLOOR PLAN



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ROOF/BULKHEAD PLAN

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SECTION II: MARKET ANALYSIS

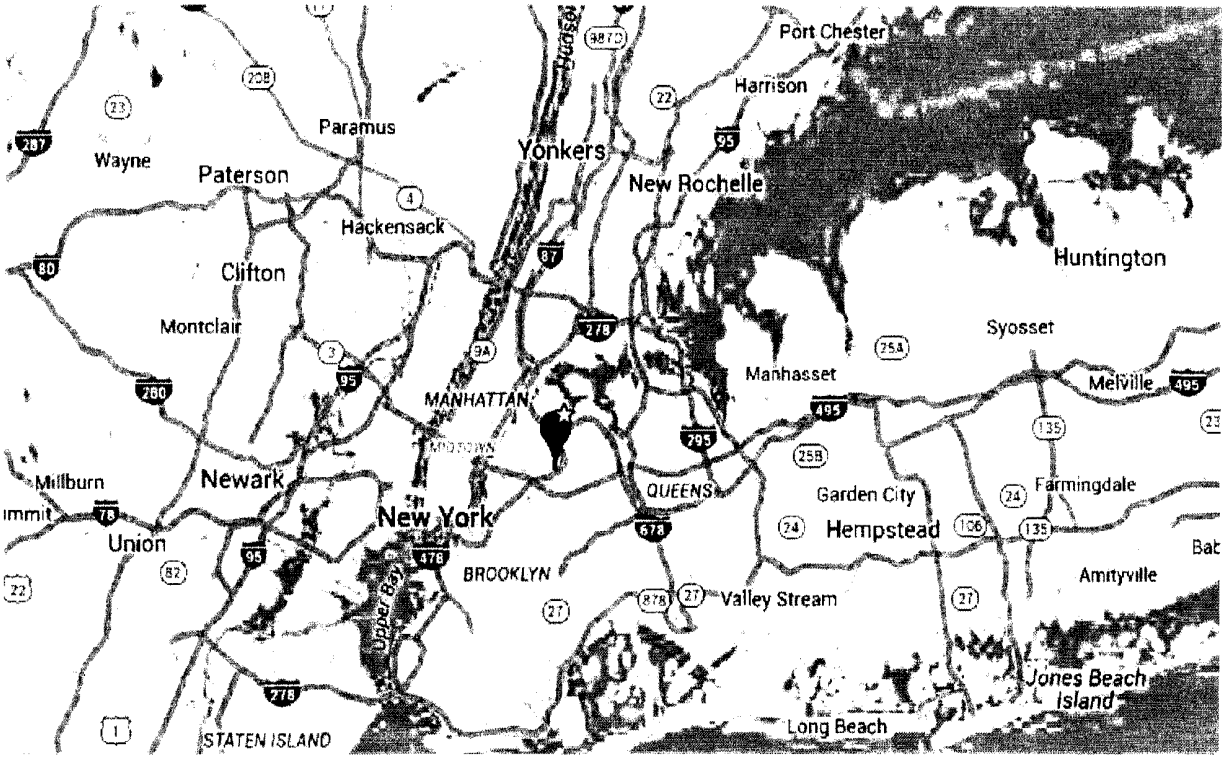
This section includes the analysis of the target market, perspective customers, market demand and analysis method, and the project's competitive advantages and highlights.

Source of the data: The market analysis is provided by HVS Consulting and Valuation Services ("HVS"). HVS is the world's premier hotel consulting and valuation firm, known for their impeccable worldwide reputation for credibility, excellence, and thoroughness. They provide full services and solutions on consulting and valuation; executive search; investment banking; asset management and strategic advisory; hotel management; convention, sports, and entertainment facilities consulting; design; shared ownership; parking; gaming; golf; sustainability; risk management; and property tax. HVS is the industry's primary source of hotel sales data, research, market studies, and educational information relating to the hospitality industry.

HVS was established in 1980 by Chairman and Founder Steve Rushmore, MAI, FRICS, CHA, and now directed by President and CEO Stephen Rushmore, Jr., MAI. HVS are members of:
MAI: Member of the Appraisal Institute
CHA: Certified Hotel Administrator
FRICS: Fellows of Royal Institution of Chartered Surveyors

LOCATION

The Project, The Holiday Inn Express & Suites , is located in Woodside, New York. Located proximate to Brooklyn Queens Expressway (BQE – Interstate 278), it connects the subject site to various parts of Brooklyn, Queens, and Bronx, and provides accesses to other major thoroughfares such as Long Island Expressway (LIE) and Grand Central Parkway. Access to Manhattan is easily accomplished via the westbound Queens Boulevard and crossing the QueensboroBridge (also known as the 59th Street Bridge). Alternatively, motorists may access Manhattan via the LIE and the Midtown Tunnel. The project is also served by other accessible transportation offerings, including the Long Island Rail Road and New York City's extensive subway system. The closest subway station is located approximately one half mile north of the subject site, providing access to the 7 Train, which runs between Times Square, Manhattan and Main Street, Flushing. Overall, access to the subject site is considered to be adequate.



Map of Regional Access Routes

Aerial View of the Proposed Area

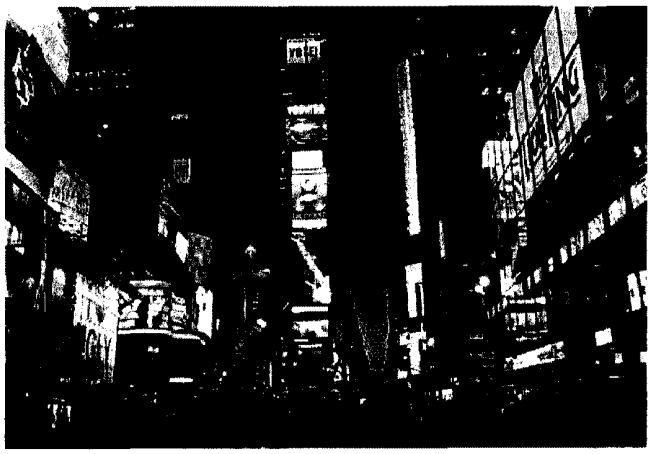
Renowned for its cultural attractions, entertainment, restaurants, and retail outlets, New York City is one of the most popular tourist destinations in the country. The city is recognized as an international commercial and cultural center. It is home to the United Nations, the Statue of Liberty, and the Empire State Building. The theaters in the Broadway district attract international attention. Lincoln Center (the home of the Metropolitan Opera, the New York Philharmonic, the New York City Ballet and Opera, and the Juilliard School) is among the world's most important centers for the performing arts. The Metropolitan Museum of Art, the Museum of Modern Art, the American Museum of Natural History, and a number of the city's other museums and galleries are internationally respected.

In the borough of Queens lies the Flushing Tennis Center, home of the U.S. Open; CitiField, home of the New York Mets baseball team; and Flushing Main Street, a vibrant, bustling district for shopping and restaurants. Brooklyn is also home to some of New York's most famous attractions including Coney Island, the Barclays Center, and the Brooklyn Academy of Music, as well as numerous shops and restaurants in the Williamsburg neighborhood. Directly to the north of midtown Manhattan lays Harlem, home to the world-famous Apollo Theatre as well as numerous renowned educational institutions including Columbia University and City College. Further north is the borough of the Bronx, home to Yankee Stadium, the venue for the New York Yankees baseball team, and numerous concerts and events; and the immensely popular Bronx Zoo.

Major Destinations & Attractions

New York City is one of the most popular and frequently visited destinations in the United States. A few of the major attractions include:

Times Square: a major intersection at the junction of Broadway and Seventh Avenue and stretching from West 42nd to West 47th Streets. It boasts attractions such as ABC's Times Square Studios, where Good Morning America is broadcast live, elaborate Toys "R" Us, Virgin Records, and Hershey's stores, as well as restaurants such as Ruby Foo's, the Bubba Gump Shrimp Company, Planet Hollywood Restaurant



and Bar and Carmine's along with a number of multiplex movie theaters. It has also attracted a number of large financial, publishing, and media firms to set up their headquarters in the area including Ernst and Young, Reuters, New York Times, Barclays, Morgan Stanley, among many others.

Jacob K. Javits Convention Center is a large convention center at Eleventh Avenue on the west side of Manhattan. The exhibit space is over 675,000 square feet. On October 16, 2006, a groundbreaking ceremony was held to start construction of an expansion.

New York Cruise Piers is a world-class ship port situated on West 52nd Street, and offers ideal facilities for cruise arrivals and departures. New York Cruise brings the most spectacular—often the fastest, biggest, and most luxurious—passenger ships to the West Side of Manhattan.

Lower (Downtown) Manhattan

The Financial District contains an assortment of businesses, ranging from small retail shops to chain-affiliated department stores to financial houses and educational buildings. The area is primarily commercial in character and is home to the New York and American Stock Exchanges, the WTC Site, and the World Financial Center.

In addition, several large corporations have their headquarters in the area, such as Goldman Sachs, The Bank of New York, Deutsche Bank, the Federal Reserve Bank of New York, and many more. The close proximity of high-grade office space and associated services makes the area an attractive location for lodging facilities.

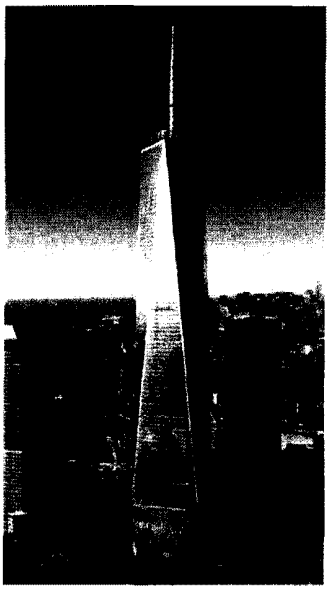
While modern-day business is the focus of Lower Manhattan, the market's historic representation makes the area unique. Among the historic attractions are Manhattan's oldest church, Trinity Church/St. Paul's Chapel, a national landmark built in 1766; Fraunces Tavern, which was built in

1719 and is the place where George Washington bade farewell to his officers; and the Federal Hall Memorial, the site where George Washington took the oath as America's first president.

Other points of interest in the Downtown area include the South Street Seaport, Battery Park, and the Federal Reserve Bank, to name a few. Access to the Statue of Liberty and Ellis Island is also provided from Battery Park, and represents some of the most important tourist attractions in New York City.

Lower Manhattan is expected to go through somewhat of a renaissance, fuelled by the redevelopment of the World Trade Center (WTC) site and the construction of a new transit station that will serve the transportation needs of Lower Manhattan.

World Trade Center Redevelopment

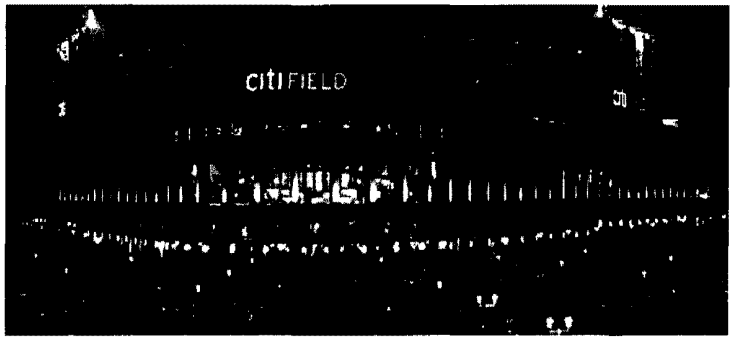


The WTC site now includes Tower 7, which was completed in May 2006 and developed by Silverstein Properties. Additional plans for the World Trade Center include the following. Please note that all data presented in relation to the WTC redevelopment has been sourced through the Lower Manhattan Development Corporation (LMDC).

- Four new skyscrapers (1 WTC, Freedom Tower; Towers 2, 3, and 4)
- National September 11 Memorial & Museum at the World Trade Center
- World Trade Center Transportation Hub
- Retail Complex
- Performing Arts Center

Attractions in Flushing, Queens

In addition to the Flushing Tennis Center and CitiField, Queens also hosts Queens Zoo, Aqueduct Racetrack, Flushing Town Hall-Concert Hall, Queens Botanical Garden, Louis Armstrong House & Archives, and others.



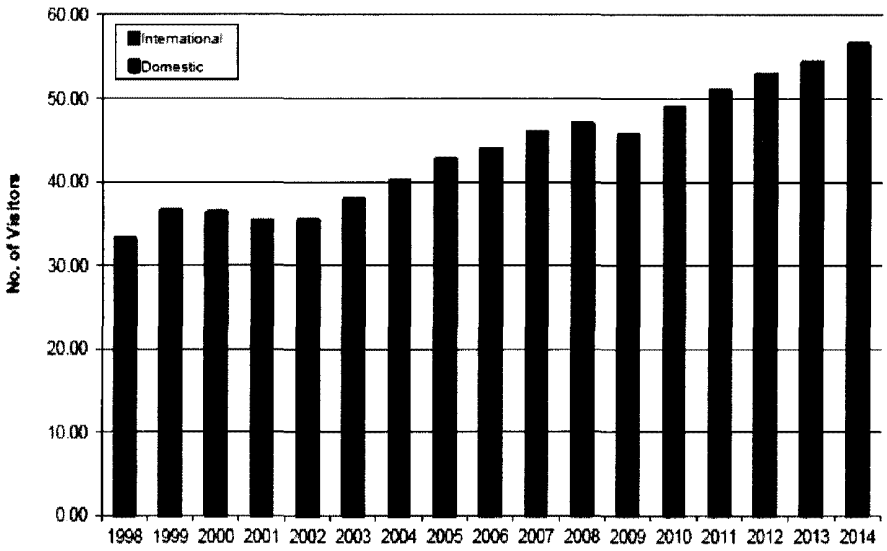
Queens is one of the most ethnically diverse communities in the U.S. The Borough of Queens is home to more than 34,500 businesses, ranging from small retail outlets to large manufacturing plants. The project area encompasses some of the most commercially active portions of downtown Flushing, including the majority of Chinese and Korean businesses located in Flushing. Located one block from Main Street, the major thoroughfare in Flushing, the hotel is in an area known as "Chinese Flushing." The majority of the area's banking institutions, department stores, and office spaces are located on or near Main Street. A majority of the buildings and businesses are owned and patronized by the Chinese residents of the area; therefore, the neighborhood presents a fairly homogenous Asian image. Consequently, this area is a popular destination for Asian tourists who appreciate these somewhat familiar surroundings.

MARKET DEMANDS AND ANALYSIS METHOD

New York City is one of the most popular and frequently visited destinations in the United States. In 2013, New York City is estimated to have accommodated roughly 54.3 million visitors – a record level. Of the overall visitation figure, roughly 11.4 million hailed from international markets, maintaining the City's rank as the number one U.S. destination for overseas travelers. City officials estimate the overall economic impact of tourism in 2013 to be $58.7 billion. Direct visitor spending was estimated to be $39.4 billion, up from $36.9 billion in 2012.

According to most market observers, such record levels could not been realized without the expanded availability of hotel rooms in New York City. In fact, as illustrated by the tourism data in the following, the four highest tourism levels have all been recorded over the past four years – the period of highest availability of inventory in the market. As illustrated in the graph below, the three highest tourism levels have all been recorded over the past three years – the period of highest availability.

FIGURE 5-3 NEW YORK CITY – HISTORICAL TOURISM LEVELS (NYC & COMPANY)



After a period of economic contraction, the market area has entered into a period of expansion and recovery following the Great Recession. HVS' market interviews and research revealed that although the area was affected by slowing business levels, a depressed housing market, and reduced levels of discretionary spending during the downturn, the market benefits from a well-established and diversified economy, which has aided in the recovery. The LaGuardia Airport and the close proximity to Manhattan has remained the cornerstones of this market, generating consistent demand throughout the year. Based on their market research, HVS are expecting market condition to continue improving in the near future.

Manhattan Lodging Market

Over the last 25 years, the Manhattan lodging market experienced minimal growth in supply, as a result of strong barriers to entry prevailing in that market. From 2004 through 2006, supply actually decreased due to the conversion of several hotels to condominiums. Since early-2009, the market has consistently registered strong increases in supply each month. From January 2009 to March 2013, supply increased by 19.8 percent.

As a result of the supply and demand dynamics, the market has been historically undersupplied. Over the last 25 years, average annual demand growth, at 2.1 percent, has outpaced corresponding growth in supply, at 1.7 percent. The Manhattan lodging market represents one of only five major markets among the top 25 in the U.S. to have maintained such a positive differential between supply and demand over the same period.

Periods of economic recovery and expansion are characterized by strong ADR growth. The Manhattan market experienced 27 consecutive months of double-digit increases in ADR from January 1997 to March 1999, and 46 consecutive months from November 2004 to August 2008. The market experienced the strongest ADR growth during the expansion period following the 2001 recession, which coincided with decreases in supply. As of March 2013 the market had experienced only one month of double-digit increase in ADR, in March 2011, at 10.1 percent. The significant amount of new supply that had entered the market since early 2009 did not have any effect on occupancy levels; however, the additional inventory limited the ability for hotel operators to push the average rate. Double-digit increases in ADR through 2015 are unlikely with a further anticipated increase in supply of approximately 15.0 percent over the same period.

Since 1987, RevPAR has increased at a healthy average annual rate of 4.2 percent. Periods of economic recovery and expansion are characterized by strong RevPAR growth. The Manhattan market experienced 57 consecutive months of double-digit increases in RevPAR from June 1994 to February 1999, and 53 consecutive months from May 2004 to September 2008. RevPAR percent change peaked in February 2005 at 22.2 percent. Percent change in RevPAR bottomed out at -27.3 percent in October 2009 as opposed to -24.4 percent in July 2002. However, RevPAR rebounded faster and stronger following the most recent recession than after the previous two contractions, primarily fueled by ADR gains.

As of March 2013 the market had experienced only 6 months of double-digit increase in RevPAR, from November 2010 to April 2011. Double-digit increases in RevPAR through 2015 are unlikely as occupancy is forecast to remain relatively stable, in the mid-80's, and ADR is anticipated to experience single-digit growth over the same period. As such, more moderate RevPAR growth is expected during these recovery and expansion periods than after the previous two economic recessions. A total of 89 new hotels opened in Manhattan between March 2008 and April 2013, adding 15,799 rooms to the market and representing growth of 23.7 percent over the February 2008 level. Approximately 75.0 percent of the new supply entered the market from March 2008 to December 2010. This addition is the largest increase in supply over the last 25 years.

The timing of the opening of the new supply coincided with the latest recession and the start of the recovery. Nevertheless, this large influx of new hotels had a minimal effect on the occupancy of the existing properties. As the economic recovery continues, HVS anticipates that the additional new supply will be absorbed into the market. Consequently, the Manhattan lodging market is expected to remain undersupplied. Market-wide occupancy is expected to remain close to maximum-level capacity, in the mid-80 percent range, through 2015. New supply is expected to

increase by approximately 15.0 percent by 2015. As a result, HVS forecasts moderate average rate growth over the next three years. From 2013 to 2015, HVS forecasts relatively modest increases in RevPAR, primarily driven by ADR growth. Overall, RevPAR is forecast to appropriately recover and surpass its pre-recession (2008) in 2014. Increases in supply are expected to be readily absorbed and thus are not anticipated to significantly affect the recovery. Reflective of such trends, the Manhattan lodging market seemingly remains poised for a strong recovery, irrespective of any forthcoming increases in supply.

Queens Lodging Market

Queens is one of the most ethnically diverse communities in the U.S. It has served as a bedroom community for Manhattan, but has also developed its own employment base. The two major airports, JFK International and LaGuardia, have played an important role in shaping the area's economy. The Borough of Queens is home to more than 34,500 businesses, ranging from small retail outlets to large manufacturing plants. No single company or industry is dominant, although health care, air transportation, and services are major sectors. Some of Queens' largest employers include Steinway & Sons, British Airways, St. John's University, and Citibank.
More than 59% of Queens's residents commute to Manhattan for work. Of the 41% of workers who remain in Queens for employment, 32% work in the services industry, 21% in retail, 15% in public utilities, 11% in manufacturing, 8% in government, 7% in construction, and 6% in FIRE (finance, insurance, and real estate).

Although Queens has never been a major center for office development, the retail sector has benefited from the area's concentration of residential developments. Downtown Jamaica, which is located north of the subject property, in central Queens, is one of the largest concentrations of retail space in New York City, attracting visitors from throughout the region, owing to the appealing prices offered by the local merchants. However, Queens still exports a disproportionate share of its retail spending to neighboring Manhattan and Nassau County.
While not as rich in tourist attractions as Manhattan, the Borough of Queens offers its own array of leisure-oriented sites.

The following table lists selected visitor attractions located in Queens.

FIGURE 5-1 SELECTED QUEENS VISITOR ATTRACTIONS

Attraction	Type	Location	Notes
Citi Field	Sports	Flushing	Home baseball park of New York Mets
Flushing Meadows-Corona Park	Park	Corona	Home of the 1954 World's Fair, featuring a zoo, a boating lake, a skate park, a barbecue area, playfields, and an aquatic and hockey center.
Louis Armstrong House Museum	Museum	Flushing	Music, photos, films, instruments, awards
MoMA PSA	Museum	Long Island City	contemporary art museum showcases new and innovative work
Museum of the Moving Image	Museum	Astoria	high-tech museum dedicated to multimedia arts, with a particular emphasis on film
New York Hall of Science	Museum	Corona	450-exhibit, hands-on science center
Queens Botanical Garden	Garden	Flushing	Acres of plantlife, including a Japanese Garden
Queens County Farm Museum	Museum	Floral Park	47 acres, including a historic farmhouse, as well as livestock and planting fields
Queens Zoo	Zoo	Flushing	11-acre zoo with North American wildlife
Resorts World Casino	Casino	Jamaica	Up to 5,000 slots and electronic table games and a variety of dining and shopping options
Socrates Sculpture Park	Park	Long Island City	Specifically designated for artists to create outdoor works, with views of Manhattan skyline
USTA National Tennis Center	Sports	Flushing	Home of U.S. Open

Source: HVS Research

The hotels included in the historical supply and demand trends in Figure 7-1 below are existing hotels located in Queens County New York City.

2009-2014

FIGURE 7-1 HISTORICAL SUPPLY AND DEMAND TRENDS

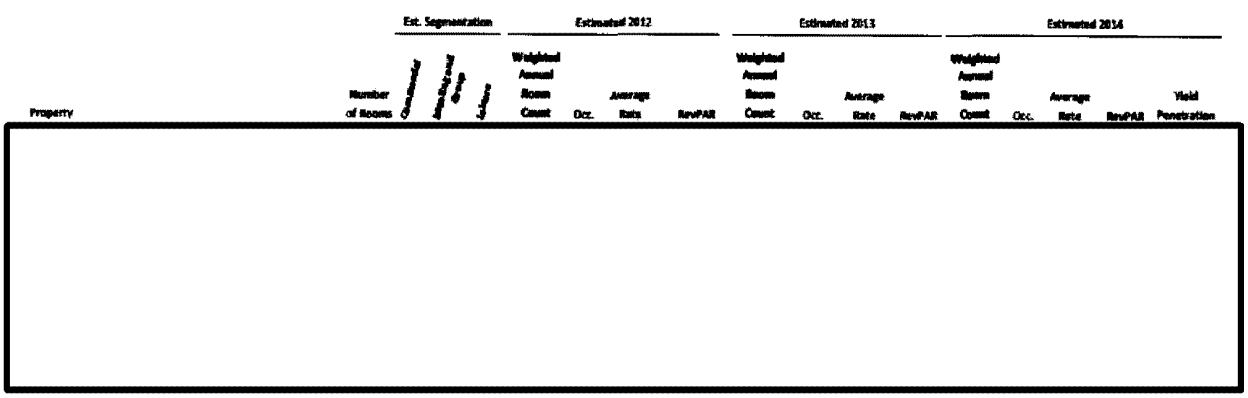
Year	Average Daily Room Count	Available Room Nights	Change	Occupied Room Nights	Change	Occupancy	Average Rate	Change	RevPAR	Change
2009	1,517	553,535	--	418,956	--	75.7 %	$137.83	--	$104.32	--
2010	1,663	606,995	9.7 %	492,448	17.5 %	81.1	144.41	4.8 %	117.16	12.3 %
2011	1,663	606,995	0.0	493,684	0.3	81.3	150.55	4.3	122.45	4.5
2012	1,679	612,664	0.9	519,792	5.3	84.8	159.28	5.8	135.14	10.4
2013	1,839	671,388	9.6	571,288	9.9	85.1	162.84	2.2	138.56	2.5
2014	1,840	671,600	0.0	567,082	(0.7)	84.4	162.20	(0.4)	136.96	(1.2)
Year-to-Date Through June										
2014	1,840	333,040	--	277,371	--	83.3 %	$158.03	--	$131.62	--
2015	1,840	333,040	0.0 %	275,608	(0.6) %	82.8	159.49	0.9 %	131.98	0.3 %

Hotels Included in Sample	Number of Rooms	Year Affiliated	Year Opened
Courtyard New York La Guardia Airport	288	Nov 1996	Jun 1963
Marriott New York La Guardia	438	Nov 1981	Nov 1981
Holiday Inn Express La Guardia Airport	83	Nov 2008	Jun 1983
Sheraton Hotel La Guardia East	173	Jan 1992	Jan 1992
Holiday Inn La Guardia Airport	214	Dec 2006	Jul 2001
Comfort Inn & Suites LaGuardia Airport Maspeth	76	Jun 2005	Jun 2005
Fairfield Inn New York La Guardia Airport Flushing	88	Nov 2005	Nov 2005
Fairfield Inn New York La Guardia Airport Astoria	87	Nov 2006	Nov 2006
Hampton Inn New York La Guardia	220	Sep 2009	Sep 2009
Springhill Suites New York La Guardia Airport	173	Dec 2012	Dec 2012
Total	1,840		

Source: STR Global

2012-2014

FIGURE 7-3 COMPETITORS – OPERATING PERFORMANCE



(b)(4)

The Lodging Industry

In the lodging industry, price varies directly, but not proportionately, with demand and inversely, but not proportionately, with supply. Supply is measured by the number of guestrooms available, and demand is measured by the number of rooms occupied; the net effect of supply and demand toward equilibrium results in a prevailing price, or average rate. Smith Travel Research (STR) is an independent research firm that compiles and publishes data on the lodging industry, and this information is routinely used by typical hotel buyers. The 210-room Proposed Four Points Flushing will be located in Flushing, New York. The greater market surrounding the subject property offers a variety of lodging facilities. Of this larger supply set, the subject property competes with a smaller set of hotels based on various factors. These factors may include location, price point, product quality, length of stay (such as an extended-stay focus vs. non-extended-stay focus), room type (all-suite vs. standard), hotel age, or brand, among other factors.

HVS has reviewed these pertinent attributes and established a competitive set based upon this review. STR has compiled historical supply and demand data for a group of hotels considered applicable to this analysis for the proposed subject property. This information is presented in the following table, along with the market-wide occupancy, average rate, and rooms revenue per available room (RevPAR). RevPAR is calculated by multiplying occupancy by average rate and provides an indication of how well rooms revenue is being maximized. A review of the trends in occupancy, average rate, and RevPAR per day of the week over the past three fiscal years provides some insight into the impact that the current economic conditions have had on the competitive lodging market. Considering the subject market's historical performance and potential supply growth, HVS has stabilized the market-wide occupancy at approximately 76% in 2019, when all the proposed new supply is appropriately absorbed into the market.

Branding:

Holiday Inn Express (and Holiday Inn Express Hotel & Suites) is an upper-midscale, limited-service hotel brand by InterContinental Hotels Group (IHG). According to IHG, Holiday Inn Express is one of the fastest growing hotel brands in its segment. Holiday Inn Express offers competitive rates for both business and leisure travelers. All locations provide the complimentary "Express Start" breakfast bar, and many locations offer recreational amenities such as a swimming pool and/or fitness room. As of year-end 2014, there were 2,060 properties spanning 182,601 rooms in the Americas. In 2014, Holiday Inn Express hotels operated at an average occupancy rate of 68.5%, with an average daily rate of $108.48 and an average RevPAR of $74.26 in the Americas.

FIGURE 4-1 PROPOSED FACILITIES SUMMARY

Guestroom Configuration	Number of Units
King	53
Accessible King	3
Queen/Queen	33
Accessible Queen/Queen	4
One-Bedroom Suite - King	16
One-Bedroom Suite - Queen/Queen	26
Total	135

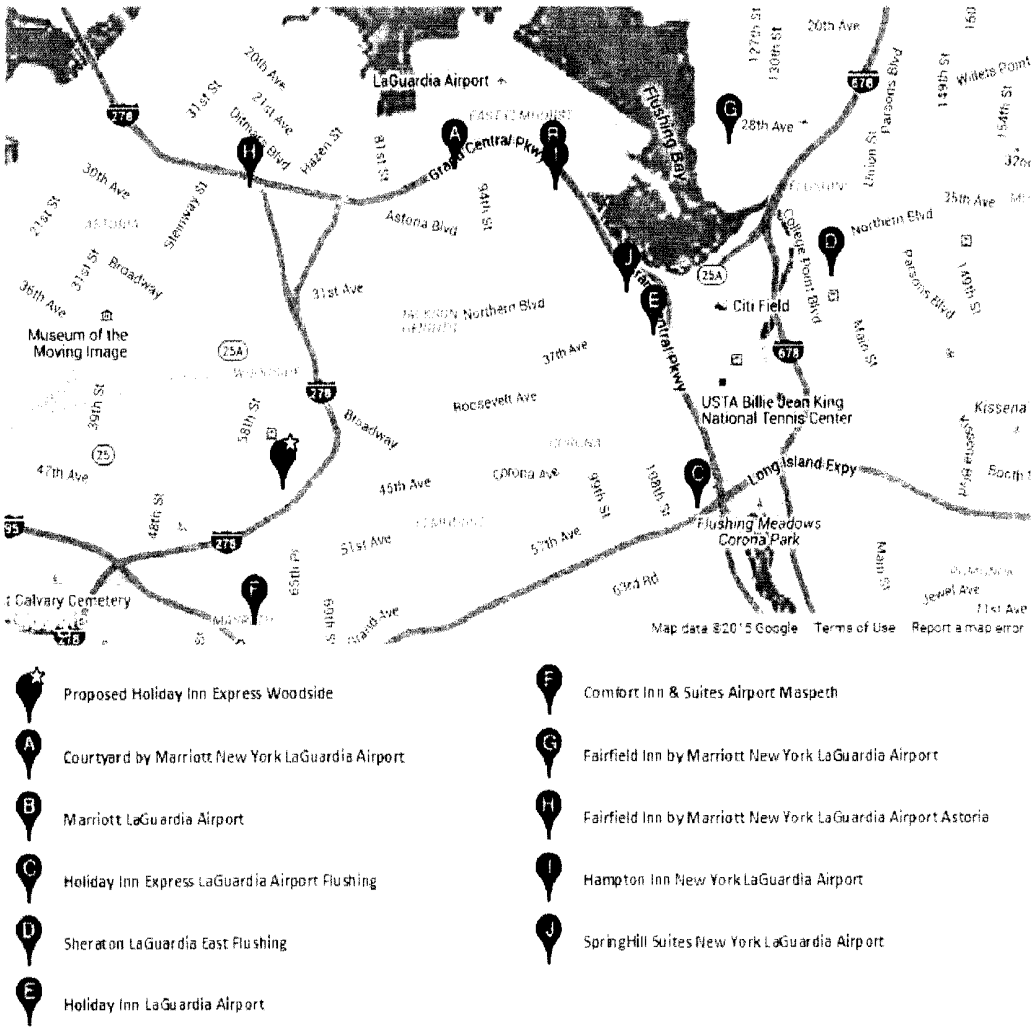
Amenities & Services	
Complimentary Breakfast	Market Pantry
Fitness Center	Vending Areas
Outdoor Lounge	

PROJECT HIGHLIGHTS:

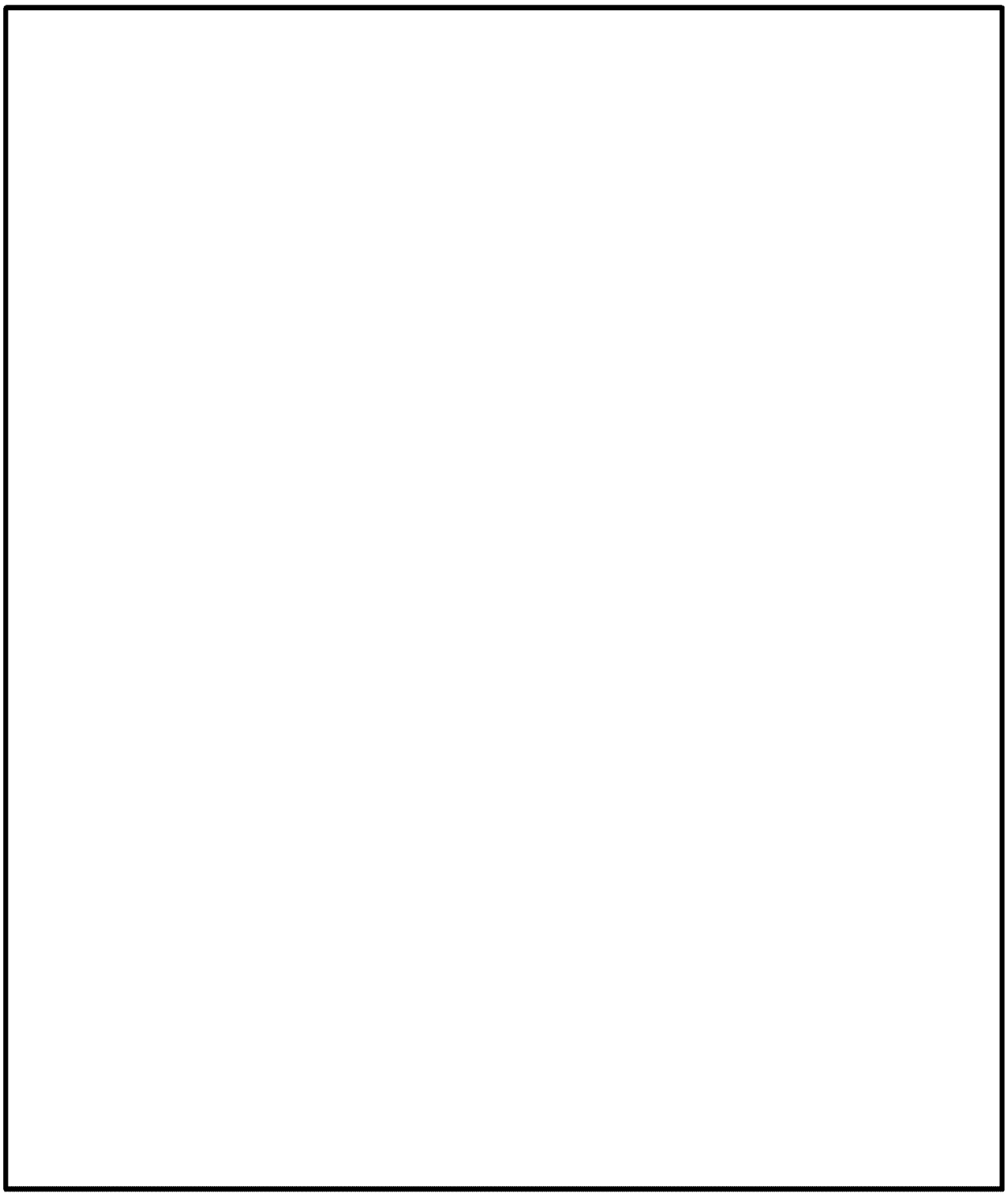
- Close proximity to Manhattan, New York (15 minute train ride on the 7 train)
- Proximity to Queens Shopping Center, and major commercial and residential areas
- Proximity to two major airports (LGA & JFK) in New York City
- Holiday Inn Express, an upper-midscale hotel brand offering a full-service hotel experience at a sensible price
- Century Construction Group is an established developer in NY
- 135-rooms, including 2 suites, a breakfast room, a fitness room, business center, market pantry, outdoor lounge, and vending areas.
- 16,050-square-foot lodging facility space

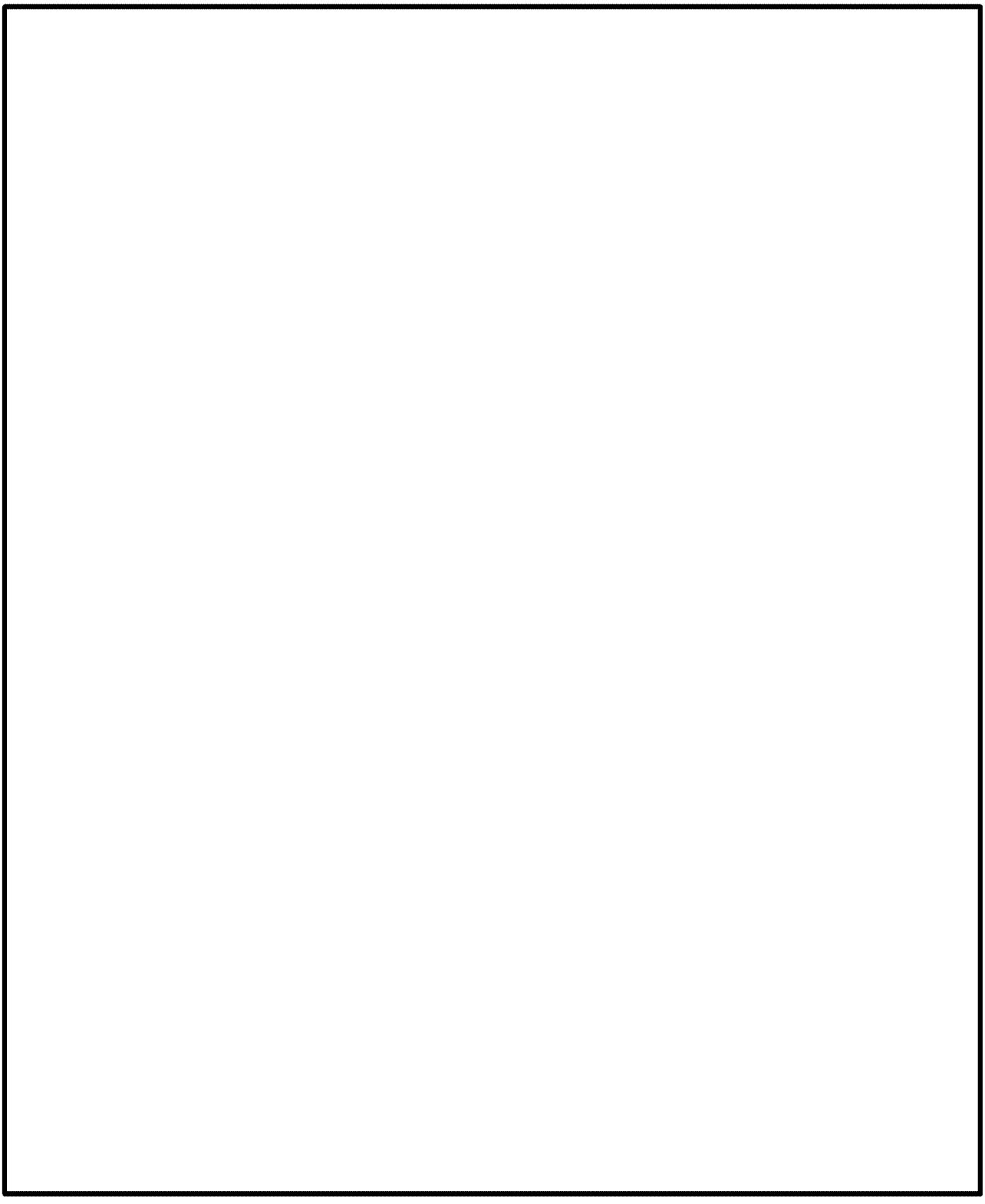
The following map illustrates the locations of the subject property and its future competitors:

MAP OF COMPETITION



The following residential developments have been identified in the Woodside, NY area similar to Holiday Inn Express & Suites' proposed plan. This section will focus on their strength and weakness compared to the Holiday Inn Express & Suites at Woodside project.





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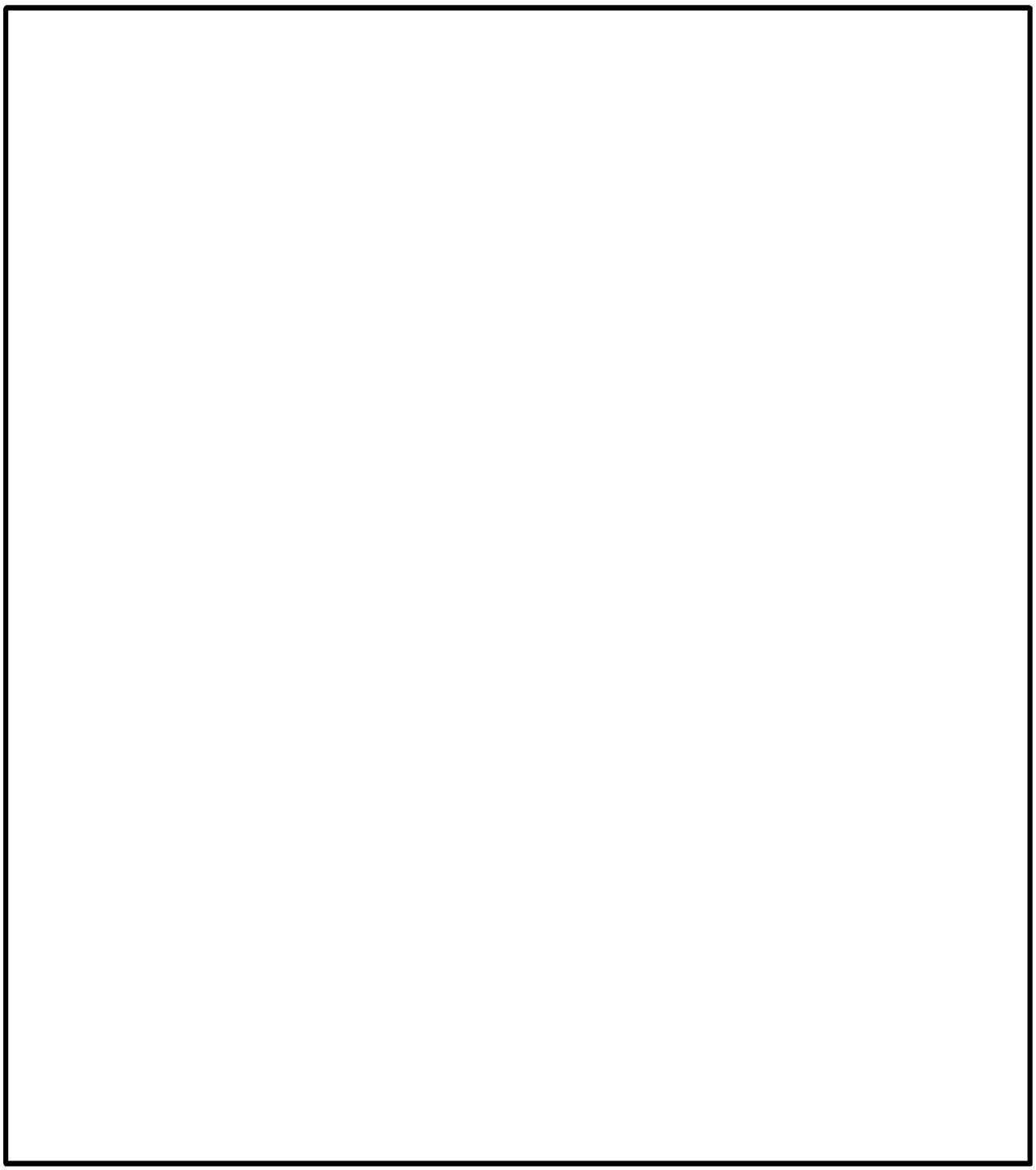
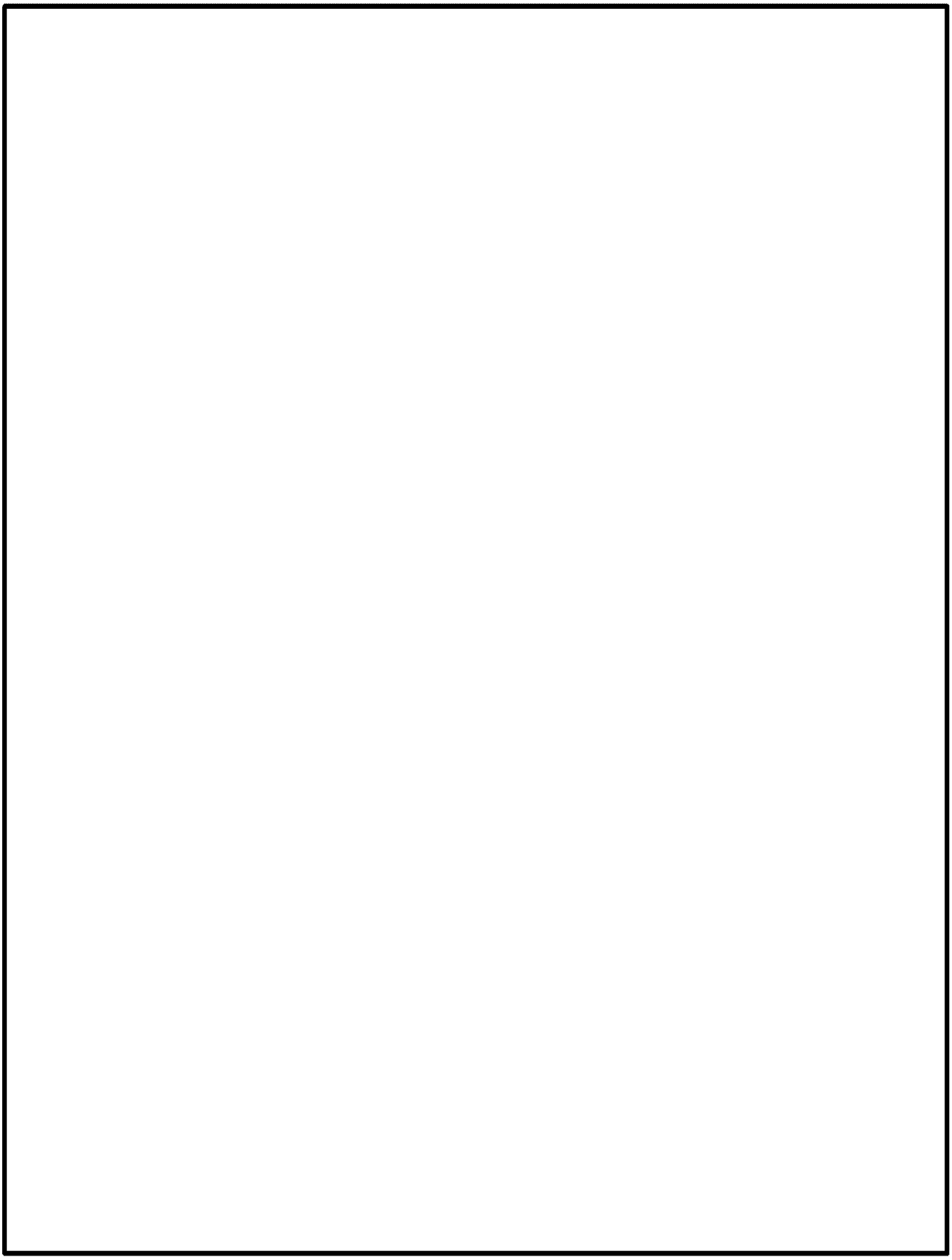




The Holiday Inn Express & Suites will offer a well-designed, functional layout of support areas and guestrooms and target at the midmarket. All typical and market-appropriate features and amenities appear to be included in the hotel's design. The building will be fully open and operational on the assumed opening date and will meet all local building codes and brand standards. The hotel staff will be adequately trained to allow for a successful opening and that pre-marketing efforts will have introduced the product to major local accounts at least six months in advance of the opening date.

The project principals own Century Construction Group, an established brand in Flushing, New York. It has successfully completed and marketed similar projects such as Marriot Fairfield Inn., Leavitt Manor Condominium, Farrington Estate, all located in Flushing. The project principals plan to expand its existing midmarket to reach more audience through the Holiday Inn Express & Suites project.

The project's revenue goals are:

- Increase top line revenue through daily pricing opportunities
- Maximize Special Event periods with proper LOS (Length of Stay) restrictions
- Increase RevPAR (Revenue Per Available Room) during typically low Occupancy periods
- Maximize GDS(Global Distribution System) bookings by ensuring availability and correct content

The Revenue Director will first consult with the General Manager and the Director of Sales to fully understand the current day-to-day Sales and Revenue Management efforts already in place. The coordinated effort continues through daily communication to solidify the program and get full understanding from all key employees, including Guest Service Agents.

Rates, LOS restrictions and the reduction of unnecessary discounting can be properly adjusted 24 hours a day as booking pace increases pass set thresholds. Potential sell-out nights can be monitored until the last room is sold for right pricing.

The project's marketing channel will focus on E-Distribution:

- All online content will keep the hotel one step ahead of the competition, by expanding and enhancing guest's online options for shopping, decision making, managing and booking

for groups, meetings, corporate and leisure travel. This will create greater efficiency and effectiveness for the hotel and an easy, and seamless online experience for customers.

- Starting on the supply side at the property level, we will forecast on a daily basis to ensure the property-management systems reflects the correct availability, and provide discounts to capture additional occupancy during special need times. The hotel will stay ahead of competition by removing availability and restricting unnecessary price breaks.

The process of distribution begins with four main points to which rate and inventory are sent to:

1. IHG central reservations office;
2. The global distribution system;
3. The hotel's website;
4. An online travel agent (Expedia, Priceline, Kayak, Hotels.com, etc.)

The four booking channels are monitored daily to ensure the project is maximizing revenue through these fast growing contributing channels. A focus of redirection from online travel agents to hotel's website is also driven through Social Media campaigns to further reduce any additional commissions or discounts.

SECTION III: FINANCIAL

VIABILITY OF THE PROJECT; PROJECT FUNDING & CAPITALIZATION EXIT PLAN; INCOME PROJECTIONS & REASONABLE ANALYSIS METHODOLOGY

EXIT PLAN & PROJECT VIABILITY

The loan from QB Ventures EB5 Capital, LLC will be paid off in full either through the residential condominium sales, refinancing of hotel, retails and community facility upon stabilization. The project will not be refinanced or sold prior to the adjudication of the I-829 petitions.

The project principal has extensive experience and is confident that the proceeds from either strategy should be more than sufficient to pay off the EB-5 investors in full. However, in the event the above strategy is insufficient to pay off the loan in full, the borrower shall cover the shortfall from its own operating cash flow, or risk foreclosure and loss of its ownership of the Project to the Partnership. This is not a redemption clause. The EB-5 capital is placed "at risk". The developer will make the best efforts that are economically feasible to repay the EB-5 investors.

USE OF CAPITAL

(b)(4)

The Holiday Inn Express & Suites' total cost is [redacted] which includes land costs estimated at $9 million and development cost estimated at [redacted] consisting of hard construction costs of approximately [redacted] and soft costs of approximately [redacted] For analysis purposes, this equates to a total development budget of $1682/SF for 16,050 SF of gross building area including parking decks. This budget includes hard costs, contingencies, financing, pre-opening and other soft costs, but excludes site acquisition.

The JCE Company intends to raise capital to cover the costs using both conventional financing and through business loans by means of a private placement offering to EB-5 investors. Specifically, the NCE will raise a maximum of [redacted] in EB-5 capital, which will be loaned

(b)(4)

to the JCE. The Company plans to sell EB5 Membership Units, at $500,000 per unit, to qualified foreign investors seeking to obtain permanent residence in the United States through the EB-5 Visa Program. No additional capital contributions are required.

Contingency Plan:
As necessary, the Queens Blvd Ventures, LLC (JCE) may also receive temporary short-term bridge financing or traditional bank financing through lenders in order to commence construction and create jobs in advance of EB-5 funding.

Sales, Cost, Income, and Investment Projections

Attached below is the pro forma for the **first two years** and **the stabilized value** of the proposed Holiday Inn Express & Suites:

	2018/19 Begins March				2019/20				Stabilized			
Number of Rooms:	135				135				135			
Occupancy:	75%				83%				86%			
Average Rate:	$168.81				$173.87				$179.09			
RevPAR:	$126.61				$144.32				$154.02			
Days Open:	365				365				365			
Occupied Rooms:	36,956	%Gross	PAR	POR	40,898	%Gross	PAR	POR	42,377	%Gross	PAR	POR
OPERATING REVENUE												
Rooms												
Miscellaneous Income												
Total Operating Revenues												
DEPARTMENTAL EXPENSES *												
Rooms												
Total												
DEPARTMENTAL INCOME												
UNDISTRIBUTED OPERATING EXPENSES												
Administrative & General												
Marketing												
Franchise Fee												
Prop. Operations & Maint.												
Utilities												
Total												
GROSS HOUSE PROFIT												
Management Fee												
INCOME BEFORE NON-OPER. INC. & EXP.												
NON-OPERATING INCOME AND EXPENSE												
Property Taxes												
Insurance												
Reserve for Replacement												
Total												
EBITDA LESS RESERVE												

*Departmental expenses are expressed as a percentage of departmental revenues

(b)(4)

Attached below is the **ten-year** pro forma of the proposed Holiday Inn Express & Suites:

(b)(4)

FIGURE 11-8 TEN-YEAR FORECAST OF INCOME AND EXPENSE

Number of Rooms:
Occupied Rooms:
Occupancy:
Average Rate:
RevPAR:
OPERATING REVENUE
Rooms
Miscellaneous Income
Total Operating Revenue
DEPARTMENTAL EXPENSES*
Rooms
Total
DEPARTMENTAL INCOME
UNDISTRIBUTED OPERATING EXPENSES
Administrative & General
Marketing
Franchise Fee
Prop. Operations & Maint.
Utilities
Total
GROSS HOUSE PROFIT
Management Fee
INCOME BEFORE NON-OPER. INC. & EXP.
NON-OPERATING INCOME AND EXPENSE
Property Taxes
Insurance
Reserve for Replacement
Total
EBITDA LESS RESERVE

*Departmental expenses are expressed as a percentage of departmental revenues.

The figures are derived from the revenue estimates, which are based on a careful assessment of market conditions and likely achievable hotel rates and occupancy. Operating costs are based on industry norms. These costs and projections are supported by the independent HVS Market Analysis Report. The HVS market analysis report for the competitive set in the project's market is provided at **Exhibit 9**.

Attached below is the Forecasted Occupancy Rate of the Holiday Inn Express & Suites:

FIGURE 8-3 FORECAST OF SUBJECT PROPERTY'S OCCUPANCY

Market Segment	2018	2019	2020	2021	2022
Commercial					
Demand					
Market Share					
Capture					
Penetration					
Meeting and Group					
Demand					
Market Share					
Capture					
Penetration					
Leisure					
Demand					
Market Share					
Capture					
Penetration					
Total Room Nights Captured					
Available Room Nights					
Subject Occupancy					
Marketwide Available Room Nights					
Fair Share					
Marketwide Occupied Room Nights					
Market Share					
Marketwide Occupancy					
Total Penetration					

(b)(4)

It is to be noted that the first year of operations does not reflect anticipated long-term performance of the hotel project. It only reflects the initial operations from the time the hotel first opens with little business, as it builds to full staffing complement, begins to work "the kinks" out of operations, gets marketing efforts underway and allows time for them to get traction, and builds the market image and place for the hotel. Based on operating history and market performance (with inflation adjustment), it is conservatively estimated that stabilization will occur in year 3 by 2017 with an annual occupancy of 86%. The term "stabilization" properly reflects the industry experience over most of the past century that after this initial ramp up, the hotel reaches a stabilized level that will be maintained during its 20 to 30 year economic lifespan.

FINANCIAL PROJECTIONS AND ANALYSIS METHODOLOGY

The financial projection data of the project is provided by an independent appraisal by HVS Group. In order to examine the job creation based on the projections, the following analysis methodologies are considered: (1) reviewing Holiday Inn Express & Suites' projected operational pro forma; (2) estimating the portion of that budget which would represent labor costs; (3) verifying the estimate for reasonableness by against the corresponding direct effects employment creation multipliers.

The Holiday Inn Express & Suites' forecasted market share and occupancy levels are based upon its anticipated competitive position within the market, as quantified by its penetration rate. The penetration rate is the ratio of a property's market share to its fair share.

The projections, demand capture, and occupancy performance for the Holiday Inn Express & Suites for these types of adjustments to market share within the defined competitive market. Consequently, the actual penetration factors applicable to the project and its competitors for each market segment in each projection year may vary from the penetration factors set out by the industry standards.

PROJECT PROFIT FORECAST

(b)(4)

The Project is located at 64-06 Queens Blvd, Woodside, NY 11373 and has an estimated total cost of [redacted] After its total prospective market value upon completion (2018) of [redacted] it is anticipated that the project will result in a profit of [redacted]

Please see below for the breakdown:

Land Value:	[redacted]
Construction Cost and soft cost:	
Total Project Cost:	

(b)(4)

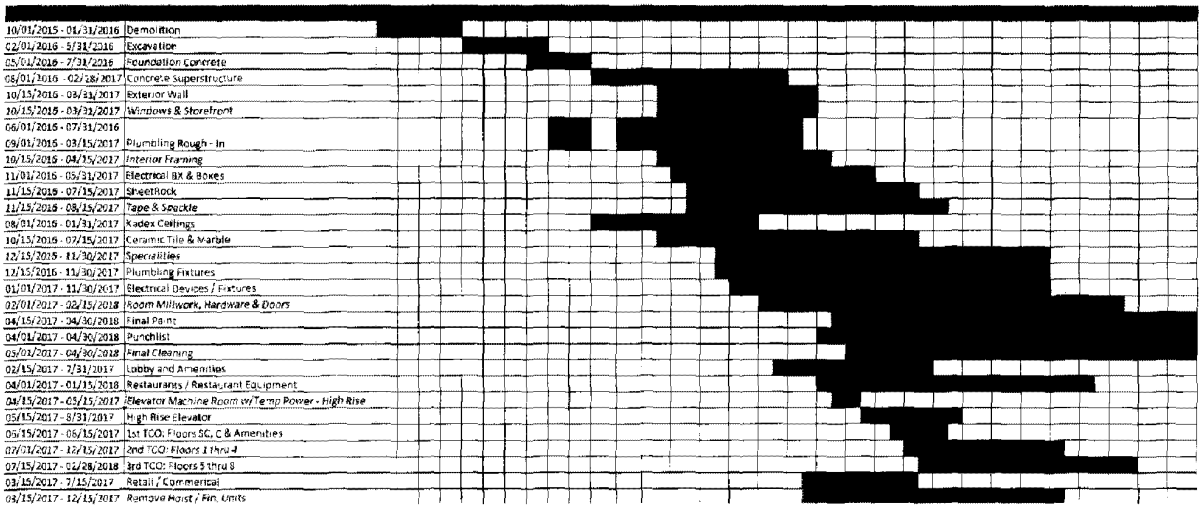
SECTION IV: CONSTRUCTION / PERMITS AND LICENSES

A. PARTICULARS OF THE CONSTRUCTION PHASES

Please refer to the timeline for the construction attached at **Exhibit 10.**
(Snapshot below)

This detailed construction timeline was produced by **Century Construction Group,** the General Contractors for the construction. The General Construction Verification Letter dated September 15, 2015 can be found at **Exhibit 16.**

Snapshot of the Construction Timeline



The construction of the Holiday Inn Express & Suites project will take approximately 27-months to complete. The submitted schedule at **Exhibit 10.** The demolition phase of the project is scheduled to begin in October of 2015.

The developer obtained all necessary permit and licenses in demolition, and is scheduled to obtain the permit and licenses for construction and development of the project. The developer has obtained all necessary permits and licenses to begin construction and development of the project. Construction is expected to take begin in October 2015, and it is anticipated that construction will be completed by mid-2018.

FIGURE 13-1 DEVELOPMENT COST SUMMARY

Component	Cost	Cost per Room
Construction		
General		
Sitework		
Masonry		
Concrete		
Metals		
Thermal & Moisture Protection		
Doors & Windows		
Finishes		
Conveying System		
Equipment		
Mechanical		
Fire Syste		
Electrical		
Plumbing Work		
Furniture, Fixtures & Equipment		
Soft Cost		
Total, Without Land		

(b)(4)

The Holiday Inn Express & Suites' construction costs prepared by ***Century Construction Group*** have been estimated to be [redacted] and the estimated time to complete the construction will be within **27 months**.

(b)(4)

(i) Analysis Method of the Construction Timeline and Costs

The construction timeline is estimated to be 27 months excluding the time to demolish the existing structure. The construction budget for the project is estimated at [redacted] The hotel will include 135 guest rooms, including 2 suites, a breakfast room, a fitness room, business center, market pantry, outdoor lounge, and vending areas. The construction of the Project will take approximately

(b)(4)

27-months to complete. The construction budget was estimated by **Century Construction Group** This was based on their previous experience of projects similar in size and nature and scope. [1]

Century Construction Group has worked in the construction industry for twenty (20) years and has supervised, managed and/or constructed similar projects to Holiday Inn Express & Suites, such as the Marriot Fairfield Inn, Leavitt Manor Condominium, and Whitestone Tower Condominium, which are all located in Flushing.

(ii) Mr. George Xu is an Expert in the Field.

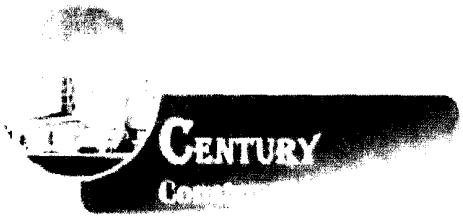
Founded and headed by George Xu, Century Development Group is an integrated Real Estate Development Company. Since the late 1990's, Mr. Xu has been involved in the developments of residential, commercial, mixed-use and hospitality projects primarily in the borough of Queens, New York. To date, George Xu has worked on over a million square feet of real estate developments; mixed-use developments including residential, hospitality, office, and retail. The total value of his completed projects is calculated to be over [redacted] The net worth of his current and developing projects is anticipated to be over [redacted] The total asset of his projects is over [redacted]

(b)(4) (b)(4)

Mr. George Xu is the owner of the The Holiday Inn Express & Suites project and the owner of the proposed Century New York City Regional Center. With over 20 years of real estate holding and development experience, he has worked on over a million of square feet of real estate developments; mixed-use developments including residential, hospitality, office, retail, and in all phases of assembly, acquisition, finance, design, construction, marketing and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters. Mr. Xu provides marketing oversight and policy guidance for the Century New York City Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and a Master of Science degree in Computer Science from Polytechnic University, New York.

Please see the snapshot of the verification letter below.

[1] Please see Exhibit 16 – Verification Letter and supporting documents.



September 15, 2015

Attention: EB-5 Unit
U.S. Citizenship and Immigration Services
California Service Center
Department of Homeland Security
24000, Avila Road, Room 2312
Laguna Niguel, CA 92677

Re: Holiday Inn Express & Suites
64-06 Queens Blvd, Woodside, NY 11377

Dear CSC EB-5 Unit Officer:

Century Construction Group was hired by Queens Blvd Ventures, LLC as the general contractor on the above-referenced Project. I am the president of Century Construction Group and have worked in the construction industry for twenty years and have supervised, managed and/or constructed. My experience includes hospitality, commercial interior and residential projects. I have constructed similar projects to the proposed Holiday Inn Express & Suites in term of size, budgets and timeline. These projects include the Marriot Fairfield Inn, the Leavitt Manor Condominium and the Farrington Estate, all located in Flushing. I have been asked by Queens Blvd Ventures, LLC to provide you with some information concerning the Project in connection with certain funding obtained by EB-5.

Century Construction Group has advised that hard construction cost estimate would b[redacted] (b)(4) (b)(4) [redacted] The construction timeline is 27 months. This Holiday Inn Express & Suites hotel will include a breakfast room, a fitness room, business center, market pantry, outdoor lounge, and vending areas. This hotel will include 135 rooms and suites. The Demolition is scheduled to begin in early October of 2015. I attest that the construction budgets and timeline are estimated based on established industry standards.

Very Truly Yours,

George Xu
President

35-06 Leavitt St., Suite CF-A Flushing, NY 11354
Tel: (718) 939-1060 Fax: (718) 939-1036
www.centurygroupdevelopment.com

(iii) **Satisfactory Compliance with *Matter of Ho*:**

Mr. George Xu has the appropriate qualifications that validate his position as an expert in the field, he is therefore in a position to be an authority on the construction budget and timeline.

In addition, George Xu's statement satisfactorily complies with the *Matter of Ho* in terms of comparison studies of the business described. On page 9 of the *Matter of Ho*, the submitted documents shall contain *"a comparison of competition's products."* And *"set forth the business' organizational structure and its personnel's experience"*. The letter and professional profile includes Mr. George Xu's previous experience and construction timeline and the attached documentation for Century Construction Group verifies their ability to accurately assess the construction budget based on the comparison studies of similar projects in similar locations.

PERMITS AND LICENSES

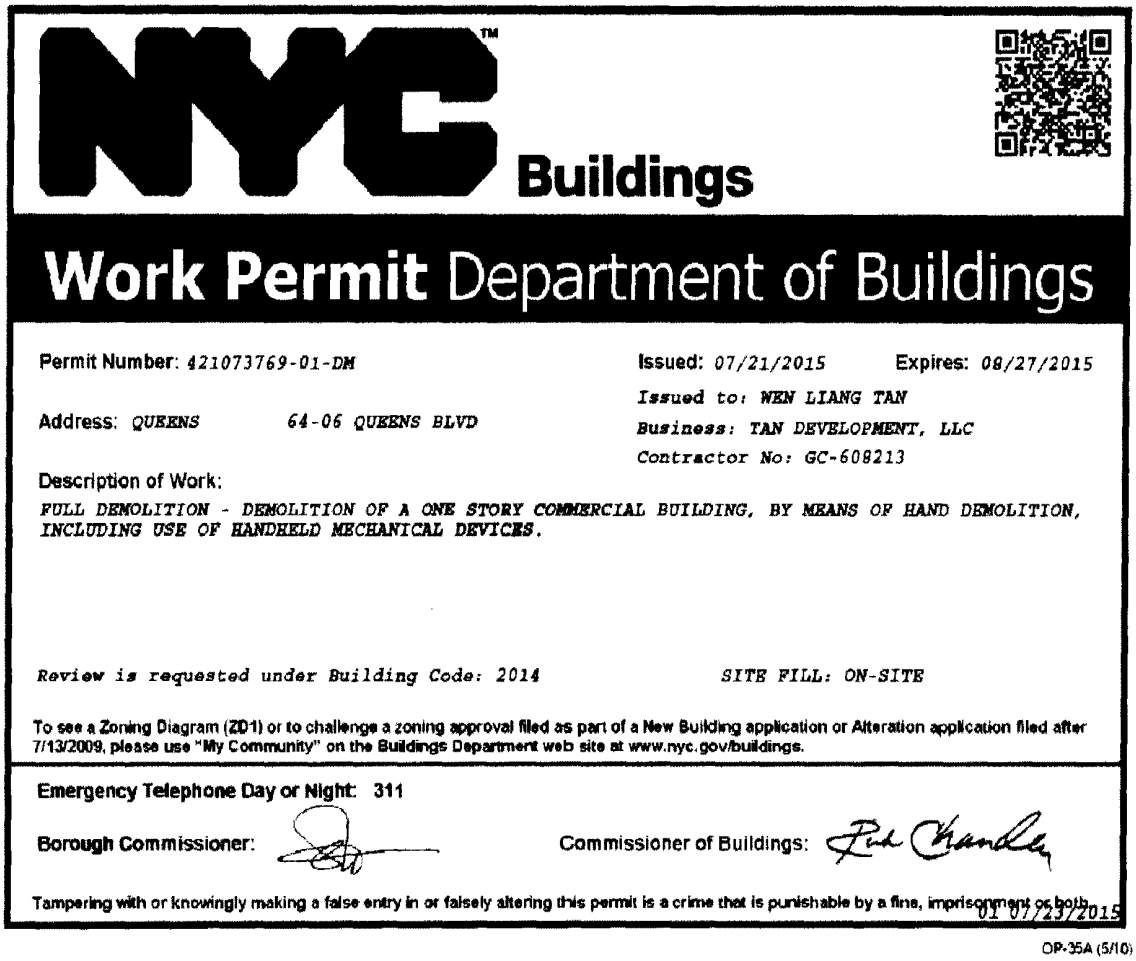
In New York City the construction is "as of-right" development which complies with all applicable zoning regulations and does not require any discretionary action (special permit or variance) by the City Planning Commission or Board of Standards and Appeals for approval. Assuming that the project complies with all other Code and Zoning regulations, the NYC Department of Buildings Plan Examiner Plan Examiner will approve the Plans, further to the architect's construction detailed blueprints and renditions.

It is not necessary for the project to seek the additional approvals of the City Planning Commission, or of the Local Community Board, or of any other outside party of interest. If the project complies with the applicable Zoning Laws currently in force, the developer is entitled to build. Therefore building permits are only valid for a limited amount of time and the project will apply for the relevant permits prior to the commencement of the construction activities. The Project obtained New Building Permit in July 2015.

The Project has already received/will receive the following permits:

Work Permits Schedule for Holiday Inn

Permits:	Expected Date:
Demolition Permit	July - 15
Plan Approval	May - 16
New Building permit	Sep - 16
P-R Plan Receipt--New Tree	Nov - 16



NYC™ Buildings

Work Permit Department of Buildings

Permit Number: *421073769-01-DM*

Issued: *07/21/2015* Expires: *08/27/2015*

Address: *QUEENS* *64-06 QUEENS BLVD*

Issued to: WEN LIANG TAN
Business: TAN DEVELOPMENT, LLC
Contractor No: GC-608213

Description of Work:
FULL DEMOLITION - DEMOLITION OF A ONE STORY COMMERCIAL BUILDING, BY MEANS OF HAND DEMOLITION, INCLUDING USE OF HANDHELD MECHANICAL DEVICES.

Review is requested under Building Code: 2014 *SITE FILL: ON-SITE*

To see a Zoning Diagram (ZD1) or to challenge a zoning approval filed as part of a New Building application or Alteration application filed after 7/13/2009, please use "My Community" on the Buildings Department web site at www.nyc.gov/buildings.

Emergency Telephone Day or Night: 311

Borough Commissioner: Commissioner of Buildings:

Tampering with or knowingly making a false entry in or falsely altering this permit is a crime that is punishable by a fine, imprisonment or both. 01 07/23/2015

OP-35A (5/10)

NYC Buildings

Work Permit Department of Buildings

Permit Number: *421073769-01-EQ-FN*

Issued: *07/21/2015* Expires: *07/20/2016*

Address: *QUEENS 64-06 QUEENS BLVD*

Issued to: WEN LIANG TAN
Business: TAN DEVELOPMENT, LLC
Contractor No: GC-609213

Description of Work:

FULL DEMOLITION - CONSTRUCTION EQUIPMENT - FENCE DEMOLITION OF A ONE STORY COMMERCIAL BUILDING, BY MEANS OF HAND DEMOLITION, INCLUDING USE OF HANDHELD MECHANICAL DEVICES.

Review is requested under Building Code: 2014 *SITE FILL: ON-SITE*

To see a Zoning Diagram (ZD1) or to challenge a zoning approval filed as part of a New Building application or Alteration application filed after 7/13/2009, please use "My Community" on the Buildings Department web site at www.nyc.gov/buildings.

Emergency Telephone Day or Night: 311

Borough Commissioner: Commissioner of Buildings:

Tampering with or knowingly making a false entry in or falsely altering this permit is a crime that is punishable by a fine, imprisonment or both. 01 07/23/2015

NYC Buildings

Work Permit Department of Buildings

Permit Number: *421073769-02-EQ-OT*

Issued: *07/21/2015* Expires: *07/20/2016*

Address: *QUEENS 64-06 QUEENS BLVD*

Issued to: WEN LIANG TAN
Business: TAN DEVELOPMENT, LLC
Contractor No: GC-609213

Description of Work:

FULL DEMOLITION - CONSTRUCTION EQUIPMENT - OTHER MECHANICAL MEANS SUBMITTED FOR USE OF MECHANICAL EQUIPMENT AT THE TIME OF DEMOLITION

Review is requested under Building Code: 2014 *SITE FILL: ON-SITE*

To see a Zoning Diagram (ZD1) or to challenge a zoning approval filed as part of a New Building application or Alteration application filed after 7/13/2009, please use "My Community" on the Buildings Department web site at www.nyc.gov/buildings.

Emergency Telephone Day or Night: 311

Borough Commissioner: Commissioner of Buildings:

Tampering with or knowingly making a false entry in or falsely altering this permit is a crime that is punishable by a fine, imprisonment or both. 01 07/23/2015

SECTION V: EMPLOYMENT AND JOB CREATION

(b)(4)

Based on the EB-5 Economic Impact Studies conducted by Evans, Carroll & Associates, Inc., the 135-room Holiday Inn Express and Suites will create [redacted] jobs, including [redacted] jobs from direct and indirect from construction employment, and [redacted] jobs from direct and indirect employees. The project intends to raise [redacted] from [redacted] EB-5 investors.

(b)(4)

The economic impact of the project was assessed and tabulated by Michael K. Evans of Evans, Carroll & Associates, Inc. Dr. Evans, Chairman of the company since 1980, is a specialist in EB-5 immigration analysis and economic impact studies of development projects and new construction. Dr. Evans holds a Ph.D. in Economics from Brown University and was an Assistant and Associate Professor of Economics at Wharton School, University of Pennsylvania. He was also Chief Economist at American Economics Group from 2000-2008. Please see Dr. Evans resume attached at **Exhibit 6**.

5.1 THE RIMS II INPUT/OUTPUT MODEL

Economic and job creation impact modeling to determine the likely economic and job creation impacts associated with the EB-5 project was performed using the RIMS II Input/Output model. RIMS II is widely used in both the public and private sector. In the public sector, for example, the Department of Defense uses RIMS II to estimate the regional impacts of military base closings. State transportation departments use RIMS II to estimate the regional impacts of airport construction and expansion. In the private-sector, analysts and consultants use RIMS II to estimate the regional impacts of a variety of projects, such as the development of shopping malls and sports stadiums.

5.2 DIRECT AND INDIRECT JOBS

Table A below presents the job creation associated with the Holiday Inn Express & Suites EB-5 Project . Table A shows the annual revenue, the final demand multiplier, and the total number of jobs created by the construction, hotel operations, and rental income of the building. Since the construction will take more than 24 months, the economic impact figures for the hard construction costs and appropriate soft costs include direct as well as indirect and induced jobs. All figures are permanent jobs. The number of jobs created as a result of the Holiday Inn Express & Suites EB-5 Project was determined using the RIMS II model.

Table A. Summary of Employment and Revenue Estimates					
Activity	Exp/Rev mil cur $	Exp/Rev mil 2010 $	RIMS II Mult	Total Jobs	Direct Jobs
Hard construction costs			13.2149		
Architect & Engineering Svcs			11.9014		
Purchase of FF&E *			5.6974		
Hotel Operations			15.0799		
Total					
All figures based on unrounded numbers					
* Indirect and induced jobs only					

5.3 JOBS REQUESTED BY THE EB-5 PROJECT

A. Jobs Arising from Construction Activities

In the case of the Holiday Inn Express & Suites EB-5 Project , construction activity lasts for more than two years. Since the construction period will take more than 24 months, direct as well as indirect and induced jobs may be included in the EB-5 job count for hard construction costs (although not for FF&E) for each NAICS activity associated with the project's construction activities.

Table 8-3 below shows there will be a total of [ ] jobs would be created from the hard construction costs of the building. Output would rise about [ ] while household earnings would increase by about [ ] Table 8-4 shows the average output per new worker is about [ ] while average earnings are about [ ]

Table 8-3. Increase in Employment, Output, and Earnings for Hard Construction Costs for Building			
Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			

(b)(4)

Retail trade	
Transportation and warehousing	
Information	
Finance and insurance	
Real estate and rental and leasing	
Professional and scientific services	
Management of companies	
Admin and waste mgmt services	
Educational services	
Health care and social assistance	
Arts, entertainment, and recreation	
Accommodation	
Food services and drinking places	
Other services	
Household	
Total	

Table 8-4. Output and Earnings Per New Worker, Hard Construction Costs for Building

Industry group	Employment	Output/Empl	Earnings/Empl
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			

(b)(4)

Household	
Total	

Table 8-5 below shows there will be a total of [redacted] jobs created from the architectural, engineering, and design fees for the building. Output would rise about [redacted] while household earnings would increase by about [redacted] Table 8-6 shows the average output per new worker is about [redacted] while average earnings are about [redacted]

Table 8-5. Increase in Employment, Output, and Earnings for Soft Construction Costs for Building

Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

Table 8-6. Output and Earnings per New Worker for Soft Construction Costs for Building			
Industry group	Employment	Output/Empl	Earnings/Empl
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

Table 8-7 shows there will be a total of [redacted] jobs created from the purchases of FF&E for the hotel. Output would rise about [redacted] while household earnings would increase by about [redacted] Table 8-8 shows the average output per new worker is about [redacted] while average earnings are about [redacted]

Table 8-7. Increase in Employment, Output, and Earnings for Purchases of FF&E for Hotel			
Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			

Utilities	
Construction	
Manufacturing	
Wholesale trade	
Retail trade	
Transportation and warehousing	
Information	
Finance and insurance	
Real estate and rental and leasing	
Professional and scientific services	
Management of companies	
Admin and waste mgmt services	
Educational services	
Health care and social assistance	
Arts, entertainment, and recreation	
Accommodation	
Food services and drinking places	
Other services	
Household	
Total	

Table 8-8. Output and Earnings per New Worker for Purchases of FF&E for Hotel

Industry group	Employment	Output/Empl	Earnings/Empl
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			

Food services and drinking places	
Other services	
Household	
Total	

B.

C. Jobs Arising from Hotel Operations and Rental Income

Through application of the EB-5 Program criteria described above to the total jobs created by the Holiday Inn Express & Suites EB-5 Project 's hotel operations and rental income, the analyst concluded that the direct and indirect jobs created within the geographic boundaries of the regional center may be considered attributable to the regional center entity.

Table 9-3 below shows there will be a total of [redacted] jobs created from the hotel operations, of which [redacted] would be direct jobs.

Table 9-2. Increase in Employment, Output, and Earnings for Hotel Operations

Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

ENTURY NEW YORK CITY REGIONAL CENTER, LLC
IPT NO: RCW1420251818
: QB VENTURES EB5 CAPITAL, LLC

ETITIONER: JOHN DOE

hibit 9:

Feasibility Study

these documents is to show the viability of

rt prepared by HVS, dated August 17, 2015

NARRATIVE APPRAISAL REPORT

Proposed Holiday Inn Express & Suites Woodside

64-06 QUEENS BOULEVARD
QUEENS, NEW YORK

SUBMITTED TO:

Mr. George Xu
Queens Blvd Ventures LLC
35-06 Leavitt Street, Suite CF-A
Flushing, New York, 11354

+1 (718) 939-1060

PREPARED BY:

HVS Consulting and Valuation Services
Division of TS Worldwide, LLC
369 Willis Avenue
Mineola, New York, 11501

+1 (516) 248-8828

August 20, 2015

Mr. George Xu
Queens Blvd Ventures LLC
35-06 Leavitt Street, Suite CF-A
Flushing, New York, 11354

Re: Proposed Holiday Inn Express & Suites Woodside
Queens, New York
HVS Reference: 2015021148

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Superior results through unrivaled hospitality intelligence. Everywhere.

Dear Mr. Xu: (b)(4)

Pursuant to your request, we herewith submit our narrative appraisal report pertaining to the above-captioned proposed hotel. We have inspected the real estate and analyzed the market conditions in the Queens, New York area. We have also reviewed the proposed improvements for this site. Our report has been prepared in accordance with, and is subject to, the requirements of the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) and the Uniform Standards of Professional Appraisal Practice (USPAP), as provided by the Appraisal Foundation.

Based on our analysis, it is our opinion that the "as is" market value of the fee simple interest in the Proposed Holiday Inn Express & Suites Woodside, as of August 3, 2015, is [redacted]

Based on our analysis, it is our opinion that the "when complete" market value of the fee simple interest in the real and personal property of the Proposed Holiday Inn Express & Suites Woodside, as of March 1, 2018, will be:

[redacted]

This value estimate equates to [redacted] per room. We have also estimated the prospective market value of the subject property as of its projected date of stabilization. Based on our analysis, it is our opinion that the "when stabilized" prospective market value of the fee simple interest in the real and personal property of the Proposed Holiday Inn Express & Suites Woodside, as of March 1, 2020, will be:

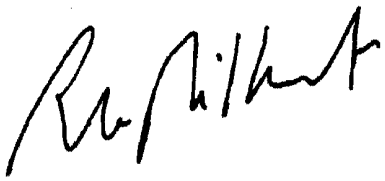
[redacted]

This value opinion equates to [redacted] per room.

We have made no assumptions of hypothetical conditions in our report. The analysis is based on the extraordinary assumption that the described improvements have been completed as of the prospective "when complete" date of value. The reader should understand that the completed subject property does not yet exist as of the date of appraisal. Our appraisal does not address unforeseeable events that could alter the proposed project and/or the market conditions reflected in the analyses; we assume that no significant changes, other than those anticipated and explained in this report, shall take place between the date of inspection and date of prospective value. Furthermore, the subject property is located in a designated "Special Area" for tax purpose; our projection is predicated upon the extraordinary assumption that the subject hotel will receive the ICAP tax abatement for a 25-year period. The use of these extraordinary assumptions may have affected the assignment results. We have made no other extraordinary assumptions specific to this appraisal. However, several important general assumptions have been made that apply to this appraisal and our valuations of proposed hotels in general. These aspects are set forth in the Assumptions and Limiting Conditions chapter of this report.

We hereby certify that we have no undisclosed interest in the property, and our employment and compensation are not contingent upon our findings. This study is subject to the comments made throughout this report and to all assumptions and limiting conditions set forth herein.

Sincerely,
TS Worldwide, LLC



Roland deMilleret, MAI, Managing Director
rdmilleret@hvs.com, +1 (516) 248-8828 ext. 269
State Appraiser License (NY) 46000044494

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Qualifications

Copy of Appraisal License(s)

1. Summary of Salient Data and Conclusions

Project:	Proposed Holiday Inn Express & Suites Woodside
Location:	64-06 Queens Boulevard Queens, New York 11377
Interest Appraised:	Fee Simple
Highest and Best Use (as if vacant):	Develop a limited-service hotel

LAND DESCRIPTION

Area:	±0.37 acres, or ±16,050 square feet
Zoning:	C2-3/R7X, R4-1 - Commercial with Residential Overlay
Assessor's Parcel Number(s):	Block: 2325 - Lot(s): 26, 30 & 32
FEMA Flood Zone:	Not Mapped

PROPOSED IMPROVEMENTS DESCRIPTION

Expected Opening Date:	March 1, 2018
Property Type:	Limited-service lodging facility
Building Area:	±60,169 square feet
Guestrooms:	135
Number of Stories:	Eight
Food and Beverage Facilities:	A breakfast room
Additional Facilities:	A fitness room, business center, market pantry, outdoor lounge, and vending areas
Parking Spaces:	39

(b)(4)

SUMMARY OF VALUE PARAMETERS

Number of Years to Stabilize:
Stabilized Year:

VALUATION ASSUMPTIONS

Mortgage Interest Rate:
Amortization Period:
Debt Service Constant:
Loan-to-Value Ratio:
Inflation Rate:
Equity Yield Rate:
Terminal Capitalization Rate:
Selling Expenses:
Holding Period:
Calculated Discount Rate:
Derived Capitalization Rates:

VALUE OPINIONS AS OF AUGUST 3, 2015

Land Value:
"As Is" Market Value:

VALUE OPINIONS AS OF MARCH 1, 2018

Income Capitalization Approach:
Sales Comparison Approach:
Cost Approach:

"When Complete" Prospective Market Value:

Real and Personal Property:

(b)(4)

VALUE OPINION AS OF MARCH 1, 2020

"When Stabilized" Prospective Market Value:

Real and Personal Property:

ASSIGNMENT CONDITIONS

Extraordinary Assumptions:

Hypothetical Conditions:

2. Nature of the Assignment

Subject of the Appraisal

The subject of the appraisal is the fee simple interest in a 16,050-square-foot (0.37-acre) site to be improved with a limited-service lodging facility; the hotel will be associated with the Holiday Inn Express brand. The property, which is expected to open on March 1, 2018, will feature 135 rooms including 2 suites, a breakfast room, a fitness room, business center, market pantry, outdoor lounge, and vending areas. The hotel will also contain all necessary back-of-the-house space.

The subject site's location is 64-06 Queens Boulevard, Queens, New York, 11377. The subject site currently contains a one-story retail structure which will be demolished to allow for the construction of the subject hotel.

Property Rights Appraised

The property rights appraised are the fee simple ownership of the land and improvements, including the furniture, fixtures, and equipment. The fee simple estate is defined as "absolute ownership unencumbered by any other interest or estate, subject only to the limitations imposed by the governmental powers of taxation, eminent domain, police power, and escheat."[1]

The Proposed Holiday Inn Express & Suites Woodside is appraised as an open and operating facility.

Pertinent Dates

The effective date of the "when complete" prospective market value opinion is March 1, 2018. The effective date of the "when stabilized" prospective market value conclusion is March 1, 2020. All projections are expressed in inflated dollars. The subject property was inspected by Chu Y. Xu and Roland deMilleret, MAI on August 3, 2015. The "as is" date of value is August 3, 2015.

Ownership, Franchise, and Management Assumptions

The developer of the proposed subject hotel is Queens Blvd Ventures, LLC, a subsidiary of Century Development Group. The ownership group entered into an agreement to purchase the subject site on March 4, 2014 for a reported sum of $6,000,000. According to public records, the sale was closed in February of 2015. No other transfers of the property have reportedly occurred in the past three years. The site is neither listed nor under contract for sale; furthermore, we have no knowledge of any recent listings.

---

[1] Appraisal Institute, The Dictionary of Real Estate Appraisal, 5th ed. (Chicago: Appraisal Institute, 2010).

We assume that the proposed hotel will be managed by a professional management company that is experienced in the operation of limited-service hotels in this region. The management team had not been selected as of the date of this study. We have assumed a market-appropriate total management fee of 3.0% of total revenues in our study. Please refer to the Income Capitalization Approach chapter for additional discussion pertaining to our management fee assumptions.

The proposed subject hotel will reportedly operate under a franchise agreement with Holiday Hospitality Franchising, LLC as a Holiday Inn Express & Suites; the agreement is expected to span 20 years. Based on our review of the agreement's terms or expected terms, the Holiday Inn Express franchise is reflected in our forecasts with a royalty fee of 6% of rooms revenue, and a marketing assessment of 3% of rooms revenue. Reservations fees will also be due, and are included in the rooms expense line item of our forecast.

Objective of the Appraisal

The objective of the appraisal is to develop an opinion of the subject property's "as is" market value, "when complete" prospective market value, and "when stabilized" prospective market value. The following definition of market value has been agreed upon by the agencies that regulate federal financial institutions in the United States:

> The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition are the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:
>
> 1. buyer and seller are typically motivated;
> 2. both parties are well informed or well advised, and acting in what they consider their own best interests;
> 3. a reasonable time is allowed for exposure in the open market;
> 4. payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and
> 5. the price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.[2]

[illegible]

"As is" market value is defined by the Appraisal Institute as follows:

> The estimate of the market value of real property in its current physical condition, use, and zoning as of the appraisal date.[3]

Prospective market value is defined by the Appraisal Institute as follows:

> A value opinion effective as of a specified future date.[4]

The prospective value opinion upon stabilization estimates the market value of a property upon reaching a stabilized level of operation. Operations are stabilized at that point in time when abnormalities in supply and demand or any additional transitory conditions cease to exist and the existing conditions are those expected to continue over the economic life of the property.

Intended Use of the Appraisal

This narrative appraisal report is being prepared for use in the construction financing of the subject property.

Identification of the Client and Intended User(s)

The client for this engagement is Queens Blvd Ventures LLC. This report is intended for the addressee firm, and may not be distributed to or relied upon by other persons or entities.

Assignment Conditions

"Extraordinary Assumption" is defined in USPAP as follows:

> An assumption, directly related to a specific assignment, as of the effective date of the assignment results, which, if found to be false, could alter the appraiser's opinions or conclusions. Comment: Extraordinary assumptions presume as fact otherwise uncertain information about physical, legal, or economic characteristics of the subject property; or about conditions external to the property, such as market conditions or trends; or about the integrity of data used in an analysis.[5]

The analysis is based on the extraordinary assumption that the described improvements have been completed as of the prospective "when complete" date of value. The reader should understand that the completed subject property does not yet exist as of the date of appraisal. Our appraisal does not address unforeseeable

---

[3] Appraisal Institute, The Dictionary of Real Estate Appraisal, 5th ed. (Chicago: Appraisal Institute, 2010)

[4] Appraisal Institute, The Dictionary of Real Estate Appraisal, 5th ed. (Chicago: Appraisal Institute, 2010)

[5] Appraisal Foundation, Uniform Standards of Professional Appraisal Practice, 2014 - 2015 ed.

events that could alter the proposed project and/or the market conditions reflected in the analyses; we assume that no significant changes, other than those anticipated and explained in this report, shall take place between the date of inspection and date of prospective value. Furthermore, the subject property is located in a designated "Special Area" for tax purpose; our projection is predicated upon the extraordinary assumption that the subject hotel will receive the ICAP tax abatement for a 25-year period. The use of these extraordinary assumptions may have affected the assignment results. We have made no other extraordinary assumptions specific to this appraisal. However, several important general assumptions have been made that apply to this appraisal and our valuations of proposed hotels in general. These aspects are set forth in the Assumptions and Limiting Conditions chapter of this report.

"Hypothetical Condition" is defined in USPAP as follows:

> A condition, directly related to a specific assignment, which is contrary to what is known by the appraiser to exist on the effective date of the assignment results, but is used for the purpose of analysis. Comment: Hypothetical conditions are contrary to known facts about physical, legal, or economic characteristics of the subject property; or about conditions external to the property, such as market conditions or trends; or about the integrity of data used in an analysis.[6]

We have made no assumptions of hypothetical conditions in our report.

We have not made any jurisdictional exceptions to the Uniform Standards of Professional Appraisal Practice in our analysis or report.

Marketing and Exposure Periods

The concepts of marketing period and exposure period are similar and simply reflect different perspectives in time. Exposure period is defined as the estimated length of time that the property interest being appraised would have been offered on the market prior to the hypothetical consummation of a sale at its market value, as of the date of value. The exposure period reflects a retrospective opinion based on an analysis of past events and assumes a competitive and open market. Marketing period refers to the amount of time necessary to market the hotel subsequent to our date of value for it to sell for the appraised value, and thus is a prospective opinion.

[6] Appraisal Foundation, Uniform Standards of Professional Appraisal Practice, 2014 - 2015 ed.

Our opinion is that the exposure period for the subject property, prior to our date of value, is estimated to be less than or equal to seven months, while the marketing period for the subject property, subsequent to our date of value, is less than or equal to seven months. The marketing and sales process for hotels is extremely efficient. Brokers specializing in hotel transactions actively solicit potential buyers on an ongoing basis and maintain databases on hotel investor criteria. According to the brokers interviewed, the current period from when a property is listed to when the sale closes is typically six to nine months. Brokers are able to electronically produce marketing materials, elicit interest, schedule property tours, accept offers, and select a buyer in approximately 90 to 120 days. Following the execution of a purchase and sale agreement, the due diligence and closing period is typically 90 days.

Hotel properties are being actively sought after by investors. Quality assets often solicit numerous bids, financing is readily available, and for qualified buyers and sellers, the marketing process has resulted in the timely closing of transactions.

Published surveys report marketing time, not the exposure period. Marketing time is an opinion of the amount of time it might take to sell a property at the concluded market value level during the period immediately after the effective date of an appraisal. Currently, marketing time for luxury/upper-upscale properties, full-service hotels, and select-service hotels is averaging 6.3, 6.6, and 6.6 months, respectively, according to the PWC Real Estate Investor Survey - First Quarter 2015, published by PricewaterhouseCoopers. Overall marketing time is averaging 5.3 months for hotels, as reported by the Situs Real Estate Research Corporation's Winter 2015 Real Estate Survey. The following table illustrates marketing periods reported in recent PWC Real Estate Investor Surveys.

FIGURE 2-1 MARKETING PERIODS (MONTHS)

Property Type	1st Quarter '15	3rd Quarter '14	Year Ago
Luxury/Upper-Upscale	3.0 to 12.0	3.0 to 12.0	3.0 to 20.0
Average	*6.3*	*6.0*	*7.8*
Full-Service	3.0 to 9.0	3.0 to 9.0	3.0 to 12.0
Average	*6.6*	*6.7*	*7.3*
Select-Service	2.0 to 12.0	2.0 to 12.0	2.0 to 12.0
Average	*6.6*	*6.8*	*6.8*
Limited-Service	2.0 to 12.0	2.0 to 12.0	2.0 to 12.0
Average	*7.0*	*7.0*	*7.0*

Source: PWC Real Estate Investor Survey - First Quarter 2015

Competency

Our qualifications are included as an addendum to this report. These qualifications reflect that we have the competence required to complete this engagement, in accordance with the competency provision of the Uniform Standards of Professional Appraisal Practice. Our knowledge and experience is appropriate for the complexity of this assignment.

Scope of Work

The methodology used to develop this appraisal is based on the market research and valuation techniques set forth in the textbooks authored by Hospitality Valuation Services for the American Institute of Real Estate Appraisers and the Appraisal Institute, entitled *The Valuation of Hotels and Motels,*[7] *Hotels, Motels and Restaurants: Valuations and Market Studies,*[8] *The Computerized Income Approach to Hotel/Motel Market Studies and Valuations,*[9] *Hotels and Motels: A Guide to Market Analysis, Investment Analysis, and Valuations,*[10] and *Hotels and Motels – Valuations and Market Studies.*[11]

1. All information was collected and analyzed by the staff of TS Worldwide, LLC. Information was supplied by the client and/or the property's development team.
2. The subject site has been evaluated from the viewpoint of its physical utility for the future operation of a hotel, as well as access, visibility, and other relevant factors.
3. The subject property's proposed improvements have been reviewed for their expected quality of construction, design, and layout efficiency.
4. The surrounding economic environment, on both an area and neighborhood level, has been reviewed to identify specific hostelry-related economic and demographic trends that may have an impact on future demand for hotels.
5. Dividing the market for hotel accommodations into individual segments defines specific market characteristics for the types of travelers expected to utilize the area's hotels. The factors investigated include purpose of visit,

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[7] Stephen Rushmore, *The Valuation of Hotels and Motels*, (Chicago: American Institute of Real Estate Appraisers, 1978).

[8] Stephen Rushmore, *Hotels, Motels and Restaurants: Valuations and Market Studies*, (Chicago: American Institute of Real Estate Appraisers, 1983).

[9] Stephen Rushmore, *The Computerized Income Approach to Hotel/Motel Market Studies and Valuations*, (Chicago: American Institute of Real Estate Appraisers, 1990).

[10] Stephen Rushmore, Hotels and Motels: A Guide to Market Analysis, Investment Analysis, and Valuations (Chicago: Appraisal Institute, 1992).

[11] Stephen Rushmore and Erich Baum, *Hotels and Motels – Valuations and Market Studies* (Chicago: Appraisal Institute, 2001).

average length of stay, facilities and amenities required, seasonality, daily demand fluctuations, and price sensitivity.

6. An analysis of existing and proposed competition provides an indication of the current accommodated demand, along with market penetration and the degree of competitiveness. Unless noted otherwise, we have inspected the competitive lodging facilities summarized in this report.

7. Documentation for an occupancy and average rate projection is derived utilizing the build-up approach based on an analysis of lodging activity.

8. A detailed projection of income and expense made in accordance with the Uniform System of Accounts for the Lodging Industry sets forth the anticipated economic benefits of the subject property.

9. The appraisal considers the following three approaches to value: cost, sales comparison, and income capitalization. We have investigated numerous improved sales in the market area and have spoken with buyers, sellers, brokers, property developers, and public officials. Because lodging facilities are income-producing properties that are normally bought and sold on the basis of capitalization of their anticipated stabilized earning power, the greatest weight is given to the value indicated by the income capitalization approach. We find that most hotel investors employ a similar procedure in formulating their purchase decisions, and thus the income capitalization approach most closely reflects the rationale of typical buyers.

The value conclusion of the appraisal is based on this investigation and analysis and is conveyed in this narrative report. The analyses, opinions, and conclusions were developed based on, and this report has been prepared in conformance with, our interpretation of the guidelines and recommendations set forth in USPAP.

3. Description of the Site and Neighborhood

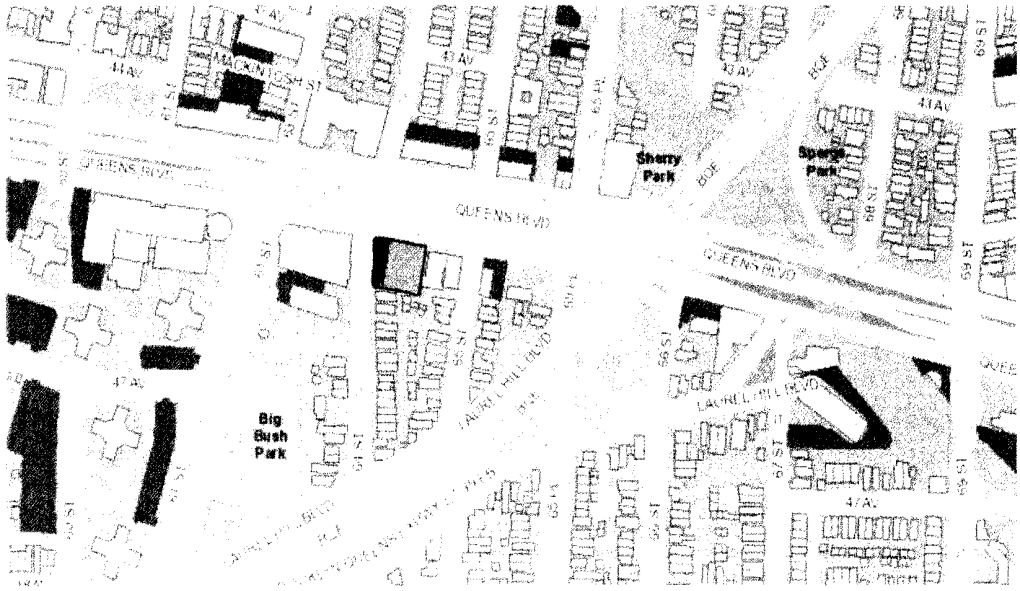
The suitability of the land for the operation of a lodging facility is an important consideration affecting the economic viability of a property and its overall value. Factors such as size, topography, access, visibility, and the availability of utilities have a direct impact on the desirability of a particular site.

The subject site is located in the southwest quadrant of the intersection formed by Interstate 278 (Brooklyn-Queens Expressway) and Queens Boulevard, in the neighborhood of Woodside. Municipal jurisdictions governing the property include the Borough of Queens and the City and State of New York. The street address of the Proposed Holiday Inn Express & Suites Woodside is 64-06 Queens Boulevard, Queens, New York, 11377.

Physical Characteristics

The subject site measures approximately 0.37 acres, or ±16,050 square feet. Primary vehicular access to the property is provided by Queens Boulevard. Access will also be available from 64th Street. The topography of the parcel is generally flat, and the site's shape is generally square.

VIEW OF SUBJECT SITE



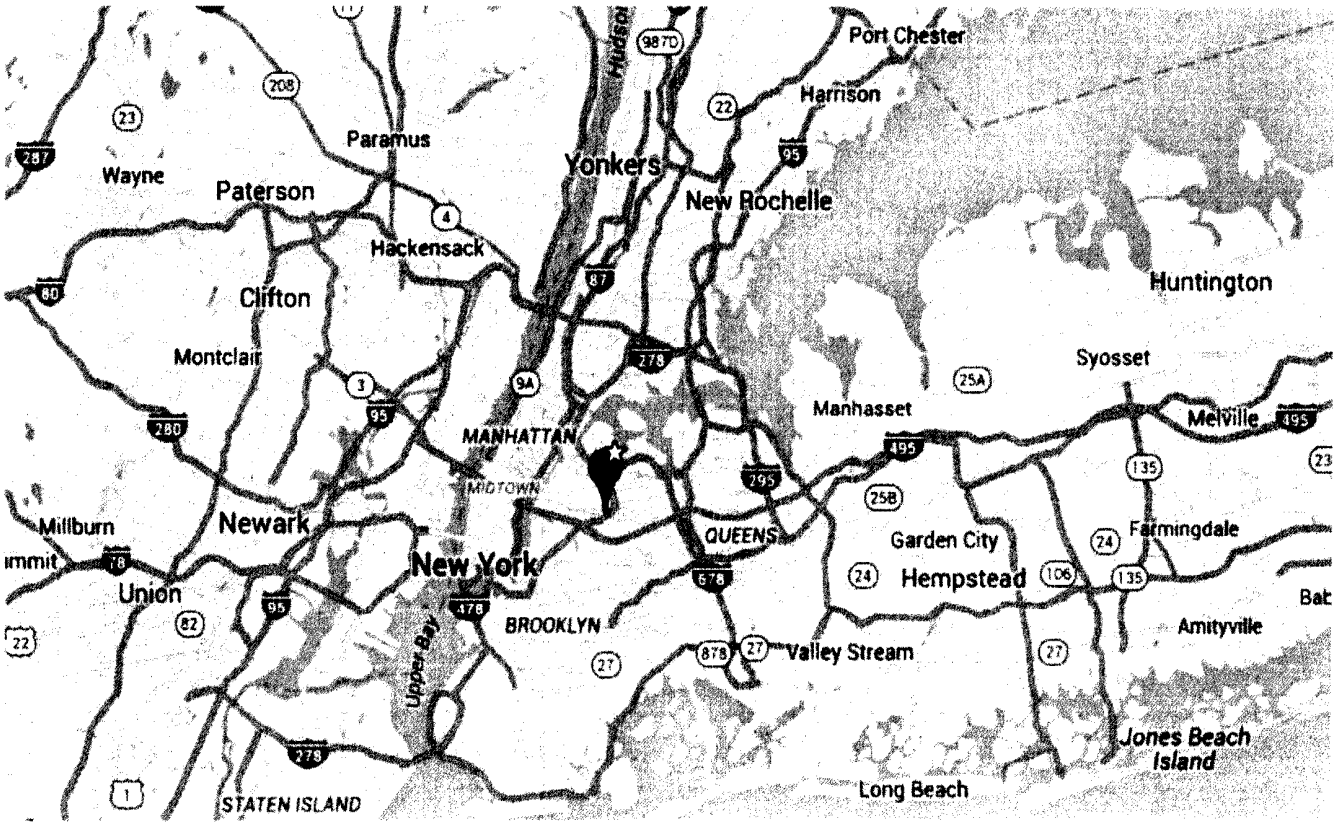
Site Utility

Upon completion of construction, the subject site will not contain any significant portion of undeveloped land that could be sold, entitled, and developed for alternate use. It is expected that the site will be developed fully with building and site improvements, thus contributing to the overall profitability of the hotel.

Access and Visibility

It is important to analyze the site in regard to ease of access with respect to regional and local transportation routes and demand generators. The subject site is readily accessible to a variety of local and county roads, as well as state and interstate highways.

MAP OF REGIONAL ACCESS ROUTES



The subject site is located proximate to Brooklyn Queens Expressway (BQE - Interstate 278), which connects the subject site to various parts of Brooklyn, Queens, and Bronx, and provides accesses to other major thoroughfares such as Long Island Expressway (LIE) and Grand Central Parkway. From the subject site, access to Manhattan, the commercial center of New York City, may be easily accomplished via the westbound Queens Boulevard and crossing the Queensboro

Bridge (also known as the 59th Street Bridge). Alternatively, motorists may access Manhattan via the LIE and the Midtown Tunnel.

The subject site is also served by other accessible transportation offerings, including the Long Island Rail Road and New York City's extensive subway system. We note that the subject site is located within short distance of the Long Island Rail Road Woodside Station. The closest subway station is located approximately one half mile north of the subject site, providing access to the 7 Train, which runs between Times Square, Manhattan and Main Street, Flushing. Overall, access to the subject site is considered to be adequate.

The subject site is located on Queens Boulevard, a 12-lane thoroughfare. Given its frontage along Queens Boulevard and anticipated exterior signage, visibility of the proposed subject property is expected to be good.

Airport Access

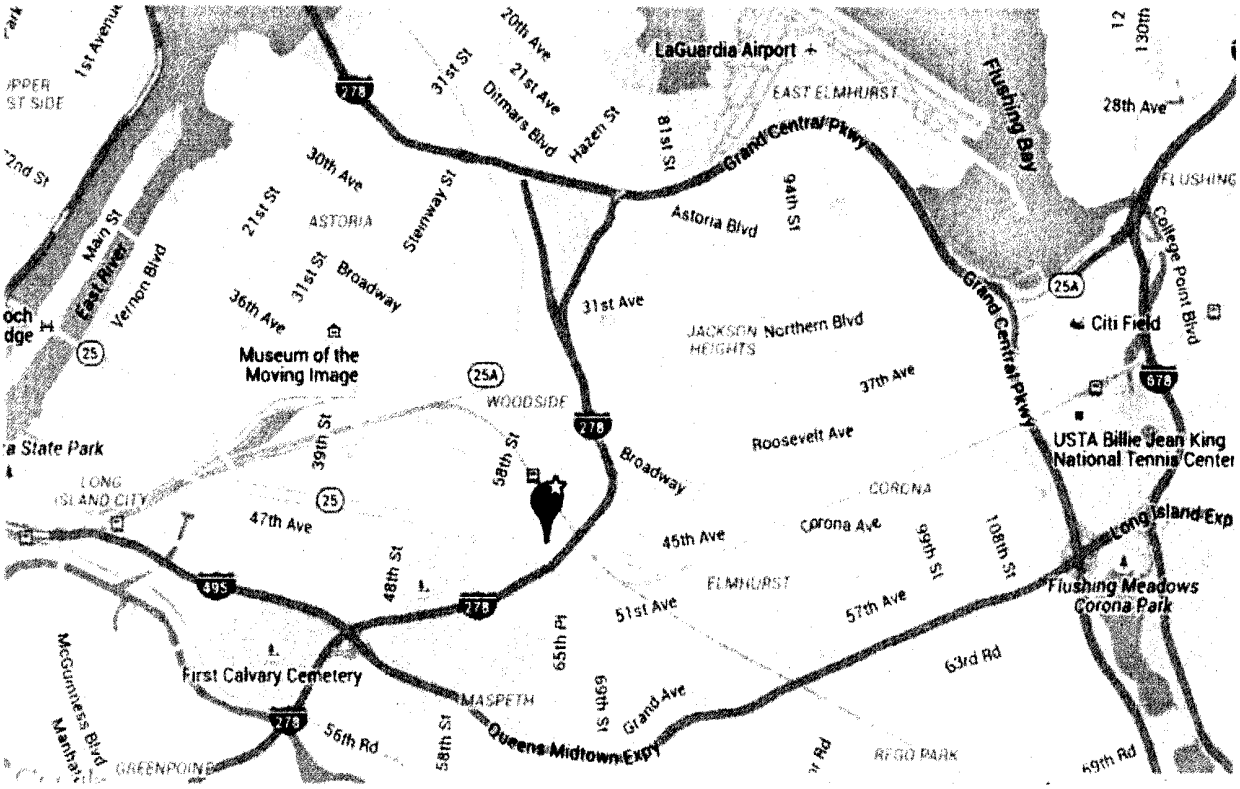
Guests staying at the subject property will benefit from its proximity to the New York City airports. LaGuardia Airport is roughly four miles north of the subject site, and may be reached by traveling north on the Brooklyn- Queens Expressway, which is situated east of the subject site, to Grand Central Parkway eastbound. Travel time to LaGuardia averages ten to 15 minutes, depending upon traffic conditions. In addition, John F. Kennedy International Airport is situated approximately 14 miles southeast of the subject property, and can be reached in roughly 20 minutes under normal traffic conditions. Access to this airport from the subject site is available via Interstate 495 and the Van Wyck Expressway.

Neighborhood

The neighborhood surrounding a lodging facility often has an impact on a hotel's status, image, class, style of operation, and sometimes its ability to attract and properly serve a particular market segment. This section of the report investigates the subject neighborhood and evaluates any pertinent location factors that could affect its future occupancy, average rate, and overall profitability.

Woodside is primarily residential neighborhood in the western portion of the New York City borough of Queens. It is bordered on the south by Maspeth, on the north by Astoria, on the west by Sunnyside and on the east by Elmhurst and Jackson Heights. The area surrounding the subject site is characterized by mid-rise apartment buildings, neighborhood businesses, and community facilities. Overall, the supportive nature of the development in the immediate area is considered appropriate for and conducive to the operation of a hotel.

MAP OF NEIGHBORHOOD



Utilities

The subject site will reportedly be served by all necessary utilities.

Soil and Subsoil Conditions

Geological and soil reports were not provided to us or made available for our review during the preparation of this report. We are not qualified to evaluate soil conditions other than by a visual inspection of the surface; no extraordinary conditions were apparent.

Nuisances and Hazards

We were not informed of any site-specific nuisances or hazards, and there were no visible signs of toxic ground contaminants at the time of our inspection. Because we are not experts in this field, we do not warrant the absence of hazardous waste and urge the reader to obtain an independent analysis of these factors.

Zoning

According to the local planning office, the subject property is zoned as follows: ***C2-3/R7X, R4-1 - Commercial with Residential Overlay.*** Pursuant to zoning requirements, the proposed subject hotel will feature 93 transient hotel rooms and 42 apartment hotel units, or apartment-style one-bedroom suites. Based on this information and our review of this zoning code, the subject property's proposed use should conform to local zoning regulations. However, we do not warrant the

subject property's conformance with local zoning regulations and recommend an independent verification. We assume that all necessary permits and approvals will be secured (including an appropriate liquor license if applicable), and that the subject property will be constructed in accordance with local zoning ordinances, building codes, and all other applicable regulations. Our zoning analysis should be verified before any physical changes are made to the site.

Easements and Encroachments

We are not aware of any easements attached to the property that would significantly affect the utility of the site or marketability of this project.

Conclusion

We have analyzed the issues of size, topography, access, visibility, and the availability of utilities. In general, the site should be well suited for future hotel use, with acceptable access, visibility, and topography for an effective operation.

4. Description of the Proposed Improvements

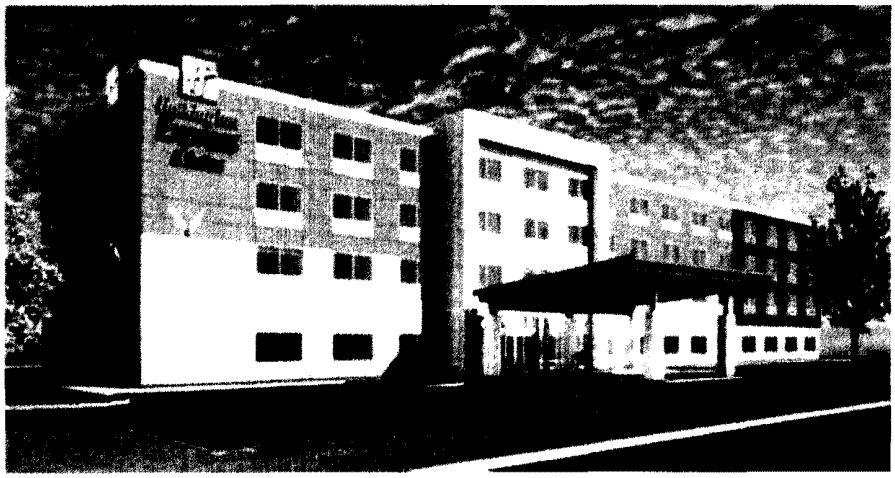
The quality of a lodging facility's physical improvements has a direct influence on marketability, attainable occupancy, and average room rate. The design and functionality of the structure can also affect operating efficiency and overall profitability. This section investigates the subject property's proposed physical improvements and personal property in an effort to determine how they are expected to contribute to attainable cash flows.

Project Overview

The Proposed Holiday Inn Express & Suites Woodside will be a limited-service lodging facility containing 135 rentable units. The eight-story property will open on March 1, 2018.

Holiday Inn Express (and Holiday Inn Express Hotel & Suites) is an upper-midscale, limited-service hotel brand by InterContinental Hotels Group (IHG). According to IHG, Holiday Inn Express is one of the fastest growing hotel brands in its segment. Holiday Inn Express offers competitive rates for both business and leisure travelers. All locations provide the complimentary "Express Start" breakfast bar, and many locations offer recreational amenities such as a swimming pool and/or fitness room. As of year-end 2014, there were 2,060 properties spanning 182,601 rooms in the Americas. In 2014, Holiday Inn Express hotels operated at an average occupancy rate of 68.5%, with an average daily rate of $108.48 and an average RevPAR of $74.26 in the Americas.

TYPICAL HOLIDAY INN EXPRESS EXTERIOR



Summary of the Facilities

Based on information provided by the subject property's development representatives, the following table summarizes the facilities that will be available at the proposed subject hotel.

FIGURE 4-1 PROPOSED FACILITIES SUMMARY

Guestroom Configuration	Number of Units
King	53
Accessible King	3
Queen/Queen	33
Accessible Queen/Queen	4
One-Bedroom Suite - King	16
One-Bedroom Suite - Queen/Queen	26
Total	135

Amenities & Services	
Complimentary Breakfast	Market Pantry
Fitness Center	Vending Areas
Outdoor Lounge	

Site Improvements and Hotel Structure

The proposed subject hotel will comprise eight above-grade floors and two cellar floors. Given the sloping elevation of the site, portion of the cellar floor is also at grade. The parking and mechanical spaces will be located on the sub-cellar floor. The cellar floor will house the fitness center, 13 guestrooms, and back-of-the house space. Guests will also be able to access an outdoor lounge from this level. The hotel lobby and breakfast dining area will be located on the ground floor of the building, along with 16 guestrooms. The remaining standard guestrooms will be located on the second and third floors. Guestrooms on fourth floor and above will be configured as apartment-style, one bed-room suites.

The following diagrams further illustrate the layout of the proposed subject property.

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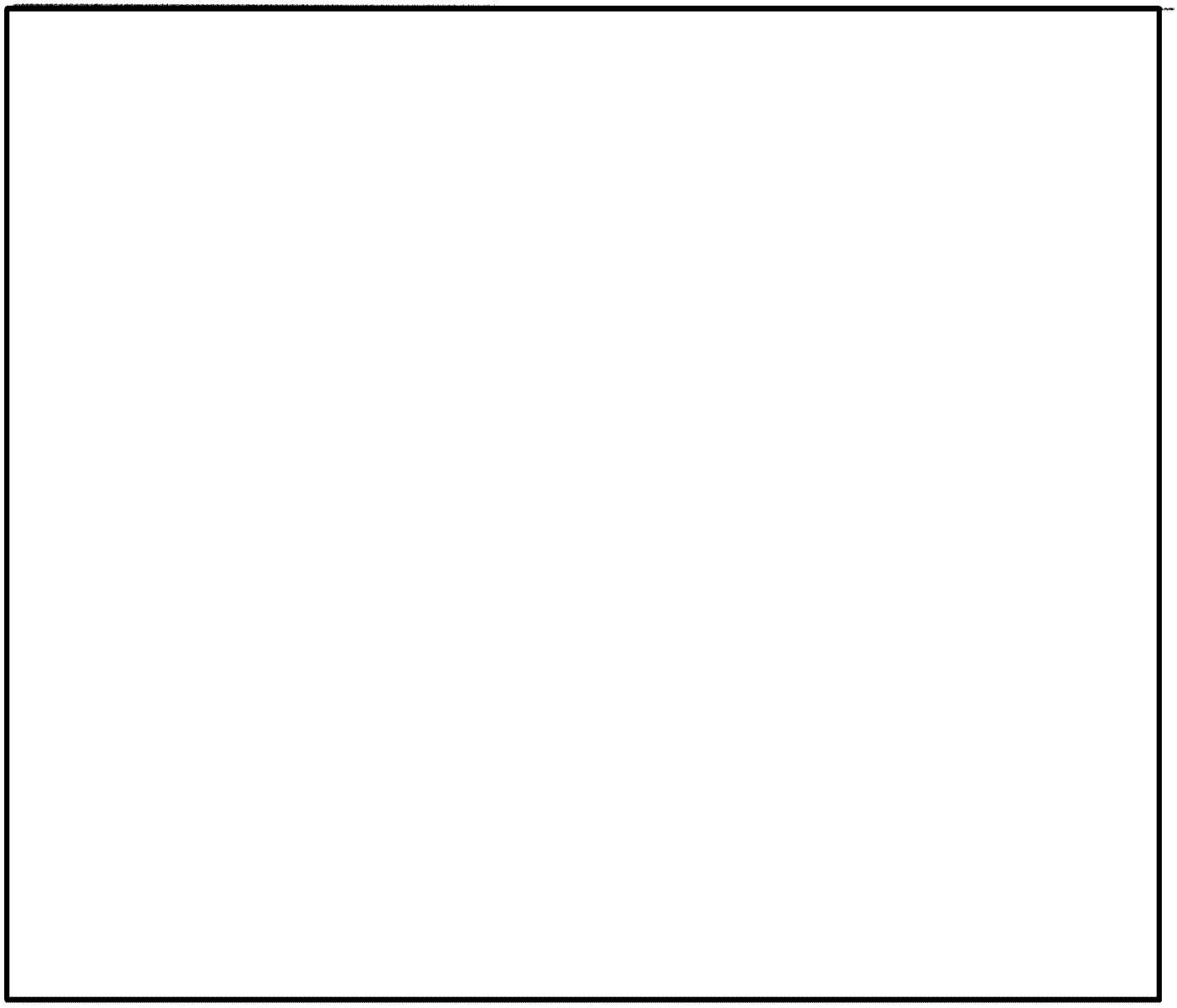
SUBCELLAR FLOOR



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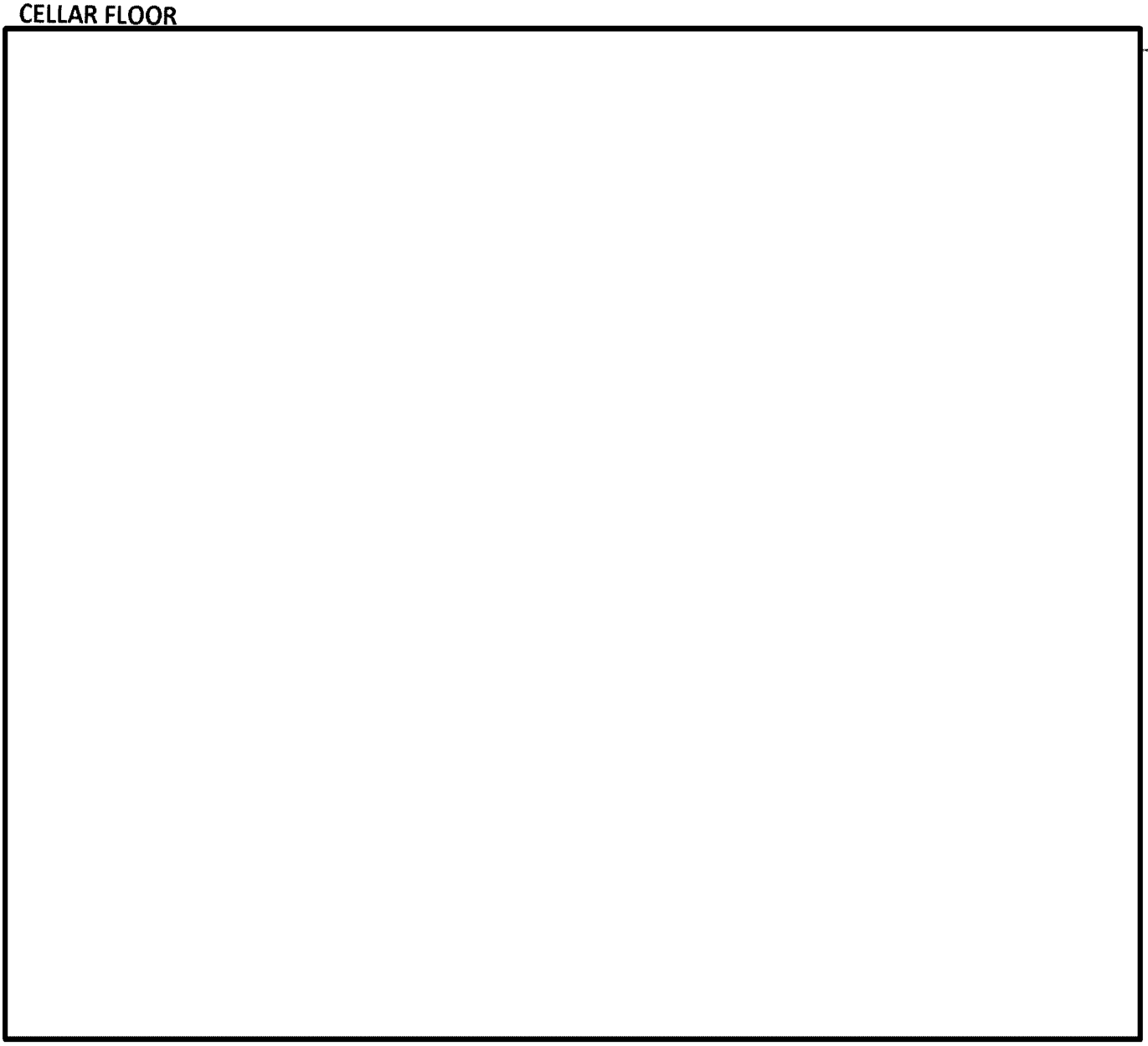
CELLAR FLOOR



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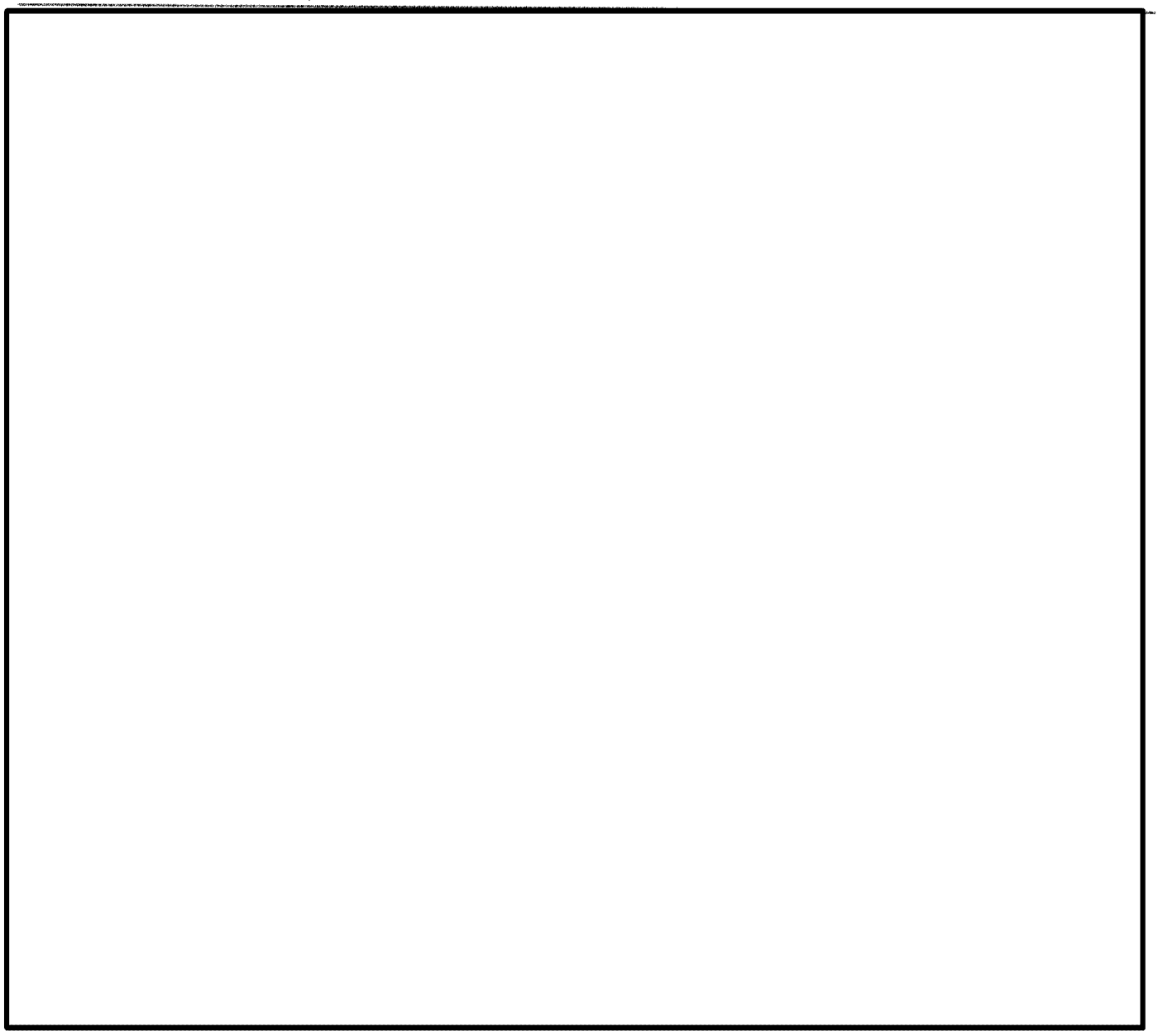
FIRST FLOOR



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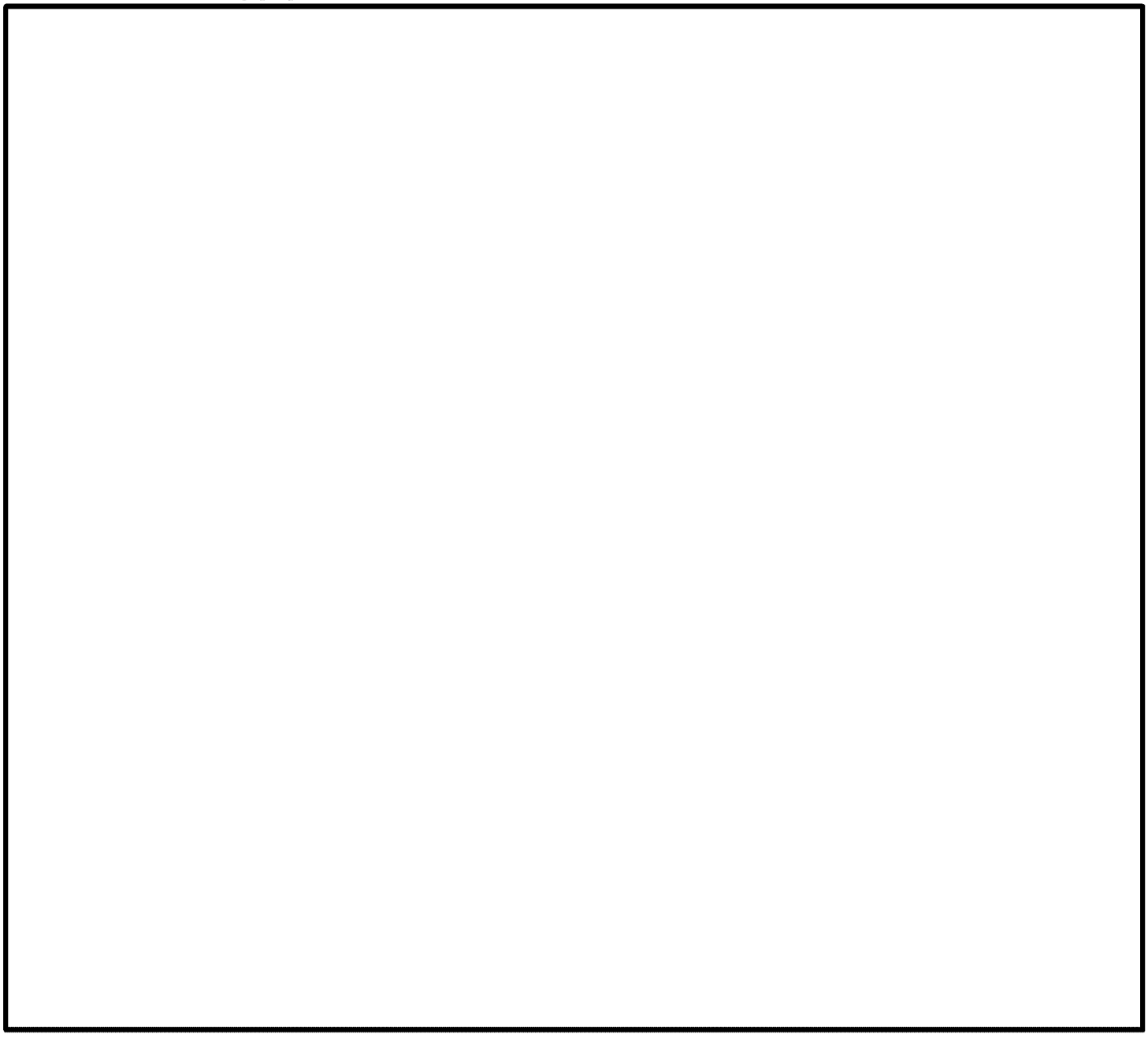
SECOND & THIRD FLOORS



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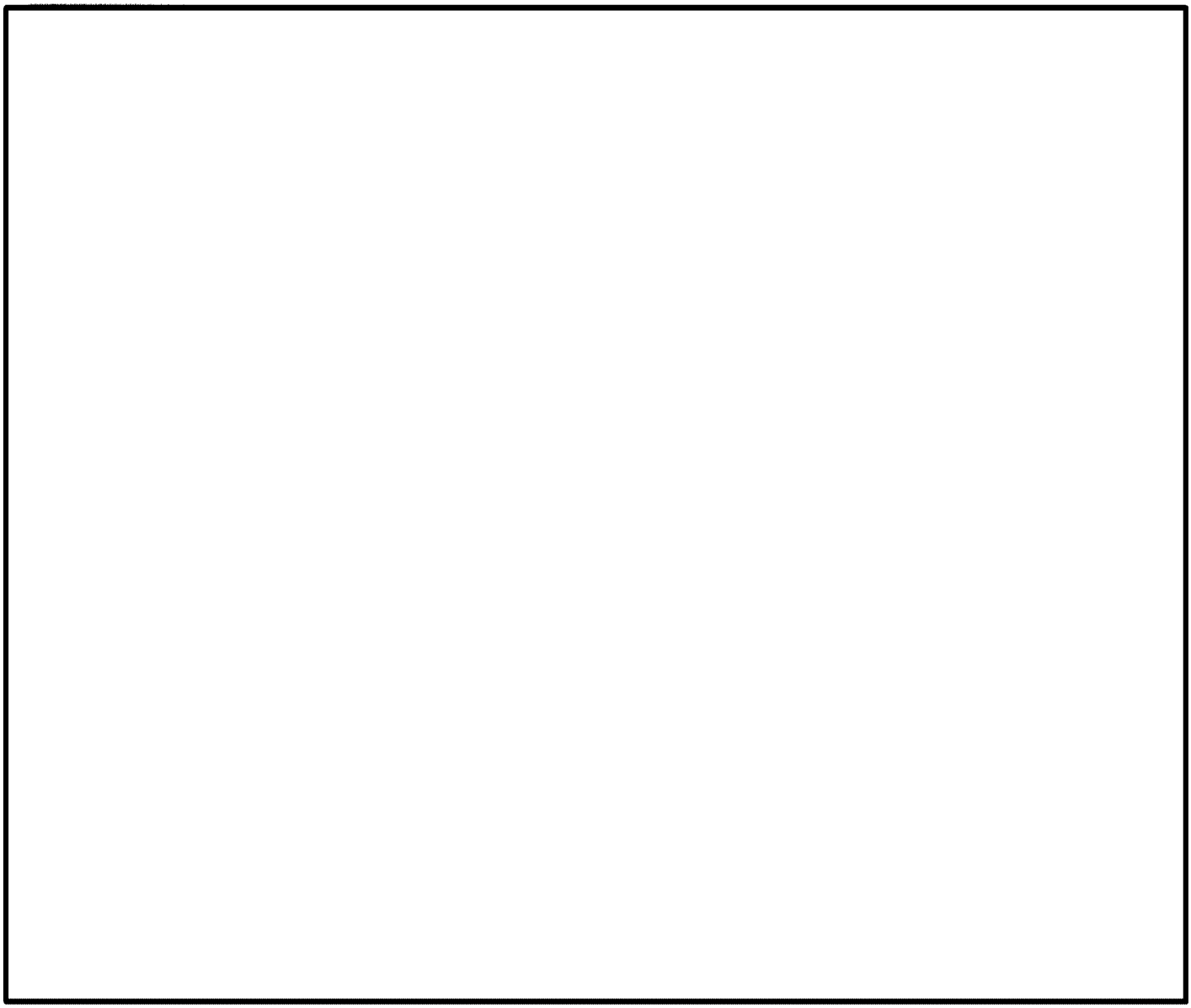
FOURTH FLOOR



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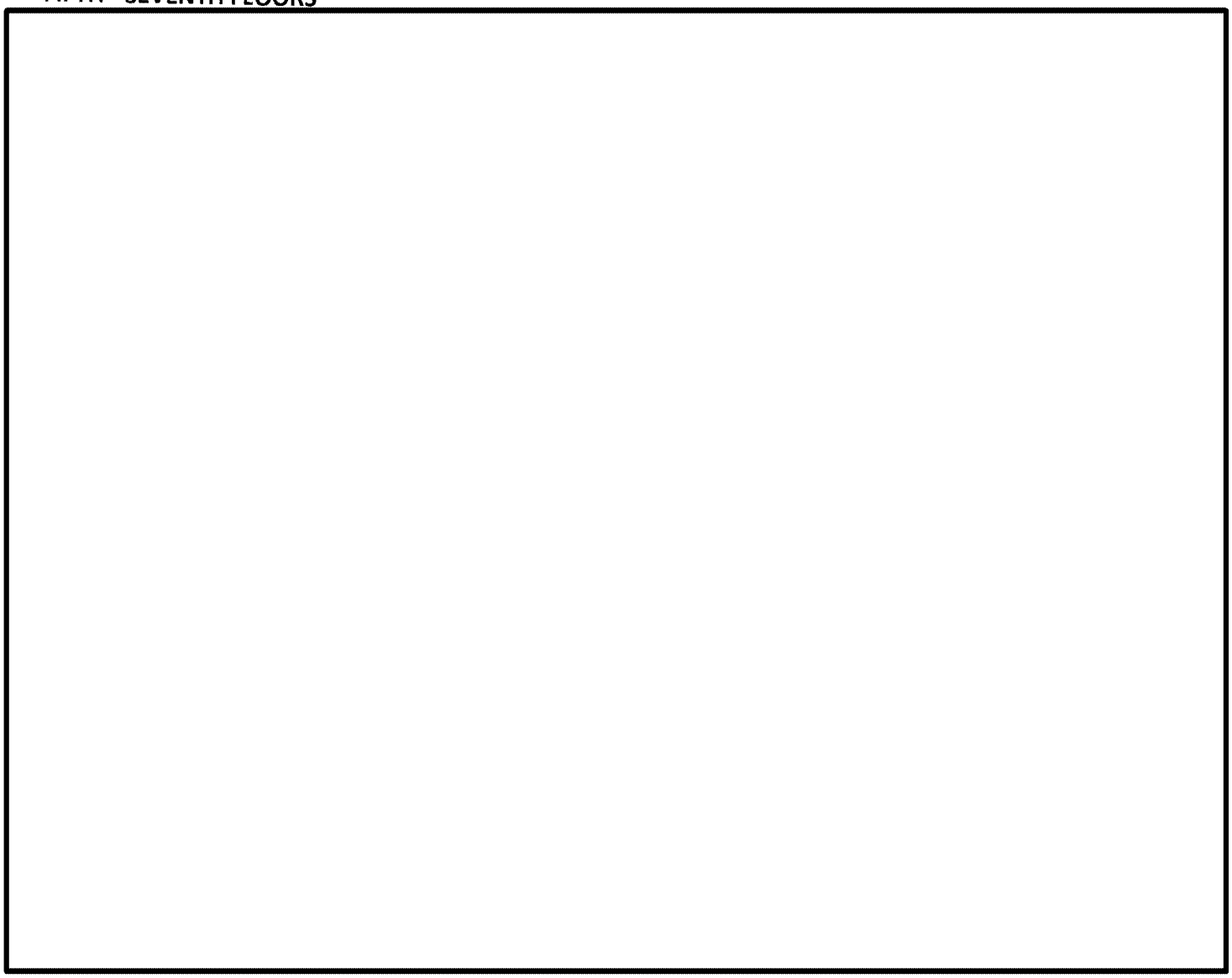
FIFTH - SEVENTH FLOORS



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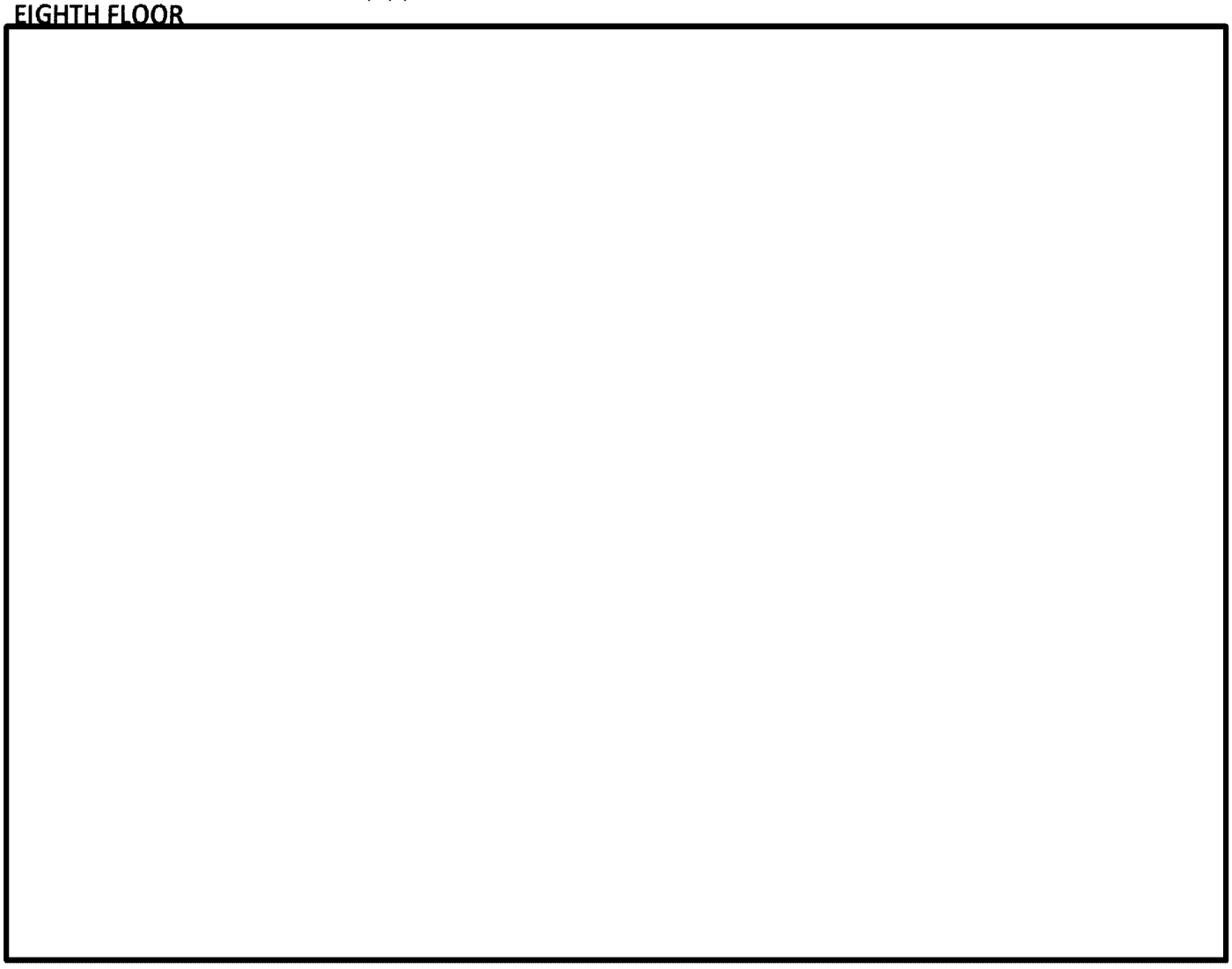
EIGHTH FLOOR



Back-of-the-House

The hotel is expected to be served by the necessary back-of-the-house space, including an in-house laundry facility, administrative offices, and a prep kitchen to service the needs of the breakfast dining area. These spaces should be adequate for a hotel of this type and should allow for the efficient operation of the property under competent management.

ADA and Environmental

We assume that the property will be built according to all pertinent codes and brand standards. Moreover, we assume its construction will not create any environmental hazards (such as mold) and that the property will fully comply with the Americans with Disabilities Act.

Capital Expenditures

Our analysis assumes that, after its opening, the hotel will require ongoing upgrades and periodic renovations in order to maintain its competitive level in this market and to remain compliant with brand standards. These costs should be adequately funded by the forecasted reserve for replacement, as long as a successful, ongoing preventive-maintenance program is employed by hotel staff.

Construction Budget

The construction budget for the 135-room subject hotel, as provided by the project developer, is illustrated in the following table.

FIGURE 4-2 PROPOSED SUBJECT HOTEL CONSTRUCTION BUDGET

Component	Cost	Cost per Room
Construction		
General		
Sitework		
Masonry		
Concrete		
Metals		
Thermal & Moisture Protection		
Doors & Windows		
Finishes		
Conveying System		
Equipment		
Mechanical		
Fire Syste		
Electrical		
Plumbing Work		
Furniture, Fixtures & Equipment		
Soft Cost		
Total, Without Land		

(b)(4)

Conclusion

Overall, the proposed subject hotel should offer a well-designed, functional layout of support areas and guestrooms. All typical and market-appropriate features and amenities appear to be included in the hotel's design. We assume that the building will be fully open and operational on the stipulated opening date and will meet all local building codes and brand standards. Furthermore, we assume that the hotel staff will be adequately trained to allow for a successful opening and that pre-marketing efforts will have introduced the product to major local accounts at least six months in advance of the opening date.

5. Market Area Analysis

The economic vitality of the market area and neighborhood surrounding the subject site is an important consideration in forecasting lodging demand and future income potential. Economic and demographic trends that reflect the amount of visitation provide a basis from which to project lodging demand. The purpose of the market area analysis is to review available economic and demographic data to determine whether the local market will undergo economic growth, stabilize, or decline. In addition to predicting the direction of the economy, the rate of change must be quantified. These trends are then correlated based on their propensity to reflect variations in lodging demand, with the objective of forecasting the amount of growth or decline in visitation by individual market segment (e.g., commercial, meeting and group, and leisure).

New York City Overview

New York City is recognized as an international commercial and cultural center, and with more than eight million residents, it is one of the most populous cities in the nation and one of the largest in the world.

Renowned for its cultural attractions, entertainment, restaurants, and retail outlets, New York City is one of the most popular tourist destinations in the country. It is home to the United Nations, the Statue of Liberty, and the Empire State Building. The theaters in the Broadway district attract international attention. Lincoln Center (the home of the Metropolitan Opera, the New York Philharmonic, the New York City Ballet and Opera, and the Juilliard School) is among the world's most important centers for the performing arts. The Metropolitan Museum of Art, the Museum of Modern Art, the American Museum of Natural History, and a number of the city's other museums and galleries are internationally respected.

As the site of Wall Street, New York is the nation's financial and business capital. Manhattan's central business district contains the greatest concentration of commercial activity in the United States. New York is the home of the NASDAQ, American, and New York Stock Exchanges (NYSE), as well as a majority of the nation's investment bankers and brokers and many of the largest commercial banking institutions. In addition to financial institutions, New York City is a major center for a variety of industries, such as fashion, textiles and garments, advertising, publishing and communications, jewelry, design, and technology.

New York City is a major national and international center of commerce and culture, employing an estimated four million. It remains the financial capital of the United States, and the city's economy still relies heavily on the health of the financial sector.

The Borough of Manhattan forms the central political, financial, and cultural core of New York City and is the economic growth engine of the region. As noted previously, the City's other four boroughs are the Bronx, Brooklyn, Queens, and Staten Island. All five boroughs are well connected with one another and the region thanks to an extensive mass transit system and infrastructure network.

New York City Economic Profile

New York City is an international center for business and commerce, and workers commute from points as far as 100 miles from Manhattan. The city boasts a diverse economic base, which helps minimizing the impact of cyclical economic downturns engendered from any one particular sector.

New York City houses the headquarters of several of the nation's major commercial and investment banks. Additionally, numerous foreign banks and their subsidiaries, international advertising firms, communications and entertainment giants and publishing conglomerates have a major presence in the city. Prominent domestic firms such as Goldman Sachs, Morgan Stanley, Citigroup, and Credit Suisse are headquartered in the city, and almost every major foreign financial institution, including UBS, HSBC, Barclays, Nomura Securities, and Deutsche Bank, maintain a significant Manhattan presence. New York City is also a hub for the insurance industry, housing five of the country's ten largest insurance companies. Three of the "Big Four" accounting firms, as well as six of the top ten U.S. law firms, are headquartered in Manhattan.

New York City is home to Broadway, Lincoln Center, Carnegie Hall, Radio City Music Hall, and a variety of live performance theaters. All major TV networks – ABC, NBC, FOX, and CBS – are headquartered in the city, as well as global entertainment giants such as Viacom, Sony, and Bertelsmann. Three of the "Big Five" music recording companies are headquartered in New York. Other media/entertainment companies in the city include Time Warner, HMV, and Virgin Records. The city is also home to numerous publishing companies. Several book, magazine, and newspaper publishing companies are headquartered in New York City, including Random House, Knopf, Simon & Schuster, Condé Nast, Hachette Filipacchi, Dow Jones, and The New York Times Company.

New York agencies and branch offices of firms such as Young & Rubicam and Burson Marsteller dominate the list of the world's ten largest advertising and public relations agencies.

New York City's economy benefits greatly from the breadth of its corporate headquarters and related services industry. The city has acted as the nation's foremost commercial center due to the synergy created by the large concentration of corporations and service firms, which complement primary goods producers.

Overview of the Borough of Queens

The Borough of Queens (Queens County) is bounded to the north and northwest by the East River, to the east by Long Island's Nassau County, to the south by the Atlantic Ocean, and to the southwest by Brooklyn. Queens County encompasses ±71,780 acres of land, representing 34.9% of the total area of New York City.

Queens is one of the most ethnically diverse communities in the U.S. It has served as a bedroom community for Manhattan, but has also developed its own employment base. The two major airports, JFK International and LaGuardia, have played an important role in shaping the area's economy. The Borough of Queens is home to more than 34,500 businesses, ranging from small retail outlets to large manufacturing plants. No single company or industry is dominant, although health care, air transportation, and services are major sectors. Some of Queens' largest employers include Steinway & Sons, British Airways, St. John's University, and Citibank.

More than 59% of Queens's residents commute to Manhattan for work. Of the 41% of workers who remain in Queens for employment, 32% work in the services industry, 21% in retail, 15% in public utilities, 11% in manufacturing, 8% in government, 7% in construction, and 6% in FIRE (finance, insurance, and real estate).

Although Queens has never been a major center for office development, the retail sector has benefited from the area's concentration of residential developments. Downtown Jamaica, which is located north of the subject property, in central Queens, is one of the largest concentrations of retail space in New York City, attracting visitors from throughout the region, owing to the appealing prices offered by the local merchants. However, Queens still exports a disproportionate share of its retail spending to neighboring Manhattan and Nassau County.

While not as rich in tourist attractions as Manhattan, the Borough of Queens offers its own array of leisure-oriented sites. The following table lists selected visitor attractions located in Queens.

FIGURE 5-1 SELECTED QUEENS VISITOR ATTRACTIONS

Attraction	Type	Location	Notes
Citi Field	Sports	Flushing	Home baseball park of New York Mets
Flushing Meadows-Corona Park	Park	Corona	Home of the 1954 World's Fair, featuring a zoo, a boating lake, a skate park, a barbecue area, playfields, and an aquatic and hockey center.
Louis Armstrong House Museum	Museum	Flushing	Music, photos, films, instruments, awards
MoMA PSA	Museum	Long Island City	contemporary art museum showcases new and innovative work
Museum of the Moving Image	Museum	Astoria	high-tech museum dedicated to multimedia arts, with a particular emphasis on film
New York Hall of Science	Museum	Corona	450-exhibit, hands-on science center
Queens Botanical Garden	Garden	Flushing	Acres of plantlife, including a Japanese Garden
Queens County Farm Museum	Museum	Floral Park	47 acres, including a historic farmhouse, as well as livestock and planting fields
Queens Zoo	Zoo	Flushing	11-acre zoo with North American wildlife
Resorts World Casino	Casino	Jamaica	Up to 5,000 slots and electronic table games and a variety of dining and shopping options
Socrates Sculpture Park	Park	Long Island City	Specifically designated for artists to create outdoor works, with views of Manhattan skyline
USTA National Tennis Center	Sports	Flushing	Home of U.S. Open

Source: HVS Research

Unemployment

The following table sets forth unemployment data for New York City, the New York-Northern New Jersey-Long Island, NY-NJ-PA MSA, New York State, and the nation.

FIGURE 5-2 UNEMPLOYMENT STATISTICS

Year	City	MSA	State	U.S.
2005	5.8 %	4.9 %	5.0 %	5.1 %
2006	5.0	4.5	4.5	4.6
2007	5.0	4.4	4.6	4.6
2008	5.6	5.3	5.4	5.8
2009	9.3	8.6	8.3	9.3
2010	9.5	8.9	8.6	9.6
2011	9.1	8.6	8.3	8.9
2012	9.4	8.7	8.5	8.1
2013	8.8	7.9	7.7	7.4
2014	7.2	6.4	6.3	6.2
Recent Month - May				
2014	7.3 %	6.4 %	6.2 %	6.3 %
2015	5.9	5.6	5.3	5.5

* Letters shown next to data points (if any) reflect revised population controls and/or model re-estimation implemented by the BLS.

Source: U.S. Bureau of Labor Statistics

The unemployment rate for the U.S. fluctuated within the narrow range of 4.6% to 5.5% in the period spanning from 2004 to 2007. The recession and financial crisis in 2007 and 2008 resulted in heightened unemployment rates, which peaked at 10.0% in October 2009. Job growth resumed in late 2009; the national unemployment rate has steadily declined since 2010. Total nonfarm payroll employment increased by 223,000, 280,000, and 223,000 in the most recent months of April, May, and June respectively, with gains relatively widespread and particularly strong in the professional and business services, leisure and hospitality, and health care categories. The unemployment rate was reported to be 5.3% in June 2015, just under the 5.5% rate registered in April and May. The positive gains in employment reflect steady progress by the U.S. economy.

In 2008, the impact of the subprime mortgage crisis broadened, as the financial services sector, on which New York City is particularly reliant, weakened significantly. As a result, year-end unemployment figures for 2008 illustrated increases for New York County and the MSA. In 2009, unemployment figures for both areas illustrated substantial increases as a result of the deepening national recession. The New York area began to show signs of economic improvement beginning in 2010. Although unemployment rates slightly increased in 2012, 2013 reflected a return to a decreasing trend. The 2014 data shows considerable drops in unemployment across the board, from New York City to the nation. We expect these levels to continue to improve as the national economy recovers.

Tourism

New York City is one of the most popular and frequently visited destinations in the United States. In 2013, New York City is estimated to have accommodated roughly 54.3 million visitors - a record level. Of the overall visitation figure, roughly 11.4 million hailed from international markets, maintaining the City's rank as the number one U.S. destination for overseas travelers. City officials estimate the overall economic impact of tourism in 2013 to be $58.7 billion. Direct visitor spending was estimated to be $39.4 billion, up from $36.9 billion in 2012. Given such performance, former Mayor Bloomberg said the city is on pace to reach 55 million annual visitors by the end of 2014, one year ahead of his administration's target date.

According to most market observers, such record levels could not been realized without the expanded availability of hotel rooms in New York City. In fact, as illustrated by the tourism data in the following, the four highest tourism levels have all been recorded over the past four years - the period of highest availability of inventory in the market.

FIGURE 5-3 NEW YORK CITY – HISTORICAL TOURISM LEVELS (NYC & COMPANY)

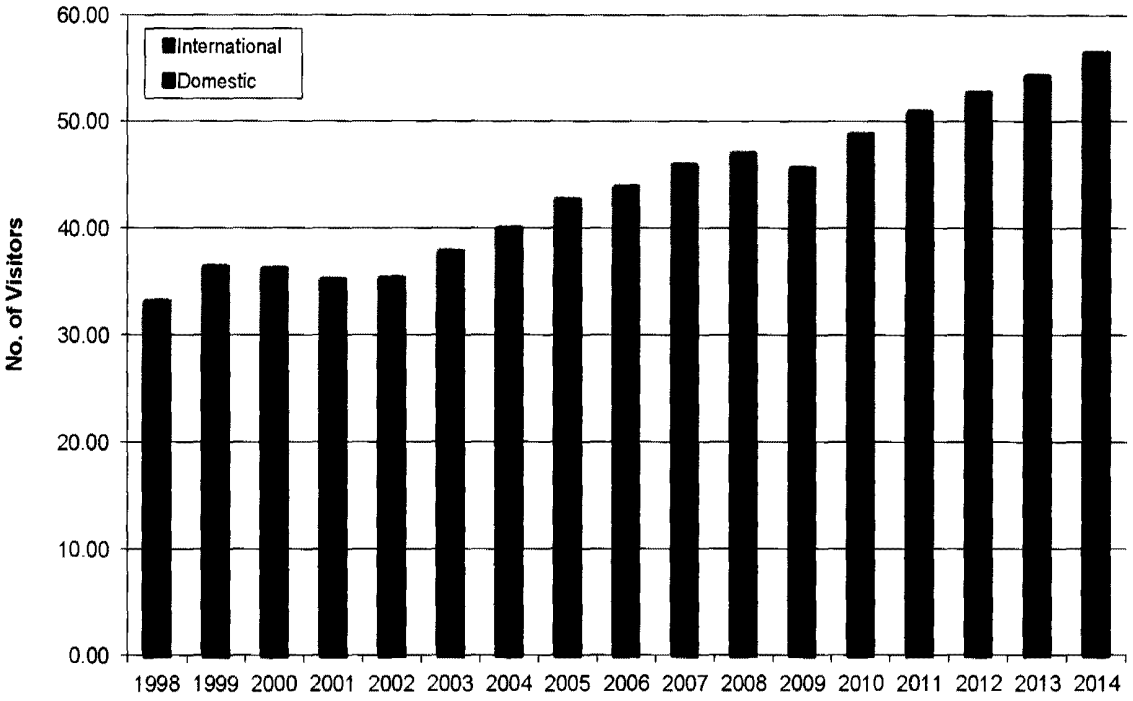
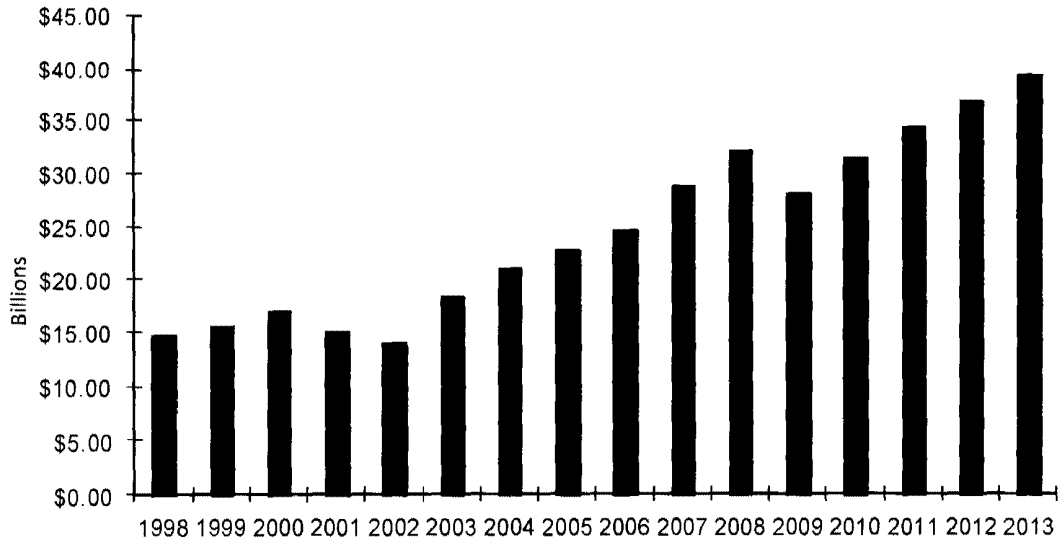


FIGURE 5-4 NEW YORK CITY – VISITOR SPENDING (NYC & COMPANY)



Source: NYC & Company

Airports

The New York City area is served by three major airports: John F. Kennedy (JFK) International, LaGuardia (LGA), and Newark Liberty International (EWR). The following table presents a summary of historical passenger activity at these facilities.

FIGURE 5-5 PASSENGER STATISTICS – REGION'S THREE MAJOR AIRPORTS

	LaGuardia Airport		JFK Intl. Airport		Newark Liberty Intl. Airport		All Three Airports	
Year	Total Passengers	Percentage Change	Total Passengers	Percentage Change	Total Passengers	Percentage Change	Total Passengers	Percentage Change
1998	22,849,071	—	31,043,726	—	32,520,692	—	86,413,489	—
1999	23,926,923	4.7 %	31,708,431	2.1 %	33,622,686	3.4 %	89,258,040	3.3 %
2000	25,374,866	6.1	32,856,220	3.6	34,188,468	1.7	92,419,554	3.5
2001	21,900,000	(13.7)	29,400,000	(10.5)	30,500,000	(10.8)	81,800,000	(11.5)
2002	21,986,679	0.4	29,947,152	1.9	29,202,654	(4.3)	81,136,485	(0.8)
2003	22,482,770	2.3	31,732,446	6.0	29,431,061	0.8	83,646,277	3.1
2004	24,435,619	8.7	37,517,496	18.2	31,908,556	8.4	93,861,671	12.2
2005	25,878,601	5.9	40,884,350	9.0	33,037,754	3.5	99,800,705	6.3
2006	25,810,452	(0.3)	42,629,470	4.3	35,691,887	8.0	104,131,809	4.3
2007	24,985,264	(3.2)	47,716,941	11.9	36,367,240	1.9	109,069,445	4.7
2008	23,076,903	(7.6)	47,807,475	0.2	35,366,359	(2.8)	106,250,737	(2.6)
2009	22,142,336	(4.0)	45,915,069	(4.0)	33,424,110	(5.5)	101,481,515	(4.5)
2010	23,983,082	8.3	46,514,154	1.3	33,107,041	(0.9)	103,604,277	2.1
2011	24,122,478	0.6	47,683,529	2.5	33,711,372	1.8	105,517,379	1.8
2012	25,707,784	6.6	49,292,733	3.4	34,014,027	0.9	109,014,544	3.3
2013	26,722,183	3.9	50,423,765	2.3	35,016,236	2.9	112,162,184	2.9
2014	26,954,588	0.9	53,254,362	5.6	35,600,108	1.7	115,809,058	3.3
Year-to-Date through April								
2014	8,158,006	—	15,572,101	—	10,759,300	—	34,489,407	—
2015	8,423,803	3.3 %	16,506,429	6.0 %	11,290,585	4.9 %	36,220,817	5.0 %

Source: Port Authority of New York and New Jersey

As detailed, after incurring overall passenger activity declines in 2008 and 2009 due to the impact of the latest recession, statistics have improved since 2010. Overall passenger count rebounded by roughly 2% in each - 2010 and 2011. In 2012, overall passenger count for the area increased at a stronger rate of 3.3%, and the momentum continued through 2014. The latest year-to-date figures indicate accelerated growth, largely attributable to the 6.0% growth at JFK International.

LaGuardia Airport Expansion

LaGuardia Airport is a leading domestic and business travel gateway for the region; many major commercial airlines service the airport. LaGuardia is one of the three major airports serving the New York City area, along with the John F.

Kennedy International Airport and Newark Liberty International Airport in New Jersey. The facility is located in the borough of Queens, just eight miles from Midtown Manhattan. In October of 2010, construction was completed on a new state-of-the-art air-traffic-control tower to replace a tower that was built in 1962. In 2012, Delta completed a $160-million renovation and expansion project at LaGuardia, including the construction of the 600-foot connector bridge between Terminals C and D and the creation of the new Delta Sky Club. In July 2015, New York Governor Andrew Cuomo announced plans to completely overhaul the airport. Pending approval from the Port Authority of New York and New Jersey's board of directors, the $4-billion project is expected to break ground in early 2016 with initial phases opening by 2019, followed by the completion of later phases through 2021. The project calls for the demolition of existing terminal buildings and the construction of a new central terminal closer to the Grand Central Parkway, as well as a connection to Delta's Terminals C and D. The placement of the terminal closer to the highway is expected to add two miles of usable aircraft space, allowing for an improved taxi system and ultimately reducing aircraft congestion and flight delays. Plans also call for enhanced airport accessibility via public transportation, with planned linkages to MTA subway lines and the Long Island Railroad via AirTrain, as well as high speed ferry service to Manhattan.

JFK Airport Expansion

JFK airport is currently under expansion. In 2010, the Port Authority approved a plan to demolish Terminal 3 and construct a new state-of-the-art terminal to replace aging Terminal 4. The $1.2-billion project commenced in 2011 and the first phase of this project was completed in May 2013. Terminal 4 is occupied by Delta Air Lines and the opening of the first phase includes an expanded security area with 16 lanes, improved check-in areas, a centralized security checkpoint, a new 24,000 square-foot Sky Club, an improved baggage handling system, as well as improved Customs and Border Protection baggage claim and re-check facilities. Phase two of the Terminal 4 redevelopment plan will include an additional 11 gates on Terminal 4's Concourse B and is expected to be completed in summer 2015. Currently Terminal 4 hosts 30 international and domestic airlines with an annual passenger volume of nearly 11 million. By 2014, passenger volume is expected to increase to 15 million.

Woods & Poole Economic and Demographic Review

In addition to the data outlined earlier in this section, we have provided a summary of economic and demographic statistics compiled by Woods & Poole Economics, Inc., a well-regarded forecasting service based in Washington, DC. In addition to information for the Borough of Queens, statistics are also provided for the New York-Northern New Jersey-Long Island, NY-NJ-PA Metropolitan Statistical Area (MSA). The MSA consists of New York City's five boroughs and the New York Counties of Nassau, Putnam, Rockland, Suffolk and Westchester; the New Jersey

Counties of Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, and Union; and Pike County, Pennsylvania. Data for the State of New York and the nation as a whole are also provided.

These figures are set forth in the following table. All dollar amounts have been adjusted for inflation by Woods & Poole, and thus they reflect real change. We note that the percent changes indicated in the following table are based on unrounded figures; consequently, they may not calculate exactly. Historical and projected employment for the MSA is summarized in the second table.

FIGURE 5-6 ECONOMIC AND DEMOGRAPHIC DATA FOR THE SUBJECT PROPERTY'S MARKET AREA

					Average Annual Compounded Change		
	2000	2010	2014	2020	2000-10	2010-14	2014-20
Resident Population (Thousands)							
Queens County	1,540.5	1,587.5	1,610.5	1,626.2	0.3 %	0.4 %	0.2 %
New York-Newark-Jersey City, NY-NJ-PA MSA	18,980.0	19,590.9	20,007.7	20,646.4	0.3	0.5	0.5
New York-Newark, NY-NJ-CT-PA CSA	22,282.7	23,103.2	23,587.2	24,344.2	0.4	0.5	0.5
State of New York	19,001.8	19,395.2	19,730.2	20,256.9	0.2	0.4	0.4
United States	282,162.4	309,330.2	320,976.9	340,554.3	0.9	0.9	1.0
Per-Capita Personal Income*							
Queens County	$100,985	$113,810	$116,160	$124,734	1.2	0.5	1.2
New York-Newark-Jersey City, NY-NJ-PA MSA	47,454	53,239	55,646	60,241	1.2	1.1	1.3
New York-Newark, NY-NJ-CT-PA CSA	47,600	52,930	55,351	59,945	1.1	1.1	1.3
State of New York	41,650	48,320	50,475	54,689	1.5	1.1	1.3
United States	36,473	39,144	41,079	44,387	0.7	1.2	1.3
W&P Wealth Index							
Queens County	247.4	261.8	255.3	253.9	0.6	(0.6)	(0.1)
New York-Newark-Jersey City, NY-NJ-PA MSA	123.6	129.9	129.4	129.6	0.5	(0.1)	0.0
New York-Newark, NY-NJ-CT-PA CSA	124.2	129.6	129.2	129.4	0.4	(0.1)	0.0
State of New York	109.4	118.6	118.0	118.3	0.8	(0.1)	0.0
United States	100.0	100.0	100.0	100.0	0.0	0.0	0.0
Food and Beverage Sales (Millions)*							
Queens County	$7,421	$9,937	$10,771	$11,421	3.0	2.0	1.0
New York-Newark-Jersey City, NY-NJ-PA MSA	24,862	30,738	33,218	35,816	2.1	2.0	1.3
New York-Newark, NY-NJ-CT-PA CSA	29,056	35,763	38,631	41,699	2.1	1.9	1.3
State of New York	23,877	29,077	31,336	33,764	2.0	1.9	1.3
United States	368,842	447,396	490,340	548,160	1.9	2.3	1.9
Total Retail Sales (Millions)*							
Queens County	$36,498	$45,633	$49,715	$53,322	2.3	2.2	1.2
New York-Newark-Jersey City, NY-NJ-PA MSA	242,970	261,795	286,274	311,951	0.7	2.3	1.4
New York-Newark, NY-NJ-CT-PA CSA	294,541	313,385	342,651	373,585	0.6	2.3	1.5
State of New York	227,621	244,202	266,305	289,311	0.7	2.2	1.4
United States	3,902,969	4,149,070	4,617,326	5,187,469	0.6	2.7	2.0

* Inflation Adjusted

Source: Woods & Poole Economics, Inc.

FIGURE 5-7 HISTORICAL AND PROJECTED EMPLOYMENT – MSA (+000)

Industry	2000	Percent of Total	2010	Percent of Total	2014	Percent of Total	2020	Percent of Total	Average Annual Compounded Change 2000-2010	2010-2014	2014-2020
Farm	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0	0.0 %	0.0 %	0.0 %	0.0 %
Forestry, Fishing, Related Activities And Other	0.2	0.0	0.3	0.0	0.3	0.0	0.3	0.0	3.6	(1.8)	0.7
Mining	1.4	0.1	1.2	0.0	1.4	0.0	1.3	0.0	(1.4)	2.9	(0.7)
Utilities	5.7	0.2	3.6	0.1	3.6	0.1	3.5	0.1	(4.4)	0.0	(0.5)
Construction	40.5	1.5	36.9	1.3	38.0	1.3	39.6	1.3	(0.9)	0.7	0.7
Manufacturing	69.0	2.5	29.3	1.1	27.5	1.0	25.0	0.8	(8.2)	(1.6)	(1.5)
Total Trade	245.4	9.0	236.8	8.6	249.8	8.7	257.8	8.6	(0.4)	1.3	0.5
Wholesale Trade	104.3	3.8	82.7	3.0	82.5	2.9	79.2	2.6	(2.3)	(0.1)	(0.7)
Retail Trade	141.1	5.2	154.1	5.6	167.3	5.8	178.6	5.9	0.9	2.1	1.1
Transportation And Warehousing	36.8	1.3	24.5	0.9	23.7	0.8	22.7	0.8	(4.0)	(0.8)	(0.7)
Information	181.6	6.6	153.2	5.5	159.7	5.5	160.3	5.3	(1.7)	1.1	0.1
Finance And Insurance	385.7	14.1	358.1	13.0	378.1	13.1	386.9	12.8	(0.7)	1.4	0.4
Real Estate And Rental And Lease	108.5	4.0	140.5	5.1	143.4	5.0	147.6	4.9	2.6	0.5	0.5
Total Services	1,197.0	43.7	1,324.7	47.9	1,411.2	48.9	1,510.1	50.1	1.0	1.6	1.1
Professional And Technical Services	327.0	11.9	355.8	12.9	379.9	13.2	405.7	13.5	0.8	1.7	1.1
Management Of Companies And Enterprises	49.3	1.8	57.6	2.1	61.4	2.1	65.2	2.2	1.6	1.6	1.0
Administrative And Waste Services	166.7	6.1	144.7	5.2	150.2	5.2	158.4	5.3	(1.4)	0.9	0.9
Educational Services	92.3	3.4	117.2	4.2	124.3	4.3	129.2	4.3	2.4	1.5	0.6
Health Care And Social Assistance	208.7	7.6	240.5	8.7	253.3	8.8	282.7	9.4	1.4	1.3	1.8
Arts, Entertainment, And Recreation	94.4	3.4	108.8	3.9	114.2	4.0	121.6	4.0	1.4	1.2	1.1
Accommodation And Food Services	147.0	5.4	182.5	6.6	202.7	7.0	215.2	7.1	2.2	2.7	1.0
Other Services, Except Public Administration	111.6	4.1	117.6	4.3	125.2	4.3	132.1	4.4	0.5	1.6	0.9
Total Government	466.5	17.0	455.0	16.5	450.7	15.6	459.3	15.2	(0.2)	(0.2)	0.3
Federal Civilian Government	31.7	1.2	24.4	0.9	21.6	0.7	20.6	0.7	(2.6)	(2.9)	(0.8)
Federal Military	3.1	0.1	2.8	0.1	2.9	0.1	2.9	0.1	(1.0)	0.8	0.1
State And Local Government	431.7	15.8	427.8	15.5	426.2	14.8	435.8	14.5	(0.1)	(0.1)	0.4
TOTAL	2,738.3	100.0 %	2,764.0	100.0 %	2,887.3	100.0 %	3,014.5	100.0 %	0.1 %	1.1 %	0.7 %
MSA	10,398.6	–	11,217.5	–	11,709.3	–	12,427.5	–	0.8 %	1.1 %	1.0 %
U.S.	165,371.0	–	173,626.7	–	183,038.2	–	198,343.5	–	0.7	1.3	1.3

Source: Woods & Poole Economics, Inc.

Market Area Conclusion

Reflective of the impact of the latest recession, economic indicators for New York City illustrated worsening trends through most of 2009. However, New York City rebounded well over the last three quarters of 2010 and the first half of 2011. The recovery has slowed somewhat in 2012 due to a meeker domestic recovery process and the European debt crisis. However, in 2013, a stronger growth trend resumed, and the growth accelerated through 2014, as evidenced in lower unemployment rates, peak level of tourism, and continuous improvement in airport passenger statistics. Considering its diverse and expansive economic base, the outlook for the New York City market remains positive, with a potential for particularly strong growth when the global economic recovery intensifies.

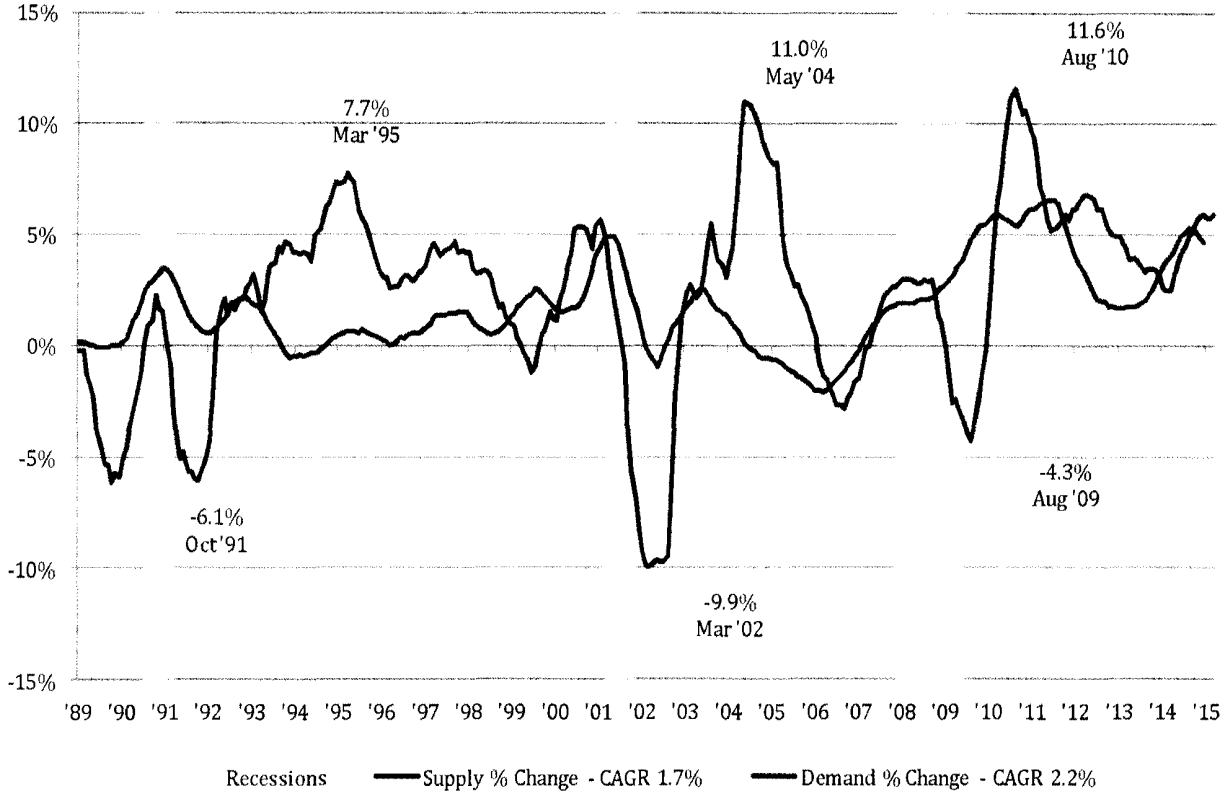
6. Manhattan Lodging Overview

Historical Trends

Hotel performance in the Manhattan lodging market has experienced some wide fluctuations over the course of up and down economic cycles over the past 27 years. Between January 1989 and March 2015, the market was affected by three national recessions, which produced some dramatic dips in demand. The first two recessions (in 1990/91 and 2001, respectively) lasted approximately eight months, while the most recent began in late 2008 and stretched for 18 months—making it the most serious and prolonged economic setback in the U.S. since World War II.

The following graph illustrates the dynamics between supply and demand in Manhattan from January 1989 through March 2015, showing percent changes in supply and demand as a twelve-month moving average. The recessionary periods, which were all followed by a sharp decline in demand, are highlighted in yellow.

FIGURE 6-1 LONG-TERM SUPPLY AND DEMAND PERCENT CHANGES: 12-MONTH MOVING AVERAGE



Source: HVS, STR, and National Bureau of Economic Research

Notably, the minor decline in demand in 2006 was a result of the massive popularity of an art exhibit held in Central Park in the winter of 2005; the exhibit, known as "The Gates," attracted between 1 and 1.5 million additional visitors to Manhattan during the low season for tourism, and demand normalized the following year. The conversion of several hotels to condominiums during that period further contributed to the decline in demand. Demand declines in Manhattan have been typically short-lived (between 12 to 16 months) and followed by steep increases, a testament to the market's resiliency.

The most recent and most serious recession (in terms of duration and severity) coincided with a sharp increase in hotel supply in the Manhattan lodging market. Nevertheless, hotel demand did not suffer as much as during the previous two recessions. Demand bottomed out at -4.3% in August 2009, whereas demand fell -9.9% in March 2002 and -6.1% in October 1991. Manhattan hotel demand also experienced its strongest rebound following the 2008/09 recession. In August 2010, the Manhattan market registered an increase in demand of 11.6%—the strongest year-over-year growth in demand over the last 27 years.

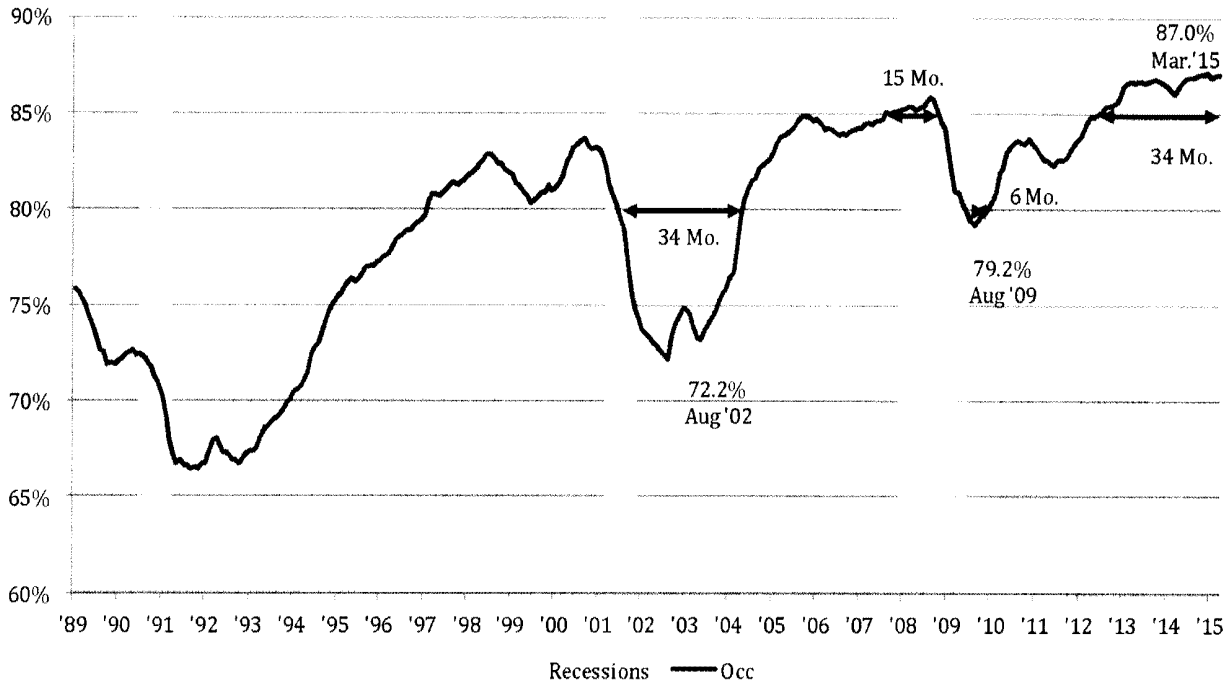
This dramatic recovery reflects Manhattan's growing diversity of major demand generators. New York City boasts a status as the world's financial capital, with international banking and investment institutions drawing in commercial travelers year round. The city is also an international cultural destination, and leisure travelers descend on Manhattan by the millions each year, particularly in the spring and summer months. Tourism and commercial business continues to expand in the market, increasing the call for hotel rooms and supporting strong demand fundamentals for local hotels.

Strong barriers to entry in the Manhattan market have meant a minimal expansion of hotel supply over the last 27 years. From 2004 through 2006, supply actually decreased because of the conversion of several hotels to condominiums. Since early 2009, however, the market has consistently registered strong increases in supply each month. From January 2009 to March 2015, supply increased by 29.3%. During each month from December 2009 through January 2012, supply growth exceeded 5%. The pipeline of new supply slowed somewhat in the years that followed, but picked up from October 2014 through January 2015, surpassing 5% growth per month yet again.

Historically, the Manhattan market has been undersupplied. For more than a quarter century, compounded average annual demand growth has outpaced corresponding growth in supply, as indicated in the previous chart. Manhattan ranks among a select few of the top 25 U.S. lodging markets that have maintained such a positive differential between supply and demand.

Manhattan's favorable supply and demand dynamics have translated into strong occupancy levels for area hotels, despite some relatively brief occupancy declines over the past 27 years. The following graph illustrates occupancy trends as a twelve-month moving average from January 1989 to March 2015.

FIGURE 6-2 LONG-TERM OCCUPANCY LEVELS: 12-MONTH MOVING AVERAGE



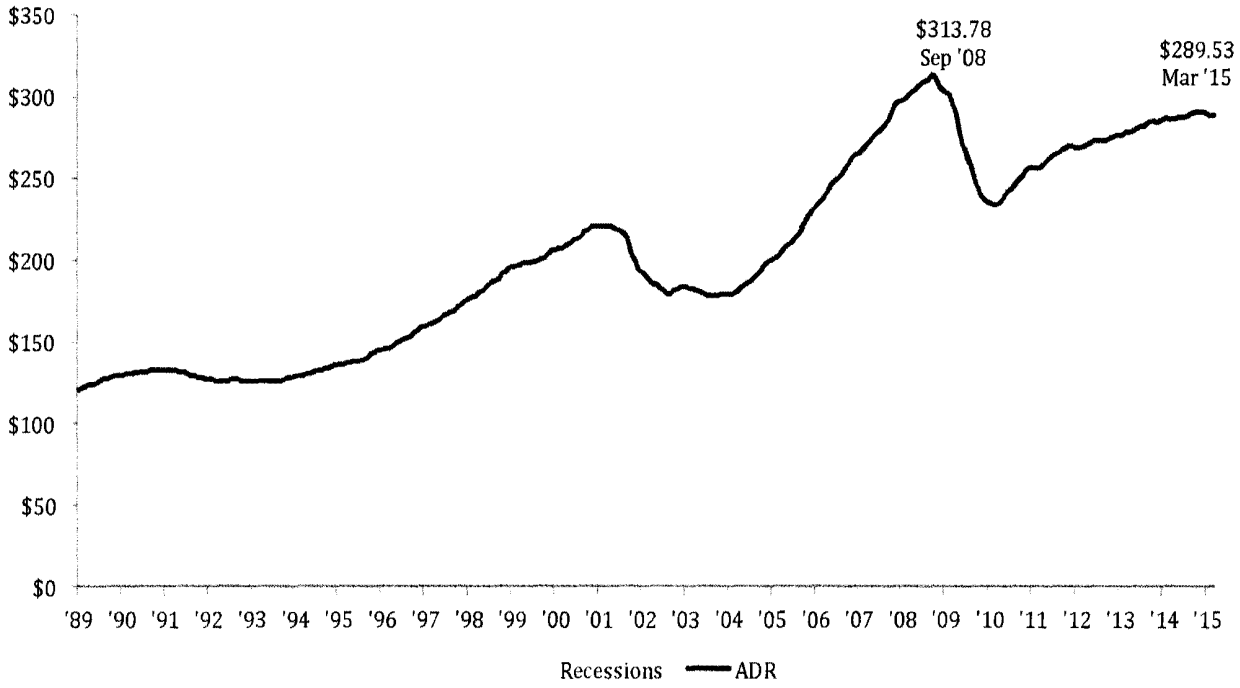
Source: HVS, STR, and National Bureau of Economic Research

Occupancy in Manhattan suffered some volatility over the illustrated period, particularly during the recessions of the early 1990s and 2000s. Occupancy recovered, however, and held fast in the mid-80% range from 2005 through 2008, which suggests that Manhattan hotels, overall, were at close to maximum capacity during this time.

While the 2008/09 recession once again sent occupancy reeling, the decline was not nearly as severe or drawn out as that following the 2001 recession, despite the increase in hotel supply. Occupancy dipped below the 80% threshold for only six consecutive months in 2009, whereas occupancy remained in the low-to-mid 70% range from July 2001 to April 2004—a span of 34 months. Comparative growth over the same periods illustrates occupancy's relatively strong recovery following the most recent downturn. During the expansion period following the 2001 recession, occupancy remained above 85% for 15 consecutive months. As of March 2015, occupancy has remained above 85% for 34 consecutive months, hitting an all-time high of 87.2% in December 2014.

The following graph illustrates average rate levels as a twelve-month moving average for Manhattan hotels from January 1989 to March 2015.

FIGURE 6-3 LONG-TERM ADR LEVELS: 12-MONTH MOVING AVERAGE

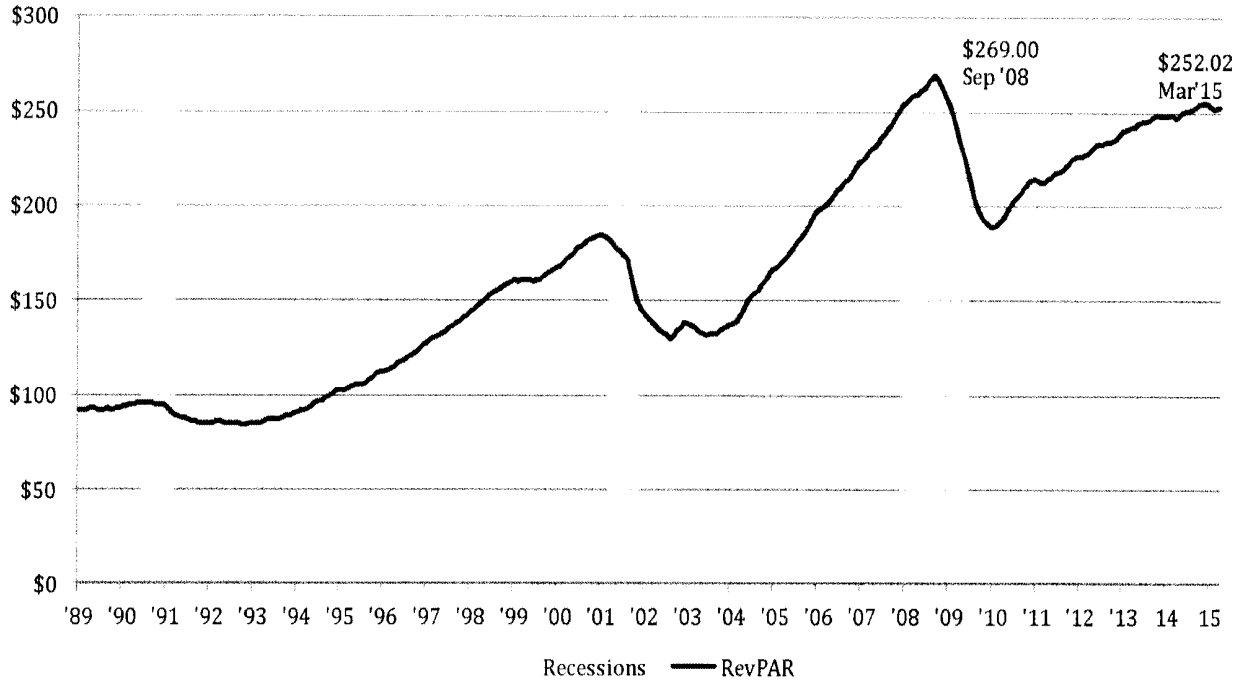


Source: HVS, STR, and National Bureau of Economic Research

Registering at $289.53 as of March 2015, average rate sat approximately 7.7% below its prior peak of $313.78 in September 2008. Average rate had reached a post-recession height of $292.33 in October 2014. Unlike occupancy in the market, which has soared since the last recession, both average rate and RevPAR levels for Manhattan hotels have yet to fully recover from the downturn.

The following graph illustrates RevPAR levels in the Manhattan lodging market from January 1989 to March 2015.

FIGURE 6-4 LONG-TERM REVPAR LEVELS: 12-MONTH MOVING AVERAGE



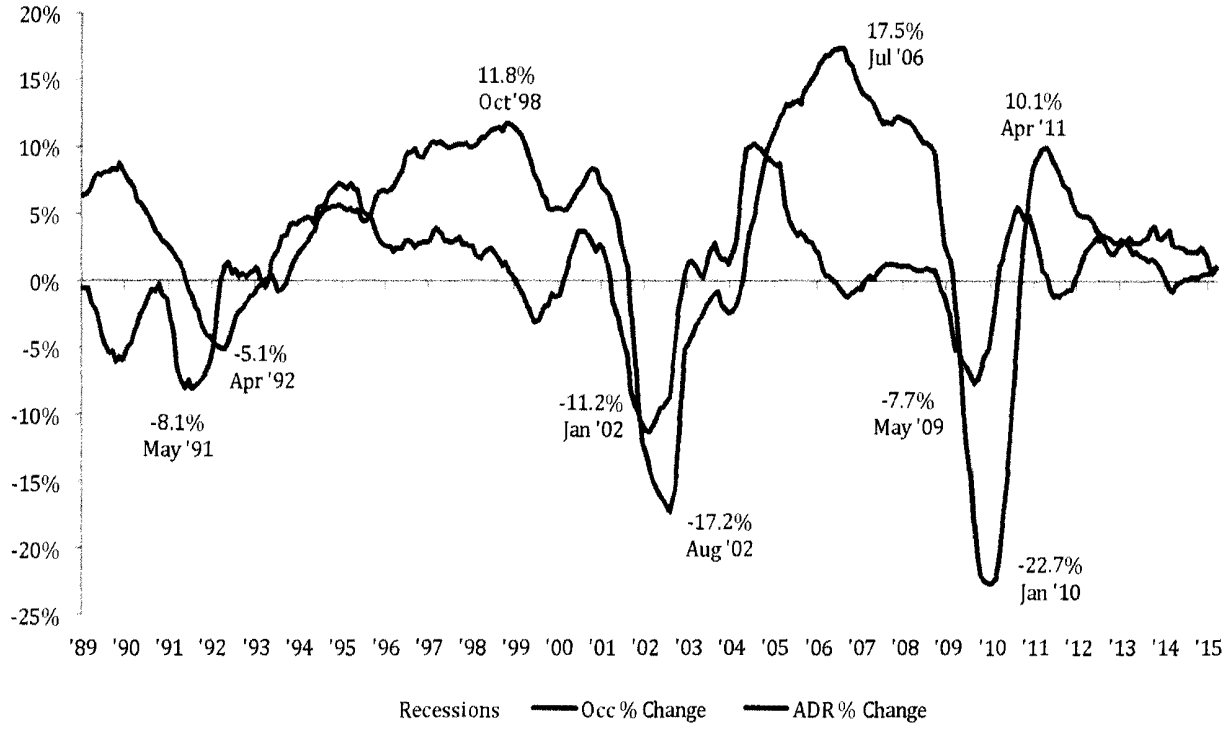
Source: HVS, STR, and National Bureau of Economic Research

Like average rate, RevPAR in Manhattan has leveled off in the past year. Despite almost five years of steady gains, the latest available figures (from March 2015) show RevPAR approximately 6.3% below its historical peak in September 2008. Both average rate and RevPAR for Manhattan hotels have increased significantly since 1989, particularly during the expansion period following the 2001 recession.

RevPAR has been slower to recover from the most recent recession. Compounded annual growth from January 2010 to June 2012 was 8.6%, indicating a strong pace of recovery; however, compounded annual growth for the subsequent two and one-half years (from July 2012 through December 2014) was only 3.6%. This deceleration in recovery has postponed the market's ability to surpass the 2008 historical peak.

The following graph illustrates percent changes in occupancy and average rate as a twelve-month moving average from January 1989 to March 2015.

FIGURE 6-5 LONG-TERM OCCUPANCY AND ADR % CHANGES: 12-MONTH MOVING AVERAGE



Source: HVS, STR, and National Bureau of Economic Research

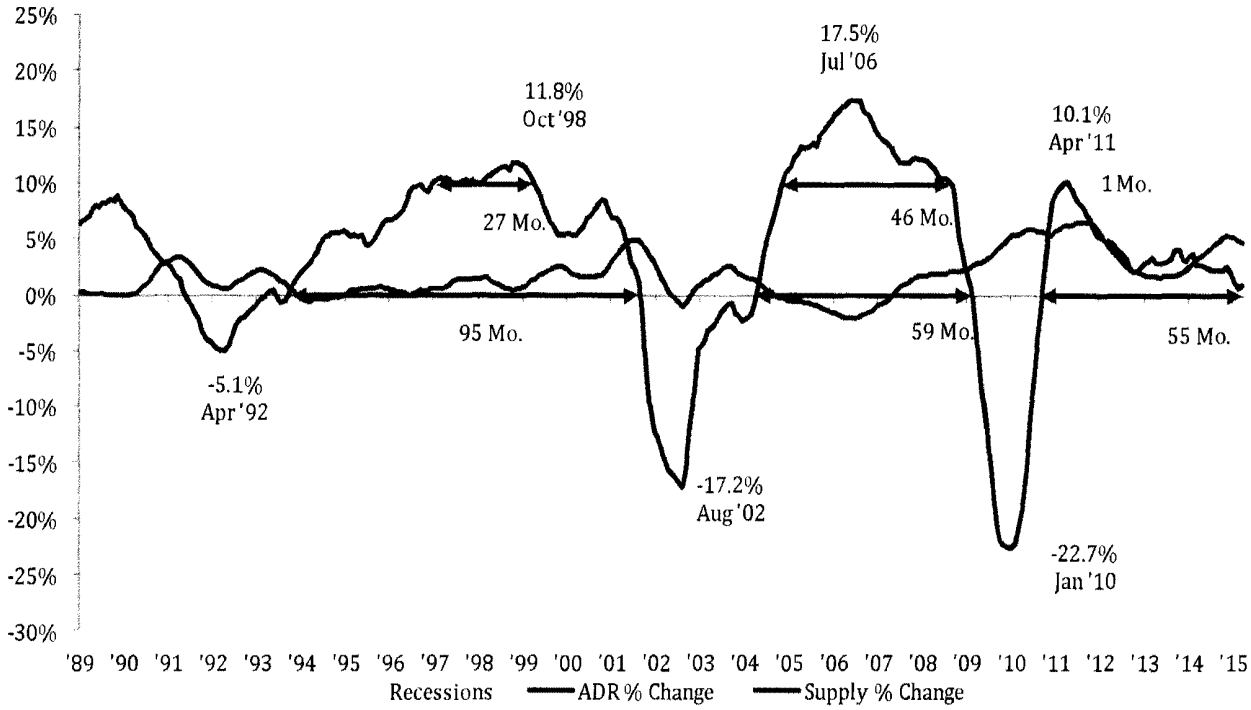
Average rate volatility in the Manhattan lodging market has become more pronounced over the illustrated period; however, it is worthy to note that this trend in part reflects the growing number of hotels reporting average rates to STR Global or through online resources such as Expedia. The immediate availability of lodging data has created a higher level of transparency in the market, enabling local hotel operators to quickly react to shifts in competitors' average rates.

The most dramatic shifts in average rate came in the wakes of past recessions, as hotel operators cut prices to capture more rate-conscious demand. Average rates have demonstrated a capacity to rebound following some of the most precipitous declines. Average rate in Manhattan plummeted 17.2% in August 2002; four years later, however, rates surged by a comparable magnitude of 17.5%.

Relatively healthy occupancy levels in Manhattan during and following the 2008/09 recession came largely at the expense of even more sizeable cuts in average rate; percent change in average rate bottomed out at 22.7% in January 2010. Nevertheless, average rate rebounded faster and stronger following the most recent recession than after either of the previous two contractions.

The following graph illustrates percent changes in hotel supply and average rate as a twelve-month moving average from January 1989 to March 2015.

FIGURE 6-6 LONG-TERM SUPPLY AND ADR % CHANGES: 12-MONTH MOVING AVERAGE



Source: HVS, STR, and National Bureau of Economic Research

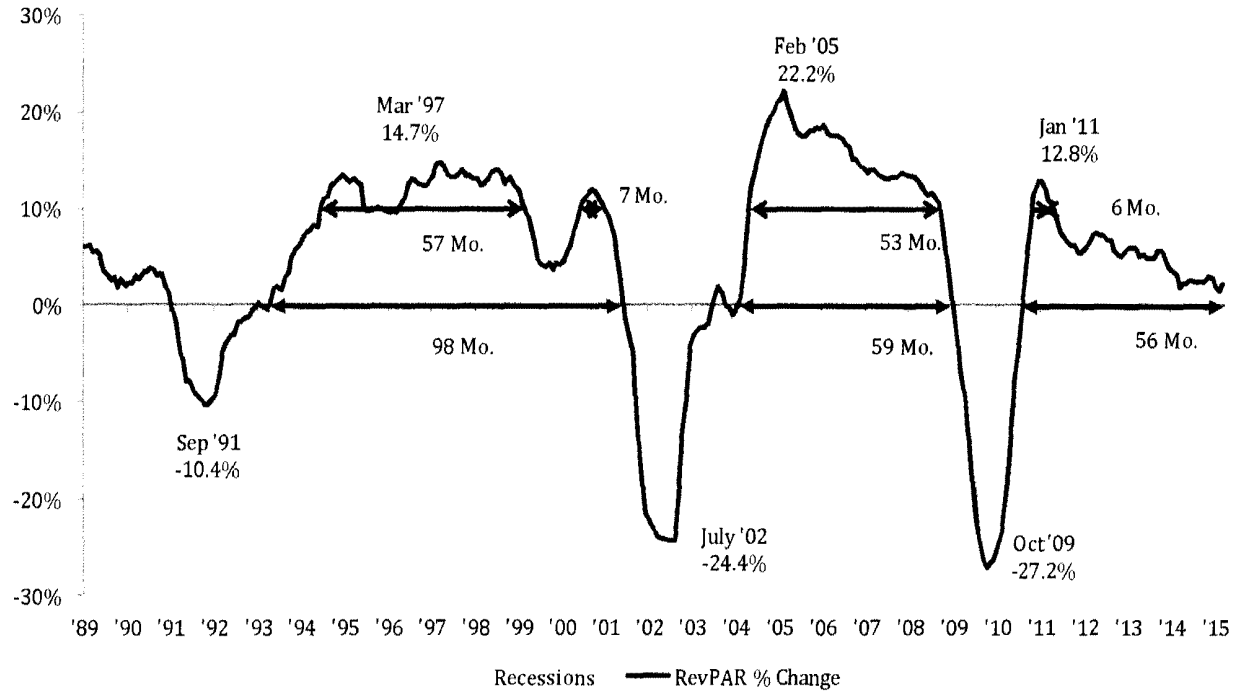
Periods of economic recovery and expansion in a lodging market are characterized by strong growth in average rates, and this has been evident in Manhattan. The market realized 27 consecutive months of double-digit increases in average rate from January 1997 to March 1999, followed by 46 consecutive months of rising average rates from November 2004 to August 2008. The market experienced its steepest rise in average rate growth during the expansion period following the 2001 recession, which coincided with decreases in supply.

Since the most recent recession, the market has experienced only one month of double-digit average rate growth: 10.1% in April 2011. The somewhat repressed recovery of average rate in Manhattan largely reflects an upward shift in hotel supply. The significant number of new hotels entering the market since early 2009 has not negatively affected occupancy; however, the additional inventory has limited the ability for hotel operators to raise average rates. This trend remains evident in 2015; while average rates have stayed in positive territory (that is, above the 0% threshold) over

the last 55 months, the growth has been moderate and has decelerated over the past three years.

The following graph illustrates RevPAR percent changes from January 1989 to March 2015 as a twelve-month moving average.

FIGURE 6-7 LONG-TERM REVPAR % CHANGES: 12-MONTH MOVING AVERAGE



Source: HVS, STR, and National Bureau of Economic Research

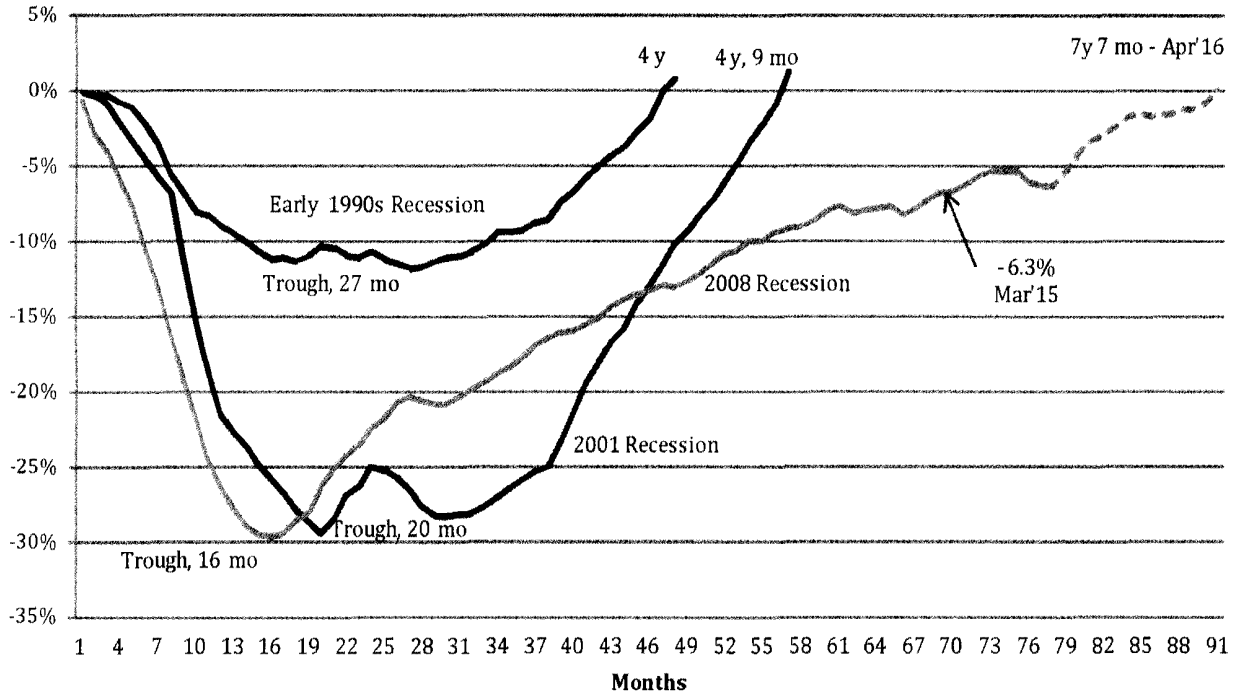
Since 1987, RevPAR has increased at an average annual rate of 4%. The Manhattan market experienced 57 consecutive months of double-digit increases in RevPAR from June 1994 to February 1999, and another 53 consecutive months of increases from May 2004 to September 2008. RevPAR percent change peaked in February 2005 at 22%, bottoming out at -27.2% in October 2009 amidst the negative impact of the recession. RevPAR in Manhattan had fallen by -24.4% in the wake of the previous recession in July 2002.

RevPAR for Manhattan hotels was quicker to rebound following the most recent recession than after the previous two contractions, primarily fueled by rapidly achieved gains in average daily rate. As of March 2015, however, the Manhattan hotel market had experienced only six consecutive months of double-digit increases in RevPAR, from November 2010 to April 2011. Despite a strong initial recovery, RevPAR growth has decelerated since 2011 and has remained below 5% since November 2013. Significant

increases in RevPAR through 2015 and into 2016 are unlikely, as occupancy is forecast to remain relatively stable in the mid-80% range, with average rates anticipated to grow in the single digits over the same period. As such, the current recovery and expansion for the market is forecast to span much longer than those of the previous two economic recessions. Again, the unprecedented expansion of hotel supply in Manhattan over the past six years has, more than any other factor, put pressure on the city's RevPAR recovery.

The following graph illustrates RevPAR cycles through the last three recessions as a twelve-month moving average.

FIGURE 6-8 REVPAR CYCLES THROUGH LAST THREE RECESSIONS: 12-MONTH MOVING AVERAGE



Source: HVS and STR

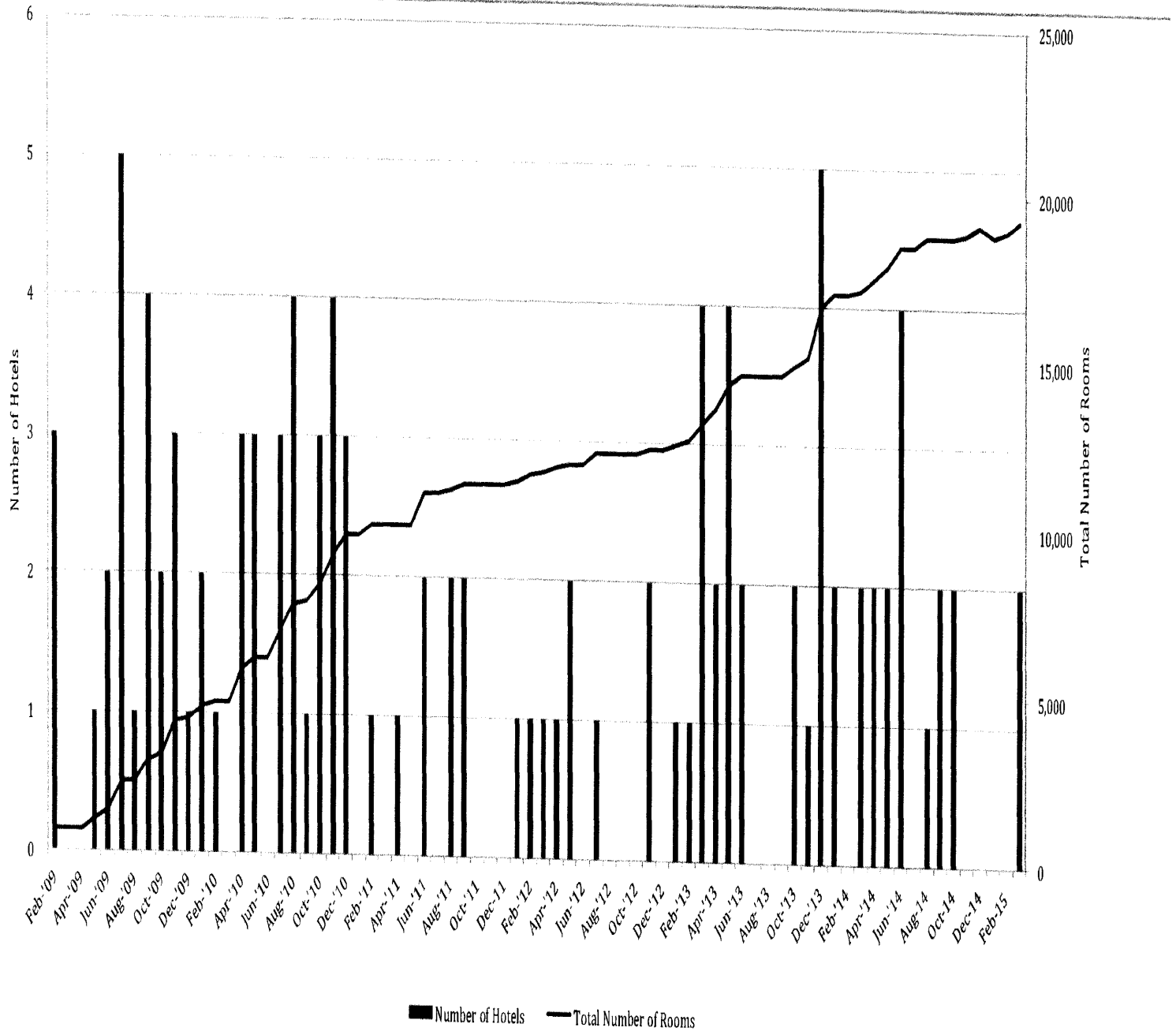
Following the early 1990s recession, RevPAR in Manhattan went from peak to trough within 27 months, returning to its former peak after approximately four years. RevPAR suffered far more severe falls as a result of the subsequent recessions. RevPAR reached bottom in 20 months and took four years and nine months to regain its former peak in the early 2000s. RevPAR took only 16 months to fall to a low of $189.34 in January 2010, and has yet to regain its prior peak. In both cases, RevPAR for Manhattan hotels dropped approximately 30% in less than two years.

RevPAR in Manhattan rebounded strongly through the end of 2010; however, the market subsequently suffered inclement weather, which impeded visitation, and an influx of new supply. RevPAR remained relatively flat in the first three months of 2011, growing moderately through the rest of the year. This moderate pace of growth has on the whole continued through March 2015, with occasional dips into monthly RevPAR stagnation or decline. RevPAR flattened out in the first quarter of this year, as supply increases continue to affect the ability of existing properties to command average rate growth. Over the last twelve months, RevPAR increased by a moderate 2.2%. As of March 2015, RevPAR was 6.3% lower than the September 2008 peak. HVS expects Manhattan's RevPAR will return to its previous peak gradually, as the market labors to manage supply growth and accelerate average rate gains. Given recent historical trends, we do not forecast a full RevPAR recovery until April 2016, which would mark a total span of seven years and seven months.

New Supply

A total of 107 new hotels opened in Manhattan between January 2009 and March 2015, adding 19,299 rooms to the market and representing growth of roughly 96.7% over the February 2009 level. Approximately 54.9% of the new supply entered the market between February 2009 and December 2011, representing the largest increase in supply over the last 27 years. The following chart lists the timing of these openings, as well as the total number of new rooms.

FIGURE 6-9 NEW SUPPLY – JANUARY 2009 TO MARCH 2015



Source: HVS and STR

The entrance of the new supply coincided with the latest recession, continuing in its wake and into the recovery of the past several years. The influx of nearly 20,000 new rooms in just six years had a minimal effect on market-wide occupancy. As previously discussed, however, supply increases in the market have historically had a stronger impact on average rate growth, and the pressure on average rates has led to the prolonged recovery of RevPAR for Manhattan hotels.

New hotel openings in Manhattan totaled 17 in 2014, as shown in the following table.

NEW SUPPLY – 2014

Hilton Garden Inn Central Park	237 West 54th Street	401	Jan-14
The William Hotel	East 39th Street	33	Jan-14
The Lex Hotel	67 Lexington Avenue	48	Mar-14
Be Hotel	125 Canal Street	40	Mar-14
Citizen M Times Square	216-218 West 50th Street	230	Apr-14
Hotel Hugo	525 Greenwich Street	124	Apr-14
Hilton Garden Inn Midtown East	206 East 52nd Street	206	May-14
Archer Hotel	45 West 38th Street	180	Jun-14
Hampton Inn Financial District	32 Pearl Street	81	Jun-14
Homewood Suites Times Square South	312 West 37th Street	293	Jun-14
Hotel Ludlow	180 Ludlow Street	184	Jun-14
Park Hyatt	157 West 57th Street	210	Aug-14
Casa Hotel and Residences	511 Ninth Avenue	87	Sep-14
Comfort Inn Lower East Side	154 Madison Street	52	Sep-14
Hilton Garden Inn Park Avenue	45 East 33rd Street	232	Sep-14
Hilton Garden Inn Times Square	136-140 West 42nd Street	282	Sep-14
Holiday Inn Financial District	99 Washington Street	490	Nov-14
Total		**3,173**	

Source: HVS

The following tables illustrate the anticipated new supply from 2015 through 2017, as well as recently opened properties through the first quarter of 2015.

2015

Residence Inn Financial District	170 Broadway	243	Recently Opened	Extended-Stay	Downtown	Highgate Holdings/Crown Acq./Carlyle Group/Tribeca Assoc.
Knickerbocker Hotel	1466 Broadway	330	Recently Opened	Full-Service, Boutique	Midtown West	FelCor Lodging Trust
Ascend Collection New York - The Paul	32 West 29th Street	117	Recently Opened	Full-Service	Midtown South	32-34 W. 29th Realty LLC
Fairfield Inn Financial District	30 Fletcher Street	176	Recently Opened	Limited-Service	Downtown	Lam Group
Baccarat Luxury Hotel & Condominium	20 West 53rd Street	114	Recently Opened	Full-Service, Luxury	Midtown	Starwood Capital Group
Cambria Suites Chelsea	123 West 28th Street	135	Recently Opened	Select-Service	Chelsea	We Care Trading Co. Ltd.
Nobleden Hotel	196 Grand Street	47	Q2 2015	Full-Service	Lower East Side	N/A
aloft Financial District	49 Ann Street	125	Q2 2015	Select-Service	Downtown	Lam Group
The Stories "Gatsby" Hotel	163 Orchard Street	52	Q2 2015	Full-Service, Boutique	Lower East Side	163 Orchard Street LLC / Serge Hoyda
Marmara Park Avenue	114 East 32nd Street	128	Q2 2015	Extended-Stay	Midtown East	Marmara Group
Four Points Financial District	6 Platt Street	261	Q2 2015	Select-Service	Downtown	Lam Group
1 Hotel Central Park	1414 Sixth Avenue	229	Q2 2015	Full-Service, Boutique	Midtown	Starwood Capital Group
Clocktower Edition Hotel	5 Madison Avenue	238	Q2 2015	Full Service, Boutique	Gramercy Park	Marriott
Unnamed Hotel	119 Orchard Street	16	Q2 2015	Limited-Service	Lower East Side	N/A
C3D Group - Unnamed Hotel	145 East 47th Street	100	Q3 2015	Full Service, Boutique	Midtown East	C3D Group
Renaissance Midtown South	215 West 34th Street	345	Q3 2015	Full-Service	Midtown South	Bobby Cayre, Alex Adjmi, Michael Cayre and Jack Dushey
Carnegie Hotel	160 West 56th Street	63	Q4 2015	Full-Service, Luxury	Times Square	Carnegie Towers LLC
Hotel Indigo Lower East Side	180 Orchard Street	293	Q4 2015	Select-Service	Lower East Side	Brack Capital Real Estate
Cambria Suites Times Square	30 West 46th Street	196	Q4 2015	Select-Service	Times Square	CS Hotel 30W46TH LLC
Tommie Hotel SoHo	231 Hudson Street	325	Q4 2015	Limited-Service, Boutique	West Soho	Eagle Point and Cube Capital
Total		**3,533**				

Source: HVS

2016

SLS New York	444 Park Avenue South	190	Q1 2016	Full-Service, Boutique	Murray Hill	SBE
Executive Hotel Le Soleil	38 West 36th Street	160	Q1 2016	Full-Service, Boutique	Midtown South	8th & Pine Partners LP
Even Hotel 35th Street	321 West 35th Street	150	Q1 2016	Full-Service	Midtown South	CCW Realty Inc
Holiday Inn Manhattan	585 Eighth Avenue	288	Q1 2016	Full-Service	Lower Midtown West	McSam Hotel Group
Hyatt House Manhattan Chelsea	101 West 28th Street	150	Q1 2016	Full-Service	Chelsea/Gramercy	Lexin Capital
Canal Street Hotel	54 Canal Street	130	Q2 2016	Full-Service, Boutique	Lower East Side	Nine Orchard Partners, LLC
Riu Plaza Time Square	8th Avenue and 46th Street	600	Q2 2016	Full Service	Midtown West	Riu Hotels & Resorts
Jade Hotel Bryant Park	36 West 38th Street	114	Q2 2016	Full-Service, Boutique	Midtown West	Gemini Real Estate Advisors
Four Points Hudson Yards	444 Tenth Avenue	151	Q2 2016	Select-Service	Midtown South	Maddd Equities LLC
Best Western LES	263 Broome Street	45	Q2 2016	Limited-Service	Lower East Side	Wholesome Realty Inc.
Battery Maritime Building Hotel	10 South Street	61	Q2 2016	Limited-Service	Financial District	N/A
Unnamed Hotel	42-44 West 29th Street	109	Q2 2016	Limited-Service	Chelsea/Gramercy	N/A
The Artezen Hotel	24 John Street	89	Q3 2016	Full-Service, Boutique	Downtown	N/A
The Beekman Hotel	5 Beekman	287	Q3 2016	Full-Service, Boutique	Downtown	GB Holding
Tommie Hotel	11 East 31st Street	250	Q3 2016	Full-Service, Boutique	Murray Hill	Cube Capital/Simon Dev. Gp/Eagle Hotel Partners
Four Seasons World Trade Center	30 Park Place	189	Q3 2016	Full-Service, Luxury	Downtown	Silverstein Properties
Hampton Inn Times Square	220 West 41st Street	300	Q4 2016	Limited-Service	Midtown West	OTO Development
Even Hotel 44th Street	219 East 44th Street	230	Q4 2016	Full Service, Boutique	Midtown East	Intercontinental Hotel Group
Fairfield Inn	439 West 54th Street	101	Q4 2016	Limited-Service	Midtown West	Kobe Bussan
Hyatt Place Times Square	120 West 41st Street	130	Q4 2016	Select-Service	Midtown West	Stanford Hotels
Firmdale Hotel	18-20 West 56th Street	86	Q4 2016	Full-Service, Luxury	Midtown West	Firmdale Hotels
Fairfield Inn by Marriott	538 West 58th Street	230	Q4 2016	Limited-Service	Midtown West	McSam Hotel Group/Barone Management
Total		4040				

Source: HVS

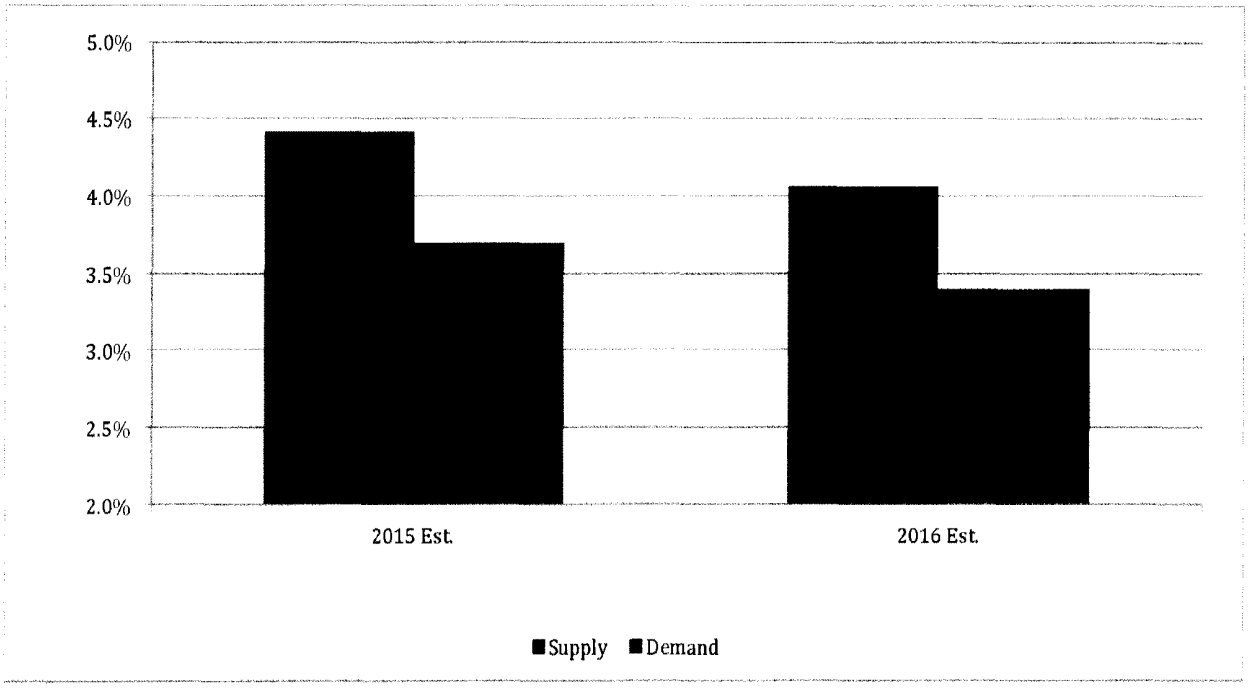
2017

Joie de Vivre Bowery	50 Bowery Street	229	2017	Full-Service, Boutique	Chinatown	Bowery Holdings LLC
Hilton Garden Inn Water Street	6 Water Street	249	2017	Select-Service	Downtown	McSam Hotel Group
Unnamed Hotel	414 West 15th Street	158	2017	Full-Service, Boutique	Chelsea/Gramercy	LM Legacy Group LLC
Hilton Garden Inn Greenwich Street	98-100 Greenwich Street	180	2017	Select-Service	Downtown	McSam Hotel Group
Hilton Garden Inn Times Square South	326 West 37th Street	242	2017	Select-Service	Midtown South	McSam Hotel Group
Furnished Quarters	70 Pines Street	132	2017	Full-Service, Luxury	Financial District	Rose Associates and DTH Capital
Courtyard Lower Manhattam	133-135 Greenwich Street	317	2017	Select-Service	Financial District	Hidrock Realty
Virgin Hotel	1225 Broadway	460	2017	Full-Service	Chelsea/Gramercy	Lam Group
POD Hotel	400 West 42nd Street	510	2017	Full-Service, Boutique	Midtown West	Friedman Group
AC Hotel by Marriott	310 West 40th Street	287	2017	Full-Service	Midtown South	N/A
Times Square Edition	701 Seventh Avenue	452	2017	Full-Service	Midtown South	N/A
DoubleTree Hotel	350 West 40th Street	612	2017	Full-Service	Midtown South	McSam Hotel Group
Embassy Suites Midtown	60 West 37th Street	313	2017	Full-Service	Midtown South	N/A
Courtyard Financial District	215 Pearl Street	200	2017	Select-Service	Financial District	Lam Group
Residence Inn Financial District	215 Pearl Street	120	2017	Extended-Stay	Financial District	Lam Group
Public Hotel	215 Chrystie Street	370	2017	Full-Service, Boutique	Tribeca/Lower East Side	Ian Schrager
Courtyard at Javits Convention Center	461 West 34th Street	399	2017	Select-Service	Midtown East	N/A
Innside by Melia Manhattan	132 West 27th Street	313	2017	Full-Service	Chelsea/Gramercy	N/A
Unnamed Hotel	16 East 30th Street	100	2017	Limited-Service	Chelsea/Gramercy	N/A
Renaissance Hotel	112 West 25th Street	330	2017	Full-Service	Chelsea/Gramercy	Lam Group
Unnamed Luxury Hotel	35 Hudson Yards	175	2017	Full-Service	Midtown West	N/A
Total		6148				

Source: HVS

Manhattan Forecast The following chart illustrates a forecasted rise in supply and demand in Manhattan over the next two years.

FIGURE 6-10 FORECAST OF SUPPLY AND DEMAND



Source: HVS

Hotel demand is forecast to be outpaced by growth in supply in Manhattan through 2016. Approximately 3,500 rooms are slated to open in Manhattan in 2015, and more than 30% of that inventory arrived in the first quarter of the year—a historically slower season for hotel demand in the area. Based on current construction timelines, another 30% of the total 2015 pipeline is scheduled to enter in the second quarter of the year. Given such a significant upward shift in the amount of hotel inventory through the first half of 2015, occupancy levels in the market will face substantial pressure this year. HVS anticipates annual growth in hotel supply to marginally outpace that of demand, resulting in slight occupancy losses across the market. We expect this trend to extend through 2016, as new supply continues to come online.

Based on an analysis of the historical data and a review of the new supply, we have prepared the following forecast for the Manhattan lodging market through 2016.

FIGURE 7-2 MONTHLY OCCUPANCY, AVERAGE RATE, AND REVPAR TRENDS

	Occupancy				Average Rate				RevPAR			
Month	**2012**	**2013**	**2014**	**2015**	**2012**	**2013**	**2014**	**2015**	**2012**	**2013**	**2014**	**2015**
January	62.1 %	77.4 %	76.5 %	67.7 %	$135.92	$159.01	$148.30	$147.88	$84.41	$123.06	$113.45	$100.11
February	65.6	76.3	75.7	78.0	136.71	157.89	154.54	147.07	89.70	120.46	117.05	114.67
March	80.4	86.4	77.3	83.2	142.11	155.22	152.86	154.69	114.21	134.05	118.10	128.78
April	82.8	86.9	85.2	83.5	149.94	162.18	157.36	159.44	124.09	140.90	134.13	133.14
May	88.2	87.9	92.2	89.4	154.15	164.51	162.79	165.43	136.04	144.62	150.01	147.96
June	92.3	91.4	92.4	94.6	159.44	163.22	169.22	176.22	147.18	149.22	156.42	166.73
July	87.0	86.7	88.2	–	150.08	161.78	160.64	–	130.50	140.28	141.65	–
August	93.6	89.1	90.6	–	166.23	172.85	178.32	–	155.60	154.01	161.48	–
September	92.1	90.4	89.2	–	176.35	183.42	181.69	–	162.49	165.90	162.15	–
October	90.7	87.8	87.1	–	164.15	164.11	166.80	–	148.89	144.14	145.29	–
November	94.4	78.4	76.6	–	179.52	153.82	155.12	–	169.40	120.53	118.86	–
December	87.5	81.7	81.6	–	176.74	152.31	151.71	–	154.61	124.51	123.72	–
Annual	**84.8 %**	**85.1 %**	**84.4 %**	–	**$159.28**	**$162.84**	**$162.20**	–	**$135.14**	**$138.56**	**$136.96**	–

	Change in Occupancy				Change in Average Rate				Change in RevPAR			
Month	**2012**	**2013**	**2014**	**2015**	**2012**	**2013**	**2014**	**2015**	**2012**	**2013**	**2014**	**2015**
January	–	24.6 %	(1.2) %	(11.5) %	–	17.0 %	(6.7) %	(0.3) %	–	45.8 %	(7.8) %	(11.8) %
February	–	16.3	(0.7)	2.9	–	15.5	(2.1)	(4.8)	–	34.3	(2.8)	(2.0)
March	–	7.5	(10.5)	7.7	–	9.2	(1.5)	1.2	–	17.4	(11.9)	9.0
April	–	5.0	(1.9)	(2.0)	–	8.2	(3.0)	1.3	–	13.5	(4.8)	(0.7)
May	–	(0.4)	4.8	(2.9)	–	6.7	(1.0)	1.6	–	6.3	3.7	(1.4)
June	–	(1.0)	1.1	2.3	–	2.4	3.7	4.1	–	1.4	4.8	6.6
July	–	(0.3)	1.7	–	–	7.8	(0.7)	–	–	7.5	1.0	–
August	–	(4.8)	1.6	–	–	4.0	3.2	–	–	(1.0)	4.9	–
September	–	(1.8)	(1.3)	–	–	4.0	(0.9)	–	–	2.1	(2.3)	–
October	–	(3.2)	(0.8)	–	–	(0.0)	1.6	–	–	(3.2)	0.8	–
November	–	(17.0)	(2.2)	–	–	(14.3)	0.8	–	–	(28.8)	(1.4)	–
December	–	(6.6)	(0.2)	–	–	(13.8)	(0.4)	–	–	(19.5)	(0.6)	–
Annual	–	**0.3 %**	**(0.8) %**	–	–	**2.2 %**	**(0.4) %**	–	–	**2.5 %**	**(1.2) %**	–

Source: Smith Travel Research

It is important to note some limitations of the STR data. Hotels are occasionally added to or removed from the sample, and not every property reports data in a consistent and timely manner; these factors can influence the overall quality of the information by skewing the results. These inconsistencies may also cause the STR data to differ from the results of our competitive survey. Nonetheless, STR data provide the best indication of aggregate growth or decline in existing supply and demand; thus, these trends have been considered in our analysis. Opening dates, as available, are presented for each reporting hotel in the previous table.

Demand generated by the nearby LaGuardia Airport, as well as local employers and the various attractions located throughout Queens represent the primary sources of demand for the subject lodging market. As illustrated by the preceding trends, the competitive set has recorded high occupancy levels in excess of 80.0% since 2010.

Lodging supply in the LaGuardia Airport market has witnessed two supply increases during the historical period reviewed - the opening of the 220-room Hampton Inn in September of 2009 and the 173-room SpringHill Suites in December of 2012. The subject market was heavily impacted from the latest economic downturn in 2009; as a result, occupancy declined to 75.7% - the lowest level recorded. Average rate also sustained hefty decreases from its pre-recession level. The subject market quickly rebounded in 2010 and demand more than kept pace with the increase in supply. Therefore, marketwide occupancy returned to the 80% range, increasing to 85.1% over the next three years. As illustrated by monthly trends, a significant portion of the growth in 2012 and 2013 was attributable to Hurricane Sandy, as stranded travelers and local residents who were affected by Hurricane Sandy, as well as temporary workforce sought accommodation at various hotels in the area. This non-recurring demand remained in the market through the first quarter of 2013. The minor decline in 2014 reflects an adjustment from the inflated demand level in the prior year.

Average rate in the submarket increased from approximately $138 in 2009 to $163 in 2013. Similar to occupancy trends, average rate was also boosted by Hurricane Sandy related demand in 2012/13, hence the minor adjustment in 2014. The year-to-date data indicates that rate growth has resumed in the LaGuardia market.

SUPPLY

Based on an evaluation of the occupancy, rate structure, market orientation, chain affiliation, location, facilities, amenities, reputation, and quality of each area hotel, as well as the comments of management representatives, we have identified several properties that are expected to be primarily competitive with the proposed subject hotel.

The following table summarizes the important operating characteristics of the future competitors. This information was compiled from personal interviews, inspections, lodging directories, and our in-house library of operating data. The table also sets forth each property's penetration factors; penetration is the ratio between a specific hotel's operating results and the corresponding data for the market. If the penetration factor is greater than 100%, the property is performing better than the market as a whole; conversely, if the penetration is less than 100%, the hotel is performing at a level below the market-wide average.

FIGURE 7-3 COMPETITORS – OPERATING PERFORMANCE

Property	(b)(4)	Number of Rooms	Est. Segmentation			Estimated 2012				Estimated 2013				Estimated 2014				
			Commercial	Meeting and Group	Leisure	Weighted Annual Room Count	Occ.	Average Rate	RevPAR	Weighted Annual Room Count	Occ.	Average Rate	RevPAR	Weighted Annual Room Count	Occ.	Average Rate	RevPAR	Yield Penetration

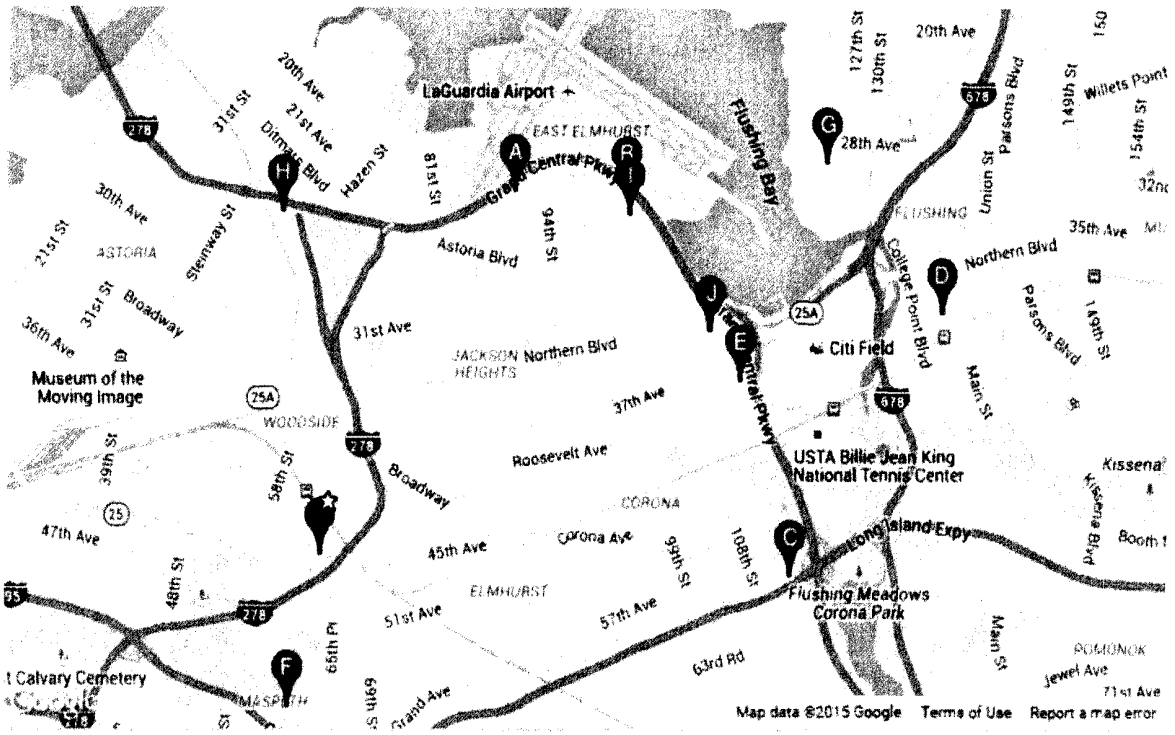
FIGURE 7-4 COMPETITOR SPECS

(b)(4)

Property	Number of Rooms	Year Opened	Meeting Space (SF)	Orientation

The following map illustrates the locations of the subject property and its future competitors.

MAP OF COMPETITION



- Proposed Holiday Inn Express Woodside
- A Courtyard by Marriott New York LaGuardia Airport
- B Marriott LaGuardia Airport
- C Holiday Inn Express LaGuardia Airport Flushing
- D Sheraton LaGuardia East Flushing
- E Holiday Inn LaGuardia Airport
- F Comfort Inn & Suites Airport Maspeth
- G Fairfield Inn by Marriott New York LaGuardia Airport
- H Fairfield Inn by Marriott New York LaGuardia Airport Astoria
- I Hampton Inn New York LaGuardia Airport
- J SpringHill Suites New York LaGuardia Airport

Supply Changes

It is important to consider any new hotels that may have an impact on the proposed subject hotel's operating performance. Based upon our research and inspection, new supply considered in our analysis is presented in the following table.

FIGURE 7-5 NEW SUPPLY

Proposed Property	Number of Rooms	Address/Location	Estimated Opening Date
Proposed Holiday Inn Express & Suites Woodside	135	64-06 Queens Boulevard	March 1, 2018
Proposed aloft LaGuardia Airport	148	100-15 Ditmars Boulevard	August 1, 2016
Proposed Ibis Style LaGuardia Airport	94	100-15 Ditmars Boulevard	August 1, 2016
Proposed AC Hotel LaGuardia	126	112-24 Astoria Boulevard	April 1, 2017
Totals/Averages	**503**		

Besides the subject property, a proposed aloft and Ibis Style are under construction on a site that contained the former LaGuardia Airport Hotel; this hotel closed in January 2014 and is currently being converted to two hotels. Furthermore, a proposed AC Hotel by Marriott is under development at 112-24 Astoria Boulevard in East Elmhurst. By virtue of their location and target demographics, these proposed hotels are expected to compete with the subject property upon opening. In addition to the proposed hotels above, the 83-room Holiday Inn Express LaGuardia Airport is currently under expansion; upon completion in early 2016, this hotel will feature additional 36 guestrooms.

While we have taken reasonable steps to investigate proposed hotel projects and their status, due to the nature of real estate development, it is impossible to determine with certainty every hotel that will be opened in the future, or what their marketing strategies and effect in the market will be. Depending on the outcome of current and future projects, the future operating potential of the proposed subject hotel may be positively or negatively affected. Future improvement in market conditions will raise the risk of increased competition. Our forthcoming forecast of stabilized occupancy and average rate is intended to reflect such risk.

Supply Conclusion

We have identified various properties that are expected to be competitive to some degree with the Proposed Holiday Inn Express & Suites Woodside. We have also investigated potential increases in competitive supply in this Queens submarket. The Proposed Holiday Inn Express & Suites Woodside should enter a dynamic market of varying product types and price points. Next, we will present our forecast for demand change, using the historical supply data presented as a starting point.

HVS

DEMAND

The following table presents the most recent trends for the subject hotel market as tracked by HVS. These data pertain to the competitors discussed previously in this section; performance results are estimated, rounded for the competition. In this respect, the information in the table differs from the previously presented STR data and is consistent with the supply and demand analysis developed for this report.

FIGURE 7-6 HISTORICAL MARKET TRENDS

Year	Accommodated Room Nights	% Change	Room Nights Available	% Change	Market Occupancy	Market ADR	% Change	Market RevPAR	% Change
Est. 2012	522,553	—	612,723	—	85.3 %	$160.21	—	$136.63	—
Est. 2013	572,503	9.6 %	671,235	9.5 %	85.3	163.59	2.1 %	139.52	2.1 %
Est. 2014	565,305	(1.3)	671,600	0.1	84.2	162.46	(0.7)	136.75	(2.0)

Demand Analysis Using Market Segmentation

For the purpose of demand analysis, the overall market is divided into individual segments based on the nature of travel. Based on our fieldwork, area analysis, and knowledge of the local lodging market, we estimate the 2014 distribution of accommodated-room-night demand as follows.

FIGURE 7-7 ACCOMMODATED ROOM NIGHT DEMAND

Market Segment	Marketwide Accommodated Demand	Marketwide Percentage of Total
Commercial	299,724	53 %
Meeting and Group	72,377	13
Leisure	193,203	34
Total	**565,305**	**100 %**

The market's demand mix comprises commercial demand, with this segment representing roughly 53% of the accommodated room nights in this Queens submarket. The remaining portion comprises meeting and group at 13%, with the final portion leisure in nature, reflecting 34%.

Using the distribution of accommodated hotel demand as a starting point, we will analyze the characteristics of each market segment in an effort to determine future trends in room-night demand.

Commercial Segment

Commercial demand consists mainly of individual businesspeople passing through the subject market or visiting area businesses, in addition to high-volume corporate accounts generated by local firms. Brand loyalty (particularly frequent-traveler programs), as well as location and convenience with respect to businesses and amenities, influence lodging choices in this segment. Companies typically designate hotels as "preferred" accommodations in return for more favorable rates, which are discounted in proportion to the number of room nights produced by a commercial client. Commercial demand is strongest Monday through Thursday nights, declines significantly on Friday and Saturday, and increases somewhat on Sunday night. It is relatively constant throughout the year, with marginal declines in late December and during other holiday periods.

Meeting and Group Segment

The meeting and group market includes meetings, seminars, conventions, trade association shows, and similar gatherings of ten or more people. Peak convention demand typically occurs in the spring and fall. Although there are numerous classifications within the meeting and group segment, the primary categories considered in this analysis are corporate groups, associations, and SMERFE (social, military, ethnic, religious, fraternal, and educational) groups. Corporate groups typically meet during the business week, most commonly in the spring and fall months. These groups tend to be the most profitable for hotels, as they typically pay higher rates and usually generate ancillary revenues including food and beverage and/or banquet revenue. SMERFE groups are typically price-sensitive and tend to meet on weekends and during the summer months or holiday season, when greater discounts are usually available; these groups generate limited ancillary revenues. Association demand is generally divided on a geographical basis, with national, regional, and state associations representing the most common sources. Professional associations and/or those supported by members' employers often meet on weekdays, while other associations prefer to hold events on weekends. The profile and revenue potential of associations varies depending on the group and the purpose of the meeting or event. In this LaGuardia Airport market, airline crew and other related group businesses are also included in this segment.

Leisure Segment

Leisure demand consists of individuals and families spending time in an area or passing through en route to other destinations. Travel purposes include sightseeing, recreation, or visiting friends and relatives. Leisure demand also includes room nights booked through Internet sites such as Expedia, Hotels.com, and Priceline; however, leisure may not be the purpose of the stay. This demand may also include business travelers and group and convention attendees who use these channels to take advantage of any discounts that may be available on these sites. Leisure demand is strongest Friday and Saturday nights, and all week during holiday periods and the summer months. These peak periods represent the inverse of commercial visitation trends, underscoring the stabilizing effect of

capturing weekend and summer tourist travel. Future leisure demand is related to the overall economic health of the region and the nation. Trends showing changes in state and regional unemployment and disposable personal income correlate strongly with leisure travel levels.

Conclusion

The purpose of segmenting the lodging market is to define each major type of demand, identify customer characteristics, and estimate future growth trends. Starting with an analysis of the local area, three segments were defined as representing the subject property's lodging market. Various types of economic and demographic data were then evaluated to determine their propensity to reflect changes in hotel demand. Based on this procedure, we forecast the following average annual compounded market-segment growth rates.

FIGURE 7-8 AVERAGE ANNUAL COMPOUNDED MARKET SEGMENT GROWTH RATES

	Annual Growth Rate					
Market Segment	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Commercial	0.0 %	6.0 %	10.0 %	5.0 %	3.0 %	0.0 %
Meeting and Group	0.0	6.0	10.0	5.0	3.0	0.0
Leisure	0.0	6.0	10.0	5.0	3.0	0.0
Base Demand Growth	**0.0 %**	**6.0 %**	**10.0 %**	**5.0 %**	**3.0 %**	**0.0 %**

As demonstrated by historical trends, new supply is absorbed quickly in the LaGuardia Airport market. Going forward, we expect such trend to continue. Overall, we forecast demand to increase between 2016 and 2019, appropriately absorbing all new supply. As previously discussed, in July 2015, New York Governor Andrew Cuomo announced plans to completely overhaul the airport. The $4-billion project is expected to break ground in early 2016 with initial phases opening by 2019, followed by the completion of later phases through 2021. Given such, the long-term outlook for the LaGuardia Airport hotel market is optimistic.

Accommodated Demand and Market-wide Occupancy

Based upon a review of the market dynamics in the subject property's competitive environment, we have forecast growth rates for each market segment. Using the calculated potential demand for the market, we have determined market-wide accommodated demand based on the inherent limitations of demand fluctuations and other factors in the market area.

The following table details our projection of lodging demand growth for the subject market, including the total number of occupied room nights and any residual unaccommodated demand in the market.

FIGURE 7-9 FORECAST OF MARKET OCCUPANCY

	2015	2016	2017	2018	2019	2020
Commercial						
Base Demand	299,724	317,708	349,479	366,953	377,961	377,961
Total Demand	299,724	317,708	349,479	366,953	377,961	377,961
Growth Rate	0.0 %	6.0 %	10.0 %	5.0 %	3.0 %	0.0 %
Meeting and Group						
Base Demand	72,377	76,720	84,392	88,612	91,270	91,270
Total Demand	72,377	76,720	84,392	88,612	91,270	91,270
Growth Rate	0.0 %	6.0 %	10.0 %	5.0 %	3.0 %	0.0 %
Leisure						
Base Demand	193,203	204,795	225,274	236,538	243,634	243,634
Total Demand	193,203	204,795	225,274	236,538	243,634	243,634
Growth Rate	0.0 %	6.0 %	10.0 %	5.0 %	3.0 %	0.0 %
Totals						
Base Demand	565,305	599,223	659,145	692,103	712,866	712,866
Total Demand	565,305	599,223	659,145	692,103	712,866	712,866
Overall Demand Growth	0.0 %	6.0 %	10.0 %	5.0 %	3.0 %	0.0 %
Market Mix						
Commercial	53.0 %	53.0 %	53.0 %	53.0 %	53.0 %	53.0 %
Meeting and Group	12.8	12.8	12.8	12.8	12.8	12.8
Leisure	34.2	34.2	34.2	34.2	34.2	34.2
Existing Hotel Supply	1,840	1,841	1,840	1,840	1,840	1,840
Proposed Hotels						
Proposed Holiday Inn Express & Suites Woodside [1]				113	135	135
Proposed aloft LaGuardia Airport [2]		62	148	148	148	148
Proposed Ibis Style LaGuardia Airport [3]		39	94	94	94	94
Proposed AC Hotel LaGuardia [4]			95	126	126	126
Available Rooms per Night	671,600	719,642	807,720	860,370	868,335	868,335
Nights per Year	365	365	365	365	365	365
Total Supply	1,840	1,972	2,213	2,357	2,379	2,379
Rooms Supply Growth	0.0 %	7.2 %	12.2 %	6.5 %	0.9 %	0.0 %
Marketwide Occupancy	**84.2 %**	**83.3 %**	**81.6 %**	**80.4 %**	**82.1 %**	**82.1 %**

[1] Opening in March 2018 of the 135-room Proposed Holiday Inn Express & Suites Woodside

[2] Opening in August 2016 of the 148-room Proposed aloft LaGuardia Airport

[3] Opening in August 2016 of the 94-room Proposed Ibis Style LaGuardia Airport

[4] Opening in April 2017 of the 126-room Proposed AC Hotel LaGuardia

[A] Change of room count in March 2016 of the Holiday Inn Express LaGuardia Airport Flushing

These room-night projections for the market area will be used in forecasting the proposed subject hotel's occupancy and average rate in the following chapter.

8. Projection of Occupancy and Average Rate

Along with average rate results, the occupancy levels achieved by a hotel are the foundation of the property's financial performance and market value. Most of a lodging facility's other revenue sources (such as food, beverages, other operated departments, and rentals and other income) are driven by the number of guests, and many expense levels vary with occupancy. To a certain degree, occupancy attainment can be manipulated by management. For example, hotel operators may choose to lower rates in an effort to maximize occupancy. Our forecasts reflect an operating strategy that we believe would be implemented by a typical, professional hotel management team to achieve an optimal mix of occupancy and average rate.

Penetration Rate Analysis

The subject property's forecasted market share and occupancy levels are based upon its anticipated competitive position within the market, as quantified by its penetration rate. The penetration rate is the ratio of a property's market share to its fair share. A complete discussion of the concept of penetration is presented in the addenda.

Historical Penetration Rates by Market Segment

In the following table, the penetration rates attained by the competitors are set forth for each segment for the base year.

FIGURE 8-1 HISTORICAL PENETRATION RATES

Property	Commercial	Meeting and Group	Leisure	Overall
Courtyard by Marriott New York LaGuardia Airport	118 %	82 %	92 %	105 %
Marriott LaGuardia Airport	99	148	70	95
Holiday Inn Express LaGuardia Airport Flushing	93	39	130	99
Sheraton LaGuardia East Flushing	97	161	91	103
Holiday Inn LaGuardia Airport	79	82	153	105
Comfort Inn & Suites Airport Maspeth	67	39	177	101
Fairfield Inn by Marriott New York LaGuardia Airport	105	79	103	101
Fairfield Inn by Marriott New York LaGuardia Airport Astoria	94	71	92	90
Hampton Inn New York LaGuardia Airport	108	74	83	95
SpringHill Suites New York LaGuardia Airport	111	84	109	107

The Courtyard by Marriott New York LaGuardia Airport achieved the highest penetration rate within the commercial segment. The highest penetration rate in the meeting and group segment was achieved by the Sheraton LaGuardia East Flushing, while the Comfort Inn & Suites Airport Maspeth led the market with the highest leisure penetration rate.

Forecast of Subject Property's Occupancy

Because the supply and demand balance for the competitive market is dynamic, there is a circular relationship between the penetration factors of each hotel in the market. The performance of individual new hotels has a direct effect upon the aggregate performance of the market, and consequently upon the calculated penetration factor for each hotel in each market segment. The same is true when the performance of existing hotels changes, either positively (following a refurbishment, for example) or negatively (when a poorly maintained or marketed hotel loses market share).

A hotel's penetration factor is calculated as its achieved market share of demand divided by its fair share of demand. Thus, if one hotel's penetration performance increases, thereby increasing its achieved market share, this leaves less demand available in the market for the other hotels to capture and the penetration performance of one or more of those other hotels consequently declines (other things remaining equal). This type of market share adjustment takes place every time there is a change in supply, or a change in the relative penetration performance of one or more hotels in the competitive market.

Our projections of penetration, demand capture, and occupancy performance for the subject property account for these types of adjustments to market share within the defined competitive market. Consequently, the actual penetration factors applicable to the subject property and its competitors for each market segment in each projection year may vary somewhat from the penetration factors delineated in the previous tables.

These positioned segment penetration rates result in the following market segmentation forecast.

FIGURE 8-2 MARKET SEGMENTATION FORECAST – SUBJECT PROPERTY

	2018	2019	2020	2021	2022
Commercial	50 %	48 %	48 %	48 %	48 %
Meeting and Group	14	15	15	15	15
Leisure	36	37	37	37	37
Total	100 %	100 %	100 %	100 %	100 %

The proposed subject hotel's occupancy forecast is set forth as follows, with the adjusted projected penetration rates used as a basis for calculating the amount of captured market demand.

FIGURE 8-3 FORECAST OF SUBJECT PROPERTY'S OCCUPANCY

Market Segment	2018	2019	2020	2021	2022
Commercial					
Demand					
Market Share					
Capture					
Penetration					
Meeting and Group					
Demand					
Market Share					
Capture					
Penetration					
Leisure					
Demand					
Market Share					
Capture					
Penetration					
Total Room Nights Captured					
Available Room Nights					
Subject Occupancy					
Marketwide Available Room Nights					
Fair Share					
Marketwide Occupied Room Nights					
Market Share					
Marketwide Occupancy					
Total Penetration					

(b)(4)

The subject property is expected to feature an attractive, limited-service product with over 40 one-bedroom suites. This product type will appeal to family travelers, as well as airline crew. Given the subject site's easy access to public transportation system, it is also expected to accommodate leisure travelers visiting Manhattan. Given such, we expect the subject property to outperform its competitors in the leisure and group segments. Based on our analysis of the proposed subject hotel and market area, we have selected a stabilized occupancy level of 86%. The stabilized occupancy is intended to reflect the anticipated results of the property over its remaining economic life, given all changes in the life cycle of the hotel. Thus, the stabilized occupancy excludes from consideration any abnormal

relationship between supply and demand, as well as any nonrecurring conditions that may result in unusually high or low occupancies. Although the subject property may operate at occupancies above this stabilized level, we believe it equally possible for new competition and temporary economic downturns to force the occupancy below this selected point of stability.

Average Rate Analysis

One of the most important considerations in estimating the value of a lodging facility is a supportable forecast of its attainable average rate, which is more formally defined as the average rate per occupied room. Average rate can be calculated by dividing the total rooms revenue achieved during a specified period by the number of rooms sold during the same period. The projected average rate and the anticipated occupancy percentage are used to forecast rooms revenue, which in turn provides the basis for estimating most other income and expense categories.

Competitive Position

Although the average rate analysis presented here follows the occupancy projection, these two statistics are highly correlated; in reality, one cannot project occupancy without making specific assumptions regarding average rate. This relationship is best illustrated by revenue per available room (RevPAR), which reflects a property's ability to maximize rooms revenue. The following table summarizes the historical average rate and the RevPAR of the subject property's future primary competitors.

FIGURE 8-4 BASE-YEAR AVERAGE RATE AND REVPAR OF THE COMPETITORS

Property	(b)(4)	Estimated 2014 Average Room Rate	Average Room Rate Penetration	Rooms Revenue Per Available Room (RevPAR)	RevPAR Penetration

The defined competitive market realized an overall average rate of $162.46 in the 2014 base year, declining from the 2013 level of $163.59. The Marriott LaGuardia and Sheraton LaGuardia East achieved the highest estimated average rates in the local competitive market by virtue of their full-service product. The Courtyard LaGuardia and Hampton Inn also achieved above-market average rates due to their airport location and strong brand affiliations. The remaining properties are not located within the immediate airport area.

FIGURE 8-5 MARKET AND SUBJECT PROPERTY AVERAGE RATE FORECAST

	ea-wide Market (Calendar Ye		Subject Property (Calendar Year)		
Year	Average Rate Growth	Average Rate	Average Rate Growth	Average Rate	Average Rate Penetration
Base Year					
2015					
2016					
2017					
2018					
2019					
2020					

(b)(4)

Marketwide Average Rate Forecast

In the year-to-date period, average rate for the subject market increased by 0.9%; considering this data and seasonality factors, we expect average rate growth to reach 2.0% by year-end. Going forward, as occupancy is expected to remain heightened, average rate is projected to increase by 2.5% in 2015, accelerating to 3.5% each in 2017 and 2018 as new supply aggressively establish their presence in the market. Beginning in 2019, average rate is projected to increase at the underlying rate of inflation (3.0%).

Subject Property Average Rate Positioning and Forecast

The proposed 135-room subject property is a limited-service hotel featuring complimentary breakfast, fitness center, business center, market pantry, and an outdoor terrace. When compared to the other hotels in the competitive set, the proposed subject hotel is located relatively far from the airport - approximately four miles southwest of the airport and a ten-minute drive under normal traffic condition. Nevertheless, over 40 of the proposed subject hotels' guestrooms will feature suite-style rooms, including fully equipped kitchens. These suites will appeal to family travelers, airline crew, and extended-stay guests. In addition, the

subject site offers convenient access to Manhattan via the public transportation system, and is therefore expected to attract leisure travelers visiting Manhattan. Considering the proposed hotel's product-type and location, we have positioned the proposed Holiday Inn Express at $150.00 in the base year (2014). This rate positioning is comparable with the other limited-service hotels that are not located within the immediate airport area. For instance, the Holiday Inn Express LaGuardia achieved an average rate of $154 in the base year, benefitting from its small room inventory and proximity to major tourist attractions in Queens - Citi Field and USTA Billie Jean King National Tennis Center. The Fairfield Inn LaGuardia Airport and Fairfield Inn Astoria both achieved average rates in the $150 range by virtue of their strong brand affiliation. The positioned average rate results in an average rate penetration of 92.3%, which is appropriate given the hotel's limited-service profile and location. Thereafter, average rate for the proposed hotel is forecast to change in tandem with the growth rates previously forecast for the overall competitive market.

The following occupancies and average rates will be used to project the subject property's rooms revenue; this forecast reflects years beginning on March 1, 2018, which correspond with our financial projections.

FIGURE 8-6 FORECAST OF OCCUPANCY, AVERAGE RATE, AND REVPAR

Year	Occupancy	Average Rate	RevPAR
2018/19			
2019/20			
Stabilized			

(b)(4)

9. Highest and Best Use

The concept of highest and best use is a fundamental element in the determination of value of real property, either as if vacant or as improved. Highest and best use is defined as follows:

> The reasonably probable and legal use of vacant land or an improved property that is physically possible, appropriately supported, financially feasible, and that results in the highest value. The four criteria the highest and best use must meet are legal permissibility, physical possibility, financial feasibility, and maximum productivity. Alternatively, the probable use of land or improved property—specific with respect to the user and timing of the use—that is adequately supported and results in the highest present value.[12]

The concept of highest and best use is the premise upon which value is based and is a product of competitive forces in the marketplace. The principle of balance holds that real property value is created and sustained when contrasting, opposing, or interacting elements are in a state of equilibrium. This principle applies to relationships among various property components as well as the relationship between the costs of production and the property's productivity. The point of economic balance is achieved when the combination of land and building is optimal (i.e., when no marginal benefit or utility is achieved by adding another unit of capital). The law of increasing returns holds that larger amounts of the agents of production produce greater net income up to a certain point, after which the law of diminishing returns is applied.

As if Vacant

Land value is derived from potential use rather than actual use. The highest and best use is that which generates the greatest return to the land. An analysis as to the highest and best use of the land should be made first and may be influenced by many factors. In estimating highest and best use, there are four stages of analysis:

1. Legally permissible use. What uses are permitted by zoning, deed restrictions, lease encumbrances, or any other legally binding codes, restrictions, or interests?

[12] Appraisal Institute. The Dictionary of Real Estate Appraisal, 5th ed. (Chicago: Appraisal Institute, 2010).

As detailed in the zoning section of this report, the subject site is located in a commercially zoned district that allows for hotel, office, and retail uses, among other uses.

2. Physically possible use. What uses of the site are physically possible?

   The subject site is large enough to support most smaller-scale commercial developments, certainly a hotel, office, or strip retail development, as defined under the permitted legal uses. The topography is appropriate and access is adequate for these types of developments.

3. Financially feasible use. Which possible and permissible uses will produce a net return to the owner of the site?

   Given the attributes of the site, uses that would be financially feasible include retail and hotel.

4. Maximally productive use. Among the feasible uses, which use will produce the highest net return or the highest present worth?

   Given the attributes of the site and the multi-story capability of hotel use, the maximally productive use would be for a hotel.

As if Vacant Conclusion

In consideration of the foregoing factors influencing development in the immediate area, it is our opinion that the highest and best use of the subject site, as if vacant, would be for the development of a limited-service lodging facility.

Ideal Improvement

The ideal improvement for the subject site is a limited-service lodging facility that offers the appropriate amenities to operate competitively in this market.

As Improved

After determining the highest and best use of the land and the ideal improvement, an analysis should be made regarding the differences between the current improvements and the ideal improvement. These differences then form the basis for estimating deterioration and obsolescence in this report.

It is our opinion that the subject improvements be constructed in order to allow the site to conform to its ideal improvement.

10. Approaches to Value

In appraising real estate for market value, three approaches to value are considered: income capitalization, cost, and sales comparison. Basic summaries of each approach are provided as follows; please refer to the introduction of each respective chapter for additional description.

Income Capitalization Approach

The income capitalization approach analyzes a property's ability to generate financial returns as an investment. The appraisal estimates a property's operating cash flow, and the result is utilized in a direct capitalization technique and a discounted-cash-flow analysis. The income capitalization approach is often selected as the preferred valuation method for operating properties because it most closely reflects the investment rationale of knowledgeable buyers.

Sales Comparison Approach

The sales comparison approach estimates the value of a property by comparing it to similar properties sold on the open market. To obtain a supportable estimate of value, the sales price of a comparable property must be adjusted to reflect any dissimilarity between it and the property being appraised. The sales comparison approach is most useful in the case of simple forms of real estate such as vacant land and single-family homes, where the properties are homogeneous and the adjustments are few and relatively simple to compute. In the case of complex investments such as hotels, where the adjustments are numerous and more difficult to quantify, the sales comparison approach loses much of its reliability.

Cost Approach

The cost approach estimates market value by computing the current cost of replacing the property and subtracting any depreciation resulting from deterioration and obsolescence. The value of the land is then added to the depreciated value.

The cost approach is most reliable for estimating the value of new properties; therefore, this approach is particularly applicable for this project given its proposed nature.

Reconciliation

The final step in the valuation process is the reconciliation and correlation of the value indications. Factors that are considered in assessing the reliability of each approach include the purpose of the appraisal, the nature of the subject property, and the reliability of the data used. In the reconciliation, the applicability and supportability of each approach are considered and the range of value indications is examined. The most significant weight is given to the approach that produces the most reliable solution and most closely reflects the criteria used by typical

investors. Moreover, given the proposed nature of this project, the cost approach is also highly applicable.

HVS

11. Income Capitalization Approach

The income capitalization approach is based on the principle that the value of a property is indicated by its net return, or what is known as the present worth of future benefits. The future benefits of income-producing properties, such as hotels, are net income before debt service and depreciation (as estimated by a forecast of income and expense) and any anticipated reversionary proceeds from a sale. These future benefits can be converted into an indication of market value through a capitalization process and discounted cash flow analysis.

Methodology

Using the income capitalization approach, the proposed subject hotel has been valued by analyzing the local market for transient accommodations, examining future competition, and developing a forecast of income and expense that reflects anticipated income trends and cost components through a stabilized year of operation.

The forecast of income and expense is expressed in current dollars for each year. The stabilized year is intended to reflect the anticipated operating results of the property over its remaining economic life, given any or all applicable stages of build-up, plateau, and decline in the life cycle of the hotel. Thus, income and expense estimates from the stabilized year forward exclude from consideration any abnormal relationship between supply and demand, as well as any nonrecurring conditions that may result in unusual revenues or expenses. The stabilized year's net income is then extended into an eleven-year forecast of income and expense by applying the assumed underlying inflation rate to each revenue and expense item from the stabilized year forward, unless otherwise noted.

The eleven-year forecast of net income forms the basis of a mortgage-equity and discounted-cash-flow analysis, where ten years of net income and a reversion derived from the capitalized eleventh year's net income are discounted back to the date of value and summed to derive an estimate of market value. The ten-year period reflects the typical holding period of large real estate assets such as hotels. In addition, the ten-year period provides for the stabilization of income streams and comparison of yields with alternate types of real estate. The forecasted income streams reflect the future benefits of owning specific rights in income-producing real estate.

Because the value is unknown but the loan-to-value ratio and market rates of return can be estimated, the value is computed by way of a linear algebraic equation. The algebraic equation that solves for the total property value using a ten-year mortgage-equity technique was developed by Suzanne R. Mellen, CRE, MAI, FRICS, ISHC, Senior Managing Director of the San Francisco office of HVS. A complete discussion of the technique is presented in her article entitled "Simultaneous Valuation: A New Technique."[13]

Comparable Operating Statements

In order to project future income and expense for the Proposed Holiday Inn Express & Suites Woodside, we have included a sample of individual comparable operating statements from our database of hotel statistics. All financial data are presented according to the three most common measures of industry performance: ratio to sales (RTS), amounts per available room (PAR), and amounts per occupied room night (POR). These historical income and expense statements will be used as benchmarks in our forthcoming forecast of income and expense.

[13] Suzanne Mellen, "Simultaneous Valuation: A New Technique," *Appraisal Journal* April (1985).

FIGURE 11-1 COMPARABLE OPERATING STATEMENTS: RATIO TO SALES

	Subject	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Subject
Days Open:							
Occupancy:							
Average Rate:							
RevPAR:							
REVENUE							
Rooms							
Other Operated Departments							
Rentals & Other Income							
Total							
DEPARTMENTAL EXPENSES*							
Rooms							
Other Operated Departments							
Total							
DEPARTMENTAL INCOME							
OPERATING EXPENSES							
Administrative & General							
Marketing							
Franchise Fee							
Property Operations & Maintenance							
Utilities							
Total							
HOUSE PROFIT							
Management Fee							
INCOME BEFORE FIXED CHARGES							

(b)(4)

* Departmental expense ratios are expressed as a percentage of departmental revenues

FIGURE 11-2 COMPARABLE OPERATING STATEMENTS: AMOUNTS PER AVAILABLE ROOM

(b)(4)

	Subject	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Subject
Days Open:							
Occupancy:							
Average Rate:							
RevPAR:							
REVENUE							
Rooms							
Other Operated Departments							
Rentals & Other Income							
Total							
DEPARTMENTAL EXPENSES							
Rooms							
Other Operated Departments							
Total							
DEPARTMENTAL INCOME							
OPERATING EXPENSES							
Administrative & General							
Marketing							
Franchise Fee							
Property Operations & Maintenance							
Utilities							
Total							
HOUSE PROFIT							
Management Fee							
INCOME BEFORE FIXED CHARGES							

FIGURE 11-3 COMPARABLE OPERATING STATEMENTS: AMOUNTS PER OCCUPIED ROOM

	Subject	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Subject
(b)(4)							
Days Open:							
Occupancy:							
Average Rate:							
RevPAR:							
REVENUE							
Rooms							
Other Operated Departments							
Rentals & Other Income							
Total							
DEPARTMENTAL EXPENSES							
Rooms							
Other Operated Departments							
Total							
DEPARTMENTAL INCOME							
OPERATING EXPENSES							
Administrative & General							
Marketing							
Franchise Fee							
Property Operations & Maintenance							
Utilities							
Total							
HOUSE PROFIT							
Management Fee							
INCOME BEFORE FIXED CHARGES							

Fixed and Variable Component Analysis

HVS uses a fixed and variable component model to project a lodging facility's revenue and expense levels. This model is based on the premise that hotel revenues and expenses have one component that is fixed and another that varies directly with occupancy and facility usage. A projection can be made by taking a known level of revenue or expense and calculating its fixed and variable components. The fixed component is then increased in tandem with the underlying rate of inflation, while the variable component is adjusted for a specific measure of volume such as total revenue.

The actual forecast is derived by adjusting each year's revenue and expense by the amount fixed (the fixed expense multiplied by the inflated base-year amount) plus the variable amount (the variable expense multiplied by the inflated base-year amount) multiplied by the ratio of the projection year's occupancy to the base-year occupancy (in the case of departmental revenue and expense) or the ratio of the projection year's revenue to the base year's revenue (in the case of undistributed

operating expenses). Fixed expenses remain fixed, increasing only with inflation. Our discussion of the revenue and expense forecast in this report is based upon the output derived from the fixed and variable model. This forecast of revenue and expense is accomplished through a systematic approach, following the format of the *Uniform System of Accounts for the Lodging Industry*. Each category of revenue and expense is estimated separately and combined at the end in the final statement of income and expense.

Inflation Assumption

A general rate of inflation must be established that will be applied to most revenue and expense categories. The following table shows inflation estimates made by economists at some noted institutions and corporations.

FIGURE 11-4 INFLATION ESTIMATES

Name	Firm	Projected Increase in Consumer Price Index (Annualized Rate Versus 12 Months Earlier) Dec 2014	June 2015	Dec 2015	June 2016	Dec 2016
Lewis Alexander	Nomura Securities International	1.3 %	0.7 %	1.8 %	2.3	2.3
Paul Ashworth	Capital Economics	1.4	1.0	2.0	2.4 %	2.5 %
Ram Bhagavatula	Combinatorics Capital	1.5	2.2	2.4	2.4	2.5
Beth Ann Bovino	Standard and Poor's	1.6	1.4	1.9	1.7	1.8
Michael Carey	Credit Agricole CIB	1.4	1.1	1.8	1.7	2.0
Joseph Carson	AllianceBernstein	1.4	1.5	2.2	2.5	3.0
Julia Coronado	BNP Paribas	1.0	0.3	1.9	2.2	2.2
Mike Cosgrove	Econoclast	1.5	1.8	2.0	2.2	2.3
Lou Crandall	Wrightson ICAP	1.1	0.8	2.7	2.8	2.5
J. Dewey Daane	Vanderbilt University	1.8	2.0	2.0	2.0	2.0
Douglas Duncan	Fannie Mae	1.4	0.8	1.6	2.0	2.0
Robert Dye	Comerica Bank	1.1	0.4	1.9	2.3	2.0
Maria Fiorini Ramirez/Joshua Shapiro	MFR, Inc.	1.6	1.4	2.1	—	—
Mike Fratantoni	Mortgage Bankers Association	1.6	1.9	2.0	2.2	2.5
Doug Handler	IHS Global Insight	0.8	(0.4)	1.1	2.2	2.4
Ethan Harris	Bank of America Securities- Merrill Lynch	1.3	0.4	1.7	—	2.3
Maury Harris	UBS	1.4	0.3	1.6	2.4	2.5
Tracy Herrick	Avidbank	1.5	2.0	2.4	2.9	3.2
Jack Kleinhenz	National Retail Federation	1.4	1.5	2.0	2.1	2.2
Joseph LaVorgna	Deutsche Bank Securities, Inc.	1.4	0.8	1.8	2.2	2.1
Edward Leamer/David Shulman	UCLA Anderson Forecast	1.4	0.8	1.8	2.3	2.5
Don Leavens/Tim Gill	NEMA Business Information Services	1.6	1.3	1.5	1.9	1.9
John Lonski	Moody's Investors Service	1.2	1.0	1.8	1.8	1.8
Aneta Markowska	Societe Generale	1.0	(0.7)	1.2	2.6	2.5
Robert Mellman	JP Morgan Chase & Co.	1.3	0.6	1.6	2.0	2.0
Mark Nielson	MacroEcon Global Advisors	—	—	—	2.6	2.8
Jim O'Sullivan	High Frequency Economics	1.3	1.1	2.2	2.5	2.6
Dr. Joel Prakken/ Chris Varvares	Macroeconomic Advisers	1.7	1.4	1.3	1.8	2.1
Arun Raha	Eaton Corp.	1.7	1.8	1.8	2.0	2.0
Vincent Reinhart	Morgan Stanley	1.4	1.0	1.8	2.3	2.2
Ian Shepherdson	Pantheon Macroeconomics	1.2	0.7	2.0	2.0	2.5
John Silvia	Wells Fargo & Co.	1.6	1.3	2.2	2.4	2.4
Allen Sinai	Decision Economics, Inc.	1.4	1.2	1.1	1.3	1.5
James F. Smith	Parsec Financial Management	1.4	1.6	1.8	1.7	1.4
Sean M. Snaith	University of Central Florida	1.6	1.2	1.4	1.6	1.8
Sung Won Sohn	California State University	1.3	1.5	1.6	1.7	1.8
Neal Soss	CSFB	1.4	0.4	1.4	—	—
Stephen Stanley	Pierpont Securities	1.2	1.0	2.5	3.0	3.2
Susan M. Sterne	Economic Analysis Associates Inc.	2.0	1.6	1.7	1.8	1.5
Diane Swonk	Mesirow Financial	1.3	0.8	1.7	2.2	2.3
Carl Tannenbaum	The Northern Trust	1.6	1.2	2.0	2.2	2.3
Bart van Ark	The Conference Board	1.4	1.0	1.7	2.0	2.0
Brian S. Wesbury/ Robert Stein	First Trust Advisors, L.P.	1.5	1.5	2.4	2.6	2.8
William T. Wilson	The Heritage Foundation	2.0	1.8	2.0	2.2	2.3
Lawrence Yun	National Association of Realtors	1.4	2.8	3.1	3.3	3.5
	Averages:	1.4 %	1.1 %	1.9 %	2.2 %	2.3 %

Source: wsj.com, January 7, 2015

As the preceding table indicates, the financial analysts who were surveyed in June 2015 anticipated inflation rates ranging from -0.1% to 2.8% (on an annualized basis) for December 2015; the average of these data points was 1.1%. The same group expects annualized inflation rates of 1.9% and 2.1% for June 2016 and December 2016, respectively, slightly lower than the inflation rate forecasts for June 2017, which average 2.2%.

As a further check on these inflation projections, we have reviewed historical increases in the Consumer Price Index (CPI-U). Because the value of real estate is predicated on cash flows over a relatively long period, inflation should be considered from a long-term perspective.

FIGURE 11-5 NATIONAL CONSUMER PRICE INDEX (ALL URBAN CONSUMERS)

Year	National Consumer Price Index	Percent Change from Previous Year
2004	188.9	—
2005	195.3	3.4 %
2006	201.6	3.2
2007	207.3	2.8
2008	215.3	3.8
2009	214.5	-0.4
2010	218.1	1.6
2011	224.9	3.1
2012	229.6	2.1
2013	233.0	1.5
2014	234.8	0.8
Average Annual Compounded Change		
2004 - 2014:		2.2 %
2009 - 2014:		1.8

Source: Bureau of Labor Statistics

Between 2004 and 2014, the national CPI increased at an average annual compounded rate of 2.2%; from 2009 to 2014, the CPI rose by a slightly lower average annual compounded rate of 1.8%. In 2014, the CPI rose by 0.8%, a decrease from the level of 1.5% recorded in 2013.

In consideration of the most recent trends, the projections set forth previously, and our assessment of probable property appreciation levels, we have applied underlying inflation rates of 3.0%, 3.0%, and 3.0% thereafter for each respective year following the base year of 2014. This stabilized inflation rate takes into account normal, recurring inflation cycles. Inflation is likely to fluctuate above and

below this level during the projection period. Any exceptions to the application of the assumed underlying inflation rate are discussed in our write-up of individual income and expense items.

Base-Year Statement of Income and Expense

Based on our review of the operating statements of comparable properties, we have formulated a base-year statement of income and expense for the proposed subject property, expressed in 2014 dollars. The base-year statement, which is set forth in the following table, will be used to determine the relationship between the fixed and variable components.

(b)(4)

FIGURE 11-6 BASE-YEAR STATEMENT OF INCOME AND EXPENSE

Calendar Year Ending:	
Number of Rooms:	
Occupancy:	
Average Rate:	
Occupied Rooms:	
Revenue:	
Rooms	
Miscellaneous Income	
Total Revenue	
Expenses:	
Rooms*	
Administrative & General	
Marketing	
Franchise Fee	
Prop. Operations & Maint.	
Utilities	
Management Fee	
Property Taxes	
Insurance	
Reserve for Replacement	
Total Expenses	
Net Income	

* Departmental expense ratios are expressed as a percentage of departmental revenues.

Summary of Projections

Based on an analysis that will be detailed throughout this section, we have formulated a forecast of income and expense. The following table presents a detailed forecast through the fifth projection year, including amounts per available room and per occupied room. The second table illustrates our ten-year forecast of income and expense, presented with a lesser degree of detail. The forecasts pertain to years that begin on March 1, 2018, expressed in inflated dollars for each year.

FIGURE 11-7 DETAILED FORECAST OF INCOME AND EXPENSE

(b)(4)

Number of Rooms:
Occupancy:
Average Rate:
RevPAR:
Days Open:
Occupied Rooms:
OPERATING REVENUE
Rooms
Miscellaneous Income
Total Operating Revenues
DEPARTMENTAL EXPENSES *
Rooms
Total
DEPARTMENTAL INCOME
UNDISTRIBUTED OPERATING EXPENSES
Administrative & General
Marketing
Franchise Fee
Prop. Operations & Maint.
Utilities
Total
GROSS HOUSE PROFIT
Management Fee
INCOME BEFORE NON-OPER. INC. & EXP.
NON-OPERATING INCOME AND EXPENSE
Property Taxes
Insurance
Reserve for Replacement
Total
EBITDA LESS RESERVE

*Departmental expenses are expressed as a percentage of departmental revenues.

FIGURE 11-8 TEN-YEAR FORECAST OF INCOME AND EXPENSE

(b)(4)

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Number of Rooms:										
Occupied Rooms:										
Occupancy:										
Average Rate:										
RevPAR:										
OPERATING REVENUE										
Rooms										
Miscellaneous Income										
Total Operating Revenue										
DEPARTMENTAL EXPENSES*										
Rooms										
Total										
DEPARTMENTAL INCOME										
UNDISTRIBUTED OPERATING EXPENSES										
Administrative & General										
Marketing										
Franchise Fee										
Prop. Operations & Maint.										
Utilities										
Total										
GROSS HOUSE PROFIT										
Management Fee										
INCOME BEFORE NON-OPER. INC. & EXP.										
NON-OPERATING INCOME AND EXPENSE										
Property Taxes										
Insurance										
Reserve for Replacement										
Total										
EBITDA LESS RESERVE										

*Departmental expenses are expressed as a percentage of departmental revenues.

Forecast of Income and Expense

The following description sets forth the basis for the forecast of income and expense. We anticipate that it will take three years for the subject property to reach a stabilized level of operation. Each revenue and expense item has been forecast based upon our review of the subject property's operating budget and comparable income and expense statements. The forecast is based upon fiscal years beginning March 1, 2018, expressed in inflated dollars for each year.

Rooms Revenue

Rooms revenue is determined by two variables: occupancy and average rate. We projected occupancy and average rate in a previous section of this report. The proposed subject hotel is expected to stabilize at an occupancy level of 86% with an average rate of $179.09 in 2020/21. Following the stabilized year, the subject property's average rate is projected to increase along with the underlying rate of inflation.

Miscellaneous Revenue

The proposed subject hotel's miscellaneous income comprises of telephone charges and other miscellaneous guest services and commissions. In the base year, net other revenue for the proposed subject property is projected at $1.00 per occupied room, net of expenses, based on the operating statement of the most appropriate comparable property. Changes in this revenue item through the projection period result from the application of the underlying inflation rate and projected changes in occupancy.

Rooms Expense

Rooms expense consists of items related to the sale and upkeep of guestrooms and public space. Salaries, wages, and employee benefits account for a substantial portion of this category. Although payroll varies somewhat with occupancy and managers can generally scale the level of service staff on hand to meet an expected occupancy level, much of a hotel's payroll is fixed. A base level of front desk personnel, housekeepers, and supervisors must be maintained at all times. As a result, salaries, wages, and employee benefits are only moderately sensitive to changes in occupancy.

Commissions and reservations are usually based on room sales, and thus are highly sensitive to changes in occupancy and average rate. While guest supplies vary 100% with occupancy, linens and other operating expenses are only slightly affected by volume.

In the base year, the proposed hotel's rooms expense has been projected at $39.00 per occupied room, based on the operating statements of comparable properties. Changes in this expense item through the projection period result from the application of the underlying inflation rate and projected changes in occupancy.

Administrative and General Expense

Administrative and general expense includes the salaries and wages of all administrative personnel who are not directly associated with a particular department. Expense items related to the management and operation of the property are also allocated to this category.

Most administrative and general expenses are relatively fixed. The exceptions are cash overages and shortages; commissions on credit card charges; provision for doubtful accounts, which are moderately affected by the number of transactions or total revenue; and salaries, wages, and benefits, which are very slightly influenced by volume. (b)(4)

In the base year, administrative and general expense for the proposed subject property is projected at [redacted] per available room, based on the operating statement of the most appropriate comparable property. Changes in this expense item through the projection period result from the application of the underlying inflation rate and projected changes in occupancy.

Marketing Expense

Marketing expense consists of all costs associated with advertising, sales, and promotion; these activities are intended to attract and retain customers. Marketing can be used to create an image, develop customer awareness, and stimulate patronage of a property's various facilities.

The marketing category is unique in that all expense items, with the exception of fees and commissions, are totally controlled by management. Most hotel operators establish an annual marketing budget that sets forth all planned expenditures. If the budget is followed, total marketing expenses can be projected accurately.

Marketing expenditures are unusual because although there is a lag period before results are realized, the benefits are often extended over a long period. Depending on the type and scope of the advertising and promotion program implemented, the lag time can be as short as a few weeks or as long as several years. However, the favorable results of an effective marketing campaign tend to linger, and a property often enjoys the benefits of concentrated sales efforts for many months.

(b)(4)

In the base year, marketing expense for the proposed subject property has been projected at [redacted] per available room, based on the operating statement of the most appropriate comparable property. Changes in this expense item through the projection period result from the application of the underlying inflation rate and projected changes in occupancy.

Franchise Fee

As previously discussed, the subject is expected to be franchised under the Holiday Inn Express brand. Costs associated with this franchise are summarized in the introductory chapter in this report.

Property Operations and Maintenance

Property operations and maintenance expense is another expense category that is largely controlled by management. Except for repairs that are necessary to keep the facility open and prevent damage (e.g., plumbing, heating, and electrical items), most maintenance can be deferred for varying lengths of time.

Maintenance is an accumulating expense. If management elects to postpone performing a required repair, they have not eliminated or saved the expenditure; they have only deferred payment until a later date. A lodging facility that operates with a lower-than-normal maintenance budget is likely to accumulate a considerable amount of deferred maintenance.

The age of a lodging facility has a strong influence on the required level of maintenance. A new or thoroughly renovated property is protected for several years by modern equipment and manufacturers' warranties. However, as a hostelry grows older, maintenance expenses escalate. A well-organized preventive maintenance system often helps delay deterioration, but most facilities face higher property operations and maintenance costs each year, regardless of the occupancy trend. The quality of initial construction can also have a direct impact on future maintenance requirements. The use of high-quality building materials and construction methods generally reduces the need for maintenance expenditures over the long term.

(b)(4)

In the base year, property operations and maintenance expense for the proposed subject property is projected at [redacted] per available room, based on the operating statement of the most appropriate comparable property. In light of the new facilities available at the proposed subject property upon opening, we have applied

(b)(4) a [redacted] discount to property operations and maintenance expense in the first three projection years. Changes in this expense item throughout the projection period result from the application of the underlying inflation rate.

Utilities Expense

The utilities consumption of a lodging facility takes several forms, including water and space heating, air conditioning, lighting, cooking fuel, and other miscellaneous power requirements. The most common sources of hotel utilities are electricity, natural gas, fuel oil, and steam. This category also includes the cost of water service.

Total energy cost depends on the source and quantity of fuel used. Electricity tends to be the most expensive source, followed by oil and gas. Although all hotels consume a sizable amount of electricity, many properties supplement their utility requirements with less expensive sources, such as gas and oil, for heating and cooking.

(b)(4)

In the base year, utilities expense for the proposed subject property has been projected at [redacted] per available room, based on the operating statement of the most appropriate comparable property. Changes in this expense item through the projection period result from the application of the underlying inflation rate and projected changes in occupancy.

Management Fee

Management expense consists of the fees paid to the managing agent contracted to operate the property. Some companies provide management services and a brand-name affiliation (first-tier management company), while others provide management services alone (second-tier management company). Some management contracts specify only a base fee (usually a percentage of total revenue), while others call for both a base fee and an incentive fee (usually a percentage of defined profit). Basic hotel management fees are often based on a percentage of total revenue, which means they have no fixed component. While base fees typically range from 2% to 4% of total revenue, incentive fees are deal specific and often are calculated as a percentage of income available after debt service and, in some cases, after a preferred return on equity. Total management fees for the proposed subject hotel have been forecast at 3.0% of total revenue.

Property Taxes

Property (or ad valorem) tax is one of the primary revenue sources of municipalities. Based on the concept that the tax burden should be distributed in proportion to the value of all properties within a taxing jurisdiction, a system of assessments is established. Theoretically, the assessed value placed on each parcel bears a definite relationship to market value, so properties with equal market values will have similar assessments, and properties with higher and lower values will have proportionately larger and smaller assessments. Depending on the taxing policy of the municipality, property taxes can be based on the value of the real property or the value of the personal property and the real property.

The taxing jurisdiction governing the subject property assesses only real property. Within the City of New York, real property taxes are levied on fiscal years that begin on July 1 and end on June 30. Land and improvements are assessed at 45% of market value for Class 4 buildings, such as lodging facilities.

Commercial properties in New York City maintain two assessed values in any given tax year: target and transitional. The use of the two assessed values was instituted as a result of the significant tax increases that occurred historically in the City of New York. The target value is that value level which a property is ultimately determined to achieve, while the transitional value phases in the difference from the original to the target value over a five-year period. For example, if a property's assessment is increased by $100,000 in one year, the target assessment would increase by $100,000, while the transitional assessment would increase by $20,000 for each of the next five years. During any taxable year,

a property is taxed on the lesser of the two assessments. It is important to note, however, that assessment increases resulting from a major renovation project or ground-up construction (such as the subject development) are not subject to a five-year phase-in.

The following details the site's assessment history.

FIGURE 11-9 SUBJECT SITE'S ASSESSMENT HISTORY

Block: 2325
Lot: 26

	Transitional Assessment			Target Assessment				
Tax Year	Land	Improvements	Total	Land	Improvements	Total	Change	
2009/10								(b)(4)
2010/11								
2011/12								
2012/13								
2013/14								
2014/15								
2015/16	Merged with Lot 32							

Block: 2325
Lot: 30

	Transitional Assessment			Target Assessment				
Tax Year	Land	Improvements	Total	Land	Improvements	Total	Change	
2009/10								(b)(4)
2010/11								
2011/12								
2012/13								
2013/14								
2014/15								
2015/16	Merged with Lot 32							

Block: 2325
Lot: 32

	Transitional Assessment			Target Assessment				
Tax Year	Land	Improvements	Total	Land	Improvements	Total	Change	
2009/10								(b)(4)
2010/11								
2011/12								
2012/13								
2013/14								
2014/15								
2015/16								

Source: New York Board of Real Estate

Tax Rates

Tax rates are based on the city and county budgets, which change annually. The following table shows changes in the tax rate per $100 of assessed value from 1996/97 through 2015/16.

FIGURE 11-10 HISTORICAL TAX RATES

Year	Tax Rate per $100 of Assessment	Percent Change from Previous Year
1996/97	$10.252	–
1997/98	10.164	(0.9) %
1998/99	10.236	0.7
1999/00	9.989	(2.4)
2000/01	9.768	(2.2)
2001/02	9.712	(0.6)
2002/03	10.678	9.9
2003/04	11.431	7.1
2004/05	11.558	1.1
2005/06	11.306	(2.2)
2006/07	10.997	(2.7)
2007/08	10.059	(8.5)
2008/09	10.241	1.8
2009/10	10.426	1.8
2010/11	10.312	(1.1)
2011/12	10.152	(1.6)
2012/13	10.288	1.3
2013/14	10.323	0.3
2014/15	10.684	3.5
2015/16	10.656	(0.3)
Average Annual Compounded Change,		
1996/97 - 2015/16:		0.2 %
2000/01 - 2015/16:		0.6

For the purposes of our analysis, we have assumed that the tax rate will increase at an average annual compounded rate of 1.0% throughout the projection period.

ICAP Tax Abatement

The subject site is located in a "Special Area" of Queens that is expected to enable it to qualify and benefit from a property tax abatement under the Industrial and Commercial Abatement Program (ICAP). This program provides partial exemption from, or abatement of, property taxes for varying periods for eligible industrial

and commercial buildings that are built, modernized, rehabilitated, expanded, or otherwise physically improved under the ICAP geographical boundaries. Accordingly, the proposed subject property is anticipated to be exempt from any increases in assessed value resulting from construction of the hotel for a period of twenty-five years.

The hotel is expected to be only taxed on the land assessment for 16 years. Thereafter, the improvement assessment abatement will be phased-out by 10% per annum from years 17 through 25. Thus, the property tax burden will encompass the full tax assessment in year 26 of operation. For the purposes of this appraisal, we have applied upward adjustments to the target land value between 2016/17 and 2019/20 tax years, in recognition of the construction of the hotel and the ramping-up of hotel operation. Beginning in 2020/21, the target land value is forecast to increase by 2.0% per annum.

Note that the absence of such a property tax abatement or any deviation from the anticipated duration of the property tax exemption period will have a significant impact on the proposed subject hotel's estimated market value. Hence, our analysis is explicitly predicated on the extraordinary assumption that proposed subject hotel will qualify for the Industrial and Commercial (property tax) Abatement Program (ICAP) for the typical duration for a commercial project in a "special commercial area" - 25 years.

Property Tax Forecast

Based on the comparable assessment, anticipated ICAP abatement, and the tax rate information, the subject property's projected property tax expense levels are calculated as follows. We have applied upward adjustments to the land assessment in anticipation of the completion and opening of the subject property.

FIGURE 11-11 PROJECTED PROPERTY TAX EXPENSE

Year *	Growth Rate	Transitional Land Assessment	Target Land Assessment	Taxable Value	Tax Rate	Property Tax
2009/10						
2010/11						
2011/12						
2012/13						
2013/14						
2014/15						
2015/16						
2016/17						
2017/18						
2018/19						
2019/20						
2020/21						
2021/22						
2022/23						
2023/24						
2024/25						
2025/26						
2026/27						
2027/28						

(b)(4)

*Tax year begins July 1

**Projection year begins March 1

Insurance Expense

The insurance expense category consists of the cost of insuring the hotel and its contents against damage or destruction by fire, weather, sprinkler leakage, boiler explosion, plate glass breakage, and so forth. General insurance costs also include premiums relating to liability, fidelity, and theft coverage. Insurance rates are based on many factors, including building design and construction, fire detection and extinguishing equipment, fire district, distance from the firehouse, and the area's fire experience. Insurance expenses do not vary with occupancy.

Based upon the comparable data and the structural attributes of the proposed subject hotel, we project the proposed subject hotel's insurance expense at $600 per available room by the stabilized year (positioned at $500 on a per-available-room basis in base-year dollars). This forecast equates to 1.1% of total revenue on a stabilized basis. In subsequent years, this amount is assumed to increase in tandem with inflation.

Reserve for Replacement

Furniture, fixtures, and equipment are essential to the operation of a lodging facility, and their quality often influences a property's class. This category includes all non-real estate items that are capitalized, rather than expensed. The furniture, fixtures, and equipment of a hotel are exposed to heavy use and must be replaced

at regular intervals. The useful life of these items is determined by their quality, durability, and the amount of guest traffic and use.

Periodic replacement of furniture, fixtures, and equipment is essential to maintain the quality, image, and income-producing potential of a lodging facility. Because capitalized expenditures are not included in the operating statement but affect an owner's cash flow, a forecast of income and expense should reflect these expenses in the form of an appropriate reserve for replacement.

The International Society of Hospitality Consultants (ISHC) undertook a major industry-sponsored study of the capital expenditure requirements for full-service/luxury, select-service, and extended-stay hotels. The most recent findings of the study were published in a report in 2007.[14] Historical capital expenditures of well-maintained hotels were investigated through the compilation of data provided by most of the major hotel companies in the United States. A prospective analysis of future capital expenditure requirements was also performed based upon the cost to replace short- and long-lived building components over a hotel's economic life. The study showed that the capital expenditure requirements for hotels vary significantly from year to year and depend upon both the actual and effective ages of a property. The results of this study showed that hotel lenders and investors are requiring reserves for replacement ranging from 4% to 5% of total revenue.

For the purpose of this analysis, we have assumed that the hotel will be maintained in a competitive condition over its economic life. We have further assumed that the related, necessary capital expenditures will be funded by annual reserves for replacement. An amount equal to 2.0% and 3.0% of annual gross revenue have been deducted from our forecast of income and expense in the first and second projection years, respectively; thereafter, we have deducted an amount equal to 4.0% of annual gross revenue throughout our projection period, in recognition of the ongoing cost of maintaining the facilities.

INCOME CAPITALIZATION

The subject property upon completion has been valued via the income approach through the application of a ten-year mortgage-equity technique and a discounted-cash-flow analysis. The conversion of the subject property's forecasted EBITDA Less Replacement Reserve into an estimate of value was based on the premise that investors typically leverage their real estate investments to enhance their equity yield. Typically, the majority of a transaction is capitalized with mortgage financing (50% to 80%), with equity comprising the balance (20% to 50%). The

[14] The International Society of Hotel Consultants, Can$ 2007: A Study of Capital Expenditures in the U.S. Hotel Industry.

amounts and terms of available mortgage financing and the rates of return that are required to attract sufficient equity capital formed the basis for allocating the net income between the mortgage and equity components and deriving a value estimate.

Mortgage Component

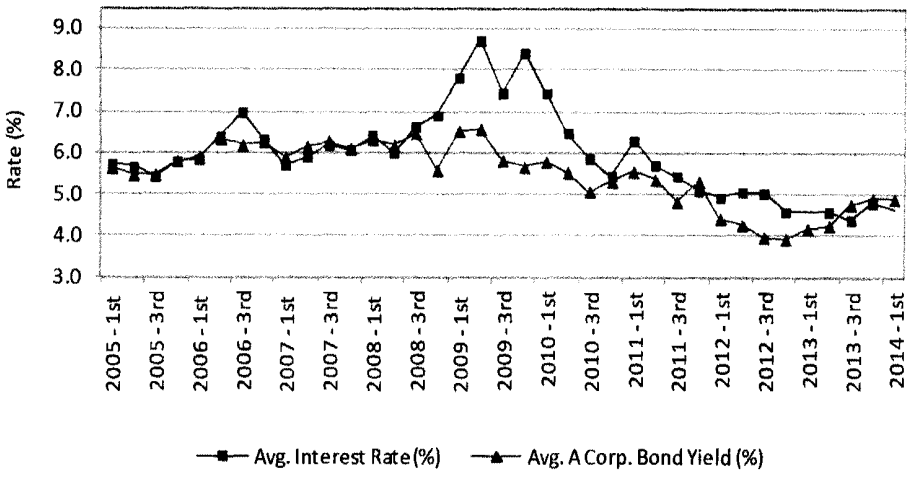
Hotel financing is currently very active at all tiers of the lodging industry. Lenders are attracted to the lodging industry because of the higher yields generated by hotel financing relative to other commercial real estate, and the industry is performing strongly, with supply growth constrained. Commercial banks, mortgage REITs, insurance companies, and CMBS and mezzanine lenders are aggressively pursuing deals. Financing is also increasingly available for hotels that require a turnaround.

Data for the mortgage component may be developed from statistics of actual hotel mortgages made by long-term lenders. The American Council of Life Insurance, which represents 20 large life insurance companies, publishes quarterly information pertaining to the hotel mortgages issued by its member companies.

Because of the six- to nine-month lag time in reporting and publishing hotel mortgage statistics, it was necessary to update this information to reflect current lending practices. Our research indicates that the greatest degree of correlation exists between the average interest rate of a hotel mortgage and the concurrent yield on an average-A corporate bond.

The following chart summarizes the average mortgage interest rates of the hotel loans made by these lenders. For the purpose of comparison, the average-A corporate bond yield (as reported by *Moody's Bond Record*) is also shown.

FIGURE 11-12 AVERAGE MORTGAGE INTEREST RATES AND AVERAGE-A CORPORATE BOND YIELDS



Sources: American Council of Life Insurance, Moody's Bond Record, HVS

The relationship between hotel interest rates and the yields from the average-A corporate bond can be detailed through a regression analysis, which is expressed as follows.

$$Y = 0.93675987\ X + 0.96975529$$

Where: Y = Estimated Hotel Mortgage Interest Rate
X = Current Average-A Corporate Bond Yield
(Coefficient of correlation is 93%)

The July 22, 2015, average yield on average-A corporate bonds, as reported by Moody's Investors Service, was 4.43%. When used in the previously presented equation, a factor of 4.43 produces an estimated hotel/motel interest rate of 5.12% (rounded).

Yields on U.S. treasuries and average-A corporate bonds remain at low levels due to Federal Reserve policy and the strengthening of the dollar, providing a very favorable financing environment. Interest rates for single hotel assets are currently ranging from 4.0% to 6.0%, depending on the type of debt, loan-to-value ratio, and the quality of the asset and its market.

In addition to the mortgage interest rate estimate derived from this regression analysis, HVS constantly monitors the terms of hotel mortgage loans made by our institutional lending clients. Fixed-rate debt is being priced at roughly 200 to 400 basis points over the corresponding yield on treasury notes. As of July 22, 2015, the yield on the ten-year T-bill was 2.31%, indicating an interest rate range from 4.3% to 6.3%. With the strengthening of the dollar, hotel mortgage interest rates have returned to their historical low. The Federal Reserve is expected to maintain rates at the current level through mid-year 2015, with a potential increase anticipated in the latter half of the year if the U.S. economy continues to perform strongly. At present, we find that lenders that are active in the market are using loan-to-value ratios of 60% to 80% and amortization periods of 20 to 30 years.

Based on our analysis of the current lodging industry mortgage market and adjustments for specific factors, such as the proposed property's location and conditions in the Queens hotel market, it is our opinion that a 5.50% interest, 25-year amortization mortgage with a 0.073690 constant is appropriate for the proposed subject hotel. In the mortgage-equity analysis, we have applied a loan-to-value ratio of 70%, which is reasonable to expect based on this interest rate and current parameters.

Equity Component

The remaining capital required for a hotel investment generally comes from the equity investor. The rate of return that an equity investor expects over a ten-year holding period is known as the equity yield. Unlike the equity dividend, which is a short-term rate of return, the equity yield specifically considers a long-term holding period (generally ten years), annual inflation- adjusted cash flows, property appreciation, mortgage amortization, and proceeds from a sale at the end of the holding period. To establish an appropriate equity yield rate, we have used two sources of data: past appraisals and investor interviews.

Hotel Sales – Each appraisal performed by HVS uses a mortgage-equity approach in which income is projected and then discounted to a current value at rates reflecting the cost of debt and equity capital. In the case of hotels that were sold near the date of our valuation, we were able to derive the equity yield rate and unlevered discount rate by inserting the ten-year projection, total investment (purchase price and estimated capital expenditure and/or PIP) and debt assumptions into a valuation model and solving for the equity yield. The overall capitalization rates for the historical income and projected first-year income are based on the sales price "as is." The following table shows a representative sample of hotels that were sold on or about the time that we appraised them, along with the derived equity return and discount rates based on the purchase price and our forecast.

FIGURE 11-13 SAMPLE OF HOTELS SOLD – BUDGET/ECONOMY

Hotel	Location	Number of Rooms	Date of Sale	Total Property Yield	Equity Yield	Overall Rate Based on Sales Price: Historical Year	Overall Rate Based on Sales Price: Projected Year One	Gross Room Revenue Multiplier: Historical Year	Gross Room Revenue Multiplier: Projected Year One
Quality Inn	Limon, CO	47	Feb-15	12.9 %	22.0 %	10.9 %	12.1 %	3.1	2.9
Suburban Extended Stay	Coralville, IA	74	Dec-14	11.7	19.0	4.1	6.1	4.2	3.6
Howard Johnson Express Inn	Harrisburg, PA	71	Nov-14	10.6	18.9	7.8	9.9	3.8	3.4
Days Inn	Norfolk, VA	152	Nov-14	13.4	22.8	4.2	6.6	2.3	2.1
Super 8	Watertown, SD	57	Nov-14	13.6	22.4	4.2	10.8	2.4	2.4
Quality Inn	Louisville, CO	68	Sep-14	12.7	24.0	13.0	11.8	3.4	3.3
Quality Inn Placentia Anaheim	Placentia, CA	131	Aug-14	11.2	18.9	6.9	8.6	3.6	3.8
Best Western Sandman Hotel	Sacramento, CA	112	Aug-14	12.8	19.0	—	7.9	3.6	3.3
Country Inn & Suites	St Charles, IL	84	Aug-14	12.3	22.4	9.8	10.0	2.2	2.2
Sleep Inn & Suites	Sheboygan, WI	60	Aug-14	12.5	21.0	6.4	8.9	4.2	3.3
Quality Inn	Houmas, LA	158	Aug-14	12.2	21.0	8.0	11.3	1.9	2.1
Red Roof Inn	Elyria, OH	97	Aug-14	12.9	23.8	11.6	10.7	2.9	2.5
Travelodge	Colorado Springs, CO	50	Jun-14	10.1	18.6	6.6	9.0	2.8	2.7
Red Lion Hotel	Twin Falls, ID	112	Jun-14	12.0	19.3	0.7	7.6	1.0	0.9
Wingate Inn Chesapeake	Chesapeake, VA	100	Jun-14	11.8	21.6	7.6	8.6	3.0	2.8
America's Best Value Inn	Corpus Christi, TX	154	Jun-14	14.0	25.5	3.0	11.7	1.7	1.4
Magnuson Hotel Baton Rouge	Baton Rouge, LA	125	Jun-14	12.9	21.9	7.4	8.6	3.1	2.7
Imperial 88 Motel	Cortland, NY	33	Jun-14	14.3	24.8	14.6	12.4	2.5	2.6
Sleep Inn	Beaufort, SC	86	Jun-14	11.4	20.0	—	8.8	5.0	2.4
Best Western Hospitality Inn	Port Huron, MI	63	Jun-14	11.3	20.3	9.4	10.9	2.3	2.2
Best Inn & Suites	Denver, CO	194	May-14	12.1	23.3	12.3	12.7	2.3	2.3
Comfort Inn (Conversion)	Akron, OH	131	May-14	10.7	19.0	—	20.8	4.9	1.4
Best Western Premier	Amarillo, TX	260	May-14	11.8	18.6	1.7	3.7	4.2	3.2
Quality Inn Gaylord	Gaylord, MI	116	Apr-14	14.0	24.0	9.4	11.2	2.1	2.0
Red Lion Hotel	Yakima, WA	156	Apr-14	13.3	20.8	7.5	9.5	1.5	1.4
Comfort Inn	Cincinnati, OH	106	Apr-14	13.6	22.9	7.8	11.6	2.5	2.0
Travelodge	Morro Bay, CA	33	Apr-14	11.9	20.0	6.9	8.1	5.3	4.6
Morro Shores Inn & Suites	Morro Bay, CA	30	Apr-14	12.6	21.5	9.6	9.3	5.2	4.9
Best Western Plus	Haverhill, MA	126	Apr-14	13.5	22.3	9.1	11.3	2.7	2.6
La Quinta Inn	Tallahassee, FL	134	Apr-14	13.1	22.2	13.3	9.7	2.4	2.4
Atlantic Ocean Palm Inn	Daytona Beach, FL	50	Apr-14	12.9	22.3	3.2	3.4	3.4	3.3
Best Western	Fort Lee, NJ	63	Mar-14	13.2	22.3	9.1	10.0	3.9	3.8
Executive Inn	Woodbury, NY	108	Mar-14	10.1	16.9	14.2	7.4	2.8	3.7
Comfort Inn	Clinton, MD	92	Feb-14	11.8	19.3	5.4	6.4	4.5	4.2
Ramada Inn & Suites	Glendale Heights, IL	82	Jan-14	12.4	19.8	—	8.6	3.4	3.4
Best Western	West Coxsackie, NY	63	Jan-14	12.6	20.3	7.0	10.1	4.1	3.5
Best Western Plus	Fairfield, CT	60	Jan-14	12.0	23.2	10.3	10.6	2.3	2.3

Source: HVS

HVS

FIGURE 11-14 SAMPLE OF HOTELS SOLD – SELECT-SERVICE/EXTENDED-STAY

Hotel	Location	Number of Rooms	Date of Sale	Total Property Yield	Equity Yield	Overall Rate Based on Sales Price: Historical Year	Overall Rate Based on Sales Price: Projected Year One
Holiday Inn Express	Saint Rose, LA	134	Mar-15	11.0 %	20.3 %	9.0 %	8.2 %
Hampton Inn	Titusville, FL	86	Mar-15	10.5	17.3	9.7	9.5
Red Lion Wenatchee	Wenatchee, WA	149	Feb-15	12.8	20.0	5.0	8.4
Hyatt Place	San Jose, CA	234	Nov-14	10.0	17.4	6.8	6.6
Holiday Inn	Chandler, AZ	106	Nov-14	11.8	21.2	4.9	6.2
Hilton Garden Inn	Burlington, MA	179	Nov-14	9.8	17.4	6.5	7.6
Inn at Key West	Key West, FL	106	Sep-14	11.0	19.6	7.5	7.8
Hampton Inn	Pleasanton, TX	63	Aug-14	10.9	20.0	20.0	17.3
Courtyard by Marriott	Montgomery, AL	146	Aug-14	11.0	19.6	4.3	9.0
Springhill Suites	Atlanta, GA	147	Aug-14	10.2	18.9	7.7	8.5
Springhill Suites	New York, NY	173	Jul-14	9.2	14.3	4.6	6.8
Residence Inn Midtown East	New York, NY	211	Jul-14	9.7	15.7	6.7	8.8
Holiday Inn Express	New Orleans, LA	129	Jul-14	12.7	21.9	3.4	3.1
Holiday inn Austin NW	Austin, TX	194	Jun-14	12.9	21.4	10.5	8.8
Holiday Inn Express & Suites	Peoria, IL	98	Jun-14	12.8	21.1	3.7	6.7
Hampton Inn	Tulsa, OK	70	May-14	10.4	18.0	7.0	9.5
Holiday Inn Express & Suites	Santa Cruz, CA	100	Apr-14	11.3	18.7	8.3	8.6
Aloft Hotel	Broomfield, CO	139	Apr-14	11.0	20.7	9.4	10.3
Courtyard by Marriott	Columbia, SC	189	Mar-14	10.6	18.3	5.5	9.4
Courtyard by Marriott (Conversion)	Austin, TX	198	Feb-14	11.9	20.2	10.6	10.7
Hyatt Place Minneapolis	Minneapolis, MN	213	Dec-13	10.0	17.0	—	6.5
Holiday Inn Express	Brooklyn, NY	104	Dec-13	9.8	16.7	9.1	8.4
Hilton Garden Inn	Sarasota, FL	115	Dec-13	11.9	20.3	10.4	10.6
Homewood Suites	Gaitherburg, MD	203	Nov-13	11.5	18.0	—	2.5
Hampton Inn Beeville	Beeville, TX	70	Nov-13	11.9	19.4	10.6	8.5
Hampton Inn & Suites	Austin, TX	102	Nov-13	11.1	18.5	7.8	8.8
Springhill Suites	Little Rock, AK	78	Oct-13	12.2	19.9	7.8	10.3
Staybridge Suites	Mount Laurel, NJ	99	Oct-13	12.0	19.8	10.6	9.5
Holiday Inn Express & Suites	Westampton, NJ	76	Oct-13	12.3	20.0	8.1	8.5
Springhill Suites	Oklahoma City, OK	128	Oct-13	11.9	19.4	8.8	9.8
Holiday Inn	Willowbrook, IL	220	Oct-13	13.7	20.8	4.3	6.9
Residence Inn	Bellevue, WA	231	Oct-13	9.5	15.9	8.2	7.8
Courtyard Raleigh	Raleigh, NC	109	Sep-13	11.2	18.6	7.8	7.8
Holiday Inn Express & Suites	Wauseon, OH	64	Aug-13	13.0	21.7	8.7	10.4
Holiday Inn	New York, NY	226	Jun-13	10.0	16.6	7.8	7.8
Residence Inn Coconut Grove	Miami, FL	140	Jun-13	10.0	16.1	7.2	6.7
Holiday Inn Express & Suites	Elk Grove, CA	116	Jun-13	10.8	17.4	7.6	8.2

Source: HVS

Investor Interviews - During the course of our work, we continuously monitor investor equity-yield requirements through discussions with hotel investors and brokers. While equity still looks to yield high returns for the risk of hotel investment, the low-yield environment, coupled with increased competition for quality assets, has placed downward pressure on equity-yield returns. We find that equity-yield rates currently range from a low in the low-to-mid teens for high-barrier-to-entry "trophy assets"; the upper teens for high quality, institutional-grade assets in strong markets; and the upper teens to low 20s for quality assets in more typical markets. Equity yields have increased moderately because of higher leverage levels, though competition for quality assets continues to place downward pressure on return requirements. Equity-yield rates tend to exceed 20% for aging assets with functional obsolescence and/or other challenging property- or market-related issues. Equity return requirements also vary with an investment's level of leverage. Higher loan-to-value ratios are becoming more prevalent, allowing for increased equity returns.

The following table summarizes the range of equity yields indicated by hotel sales and investor interviews. We note that there tends to be a lag between the sales data and current market conditions, and thus, the full effect of the change in the economy and capital markets may not yet be reflected.

FIGURE 11-15 SUMMARY OF EQUITY YIELD OR INTERNAL RATE OF RETURN REQUIREMENTS

Source	Data Point Range	Average
HVS Hotel Sales - Full-Service & Luxury	15.1% - 22%	18.2%
HVS Hotel Sales - Select-Service & Extended-Stay	14.3% - 21.9%	18.9%
HVS Hotel Sales - Budget/Economy	16.9% - 25.5%	21.2%
HVS Investor Interviews	12% - 22%	

Based on the assumed 70% loan-to-value ratio, the risk inherent in achieving the projected income stream, and the age, condition, and anticipated market position of the subject property, it is our opinion that an equity investor is likely to require an equity yield rate of 15.5%, reflective of the subject site's location in the New York City area. While the lack of attainable yields on alternate investments has continued to put downward pressure on equity-yield rates, increasing leverage levels are enabling investors to earn higher returns. Competition for quality assets remains strong among all hotel asset types. These influences are keeping equity yields from increasing significantly. Intense competition for assets in the major metro areas is pushing investors to pursue acquisitions with greater upside in

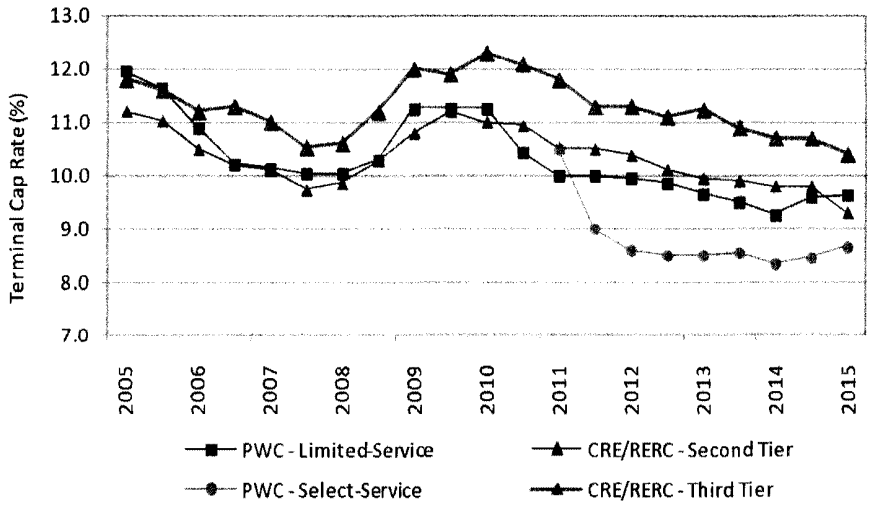
secondary and tertiary markets. Value-added acquisitions are also attracting greater interest due to the increasing availability of financing for these types of transactions and the potential for higher returns.

Terminal Capitalization Rate

Inherent in this valuation process is the assumption of a sale at the end of the ten-year holding period. The estimated reversionary sale price as of that date is calculated by capitalizing the projected eleventh-year net income by an overall terminal capitalization rate. An allocation for the selling expenses is deducted from this sale price, and the net proceeds to the equity interest (also known as the equity residual) are calculated by deducting the outstanding mortgage balance from the reversion.

We have reviewed several recent investor surveys. The following chart summarizes the averages presented for terminal capitalization rates in various investor surveys during the past decade. Note that survey data lag the market and do not necessarily reflect the most current market conditions.

FIGURE 11-16 HISTORICAL TRENDS OF TERMINAL CAPITALIZATION RATES



HVS

TABLE 11-17 TERMINAL CAPITALIZATION RATES DERIVED FROM INVESTOR SURVEYS

Source	Data Point Range	Average
PWC Real Estate Investor Survey - 1st Quarter 2015		
Limited-Service Hotels	7.75% - 11.0%	9.6%
Select-Service Hotels	6.0% - 11.0%	8.7%
USRC Hotel Investment Survey - Winter 2015		
Limited-Service Hotels	6.8% - 12.0%	9.4%
Situs RERC Real Estate Report - Spring 2015		
Second Tier Hotels	6.4% - 12.0%	9.4%
Third Tier Hotels	8.0% - 13.0%	10.5%

For purposes of this analysis, we have applied a terminal capitalization rate of 9.0%, reflective of the subject property's location in the New York City area, the proposed nature of the subject hotel, as well as the anticipated phasing-out of the assumed ICAP tax abatement. Our final position for the terminal capitalization rate reflects the current market for hotel investments. In tandem with overall lower return expectations, terminal capitalization rates for quality hotel assets in markets with high barriers to entry have returned to their 2005 to 2007 lows, while terminal capitalization rates for older assets or for those suffering from functional obsolescence and/or weak market conditions remain elevated, reflecting the market's recognition that certain assets have less opportunity for significant appreciation.

Mortgage-Equity Method – Value Opinion

The valuation of the mortgage and equity components is accomplished using an algebraic equation that calculates the exact amount of debt and equity that the hotel will be able to support based on the anticipated cash flow (as estimated by the forecast of income and expense) and the specific return requirements demanded by the mortgage lender (interest) and the equity investor (equity yield). Thus, the anticipated net income (before debt service and depreciation) is allocated to the mortgage and equity components based on market rates of return and loan-to-value ratios. The total of the mortgage component and the equity component equals the value of the property. Using this method of the income capitalization approach with the variables set forth, we estimate the value of the fee simple interest in the subject property, as of March 1, 2018, to be $36,000,000.

Mathematical Proof of Value

The value is mathematically proven by confirming that the market-derived yields are met for the lender and equity participant during the projection period. Using the assumed financial structure set forth in the previous calculations, market value can be allocated between the debt and equity as follows.

Mortgage Component (70%)	[redacted]	(b)(4)
Equity Component (30%)		
Total		

The annual debt service is calculated by multiplying the mortgage component by the mortgage constant.

Mortgage Component	[redacted]	(b)(4)
Mortgage Constant		
Annual Debt Service		

The eleven-year forecast of net income and ten-year forecast of net income to equity are presented in the following table.

FIGURE 11-18 ELEVEN-YEAR FORECAST OF NET INCOME AND TEN-YEAR FORECAST OF NET INCOME TO EQUITY

Year	Net Income Before Debt Service	Less: Debt Service	Net Income to Equity	Debt Coverage Ratio	Cash-on-Cash Return
2018/19	[redacted]				
2019/20					
2020/21					
2021/22					
2022/23					
2023/24					
2024/25					
2025/26					
2026/27					
2027/28					
2028/29					

(b)(4)

The net proceeds to equity upon sale of the property were determined by deducting sales expenses (brokerage and legal fees) and the outstanding mortgage balance.

The equity residual at the end of the tenth year is calculated by deducting brokerage and legal fees and the mortgage balance from the reversionary value. The reversionary value is calculated as the eleventh year's net income capitalized by the terminal capitalization rate. The calculation is shown as follows.

11th Year's Net Income	
Capitalization Rate	
Reversionary Value	
Less:	
Brokerage and Legal Fees	
Mortgage Balance	
Net Sale Proceeds to Equity	

(b)(4)

The discount rate (before debt service), the yield to the lender, and the yield to the equity position have been calculated by computer with the following results.

FIGURE 11-19 TOTAL PROPERTY VALUE AND INTERNAL RATES OF RETURN

Position	Value	Projected Yield (Internal Rate of Return) Over Holding Period
Total Property		
Mortgage		
Equity		

(b)(4)

Note: Whereas the mortgage constant and value are calculated on the basis of monthly mortgage payments, the mortgage yield in this proof assumes single annual payments. As a result, the proof's derived yield may be slightly less than that actually input.

The position of the total property yield or unlevered discount rate reflects the current ready availability and low cost of both debt and equity capital. Since the third quarter of 2013, lenders have been very active, with capital available from numerous sources. Equity and mezzanine financing is also readily available due to the attractive yields being generated by hotels when compared with other forms of commercial real estate. We continue to interview hotel investors to assess the movement in yield rates and their impact on value.

The following tables demonstrate that the property receives its anticipated yields, proving that the value is correct based on the assumptions used in this approach.

FIGURE 11-20 VALUE OF THE MORTGAGE COMPONENT

Year	Total Annual Debt Service	Present Worth of $1 Factor at 5.4%	Discounted Cash Flow
2018/19			
2019/20			
2020/21			
2021/22			
2022/23			
2023/24			
2024/25			
2025/26			
2026/27			
2027/28			

(b)(4)

*10th year debt service of $1,856,000 plus outstanding mortgage balance of $18,934,000

FIGURE 11-21 VALUE OF THE EQUITY COMPONENT

Year	Net Income to Equity	Present Worth of $1 Factor at 15.5%	Discounted Cash Flow
2018/19			
2019/20			
2020/21			
2021/22			
2022/23			
2023/24			
2024/25			
2025/26			
2026/27			
2027/28			

(b)(4)

*10th year net income to equity of $1,782,000 plus sales proceeds of $21,867,000

Direct Capitalization

The following chart summarizes the averages presented for overall capitalization rates in various investor surveys during the past decade.

FIGURE 11-22 HISTORICAL TRENDS OF OVERALL CAPITALIZATION RATES

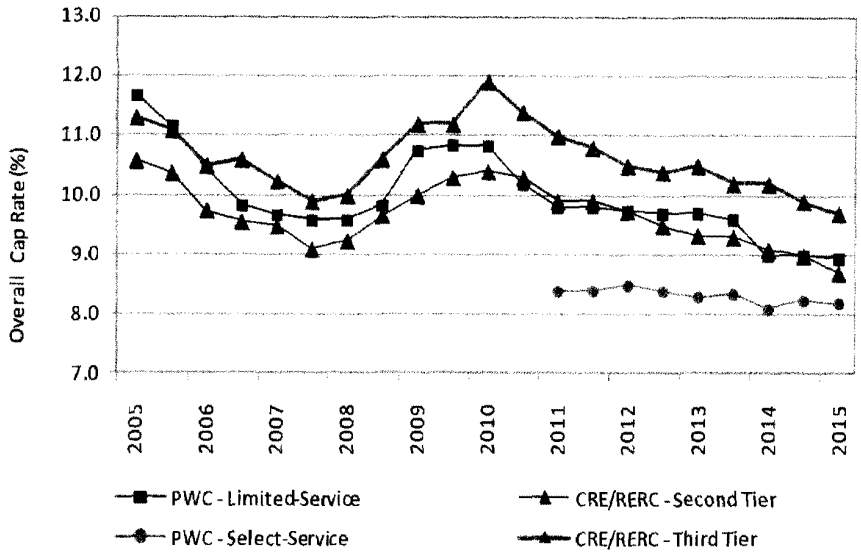


FIGURE 11-23 OVERALL CAPITALIZATION RATES DERIVED FROM SALES AND INVESTOR SURVEYS

Source	Data Point Range	Average
HVS Hotel Sales - Budget/Economy	0.7% - 14.6%	8.0%
HVS Hotel Sales - Select-Service & Extended-Stay	3.4% - 20%	7.9%
PWC Real Estate Investor Survey - 1st Quarter 2015		
Limited-Service Hotels	7.5% - 10.0%	9.0%
Select-Service Hotels	5.0% - 11.0%	8.2%
USRC Hotel Investment Survey - Winter 2015		
Limited-Service Hotels	6.3% - 10.0%	8.5%
Situs RERC Real Estate Report - Spring 2015		
Second Tier Hotels	5.6% - 11.0%	8.7%
Third Tier Hotels	7.0% - 12.5%	9.7%

We note that the averages illustrated in the previous table are derived from wide arrays of data points, and a range of reasonableness extends both lower and higher than the indicated data points. The following table reflects the capitalization rates for the proposed subject hotel that have been derived based on our estimate of

market value via the discounted-cash-flow analysis. Note that the stabilized year's net income has been deflated to first-year dollars.

FIGURE 11-24 DERIVED CAPITALIZATION RATES

Year	Net Operating Income	Derived Capitalization Rate
Forecast 2018/19	$2,332,000	6.5 %
Deflated Stabilized (2018/19) Dollars	2,798,000	7.8

The derived capitalization rates are considered appropriate for a proposed lodging facility such as the Proposed Holiday Inn Express & Suites Woodside. The derived capitalization rates that are based on the forecasted net operating income fall in line with acceptable returns for a hotel of this caliber. We note that these capitalization rates reflect the expectation of continued improvement in profitability over the initial years of the forecast. Investors are acquiring assets at "going-in" capitalization rates that reflect the anticipation of a future upside as the economy continues to grow.

Given the proposed subject property's location in Queens, NY with easy access to Manhattan, the subject property's capitalization rates are further supported by historical sales in the Manhattan market. For referential purposes, the following provides capitalization rates derived from hotel sales within the Manhattan market, over the past several years. As illustrated, hotel sales in Manhattan have been historically marked with relatively low capitalization rates.

Note that although other sales have occurred in Manhattan, we have only provided sales in the following for which we were able to derive the capitalization rate.

FIGURE 11-25 MANHATTAN HOTEL SALES – DERIVED CAPITALIZATION RATES

Property	Date of Sale	No. of Rooms	Price	Price per Room	Indicated Cap. Rate
Mondrian Soho	Apr-15	270	$205,000,000	$759,000	5.9%
Marriott East Side	Dec-14	655	270,000,000	412,000	4.4%
Fairfield Inn & Suites Midtown Manhattan	Oct-14	239	135,300,000	566,000	7.4%
Sofitel	Oct-14	398	265,000,000	666,000	5.0%
Holiday Inn Express Herald Square	Sep-14	135	63,300,000	469,000	6.8%
Hampton Inn United Nations	Sep-14	148	71,900,000	486,000	6.1%
Hilton Garden Inn Times Square Central	Sep-14	282	127,200,000	451,000	3.9%
Holiday Inn SoHo	Aug-14	227	89,700,000	395,000	5.2%
SpringHill Suites Midtown Fifth Avenue	Jul-14	173	82,000,000	474,000	6.5%
Residence Inn Midtown East	Jul-14	211	89,600,000	425,000	6.0%
Hilton Garden Inn Midtown East	May-14	205	85,300,000	416,000	7.0%
Hotel 373	Feb-14	70	37,000,000	529,000	5.2%
Novotel Times Square	Feb-14	480	273,600,000	570,000	1.7%
Mave	Oct-13	72	28,500,000	396,000	2.8%
Holiday Inn Sixth Avenue	Jun-13	226	113,000,000	500,000	7.8%
James SoHo	Apr-13	114	85,000,000	746,000	6.0%
Setai Fifth Avenue	Oct-12	214	229,000,000	1,070,000	2.2%
Manhattan at Times Square	Oct-12	665	275,000,000	414,000	3.4%
Essex House	Aug-12	518	362,300,000	699,000	6.3%
Holiday Inn Express Madison Sq. Garden	Jun-12	228	87,500,000	384,000	7.8%
Hotel Lola/King & Grove	Jun-12	276	116,000,000	420,000	3.6%
Courtyard Upper East Side	May-12	226	82,000,000	363,000	7.5%
Cassa Hotel	Mar-12	165	130,000,000	788,000	4.7%
Avalon Hotel	Feb-12	100	48,300,000	483,000	5.7%
Park Central Hotel	Jan-12	934	405,500,000	434,000	5.1%
Hampton Inn 35th Street	Dec-11	146	68,241,607	467,000	5.3%
Cooper Square Hotel	Nov-11	145	90,500,000	624,000	2.8%
Algonquin	Jun-11	174	85,500,000	491,000	3.5%
Paramount Hotel	Jun-11	597	275,000,000	461,000	4.5%
Four Points Times Square	Jun-11	244	112,000,000	459,000	6.7%
Radisson Lexington	May-11	712	335,000,000	471,000	4.7%
Doubletree Metropolitan	Jan-11	759	335,000,000	441,000	4.5%
Roger Williams	Sep-10	193	94,500,000	490,000	5.9%
Hilton Garden Inn Chelsea	Sep-10	169	68,400,000	405,000	6.5%
W Hotel Union Square	Sep-10	270	188,000,000	696,000	3.7%
Hotel QT	Apr-08	139	82,000,000	590,000	6.3%
Hilton Garden Inn Times Square	Nov-07	369	261,990,000	710,000	6.0%
Hampton Inn Times Square	Nov-07	300	213,000,000	710,000	6.0%
Tudor Hotel (leasehold; 33 years remaining)	Sep-07	300	114,000,000	380,000	6.7%
Holiday Inn Soho	Sep-07	227	130,000,000	573,000	6.6%
On The Ave	Jul-07	267	204,000,000	764,000	4.5%

Source: HVS

Discounted Cash Flow Analysis – "When Complete"

The process of converting the projected income stream into an estimate of value via the discounted-cash-flow method is described as follows.

1. An appropriate discount rate is selected to apply to the projected net income before debt service. This rate reflects the "free and clear" internal rate of return to an all-cash purchaser or a blended rate of debt and equity return requirements. The discount rate takes into consideration the degree of perceived risk, anticipated inflation, market attitudes, and rates of return on other investment alternatives, as well as the availability and cost of financing. The discount rate is chosen by reviewing sales transactions and investor surveys and interviewing market participants.
2. A reversionary value reflecting the sales price of the property at the end of the ten-year holding period is calculated by capitalizing the eleventh-year net income by the terminal capitalization rate and deducting typical brokerage and legal fees.
3. Each year's forecasted net income before debt service and depreciation and the reversionary sales proceeds at the end of the ten-year holding period are converted to a present value by multiplying the cash flow by the chosen discount rate for that year in the forecast. The sum of the discounted cash flows equates to the value of the subject property.

The following chart summarizes the averages presented for discount rates in various investor surveys during the past decade.

FIGURE 11-26 HISTORICAL TRENDS OF DISCOUNT RATES

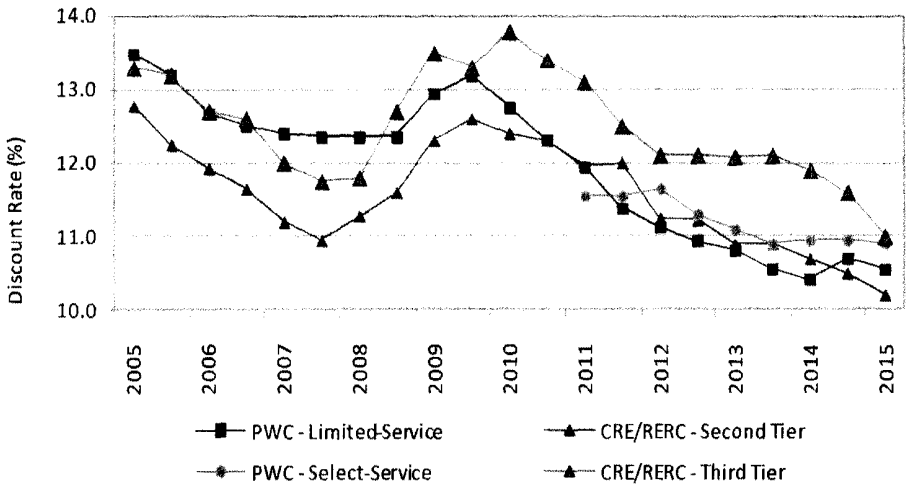


FIGURE 11-27 OVERALL DISCOUNT RATES DERIVED FROM SALES AND INVESTOR SURVEYS

Source	Data Point Range	Average
HVS Hotel Sales - Budget/Economy	10.1% - 14.3%	12.4%
HVS Hotel Sales - Select-Service & Extended-Stay	9.2% - 13.7%	11.2%
PWC Real Estate Investor Survey - 1st Quarter 2015		
Limited-Service Hotels	8.5% - 12.0%	10.6%
Select-Service Hotels	9.0% - 13.0%	10.9%
USRC Hotel Investment Survey - Winter 2015		
Limited-Service Hotels	7.8% - 15.0%	11.0%
Situs RERC Real Estate Report - Spring 2015		
Second Tier Hotels	7.4% - 13.0%	10.4%
Third Tier Hotels	9.0% - 14.0%	11.3%

We note that the averages illustrated in the previous table are derived from wide arrays of data points, and a range of reasonableness extends both lower and higher than the indicated data points. Based on our review of these surveys, sales transactions (see total property yields shown in the table titled *Sample of Hotels Sold*), and interviewing market participants, we have selected a discount rate of 9.25% for our analysis, reflective of the subject property's location in New York City. Similar to the developed total property yield, our selected discount rate considers the current market for hotel investments, as well as the characteristics of the property and market.

Utilizing the discount rate set forth, the discounted-cash-flow procedure is summarized as follows.

(b)(4)

FIGURE 11-28 DISCOUNTED CASH FLOW ANALYSIS – WHEN COMPLETE

Year	Net Income	Discount Factor @	Discounted Cash Flow
2018/19			
2019/20			
2020/21			
2021/22			
2022/23			
2023/24			
2024/25			
2025/26			
2026/27			
2027/28			

Reversion Analysis

11th Year's Net Income	
Capitalization Rate	
Total Sales Proceeds	
Less: Transaction Costs	
Net Sales Proceeds	

*10th year net income of [redacted] plus sales proceeds of [redacted]

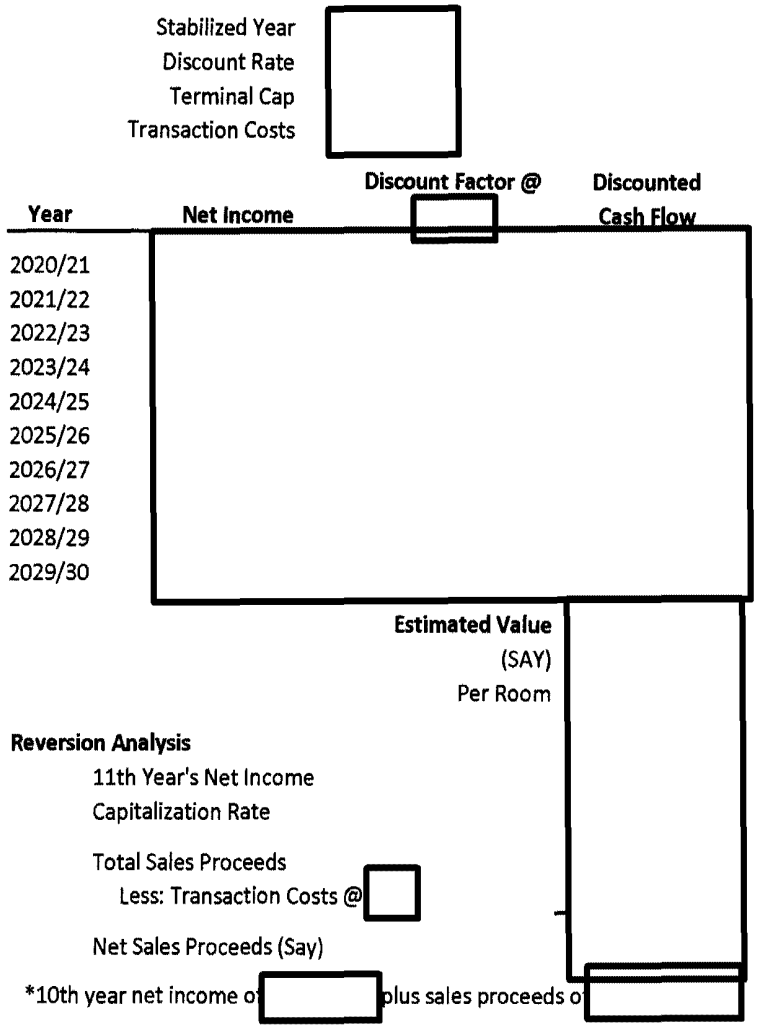
Discounted Cash Flow Analysis – "When Stabilized"

The preceding valuation process was repeated using the projected cash flows beginning as of the stabilized year. The discounted-cash-flow procedure is summarized as follows.

(b)(4)

(b)(4)

FIGURE 11-29 DISCOUNTED CASH FLOW ANALYSIS—STABILIZED VALUE



Based on this procedure, it is our opinion that the prospective market value, as of March 1, 2020, is this equates to per room.

Conclusion

Using the income capitalization approach, the subject property was valued by a mortgage-equity analysis, a straightforward discounted-cash-flow analysis, and a direct capitalization technique. Based on our review of each method and their inherent strengths and weaknesses, as well as investor attitudes and methodologies, we have reconciled the "when complete" value indication via the income capitalization approach to Furthermore, it is our opinion that the "when stabilized" value is

(b)(4)

12. Sales Comparison Approach

The sales comparison approach is based on the principle of substitution, which defines a property's value as the cost of acquiring an equally desirable substitute (assuming that no costly delay is incurred in making the substitution). Thus, the sales comparison approach can be used to form an opinion of a property's market value from the price at which equally desirable properties have sold, or for which they can be purchased, on the open market.

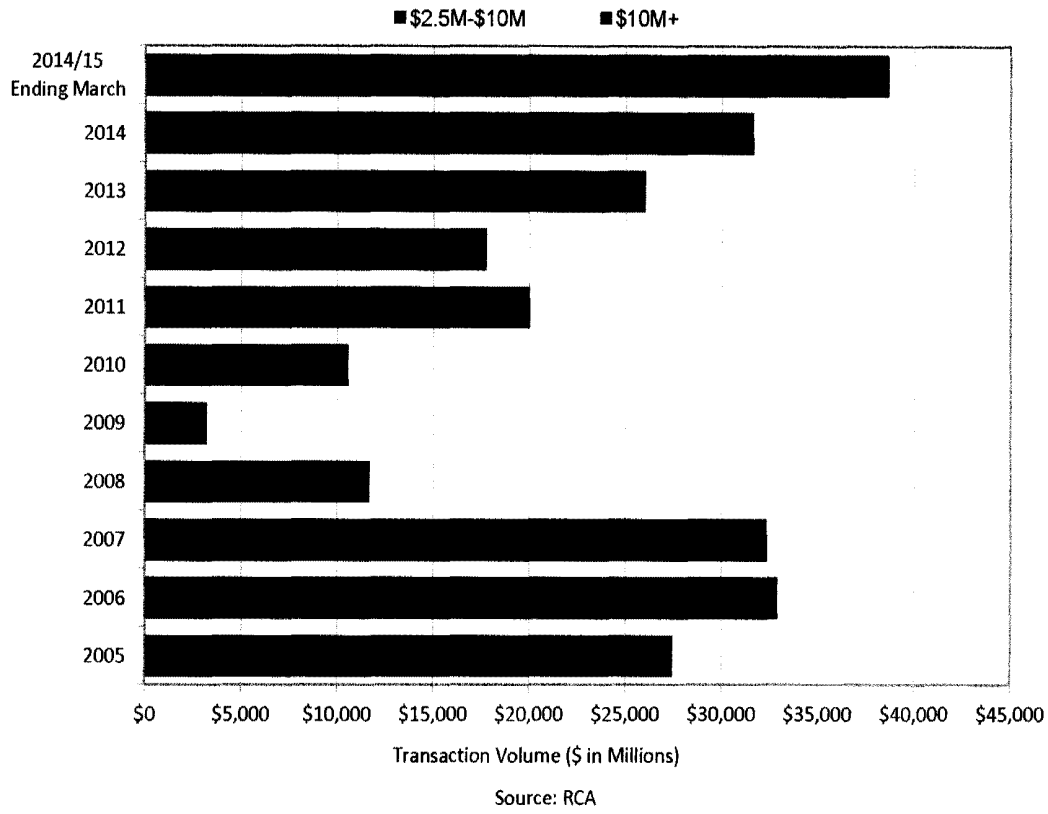
Hotel Investment Market Overview

The following overview of the hotel investment market during recent industry investment cycles provides a context for the sales comparison approach.

The volume of hotel transactions and the price paid for individual assets are influenced by two principal factors: the availability of capital and the performance of the lodging sector as a whole. When high levels of leverage are available on favorable terms and the industry is performing well, investors are attracted to the market, and both prices and the number of transactions increase. These market conditions often induce sellers to put their properties on the market, further fueling the pace of transaction activity. Conversely, when the availability of capital declines and when interest rates increase, both the pace of activity and pricing levels decrease. When these capital conditions coincide with a downturn in industry performance, the transaction market drops off significantly. In this environment, sellers are typically unwilling to put their properties on the market, electing to wait until market conditions improve. The impact of these influences results in a cyclical investment market, recording peaks and valleys in response to changes in the capital markets and the economy.

The following chart sets forth the dollar volume of U.S. hotel transactions over the past ten years through the trailing-twelve-month (TTM) period ending June 2015, as reported by Real Capital Analytics. The blue portion of the bar chart represents the volume of transactions with a price in excess of $10 million, identified as Major Sales Transactions, while the red portion of the bar represents the volume of transactions with a price of $2.5 million to $10 million.

FIGURE 12-1 U.S. HOTEL TRANSACTION VOLUME BY YEAR (SALES ABOVE $2.5M)

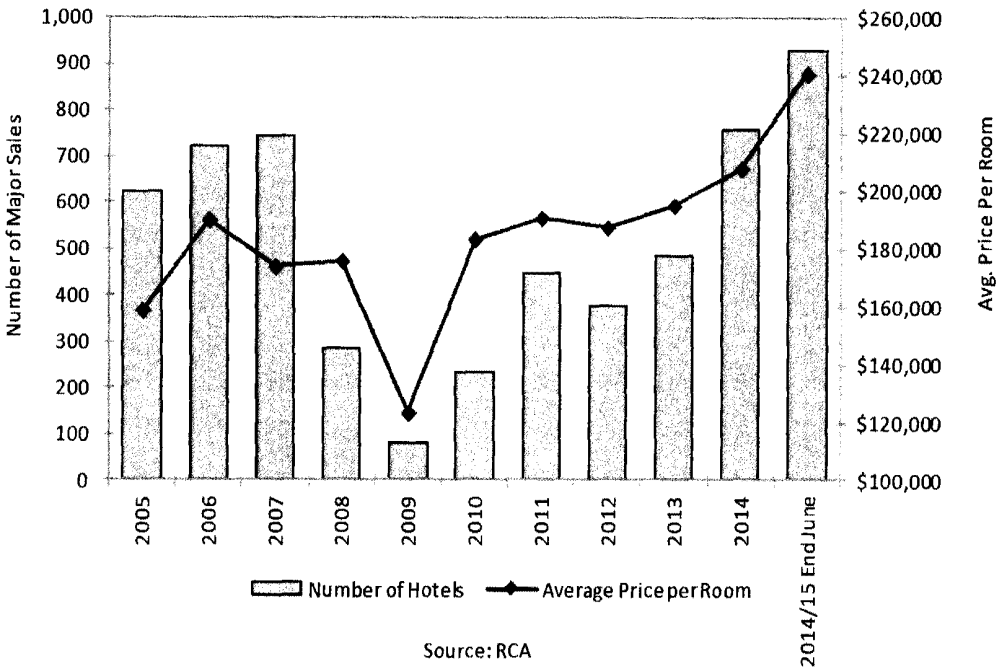


Source: RCA

The cyclical nature of the hospitality investment market is evident in the sales data. Following peak levels of activity in 2006 and 2007, hotel transaction activity slowed dramatically in 2008 because of the weakening economy and reduction in CMBS lending. The market came to a virtual standstill in 2009 due to the financial crisis, which negatively affected the hotel and real estate industries. With a recovery in fundamentals underway, transaction activity began to recover in 2010. Sales activity has continued to increase since that time, driven by strong industry fundamentals and favorable investment market conditions. Total sales volume (for transactions of over $2.5 million in value) increased by roughly 22% from 2013 to 2014, reaching just over $31 billion, still about $1 billion shy of the peak levels recorded in 2006 and 2007. Given the very strong outlook for hotel performance and the continuing availability of low cost capital, sales volume in the TTM period ending June 2015 exceeded prior peak levels.

The following graph sets forth the number of major hotel transactions (defined as those with a purchase price in excess of $10 million) and the average price per room since 2005.[15]

FIGURE 12-2 U.S. HOTEL TRANSACTIONS BY YEAR (SALES ABOVE $10M)



The average price per room for hotels selling at a price of $10 million and over reached roughly $208,000 in 2014, a 7% increase over the prior year. For the TTM period ending June 2015, the average price per room for this price category surpassed $240,000. It should be noted that the average price per room is greatly influenced by the types of hotels being sold. In 2014, the transaction market was dominated by the sale of limited- and select-service hotels, with relatively fewer large, full-service and luxury assets transacting, which served to moderate the value-per-room gain. The number of hotels that sold in 2014 at a price of $10 million and over increased by 57%, reflecting the greater number of smaller, lower-priced hotel transactions over 2013.

[15] Real Capital Analytics' individual and portfolio hotel transactions data

Major sales transaction activity, defined as hotels that sell in excess of $10 million, mirrors the total sales trend. Since its nadir in 2009, the market recovered to 761 major sales transactions in 2014 (933 on a TTM basis, ending June 2015), reflecting a major gain over the 484 major sales total in 2013. As of mid-year 2015, the market is in a healthy state of equilibrium; equity interest in the sector remains strong, and debt is widely available at favorable interest rates. These factors, combined with continued strong industry fundamentals, are attracting more investors and sellers to the market. International investors looking for a safe haven for their capital and REITs, which performed very well in 2014, are expected to remain the most active buyers in 2015/16. Limited- and select-service hotels, many of which sold in portfolios that represented 30% of all major transaction activity in 2014, are anticipated to remain the most active product type. Competition for high-quality assets in gateway cities remains strong, driving many buyers to pursue assets in secondary markets. As the cycle evolves, investor interest is broadening outside the premier sectors and markets. While some aging assets and/or those in need of unfunded capital improvements may continue to be challenged, capital is increasingly available for asset turnarounds, which is also beginning to boost activity in this segment of the market.

The improvements in market conditions since 2012 have resulted in increased sales transaction activity reflective of investor expectations in a normalized market. Thus, we have tried to focus on sales transactions from 2012 to the present, if adequate comparable data are available. Sales from prior years may be pertinent if there has been sparse activity in the subject property's product type since the 2008/09 economic downturn. Capitalization rates derived from the historical income of the sales vary widely, depending upon when the sale occurred and how a hotel was performing at the time of sale. Given these factors, we have researched and relied upon the most relevant comparable sales data in our appraisal of the subject property, although adjustments for changes in capital market conditions may be warranted, depending on the date and particular attributes of the transaction.

Sales History of Subject

The developer of the proposed subject hotel is Queens Blvd Ventures, LLC, a subsidiary of Century Development Group. The ownership group entered into an agreement to purchase the subject site on March 4, 2014 for a reported sum of $6,000,000. According to public records, the sale was closed in February of 2015. No other transfers of the property have reportedly occurred in the past three years. The site is neither listed nor under contract for sale; furthermore, we have no knowledge of any recent listings.

Comparable Sales

To present our selection of comparable sales, we conducted a comprehensive search for transactions of hotels that bear comparison to the subject property in one or more key areas. When possible, we gave priority to transactions occurring in the same state or region as the subject property. We also considered factors such as operational and physical similarities to the subject property, including brand affiliation and revenue-generating aspects. We have primarily focused on transactions that occurred within the last three years because of changes in market conditions since that time.

FIGURE 12-3 REVIEW OF NEW YORK CITY TRANSACTIONS

Property	Location	Sale Date	Price	Rooms	Price/Rm	Overall Cap
Marriott New York East Side	New York, NY	May-15	$270,000,000	655	$412,214	3.8%
Edition New York	New York, NY	Apr-15	$343,000,000	273	$1,256,410	—
Nomo Soho	New York, NY	Mar-15	$200,000,000	263	$760,456	—
Orchard Street Hotel	New York, NY	Mar-15	$23,750,000	50	$475,000	—
Waldorf Astoria New York	New York, NY	Feb-15	$1,950,000,000	1,413	$1,380,042	—
Manhattan at Times Square	New York, NY	Feb-15	$544,312,797	689	$790,004	—
Hotel Carter	New York, NY	Jan-15	$191,850,000	605	$317,107	—
Holiday Inn Long Island City Manhattan View	Long Island City, NY	Jan-15	$22,400,000	136	$164,706	—
Howard Johnson Flushing	Flushing, NY	Sep-14	$7,380,000	32	$230,625	5.2%
AKA United Nations	New York, NY	Sep-14	$68,500,000	95	$721,053	—
Hilton Garden Inn New York Times Square Central	New York, NY	Aug-14	$127,200,000	282	$451,064	—
Park Hyatt New York	New York, NY	Aug-14	$390,000,000	210	$1,857,143	—
Holiday Inn Manhattan Downtown SoHo	New York, NY	Aug-14	$89,700,000	227	$395,154	5.6%
Springhill Suites by Marriott New York Manhattan Midtown Fifth Avenue	New York, NY	Jul-14	$82,000,000	173	$473,988	4.6%
Hotel Le Bleu Brooklyn	Brooklyn, NY	Jul-14	$10,250,000	48	$213,542	6.0%
Residence Inn by Marriott New York Manhattan Midtown East	New York, NY	Jul-14	$89,600,000	211	$424,645	6.7%
Novotel New York Times Square	New York, NY	Jun-14	$273,600,000	480	$570,000	2.1%
Hotel Carter	New York, NY	Jun-14	$180,000,000	700	$257,143	—
Hilton Garden Inn New York Manhattan Midtown East	New York, NY	May-14	$85,270,000	205	$415,951	7.0%
Courtyard by Marriott New York Manhattan Times Square West	New York, NY	May-14	$95,000,000	224	$424,107	—
Hotel 373 Fifth Avenue	New York, NY	Apr-14	$37,000,000	70	$528,571	5.1%
InterContinental The Barclay	New York, NY	Mar-14	$300,000,000	685	$437,956	—
Best Western Plus Seaport Inn Downtown	New York, NY	Mar-14	$31,000,000	72	$430,556	—
Standard Hotel New York	New York, NY	Feb-14	$400,000,000	337	$1,186,944	4.8%
Bedford Hotel	New York, NY	Feb-14	$44,836,392	135	$332,121	—
LaGuardia Airport Hotel	East Elmhurst, NY	Feb-14	$21,750,000	229	$94,978	—
Pan American Hotel	Elmhurst, NY	Jan-14	$23,100,000	220	$105,000	—
Comfort Inn Brooklyn Downtown	Brooklyn, NY	Dec-13	$21,800,000	104	$209,615	10.7%
Holiday Inn Express New York Brooklyn	Brooklyn, NY	Dec-13	$34,900,000	115	$303,478	10.2%
Park Lane New York	New York, NY	Nov-13	$660,000,000	605	$1,090,909	—
Viceroy New York	New York, NY	Nov-13	$148,500,000	240	$618,750	—
MAve NYC	New York, NY	Oct-13	$28,500,000	72	$395,833	2.8%
Langham Place Fifth Avenue	New York, NY	Sep-13	$229,000,000	214	$1,070,093	—
Par Central Motor Inn	Jamaica, NY	Jul-13	$10,900,000	61	$178,689	4.4%
Holiday Inn Manhattan 6th Avenue	New York, NY	Jun-13	$113,000,000	226	$500,000	7.8%
Hotel BPM Brooklyn	Brooklyn, NY	Apr-13	$13,000,000	70	$185,714	—
Hyatt Union Square New York	New York, NY	Apr-13	$101,000,000	178	$567,416	—
James Hotel New York	New York, NY	Apr-13	$85,000,000	114	$745,614	5.0%
Flatotel	New York, NY	Mar-13	$180,000,000	289	$622,837	—
Hyatt Place New York Midtown South	New York, NY	Mar-13	$76,200,000	185	$411,892	—
Row NYC	New York, NY	Mar-13	$325,000,000	1,300	$250,000	—
Beekman Tower Hotel	New York, NY	Jan-13	$82,150,000	174	$472,126	—
Marriott LaGuardia Airport	East Elmhurst, NY	Jan-13	$21,500,000	438	$49,087	—
Wyndham Midtown 45	New York, NY	Jan-13	$115,000,000	203	$566,502	—
Hotel Grand Union	New York, NY	Nov-12	$28,600,000	88	$325,000	—
Eastgate Tower Hotel	New York, NY	Nov-12	$69,000,000	187	$368,984	6.7%
Manhattan at Times Square	New York, NY	Oct-12	$275,000,000	659	$417,299	—
JW Marriott Essex House New York	New York, NY	Sep-12	$362,300,000	509	$711,788	—
Hotel Indigo Brooklyn	Brooklyn, NY	Jun-12	$31,100,000	128	$242,969	—

As illustrated by the preceding, a number of properties have transacted over the recent past in New York City. Of the preceding, three sales are considered the most comparable. The following detail the adjustments made to such sales and the resulting sales comparison approach value range that is developed.

FIGURE 12-4 COMPARABLE SALES – ADJUSTMENT GRID

Elements of Comparison	Subject Property	Sale #1 Howard Johnson Flushing, Flushing, NY	Sale #2 LaGuardia Airport Hotel, East Elmhurst, NY	Sale #3 Par Central Motor Inn, Jamaica, NY
Sale Price				
Number of Rooms				
Price per Room				
Year Open				
Date of Sale				
Adjustments for Transaction Characteri				
Property Rights Conveyed				
Adjustment				
Adjusted Sales Price				
Financing Terms				
Adjustment				
Adjusted Sales Price				
Conditions of Sale				
Adjustment				
Adjusted Sales Price				
Market Conditions				
Adjustment				
Adjusted Sales Price				
Adjusted Price				
Adjustments for Property Characteristic				
Location/Market				
Adjustment				
Physical Condition/Facilities				
Adjustment				
Other Revenue Sources				
Adjustment				
Cumulative Percentage Adjustment				
Net Adjust. for Property Characteristics				
Adjusted Price Per Room				

(b)(4)

** Includes $21 million planned renovations*

(b)(4)

Please note that the ***LaGuardia Airport Hotel*** was partially closed at the time of transaction. The hotel required significant renovations, and the buyer intended to invest an additional [redacted] to redevelop the property and convert it into two separate hotels - an aloft and an ibis Style. For the purpose of this analysis, we have added the planned capital expenditures to the sale price.

Market Conditions

The lack of financing and more stringent underwriting terms, combined with limited investor interest, resulted in poor investment market conditions from the third quarter of 2008 into 2010. Beginning mid-year 2010, investor interest and the large volume of equity capital seeking quality hotel investments resulted in improved market conditions. In the latter half of 2011, market conditions regressed somewhat as investors and lenders became more cautious and capital was less available. This caution eased in early 2012, and market conditions returned to those that prevailed in late 2010 and early 2011. Beginning mid-year 2012, the cost and availability of mortgage capital improved significantly, with interest rates falling below the levels experienced at the peak of the market in 2006 and 2007. This trend continued through 2013 and 2014, with interest rates remaining low and loan-to-value ratios rising in response to increased lender interest in the hospitality sector. In recognition of the changing market conditions, upward adjustments were applied to all transactions, which occurred in 2014 or earlier.

Location/Market

The adjustment for differences in location or market is intended to consider any specific locational attributes that would influence the value of the hotel over and above the influence reflected in the revenue levels achieved by the property. Typically, these influences are tied to the characteristics of the site and are most common when an asset is in a location or market that has high barriers to entry. Downward adjustments were applied to Sales #1 and #2 given the assets' location in downtown Flushing and the immediate airport area, respectively.

Physical Condition/ Facilities

Adjustments for physical condition or facilities address differences in the condition of the property at the time of sale, the age of the property as of the date of sale, and/or the array of facilities available. Upward adjustments for physical condition were applied to all transactions given the assets' earlier dates of construction, and aging physical products considered inferior to that of the subject property upon opening.

Other Revenue Sources

Adjustments for other revenue sources and additional facilities are necessary to account for significant differences in revenue sources, such as food and beverage outlets, meeting space, or other operating departments, aside from rooms. A downward adjustment for other revenue sources was applied to the transaction noted as Sale #2 given the asset's superior select-service product type upon completion and its revenue-generating restaurant/bar.

(b)(4)

Conclusion

Prior to adjustments, the comparable sales transacted for amounts ranging from [redacted] per room. Following all adjustments, we have positioned an appropriate value at [redacted] per room, or [redacted] to [redacted] for the 135-room subject property upon completion.

FIGURE 12-5 SALES COMPARISON APPROACH – RANGE OF VALUES

Property	Location	Sale Date	Price	Rooms	Price/Rm

(b)(4)

13. Cost Approach

The cost approach reflects a set of procedures through which a value indication is derived for the fee simple interest in a property by estimating the current cost to construct a reproduction of, or replacement for, the existing structure; deducting accrued depreciation from the reproduction or replacement cost; and adding the estimated land value plus an entrepreneurial profit. Adjustments may then be made to the indicated fee simple value of the subject property to reflect the value of the property interest being appraised.

Because the subject property is proposed, the cost approach has some applicability. In this report section, we will estimate the replacement cost as new of the improvements, review the hotel's construction budget, estimate the market value of the site, and add an entrepreneurial profit incentive to arrive at the total cost new to develop the subject property. The total cost new to build the facility is often used by hotel buyers as a benchmark against the income and sales indications - particularly for new hotels.

Development Cost Summary

The following table presents the development budget (excluding site cost) based on the information provided by ownership representatives.

FIGURE 13-1 DEVELOPMENT COST SUMMARY

Component	Cost	Cost per Room
Construction		
General		
Sitework		
Masonry		
Concrete		
Metals		
Thermal & Moisture Protection		
Doors & Windows		
Finishes		
Conveying System		
Equipment		
Mechanical		
Fire Syste		
Electrical		
Plumbing Work		
Furniture, Fixtures & Equipment		
Soft Cost		
Total, Without Land		

(b)(4)

Land Valuation

Land value may be estimated in a variety of ways including the sales comparison approach and the allocation, extraction, or ground rent capitalization methods. For the majority of hostelry properties, the two primary methods used are the sales comparison approach and the ground lease capitalization approach.

Ground Lease Approach to Land Value

Land value may be estimated in a variety of ways including the sales comparison approach and the allocation, extraction, or ground rent capitalization methods. For the majority of hostelry properties, the two primary methods used are the sales comparison approach and the ground lease capitalization approach.

Over the past several years, hotels and resorts have routinely been constructed on leased land. While the lease terms differ somewhat from property to property, the basis for the rental calculation is often tied to a percentage of revenue formula. Using the forecasted revenues for the subject property and applying a typical hotel ground lease rental formula, the appraiser can determine the hotel's economic rental, or what can be termed the income attributed to the land. The land value can then be estimated by capitalizing the hypothetical ground rent. The self-adjusting aspect of this approach is a key element to its reliability.

We have researched actual long-term ground leases encumbering hotels in New York City. Based on our experience, ground rental percentages may range between 6.0% and 10.0% because of the scarcity of prime sites. In light of this factor, we

believe that an economic ground rent percentage of 8.0% of deflated stabilized rooms revenue is appropriate in the case of the subject property, due to its location. Based on the revenue projections set forth for the subject property as part of this appraisal, the following table shows how the economic ground rent has been calculated. Note that the stabilized revenue level has been deflated back to first projection year dollars.

Deflated Stabilized Rooms Revenue	[redacted]	(b)(4)
Rental Percentage		
Economic Ground Rent		

Rent generated from an unsubordinated ground lease represents a low-risk flow of income. Because the tenant improvements typically amount to more than five times the value of the land, the risk of default is almost nonexistent. For hotel ground leases where rent is tied to revenue, the property owner is also protected from the adverse effects of inflation. Based on these minimal risk factors and the current cost of long-term capital, it is our opinion that the appropriate ground rent overall capitalization rate would be as indicated in the following table because of the aforementioned low level of risk.

Applying the indicated capitalization rate to the proposed subject hotel's economic ground rent results in the following estimate of land value.

Economic Ground Rent / Capitalization Rate	=	[redacted]	(b)(4)

This conclusion has been rounded to $10,400,000 in the remainder of our analysis.

Entrepreneurial Incentive

Entrepreneurial incentive represents the anticipated monetary benefit for hotel developers to induce the construction of a new hotel project. As a result of economic conditions in the hotel industry, developer's profit has not always been in evidence. If the economic value of a new hotel does not exceed development cost, indicating that developers will not earn any profit from their effort, the project most likely would not go forward because the financial incentive is not present. We note that our estimate of entrepreneurial incentive is calculated as 25.0% of the development cost. The following illustrates our calculation.

FIGURE 13-2 ENTREPRENEURIAL INCENTIVE ESTIMATE

Item	Profit Percentage	Cost	Entrepreneurial Incentive
Construction			
Furniture, Fixtures & Equipment			
Soft Costs			
Land Value			
Total			

(b)(4)

Total Development Cost

In the estimation of value according to the cost approach, the values of several components of the total property were quantified. Land value was based on the ground lease approach. The development cost of the building improvements and personal property was estimated based on the actual development budget or cost as previously presented. The following table summarizes our estimate of the total cost new to build the subject property.

FIGURE 13-3 RECAP OF TOTAL DEVELOPMENT COST

Item	Amount
Construction	
Furniture, Fixtures & Equipment	
Soft Costs	
Land Value	
Entrepreneurial Incentive	
Total Replacement Cost	
Rounded to	

(b)(4)

We have estimated the total development cost at roundly $35,500,000. Due to the hotel's proposed status, this value estimate is considered somewhat applicable to our appraisal analysis.

Insurable Value

We have estimated the insurable value of the proposed subject hotel. The starting point for the estimation of value for insurance purposes is the replacement cost of the building and site improvements.

For the purpose of estimating insurable value, only hard or direct construction costs should be reflected; therefore, certain exclusions need to be taken into consideration. Exclusions typically constitute 5.0% to 10.0% of the replacement cost and include items such as landscaping, parking, other yard improvements, and the foundation or sub-structure. In this analysis, a 5.0% adjustment was made to the replacement cost of the hotel to account for these exclusions. The estimated

(b)(4)

replacement cost of the personal property is added to the adjusted replacement cost of the building. Based on the developer's construction budget, the replacement cost of personal property is estimated to be approximately [redacted] per room, or [redacted] in total.

Our estimate of insurable value is presented in the following table.

FIGURE 13-4 ESTIMATE OF INSURABLE VALUE

Building Replacement Cost	
Less Exclusions (5%)	
Insurable Value of Structures	
Plus Furniture, Fixtures, & Equipment	
Total Insurable Value	
Rounded to:	

(b)(4)

It should be noted that the exclusions that are subtracted to calculate insurable value are a matter of underwriting policy rather than valuation methodology. Different insurance policies may exclude all or only some of the items outlined herein. We have deducted all the exclusions that are typical in determining insurable value; however, the reader is advised to examine each applicable insurance policy (including riders and endorsements) to determine the exclusions that should be considered when determining insurable value.

Although excavations and foundations are typically excluded from replacement cost in determining insurable value, re-use of these areas of the structure may not be permissible or maximally productive as a result of changes in the neighborhood's character, surrounding land uses, building styles, building codes, and the necessity of repair and modification. Architect's fees are also typically deducted from replacement cost in determining insurable value, but this provision assumes both that the building would be reconstructed in the same design, and that the original plans would be available. We have estimated insurable value in a manner typically accepted by investors, but it is important to note the factors cited above when examining the estimate of insurable value.

This analysis should not be relied upon to determine actual insurance coverage, which can be properly estimated only by consultants considered experts in cost estimation and insurance underwriting. It is provided to aid in the overall decision-making process of the client/reader/user, and no representations or warranties are made by HVS regarding the accuracy of this estimate. We strongly

recommend that other sources be utilized to develop any estimate of insurable value.

Value of the Personal Property

Personal property is an integral part of a transient lodging facility. Without furniture, fixtures, and equipment, a hotel could not operate its facilities and rent its guestrooms, and thus would not be able to generate any income attributable to the real property. Personal property and real property are uniquely combined in a hotel; unlike an office or other commercial building, a hotel would have to close its doors without furniture, fixtures, and equipment.

The physical separation of personal property from real property in a hotel is a theoretical issue rather than a practical matter. Lodging facilities are generally sold with their furniture, fixtures, and equipment in place. While a lender may be restricted from financing the purchase of personal property, a hotel's real property would have little value without personal property.

The removal of personal property from a hotel for sale would result in a minimal sales price for the personal property. Furniture, fixtures, and equipment, once installed, depreciate very rapidly. Most furnishings in a hotel can command little more than a salvage value substantially lower than the original cost when sold separately from the improvements. Given the proposed nature of the subject property, the value of the personal property is reflected by the furniture, fixtures, and equipment estimate presented previously, rounded to [redacted] (b)(4)

The following table sets forth a depreciation schedule developed by HVS for determining the market value, or "value in exchange," of a hotel's FF&E. The depreciation estimates represent the average depreciation applicable to the entirety of a hotel's personal property; these have been applied to the original cost of the FF&E.

FIGURE 13-5 FURNITURE, FIXTURES, AND EQUIPMENT DEPRECIATION SCHEDULE

Average Age (Years)	Percent Depreciated
1	40 %
2	60
3	70
4	75
5	80
6	85
7	89
8	92
9	95
10	98

Source: HVS

At stabilization, the effective age, considering any replacements that are expected to occur prior to the stabilized year, is estimated to be three years. Using an adjusted replacement cost per room of and a depreciation factor of 70.0%, the estimated value of the personal property when stabilized will be [redacted]

(b)(4)

14. Reconciliation of Value Indications

The reconciliation, which is the last step in the appraisal process, involves summarizing and correlating the data and procedures employed throughout the analysis. The final value conclusion is arrived at after reviewing the estimates indicated by the income capitalization, sales comparison, and cost approaches. The relative significance, applicability, and defensibility of each indicated value are considered, and the greatest weight is given to that approach deemed most appropriate for the property being appraised.

The purpose of this report is to estimate the market value of the fee simple interest in the subject property; our appraisal involves a careful analysis of the property itself and the economic, demographic, political, physical, and environmental factors that influence real estate values.

Income Capitalization Approach

To estimate the subject property's value via the income capitalization approach, we have analyzed the local market for transient accommodations, examined the competitive environment, projected occupancy and average rate levels, and developed a forecast of income and expense that reflects anticipated income trends and cost components through a stabilized year of operation. The subject property's projected net income before debt service was allocated to the mortgage and equity components based on market rates of return and loan-to-value ratios. Through a discounted cash flow and income capitalization procedure, the value of each component was calculated; the total of the mortgage and equity components equates to the value of the property.

Our nationwide experience indicates that the procedures used in estimating market value by the income capitalization approach are comparable to those employed by the hotel investors who constitute the marketplace. For this reason, we believe that the income capitalization approach produces the most supportable value estimate, and it is given the greatest weight in our final estimate of the subject property's market value.

Sales Comparison Approach

The sales comparison approach uses actual sales of similar properties to provide an indication of the subject property's value. Although we have investigated a number of sales in an attempt to develop a range of value indications, several adjustments are necessary to render these sales prices applicable to the subject property. The adjustments, which tend to be subjective, diminish the reliability of the sales comparison approach; furthermore, typical hotel investors employ a sales comparison procedure only to establish broad value parameters.

(b)(4)

The hotel sales outlined earlier in this report indicate an adjusted value range of [redacted] per available room. The income capitalization approach indicates a per room value of [redacted] This information supports the value indicated by the income capitalization approach.

Cost Approach

As discussed in the Cost Approach chapter, this methodology is applicable for this property, as it is proposed, and has been heavily considered in our reconciliation process.

Value Conclusion

Careful consideration has been given to the strengths and weaknesses of the three approaches to value discussed above. In recognition of the purpose of this appraisal, we have given primary weight to the value indicated by the income capitalization approach.

The "as is" market value of the property is calculated by adding the hard and soft costs spent-to-date to the estimated land value. Based on information provided by ownership representatives, approximately [redacted] has been spent on items such as architect retainer fee, structure engineer retainer fee, real estate taxes, permitting, franchise application, and other professional and financing expenses. Our calculation is illustrated in the following table.

FIGURE 14-1 "AS IS" VALUE CALCULATION

"As Is" Value Calculation	Amount
Land Value Opinion	[redacted]
Plus	
Amount Spent-to-Date	
"As-Is" Market Value	
Rounded to:	

Based on our analysis, it is our opinion that the "as is" market value of the fee simple interest in the Proposed Holiday Inn Express & Suites Woodside, as of August 3, 2015, is [redacted]

Based on our analysis, it is our opinion that the "when complete" market value of the fee simple interest in the real and personal property of the Proposed Holiday Inn Express & Suites Woodside, as of March 1, 2018, will be:

[redacted]

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This value estimate equates to [redacted] per room. We have also estimated the prospective market value of the subject property as of its projected date of stabilization. Based on our analysis, it is our opinion that the "when stabilized" prospective market value of the fee simple interest in the real and personal property of the Proposed Holiday Inn Express & Suites Woodside, as of March 1, 2020, will be:

[redacted]

This value opinion equates to [redacted] per room. The estimates of market value include the land, the improvements, and the furniture, fixtures, and equipment. The appraisal assumes that the hotel is open and operational.

(b)(4)

We have made no assumptions of hypothetical conditions in our report. The analysis is based on the extraordinary assumption that the described improvements have been completed as of the prospective "when complete" date of value. The reader should understand that the completed subject property does not yet exist as of the date of appraisal. Our appraisal does not address unforeseeable events that could alter the proposed project and/or the market conditions reflected in the analyses; we assume that no significant changes, other than those anticipated and explained in this report, shall take place between the date of inspection and date of prospective value. Furthermore, the subject property is located in a designated "Special Area" for tax purpose; our projection is predicated upon the extraordinary assumption that the subject hotel will receive the ICAP tax abatement for a 25-year period. The use of these extraordinary assumptions may have affected the assignment results. We have made no other extraordinary assumptions specific to this appraisal. However, several important general assumptions have been made that apply to this appraisal and our valuations of proposed hotels in general. These aspects are set forth in the Assumptions and Limiting Conditions chapter of this report.

Allocation of Value

USPAP requires the appraiser to "identify any personal property, trade fixtures, or intangible items that are not real property but are included in the appraisal" and "to analyze the effect on value of such non-real property items."[16] The estimates of prospective market value include the land, improvements, and personal property. The appraisal assumes that the hotel is open and operational at this time.

[16] The Appraisal Foundation, Uniform Standards of Professional Appraisal Practice, 2012-2013 Ed. (Washington: The Appraisal Foundation, 2012).

Hotels comprise three primary components: the real property (land and improvements), personal property, and intangible property. Real property is "the interests, benefits, and rights inherent in the ownership of real estate (land and improvements."[17] Personal property is defined as "identifiable tangible objects that are considered by the general public as being 'personal' - for example, furnishings, artwork, antiques, gems and jewelry, collectibles, machinery and equipment; all tangible property that is not classified as real estate."[18]

The personal property consists of the furniture, fixtures, and equipment (FF&E) and the inventories in place at the subject property as of the date of value. Personal property is an integral part of a transient lodging facility. The allocation of a portion of the overall hotel's value to the personal property is not explicitly considered by hotel investors in making their pricing decisions. Lodging facilities are usually sold with their personal property in place. In accordance with the Uniform Standards of Professional Appraisal Practice (USPAP), the appraisers have delineated the market value of the subject hotel's personal property.

USPAP defines intangible property as "nonphysical assets, including but not limited to franchises, trademarks, patents, copyrights, goodwill, equities, securities, and contracts as distinguished from physical assets such as facilities and equipment."[19] All value attributable to the intangible property has been removed with the assumed expense of a management fee and a franchise fee (if applicable) in the valuation process.

Our concluded opinions of the subject hotel's market value include the value of the real property (land and improvements) and the value of the personal property only.

FIGURE 14-1 ALLOCATION OF REAL PROPERTY VALUE

Property Value Component Represented	Allocation
Real Property	
Personal Property	
Intangible Property	
Total "When Complete" Market Value	

(b)(4)

[17] Ibid.
[18] Ibid.
[19] Ibid.

Allocation – Prospective Market Value upon Stabilization

The value allocation upon stabilization of the as follows:

FIGURE 14-2 ALLOCATION OF REAL PROPERTY VALUE – STABILIZED VALUE

Property Value Component Represented	Allocation
Real Property	
Personal Property	
Intangible Property	
Total "When Stabilized" Market Value	

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15. Statement of Assumptions and Limiting Conditions

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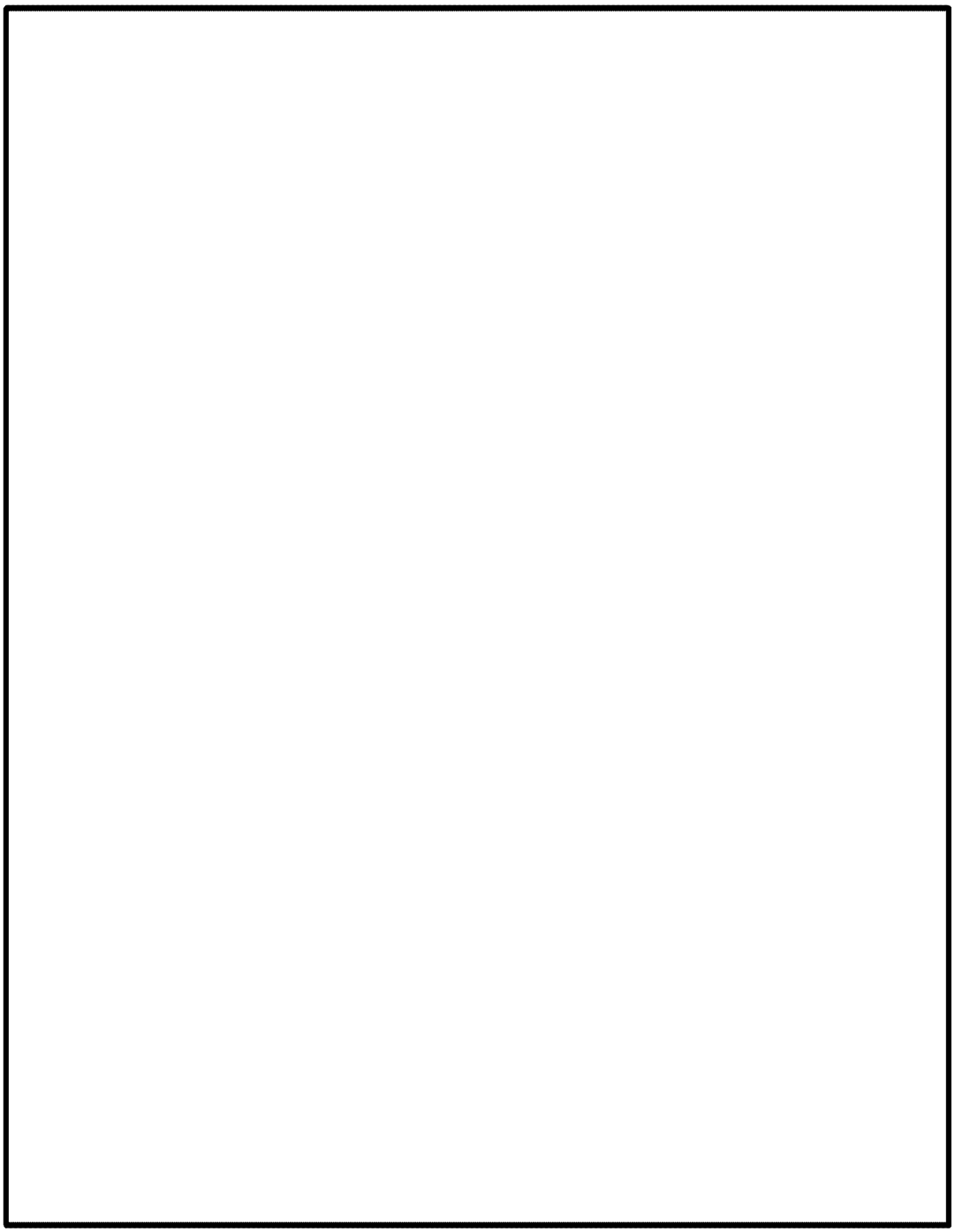

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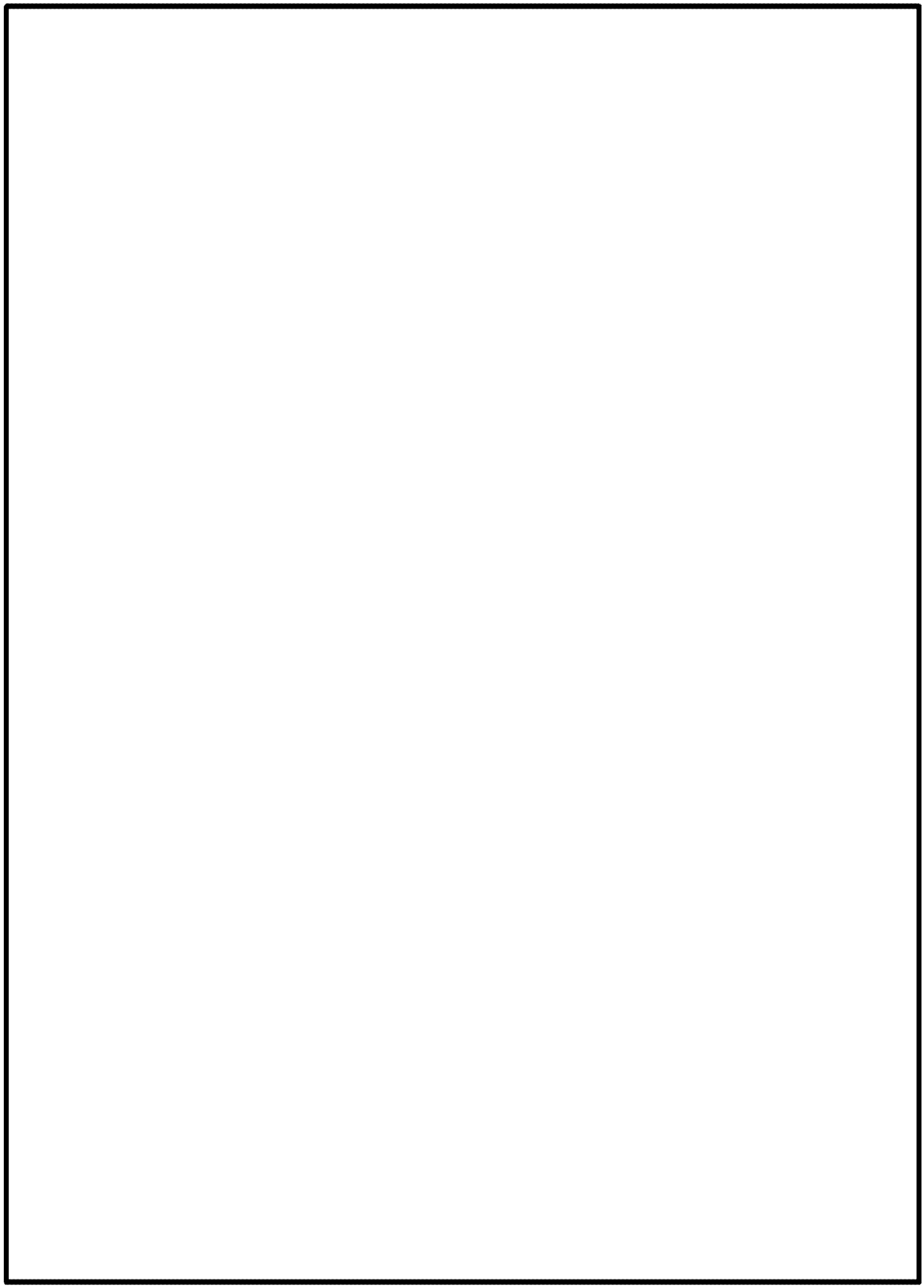

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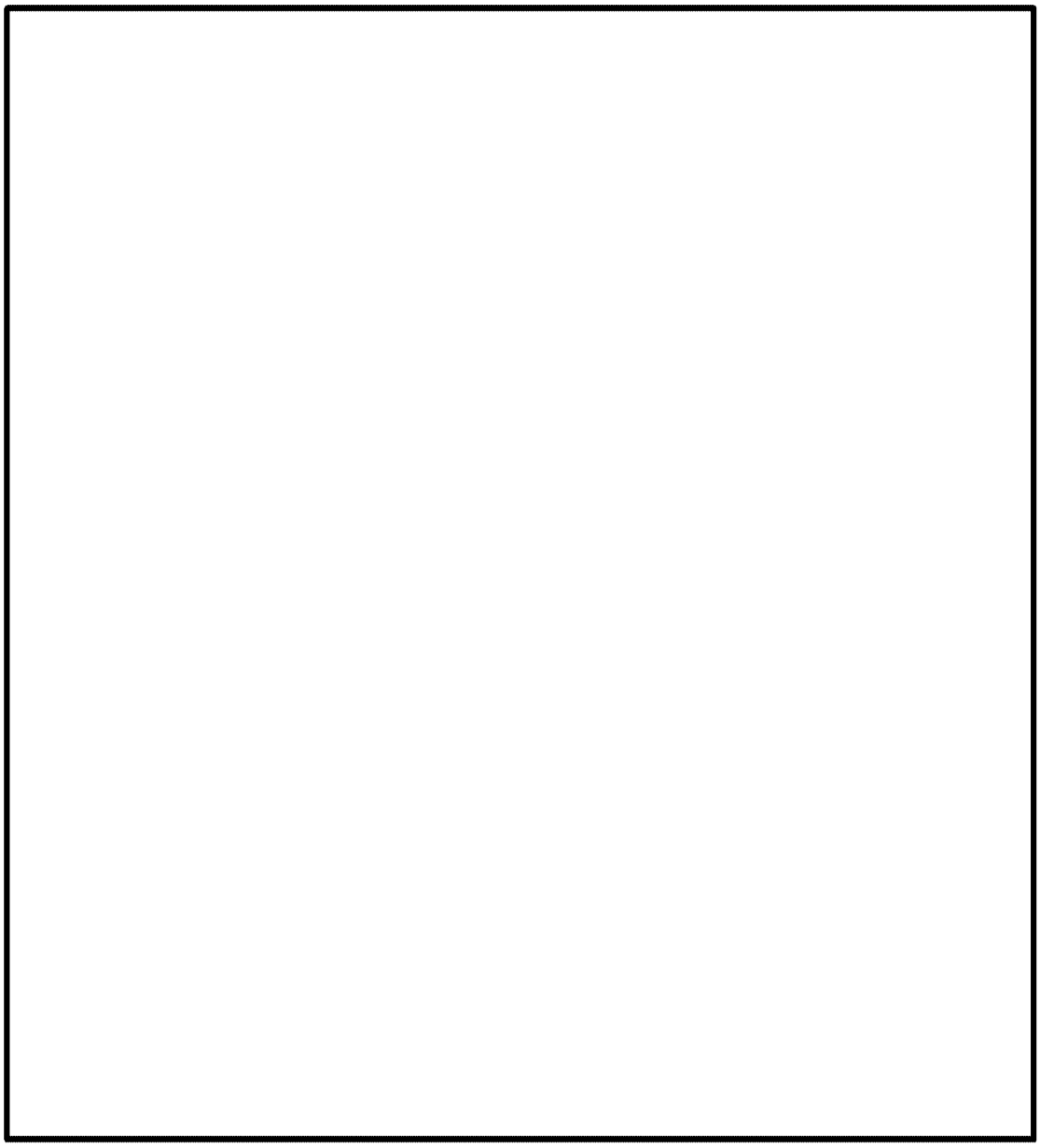


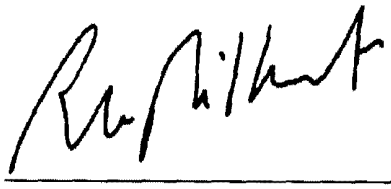
16. Certification

The undersigned hereby certify that, to the best of our knowledge and belief:

1. the statements of fact presented in this report are true and correct;
2. the reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, opinions, and conclusions;
3. we have no (or the specified) present or prospective interest in the property that is the subject of this report and no (or the specified) personal interest with respect to the parties involved;
4. we have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment;
5. our engagement in this assignment was not contingent upon developing or reporting predetermined results;
6. our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal;
7. our analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice;
8. Chu Y. Xu and Roland deMilleret, MAI personally inspected the property described in this report;
9. Chu Y. Xu provided significant real property appraisal assistance to Roland deMilleret, MAI, and that no one other than those listed above and the undersigned prepared the analyses, conclusions, and opinions concerning the real estate that are set forth in this appraisal report; Roland deMilleret, MAI has performed one appraisal on the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment;
10. the reported analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and the Standards of Professional Appraisal Practice of the Appraisal Institute;

11. the use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives; and

12. as of the date of this report, Roland deMilleret, MAI has completed the continuing education program for Designated Members of the Appraisal Institute.



Roland deMilleret, MAI
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Penetration Explanation

Let us illustrate the penetration adjustment with an example.

A market has three existing hotels with the following operating statistics:

BASE-YEAR OCCUPANCY AND PENETRATION LEVELS (b)(4)

Property	Number of Rooms	Fair Share	Commercial	Meeting and Group	Leisure	Occupancy	Penetration
Hotel A							
Hotel B							
Hotel C							
Totals/Average							

Based upon each hotel's room count, market segmentation, and annual occupancy, the annual number of room nights accommodated in the market from each market segment can be quantified, as set forth below.

MARKET-WIDE ROOM NIGHT DEMAND

Market Segment	Annual Room Night Demand	Percentage of Total
Commercial		
Meeting and Group		
Leisure		
Total		

(b)(4)

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The following discussion will be based upon an analysis of the commercial market segment. The same methodology is applied for each market segment to derive an estimate of a hotel's overall occupancy. The table below sets forth the commercial demand accommodated by each hotel. Each hotel's commercial penetration factor is computed by:

1) calculating the hotel's market share % of commercial demand (commercial room nights accommodated by subject hotel divided by total commercial room nights accommodated by all hotels) and

2) dividing the hotel's commercial market share % by the hotel's fair share %.

The following table sets forth each hotel's fair share, commercial market share, and commercial penetration factor.

COMMERCIAL SEGMENT PENETRATION FACTORS (b)(4)

Property	Number of Rooms	Fair Share	Commercial Capture	Commercial Market Share	Commercial Penetration
Hotel A					
Hotel B					
Hotel C					
Totals/Average					

If a new 100-room hotel enters the market, the fair share of each hotel changes because of the new denominator, which has increased by the 100 rooms that have been added to the market.

COMMERCIAL SEGMENT FAIR SHARE

Property	Number of Rooms	Fair Share
Hotel A		
Hotel B		
Hotel C		
New Hotel		
Total		

(b)(4)

The new hotel's penetration factor is projected for its first year of operation. It is estimated that the hotel will capture (penetrate) only 85% of its fair share as it establishes itself in the market. The new hotel's market share and room night capture can be calculated based upon the hotel's estimated penetration factor. When the market share of the existing hotels and that of the new hotel are added up, they no longer equal 100% because of the new hotel's entry into the market. The market share of each hotel must be adjusted to reflect the change in the denominator that comprises the sum of each hotel's market share.

This adjustment can be mathematically calculated by dividing each hotel's market share percentages by the new denominator of 97.1%. The resulting calculations reflect each hotel's new adjusted market share. The sum of the adjusted market shares equals 100%, indicating that the adjustment has been successfully completed. Once the market shares have been calculated, the penetration factors can be recalculated (adjusted market share divided by fair share) to derive the adjusted penetration factors based upon the new hotel's entry into the market. Note that each existing hotel's penetration factor actually increases because the new hotel is capturing (penetrating) less than its fair share of demand.

COMMERCIAL SEGMENT PROJECTIONS (YEAR 1)

Property	Number of Rooms	Fair Share	Hist./Proj. Penetration Factor	Hist./Proj. Market Share	Adjusted Market Share	Adjusted Penetration Factor	Projected Capture
Hotel A							
Hotel B							
Hotel C							
New Hotel							
Totals/Average							

(b)(4)

In its second year of operation, the new hotel is projected to penetrate above its fair share of demand. A penetration rate of 130% has been chosen, as the new hotel is expected to perform at a level commensurate with Hotel A and Hotel B in this market segment. The same calculations are performed to adjust market share and penetration factors. Note that now the penetration factors of the existing hotels decline below their original penetration rates because of the new hotel's above-market penetration. Also, note that after the market share adjustment, the new hotel retains a penetration rate commensurate with Hotel A and Hotel B, though the penetration rates of all three hotels have declined by approximately nine percentage points because of the reapportionment of demand.

Once the market shares of each hotel have been adjusted to reflect the entry of the new hotel into the market, the commercial room nights captured by each hotel may be projected by multiplying the hotel's market share percentage by the total commercial room-night demand. This calculation is shown below.

COMMERCIAL SEGMENT PROJECTIONS (YEAR 2)

Property	Number of Rooms	Fair Share	Hist./Proj. Penetration Factor	Hist./Proj. Market Share	Adjusted Market Share	Adjusted Penetration Factor	Projected Capture
Hotel A							
Hotel B							
Hotel C							
New Hotel							
Totals/Average							

(b)(4)

Explanation of the Simultaneous Valuation Formula

The algebraic equation known as the simultaneous valuation formula, which solves for the total property value using a ten-year mortgage and equity technique, was developed by Suzanne R. Mellen, CRE, MAI, FRICS, ISHC, Senior Managing Director of the San Francisco office of HVS. A complete discussion of the technique is presented in her article entitled "Simultaneous Valuation: A New Technique."[20]

The process of solving for the value of the mortgage and equity components begins by deducting the annual debt service from the projected income before debt service, leaving the net income to equity for each year. The net income as of the eleventh year is capitalized into a reversionary value using the terminal capitalization rate. The equity residual, which is the total reversionary value less the mortgage balance at that point in time and less any brokerage and legal costs associated with the sale, is discounted to the date of value at the equity yield rate. The net income to equity for each projection year is also discounted back to the date of value. The sum of these discounted values equals the value of the equity component. Because the equity component comprises a specific percentage of the total value, the value of the mortgage and the total property can be computed easily. This process can be expressed in two algebraic equations that set forth the mathematical relationships between the known and unknown variables using the following symbols.

[20] Suzanne R. Mellen, "Simultaneous Valuation: A New Technique," *Appraisal Journal*, April 1983.

NI	=	Net income available for debt service
V	=	Value
M	=	Loan-to-value ratio
f	=	Annual debt service constant
n	=	Number of years in the projection period
d_e	=	Annual cash available to equity
d_r	=	Residual equity value
b	=	Brokerage and legal cost percentage
P	=	Fraction of the loan paid off during the projection period
f_p	=	Annual constant required to amortize the entire loan during the projection period
R_r	=	Overall terminal capitalization rate that is applied to net income to calculate the total property reversion (sales price at the end of the projection period)
$1/S^n$	=	Present worth of $1 factor (discount factor) at the equity yield rate

Using these symbols, the following formulas can be used to express some of the components of this mortgage and equity valuation process.

Debt Service – A property's debt service is calculated by first determining the mortgage amount that equals the total value (V) multiplied by the loan-to-value ratio (M). Debt service is derived by multiplying the mortgage amount by the annual debt service constant (f). The following formula represents debt service.

$$f \times M \times V = \text{Debt Service}$$

Net Income to Equity (Equity Dividend) – The net income to equity (d_e) is the property's net income before debt service (NI) less debt service. The following formula represents the net income to equity.

$$NI - (f \times M \times V) = d_e$$

Reversionary Value – The value of the hotel at the end of the tenth year is calculated by dividing the eleventh-year net income before debt service (NI^{11}) by the terminal capitalization rate (R_r). The following formula represents the property's tenth-year reversionary value.

$$(NI^{11}/R_r) = \text{Reversionary Value}$$

Brokerage and Legal Costs - When a hotel is sold, certain costs are associated with the transaction. Normally, the broker is paid a commission and the attorney collects legal fees. In the case of hotel transactions, brokerage and legal costs typically range from 1% to 4% of the sales price. Because these expenses reduce the proceeds to the seller, they are usually deducted from the reversionary value in the mortgage and equity valuation process. Brokerage and legal costs (b), expressed as a percentage of reversionary value (NI^{11}/R_r), are calculated by application of the following formula.

$$b\ (NI^{11}/R_r) = \text{Brokerage and Legal Costs}$$

Ending Mortgage Balance - The mortgage balance at the end of the tenth year must be deducted from the total reversionary value (debt and equity) in order to determine the equity residual. The formula used to determine the fraction of the loan remaining (expressed as a percentage of the original loan balance) at any point in time (P) takes the annual debt service constant of the loan over the entire amortization period (f) less the mortgage interest rate (i), and divides it by the annual constant required to amortize the entire loan during the ten-year projection period (f_p) less the mortgage interest rate. The following formula represents the fraction of the loan paid off (P).

$$(f - i)/(f_p - i) = P$$

If the fraction of the loan paid off (expressed as a percentage of the initial loan balance) is P, then the remaining loan percentage is expressed as 1 - P. The ending mortgage balance is the fraction of the remaining loan (1 - P) multiplied by the initial loan amount (M x V). The following formula represents the ending mortgage balance.

$$(1 - P) \times M \times V$$

Equity Residual Value - The value of the equity upon the sale at the end of the projection period (d_r) is the reversionary value less the brokerage and legal costs and the ending mortgage balance. The following formula represents the equity residual value.

$$(NI^{11}/R_r) - (b\ (NI^{11}/R_r) - ((1 - P) \times M \times V) = d_r$$

Annual Cash Flow to Equity - The annual cash flow to equity consists of the equity dividend for each projection year plus the equity residual at the end of the tenth year. The following formula represents the annual cash flow to equity.

$$NI^1 - (f \times M \times V) = d_e{}^1$$

$$NI^2 - (f \times M \times V) = d_e{}^2$$

$$NI^{10} - (f \times M \times V) = d_e{}^{10}$$

$$(NI^{11}/R_r) - (b\,(NI^{11}/R_r) - ((1 - P) \times M \times V) = d_r$$

Value of the Equity – If the initial mortgage amount is calculated by multiplying the loan-to-value ratio (M) by the property value (V), then the equity value is one minus the loan-to-value ratio multiplied by the property value. The following formula represents the value of the equity.

$$(1 - M)\,V$$

Discounting the Cash Flow to Equity to the Present Value – The cash flow to equity in each projection year is discounted to the present value at the equity yield rate ($1/S^n$). The sum of these cash flows is the value of the equity (1 - M) V. The following formula represents the calculation of equity as the sum of the discounted cash flows.

$$(d_e{}^1 \times 1/S^1) + (d_e{}^2 \times 1/S^2) + \ldots + (d_e{}^{10} \times 1/S^{10}) + (d_r \times 1/S^{10}) = (1 - M)\,V$$

Combining the Equations: Annual Cash Flow to Equity and Discounting the Cash Flow to Equity to the Present Value – The last step is to arrive at one overall equation that shows that the annual cash flow to equity plus the yearly discounting to the present value equals the value of the equity.

$$((NI^1 - (f \times M \times V))\ 1/S^1) + ((NI^2 - (f \times M \times V))\ 1/S^2) + \ldots$$

$$((NI^{10} - (f \times M \times V))\ 1/S^{10}) +$$

$$(((NI^{11}/R_r) - (b\,(NI^{11}/R_r)) - ((1 - P) \times M \times V))\ 1/S^{10}) = (1 - M)\,V$$

Because the only unknown in this equation is the property's value (V), it can be solved readily.

Ten-Year Projection of Income and Expense – Because the fixed and variable forecast of income and expense is carried out only to the stabilized year, it is necessary to continue the projection to the eleventh year. In most cases, net income before debt service beyond the stabilized year is projected at an assumed inflation rate. By increasing a property's revenue and expenses at the same rate of inflation, net income remains constant as a percentage of total revenue, and the dollar amount escalates at the annual inflation rate. The ten-year forecast of

income and expense illustrates the subject property's net income, which is assumed to increase by 3.0% annually subsequent to the hotel's stabilized year of operation.

The following values are assigned to the variable components for the purposes of this valuation.

SUMMARY OF KNOWN VARIABLES

Annual Net Income	NI	See Ten-Year Forecast
Loan-To-Value Ratio	M	70 %
Interest Rate	*i*	5.50 %
Debt Service Constant	f	0.073690
Equity Yield	Ye	15.5 %
Transaction Costs	b	2.0 %
Annual Constant Required to Amortize the Loan in Ten Years	fp	0.130232
Terminal Capitalization Rate	Rr	9.0 %

The following table illustrates the present worth of a $1 factor at the 15.5% equity yield rate.

PRESENT WORTH OF $1 FACTOR AT THE EQUITY YIELD RATE

Year Ending	Present Worth of $1 Factor at 15.5%
2018/19	0.865777
2019/20	0.749569
2020/21	0.648960
2021/22	0.561854
2022/23	0.486441
2023/24	0.421149
2024/25	0.364621
2025/26	0.315680
2026/27	0.273309
2027/28	0.236624

Using these known variables, the following intermediary calculations must be made before applying the simultaneous valuation formula. The fraction of the loan paid off during the projection period is calculated as follows.

P = (0.07369 - 0.0550) / (0.13023 - 0.0550) = 0.248440

The annual debt service is calculated as f x M x V.

(f x M x V)= 0.07369 x 0.70 x V = (0.05158)V

Inserting the known variables into the hotel valuation formula produces the following.

(2,332,000 - 0.05158 V) x 0.8658 +
(2,796,000 - 0.05158 V) x 0.74961 +
(2,968,000 - 0.05158 V) x 0.64901 +
(3,046,000 - 0.05158 V) x 0.56192 +
(3,137,000 - 0.05158 V) x 0.48651 +
(3,232,000 - 0.05158 V) x 0.42122 +
(3,329,000 - 0.05158 V) x 0.36469 +
(3,429,000 - 0.05158 V) x 0.31575 +
(3,531,000 - 0.05158 V) x 0.27338 +
(3,638,000 - 0.05158 V) x 0.23669 +

(((3,747,000 / 0.090) - (0.020 x (3,747,000 / 0.090)) -

((1 - 0.248440) x 0.7 x V)) x 0.23669) = (1 - 0.7)V

Like terms are combined as follows.

$24,420,645 - 0.378547V = (1 - 0.70)V
$24,420,645 = 0.67855V
V = $24,420,645 / 0.67855
V = $35,989,607

Total Property Value as Indicated by the Income Capitalization Approach (Say) = $36,000,000

Roland deMilleret, MAI

(b)(6)

EMPLOYMENT

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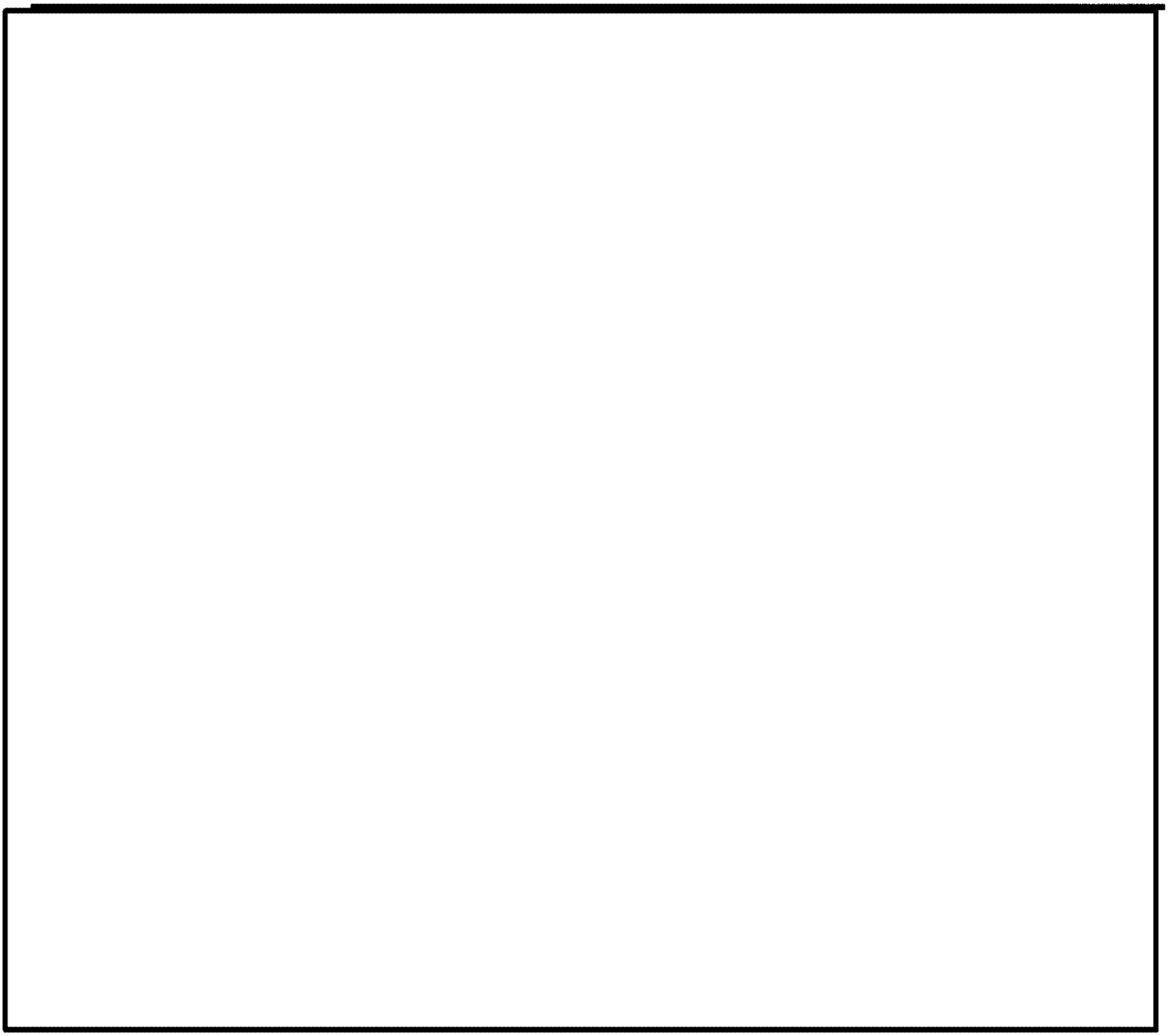

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PUBLISHED ARTICLES

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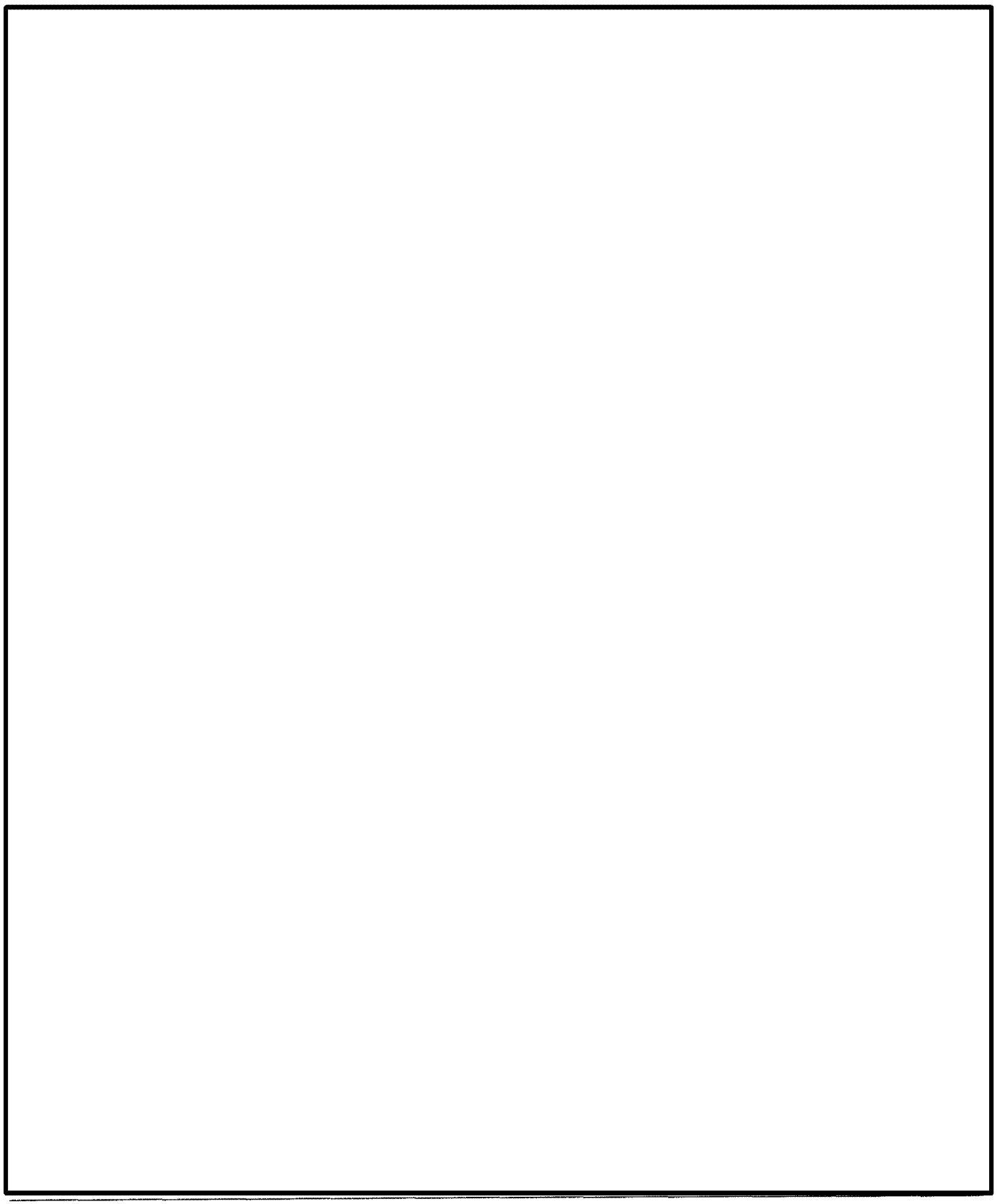
EXAMPLES OF CORPORATE AND INSTITUTIONAL CLIENTS SERVED

(b)(6)

EXAMPLES OF PROPERTIES APPRAISED OR EVALUATED



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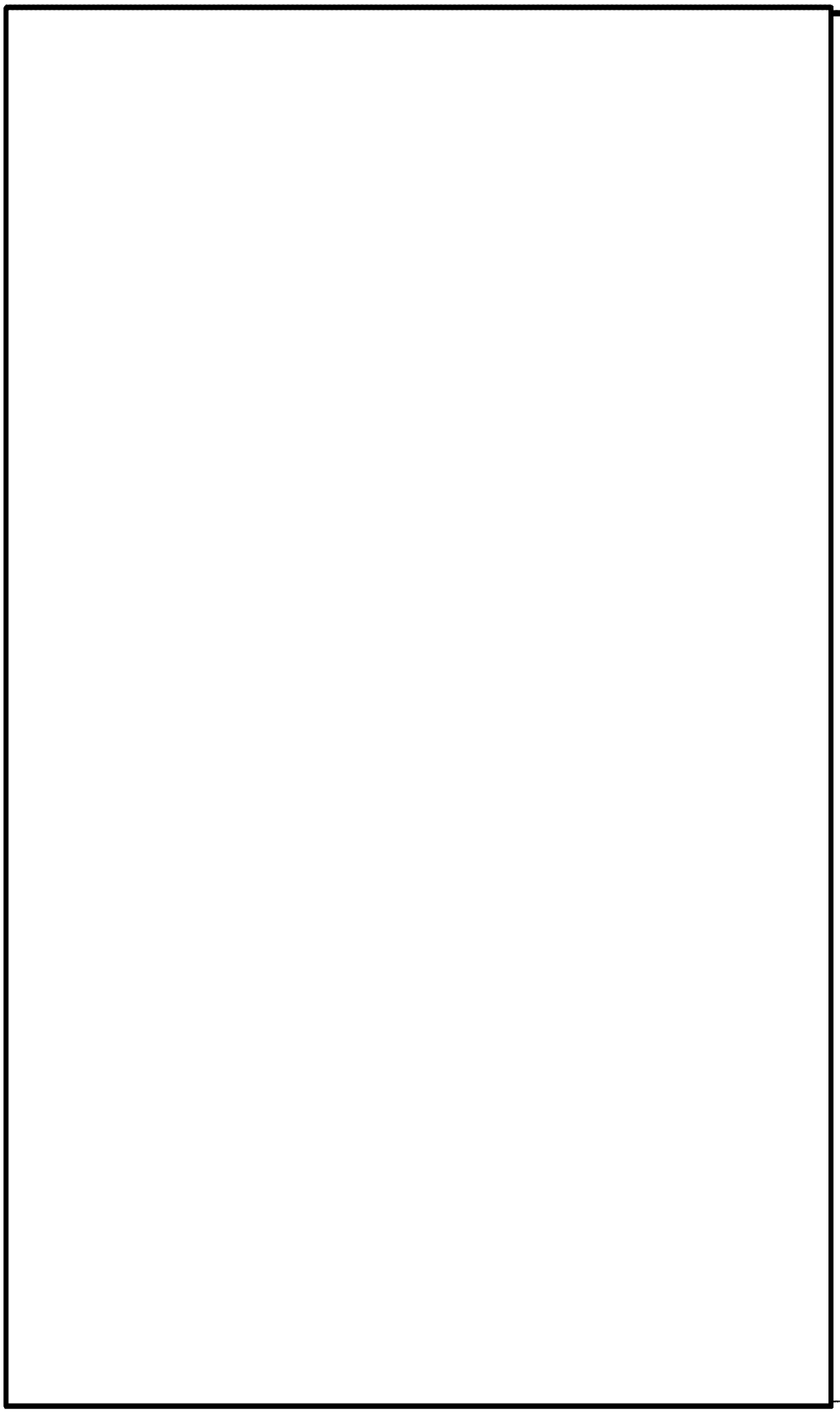

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REGIONAL CEN[illegible]ER: CENTURY NEW YO[illegible]
RECEIPT NO: RCW1[illegible]
PROJECT: QB VENTURES [illegible]

PETITIONER: [illegible]

Exhibi[illegible]

Construc[illegible]

- **Construction Timeline**, pre[illegible]
  Group
- **Certificate of Liability Insu[illegible]**

Holiday Inn Express Suites 64-06 Queens Blvd, Woodside NY

Preliminary Monthly Construction Schedule

10/01/2015 - 01/31/2016	Demolition
02/01/2016 - 5/31/2016	Excavation
05/01/2016 - 7/31/2016	Foundation Concrete
08/01/2016 - 02/28/2017	Concrete Superstructure
10/15/2016 - 03/31/2017	Exterior Wall
10/15/2016 - 03/31/2017	Windows & Storefront
06/01/2016 - 07/31/2016	
09/01/2016 - 03/15/2017	Plumbing Rough - In
10/15/2016 - 04/15/2017	Interior Framing
11/01/2016 - 05/31/2017	Electrical BX & Boxes
11/15/2016 - 07/15/2017	SheetRock
11/15/2016 - 08/15/2017	Tape & Spackle
08/01/2016 - 01/31/2017	Kadex Ceilings
10/15/2016 - 07/15/2017	Ceramic Tile & Marble
12/15/2016 - 11/30/2017	Specialities
12/15/2016 - 11/30/2017	Plumbing Fixtures
01/01/2017 - 11/30/2017	Electrical Devices / Fixtures
02/01/2017 - 02/15/2018	Room Millwork, Hardware & Doors
04/15/2017 - 04/30/2018	Final Paint
04/01/2017 - 04/30/2018	Punchlist
05/01/2017 - 04/30/2018	Final Cleaning
02/15/2017 - 7/31/2017	Lobby and Amenities
04/01/2017 - 01/15/2018	Restaurants / Restaurant Equipment
04/15/2017 - 05/15/2017	Elevator Machine Room w/Temp Power - High Rise
05/15/2017 - 8/31/2017	High Rise Elevator
06/15/2017 - 08/15/2017	1st TCO: Floors SC, C & Amenities
07/01/2017 - 12/15/2017	2nd TCO: Floors 1 thru 4
07/15/2017 - 02/28/2018	3rd TCO: Floors 5 thru 8
03/15/2017 - 7/15/2017	Retail / Commerical
03/15/2017 - 12/15/2017	Remove Hoist / Fin. Units

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(b)(4)

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(b)(4)

EW YORK CITY REGIONAL CENTER, LLC
RCW1420251818
TURES EB5 CAPITAL, LLC

NER: JOHN DOE

bit 11:

ral Documents

ent with Architect– this document is greement between developer (George nd Chan Architect, PC)
alysis– this document shows the e mixed used building

RAYMOND CHAN ARCHITECT
ARCHITECTS • PL
135-20 • 39th Avenue • 3rd Floor • Flushing • New York 11354 • Tel: 718.445.2388 • Fax: 718.359.8809

April 7, 2014 (Revised)

March 31, 2014 (Revised)
March 14, 2014

Mr. George Xu
35-06 Leavit St., Unit #CF-A
Flushing, NY 11354

E-Mail: georgexu88@yahoo.com

Re: Hotel / Apartment Hotel Development
64-06 Queens Blvd.
Woodside, NY
P. 21422

Dear George:

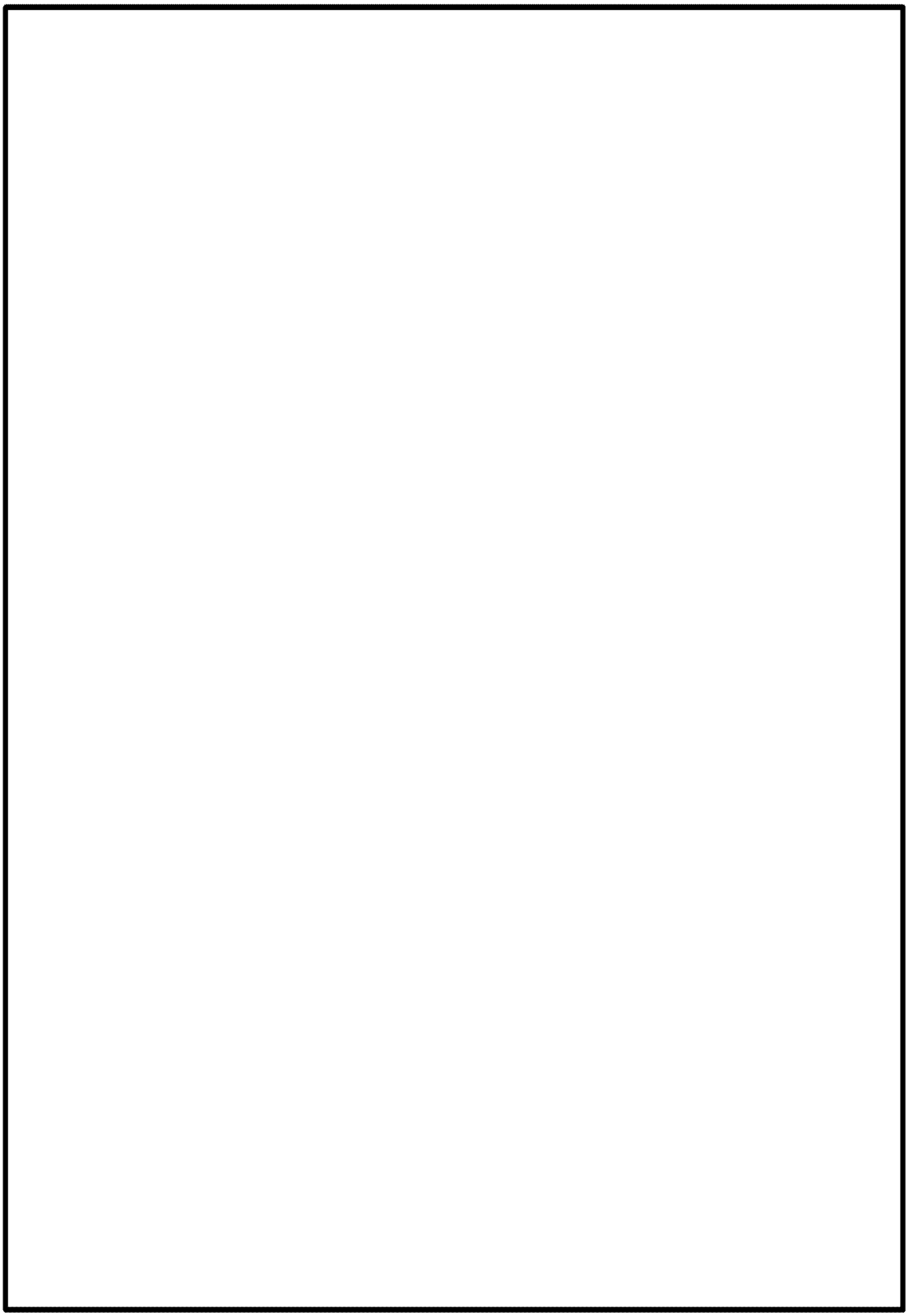
Thank you for taking time to review your project with me. It is my pleasure to submit this proposal for the architectural and engineering services for the above referenced project.

(b)(4) As per our meeting earlier, I have prepared this proposal for your review. I hope the followings will reflect your needs and concerns.

web://www.raymondchanarchitect.com • email:info@raymondchanarchitect.com

(b)(4)

II)



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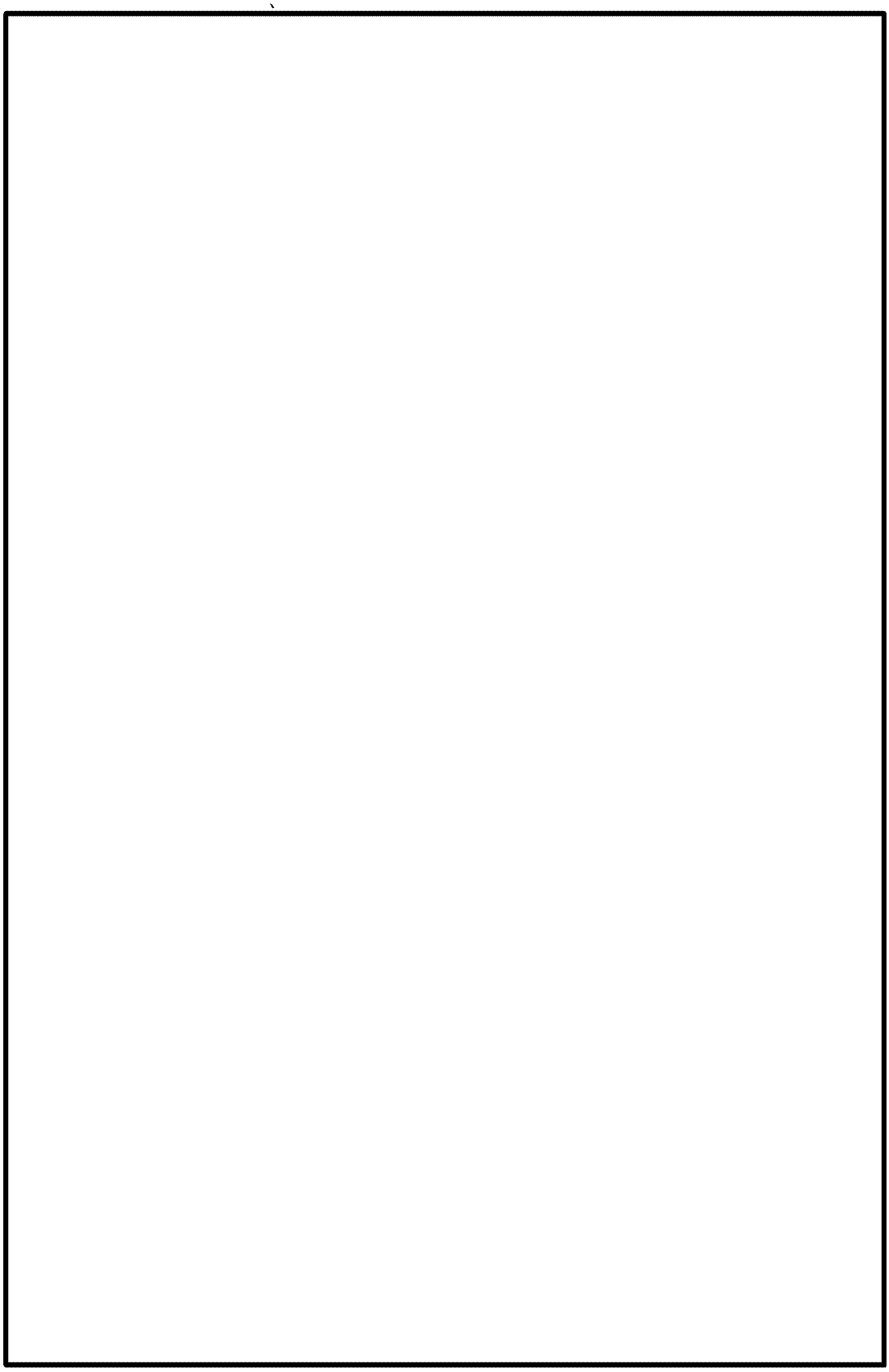

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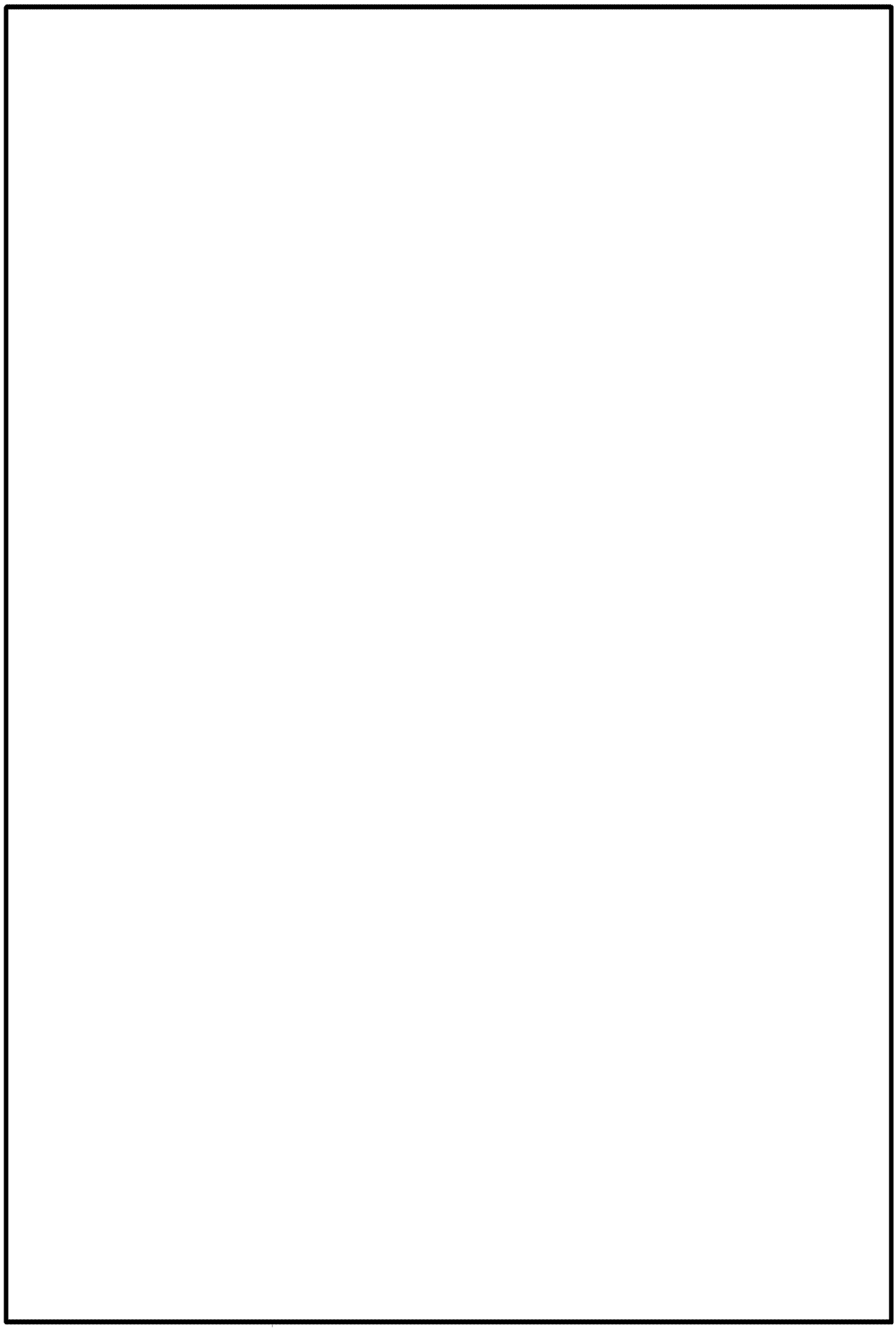

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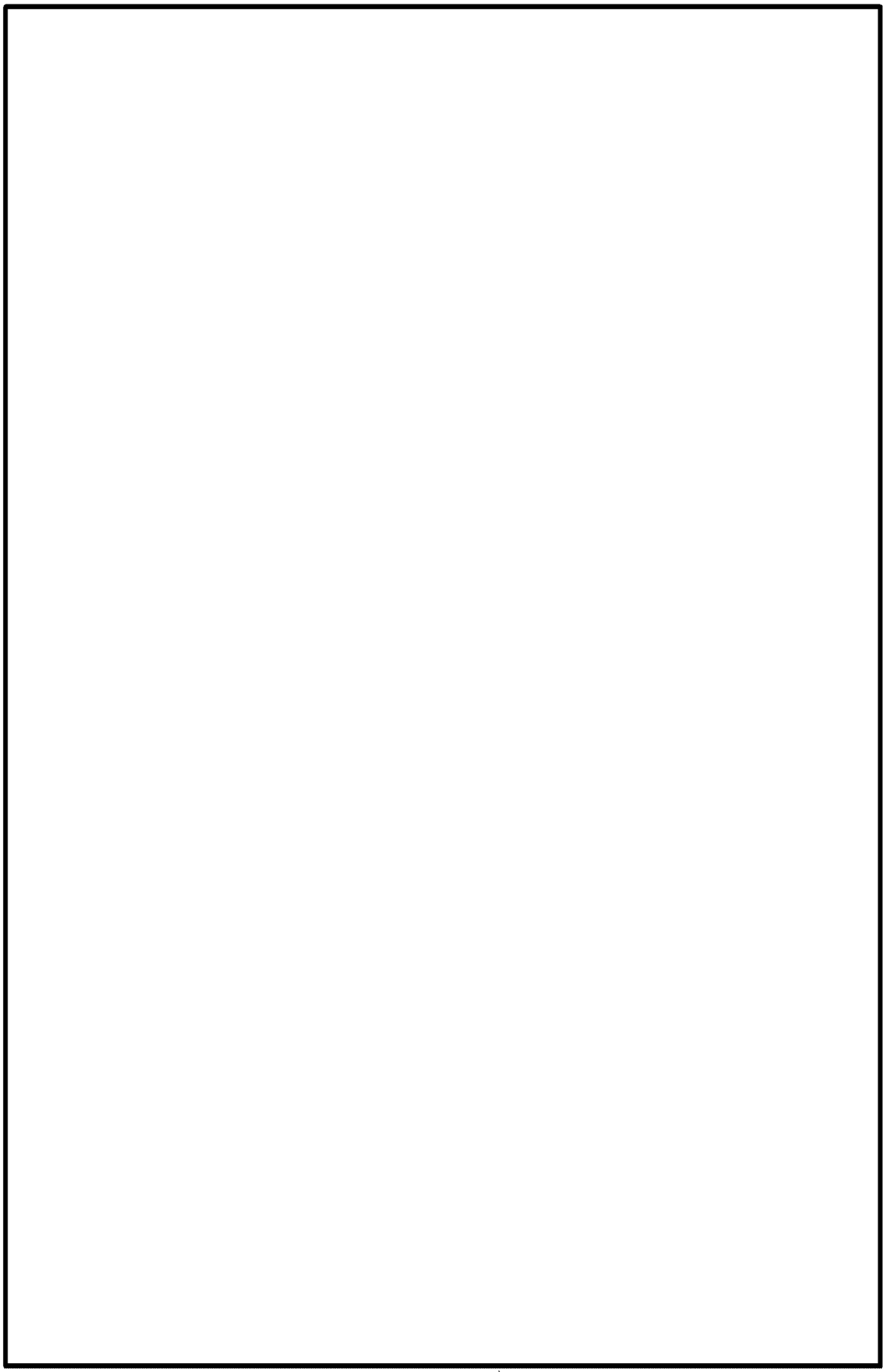

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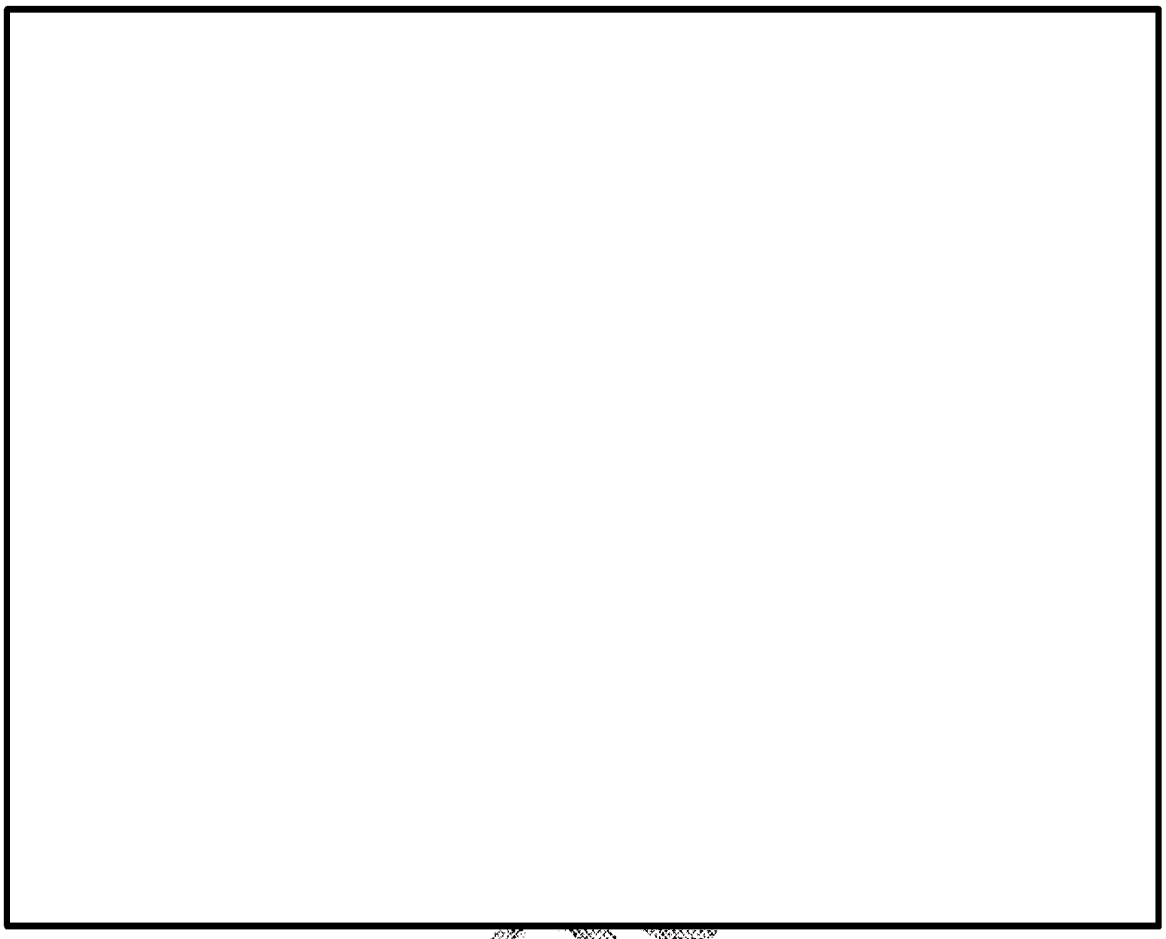


Very truly yours,

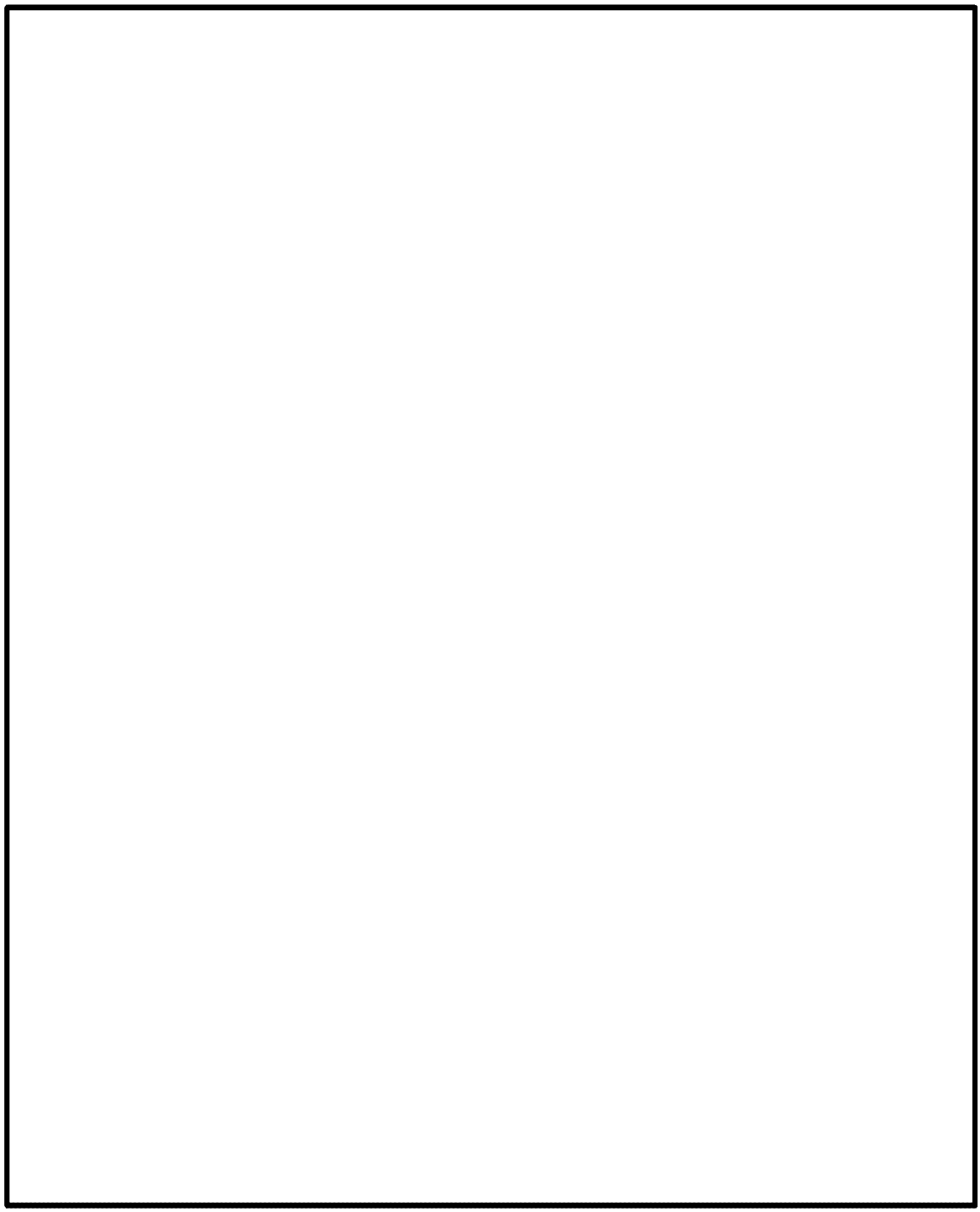
Raymond Chan, RA
for
Raymond Chan Architect, PC

Accepted by,

Mr. George Xu

PROOF

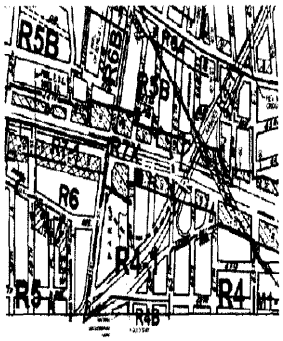
ITEMS TYPICALLY NOT INCLUDED IN FEE (b)(4)



No.	DATE	DESCRIPTION

BUILDING INFORMATION

ADDRESS: 64-06 QUEENS BLVD.
WOODSIDE, NY
BLOCK: 2325
LOT: 26, 30 &32
C.B.: --
ZONE: C2-3/R7X & R4-1
MAP #: 9d
U.G.: 2A (QUALITY HOUSING)
5A (TRANSIENT HOTEL)
O.G.: R2 (APARTMENT HOTEL)
R1 (TRANSIENT HOTEL)
C.C.: IB (PROPOSED)



ZONING BOUNDARY MAP NOT TO SCALE

SYMBOL LEGEND

- KEYNOTE INDICATION
- REVISION INDICATION
- FPSC FIRE PROOF SELF CLOSING MIN. 60' MINUTES
- N.Y.C. APPROVED COMBINATION SMOKE & CARBON MONOXIDE DETECTOR
- N.Y.C. APPROVED EXIT SIGN
- N.Y.C. APPROVED DIRECTIONAL EXIT SIGN
- N.Y.C. APPROVED RECESSED 3 HEADS EMERGENCY LIGHT
- N.Y.C. APPROVED RECESSED 2 HEADS EMERGENCY LIGHT
- OFFICE — ROOM NAME; 101 — ROOM NUMBER
- (101) — DOOR NUMBER
- (7) — WINDOW NUMBER
- (2) — PARTITION TYPE
- 2 / A1.01 — ELEV./SECT. NUMBER; DRAWING NUMBER
- A2.01 — ELEV. NUMBER; DRAWING NUMBER
- G16 / A401 — DETAIL NUMBER; DRAWING NUMBER
- ENLARGE AREA
- T.O.SLAB EL. [40'-0"] — ELEVATION INDICATION

SPECIAL INSPECTIONS	
FIRESTOP	BC 1704.25

SEPARATE APPLICATION	#
SHEETING, SHORING AND UNDERPINNING	#
STRUCTURE	#
FIRE ALARM	#
FIRE PROTECTION PLAN	#
EMERGENCY GENERATOR	#
FIRE SAFETY	#
BUILDER'S PAVEMENT PLAN	#
SITE CONNECTION	#

ABBREVIATION

A.F.F.	ABOVE FINISHED FLOOR	GWB.	GYPSUM WALLBOARD	R.D	ROOF DRAIN
A.D.	ACCESS DOOR	GYP. BD.	GYPSUM BOARD	REF.	REFERENCE
ALUM.	ALUMINUM	H.M.	HOLLOW METAL	REINF.	REINFORCEMENT
ARCH.	ARCHITECTURAL	HORIZ.	HORIZONTAL	REQ'D	REQUIRED
@	AT	H.P.	HIGH POINT	RM.	ROOM
B.O.	BOTTOM OF	HR.	HOUR	SECT.	SECTION
BLDG.	BUILDING	HT.	HEIGHT	SF	SQUARE FEET
CL.	CLOSET	H.V.A.C.	HEATING, VENTILATING, AIR CONDITIONING	SI	SQUARE INCH
℄	CENTER LINE			SIM.	SIMILAR
CLG.	CEILING	I.D.	INSIDE DIAMETER	S.O.	SLAB OPENING
COL.	COLUMN	I.G.U.	INSULATED GLASS UNIT	SPEC.	SPECIFICATIONS
CONC.	CONCRETE	INSUL.	INSULATION	ST.STL.	STAINLESS STEEL
CONT.	CONTINUOUS	JT.	JOINT	STL.	STEEL
C.W.	CURTAIN WALL	KIT.	KITCHEN	STOR.	STORAGE
DTL.	DETAIL	LAM.	LAMINATED	STRUCT.	STRUCTURAL
DIA.	DIAMETER	LAV.	LAVATORY	T	TREADS
DIM.	DIMENSION	L.P.	LOW POINT	T.O.	TOP OF
DN	DOWN	MAX.	MAXIMUM	T.O.S.	TOP OF SLAB
DWG.	DRAWING	MECH.	MECHANICAL	TEL.	TELEPHONE
D.U.	DWELLING UNIT	MEZZ.	MEZZANINE	TEMP.	TEMPORARY
EL.	ELEVATION	MTL.	METAL	THK.	THICKNESS
ELEC.	ELECTRIC	M.H.	MANHOLE	TYP.	TYPICAL
ELEV.	ELEVATOR	MIN.	MINIMUM	U.G.	USE GROUP
E.M.R.	ELEVATOR MACHINE ROOM	MISC.	MISCELLANEOUS	U.O.N.	UNLESS OTHERWISE NOTED
ENCL.	ENCLOSURE	M.O.	MASONRY OPENING	VERT.	VERTICAL
E.O.S.	EDGE OF SLAB	N.I.C.	NOT IN CONTRACT	VEST.	VESTIBULE
EQUIP.	EQUIPMENT	O.A.I.	OUTSIDE AIR INTAKE	W/	WITH
EXP. JT.	EXPANSION JOINT	O.C.	ON CENTER	W/D	WASHER AND DRYER
EXT.	EXTERIOR	OCC.	OCCUPANT	WD.	WOOD
F.D.	FLOOR DRAIN	O.D.	OUTSIDE DIAMETER	W.P.	WATERPROOFING
F.E.C.	FIRE EXTINGUISHER CABINET	O.G.	OCCUPANCY GROUP	W.R.	WATER RESISTANT
FIN. FL.	FINISHED FLOOR	OPN'G	OPENING		
FL.	FLOOR	P.E.	PASSENGER ELEVATOR		
F.P.	FIREPROOFING	P.L.	PROPERTY LINE		
FPSC	FIREPROOF SELF CLOSING	PL. LAM.	PLASTIC LAMINATE		
GA.	GAUGE	PTD.	PAINTED		
GL.	GLASS	R.C.P.	REFLECTED CEILING PLAN		

MATERIAL & WALL CONSTRUCTION LEGEND

- CAST IN PLACE CONCRETE WALL; SEE STRUCTURAL DRAWINGS FOR THICKNESS AND REINFORCING INFORMATION.
- ALUM. COMPOSITE PANEL EXTERIOR WALL CONSTRUCTION; 2" ALUM. COMPOSITE PANEL W/2" RIGID INSULATION ON ¾" MARINE GRADE PLYWOOD ON 6" GAL. MTL STUDS ON 12"O.C. WALL W/ ALUM. PANEL CLIP / FASTEN TO MTL; PROVIDE SUB-GRID & ST. STL. FASTENER, TYP.; WITH 6" FIRE RESISTANT BATT. INSULATION AND TWO LAYERS OF ⅝" TYPE 'X' GYPSUM WALL BOARDS.
- (2) HR FIRE RATED 8" NON-BEARING CMU WALL CONSTRUCTION; SEE STRUCTURAL DRAWINGS FOR REINFORCING INFORMATION. INTERIOR SIDE W/ 1 1/2" METAL STUD, 1 1/2" SEMI-RIGID INSULATION AND 5/8" GYPSUM WALL BOARD FURRING PARTITION.
- (2) HR FIRE RATED 8" NON-BEARING CMU WALL CONSTRUCTION; SEE STRUCTURAL DRAWINGS FOR REINFORCING INFORMATION.
- (2) HR FIRE RATED & ACOUSTICAL PARTITION; (2) LAYERS OF 5/8" TYPE 'X' GYPSUM WALL BOARDS ON BOTH SIDES OF 3 5/8" 20 G.A. METAL STUD @ MAX. 16" O.C.; RUN STUDS AND BOARDS FULL HEIGHT TO UNDERSIDE OF SLAB WITH 3 1/2" SEMI-RIGID THERMAFIBER INSULATION; CAULK ALL PERIMETER WITH ACOUSTICAL SEALANT; MIN. STC=50; BSA§ 310-60-SM.
- (2) HR FIRE RATED SHAFT WALL CONSTRUCTION; (2) LAYERS 5/8" TYPE 'X' GYPSUM WALL BOARDS AT FINISH SIDE, 2 1/2" 20 G.A. C-H METAL STUDS AT 24" O.C., AND 1" GYPSUM LINER AT SHAFT SIDE; RUN STUDS AND BOARDS FULL HEIGHT TO UNDERSIDE OF SLAB WITH 2 1/2" SEMI-RIGID THERMAFIBER INSULATION; CAULK ALL PERIMETER; STC=48; BSA§ 354-78-M.
- (1) HR RATED PARTITION; (1) LAYER OF 5/8" TYPE 'X' GYPSUM WALL BOARD ON BOTH SIDES OF 3 5/8" 20 G.A. METAL STUD @ MAX. 16" O.C.; RUN STUDS AND BOARDS FULL HEIGHT TO UNDERSIDE OF SLAB WITH 3 1/2" SEMI-RIGID THERMAFIBER INSULATION; BRACED FURRING STUDS 48" O.C. VERTICALLY; CAULK ALL PERIMETER.
- ALUM. COMPOSITE PANEL EXTERIOR WALL CONSTRUCTION; 2" ALUM. COMPOSITE PANEL W/2" RIGID INSULATION ON 6" CMU WALL; INTERIOR SIDE W/ 1 1/2" METAL STUD, 1 1/2" SEMI-RIGID INSULATION AND 5/8" GYPSUM WALL BOARD FURRING PARTITION.

"TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT. THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE ENERGY CONSERVATION CONSTRUCTION CODE OF NYCECC-2011."

THIS APPLICATION COMPLIES WITH LOCAL LAW 17/95 (THE EARTHQUAKE CODE).

Holiday Inn Express & Suites

PROJECT:
HOLIDAY INN EXPRESS
64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:
ZONING ANALYSIS

STRUCTURAL ENGINEER:

MEP ENGINEER:
E&C ENGINEERING, PLLC
Mechanical/Plumbing/Electrical Engineer
136-21 ROOSEVELT AVE. FLUSHING NY 11354
Tel: (718) 353-8010 ej-eng@nwbl.com

ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING NY 11354
Tel: (718)-445-2345 Fax: (718)-359-8639
Email: info@raymondchan.com
Web: www.raymondchan.com

DATE: 03/28/19 DWG. No.:
PROJ. No.: 2167
PROJ. MGR.: RA
DRAWN BY:
CADD FILE No.:

A-001.00

DEPARTMENT OF BUILDINGS

No.	DATE	DESCRIPTION

ZONING:

ADDRESS: 64-06 QUEENS BLVD.
WOODSIDE, NY
BLOCK: 2325
LOT: 26, 30 &32
C.B.: ---
ZONE: C2-3/R7X & R4-1
MAP#: 9d
U.G.: 2A (QUALITY HOUSING)
5A (TRANSIENT HOTEL)
O.G.: R2 (APARTMENT HOTEL)
R1 (TRANSIENT HOTEL)
C.C.: IB (PROPOSED)

LOT SIZE:
16,050.2 SF OF WHICH
C2-3/R7X DISTRICT: 13,493 SF (84.1%)
R4-1 DISTRICT: 2,557.2 SF (15.9%)

USE REGULATIONS:

22-12/32-15
USE GROUP 2 PERMITTED AS-OF-RIGHT
USE GROUP 4 PERMITTED AS-OF-RIGHT

BULK REGULATIONS - IN INCLUSIONARY HOUSING DESIGNATED AREAS:

SPECIAL PROVISIONS FOR ZONING LOTS DIVIDED BY DISTRICT BOUNDARIES
77-11
THE USE REGULATIONS APPLICABLE TO THE DISTRICT IN WHICH MORE THAN 50% OF THE LOT AREA OF THE ZONING LOT IS LOCATED MAY APPLY TO THE ENTIRE ZONING LOT, PROVIDED THAT THE DISTANCE DO NOT EXCEED 25 FEET.
WHENEVER THE USE REGULATIONS ARE SO APPLIED, THE DISTRICT BOUNDARY MAY BE ASSUMED TO BE RELOCATED ACCORDINGLY, AND THE BULK, OFF-STREET PARKING AND LOADING, AND ALL OTHER REGULATIONS APPLYING TO SUCH EXPANDED DISTRICT SHALL APPLY TO THE ENTIRE ZONING LOT.

MAX. LOT COVERAGE
23-145
MAXIMUM LOT COVERAGE IN R7X (CORNER LOT) = 80%
MAX. PERMITTED LOT COVERAGE = 10,077 x80% =8,061.6 SF
PROPOSED LOT COVERAGE =6553 /10,077 =65%<80% o.k.

MAXIMUM LOT COVERAGE IN R7X (INTERIOR LOT) =70%
MAX. PERMITTED LOT COVERAGE = 5,973.2 x70% =4,181.24 SF
PROPOSED LOT COVERAGE =1872 / 5973.2 =31.3%<70% o.k.

23-942 MAX FLOOR AREA
MAX. FLOOR AREA RATIO FOR Q.H. = 3.75
MAX. PERMITTED FLOOR AREA = 16,050.2x3.75 =60,188.25 SF
PROPOSED FLOOR AREA = 28,529 SF < 60,188.25 SF o.k.
PROPOSED FAR = 1.78 < 3.75 o.k.

33-121
MAX. FLOOR AREA RATIO FOR COMMERCIAL = 2.0
MAX. PERMITTED FLOOR AREA = 32,100.4 SF
PROPOSED FLOOR AREA = 31,640 SF < 32,100.4 SF o.k.
PROPOSED FAR = 1.97 < 2.0 o.k.

MAX. FLOOR AREA RATIO FOR ENTIRE BUILDING = 3.75
MAX. PERMITTED FLOOR AREA FOR ENTIRE BUILDING = 60,188.25 SF
PROPOSED FLOOR AREA = 60,169 SF < 60,188.25 SF o.k.
PROPOSED FAR = 3.75 < 3.75 o.k.

DWELLING FACTORS
23-22
DWELLING FACTOR = 680
= (LOT AREA)x(MAX. FAR-ACTUAL COMM. FAR)/FACTOR
= 16050.2 x (3.75-1.97) /680
= 16050.2x1.78 / 680 = 42 UNITS ALLOWED
PROPOSED 42 UNITS < 42 o.k.

23-693 (a)
NOT EXCEED A HEIGHT OF 35' IF THE DISTRICT IS WITHIN 25' OF R4 DISTRICT

YARD REGULATIONS
35-51
NO FRONT YARD REQUIRED

35-53
NO REAR YARD REQUIRED FOR CORNER LOT

33-261 BEYOND 100' OF A STREET LINE
20' OF REAR YARD REQUIRED

33-291 REQUIRED YARD ALONG DISTRICT BOUNDARY
A SIDE YARD OF 8' WIDE ALONG BOUNDARY

STREET WALL LOCATION AND HEIGHT AND SETBACK REGULATIONS

123-662
(b) STREET WALL LOCATION:
AT LEAST 70% OF THE AGGREGATE WIDTH OF THE STREET WALLS SHALL BE LOCATED WITHIN 8' OF THE STREET LINE AND SHALL EXTEND TO AT LEAST THE MIN BASE HEIGHT, THE REMAINING 30% OF STREET WALLS MAY BE LOCATED BEYOND 8' OF THE STREET LINE.

FOR ZONING LOTS BOUNDED BY MORE THAN ONE STREET LINE, THESE STREET WALL SHALL BE MANDATORY ALONG ONLY ONE STREET LINE

(c) SETBACK
AT A HEIGHT NOT LOWER THAN THE MIN. BASE HEIGHT OR HIGHER THAN THE MAX BASE HEIGHT, AT LEAST 10' SETBACK FROM THE STREET WALL SHALL BE PROVIDED ON A WIDE STREET, 15' SHALL BE PROVIDED ON A NARROW STREET

C2 MAPPED IN R7X ON A WIDE STREET AND WITHIN A DISTANCE OF 100' FROM A WIDE STREET:
MIN. BASE HEIGHT = 60 FEET
MAX. BASE HEIGHT = 85 FEET
MAX. BUILDING HEIGHT = 125 FEET

PROPOSED BUILDING HEIGHT =83'-11"

PARKING COMPUTATIONS

25-23
AT LEAST 50% OF DWELLING UNITS FOR DEVELOPMENT PURSUANT TO QUALITY HOUSING
PROPOSED 42 DWELLING UNITS = 21 PARKING SPACES REQUIRED

36-21
HOTEL
HOTEL GUESTROOMS: 1/12 ROOMS OR SUITE = 93/12 = 7.75 PARKING SPACES
EATING & DRINKING, BANQUET/MEETING HALL =1/12 PERSONS
=84/12 = 7 PARKING SPACES

TOTAL OF REQ'D PARKING =35.75+10% QUEUING =39
TOTAL OF 39 PARKING SPACES REQUIRED
TOTAL OF 39 PARKING SPACES PROVIDED

36-62
LOADING BERTH
HOTEL FIRST 100,000 SF NONE

31,580 SF PROVIDED, NONE REQUIRED

36-711
1 BICYCLE SPACE REQUIRED FOR EVERY 10,000 SF OF USE GROUP 5A:
31,580/10,000 =3 BICYCLE SPACE REQUIRED < 3 WAIVED

1 BICYCLE SPACE REQUIRED FOR EVERY TWO DWELLING UNITS
42 / 2 =21 BICYCLE SPACE REQUIRED
21 BICYCLE SPACES REQUIRED

21 BICYCLE SPACES PROVIDED

26-41 STREET TREES CALCULATION
PROVIDE ONE STREET TREE AT LEAST 3 INCH CALIPER EVERY 25' OF STREET FRONTAGE OF THE PROPERTY

QUEENS BLVD:
- 141.15'/25' =5.65 STREET TREE REQUIRED

64ST STREET:
- 120.92'/25' =4.84 STREET TREE REQUIRED

5.65+4.84 =10.49 =10 STREET TREE REQUIRED

5 STREET TREES TO BE PLANTED ON SITE;
5 TREES TO BE PLANTED ELSEWHERE

Holiday Inn Express & Suites

PROJECT:
HOLIDAY INN EXPRESS
64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:
ZONING ANALYSIS

STRUCTURAL ENGINEER:

MEP ENGINEER:
EJC ENGINEERING PLLC
Mechanical/Plumbing/Electrical Engineer
135-21 ROOSEVELT AVE. FLUSHING, NY 11354
Tel: (718) 353-9010 ejceng@verizon.net

ARCHITECTS + PLANNERS
135-40 38TH AVENUE FLUSHING NY 11354
Tel: (718) 445-2345 Fax: (718) 359-6659
Email: info@rg-mendelsonarch.com
Web: www.rgmendelsonarchitect.com

SEAL & SIGNATURE

DATE: 04/06/16 DWG. NO.:
PROJ. NO.: 2141
PROJ. MGR.: RGA
DRAWN BY:
CADD FILE NO.:

A-002.00

DEPARTMENT OF BUILDINGS

No.	DATE	DESCRIPTION

ZONING TABLES

FLOOR	PROPOSED BUILDING FLOOR AREA/(GROSS AREA)	PROPOSED COMMERCIAL FLOOR AREA	PROPOSED RESIDENTIAL FLOOR AREA	PROPOSED NUMBER OF GUEST ROOM	PROPOSED NUMBER OF DWELLING UNIT	NUMBER OF PARKING REQUIRED	MECH. CHASE
SUB-CELLAR	15,915 SF/(15,915 SF)	-	-	-		-	0
CELLAR	10,446 SF/(10,446 SF)	-	-	13		36 / 12 =3 13 / 12 =1.1	0
1ST	8,873 SF/(9,002 SF)	8,136 SF	737 SF	16		48 / 12 =4 16 / 12 =1.33	129 SF
2ND	8,845 SF/(9,035 SF)	8,685 SF	160 SF	24		24 / 12 =2	190 SF
3RD	8,845 SF/(9,035 SF)	8,685 SF	160 SF	24		24 / 12 =2	190 SF
4TH	7,974 SF/(8,435 SF)	6,134 SF	1,840 SF	16	3	16 / 12 =1.3 3 / 2 =1.5	461 SF
5TH	7,030 SF/(8,286 SF)	-	7,030 SF	-	11	11 / 2 =5.5	1,256 SF
6TH	7,030 SF/(8,286 SF)	-	7,030 SF	-	11	11 / 2 =5.5	1,256 SF
7TH	7,030 SF/(8,286 SF)	-	7,030 SF	-	11	11 / 2 =5.5	1,256 SF
8TH	4,372 SF/(7,047 SF)	-	4,372 SF	-	6	6 / 2 =3	2,675 SF
BULKHEAD/ROOF	170 SF/(776 SF)		170 SF				606 SF
TOTAL	60,169 SF/(94,549 SF)			93	42	35.7	
F.A.R. (LOT AREA= 16,050.2 SF)	60,169/16,050.2 = 3.75 < 3.75 (MAX)	31,840/16,050.2 = 1.97 < 2.0 (MAX)	28,529/16,050.2 = 1.78 < 3.75 (MAX)			35.7 +(35.7x10%) =39	

GUESTROOM UNIT MATRIX

FLOOR	GUESTROOM TYPE				TOTAL
	KING (SHOWER)	ACCESSIBLE KING	DOUBLE QUEEN (TUB)	ACCESSIBLE DOUBLE QUEEN	
CELLAR	9	0	4	0	13
1ST	13	0	2	1	16
2ND	13	1	9	1	24
3RD	13	1	9	1	24
4TH	5	1	9	1	16
TOTAL	53	3	33	4	93
RATIO	57%	4%	35%	4%	100%

DWELLING UNIT MATRIX

FLOOR	DWELLING TYPE		TOTAL
	ONE BEDROOM (DBL QN) (TUB)	ONE BEDROOM (KING) (TUB)	
4TH	0	3	3
5TH	5	6	11
6TH	5	6	11
7TH	5	6	11
8TH	1	5	6
TOTAL	16	26	42
RATIO	38.0%	62.0%	100%

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

ZONING ANALYSIS

STRUCTURAL ENGINEER:

MEP ENGINEER:
EJG ENGINEERING PLLC
Mechanical/Plumbing/Electrical Engineer
135-21 ROOSEVELT AVE. FLUSHING NY 11354
Tel: (718) 359-8700 ejg.eng@verizon.net

SEAL & SIGNATURE

ARCHITECTS + PLANNERS
135-40 39TH AVENUE FLUSHING NY 11354
Tel: (718) 445-2345 Fax: (718) 359-6659
Email: info@jay-mangalam-architect.com
Web: www.jaymangalamarchitect.com

DATE: 04/02/15 DWG. No.:
PROJ. No.: 2117
PROJ. MGR.: TCA
DRAWN BY:
CADD FILE No.:

A-003.00

DEPARTMENT OF BUILDINGS

(b)(4)

No.	DATE	DESCRIPTION

PROJECT:

HOLIDAY INN EXPRESS

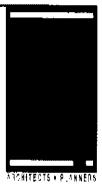
64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

SITE PLAN

STRUCTURAL ENGINEER:

MEP ENGINEER:
EJC ENGINEERING, PLLC
Mechanical/Plumbing/Electrical Engineer
135-21 ROOSEVELT AVE. FLUSHING, NY 11354
Tel: (718) 353-8010 ejcemp@verizon.net



ARCHITECTS + PLANNERS
135-40 39TH AVENUE FLUSHING, NY 11354
Tel: (718) 445-2345 Fax: (718) 359-0038
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 03/05/15 DWG. NO.:
PROJ. No.: 2010
PROJ. MGR.: RC
DRAWN BY:
CADD FILE No.:

A-004.00

DEPARTMENT OF BUILDINGS

(b)(4)

No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

PROPOSED SUB-CELLAR PLAN

STRUCTURAL ENGINEER:

MEP ENGINEER:
EJC ENGINEERING PLLC
Mechanical/Plumbing/Electrical Engineer
126-01 ROOSEVELT AVE, FLUSHING, NY 11354
Tel: (718) 353-8012 ejceng@verizon.net

ARCHITECTS + PLANNERS
135-40 39TH AVENUE FLUSHING NY 11354
Tel: (718) 445-2345 Fax: (718) 359-0370
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 04/02/13 DWG. No.:
PROJ. No.: 0147
PROJ. MGR.: RC
DRAWN BY:
CADD FILE No.:

A-101.00

DEPARTMENT OF BUILDINGS

(b)(4)

No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

PROPOSED CELLAR PLAN

STRUCTURAL ENGINEER:

MEP ENGINEER:

EJC ENGINEERING, PLLC

136-21 ROOSEVELT AVE. FLUSHING NY 11354

ARCHITECTS + PLANNERS
135-40 39TH AVENUE FLUSHING NY 11354
Tel: (718) 445-6345 Fax: (718) 359-6909
E-mail: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 04/03/15 DWG. No.:
PROJ. No.: 2147
PROJ. MGR.: RC
DRAWN BY:
CADD FILE No.:

A-102.00

DEPARTMENT OF BUILDINGS

(b)(4)

No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD,
WOODSIDE, NY

DRAWING TITLE:

PROPOSED FIRST FLOOR PLAN

STRUCTURAL ENGINEER:

M&P ENGINEERS:
EJC ENGINEERING, PLLC
Mechanical/Plumbing/Electrical Engineer
136-21 ROOSEVELT AVE. FLUSHING, NY 11354
Tel: (718) 353-8010 ejc.eng@verizon.net

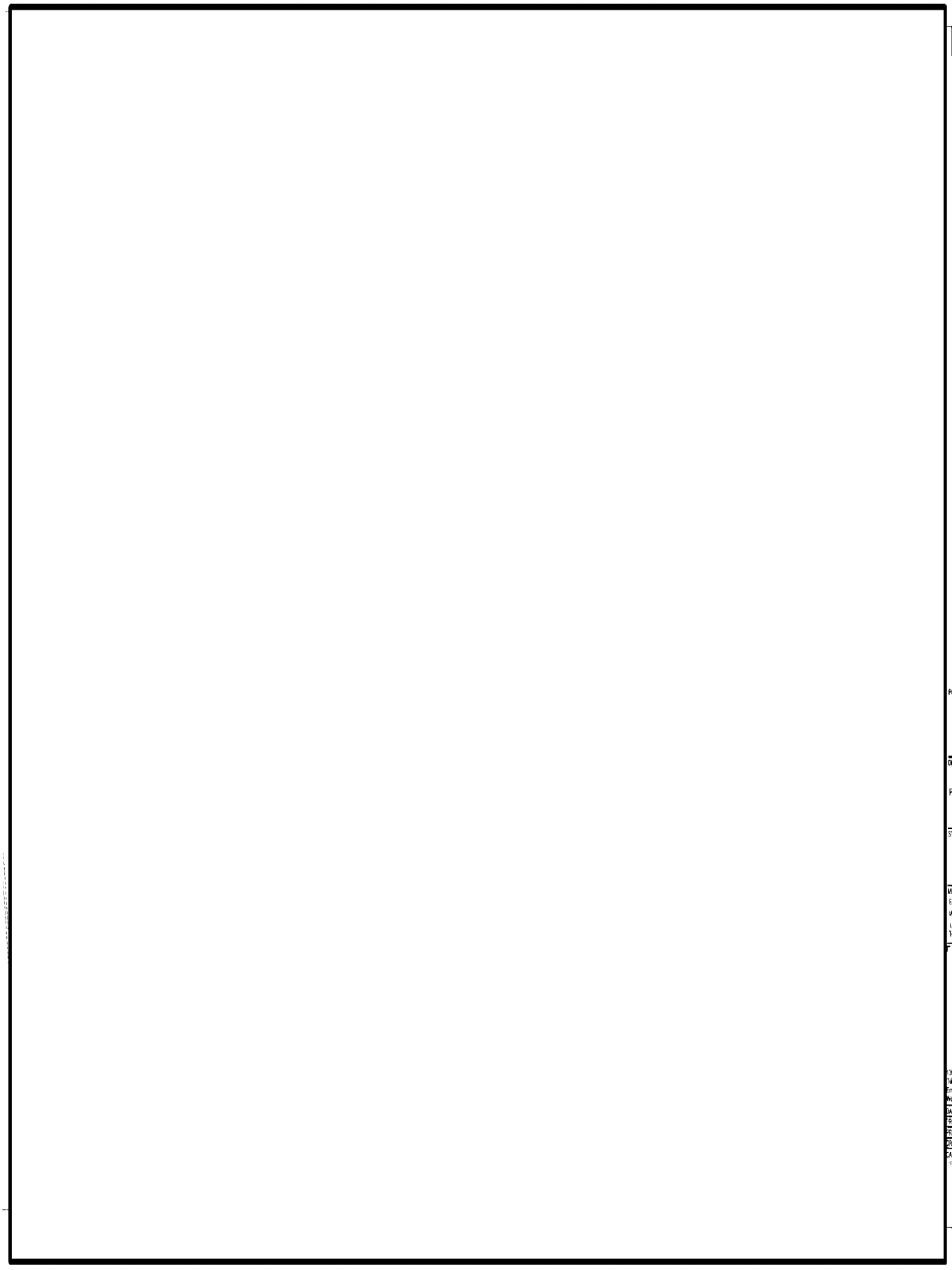
ARCHITECTS + PLANNERS
136-49 39TH AVENUE FLUSHING NY 11354
Tel: (718) 445-2345 Fax: (718) 359-6809
Email: info@ny-noroditchanarchitect.com
WWW: www.ny-noroditchanarchitect.com

DATE: 04/08/10 DWG. No.:
PROJ. No.: 0747
PROJ. MGR.: RA
DRAWN BY:
CADD FILE No.:
1111-0706

A-103.00

DEPARTMENT OF BUILDINGS

(b)(4)



No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

PROPOSED 2ND-3RD FLOOR PLAN

STRUCTURAL ENGINEER:

MEP ENGINEER:
EJC ENGINEERING, PLLC
Mechanical/Plumbing/Electrical Engineer
135-21 ROOSEVELT AVE. FLUSHING, NY 11354
Tel: (718) 353-8012 ejceng@verizon.net

ARCHITECTS + PLANNERS
35-40 36TH AVENUE FLUSHING NY 11354
Tel: (718) 445-2345 Fax: (718) 359-6909
Email: info@mymanchanarchitect.com
Web: www.mymanchanarchitect.com

DATE: 04/02/10 DWG. No.:
PROJ. No.: 2107
PROJ. MGR.: SCA
DRAWN BY:
CADD FILE No.:
FILE.DWG

A-104.00

DEPARTMENT OF BUILDINGS

(b)(4)

No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

PROPOSED FOURTH PLAN

STRUCTURAL ENGINEER:

MEP ENGINEER:
ELIC ENGINEERING, PLLC
Mechanical/Plumbing/Electrical Engineer
135-21 ROOSEVELT AVE. FLUSHING, NY 11354
Tel: (718) 359-8212 elicmp@verizon.net

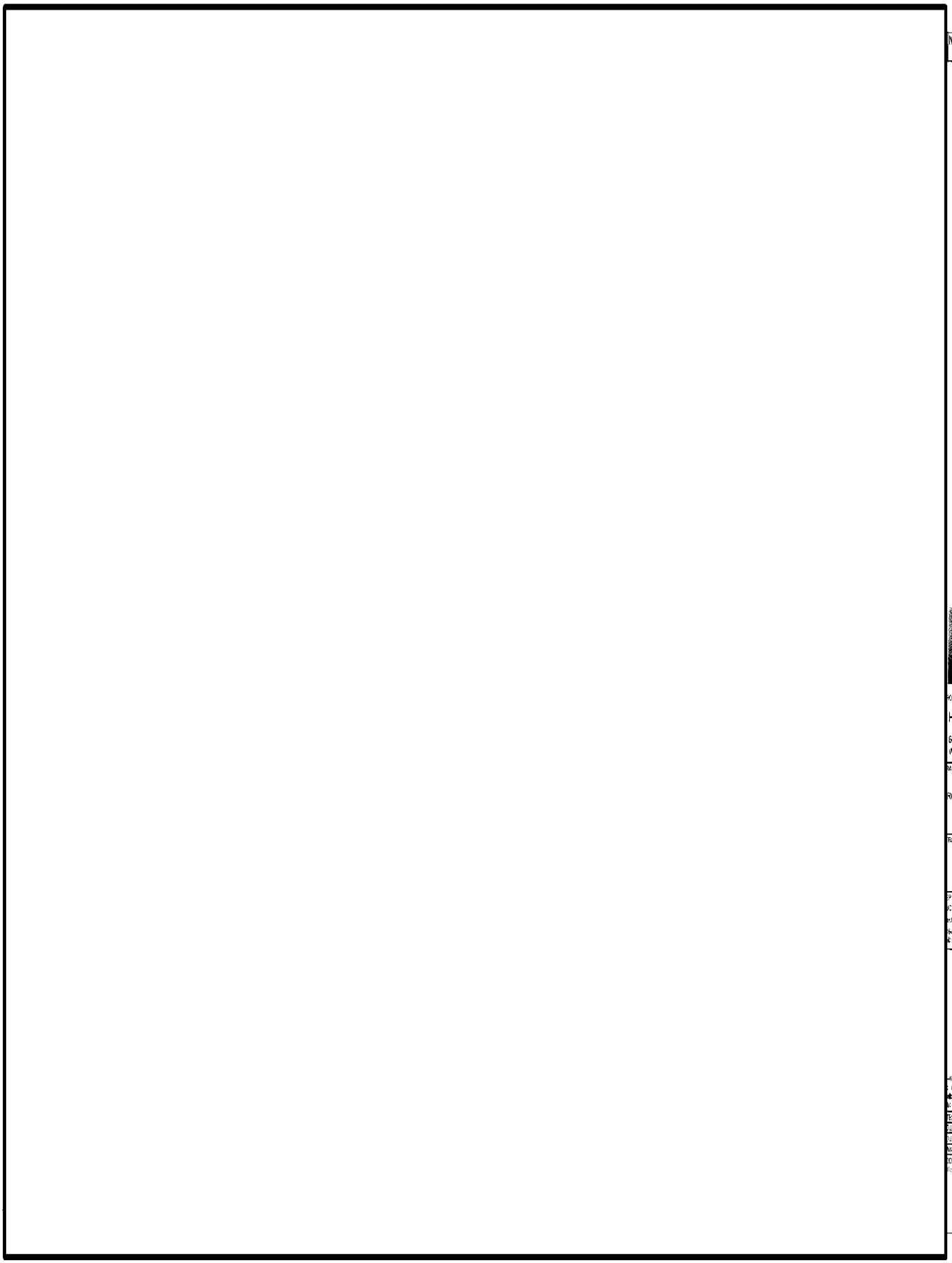
ARCHITECTS + PLANNERS
35-40 39TH AVENUE FLUSHING NY 11354
Tel: (718) 445-2345 Fax: (718) 359-6809
e-mail: info@ajc-mondshanarchitect.com
Web: www.ajcmondshanarchitect.com

DATE: 04/02/10 DWG. No.:
PROJ. No.: (7147)
PROJ. MGR.:
DRAWN BY:
CAD FILE No.:
(11.4X17)

A-105.00

DEPARTMENT OF BUILDINGS

(b)(4)



No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

PROPOSED 5TH~7TH FLOOR PLAN

STRUCTURAL ENGINEER:

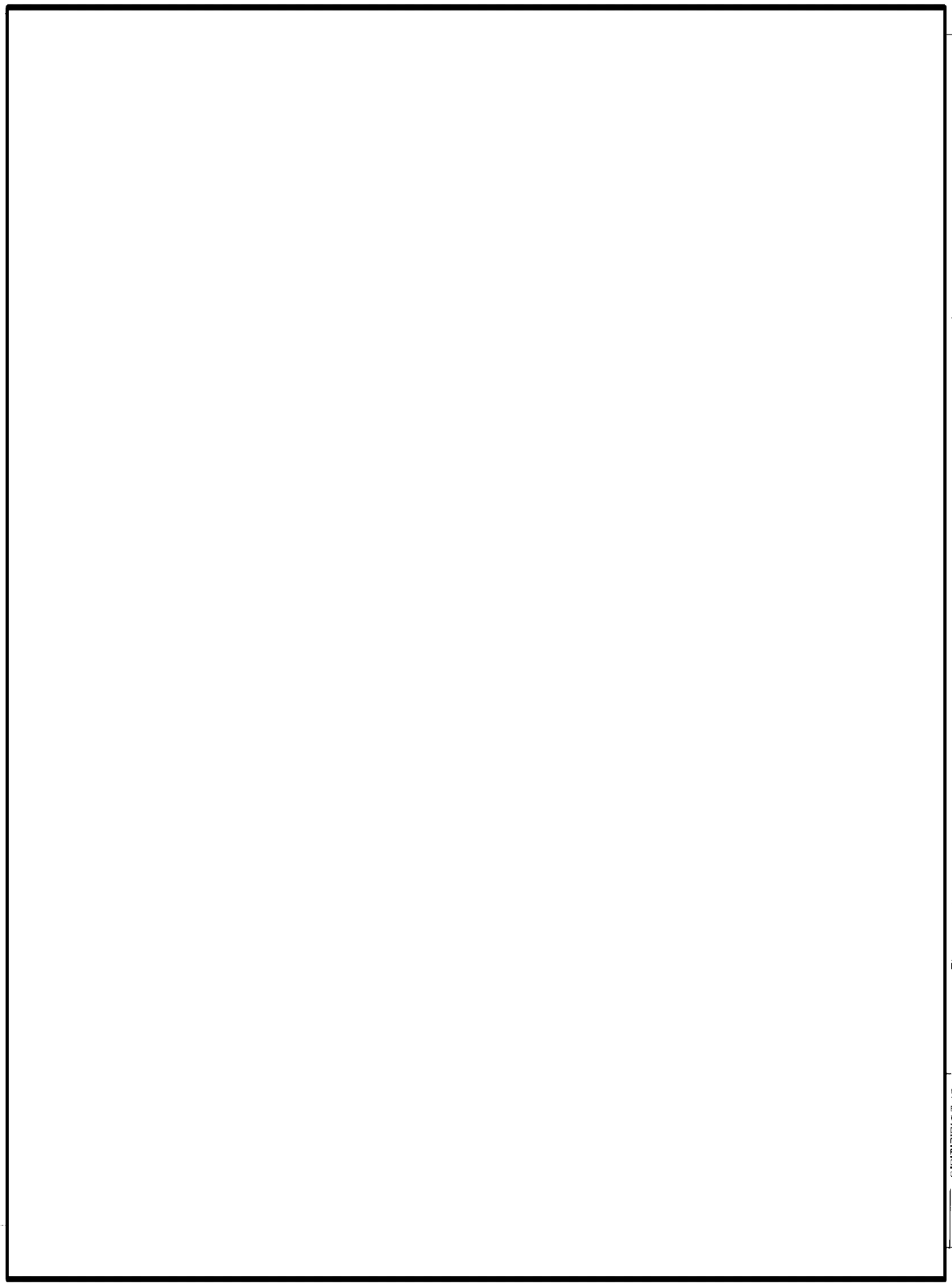
MEP ENGINEER:
MD ENGINEERING, PLLC
Mechanical/Plumbing/Electrical Engineer
64-21 ROOSEVELT AVE. FLUSHING NY 11354
Tel: (718) 353-8742 Email: mep@verizon.net

ARCHITECTS + PLANNERS
40 39TH AVENUE FLUSHING NY 11354
Tel: (718) 445-2345 Fax: (718) 359-6009
Email: info@raymondsharoncollect.com
URL: www.raymondsharoncollect.com

DATE: 04/02/18 DWG. NO.:
JOB No.: 2017
SCALE: 1/4"
DRAWN BY:
DOB FILE No.:
A-106.00

DEPARTMENT OF BUILDINGS

(b)(4)



No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

PROPOSED EIGTH FLOOR PLAN

STRUCTURAL ENGINEER:

MEP ENGINEER:

EJC ENGINEERING, PLLC

Mechanical/Plumbing/Electrical Engineer

106-21 ROOSEVELT AVE, FLUSHING, NY 11354
Tel: (718) 353-8010 ej-eng@nyct.rr.com

ARCHITECTS + PLANNERS

136-40 39TH AVENUE FLUSHING NY 11354
Tel: (718) 445-2345 Fax: (718) 359-4009
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 04/02/15 DWG. NO.:
PROJ. No.: 2014C
PROJ. MGR.: CA
DRAWN BY:
CADD FILE No.:

A-107.00

DEPARTMENT OF BUILDINGS

(b)(4)

No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

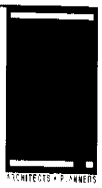
64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

PROPOSED ROOF/BULKHEAD PLAN

STRUCTURAL ENGINEER:

MEP ENGINEER:
EJC ENGINEERING, PLLC
Mechanical/Plumbing/Electrical Engineer
13-21 ROOSEVELT AVE. FLUSHING, NY 11354
Tel: (718) 353-8010 ekenji@verizon.net



ARCHITECTS + PLANNERS
35-40 35TH AVENUE FLUSHING NY 11354
Tel: (718) 445-2345 Fax: (718) 359-6978
mail: info@ny.monacharchitect.com
eb: www.rameshchandramonacharchitect.com

TE: 04/02/19 DWG. NO.:
OB NO.: 2141
CALE: 1/8"
RAWN BY:
AD FILE NO.:

A-108.00

DEPARTMENT OF BUILDINGS

REGIONAL CENTER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: QB VENTURES EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 11:

Architectural Documents

- **Fully Executed Agreement with Architect–** this document is the standard form of agreement between developer (George Xu) and architect (Raymond Chan Architect, PC)
- **Proposed Zoning Analysis–** this document shows the proposed floor plan of the mixed used building

RAYMOND CHAN ARCHITECT PC
ARCHITECTS • PL
135-20 • 39th Avenue • 3rd Floor • Flushing • New York 11354 • tel: 718-353-8866 • fax: 718-353-8868

April 7, 2014 (Revised)

March 31, 2014 (Revised)
March 14, 2014

Mr. George Xu
35-06 Leavit St., Unit #CF-A
Flushing, NY 11354

E-Mail: georgexu88@yahoo.com

Re: Hotel / Apartment Hotel Development
64-06 Queens Blvd.
Woodside, NY
P. 21422

Dear George:

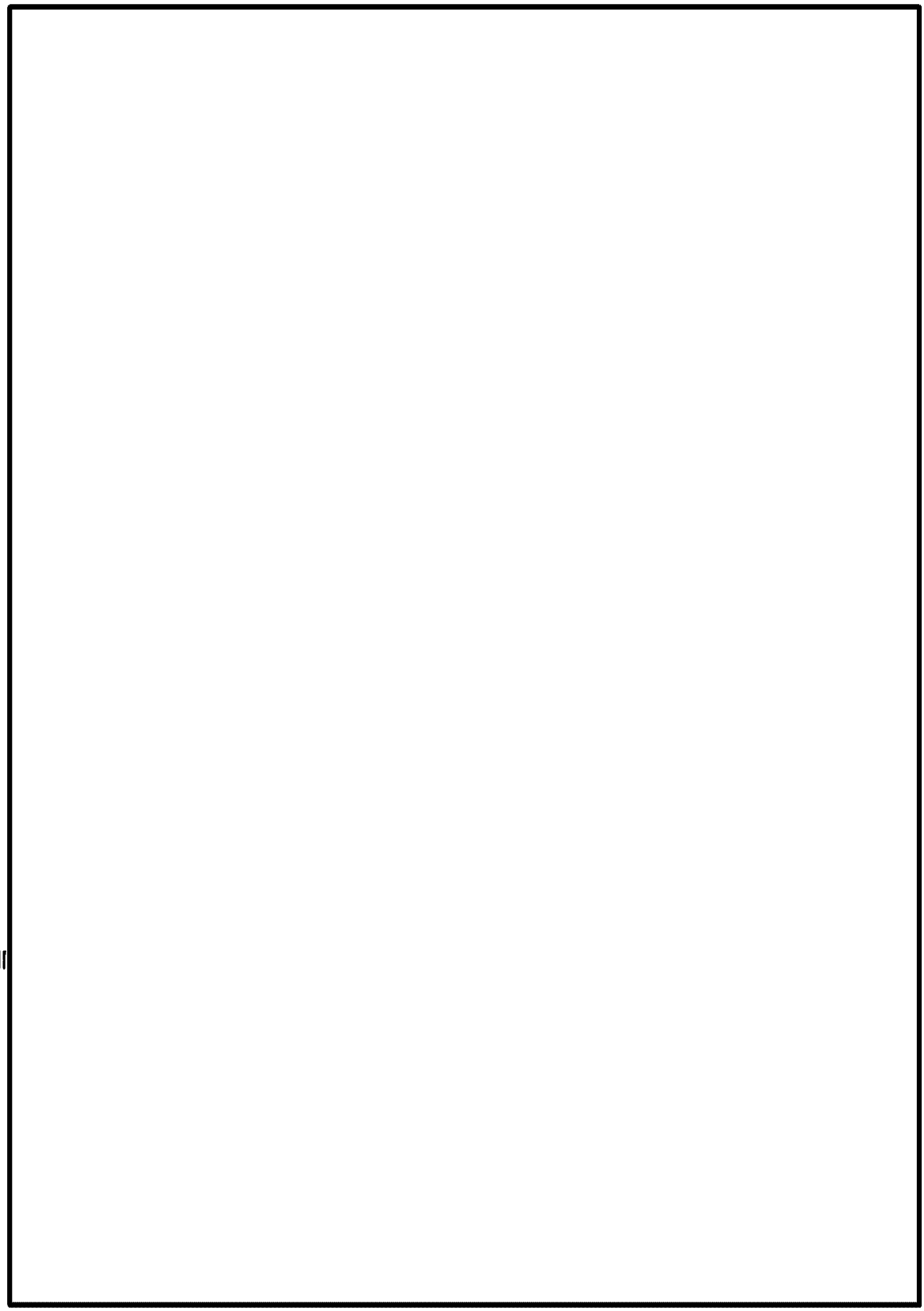
Thank you for taking time to review your project with me. It is my pleasure to submit this proposal for the architectural and engineering services for the above referenced project.

(b)(4)

As per our meeting earlier, I have prepared this proposal for your review. I hope the followings will reflect your needs and concerns.

web://www.raymondchanarchitect.com • email:info@raymondchanarchitect.com

(b)(4)



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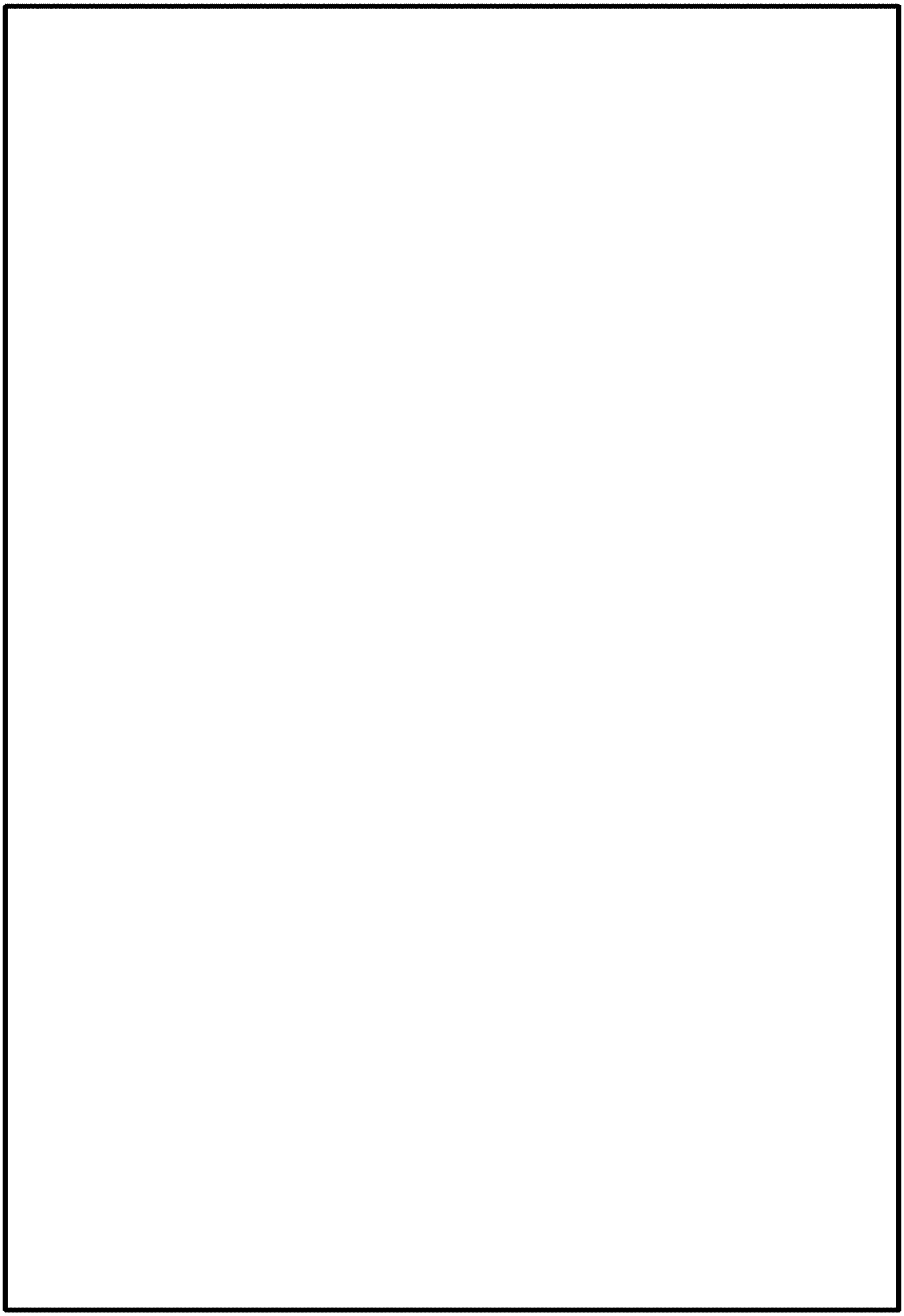

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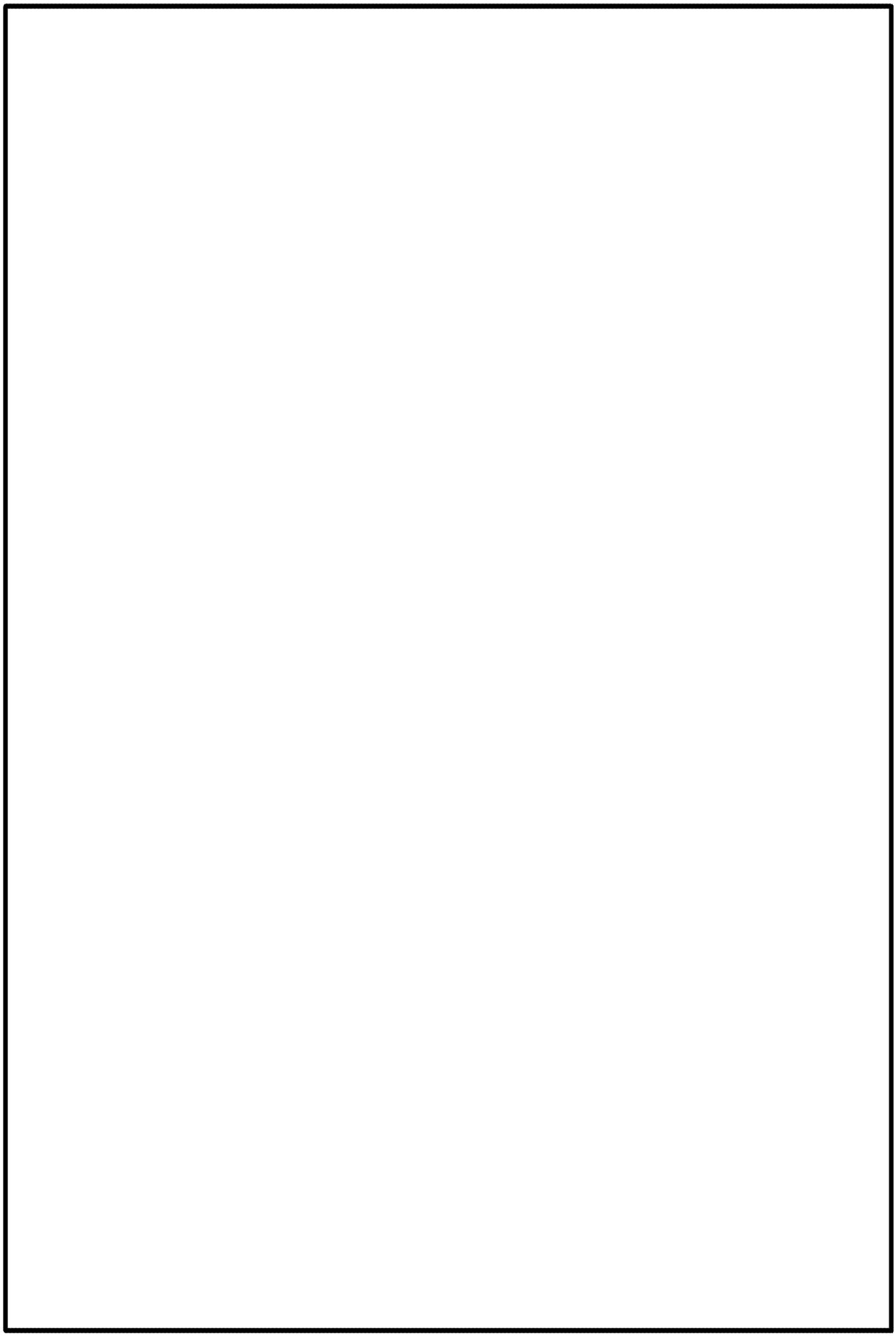
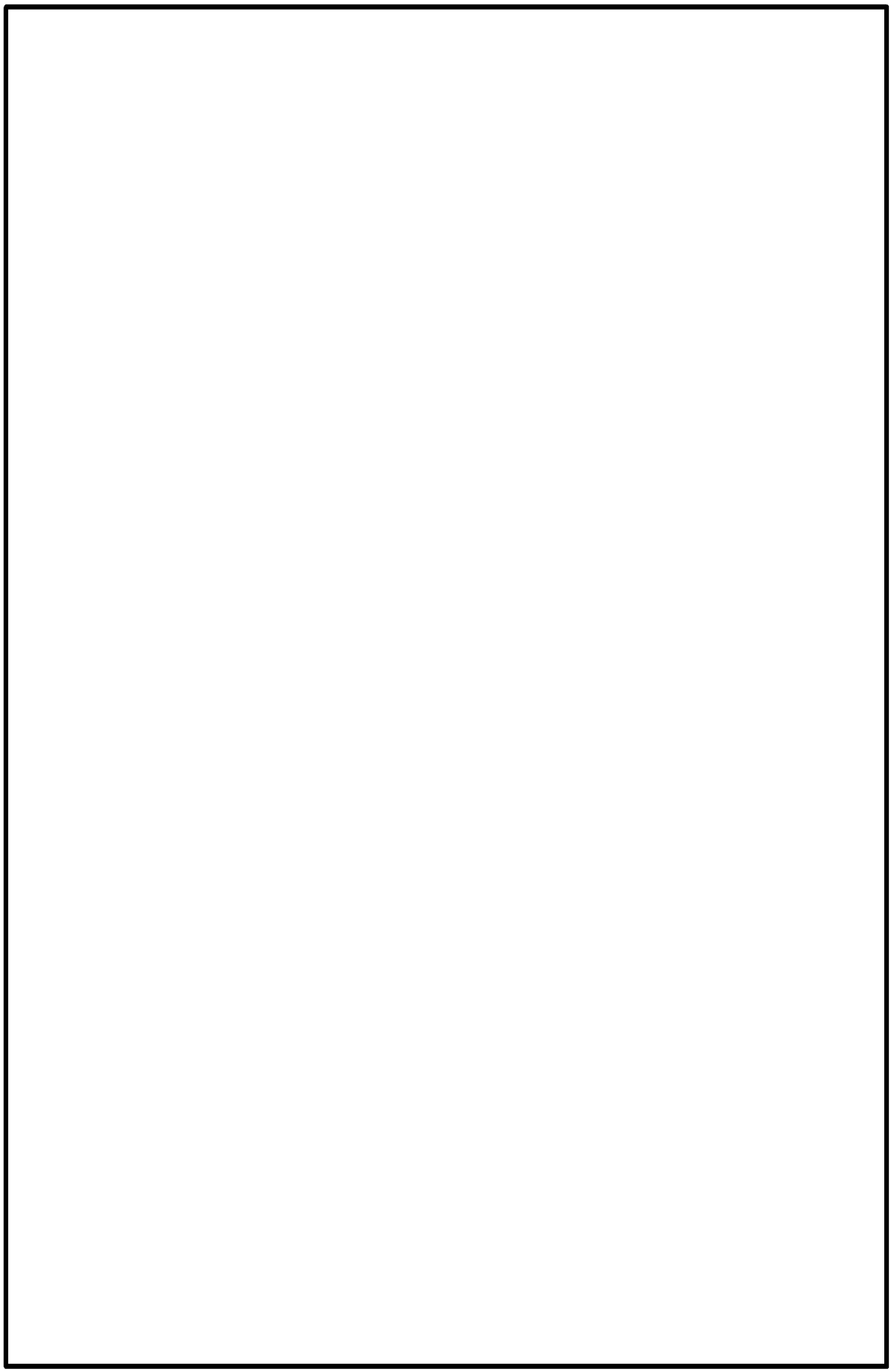
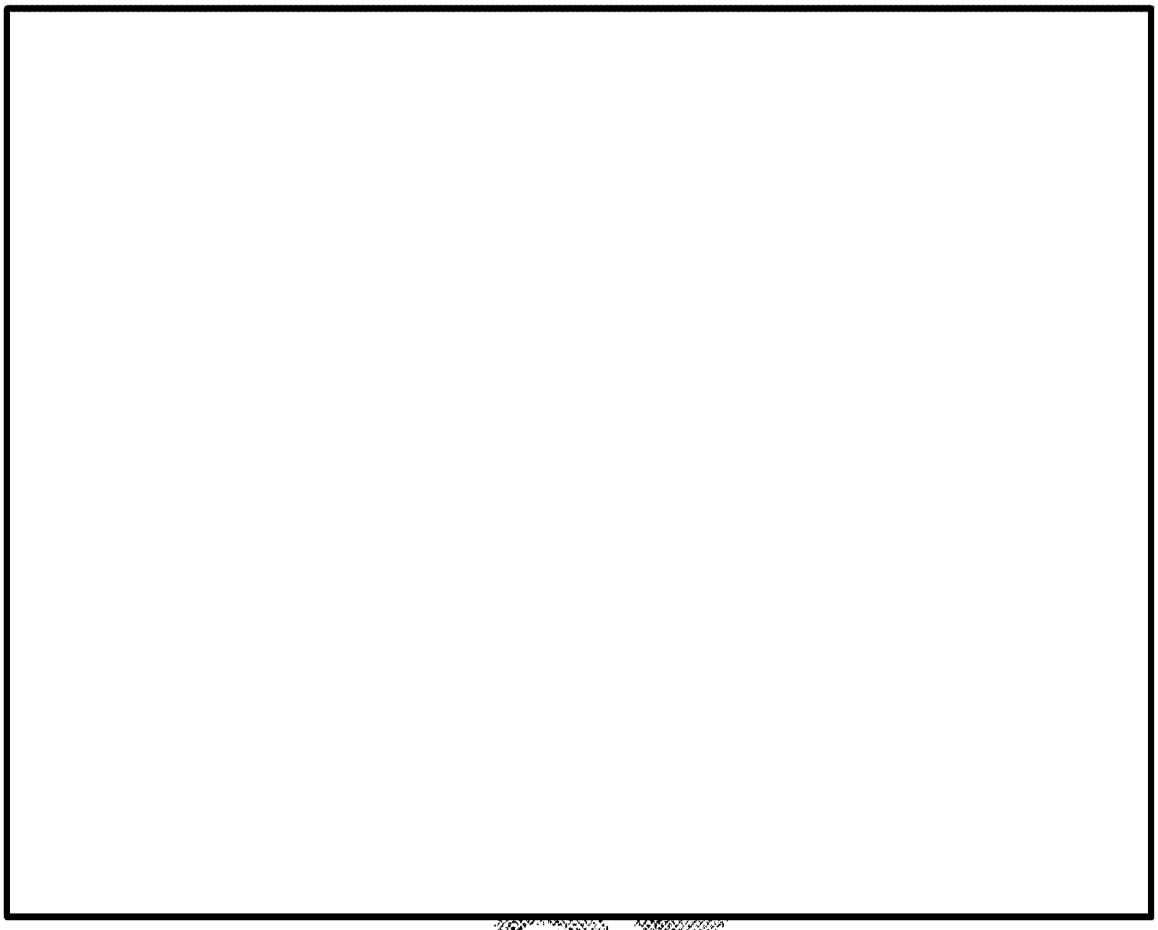


(b)(4)



(b)(4)



Very truly yours,

Raymond Chan, RA
for
Raymond Chan Architect, PC

Accepted by,

Mr. George Xu

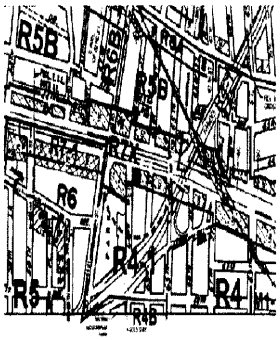
(b)(4)

ITEMS TYPICALLY NOT INCLUDED IN FEE

No.	DATE	DESCRIPTION

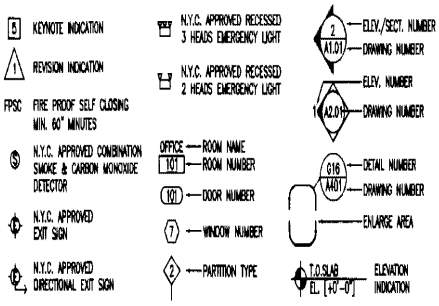
BUILDING INFORMATION

ADDRESS: 64-06 QUEENS BLVD.
WOODSIDE, NY
BLOCK: 2325
LOT: 26, 30 &32
C.B.: --
ZONE: C2-3/R7X & R4-1
MAP #: 9d
U.G.: 2A (QUALITY HOUSING)
5A (TRANSIENT HOTEL)
O.G.: R2 (APARTMENT HOTEL)
R1 (TRANSIENT HOTEL)
C.C.: IB (PROPOSED)



ZONING BOUNDARY MAP NOT TO SCALE

SYMBOL LEGEND



SPECIAL INSPECTIONS	
FIRESTOP	BC 1704.25

SEPARATE APPLICATION	
SHEETING, SHORING AND UNDERPINNING	#
STRUCTURE	#
FIRE ALARM	#
FIRE PROTECTION PLAN	#
EMERGENCY GENERATOR	#
FIRE SAFETY	#
BUILDER'S PAVEMENT PLAN	#
SITE CONNECTION	#

ABBREVIATION

A.F.F.	ABOVE FINISHED FLOOR	GWB.	GYPSUM WALLBOARD	R.D	ROOF DRAIN
A.D.	ACCESS DOOR	GYP. BD.	GYPSUM BOARD	REF.	REFERENCE
ALUM.	ALUMINUM	H.M.	HOLLOW METAL	REINF.	REINFORCEMENT
ARCH.	ARCHITECTURAL	HORIZ.	HORIZONTAL	REQ'D	REQUIRED
@	AT	H.P.	HIGH POINT	RM.	ROOM
B.O.	BOTTOM OF	HR.	HOUR	SECT.	SECTION
BLDG.	BUILDING	HT.	HEIGHT	SF	SQUARE FEET
CL.	CLOSET	H.V.A.C.	HEATING, VENTILATING, AIR CONDITIONING	SI	SQUARE INCH
℄	CENTER LINE			SIM.	SIMILAR
CLG.	CEILING	I.D.	INSIDE DIAMETER	S.O.	SLAB OPENING
COL.	COLUMN	I.G.U.	INSULATED GLASS UNIT	SPEC.	SPECIFICATIONS
CONC.	CONCRETE	INSUL.	INSULATION	ST.STL.	STAINLESS STEEL
CONT.	CONTINUOUS	JT.	JOINT	STL.	STEEL
C.W.	CURTAIN WALL	KIT.	KITCHEN	STOR.	STORAGE
DTL.	DETAIL	LAM.	LAMINATED	STRUCT.	STRUCTURAL
DIA.	DIAMETER	LAV.	LAVATORY	T	TREADS
DIM.	DIMENSION	L.P.	LOW POINT	T.O.	TOP OF
DN	DOWN	MAX.	MAXIMUM	T.O.S.	TOP OF SLAB
DWG.	DRAWING	MECH.	MECHANICAL	TEL.	TELEPHONE
D.U.	DWELLING UNIT	MEZZ.	MEZZANINE	TEMP.	TEMPORARY
EL.	ELEVATION	MTL.	METAL	THK.	THICKNESS
ELEC.	ELECTRIC	M.H.	MANHOLE	TYP.	TYPICAL
ELEV.	ELEVATOR	MIN.	MINIMUM	U.G.	USE GROUP
E.M.R.	ELEVATOR MACHINE ROOM	MISC.	MISCELLANEOUS	U.O.N.	UNLESS OTHERWISE NOTED
ENCL.	ENCLOSURE	M.O.	MASONRY OPENING	VERT.	VERTICAL
E.O.S.	EDGE OF SLAB	N.I.C.	NOT IN CONTRACT	VEST.	VESTIBULE
EQUIP.	EQUIPMENT	O.A.I.	OUTSIDE AIR INTAKE	W/	WITH
EXP. JT.	EXPANSION JOINT	O.C.	ON CENTER	W/D	WASHER AND DRYER
EXT.	EXTERIOR	OCC.	OCCUPANT	WD.	WOOD
F.D.	FLOOR DRAIN	O.D.	OUTSIDE DIAMETER	W.P.	WATERPROOFING
F.E.C.	FIRE EXTINGUISHER CABINET	O.G.	OCCUPANCY GROUP	W.R.	WATER RESISTANT
FIN. FL.	FINISHED FLOOR	OPN'G	OPENING		
FL.	FLOOR	P.E.	PASSENGER ELEVATOR		
F.P.	FIREPROOFING	P.L.	PROPERTY LINE		
FPSC	FIREPROOF SELF CLOSING	PL. LAM.	PLASTIC LAMINATE		
GA.	GAUGE	PTD.	PAINTED		
GL.	GLASS	R.C.P.	REFLECTED CEILING PLAN		

MATERIAL & WALL CONSTRUCTION LEGEND

CAST IN PLACE CONCRETE WALL; SEE STRUCTURAL DRAWINGS FOR THICKNESS AND REINFORCING INFORMATION.

ALUM. COMPOSITE PANEL EXTERIOR WALL CONSTRUCTION; 2" ALUM. COMPOSITE PANEL W/2" RIGID INSULATION ON ¾" MARINE GRADE PLYWOOD ON 6" GAL. MTL STUDS ON 12"O.C. WALL W/ ALUM. PANEL CLIP / FASTEN TO MTL.; PROVIDE SUB-GRID & ST. STL. FASTENER, TYP.; WITH 6" FIRE RESISTANT BATT. INSULATION AND TWO LAYERS OF ⅝" TYPE 'X' GYPSUM WALL BOARDS.

(2) HR FIRE RATED 8" NON-BEARING CMU WALL CONSTRUCTION; SEE STRUCTURAL DRAWINGS FOR REINFORCING INFORMATION. INTERIOR SIDE W/ 1 1/2" METAL STUD, 1 1/2" SEMI-RIGID INSULATION AND 5/8" GYPSUM WALL BOARD FURRING PARTITION.

(2) HR FIRE RATED 6" NON-BEARING CMU WALL CONSTRUCTION; SEE STRUCTURAL DRAWINGS FOR REINFORCING INFORMATION.

(2) HR FIRE RATED & ACOUSTICAL PARTITION; (2) LAYERS OF 5/8" TYPE 'X' GYPSUM WALL BOARDS ON BOTH SIDES OF 3 5/8" 20 GA. METAL STUD @ MAX. 16" O.C.; RUN STUDS AND BOARDS FULL HEIGHT TO UNDERSIDE OF SLAB WITH 3 1/2" SEMI-RIGID THERMAFIBER INSULATION; CAULK ALL PERIMETER WITH ACOUSTICAL SEALANT; MIN. STC=50; BSA§ 310-60-SM.

(2) HR FIRE RATED SHAFT WALL CONSTRUCTION; (2) LAYERS 5/8" TYPE 'X' GYPSUM WALL BOARDS AT FINISH SIDE, 2 1/2" 20 GA. C-H METAL STUDS AT 24" O.C., AND 1" GYPSUM LINER AT SHAFT SIDE; RUN STUDS AND BOARDS FULL HEIGHT TO UNDERSIDE OF SLAB WITH 2 1/2" SEMI-RIGID THERMAFIBER INSULATION; CAULK ALL PERIMETER; STC=48; BSA§ 354-78-M.

(1) HR RATED PARTITION; (1) LAYER OF 5/8" TYPE 'X' GYPSUM WALL BOARD ON BOTH SIDES OF 3 5/8" 20 GA. METAL STUD @ MAX. 16" O.C.; RUN STUDS AND BOARDS FULL HEIGHT TO UNDERSIDE OF SLAB WITH 3 1/2" SEMI-RIGID THERMAFIBER INSULATION; BRACED FURRING STUDS 48" O.C. VERTICALLY; CAULK ALL PERIMETER.

ALUM. COMPOSITE PANEL EXTERIOR WALL CONSTRUCTION; 2" ALUM. COMPOSITE PANEL W/2" RIGID INSULATION ON 6" CMU WALL; INTERIOR SIDE W/ 1 1/2" METAL STUD, 1 1/2" SEMI-RIGID INSULATION AND 5/8" GYPSUM WALL BOARD FURRING PARTITION.

"TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT. THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE ENERGY CONSERVATION CONSTRUCTION CODE OF NYCECC-2011."

THIS APPLICATION COMPLIES WITH LOCAL LAW 17/95 (THE EARTHQUAKE CODE).

SEAL & SIGNATURE

Holiday Inn Express & Suites

PROJECT:
HOLIDAY INN EXPRESS
64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:
ZONING ANALYSIS

STRUCTURAL ENGINEER:

MEP ENGINEER:
EXC ENGINEERING, PLLC
Mechanical/Plumbing/Electrical Engineer
13647 RUGBY WELL AVE. FLUSHING, NY 11354
Tel: (718) 353-8700 exc-eng@verizon.net

ARCHITECTS + PLANNERS
13640 39TH AVENUE FLUSHING NY 11354
Tel: (718) 445-2345 Fax: (718) 359-4859
Email: linfo@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 05/23/19 DWG No.:
PROJ. No.: 2017
PROJ. MGR.: RC
DRAWN BY:
CADD FILE No.:

A-001.00

DEPARTMENT OF BUILDINGS

No.	DATE	DESCRIPTION

ZONING:

ADDRESS: 64-06 QUEENS BLVD.
WOODSIDE, NY
BLOCK: 2325
LOT: 26, 30 &32
C.B.: --
ZONE: C2-3/R7X & R4-1
MAP#: 9d
U.G.: 2A (QUALITY HOUSING)
5A (TRANSIENT HOTEL)
O.G.: R2 (APARTMENT HOTEL)
R1 (TRANSIENT HOTEL)
C.C.: IB (PROPOSED)

LOT SIZE:
16,050.2 SF OF WHICH
C2-3/R7X DISTRICT: 13,493 SF (84.1%)
R4-1 DISTRICT: 2,557.2 SF (15.9%)

USE REGULATIONS:

22-12/32-15
USE GROUP 2 PERMITTED AS-OF-RIGHT
USE GROUP 4 PERMITTED AS-OF-RIGHT

BULK REGULATIONS - IN INCLUSIONARY HOUSING DESIGNATED AREAS:

SPECIAL PROVISIONS FOR ZONING LOTS DIVIDED BY DISTRICT BOUNDARIES
77-11
THE USE REGULATIONS APPLICABLE TO THE DISTRICT IN WHICH MORE THAN 50% OF THE LOT AREA OF THE ZONING LOT IS LOCATED MAY APPLY TO THE ENTIRE ZONING LOT, PROVIDED THAT THE DISTANCE DO NOT EXCEED 25 FEET.
WHENEVER THE USE REGULATIONS ARE SO APPLIED, THE DISTRICT BOUNDARY MAY BE ASSUMED TO BE RELOCATED ACCORDINGLY, AND THE BULK, OFF-STREET PARKING AND LOADING, AND ALL OTHER REGULATIONS APPLYING TO SUCH EXPANDED DISTRICT SHALL APPLY TO THE ENTIRE ZONING LOT.

MAX. LOT COVERAGE
23-145
MAXIMUM LOT COVERAGE IN R7X (CORNER LOT) = 80%
MAX. PERMITTED LOT COVERAGE = 10,077 x80% =8,061.6 SF
PROPOSED LOT COVERAGE =6553 /10,077 =65%<80% o.k.

MAXIMUM LOT COVERAGE IN R7X (INTERIOR LOT) =70%
MAX. PERMITTED LOT COVERAGE = 5,973.2 x70% =4,181.24 SF
PROPOSED LOT COVERAGE =1872 / 5973.2 =31.3%<70% o.k.

23-942 MAX FLOOR AREA
MAX. FLOOR AREA RATIO FOR Q.H. = 3.75
MAX. PERMITTED FLOOR AREA = 16,050.2x3.75 =60,188.25 SF
PROPOSED FLOOR AREA = 28,529 SF < 60,188.25 SF o.k.
PROPOSED FAR = 1.78 < 3.75 o.k.

33-121
MAX. FLOOR AREA RATIO FOR COMMERCIAL = 2.0
MAX. PERMITTED FLOOR AREA = 32,100.4 SF
PROPOSED FLOOR AREA = 31,640 SF < 32,100.4 SF o.k.
PROPOSED FAR = 1.97 < 2.0 o.k.

MAX. FLOOR AREA RATIO FOR ENTIRE BUILDING = 3.75
MAX. PERMITTED FLOOR AREA FOR ENTIRE BUILDING = 60,188.25 SF
PROPOSED FLOOR AREA = 60,169 SF < 60,188.25 SF o.k.
PROPOSED FAR = 3.75 < 3.75 o.k.

DWELLING FACTORS
23-22
DWELLING FACTOR = 680
= (LOT AREA)x(MAX. FAR-ACTUAL COMM. FAR)/FACTOR
= 16050.2 x (3.75-1.97) /680
= 16050.2x1.78 / 680 = 42 UNITS ALLOWED
PROPOSED 42 UNITS < 42 o.k.

23-693 (a)
NOT EXCEED A HEIGHT OF 35' IF THE DISTRICT IS WITHIN 25' OF R4 DISTRICT

YARD REGULATIONS
35-51
NO FRONT YARD REQUIRED

35-53
NO REAR YARD REQUIRED FOR CORNER LOT

33-261 BEYOND 100' OF A STREET LINE
20' OF REAR YARD REQUIRED

33-291 REQUIRED YARD ALONG DISTRICT BOUNDARY
A SIDE YARD OF 8' WIDE ALONG BOUNDARY

STREET WALL LOCATION AND HEIGHT AND SETBACK REGULATIONS

123-662
(b) STREET WALL LOCATION:
AT LEAST 70% OF THE AGGREGATE WIDTH OF THE STREET WALLS SHALL BE LOCATED WITHIN 8' OF THE STREET LINE AND SHALL EXTEND TO AT LEAST THE MIN BASE HEIGHT, THE REMAINING 30% OF STREET WALLS MAY BE LOCATED BEYOND 8' OF THE STREET LINE.

FOR ZONING LOTS BOUNDED BY MORE THAN ONE STREET LINE, THESE STREET WALL SHALL BE MANDATORY ALONG ONLY ONE STREET LINE

(c) SETBACK
AT A HEIGHT NOT LOWER THAN THE MIN. BASE HEIGHT OR HIGHER THAN THE MAX BASE HEIGHT, AT LEAST 10' SETBACK FROM THE STREET WALL SHALL BE PROVIDED ON A WIDE STREET, 15' SHALL BE PROVIDED ON A NARROW STREET

C2 MAPPED IN R7X ON A WIDE STREET AND WITHIN A DISTANCE OF 100' FROM A WIDE STREET:
MIN. BASE HEIGHT = 60 FEET
MAX. BASE HEIGHT = 85 FEET
MAX. BUILDING HEIGHT = 125 FEET

PROPOSED BUILDING HEIGHT =83'-11"

PARKING COMPUTATIONS

25-23
AT LEAST 50% OF DWELLING UNITS FOR DEVELOPMENT PURSUANT TO QUALITY HOUSING
PROPOSED 42 DWELLING UNITS = 21 PARKING SPACES REQUIRED

36-21
HOTEL
HOTEL GUESTROOMS: 1/12 ROOMS OR SUITE = 93/12 = 7.75 PARKING SPACES
EATING & DRINKING, BANQUET/MEETING HALL =1/12 PERSONS =84/12 = 7 PARKING SPACES

TOTAL OF REQ'D PARKING =35.75+10% QUEUING =39
TOTAL OF 39 PARKING SPACES REQUIRED
TOTAL OF 39 PARKING SPACES PROVIDED

36-62
LOADING BERTH
HOTEL FIRST 100,000 SF NONE

31,580 SF PROVIDED, NONE REQUIRED

36-711
1 BICYCLE SPACE REQUIRED FOR EVERY 10,000 SF OF USE GROUP 5A:
31,580/10,000 =3 BICYCLE SPACE REQUIRED < 3 WAIVED

1 BICYCLE SPACE REQUIRED FOR EVERY TWO DWELLING UNITS
42 / 2 =21 BICYCLE SPACE REQUIRED
21 BICYCLE SPACES REQUIRED

21 BICYCLE SPACES PROVIDED

26-41 STREET TREES CALCULATION
PROVIDE ONE STREET TREE AT LEAST 3 INCH CALIPER EVERY 25' OF STREET FRONTAGE OF THE PROPERTY

QUEENS BLVD:
- 141.15'/25' =5.65 STREET TREE REQUIRED

64ST STREET:
- 120.92'/25' =4.84 STREET TREE REQUIRED

5.65+4.84 =10.49 =10 STREET TREE REQUIRED

5 STREET TREES TO BE PLANTED ON SITE;
5 TREES TO BE PLANTED ELSEWHERE

Holiday Inn Express & Suites

PROJECT:
HOLIDAY INN EXPRESS
64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:
ZONING ANALYSIS

STRUCTURAL ENGINEER:

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DATE: 04/02/18 DWG.No.:
PROJ.No.: 1111
PROJ. MGR: TCB
DRAWN BY:
CADD FILE No.: 1111-ZON

A-002.00

DEPARTMENT OF BUILDINGS

No.	DATE	DESCRIPTION

ZONING TABLES

FLOOR	PROPOSED BUILDING FLOOR AREA/(GROSS AREA)	PROPOSED COMMERCIAL FLOOR AREA	PROPOSED RESIDENTIAL FLOOR AREA	PROPOSED NUMBER OF GUEST ROOM	PROPOSED NUMBER OF DWELLING UNIT	NUMBER OF PARKING REQUIRED	MECH. CHASE
SUB-CELLAR	15,915 SF/(15,915 SF)	-	-	-		-	0
CELLAR	10,446 SF/(10,446 SF)	-	-	13		36 / 12 =3 13 / 12 =1.1	0
1ST	8,873 SF/(9,002 SF)	8,136 SF	737 SF	16		48 / 12 =4 16 / 12 =1.33	129 SF
2ND	8,845 SF/(9,035 SF)	8,685 SF	160 SF	24		24 / 12 =2	190 SF
3RD	8,845 SF/(9,035 SF)	8,685 SF	160 SF	24		24 / 12 =2	190 SF
4TH	7,974 SF/(8,435 SF)	6,134 SF	1,840 SF	16	3	16 / 12 =1.3 3 / 2 =1.5	461 SF
5TH	7,030 SF/(8,286 SF)	-	7,030 SF	-	11	11 / 2 =5.5	1,256 SF
6TH	7,030 SF/(8,286 SF)	-	7,030 SF	-	11	11 / 2 =5.5	1,256 SF
7TH	7,030 SF/(8,286 SF)	-	7,030 SF	-	11	11 / 2 =5.5	1,256 SF
8TH	4,372 SF/(7,047 SF)	-	4,372 SF	-	6	6 / 2 =3	2,675 SF
BULKHEAD/ROOF	170 SF/(776 SF)		170 SF				606 SF
TOTAL	60,169 SF/(94,549 SF)			93	42	35.7	
F.A.R. (LOT AREA= 16,050.2 SF)	60,169/16,050.2 = 3.75 < 3.75 (MAX)	31,840/16,050.2 = 1.97 < 2.0 (MAX)	28,529/16,050.2 = 1.78 < 3.75 (MAX)			35.7 +(35.7x10%) =39	

GUESTROOM UNIT MATRIX

FLOOR	GUESTROOM TYPE				TOTAL
	KING (SHOWER)	ACCESSIBLE KING	DOUBLE QUEEN (TUB)	ACCESSIBLE DOUBLE QUEEN	
CELLAR	9	0	4	0	13
1ST	13	0	2	1	16
2ND	13	1	9	1	24
3RD	13	1	9	1	24
4TH	5	1	9	1	16
TOTAL	53	3	33	4	93
RATIO	57%	4%	35%	4%	100%

DWELLING UNIT MATRIX

FLOOR	DWELLING TYPE		TOTAL
	ONE BEDROOM (DBL QN) (TUB)	ONE BEDROOM (KING) (TUB)	
4TH	0	3	3
5TH	5	6	11
6TH	5	6	11
7TH	5	6	11
8TH	1	5	6
TOTAL	16	26	42
RATIO	38.0%	62.0%	100%

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

ZONING ANALYSIS

STRUCTURAL ENGINEER:

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DATE: 04/08/16 DWG. No.:
PROJ. No.: 2112
PROJ. MGR.: RC
DRAWN BY:
CADD FILE No.:

A-003.00

DEPARTMENT OF BUILDINGS

(b)(4)

No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

SITE PLAN

STRUCTURAL ENGINEER:

MEP ENGINEERS:
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DATE: 03/02/15 DWG. No.:
JOB No.: 2147
JOB MODIFICATION:
DRAWN BY:
CAD FILE No.:
11-4-06

A-004.00

DEPARTMENT OF BUILDINGS

(b)(4)

No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

PROPOSED SUB-CELLAR PLAN

STRUCTURAL ENGINEER:

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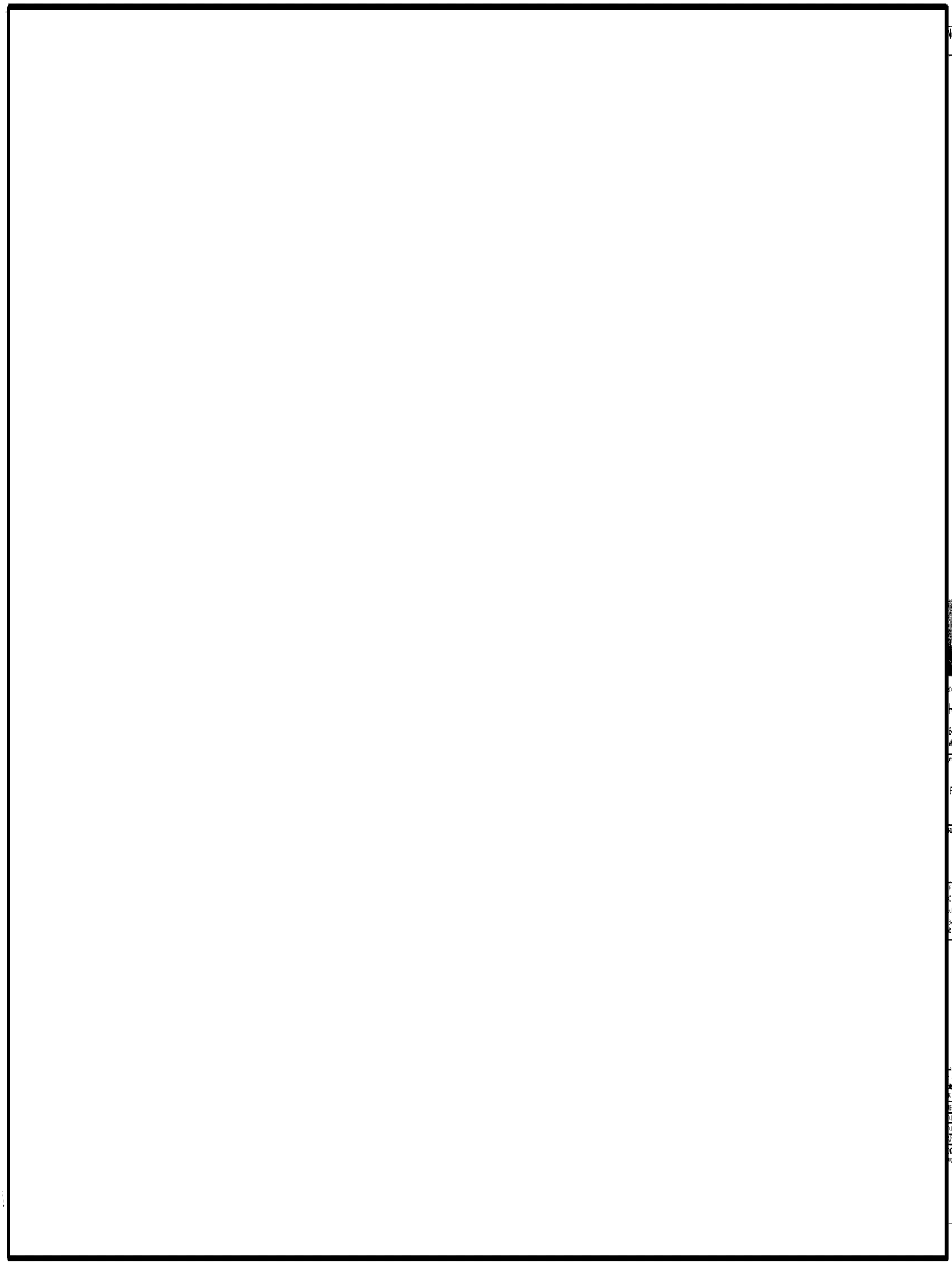
DATE: 04/02/19 DWG. No.:
PROJ. No.: 2017
PROJ. MODEL: F-3
DRAWN BY:
CADD FILE No.:

A-101.00

DEPARTMENT OF BUILDINGS

(b)(4)



No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

OJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

AWING TITLE:

PROPOSED CELLAR PLAN

RUCTURAL ENGINEER:

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C ENGINEERING, PLLC
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(718) 353-8918 dj.eng@verizon.net

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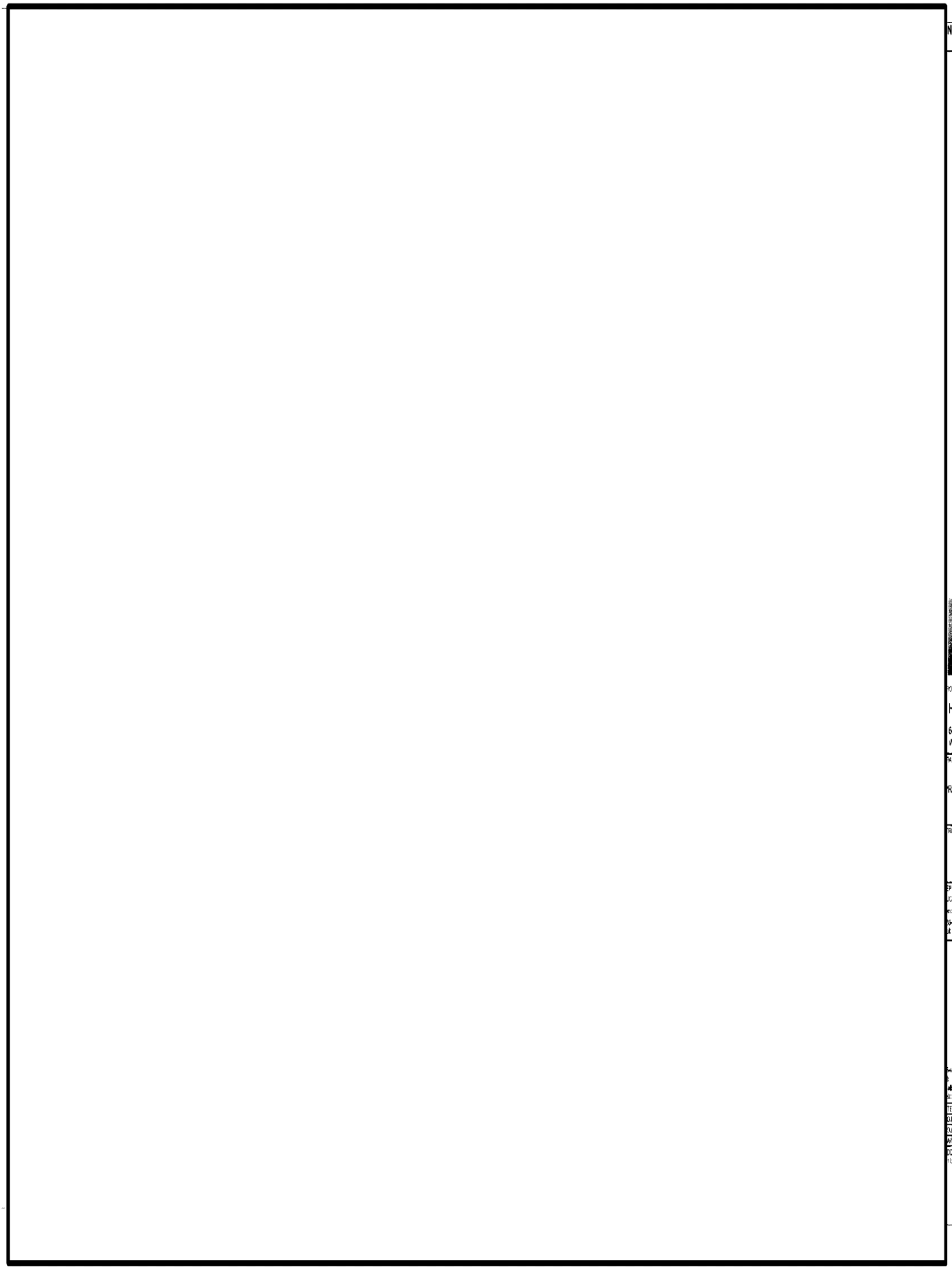
E: 07/07/10 DWG. No.:
J. No.: 2107
J. MSCR.: 2-2A
WN BY:
D FILE No.:
NVOR:

A-102.00

DEPARTMENT OF BUILDINGS

(b)(4)



No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

PROPOSED FIRST FLOOR PLAN

STRUCTURAL ENGINEER:

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DATE: 04/03/18 DWG. No.:
JOB No.: 2417
CAD MGR.:
DRAWN BY:
JOB FILE No.: A-103.00
11-4-09

DEPARTMENT OF BUILDINGS

(b)(4)

[redacted]

	DATE	DESCRIPTION

Holiday Inn Express & Suites

ECT:

OLIDAY INN EXPRESS

-06 QUEENS BLVD.
OODSIDE, NY

NG TITLE:

OPOSED 2ND-3RD FLOOR PLAN

CTURAL ENGINEER:

ENGINEER:
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04/02/18 DWG. No.:

No.: 2017

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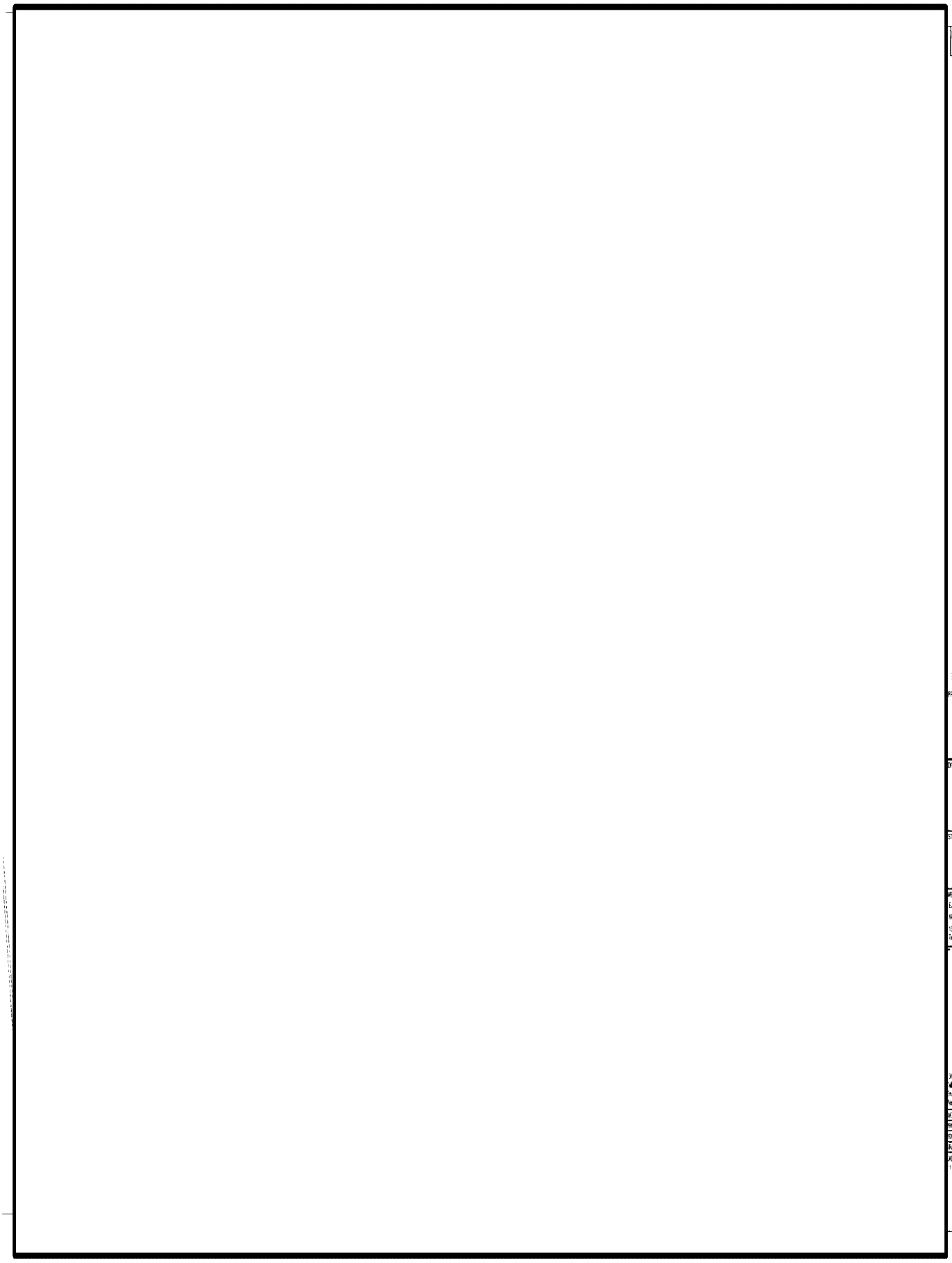
BY: A-104.00

FILE No.:
4-08

DEPARTMENT OF BUILDINGS

(b)(4)



No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

PROPOSED FOURTH PLAN

STRUCTURAL ENGINEER:

MEP ENGINEER:
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DATE: 04/02/19 DWG. NO.:
PROJ. NO.: 1417
DOCUMENT: 504
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CAD FILE No.:
1417-A104

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(b)(4)

No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

PROPOSED 5TH~7TH FLOOR PLAN

STRUCTURAL ENGINEER:

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DATE: 04/02/18 DWG. No.:
PROJ. No.: 2017
PROJ. MODEL: 2-3
DRAWN BY:
CADD FILE No.:
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(b)(4)

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NO.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

54-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

PROPOSED 8TH FLOOR PLAN

STRUCTURAL ENGINEER:

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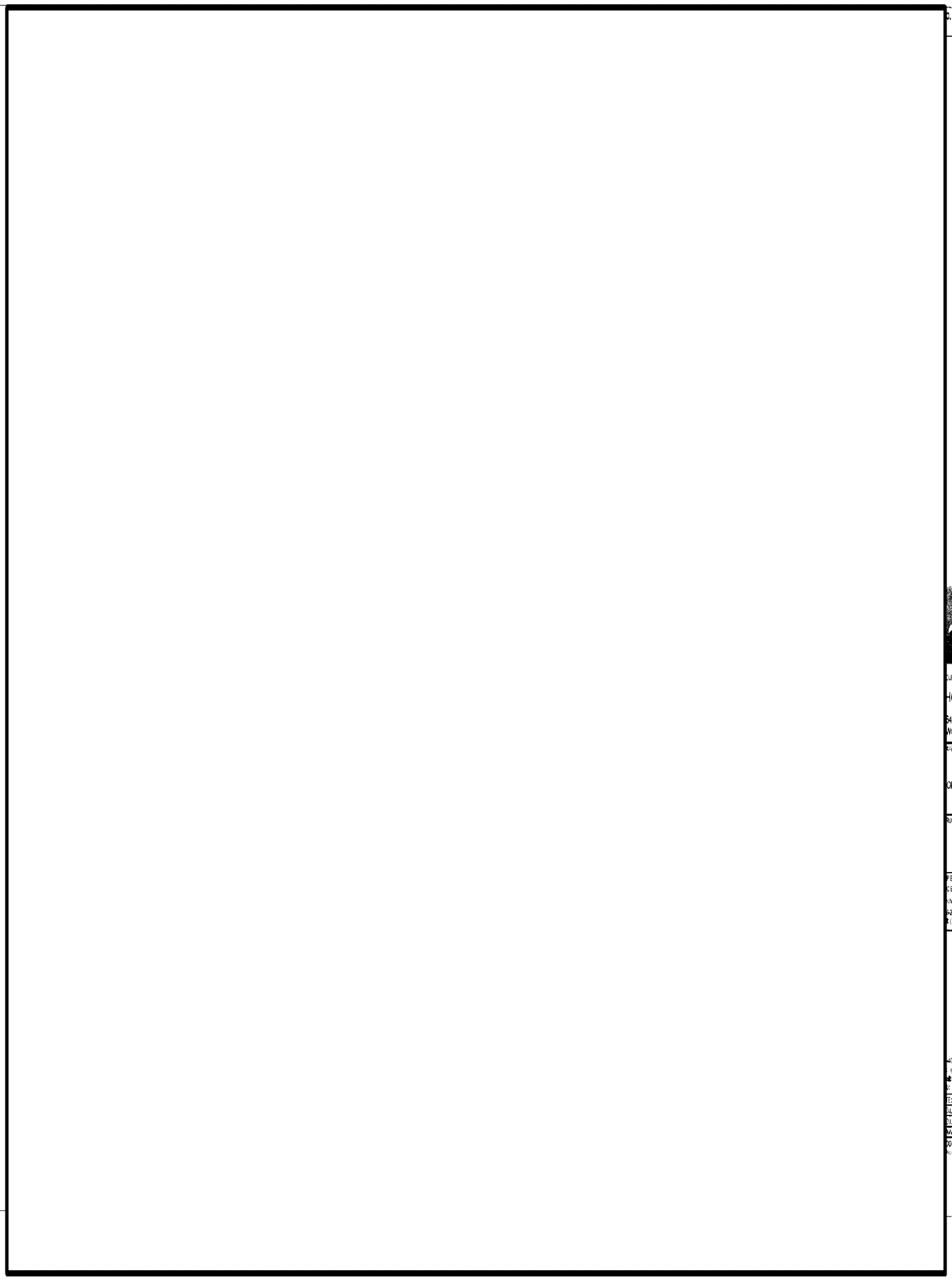
DATE: 04/05/11 DWG. No.:
JOB No.: 2011
JOB ORDER: 12
DRAWN BY:
CAD FILE No.:
11-07-08

A-107.00

DEPARTMENT OF BUILDINGS

(b)(4)



NO.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

54-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

PROPOSED ROOF/BULKHEAD PLAN

STRUCTURAL ENGINEER:

MEP ENGINEER:
...ENGINEERING, PLLC
...Plumbing Electrical Engineer
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DATE: 04/02/19 DWG. NO.:
CAD No.: 2147
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DRAWN BY:
JOB FILE No.:
SCALE:

A-108.00

DEPARTMENT OF BUILDINGS

(b)(4)

No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

OWNER:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

ENLARGED GUEST ROOM PLANS

STRUCTURAL ENGINEER:

MEP ENGINEER:

ARCHITECTS + PLANNERS

DATE: 04/14/16 DWG. NO.:

SCALE: 3/16"

DRAWN BY:

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ADD FILE NO.:

DEPARTMENT OF BUILDINGS

(b)(4)

No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

ENLARGED GUEST ROOM PLANS

STRUCTURAL ENGINEER:

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DATE: 08/10/18 DWG. No.:
PROJ. No.: 2147
PROJ. MGR.: RCA
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CADD FILE No.:
A-202.00

DEPARTMENT OF BUILDINGS

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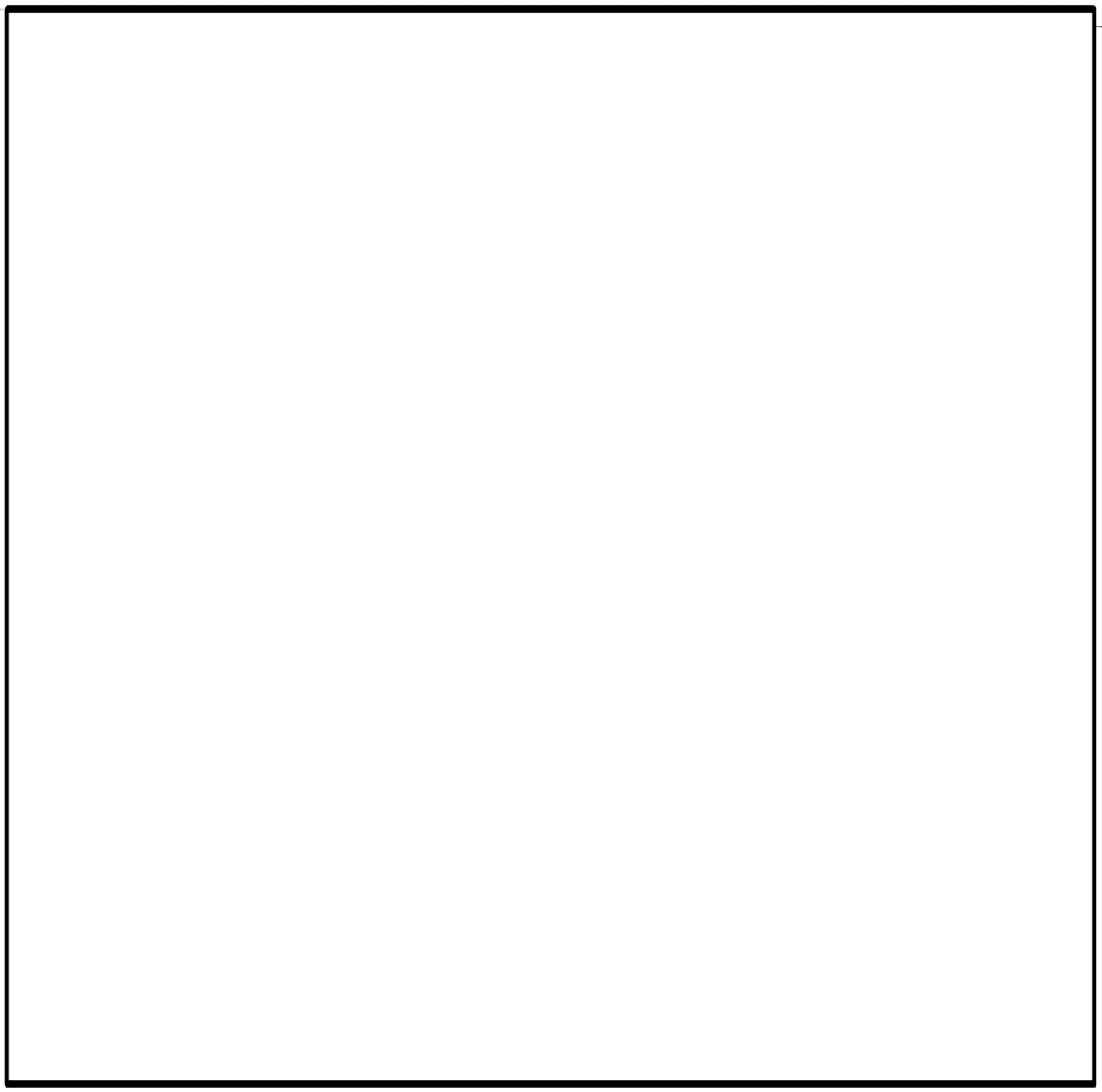

No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

ENLARGED GUEST ROOM PLANS

STRUCTURAL ENGINEER:

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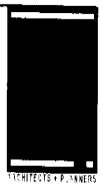

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PROJ. MGR.: FC
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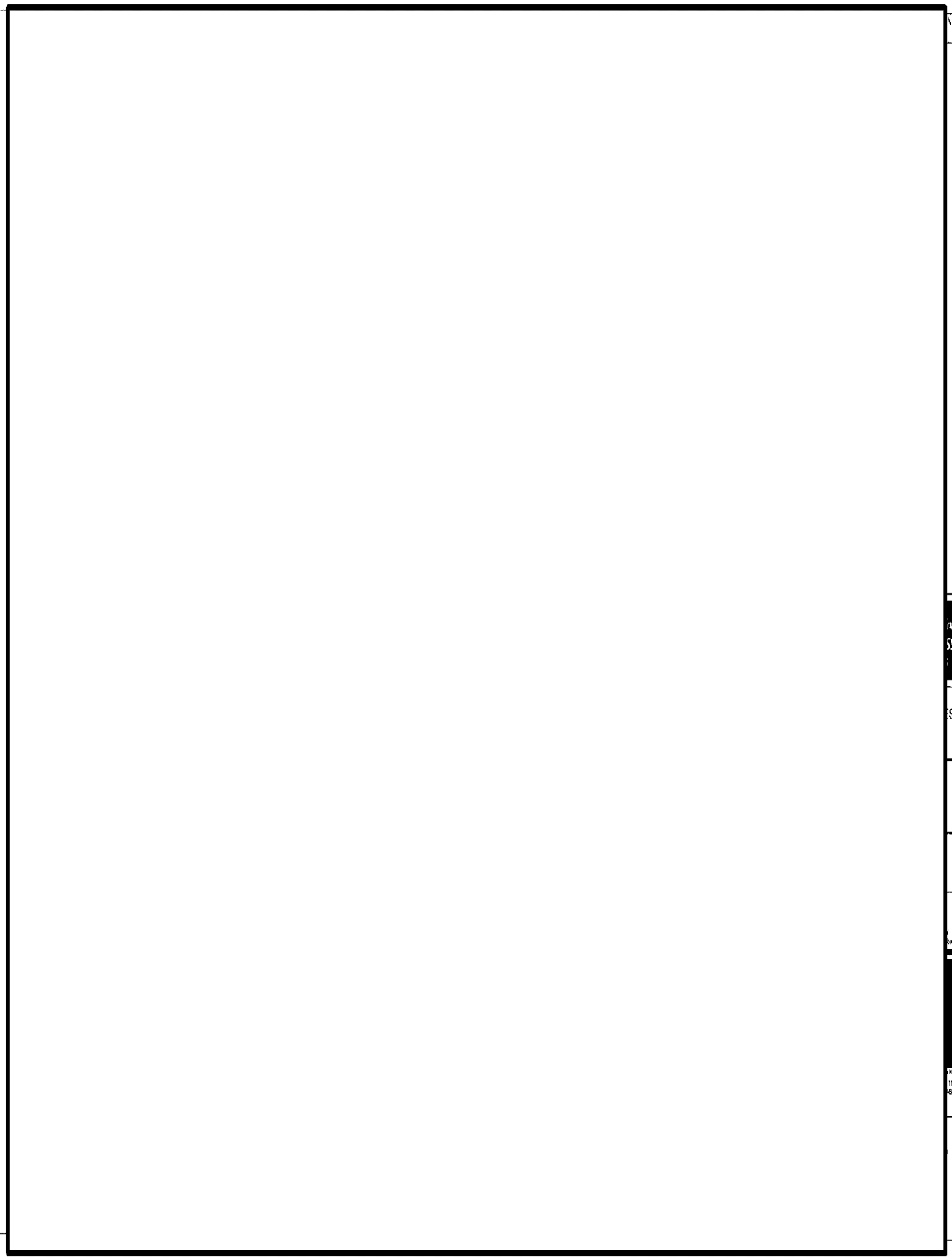
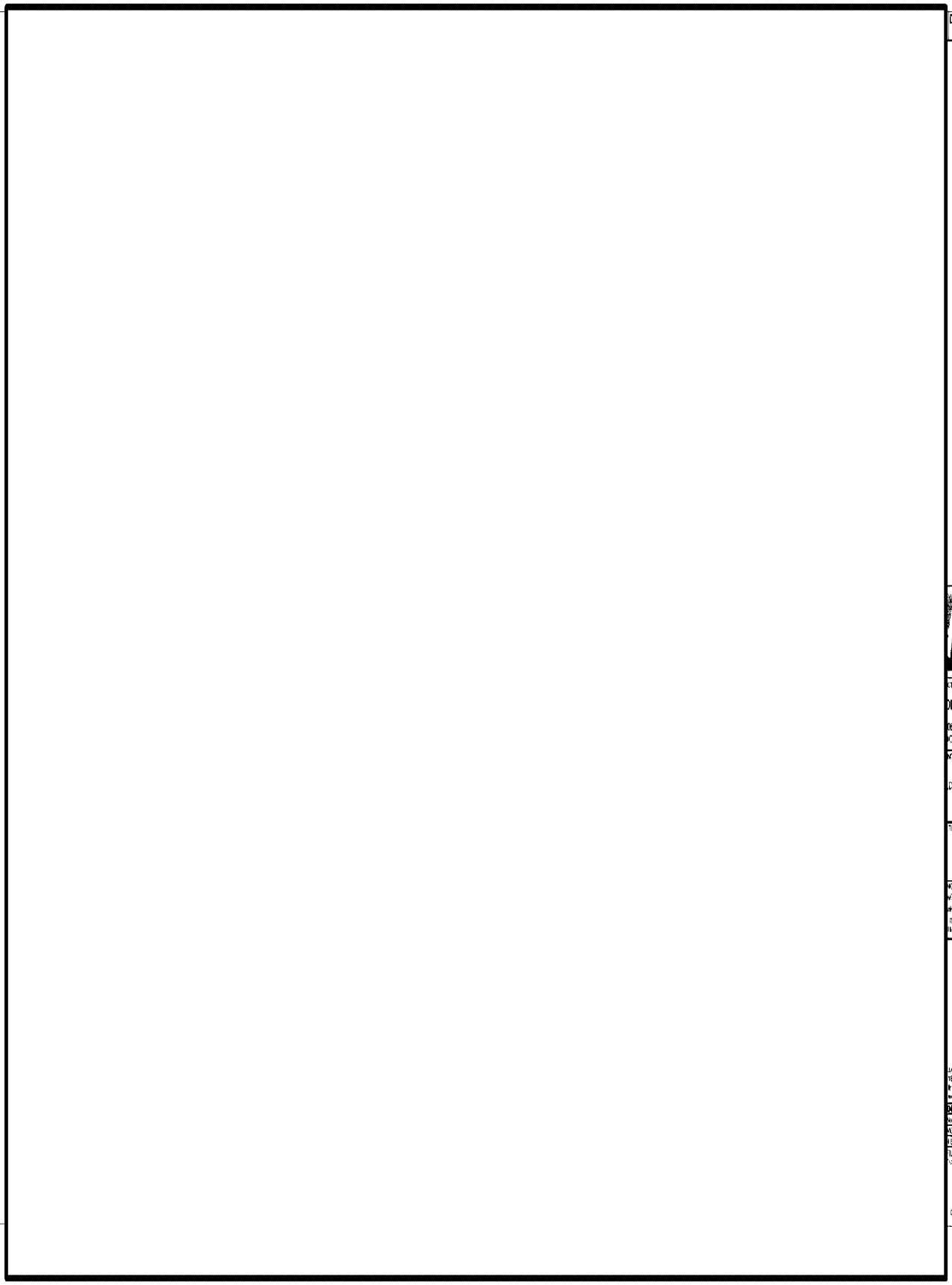


(b)(4)



DATE	DESCRIPTION

Holiday Inn Express & Suites

OLIDAY INN EXPRESS

06 QUEENS BLVD.
OODSIDE, NY

NG TITLE:

LDING SECTION

TURAL ENGINEER:

NGINEER:
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04/02/15 DWG. NO:
NO.: 1 of 1
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BY:
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DEPARTMENT OF BUILDINGS

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March 04, 2015

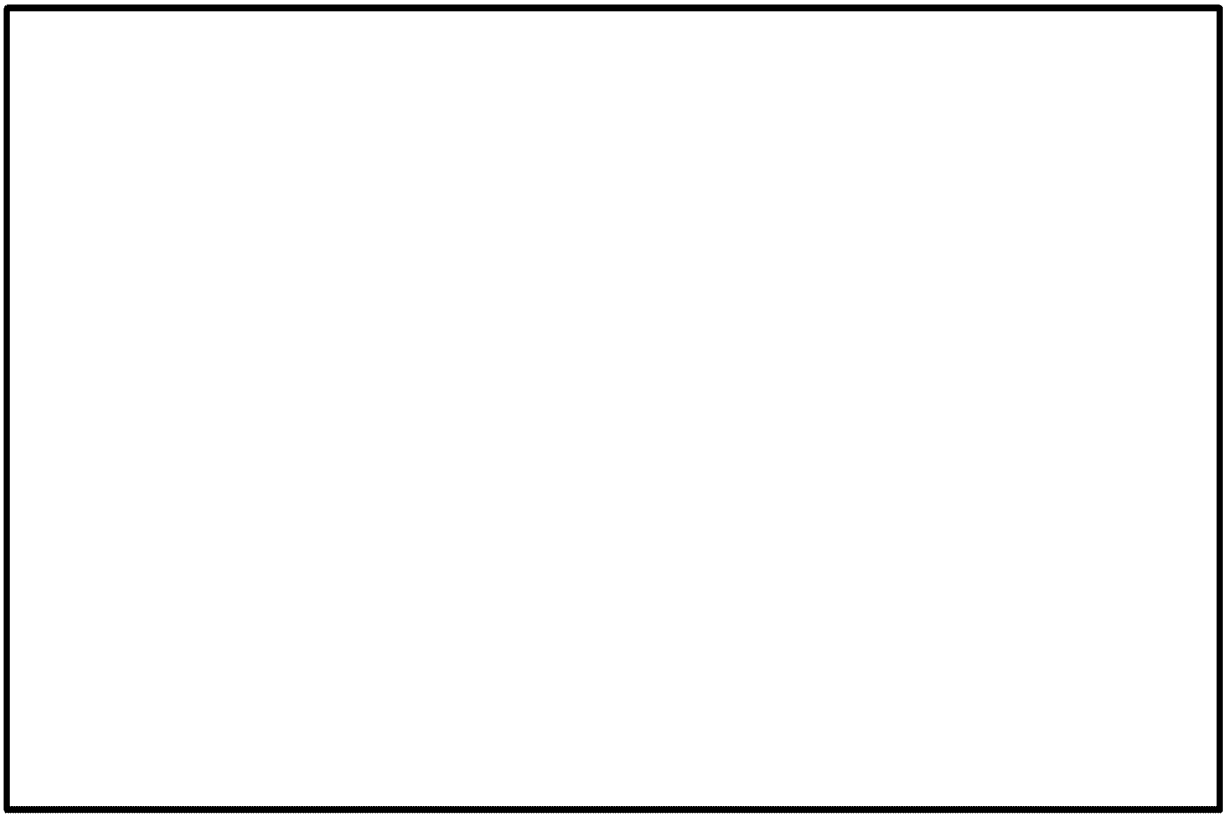
ATTN: Mr. George Xu
Century Construction Group Corp., President
35-06 Leavitt Street, Suite CF-A
Flushing, NY 11354
Office: 718-939-1060
Fax: 718-939-1036
Cell: 917-418-6839

Re: Structural and SOE Design for the 6410 Queens BLVD Project

Dear George,

Thank you for asking us to prepare this proposal for providing structural design service for the subject project. Per the information we have received, we note that the subject project is to build a 7 story hotel building with cellar and subcellar on a lot approximately 16,000 sq ft. The proposed total construction area is approximately 100,000 sq ft. As per our discussion, we'll provide the following engineering services for this project:

(b)(4)



Times Buildings PC
ENGINEERING SERVICES 时代工程师事务所

8534 Grand Ave 2nd Fl Elmhurst, NY 11373
tel. 718 502 9631 fax 718 228 7348

www.tbes.us

Enclosed please also find our typical services and general conditions for your reference. If this proposal meets your approval, please sign and send a copy to our office with the deposit so that we can proceed accordingly.

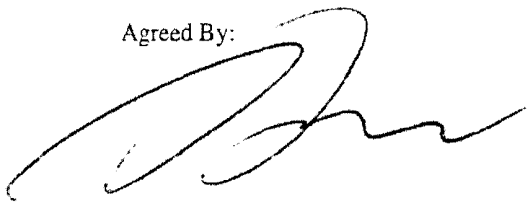
Should you have any questions, please let me know.

Thank you very much,

Zhou Xu, PhD, SE, PE, LEED® AP

Principal

Agreed By:



5/12/2015

2000

Times Buildings PC
ENGINEERING SERVICES 时代工程师事务所
8534 Grand Ave. 2nd Fl. Elmhurst, NY 11373
tel. 718 502 9631 fax. 718 228 7348
www.tbes.us

Terms and Conditions

(b)(4)

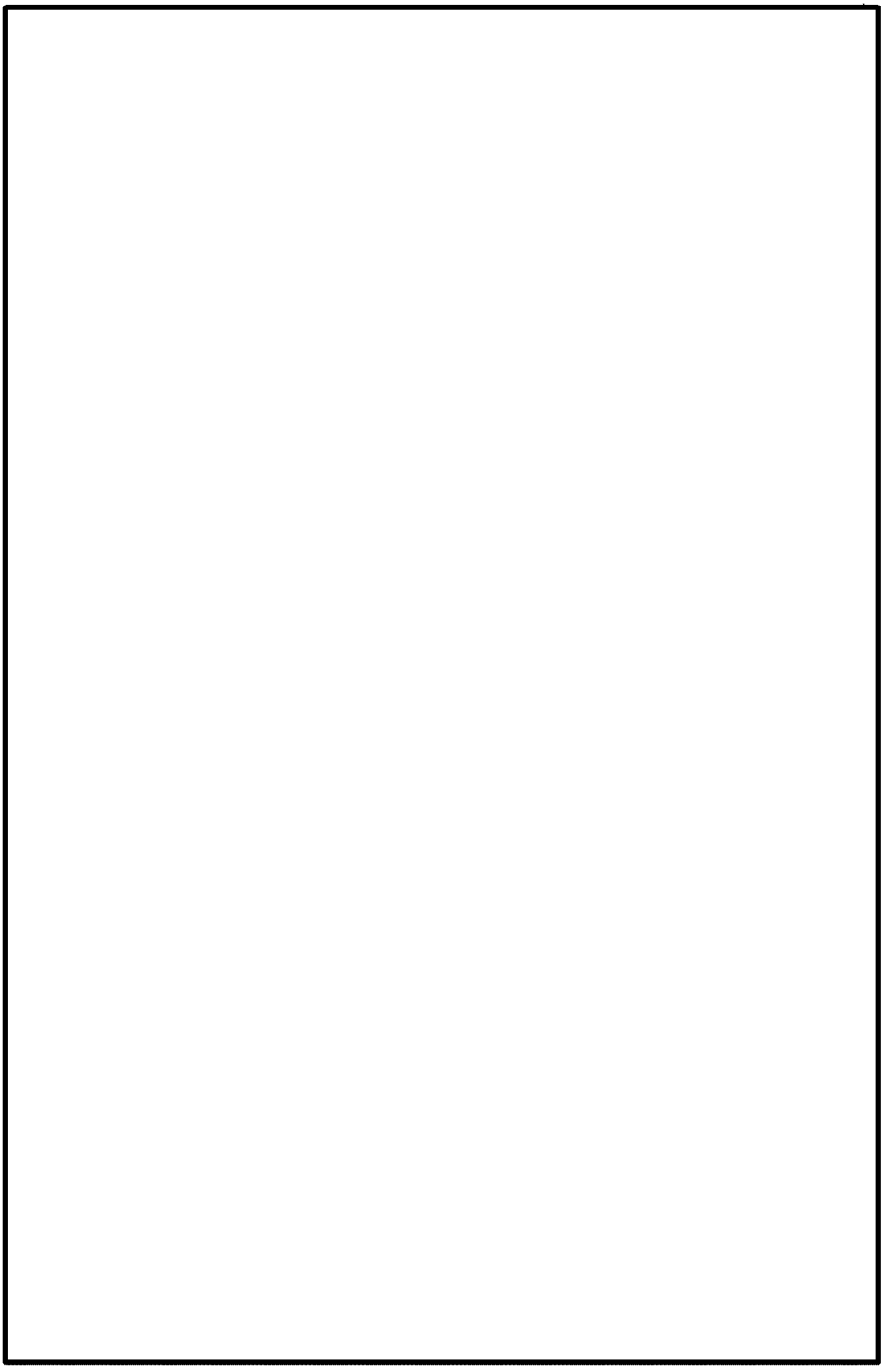
The Engineer ("Times Buildings Engineering Services PC") and the Client ("Century Construction Group Corp.") further agree the following regarding this Project ("6410 Queens BLVD, Queens"):

Times Buildings PC
ENGINEERING SERVICES 时代工程师事务所

8534 Grand Ave 2nd Fl. Elmhurst, NY 11373
tel. 718 502 9631 fax. 718 228 7348

www.tbes.us

(b)(4)



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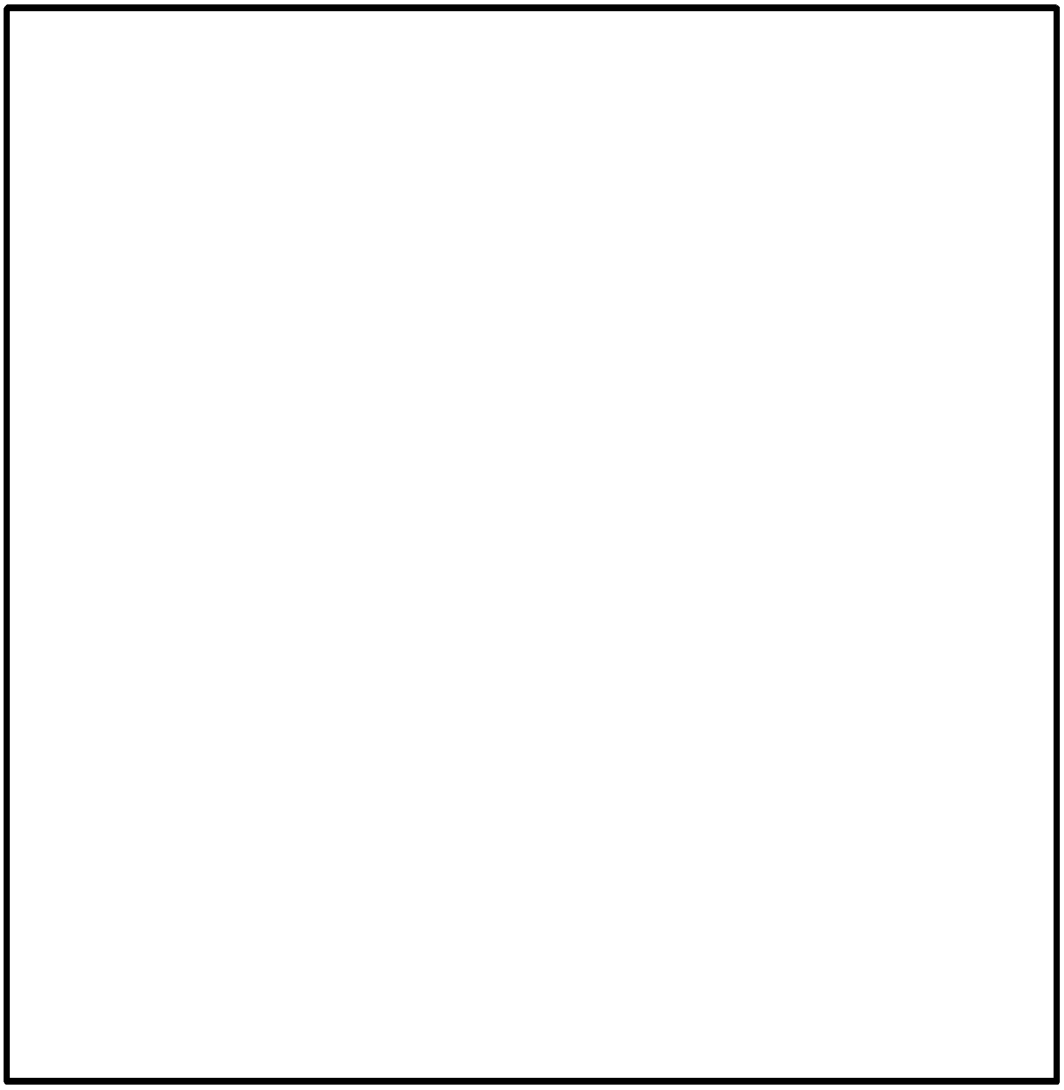
(b)(4)



EJC Engineering, PLLC

136-21 Roosevelt Avenue, Suite 211
Flushing, NY 11354
Tel: 718-353-8010 Fax: 718-353-4007

February 12, 2015

Mr. George Xu, President
Queens Blvd. Ventures
35-06 Leavitt Street, Suite CFA
Flushing, NY 11354
Email: georgexu88@yahoo.com
Tel: 718-938-1060

Re: Engineering Design Services
Holiday Inn -64-06 Queens Blvd., Queens, NY

Dear George:

Thank you for the opportunity to provide engineering services for your project.

Enclosed is an agreement that reflects our understanding of your requirements.

Please review the agreement and if it is acceptable, fax and mail one copy with your signature, indicating acceptance. Your signed acceptance is required to allow us to proceed with the project.

We look forward to working with you on this project.

Very truly yours,

EJC ENGINEERING, PLLC

Eric Chang, P.E.

Enclosure

J:\Work Other Files\Workfiles\2015\019-Proposal 64-06 Queens Blvd Queens Hotel-George Xu.doc

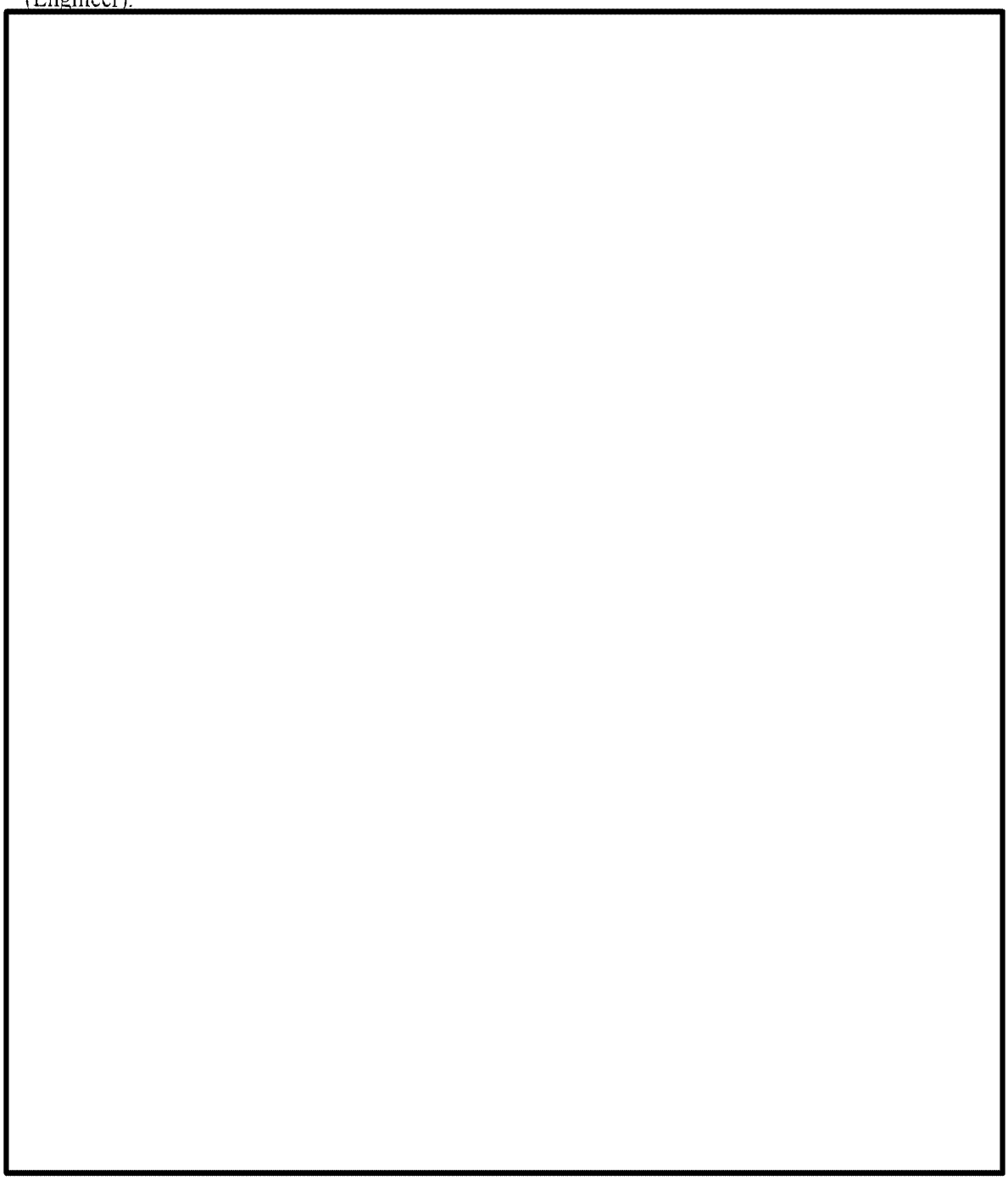
EJC Engineering, PLLC

136-21 Roosevelt Avenue, Suite 211
Flushing, NY 11354
Tel: 718-353-8010 Fax: 718-353-4007

(b)(4)

February 12, 2015

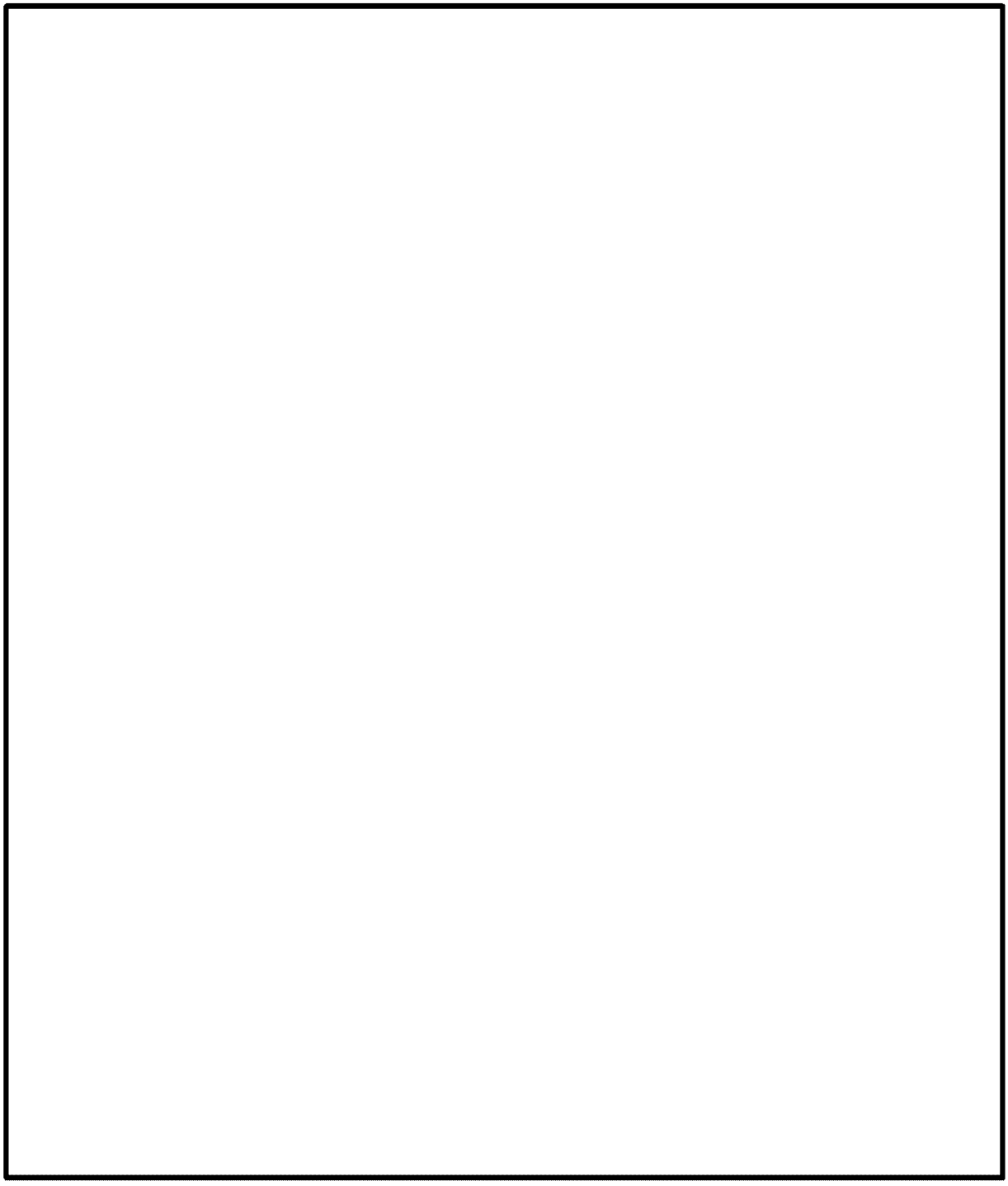
The parties to this agreement are Queens Blvd. Ventures (Owner) and EJC Engineering, PLLC (Engineer).



February 12, 2015

(b)(4)

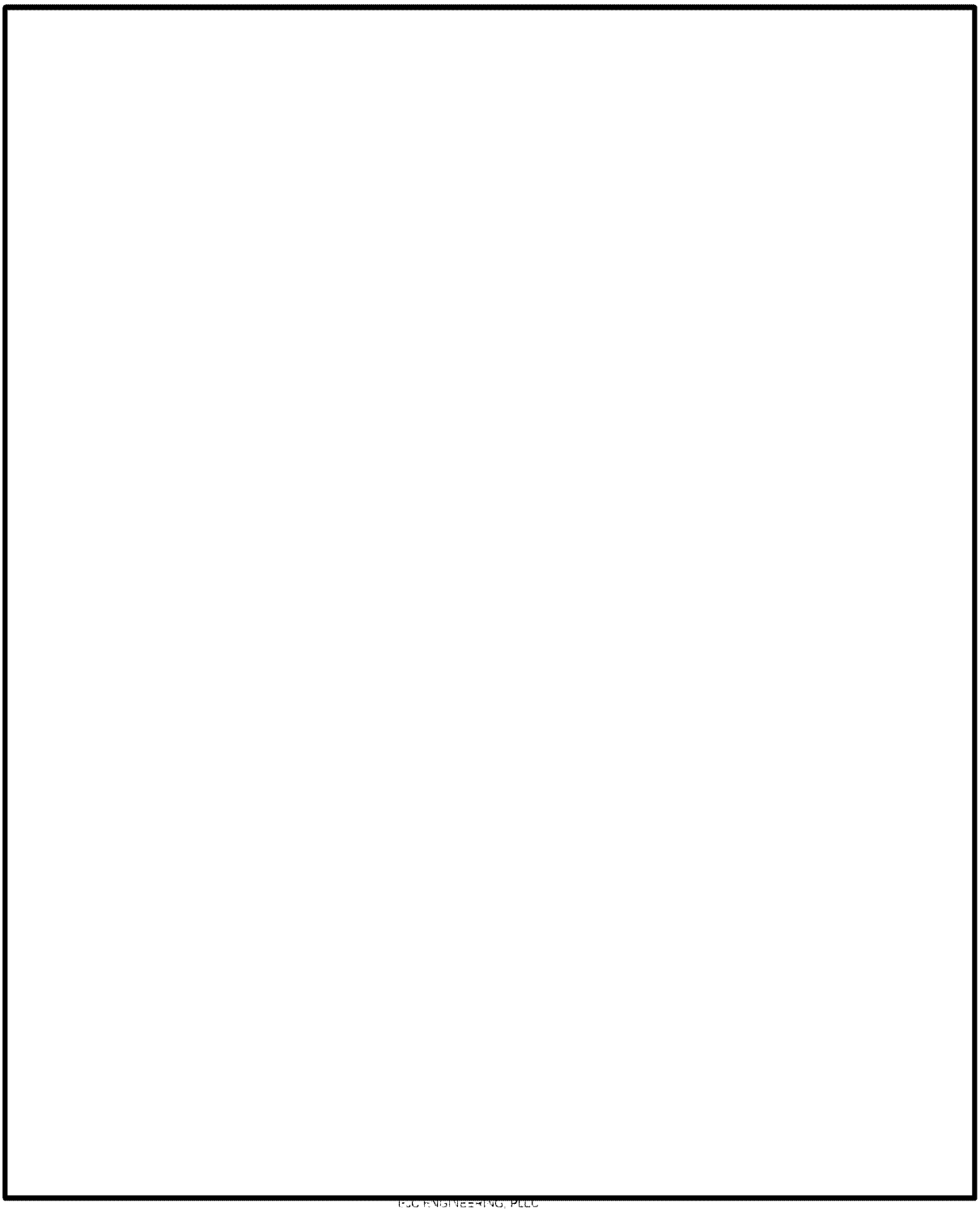
Re: Engineering Design Services
Holiday Inn -64-06 Queens Blvd., Queens, NY



EJC ENGINEERING, PLLC
136-21 ROOSEVELT AVENUE, SUITE 211, FLUSHING, NY 11354 718 353 3010 TEL 718 353 4007 FAX

February 12, 2015

Re: Engineering Design Services (b)(4)
Holiday Inn -64-06 Queens Blvd., Queens, NY



February 12, 2015

Re: Engineering Design Services (b)(4)
Holiday Inn -64-06 Queens Blvd., Queens, NY

[redacted]

Very truly yours,

EJC ENGINEERING, PLLC

Eric Chang, P.E.

ACCEPTED:

Client: Queens Blvd. Ventures

By:

Date: 2/13/2015

J:\Work Other Files\Workfiles\2015\019-Proposal 64-06 Queens Blvd Queens Hotel-George Xu.doc

Geo Tech Consultants, LLC

52 E 2nd Street, Mineola, NY 11501 Tel: 516 355 0168 Fax: 516 355 0271

March 18, 2015

Queens Blvd Ventures
35-06 Leavitt Street
Flushing, NY 11354

Attn: Mr. George Xu

Re: Preliminary Geotechnical Investigation Report
Proposed 8- story Building
64-10 Queens Boulevard
Queens, NY 11377
GTC Job No.: QNBV115

Dear Mr. Xu:

This report presents the results of a preliminary geotechnical investigation performed by Geo Tech Consultants LLC for the above referenced project. The work was performed in accordance with our proposal dated February 18, 2015 and your subsequent authorization.

The scope of our service performed for this phase of the investigation included:

- Drilling and full-time inspection of three (3) test borings;
- Performance of engineering evaluation to determine the stratification and physical characteristics of the subsoils, and to develop recommendations for the design and construction of foundations for support of the proposed building;
- Preparation of a written report complete with test data, analysis, and recommendations.

1 PROJECT AND SITE DESCRIPTION

The subject property, known as 64-10 Queens Blvd of Queens, New York, is located on the southeast quadrant of the intersection of Queens Blvd and 64th Street.

The site, also known as Lot 32 of Block 2325, measures 141.15' along Queens Boulevard and 120.92' along 64th Street. Site terrain slopes from north to south with highest elevation along Queens Blvd (average elevation 49.85') and lowest at the southwest corner (average elevation around 43').

Currently a high one story building occupies the eastern 100' of the site, leaving the western end open for parking. The property is adjoined intermittently by 3-story and 1-story buildings to the east and a 2-story brick building to the south.

It is our understanding that the project consists of demolishing the existing 1-story building and replacing it with a new 8-story mixed-use building with a cellar and a sub-cellar. The depth of the sub-cellar is tentatively set at a depth of about 19 ft below the sidewalk of Queens Blvd.

As the project is still in the conceptual design stage, no structural loading information regarding the proposed building was available at the time this report was prepared.

2 FIELD EXPLORATION

To provide preliminary foundation assessment, three test borings labeled as B-1, B-2 and B-3 were installed. The boring was performed by Craig Geotechnical Drilling Corp of Mays Landing, New Jersey on March 6th and 9th, 2105 and inspected by GTC's professional engineering staff. The as-drilled boring location is shown on drawing G-001, which is attached at the end of this report.

Borings B-1, B-2 and B-3 were drilled using mud rotary method to respective depth of 102', 52' and 52' below existing grade. Soils encountered in the boring were generally sampled at five (5) ft interval throughout except for B-1 where continuous samples were taken for the first 12' and at five (5) ft intervals afterwards. Each soil sample was extracted using a Standard Split-Spoon sampler by performing a Standard Penetration Test (SPT) in accordance with ASTM D 1586.

During drilling operation, extracted soil samples were visually examined and classified by our field engineer. The retrieved soil samples were then placed in sealed glass jars and later returned to driller's shop for storage.

Detailed descriptions of the soil samples encountered in the test borings were documented in the boring logs, which are presented on drawing G-001.

3 SUBSURFACE CONDITIONS

The following provides a general description of the soil profile inferred from the test borings. While the borings indicate that the subsurface conditions appear to be relatively uniform across the site, it should be recognized that the number of borings was small compared to the size of the site, and that the existence of anomalies cannot be precluded.

3.1 Soil Profile

All three borings encountered approximately 2' of miscellaneous fill, followed by glacial sands to the termination depth of the borings.

The miscellaneous fill was described to consist mostly of sands with concrete and asphalt fragments, which is a NYC Class 7 material. The fill registered medium dense to very dense compact condition

The miscellaneous fill was followed by a glacial deposit that extended down to the maximum depth of the borings. The glacial deposit consists predominantly of coarse-medium-fine sands with trace to some clay, silt and gravel, consistent with SP/SM Group of the USCS (Unified Soil Classification System).

The glacial sands registered mostly medium dense compact condition from 2'-75', which matches NYC Class 3b material, and dense compact condition thereafter, which matches NYC Class 3a material. There were exceptions found in B-1 and B-2, where glacial sands between 25' and 30' of depth registered loose compact condition, matching NYC Class 6 material.

3.2 Groundwater

Groundwater was observed at depths between 40'-45' below grade, corresponding to elevations around 4'-5'.

It should be pointed out that groundwater table is known to fluctuate with seasonal, tidal, and climatic conditions.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Foundation Analysis and Evaluation

The borings depicts a general profile of 2' of miscellaneous fill, followed by glacial sand deposit to the termination depth of the boring. Groundwater table was observed at a depth of 40'-45' below existing grade.

4.2 Foundation supporting Schemes and Design Criteria

4.2.1 Foundation Types

Our analysis of the boring data obtained from the preliminary borings suggests that the subsoil conditions as it revealed are marginally suitable for the use of shallow spread footing for support of the proposed building.

Our discussion and recommendations regarding various aspects of the proposed construction are presented below.

4.2.1.1 Mat Footing on modified subgrade

Our analysis suggests that it is possible to support the proposed new building on mat footing provided the mat footing is designed and installed in accordance with the following recommendations and limitations.

The mat footings should be established on at least 1' of natural ¾" crushed stone, which shall be wrapped around with a geofabric such as Mirafi 500X or equivalent.

Mat footings supporting on modified subgrade as described above may be designed for a maximum capacity up to 2.0 tsf. If a modulus of subgrade reaction is required for mat footing analysis, then a moderate value up to 50 pci may be considered for use.

Prior to receiving geofabric and crushed stone, the undercut footing subgrade shall be proofrolled with a heavy vibratory roller under the guidance and observation of a qualified geotechnical engineer. At the discretion of the inspecting geotechnical engineer, any unsuitable bearing materials found at the undercut subgrade shall be removed and replaced with controlled compacted fill or additional ¾" crushed stone.

Mat footings designed and installed in accordance with the above recommendations are expected to yield settlements between ¾" and 1 ½", 50% of which would be complete upon completion of the construction.

If the above estimated settlements are deemed intolerable to the building system proposed, then deep foundation systems such as micropiles shall be considered.

4.2.1.2 Micropiles (drilled pile)

Micropiles are small diameter (generally ranges between 8 and 14 inches) piles that are installed by drilling, which generates little vibration and noise. Micropiles derive their bearing capacity from their friction against the surrounding soil.

Based on boring logs obtained during this investigation, our analysis suggests that micropiles with diameter of 8" - 14" can achieve compressive capacities ranging from 30 tons to 150 tons when properly designed and installed. Optimal pile capacity shall be determined by project engineer based on the loading pattern and magnitude requirements.

Micropiles require detailed design to satisfy both the geotechnical and structural requirements as stipulated in the NYC Code. They are generally contracted out as performance specification with contractor responsible for design, installation and quality assurance.

Contractor shall submit design submittal to engineer of record for review and approval prior to installation.

For estimation of geotechnical capacity of micropiles, a maximum allowable skin-resistance up to 10 psi may be considered for pile section embedded in NYC Class 3b material, and 14 psi for section embedded in NYC Class 3a material. Steel casing shall be provided in the upper section above the fixity of the pile.

Micropiles are friction piles, which require load tests to verify its design compressive capacity according to NYC Building Code.

The uplift capacity of a micropile pile depends upon its size and penetration depth. For preliminary estimation purpose, one can assume a value up to 50% of the maximum allowable compressive capacity it achieved.

In regards to lateral resistance of a micropile, the NYC Code allows up to 1 ton maximum per pile without triggering the requirement for lateral load tests.

4.2.2 Seismic Design Considerations

Based on the boring data obtained from this investigation and in accordance with the new NYC Building Code, the site can be considered as site Class D for seismic design purpose. Refer to NYC Building Code for additional seismic-related criteria for foundation design.

4.2.3 Liquefaction Potential

Using the liquefaction assessment diagram (Figure 1813.1) provided in the NYC Building Code, the site soil is deemed liquefaction unlikely.

4.3 Cellar slabs and walls

4.3.1 Design groundwater level

Groundwater table was observed at depths of about 40'-45' below existing grade (corresponding to elevations 4'-5'). To account for seasonal variation, we suggest that design groundwater level be assumed at a depth not to be deeper than 40' below sidewalk, or elevation 7'-8', which should have minimal impact to the foundation and cellar design.

4.3.2 Sub-cellar slab

It is our opinion that the proposed sub-cellar slab can be designed and constructed as a slab-on-grade bearing on 1' of ¾" crushed stone course over competent glacial sands.

Prior to receiving crushed stone, the slab subgrade should be subject to proofrolling using a vibratory roller and under the observation of a qualified geotechnical engineer. At the

discretion of the inspecting soil engineer, any soft areas detected during the proofrolling should be removed and replaced with controlled compacted fill (see section 5.3 for fill material and placement requirements). Qualified ¾" crushed stone can be used in place of control fill if so desired or directed by the inspecting engineer.

4.3.3 Lateral Earth Pressures

Permanent walls-below-grade should be designed to withstand long-term, at rest equivalent fluid pressures of 60 pounds per cubic foot (pcf) above design groundwater level and 90 pcf below groundwater level.

Temporary walls, such as excavation shoring, if required, should be designed to withstand equivalent fluid pressure of 40 pcf above groundwater level and 80 pcf below groundwater level.

Backfill against the basement wall should consist of sand and gravel with no more than 10% fines (minus No. 200 sieve size). The fill should be placed in horizontal lifts and each lift should be compacted to at least 95% of the maximum dry density as determined in accordance with ASTM D1557.

4.3.4 Foundation drainage, Under-slab drainage, and Waterproofing

Despite the relatively deep-seated groundwater table, we recommend that foundation drainage be installed around the cellar foundation, where applicable, to ensure free hydrostatic pressure behind the cellar wall. Typical foundation drainage system can consist of 6" diameter filter-lined, perforated PVC pipe covered with 6" of ¾" crushed stone in all directions. Water collected in the foundation drainage system should be discharged into ejector pits where it can be pumped out and discharged into approved facilities.

Under-slab drainage system is optional but not required provided the cellar slab is supported on at least 12" of ¾" crushed stone. Typical under-slab drainage system, if used, can consist of perforated pipe looping within the under-slab crushed stone course at spacing not greater than 25'. The water collected in the perforated pipe can be directed to sump pit or ejector pits where it can be pumped out and discharged into approved facilities.

Waterproofing the underside of the cellar slab and the exterior of the cellar walls is optional but not required, subject to the discretion of the design architect and engineer. As a minimum, though, the cellar slab should be provided with a vapor barrier and the cellar wall dam proofed.

4.4 Construction Dewatering

Construction dewatering is not expected during the installation of foundation. However, perched water and/or surface runoff condition could develop during the course of construction. Provisions should be made to provide sump pumping capability on-site during construction to control surface water runoff.

4.5 Underpinning

The scope of the preliminary investigation did not include assessment of underpinning requirement, which can be determined in the later investigation, if requested.

5. CONSTRUCTION MONITORING

5.1 Pre-construction Survey

It is strongly recommended that a pre-construction survey be conducted to document the existing conditions of the adjacent buildings, structures or sidewalks prior to commencement of any construction activities. The conditions of the adjacent structures/facilities/slabs should also be monitored periodically during the course of construction.

5.2 Protection of Adjacent Structures and Sidewalk

The excavation of the proposed cellar and footings may require underpinning and shoring of the existing adjacent footings, which, if determined to be required, shall be designed by a professional engineer engaged by the contractor. The contractor shall submit shop drawings to the project engineer for review and approval prior to installation. The installation shall be subject to special inspection by a qualified engineer in accordance with NYC Building Code.

5.3 Filling and Backfilling

Filling and backfilling should utilize qualified fill materials meeting the grading requirements for control fill as per NYC Building Code. Control fill should be placed in 12-inch loose lifts and each lift should be compacted to at least 95% of its maximum dry density as determined in accordance with ASTM D1557.

6. LIMITATION AND ADDITIONAL BORINGS

The conclusions and recommendations contained in this report are based on the subsurface data obtained during the preliminary investigation and on the details stated in this report. Should conditions be encountered which differ specifically from those stated in this report, we should be notified immediately so that our recommendations may be reviewed and/or revised, if necessary.

It is necessary to install additional borings after the existing buildings have been demolished in order to satisfy the NYC Building Code with respect to site investigation. The additional borings will serve to ascertain the initial boring findings and recommendations.

7. CONSTRUCTION CONSULTATION AND INSPECTION

Due to the nature of the soils and subsurface conditions at this site and the recommendations set forth herein, consultation and inspection services by a qualified soil engineer are recommended for the following:

1. Preparation of the site, including clearing, excavation of basement, and initial proofrolling and compaction of the in-situ soils.

2. Placement of all controlled backfill and/or fill, if any.

3. Pre-construction survey of adjacent structures.

4. Cellar excavation and footing subgrade inspection.

We trust the above information will allow you to proceed with the design and construction of the proposed mixed-use building.

We thank you for the opportunity of providing this service to you. Should you have any questions regarding this report, or if we can be of further assistance, please do not hesitate to contact us.

Respectfully Submitted
Geo Tech Consultants LLC

Steve J. J. Lin, P.E.

Attachments:
Drawing G-001 Record of Boring Logs with Boring Location Plan

LEGEND

- SPLIT SPOON SAMPLE
- CORE DRILLING
- DRILLING THROUGH
- SHELBY TUBE
- PENETROMETER READING (tsf)
- BORING LOCATION
- BORING & WELL
- TEST PIT

NOTES:

1. SOILS WERE SAMPLED USING SPLIT-SPOON SAMPLER BY MEANS OF A 140 POUND HAMMER FREE FALLING A DISTANCE OF 30 INCHES. AUTOMATIC TRIP (OR CATHEAD) IN ACCORDANCE WITH ASTM D1586
2. THE TOTAL NUMBER BLOWS FOR THE MIDDLE 12 INCHES OF PENETRATING IS DEFINED AS STANDARD PENETRATION RESISTANCE (N)
3. UNDISTURBED SOIL SAMPLES WERE OBTAINED BY MEANS OF SHELBY TUBE SAMPLING IN ACCORDANCE WITH ASTM D1587
4. BEDROCK WAS CORED USING NX OR 3N DOUBLE CORE BARRELS IN ACCORDANCE WITH ASTM D2113
5. SOIL DESCRIPTIONS ARE MADE THROUGH VISUAL EXAMINATION OF SOIL SAMPLES IN ACCORDANCE WITH THE PROCEDURES ESTABLISHED IN NYC CODE
6. SOIL CLASSIFICATIONS HAVE BEEN PROVIDED USING UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) AS WELL AS AASHTO SOIL CLASSIFICATION SYSTEM
7. GROUND WATER TABLE INDICATED ON THE LOGS REPRESENTED THE LEVEL OF WATER WHERE IT WAS FIRST ENCOUNTERED DURING THE DRILLING
8. BORING INSTALLED BY: CRAIG TEST BORING Co. Inc

ABBREVIATIONS			
C - COARSE	WH - WHITE	MULTI - MULTI COLORED	
M - MEDIUM	RD - RED	TR - TRACE (1% - 10%)	
F - FINE	LT - LIGHT	LT - ADJECTIVE (11% - 20%)	
BR - BROWN	DK - DARK	S - AND (30% - 50%)	
GY - GRAY	BLK - BLACK	W.O.H. - WEIGHT OF HAMMER	

DENSITY AND CONSISTENCY RELATED TO SPOON BLOWS/FOOT			
SAND		SILT AND CLAY	
DENSITY	N-VALUE	CONSISTENCY	N-VALUE
VERY LOOSE	4 OR LESS	VERY SOFT	1 OR LESS
LOOSE	5 TO 10	SOFT	2 TO 4
MEDIUM DENSE	11 TO 30	MEDIUM STIFF	5 TO 8
DENSE	31 TO 50	STIFF	9 TO 15
VERY DENSE	51 OR MORE	VERY STIFF	16 TO 30
		HARD	31 OR MORE

ROCK QUALITY / ROCK QUALITY DESIGNATION (RQD)	
RQD (%)	ROCK DESCRIPTION
0 - 25	VERY POOR
25 - 50	POOR
50 - 75	FAIR
75 - 90	GOOD
90 - 100	EXCELLENT

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)	
GW	WELL GRADED GRAVEL
GP	POORLY GRADED GRAVEL
GM	SILTY GRAVEL
GC	CLAYEY GRAVEL
SW	WELL GRADED SAND
SP	POORLY GRADED SAND
SM	SILTY SAND
SC	CLAYEY SAND
ML	SILTS OF LOW PLASTICITY
CL	CLAYS OF LOW PLASTICITY
MH	SILTS OF HIGH PLASTICITY
CH	CLAYS OF HIGH PLASTICITY
OH	ORGANIC SILTS/CLAYS OF HIGH PLASTICITY
PT	PEAT AND HIGHLY ORGANIC SOIL

SOIL GRAPHIC SYMBOL	FILL	TOPSOIL	SILT	CLAY	GLACIAL TILL	ROCK

2004 NYC CLASSIFICATION SYSTEM		
CLASS OF MATERIAL		DESCRIPTION
1a	R.Q.D. 90%	HARD SOUND ROCK
1b	65% R.Q.D. 90%	MEDIUM HARD ROCK
1c	40% R.Q.D. 65%	INTERMEDIATE ROCK
1d	R.Q.D. 40%	SOFT ROCK
2a	N= 30	SANDY GRAVEL AND GRAVEL (NON-COHESIVE SOILS OF COMPARABLE NON-PLASTIC CHARACTER)
2b	N= 30	
3a	N= 30	GRAVELLY SILTS (NON-PLASTIC SOILS OF COMPARABLE NON-PLASTIC CHARACTER)
3b	N= 30	
4a	N= 30	CLAYS (NON-PLASTIC SOILS)
4b	N= 30	
4c	N= 30	
5a	N= 30	SILTS AND CLAYEY SILTS (NON-PLASTIC SOILS)
5b	N= 30	
6	N= 10	ORGANIC SILTS (SILTS AND CLAYS OF HIGH PLASTICITY)
7		MISCELLANEOUS MATERIALS (CONCRETE AND UNCLASSIFIED)

B-1

Ground Surface Elev. Existing Grade (49' ±)*

Depth (ft)	Sample	Blow Count @ 6"	Soil Descriptions
1	S1	7-11 / 17-16	Cmf sand, sm conc fr / blk, moist, m. dense (Fill)(Class 7)
2	S2	19-16 / 12-9	Cmf sand,sm gravel/brn, moist, m. dense (SP)(Class 3b)
3	S3	5-9 / 19-24	Same (SP)(Class 3b)
4	S4	22-24 / 24-21	Same / dense (SP)(Class 3a)
5	S5	5-13 / 9-10	Same / m. dense (SP)(Class 3b)
6	S6	10-8 / 12-10	Same (SP)(Class 3b)
7	S7	9-10 / 12-10	Same, tr. gravel (SP)(Class 3b)
8	S8	5-5 / 6-7	Same (SP)(Class 3b)
9	S9	4-4 / 3-3	Same / loose (SP)(Class 6)
10	S10	6-9 / 6-4	Same / m. dense (SP)(Class 3b)
11	S11	6-7 / 7-9	Same (SP)(Class 3b)
12	S12	7-9 / 10-8	Same / wet (SP)(Class 3b)
13	S13	7-11 / 9-10	Same (SP)(Class 3b)
14	S14	8-5 / 5-5	Same, sm clay (SP/SC)(Class 3b)
15	S15	3-6 / 10-8	Cmf sand / brn, wet, m. dense (SP)(Class 3b)
16	S16	4-6 / 9-8	Same (SP)(Class 3b)
17	S17	6-12 / 12-9	Same, tr. gravel (SP)(Class 3b)
18	S18	14-13 / 16-15	Same (SP)(Class 3b)
19	S19	18-22 / 22-22	Same, sm. gravel / dense (SP)(Class 3a)

B-1 Continued

B-1 Continued

Depth (ft)	Sample	Blow Count @ 6"	Soil Descriptions
60	S20	23-21 / 25-14	Same (SP)(Class 3a)
65	S21	13-20 / 21-16	Same (SP)(Class 3a)
70	S22	19-18 / 15-12	Same (SP)(Class 3a)
75	S23	18-17 / 15-15	Same (SP)(Class 3a)
80	S24	12-21 / 29-19	Same (SP)(Class 3a)

TEST BORING COMPLETED @ 102'

Date drilled: 3/6/2015
Groundwater was encountered at 40' below grade
***Ground surface elevation estimated from site survey map by Haynes Land Surveyors**

B-2

Ground Surface Elev. Existing Grade (47' ±)*

Depth (ft)	Sample	Blow Count @ 6"	Soil Descriptions
1	S1	27-31 / 34-66	Cmf sand, sm conc fr / gy, moist, v. dense (Fill)(Class 7)
2	S2	7-13 / 12-12	Cmf sand, sm gravel / brn moist,m dense (SP)(Class 3b)
3	S3	6-9 / 10-8	Cmf sand, tr gravel & silt / brn, moist,m dense (SP)(Class 3b)
4	S4	12-16 / 22-26	Same / dense (SP)(Class 3a)
5	S5	11-19 / 11-12	Cmf sand / brn, moist, m dense (SP)(Class 3b)
6	S6	3-1 / 6-6	Cmf sand, tr clay & silt / brn, moist, loose (SP/SC)(Class 6)
7	S7	6-8 / 10-6	Cmf sand, tr gravel & silt / brn, moist, m dense(SP)(Class 3b)
8	S8	7-10 / 10-9	Cmf sand, tr gravel /brn, moist, m dense (SP)(Class 3b)
9	S9	8-7 / 8-6	Cmf sand / brn, wet, m dense (SP)(Class 3b)
10	S10	7-11 / 10-7	Cmf sand, tr gravel / brn, wet, m dense (SP)(Class 3b)
11	S11	10-9 / 13-8	Same (SP)(Class 3b)

TEST BORING COMPLETED @ 52'

Date drilled: 3/9/2015
Groundwater was encountered at 42' below grade
***Ground surface elevation estimated from site survey map by Haynes Land Surveyors**

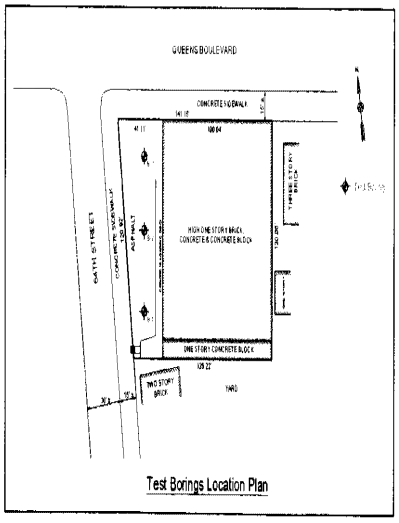
B-3

Ground Surface Elev. Existing Grade (49' ±)*

Depth (ft)	Sample	Blow Count @ 6"	Soil Descriptions
1	S1	24-30 / 32-36	Cmf sand, sm conc fr / gy, moist, v. dense (Fill)(Class 7)
2	S2	8-11 / 13-10	N R (Possibly SP)(Class 3b)
3	S3	11-11 / 9-7	Cmf sand, tr gravel/ brn, moist, m dense (SP)(Class 3b)
4	S4	9-13 / 18-16	Same / dense (SP)(Class 3a)
5	S5	12-16 / 16-15	Same (SP)(Class 3a)
6	S6	9-9 / 8-7	Same / m. dense (SP)(Class 3b)
7	S7	3-6 / 6-9	Cmf sand, sm. clay & silt / brn, moist,m dense (SC)(Class 3b)
8	S8	7-7 / 7-7	Same (SC)(Class 3b)
9	S9	5-9 / 7-8	Same (SC)(Class 3b)
10	S10	11-12 / 18-13	Cmf sand, sm gravel, tr silt & clay / brn, wet, dense (SP)(Class 3a)
11	S11	15-20 / 23-12	Cmf sand, sm gravel / brn, wet, dense (SP)(Class 3a)

TEST BORING COMPLETED @ 52'

Date drilled: 3/9/2015
Groundwater was encountered at 45' below grade
***Ground surface elevation estimated from site survey map by Haynes Land Surveyors**



Test Borings Location Plan

PROJECT
64-10 Queens Boulevard
Queens, NY

CLIENT
Queens Blvd Ventures
35-06 Leavitt Street
Flushing, NY 11354

Geo Tech Consultants, LLC
52 East 2nd Street Mineola, N.Y. 11501
Tel: (516) 294-0282
Fax: (516) 395-0287

DRAWING TITLE
Record of Boring Logs with Boring Location Plan

SEAL AND SIGNATURE

DRAWN BY	L. Ruiz
DATE	3-13-2015
SCALE	V.T.S.
PROJECT NO	QNBV115
DRAWING NO	G-001

2019

(b)(4)

No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

ENLARGED GUEST ROOM PLANS

STRUCTURAL ENGINEER:

MEP ENGINEER:

EJC ENGINEERING PLLC

Mechanical Plumbing Electrical Engineer

135-21 ROOSEVELT AVE. FLUSHING NY 11354
Tel: (718) 353-8010 ejceng@verizon.net

ARCHITECTS + PLANNERS

135-40 39TH AVENUE FLUSHING NY 11354
Tel: (718) 445-2345 Fax: (718) 359-0809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 04/11/18 DWG. NO.

PROJ. No.: 2017

PROJ. MODEL: 2017

DRAWN BY:

A-201.00

CADD FILE No.:

DEPARTMENT OF BUILDINGS

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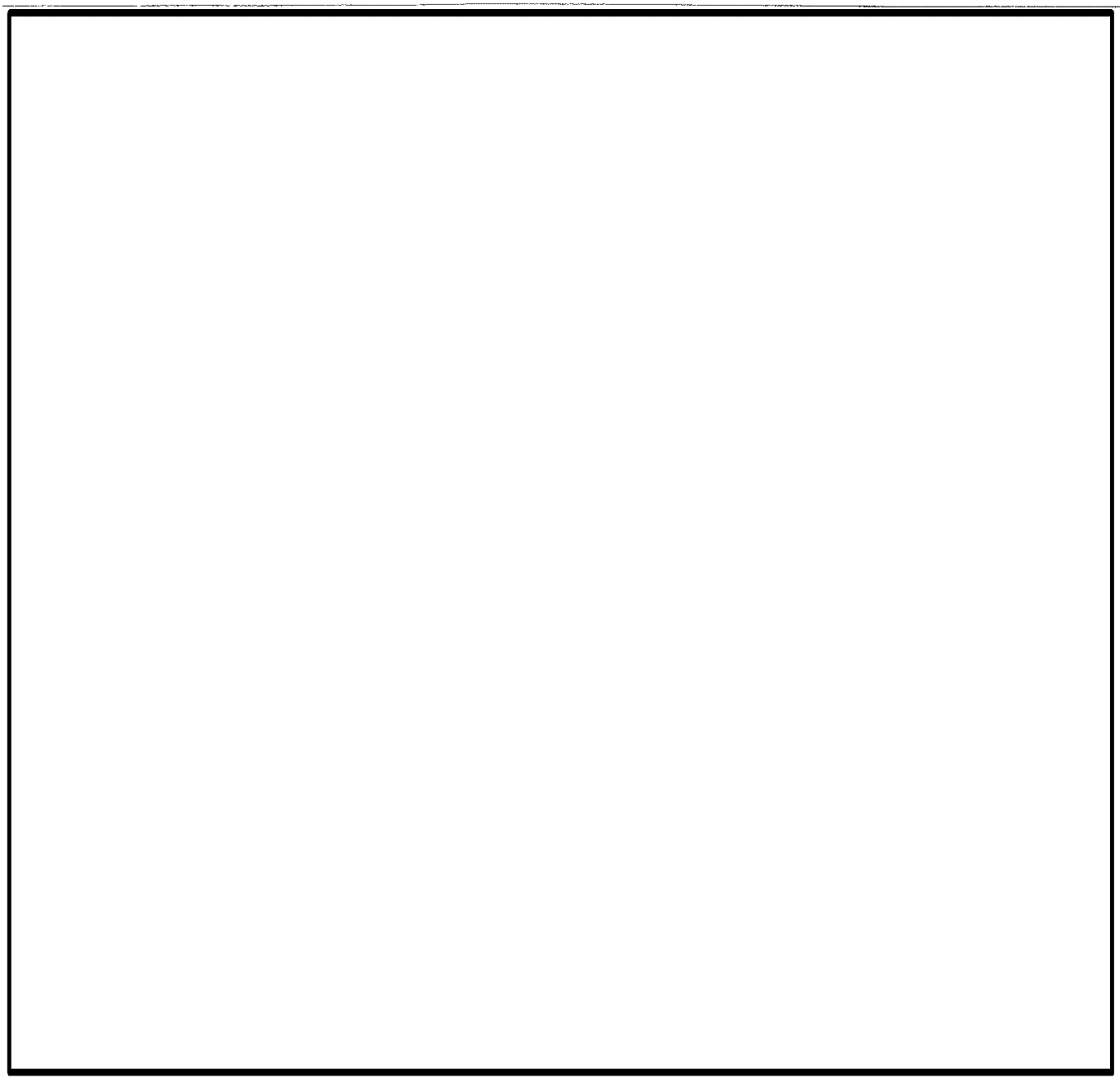

No.	DATE	DESCRIPTION

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

ENLARGED GUEST ROOM PLANS

STRUCTURAL ENGINEER:

MEP ENGINEER:
EJC ENGINEERING, PLLC
Mechanical/Plumbing/Electrical Engineer
136-21 ROOSEVELT AVE. FLUSHING, NY 11354
Tel: (718) 353-8010 ejceng@nyct.net

ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING, NY 11354
TEL: (718) 445-2345 FAX: (718) 359-0039
E-mail: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 08/18/15 DWG. NO.:
PROJ. No.: 2015
PROJ. MGR.: RC
DRAWN BY:
CADD FILE No.:

A-202.00

SEAL & SIGNATURE

DEPARTMENT OF BUILDINGS

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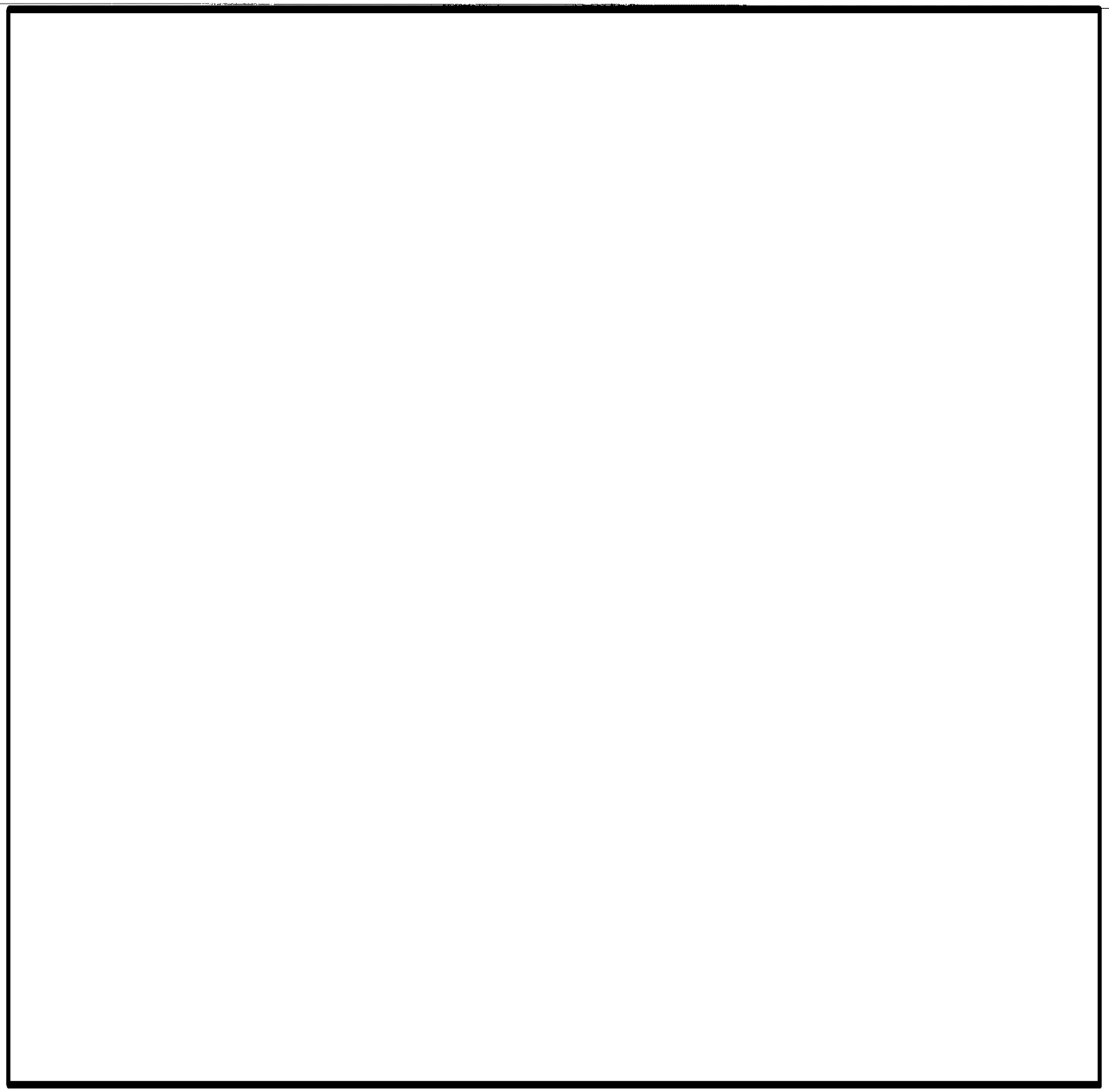

No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

ENLARGED GUEST ROOM PLANS

STRUCTURAL ENGINEER:

MEP ENGINEER:
EJC ENGINEERING, PLLC
Mechanical/Plumbing/Electrical Engineer
109-21 ROOSEVELT AVE. FLUSHING, NY 11354
Tel: (718) 353-8010 ejc.eng@verizon.net

ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING NY 11354
Tel: (718) 445-2345 Fax: (718) 359-0809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 04/16/15 DWG. NO.:
PROJ. NO.: 2147
PROJ. MGR.: RC
DRAWN BY:
CADD FILE NO.:
REVISION

A-203.00

SEAL & SIGNATURE

DEPARTMENT OF BUILDINGS

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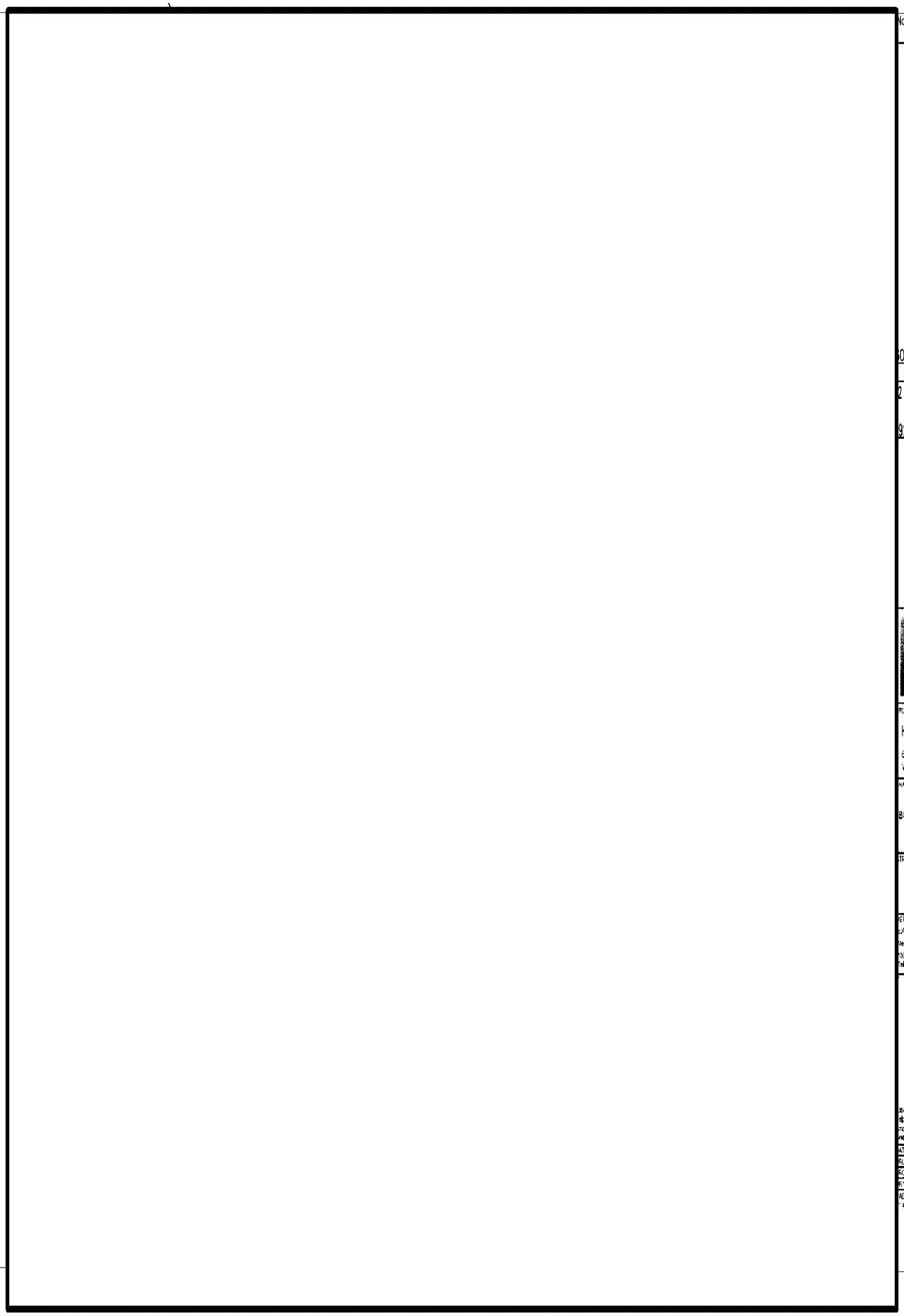

No.	DATE	DESCRIPTION

0+43.15) x 120.92
2
2

92

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

84-08 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

BUILDING SECTION

STRUCTURAL ENGINEER:

MEP ENGINEER:

...P ENGINEERING, PLLC
Electrical/Plumbing/Elevator Engineer
...9-21 ROOSEVELT AVE, FLUSHING, NY 11354
...el (718) 353-0392 ...@...

ARCHITECT'S + PLANNER'S

...-40 162TH AVENUE FLUSHING, NY 11358
...ne (718) 445-2345 Fax: (718) 359-0329
...mail: info@dynamodesignarchitect.com
...eb: www.dynamodesignarchitect.com

DATE: 04/02/15 DWG. No.:
REVISED:
SCALE: AS PER PLAN
DRAWN BY: A-601.00
ADD FILE No.:
JOB NO.:

DEPARTMENT OF BUILDINGS

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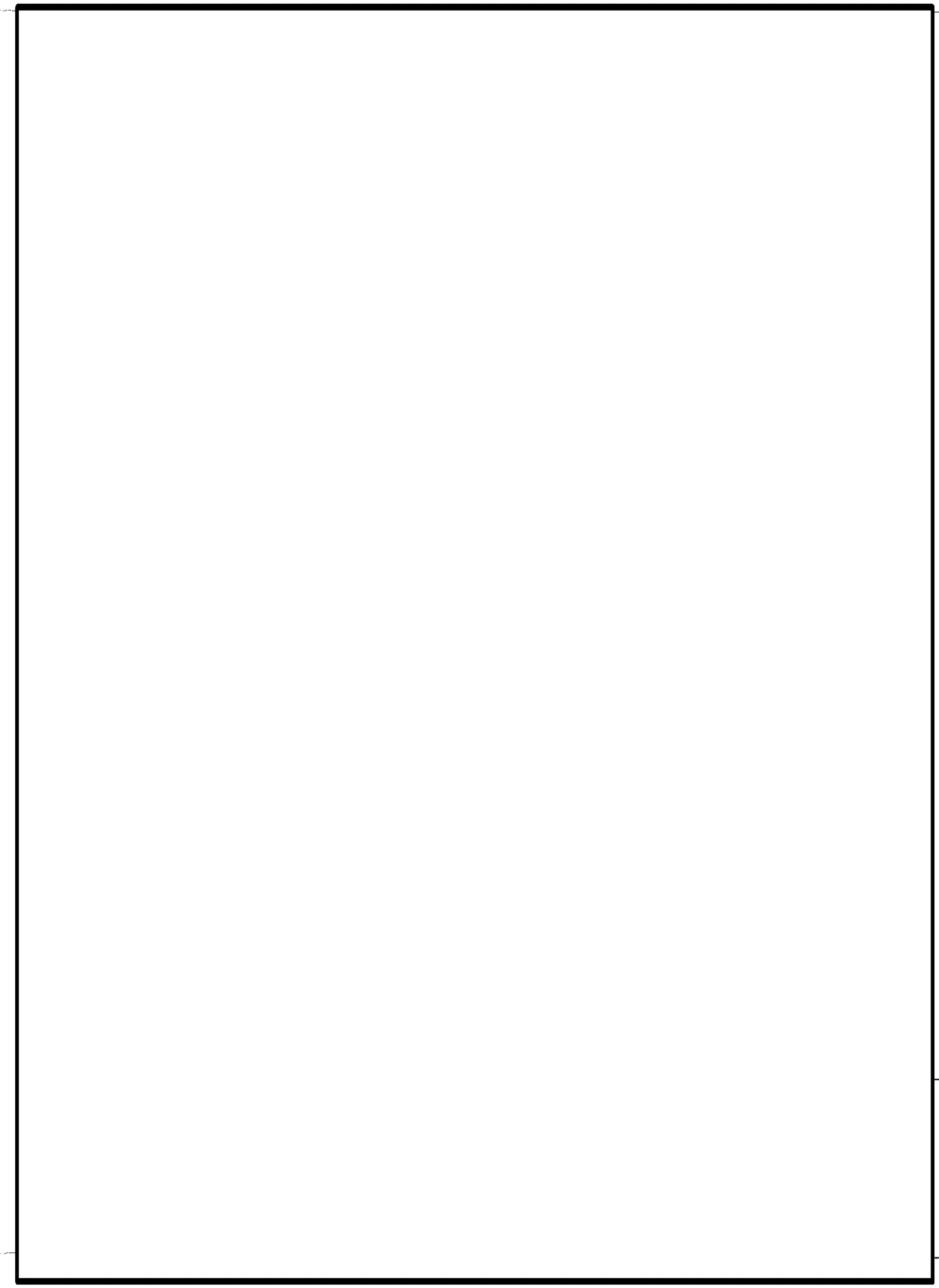

No.	DATE	DESCRIPTION

Holiday Inn Express & Suites

PROJECT:

HOLIDAY INN EXPRESS

64-06 QUEENS BLVD.
WOODSIDE, NY

DRAWING TITLE:

BUILDING SECTION

STRUCTURAL ENGINEER:

MEP ENGINEER:
[illegible]
Mechanical/Plumbing/Electrical Engineer
13-34 31 FOGGERVELT AVE, FLUSHING, NY 11354
Tel: (718) 359-6012 [illegible]

[redacted]

ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING, NY 11354
Tel: (718) 445-2345 Fax: (718) 359-0369
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WEB: www.raymondchanarchitect.com

DATE: 04/08/15 DWG. No.:
PROJ. No.: [illegible]
PROJ. MGR: R.C.
DRAWN BY: [illegible]
CAD FILE No.: [illegible]

A-602.00

DEPARTMENT OF BUILDINGS

Times Buildings PC
ENGINEERING SERVICES 时代工程师事务所

8334 Grand Ave, 2nd Fl Elmhurst, NY 11373
tel: 718 502 9631 fax: 718 228 7348
www.tbes.us

March 04, 2015

ATTN: Mr. George Xu
Century Construction Group Corp., President
35-06 Leavitt Street, Suite CF-A
Flushing, NY 11354
Office: 718-939-1060
Fax: 718-939-1036
Cell: 917-418-6839

Re: Structural and SOE Design for the 6410 Queens BLVD Project

Dear George,

Thank you for asking us to prepare this proposal for providing structural design service for the subject project. Per the information we have received, we note that the subject project is to build a 7 story hotel building with cellar and subcellar on a lot approximately 16,000 sq ft. The proposed total construction area is approximately 100,000 sq ft. As per our discussion, we'll provide the following engineering services for this project:

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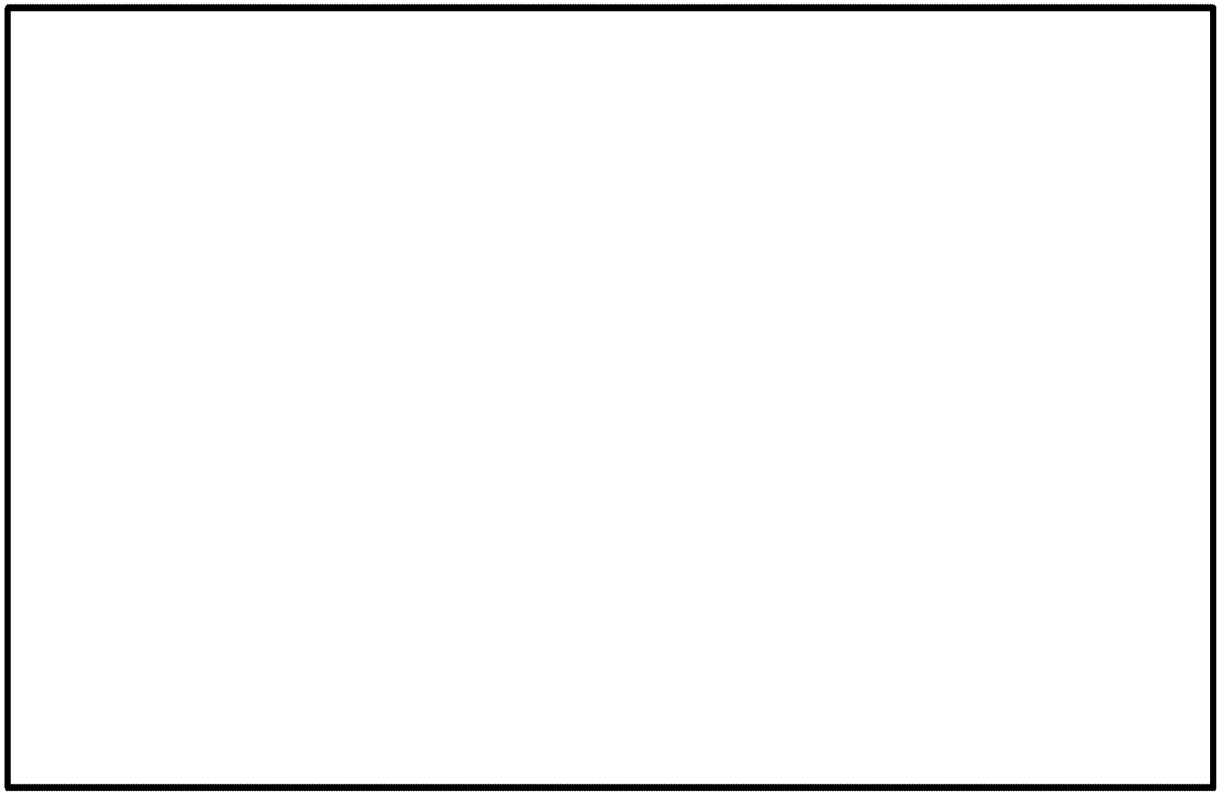

Times Buildings PC
ENGINEERING SERVICES 时代工程师事务所
8534 Grand Ave. 2nd Fl. Elmhurst, NY 11373
tel. 718 502 9631 fax. 718 228 7348
www.tbes.us

Terms and Conditions (b)(4)

Times Buildings PC
ENGINEERING SERVICES 时代工程师事务所

8534 Grand Ave 2nd Fl Elmhurst, NY 11373
tel. 718 502 9631 fax. 718 228 7348

www.tbes.us

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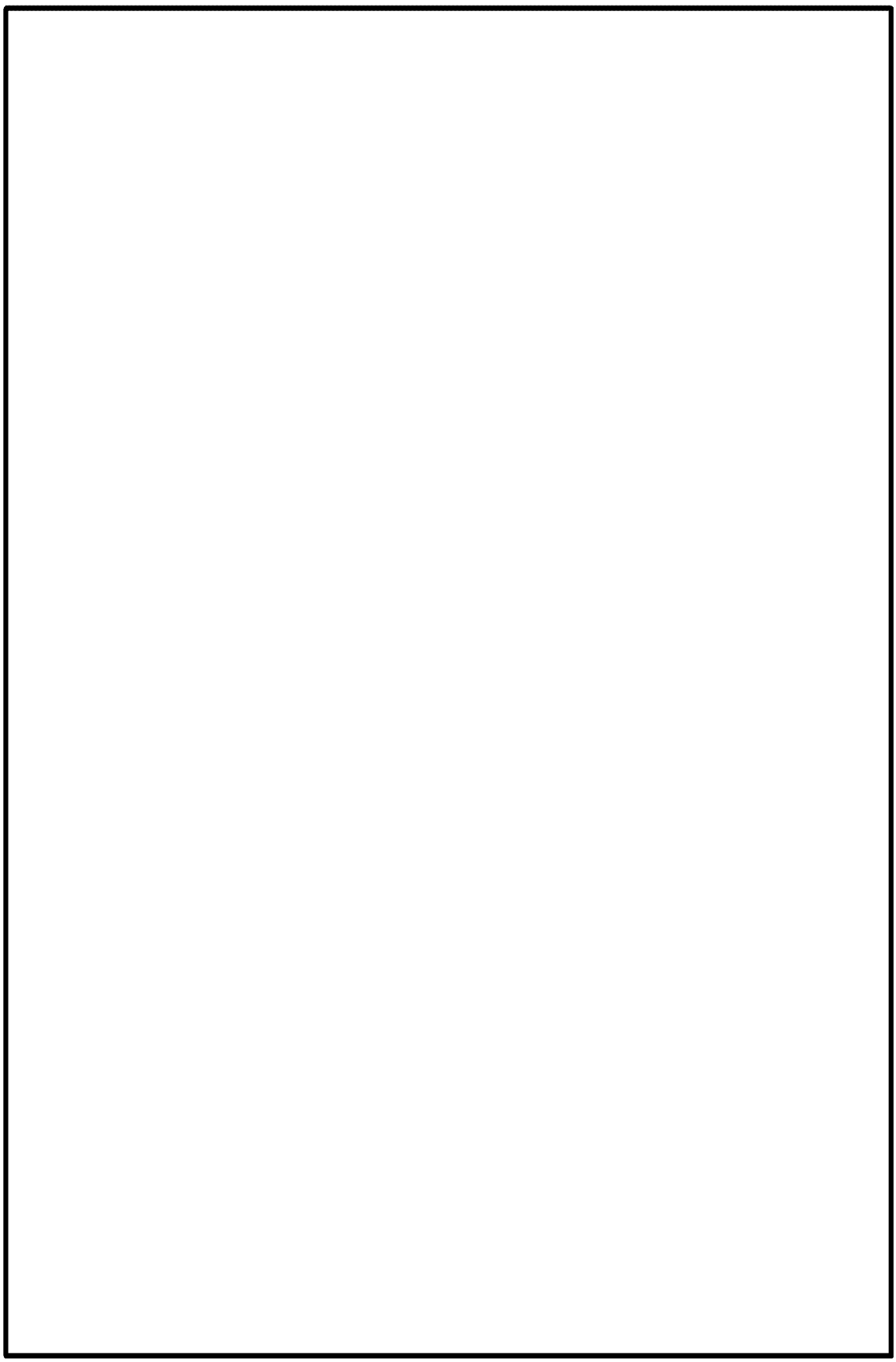
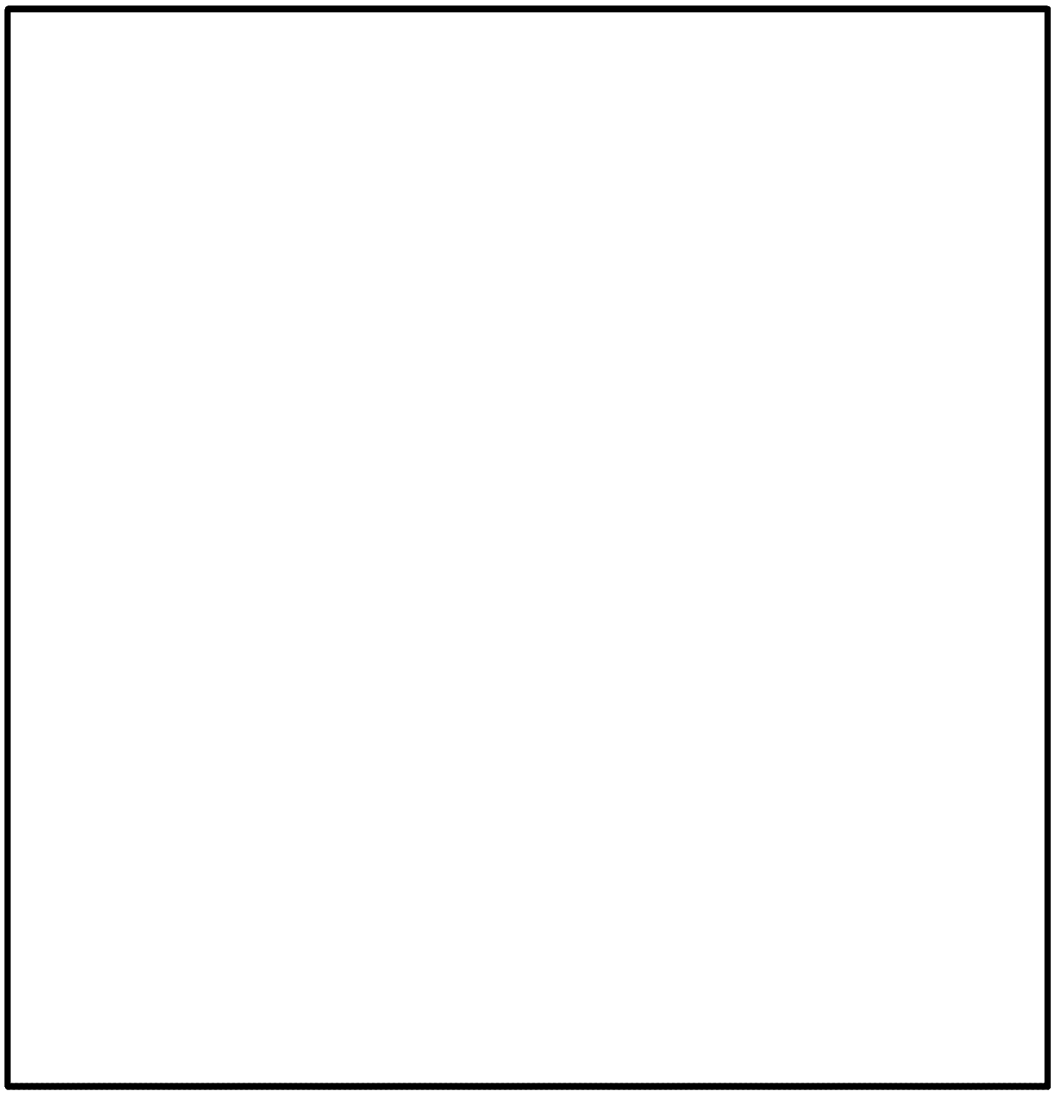


Times Buildings PC
ENGINEERING SERVICES 时代工程师事务所
8534 Grand Ave, 2nd Fl. Elmhurst, NY 11373
tel. 718 502 9631 fax. 718 228 7348
www.tbes.us



(b)(4)

EJC Engineering, PLLC

136-21 Roosevelt Avenue, Suite 211
Flushing, NY 11354
Tel: 718-353-8010 Fax: 718-353-4007

February 12, 2015

Mr. George Xu, President
Queens Blvd. Ventures
35-06 Leavitt Street, Suite CFA
Flushing, NY 11354
Email: georgexu88@yahoo.com
Tel: 718-938-1060

Re: Engineering Design Services
Holiday Inn -64-06 Queens Blvd., Queens, NY

Dear George:

Thank you for the opportunity to provide engineering services for your project.

Enclosed is an agreement that reflects our understanding of your requirements.

Please review the agreement and if it is acceptable, fax and mail one copy with your signature, indicating acceptance. Your signed acceptance is required to allow us to proceed with the project.

We look forward to working with you on this project.

Very truly yours,

EJC ENGINEERING, PLLC

Eric Chang, P.E.

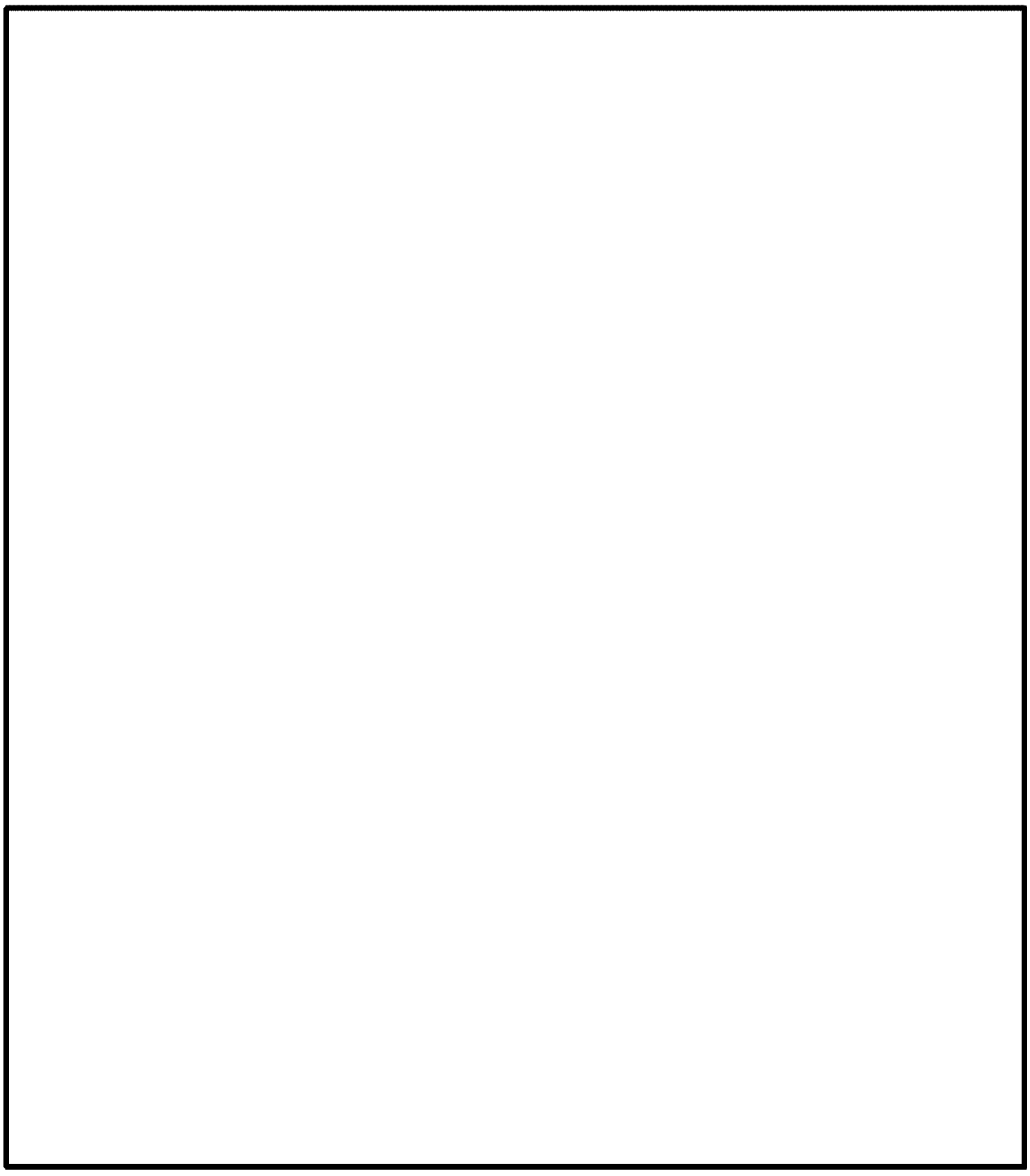
Enclosure

J:\Work Other Files\WorkFiles\2015\019-Proposal 64-06 Queens Blvd Queens Hotel-George Xu.doc

EJC Engineering, PLLC
136-21 Roosevelt Avenue, Suite 211
Flushing, NY 11354
Tel: 718-353-8010 Fax: 718-353-4007

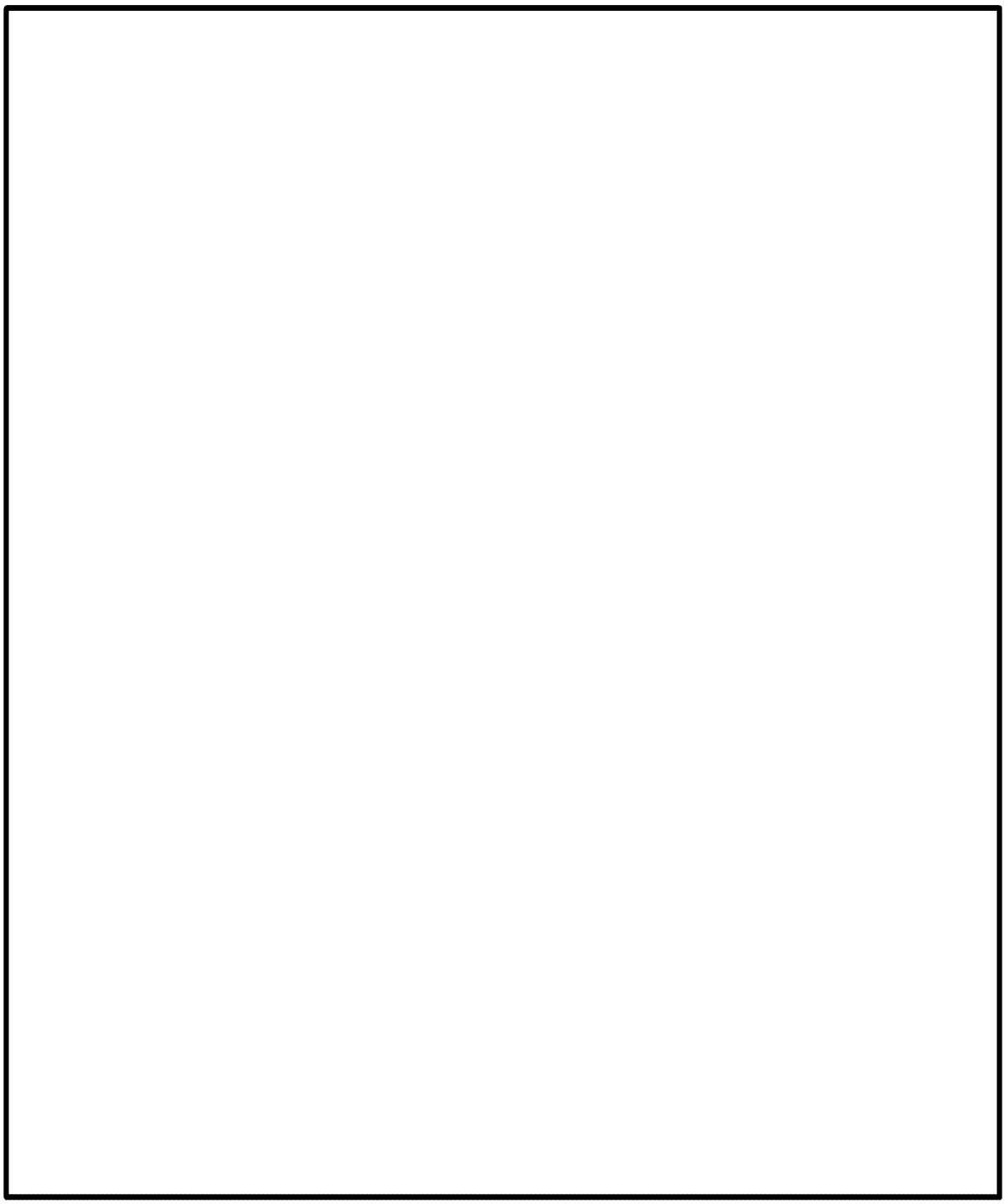
February 12, 2015

The parties to this agreement are Queens Blvd. Ventures (Owner) and EJC Engineering, PLLC (Engineer). (b)(4)



February 12, 2015

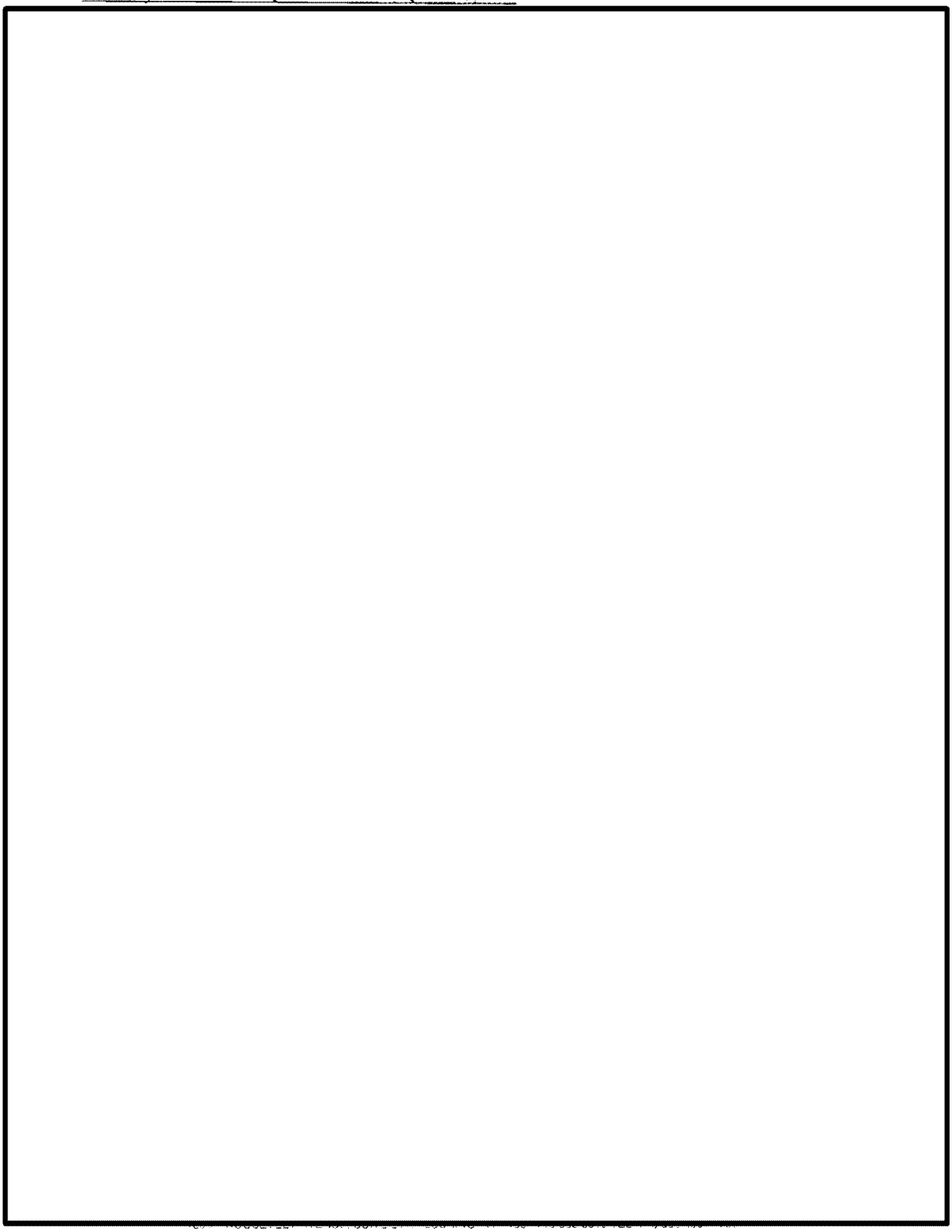
Re: Engineering Design Services
Holiday Inn -64-06 Queens Blvd., Queens, NY (b)(4)



February 12, 2015

(b)(4)

Re: Engineering Design Services
Holiday Inn -64-06 Queens Blvd., Queens, NY



February 12, 2015

(b)(4)

Re: Engineering Design Services
Holiday Inn -64-06 Queens Blvd., Queens, NY

[redacted]

Very truly yours,

EJC ENGINEERING, PLLC

Eric Chang, P.E.

ACCEPTED:

Client: Queens Blvd. Ventures

By:

Date: 2/13/2015

J:\Work Other Files\WorkFiles\2015\019-Proposal 64-06 Queens Blvd Queens Hotel-George Xu.doc

Geo Tech Consultants, LLC

52 E 2nd Street, Mineola, NY 11501 Tel: 516 355 0168 Fax: 516 355 0271

March 18, 2015

Queens Blvd Ventures
35-06 Leavitt Street
Flushing, NY 11354

Attn: Mr. George Xu

Re: Preliminary Geotechnical Investigation Report
Proposed 8- story Building
64-10 Queens Boulevard
Queens, NY 11377
GTC Job No.: QNBV115

Dear Mr. Xu:

This report presents the results of a preliminary geotechnical investigation performed by Geo Tech Consultants LLC for the above referenced project. The work was performed in accordance with our proposal dated February 18, 2015 and your subsequent authorization.

The scope of our service performed for this phase of the investigation included:

- Drilling and full-time inspection of three (3) test borings;
- Performance of engineering evaluation to determine the stratification and physical characteristics of the subsoils, and to develop recommendations for the design and construction of foundations for support of the proposed building;
- Preparation of a written report complete with test data, analysis, and recommendations.

1 PROJECT AND SITE DESCRIPTION

The subject property, known as 64-10 Queens Blvd of Queens, New York, is located on the southeast quadrant of the intersection of Queens Blvd and 64th Street.

The site, also known as Lot 32 of Block 2325, measures 141.15' along Queens Boulevard and 120.92' along 64th Street. Site terrain slopes from north to south with highest elevation along Queens Blvd (average elevation 49.85') and lowest at the southwest corner (average elevation around 43').

Currently a high one story building occupies the eastern 100' of the site, leaving the western end open for parking. The property is adjoined intermittently by 3-story and 1-story buildings to the east and a 2-story brick building to the south.

It is our understanding that the project consists of demolishing the existing 1-story building and replacing it with a new 8-story mixed-use building with a cellar and a sub-cellar. The depth of the sub-cellar is tentatively set at a depth of about 19 ft below the sidewalk of Queens Blvd.

As the project is still in the conceptual design stage, no structural loading information regarding the proposed building was available at the time this report was prepared.

2 FIELD EXPLORATION

To provide preliminary foundation assessment, three test borings labeled as B-1, B-2 and B-3 were installed. The boring was performed by Craig Geotechnical Drilling Corp of Mays Landing, New Jersey on March 6th and 9th, 2105 and inspected by GTC's professional engineering staff. The as-drilled boring location is shown on drawing G-001, which is attached at the end of this report.

Borings B-1, B-2 and B-3 were drilled using mud rotary method to respective depth of 102', 52' and 52' below existing grade. Soils encountered in the boring were generally sampled at five (5) ft interval throughout except for B-1 where continuous samples were taken for the first 12' and at five (5) ft intervals afterwards. Each soil sample was extracted using a Standard Split-Spoon sampler by performing a Standard Penetration Test (SPT) in accordance with ASTM D 1586.

During drilling operation, extracted soil samples were visually examined and classified by our field engineer. The retrieved soil samples were then placed in sealed glass jars and later returned to driller's shop for storage.

Detailed descriptions of the soil samples encountered in the test borings were documented in the boring logs, which are presented on drawing G-001.

3 SUBSURFACE CONDITIONS

The following provides a general description of the soil profile inferred from the test borings. While the borings indicate that the subsurface conditions appear to be relatively uniform across the site, it should be recognized that the number of borings was small compared to the size of the site, and that the existence of anomalies cannot be precluded.

3.1 Soil Profile

All three borings encountered approximately 2' of miscellaneous fill, followed by glacial sands to the termination depth of the borings.

The miscellaneous fill was described to consist mostly of sands with concrete and asphalt fragments, which is a NYC Class 7 material. The fill registered medium dense to very dense compact condition

The miscellaneous fill was followed by a glacial deposit that extended down to the maximum depth of the borings. The glacial deposit consists predominantly of coarse-medium-fine sands with trace to some clay, silt and gravel, consistent with SP/SM Group of the USCS (Unified Soil Classification System).

The glacial sands registered mostly medium dense compact condition from 2'-75', which matches NYC Class 3b material, and dense compact condition thereafter, which matches NYC Class 3a material. There were exceptions found in B-1 and B-2, where glacial sands between 25' and 30' of depth registered loose compact condition, matching NYC Class 6 material.

3.2 Groundwater

Groundwater was observed at depths between 40'-45' below grade, corresponding to elevations around 4'-5'.

It should be pointed out that groundwater table is known to fluctuate with seasonal, tidal, and climatic conditions.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Foundation Analysis and Evaluation

The borings depicts a general profile of 2' of miscellaneous fill, followed by glacial sand deposit to the termination depth of the boring. Groundwater table was observed at a depth of 40'-45' below existing grade.

4.2 Foundation supporting Schemes and Design Criteria

4.2.1 Foundation Types

Our analysis of the boring data obtained from the preliminary borings suggests that the subsoil conditions as it revealed are marginally suitable for the use of shallow spread footing for support of the proposed building.

Our discussion and recommendations regarding various aspects of the proposed construction are presented below.

4.2.1.1 Mat Footing on modified subgrade

Our analysis suggests that it is possible to support the proposed new building on mat footing provided the mat footing is designed and installed in accordance with the following recommendations and limitations.

The mat footings should be established on at least 1' of natural ¾" crushed stone, which shall be wrapped around with a geofabric such as Mirafi 500X or equivalent.

Mat footings supporting on modified subgrade as described above may be designed for a maximum capacity up to 2.0 tsf. If a modulus of subgrade reaction is required for mat footing analysis, then a moderate value up to 50 pci may be considered for use.

Prior to receiving geofabric and crushed stone, the undercut footing subgrade shall be proofrolled with a heavy vibratory roller under the guidance and observation of a qualified geotechnical engineer. At the discretion of the inspecting geotechnical engineer, any unsuitable bearing materials found at the undercut subgrade shall be removed and replaced with controlled compacted fill or additional ¾" crushed stone.

Mat footings designed and installed in accordance with the above recommendations are expected to yield settlements between ¾" and 1 ½", 50% of which would be complete upon completion of the construction.

If the above estimated settlements are deemed intolerable to the building system proposed, then deep foundation systems such as micropiles shall be considered.

4.2.1.2 Micropiles (drilled pile)

Micropiles are small diameter (generally ranges between 8 and 14 inches) piles that are installed by drilling, which generates little vibration and noise. Micropiles derive their bearing capacity from their friction against the surrounding soil.

Based on boring logs obtained during this investigation, our analysis suggests that micropiles with diameter of 8" - 14" can achieve compressive capacities ranging from 30 tons to 150 tons when properly designed and installed. Optimal pile capacity shall be determined by project engineer based on the loading pattern and magnitude requirements.

Micropiles require detailed design to satisfy both the geotechnical and structural requirements as stipulated in the NYC Code. They are generally contracted out as performance specification with contractor responsible for design, installation and quality assurance.

Contractor shall submit design submittal to engineer of record for review and approval prior to installation.

For estimation of geotechnical capacity of micropiles, a maximum allowable skin-resistance up to 10 psi may be considered for pile section embedded in NYC Class 3b material, and 14 psi for section embedded in NYC Class 3a material. Steel casing shall be provided in the upper section above the fixity of the pile.

Micropiles are friction piles, which require load tests to verify its design compressive capacity according to NYC Building Code.

The uplift capacity of a micropile pile depends upon its size and penetration depth. For preliminary estimation purpose, one can assume a value up to 50% of the maximum allowable compressive capacity it achieved.

In regards to lateral resistance of a micropile, the NYC Code allows up to 1 ton maximum per pile without triggering the requirement for lateral load tests.

4.2.2 Seismic Design Considerations

Based on the boring data obtained from this investigation and in accordance with the new NYC Building Code, the site can be considered as site Class D for seismic design purpose. Refer to NYC Building Code for additional seismic-related criteria for foundation design.

4.2.3 Liquefaction Potential

Using the liquefaction assessment diagram (Figure 1813.1) provided in the NYC Building Code, the site soil is deemed liquefaction unlikely.

4.3 Cellar slabs and walls

4.3.1 Design groundwater level

Groundwater table was observed at depths of about 40'-45' below existing grade (corresponding to elevations 4'-5'). To account for seasonal variation, we suggest that design groundwater level be assumed at a depth not to be deeper than 40' below sidewalk, or elevation 7'-8', which should have minimal impact to the foundation and cellar design.

4.3.2 Sub-cellar slab

It is our opinion that the proposed sub-cellar slab can be designed and constructed as a slab-on-grade bearing on 1' of ¾" crushed stone course over competent glacial sands.

Prior to receiving crushed stone, the slab subgrade should be subject to proofrolling using a vibratory roller and under the observation of a qualified geotechnical engineer. At the

discretion of the inspecting soil engineer, any soft areas detected during the proofrolling should be removed and replaced with controlled compacted fill (see section 5.3 for fill material and placement requirements). Qualified ¾" crushed stone can be used in place of control fill if so desired or directed by the inspecting engineer.

4.3.3 Lateral Earth Pressures

Permanent walls-below-grade should be designed to withstand long-term, at rest equivalent fluid pressures of 60 pounds per cubic foot (pcf) above design groundwater level and 90 pcf below groundwater level.

Temporary walls, such as excavation shoring, if required, should be designed to withstand equivalent fluid pressure of 40 pcf above groundwater level and 80 pcf below groundwater level.

Backfill against the basement wall should consist of sand and gravel with no more than 10% fines (minus No. 200 sieve size). The fill should be placed in horizontal lifts and each lift should be compacted to at least 95% of the maximum dry density as determined in accordance with ASTM D1557.

4.3.4 Foundation drainage, Under-slab drainage, and Waterproofing

Despite the relatively deep-seated groundwater table, we recommend that foundation drainage be installed around the cellar foundation, where applicable, to ensure free hydrostatic pressure behind the cellar wall. Typical foundation drainage system can consist of 6" diameter filter-lined, perforated PVC pipe covered with 6" of ¾" crushed stone in all directions. Water collected in the foundation drainage system should be discharged into ejector pits where it can be pumped out and discharged into approved facilities.

Under-slab drainage system is optional but not required provided the cellar slab is supported on at least 12" of ¾" crushed stone. Typical under-slab drainage system, if used, can consist of perforated pipe looping within the under-slab crushed stone course at spacing not greater than 25'. The water collected in the perforated pipe can be directed to sump pit or ejector pits where it can be pumped out and discharged into approved facilities.

Waterproofing the underside of the cellar slab and the exterior of the cellar walls is optional but not required, subject to the discretion of the design architect and engineer. As a minimum, though, the cellar slab should be provided with a vapor barrier and the cellar wall dam proofed.

4.4 Construction Dewatering

Construction dewatering is not expected during the installation of foundation. However, perched water and/or surface runoff condition could develop during the course of construction. Provisions should be made to provide sump pumping capability on-site during construction to control surface water runoff.

4.5 Underpinning

The scope of the preliminary investigation did not include assessment of underpinning requirement, which can be determined in the later investigation, if requested.

5. CONSTRUCTION MONITORING

5.1 Pre-construction Survey

It is strongly recommended that a pre-construction survey be conducted to document the existing conditions of the adjacent buildings, structures or sidewalks prior to commencement of any construction activities. The conditions of the adjacent structures/facilities/slabs should also be monitored periodically during the course of construction.

5.2 Protection of Adjacent Structures and Sidewalk

The excavation of the proposed cellar and footings may require underpinning and shoring of the existing adjacent footings, which, if determined to be required, shall be designed by a professional engineer engaged by the contractor. The contractor shall submit shop drawings to the project engineer for review and approval prior to installation. The installation shall be subject to special inspection by a qualified engineer in accordance with NYC Building Code.

5.3 Filling and Backfilling

Filling and backfilling should utilize qualified fill materials meeting the grading requirements for control fill as per NYC Building Code. Control fill should be placed in 12-inch loose lifts and each lift should be compacted to at least 95% of its maximum dry density as determined in accordance with ASTM D1557.

6. LIMITATION AND ADDITIONAL BORINGS

The conclusions and recommendations contained in this report are based on the subsurface data obtained during the preliminary investigation and on the details stated in this report. Should conditions be encountered which differ specifically from those stated in this report, we should be notified immediately so that our recommendations may be reviewed and/or revised, if necessary.

It is necessary to install additional borings after the existing buildings have been demolished in order to satisfy the NYC Building Code with respect to site investigation. The additional borings will serve to ascertain the initial boring findings and recommendations.

7. CONSTRUCTION CONSULTATION AND INSPECTION

Due to the nature of the soils and subsurface conditions at this site and the recommendations set forth herein, consultation and inspection services by a qualified soil engineer are recommended for the following:

1. Preparation of the site, including clearing, excavation of basement, and initial proofrolling and compaction of the in-situ soils.

2. Placement of all controlled backfill and/or fill, if any.

3. Pre-construction survey of adjacent structures.

4. Cellar excavation and footing subgrade inspection.

We trust the above information will allow you to proceed with the design and construction of the proposed mixed-use building.

We thank you for the opportunity of providing this service to you. Should you have any questions regarding this report, or if we can be of further assistance, please do not hesitate to contact us.

Respectfully Submitted
Geo Tech Consultants LLC

Steve J. J. Lin, P.E.

Attachments:
Drawing G-001 Record of Boring Logs with Boring Location Plan

B-1

Ground Surface Elev. Existing Grade (45' ±)*

Depth (ft)	Sample # & Type	Recovery (in)	Blow Count @ 6"	Soil Strata	Soil Descriptions
0	S1	24	7-11 17-16		Cmf sand, sm conc fr / blk, moist, m dense (Fill)(Class 7)
5	S2	24	19-16 12-9		Cmf sand sm gravel/brn, moist, m desne (SP)(Class 3b)
	S3	24	5-9 19-24		Same (SP)(Class 3b)
	S4	24	22-24 24-21		Same / dense (SP)(Class 3a)
	S5	24	5-13 9-10		Same / m dense (SP)(Class 3b)
10	S6	24	10-8 12-10		Same (SP)(Class 3b)
15	S7	24	9-10 12-10		Same, fr gravel (SP)(Class 3b)
20	S8	24	5-5 6-7		Same (SP)(Class 3b)
	S9	24	4-4 3-3		Same / loose (SP)(Class 6)
	S10	24	6-8 8-9		Same / m dense (SP)(Class 3b)
25	S11	24	6-7 7-9		Same (SP)(Class 3b)
	S12	24	7-9 10-8		Same / wet (SP)(Class 3b)
30	S13	24	7-11 9-10		Same (SP)(Class 3b)
	S14	24	18-5 5-5		Same, sm clay (SP/SC)(Class 3b)
35	S15	24	3-6 10-8		Cmf sand / brn, wet, m dense (SP)(Class 3b)
	S16	24	4-6 9-8		Same (SP)(Class 3b)
40	S17	24	6-12 12-9		Same, fr gravel (SP)(Class 3b)
	S18	24	14-13 16-15		Same (SP)(Class 3b)
45	S19	24	18-22 22-22		Same, sm gravel / dense (SP)(Class 3a)

B-1 Continued

B-1 Continued

Depth (ft)	Sample # & Type	Recovery (in)	Blow Count @ 6"	Soil Strata	Soil Descriptions
50	S20	24	23-21 25-14		Same (SP)(Class 3a)
55	S21	24	13-20 21-16		Same (SP)(Class 3a)
60	S22	24	16-18 15-12		Same (SP)(Class 3a)
65	S23	24	18-17 16-15		Same (SP)(Class 3a)
70	S24	24	12-21 22-19		Same (SP)(Class 3a)

TEST BORING COMPLETED @ 102'

Date drilled: 3/6/2015
Groundwater was encountered at 40' below grade
***Ground surface elevation estimated from site survey map by Haynes Land Surveyors**

B-2

Ground Surface Elev. Existing Grade (47' ±)*

Depth (ft)	Sample # & Type	Recovery (in)	Blow Count @ 6"	Soil Strata	Soil Descriptions
0	S1	24	27-31 34-66		Cmf sand, sm conc fr / gy moist, v dense (Fill)(Class 7)
5	S2	24	7-13 12-12		Cmf sand, sm gravel / brn, moist,m dense (SP)(Class 3b)
	S3	24	8-9 10-8		Cmf sand, fr gravel & silt / brn, moist,m dense (SP)(Class 3b)
10	S4	24	12-16 22-26		Same / dense (SP)(Class 3a)
15	S5	24	11-10 11-12		Cmf sand / brn, moist, m dense (SP)(Class 3b)
	S6	24	3-1 6-6		Cmf sand, fr clay & silt / brn, moist, loose (SP/SC)(Class 6)
20	S7	24	6-8 10-8		Cmf sand, fr gravel & silt / brn, moist, m dense(SP)(Class 3b)
	S8	24	7-10 10-9		Cmf sand, fr gravel /brn, moist, m dense (SP)(Class 3b)
25	S9	24	8-7 8-6		Cmf sand / brn, wet, m dense (SP)(Class 3b)
	S10	24	7-11 10-7		Cmf sand, fr gravel / brn, wet, m dense (SP)(Class 3b)
30	S11	24	10-9 13-8		Same (SP)(Class 3b)

TEST BORING COMPLETED @ 52'

Date drilled: 3/9/2015
Groundwater was encountered at 42' below grade
***Ground surface elevation estimated from site survey map by Haynes Land Surveyors**

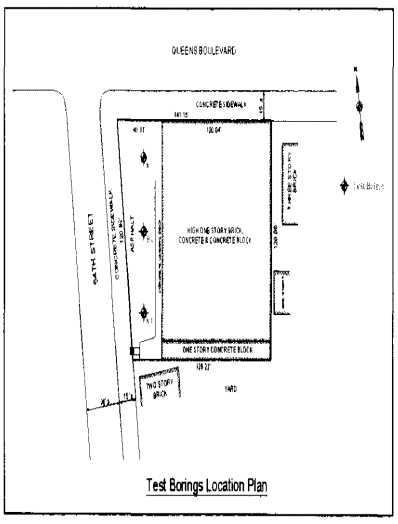
B-3

Ground Surface Elev. Existing Grade (48' ±)*

Depth (ft)	Sample # & Type	Recovery (in)	Blow Count @ 6"	Soil Strata	Soil Descriptions
0	S1	24	24-30 32-30		Cmf sand, sm conc fr / gy moist, v dense (Fill)(Class 7)
5	S2	24	8-11 13-10		N R (Possibly SP)(Class 3b)
	S3	24	11-11 9-7		Cmf sand, fr gravel/ brn, moist, m dense (SP)(Class 3b)
10	S4	24	8-13 16-16		Same / dense (SP)(Class 3a)
15	S5	24	12-16 16-15		Same (SP)(Class 3a)
	S6	24	9-9 8-7		Same / m dense (SP)(Class 3b)
20	S7	24	3-6 6-9		Cmf sand, sm clay & silt / brn, moist,m dense (SC)(Class 3b)
	S8	24	7-7 7-7		Same (SC)(Class 3b)
25	S9	24	5-3 7-8		Same (SC)(Class 3b)
	S10	24	11-12 16-13		Cmf sand, sm gravel, fr silt & clay / brn, wet, dense (SP)(Class 3a)
30	S11	24	13-20 23-12		Cmf sand, sm gravel / brn, wet, dense (SP)(Class 3a)

TEST BORING COMPLETED @ 52'

Date drilled: 3/9/2015
Groundwater was encountered at 45' below grade
***Ground surface elevation estimated from site survey map by Haynes Land Surveyors**



Test Borings Location Plan

LEGEND
- SPLIT SPOON SAMPLE
- DRILLING THROUGH
- CORE DRILLING
- SHELBY TUBE
- Penetration resistance per 6"
- BORING LOCATION
- BURNING WELL
- TEST PIT

NOTES:
1. SOILS WERE SAMPLED USING SPLIT-SPOON SAMPLER BY MEANS OF A 140 POUND HAMMER FREE FALLING A DISTANCE OF 30 INCHES, AUTOMATIC TRIP (OR CATHEAD), IN ACCORDANCE WITH ASTM D1586.
2. THE TOTAL NUMBER BLOWS FOR THE MIDDLE (2) INCHES OF PENETRATION IS DEFINED AS "STANDARD PENETRATION RESISTANCE (N)".
3. UNDISTURBED SOIL SAMPLES REPRESENTATIVELY OBTAINED BY MEANS OF SHELBY TUBE SAMPLING IN ACCORDANCE WITH ASTM D1587.
4. BEDROCK WAS CORED USING NX DIA BY DOUBLE TUBE BARRELS IN ACCORDANCE WITH ASTM D2113.
5. SOIL DESCRIPTIONS ARE MADE THROUGH VISUAL EXAMINATION OF SOIL SAMPLES IN ACCORDANCE WITH THE PROCEDURE ESTABLISHED IN NYC DOB.
6. SOIL CLASSIFICATIONS ARE PRIMARILY BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) AS WELL AS 2008 NYC BC SOIL CLASSIFICATION SYSTEM.
7. GROUND WATER TABLE WERE NOTED ON THE LOGS REPRESENTED THE LEVEL OF WATER WHERE IT WAS FIRST ENCOUNTERED DURING THE DRILLING.
8. BORING INSTALLED BY: URAEL TEST BORING CO. INC.

ABBREVIATIONS			
L - COARSE	WH - WHITE	MULTI - MULTI COLORED	
M - MEDIUM	RD - RED	TR - TRACE (1 TO 10%)	
F - FINE	LT - LIGHT	LT - ADJECTIVE (21% - 35%)	
BN - BROWN	DK - DARK	S - AND (35% - 50%)	
GY - GRAY	BLK - BLACK	W.O.H - WEIGHT OF HAMMER	

DENSITY AND CONSISTENCY RELATED TO SPOON PENETRATION			
SAND		SILT AND CLAY	
DENSITY	N VALUE	CONSISTENCY	N VALUE
VERY LOOSE	4 OR LESS	VERY SOFT	1 OR LESS
LOOSE	5 TO 10	SOFT	2 TO 4
MEDIUM DENSE	11 TO 30	MEDIUM STIFF	5 TO 8
DENSE	31 TO 50	STIFF	9 TO 15
VERY DENSE	51 OR MORE	VERY STIFF	16 TO 30
		HARD	31 OR MORE

ROCK QUALITY / ROCK QUALITY DESIGNATION	
R.Q.D. (%)	ROCK DESCRIPTION
0 - 25	VERY POOR
25 - 50	POOR
50 - 75	FAIR
75 - 90	GOOD
90 - 100	EXCELLENT

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)	
GW	WELL GRADED GRAVEL
GP	POORLY GRADED GRAVEL
GM	SILTY GRAVEL
GC	CLAYEY GRAVEL
SW	WELL GRADED SAND
SP	POORLY GRADED SAND
SM	SILTY SAND
SC	CLAYEY SAND
ML	SILTS OF LOW PLASTICITY
CL	CLAYS OF LOW PLASTICITY
MH	SILTS OF HIGH PLASTICITY
CH	CLAYS OF HIGH PLASTICITY
OH	ORGANIC SILT/CLAY OF HIGH PLASTICITY
PT	PEAT AND HIGHLY ORGANIC SOIL

2008 NYC CLASSIFICATION SYSTEM		
SYSTEM MATERIAL		DESCRIPTION
1a	R.Q.D. >90%	HARD SOUND ROCK
1b	50% < R.Q.D. ≤ 90%	MEDIUM HARD ROCK
1c	50% > R.Q.D. ≥ 25%	INTERMEDIATE ROCK
1d	R.Q.D. ≤ 25%	SOFT ROCK
2a	N > 30	SANDS (GRAVEL AND GRAVELLY)
2b	30 ≥ N ≥ 10	
2c	N < 10	
3a	N > 30	GRANULAR SOILS
3b	30 ≥ N ≥ 10	
4a	N > 30	
4b	30 ≥ N ≥ 10	CLAYS
4c	10 ≥ N ≥ 4	
5a	N > 30	SILTS AND CLAYEY SILTS
5b	30 ≥ N ≥ 10	
6	N < 10	
7		

PROJECT	64-10 Queens Boulevard Queens, NY
CLIENT	Queens Blvd Ventures 35-06 Leavitt Street Flushing, NY 11354

Geo Tech Consultants, LLC
52 East 41st Street Manhasset NY 11030
P ✆ 516-365-0100
F 516-365-0107

DRAWING TITLE
Record of Boring Logs with Boring Location Plan

SEAL AND SIGNATURE

DRAWN BY	L. IVAN
DATE	3.13.2015
SCALE	N.T.S.
PROJECT NO	QNBV115
DRAWING NO	G-001

Signature BANK
Private Client Group

9/17/2015

MONA SHAH & ASSOCIATES PLLC
DISBURSEMENT ACCOUNT
299 BROADWAY, STE. 1005
NEW YORK, NY 10007

$ **6,230.00

Thirty and 00/100********** DOLLARS

Security features. Details on back.

PAY TO THE ORDER OF U. S. Citizenship & Immigration Services

AUTHORIZED SIGNATURE

MEMO I-924 for QB Ventures EB5 Capital Project Exemplar

[redacted]

(b)(4)

RECD 03FEB15EP29 2:46

RECEIPT NUMBER RCW1527253131		CASE TYPE 1924 Application for Regional Center Under the Immigrant Investor Pilot Program
RECEIVED DATE September 29, 2015	APPLICATION TYPE: B (AMENDMENT)	REGIONAL CENTER NAME CENTURY NEW YORK CITY REGIONAL CENTER
NOTICE DATE September 29, 2015	PAGE 1 of 1	REGIONAL CENTER ID ID1420251818
SHAH MEHREEN MONA SHAH & ASSOCIATES RE: CENTURY NEW YORK CITY REGIONAL CENTER 299 BROADWAY STE 1005 NEW YORK NY 10007		NOTICE TYPE: Receipt Notice

Receipt Notice - This notice confirms that USCIS has accepted your "Application for Regional Center Under the Immigrant Investor Pilot Program" (Form I-924) for processing. This notice does not grant any immigration status or benefit. This notice does not grant any immigration status or benefit.

Processing Time – The current processing time for this type of case is estimated at 120 days. Unlike many other USCIS case types, verification or tracking of this case is not available on our website. We will notify you by mail when we make a decision on this case or if we need further evidence to establish your eligibility for the regional center designation.

Unique Identifier – In the top portion of this Notice, you will find a unique identifier that has been assigned to your Form I-924. Unlike a receipt number which changes with every filing, this unique identifier is *permanently* assigned to your approved or prospective regional center, and will be associated with any future request to amend the regional center. Please refer to your regional center's unique identifier as well as to the Form I-924 receipt number in all subsequent correspondence with USCIS regarding this application.

E-Mail Communication Regarding Your Pending Form I-924 Application – USCIS has established a direct e-mail communication tool to facilitate communication between USCIS and those applicants with pending Form I-924s. Form I-924 applicants may use the e-mail communication process to correspond with USCIS regarding pending Form I-924 applications, to include questions that may arise if USCIS issues a Request for Evidence (RFE) or a Notice of Intent to Deny (NOID). USCIS may also reach out to Form I-924 applicants via e-mail to informally ask for clarification on certain issues in order to facilitate USCIS' review, understanding, and adjudication of the Form I-924 application. USCIS may also e-mail a courtesy copy of the RFE or NOID to the e-mail address listed on the I-924 and, if applicable, to the e-mail address listed on the Form G-28 associated with the application.

Please use the following table to determine which email address has been assigned to your Form I-924.

If your unique identifier ends in the number:	Then please utilize this email address:
0, 1, or a 2	CSC-EB5-RCID0-2@dhs.gov
3, 4, or 5	CSC-EB5-RCID3-5@dhs.gov
6 or 7	CSC-EB5-RCID6-7@dhs.gov
8 or 9	CSC-EB5-RCID8-9@dhs.gov

Example: If a regional center's unique identifier is IDxxxxxxxxx0, then the regional center's Form I-924 has been assigned to email account CSC-EB5-RCID0-2@dhs.gov, as the unique identifier ends in "0".

E-Mail "Subject Line" Advisory - Please ensure that the subject line in your email correspondence contains the following information in this order: (1) Regional Center Unique Identifier; (2) Receipt Number; (3). Regional Center Name. Doing so will facilitate USCIS' timely handling of and response to your email correspondence.

E-mail Scope - This e-mail communication tool is to be used solely to facilitate communication between applicants with a pending Form I-924 and USCIS. The scope of the communication must relate to matters concerning the pending Form I-924. The direct e-mail communication initiative it is not a forum for general policy and legal questions about adjudicative procedures or decisions, or for questions relating to either "Immigrant Petition by Alien Entrepreneur" (Form I-526), "Petition by Entrepreneur to Remove Conditions" (Form I-829), or any "Appeal or Motion" (Form I-290B). USCIS will not respond to e-mails received concerning issues unrelated to the currently pending Form I-924. For more information about how to make other EB-5 inquiries, visit the EB-5 Inquiries page on the USCIS website (www.uscis.gov). USCIS will not respond to e-mails received concerning issues unrelated to the currently pending Form I-924 via this email communication process.

General Questions - USCIS has a page entitled EB-5 Inquiries at www.uscis.gov that outlines how the public may make other inquiries on EB-5 related matters, to include inquiries that you may have after the Form I-924 has been adjudicated. This page clarifies the EB-5 inquiries that are appropriate to send

Please see the additional information on the back. You will be notified separately about any other cases you filed.

U.S. CITIZENSHIP & IMMIGRATION SVC
CALIFORNIA SERVICE CENTER
P.O. BOX 30111
LAGUNA NIGUEL CA 92607-0111
Customer Service Telephone: (800) 375-5283

to the general EB-5 mailbox (at uscis.immigrantinvestorprogram@dhs.gov), and other avenues that can be used to send questions or inquires to USCIS that are not suitable for the general EB-5 mailbox.

Attorney Or Accredited Representative - If a valid Form G-28 is associated with the Form I-924, USCIS will need to have a viable Form G-28 e-mail address for the legal representative in order to use the e-mail process to correspond with the Form I-924 applicant. If a valid Form G-28 is associated with the Form I-924 applicant, but USCIS does not have a viable Form G-28 e-mail address, then one will need to be obtained prior to USCIS sending any out-going e-mail correspondence to the applicant which discuss issues related to the Form I-924. In such circumstance, the legal representative should provide an updated Form G-28 with a valid e-mail address by sending a pdf of a fully executed Form G-28 to the EB-5 mailbox at uscis.immigrantinvestorprogram@dhs.gov.

Please see the additional information on the back. You will be notified separately about any other cases you filed.

U.S. CITIZENSHIP & IMMIGRATION SVC
CALIFORNIA SERVICE CENTER
P.O. BOX 30111
LAGUNA NIGUEL CA 92607-0111
Customer Service Telephone: (800) 375-5283

REGIONAL CENTER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: QB VENTURES EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 13:

Real Estate Purchase Agreements

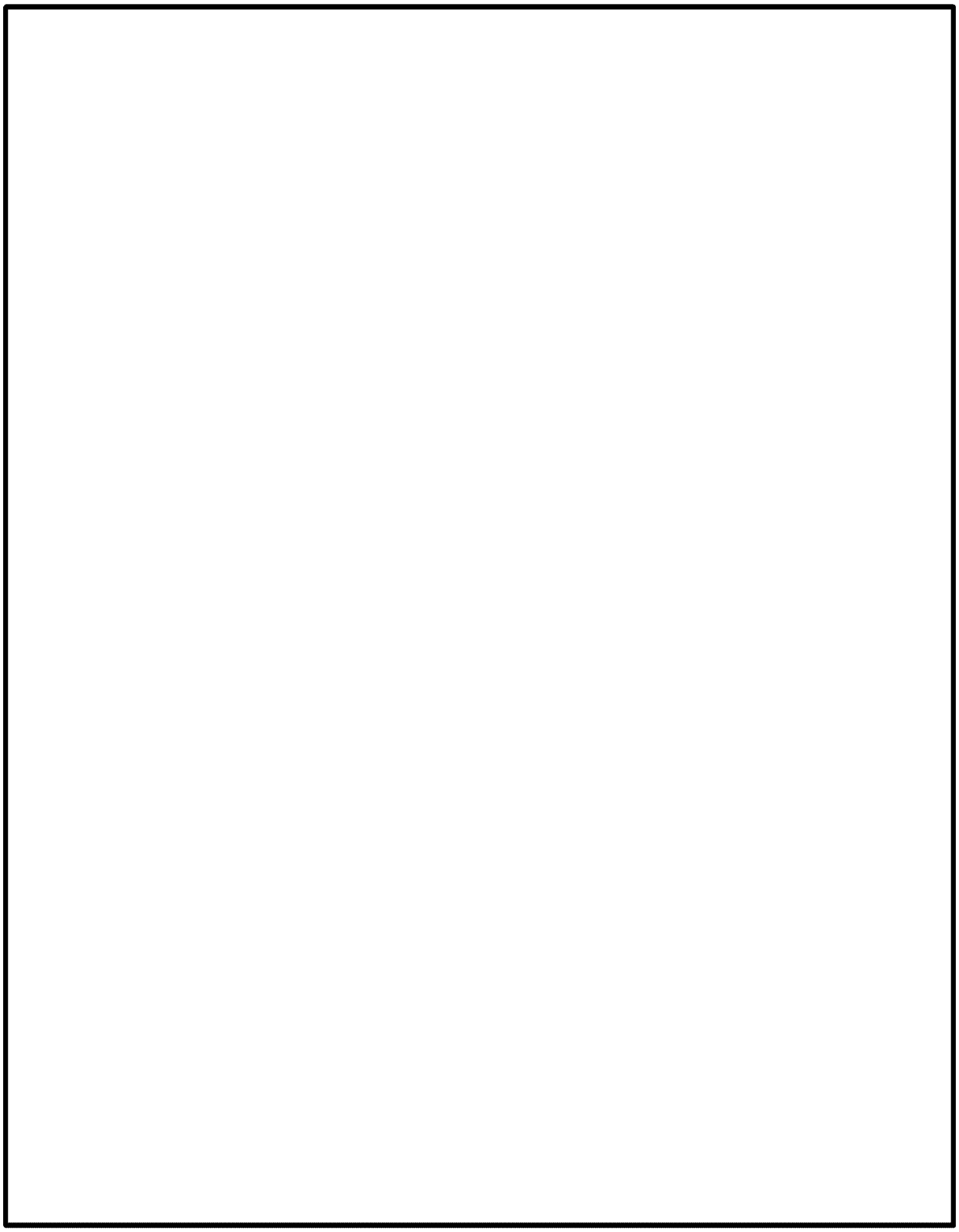
The purpose of these documents is to show that the business is credible – executed purchase agreements and deed for the land to construct the hotel and condominium evidencing commitment to the project.

(b)(4)

- **Executed Purchase Agreement** – purchase price fo[redacted] from Rafi Haghani from Stonehill Management LLC. This agreement is executed by Rafi Haghani and by George Xu of QB Ventures EB-5 Capital, LLC on March 4, 2014
- **Compliance and Tax Preparation Agreement** dated August 14, 2015
- **Special Warranty Deed** dated March 19, 2015
- **Owner's Policy of Title Insurance** dated Feb 26, 2015

(b)(4)

ASSIGNMENT OF CONTRACT OF SALE



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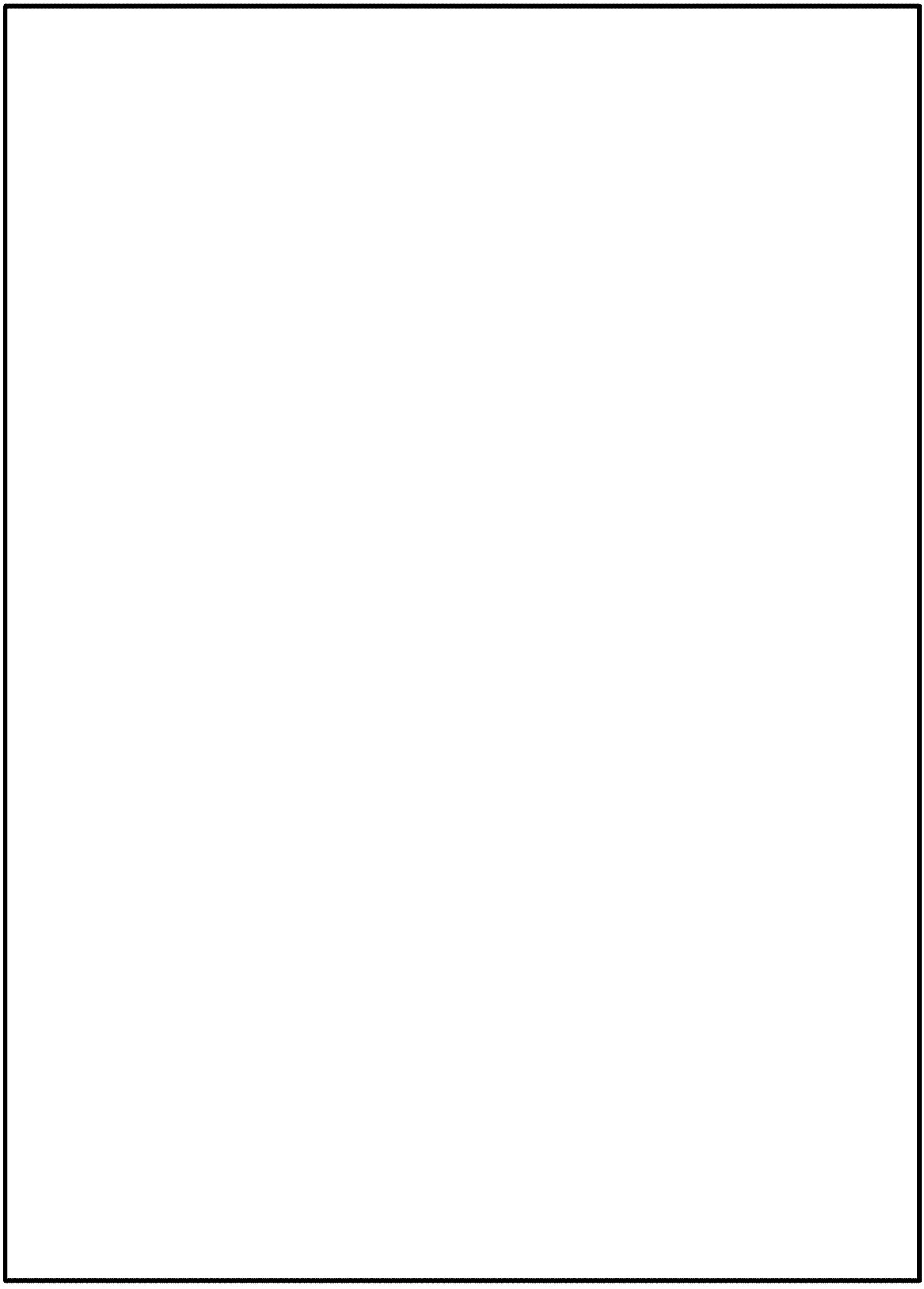

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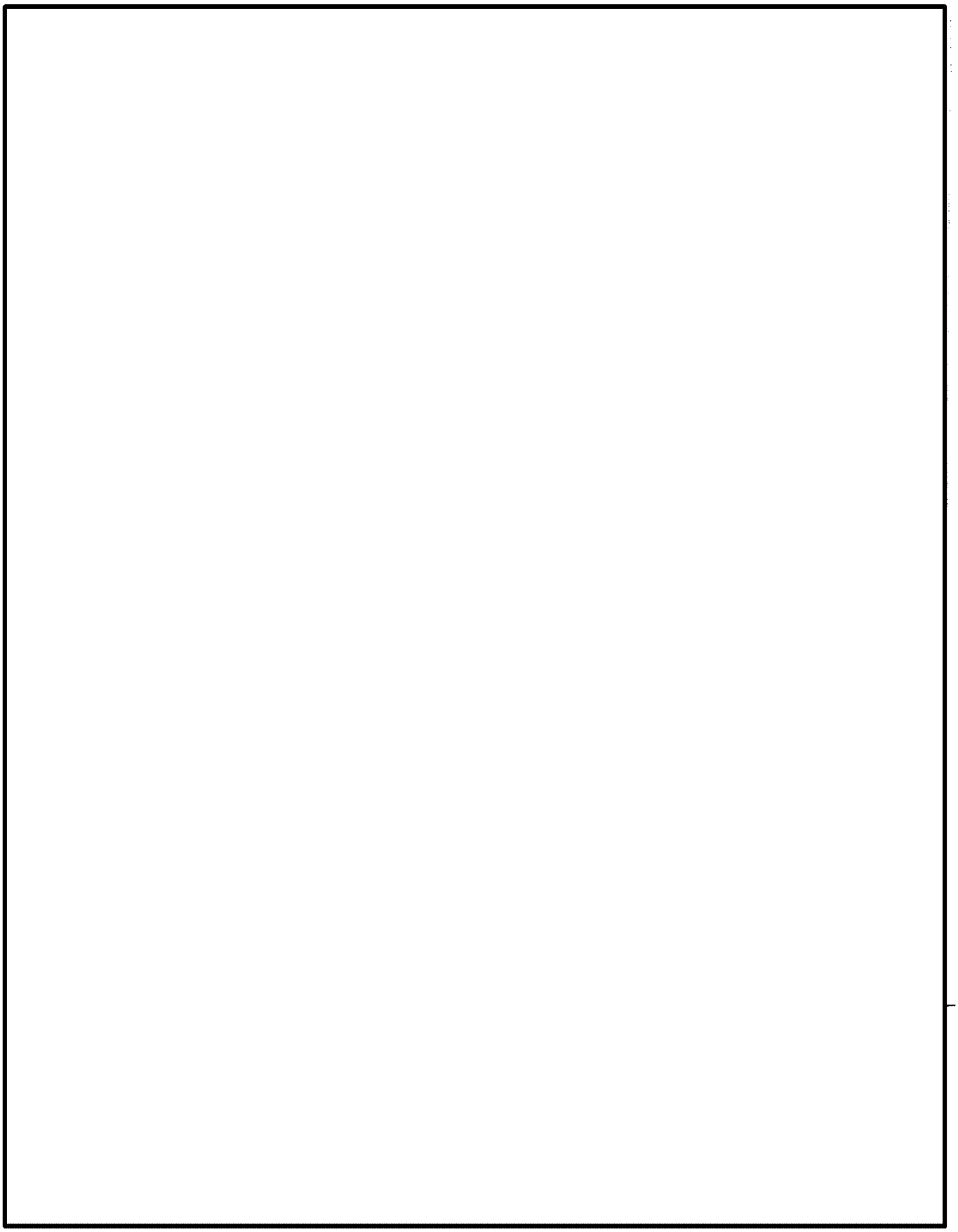

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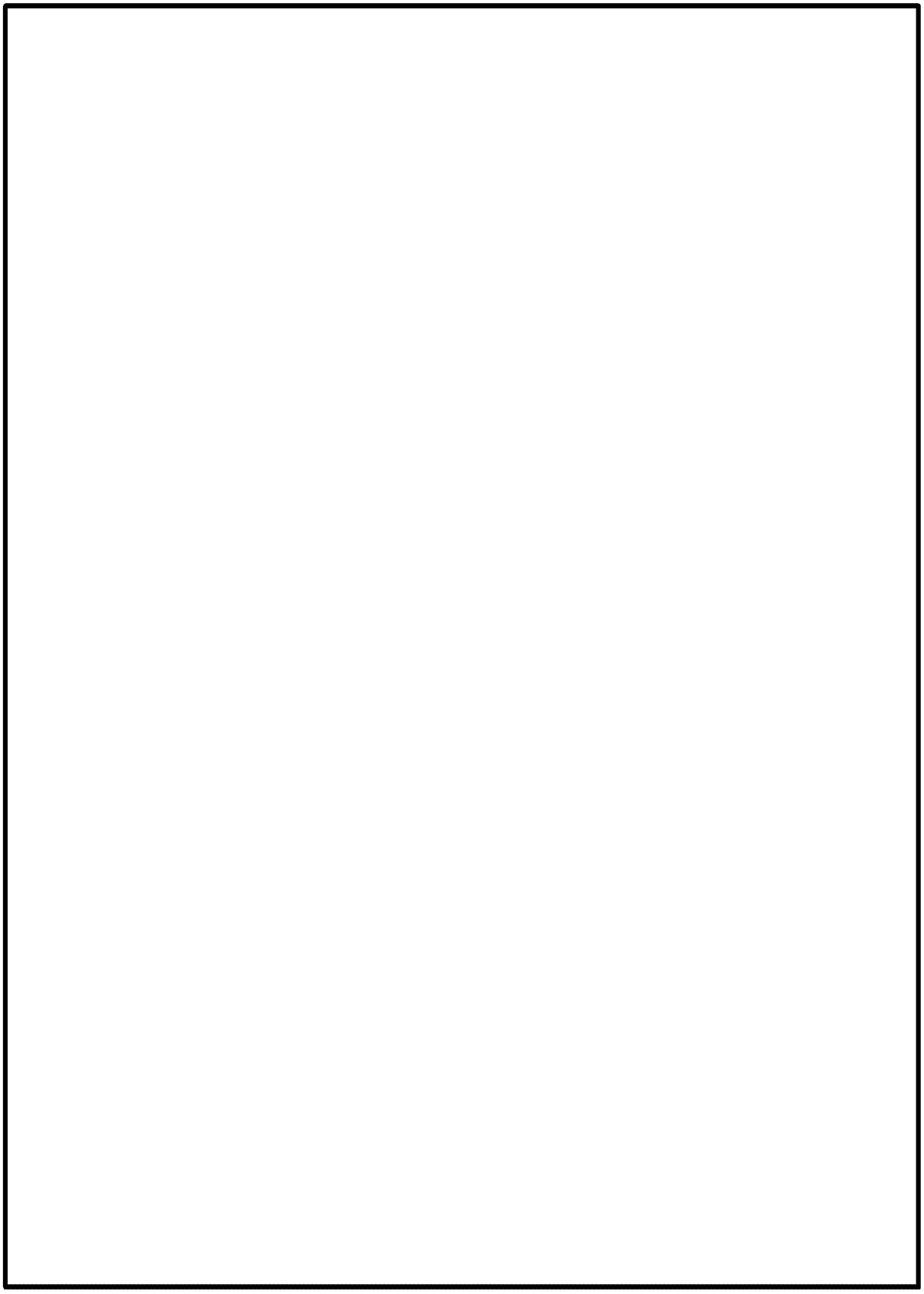

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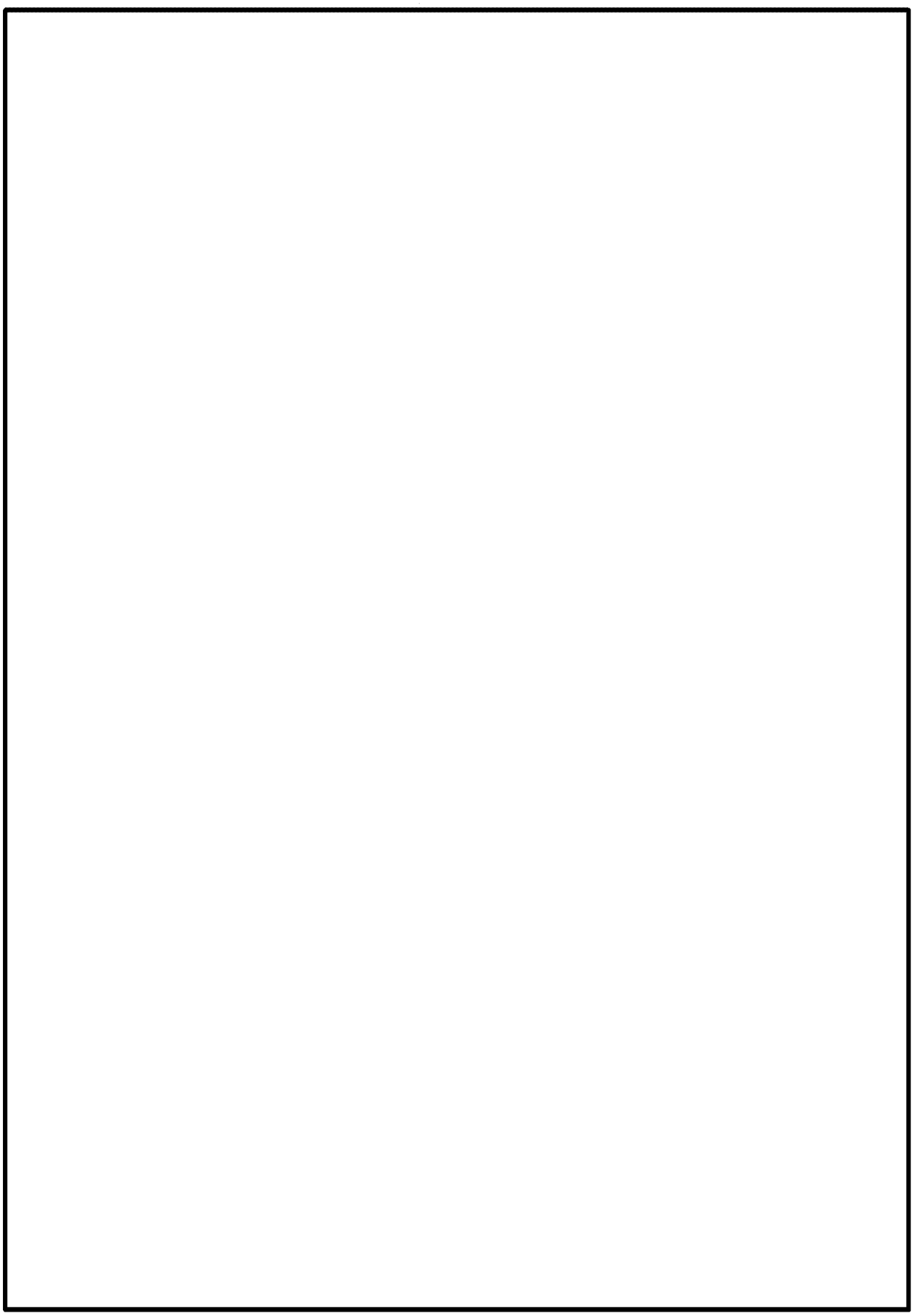

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REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK.

IN WITNESS WHEREOF, the undersigned have executed this Agreement on the day and year first above written.

ASSIGNOR:

Stonehill Management LLC

By: Rafi Haghani, Member

ASSIGNEE:

George Xu

ASSIGNEE:

Andrew Huang

ASSIGNEE:

Ching Yi Tseng

The undersigned hereby joins in the execution of this Agreement solely for purposes of confirming its agreement to serve as escrow agent pursuant to the terms set forth in the Agreement.

ESCROW AGENT:

Name: WILLIAM J. ZACCARIA, ESQ.

CONTRACT OF SALE

[redacted]

Seller

- with -

STONEHILL MANAGEMENT LLC
Purchaser

Premises: 6406/08/10 Queens Boulevard
Woodside, New York

[redacted]

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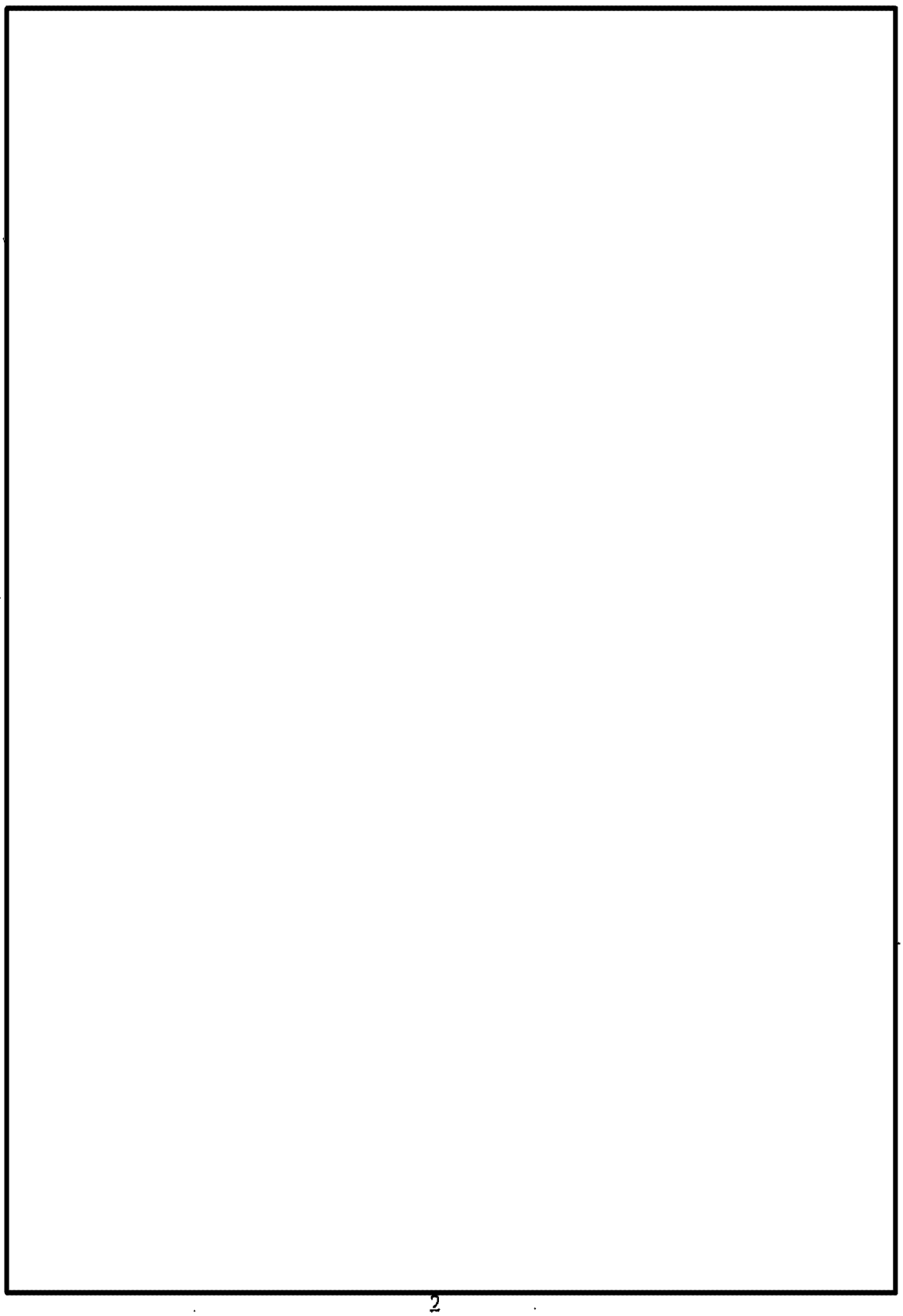

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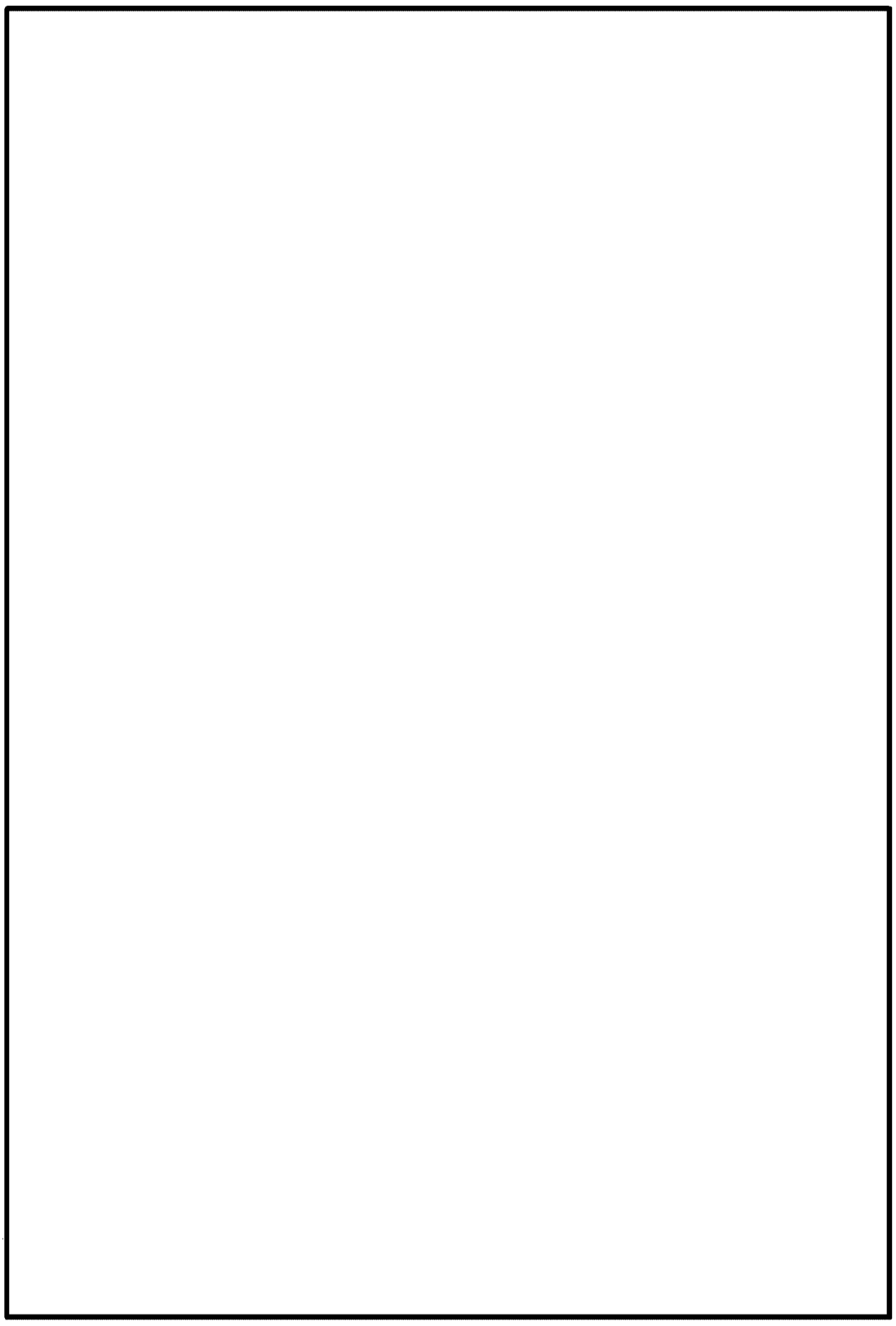

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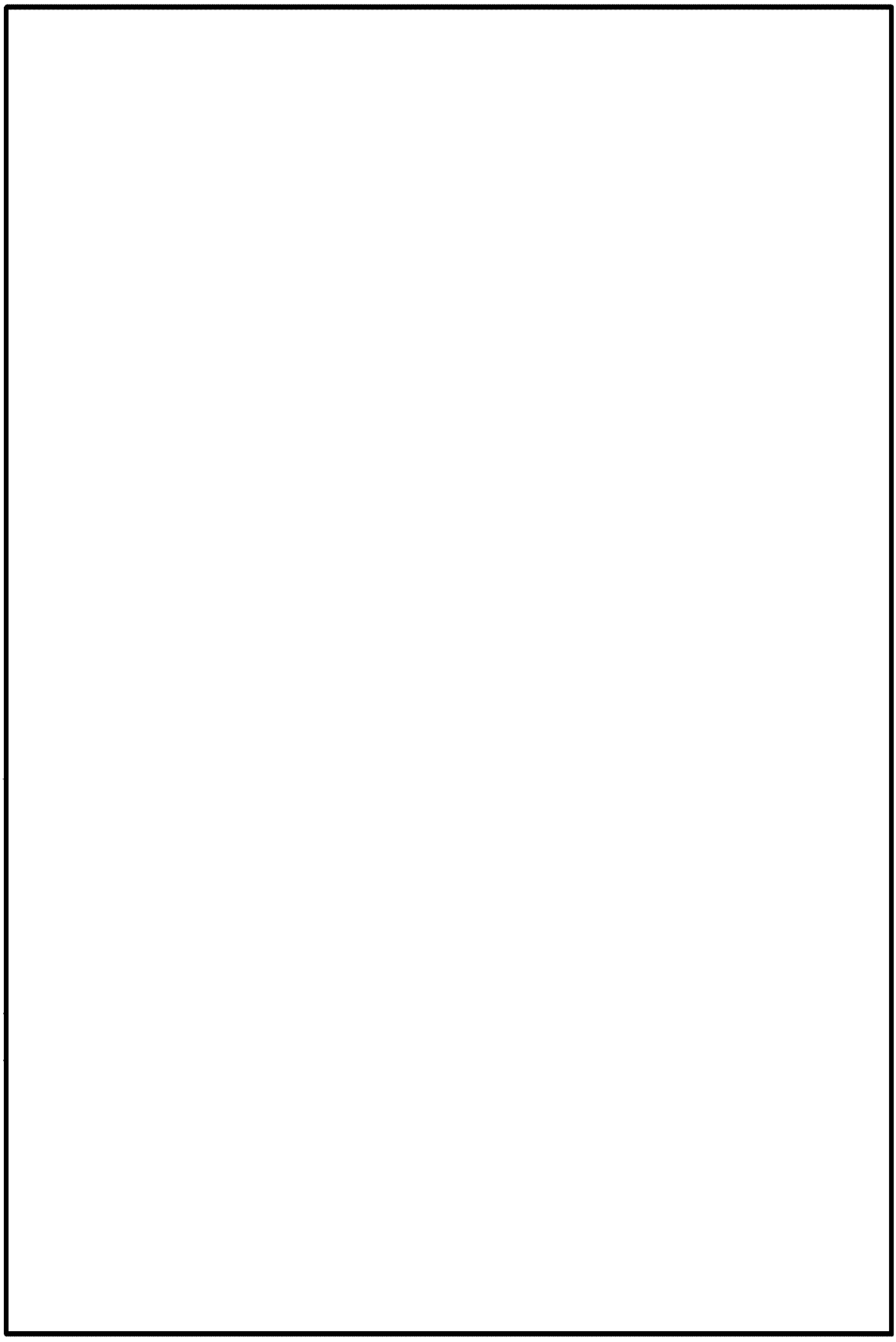

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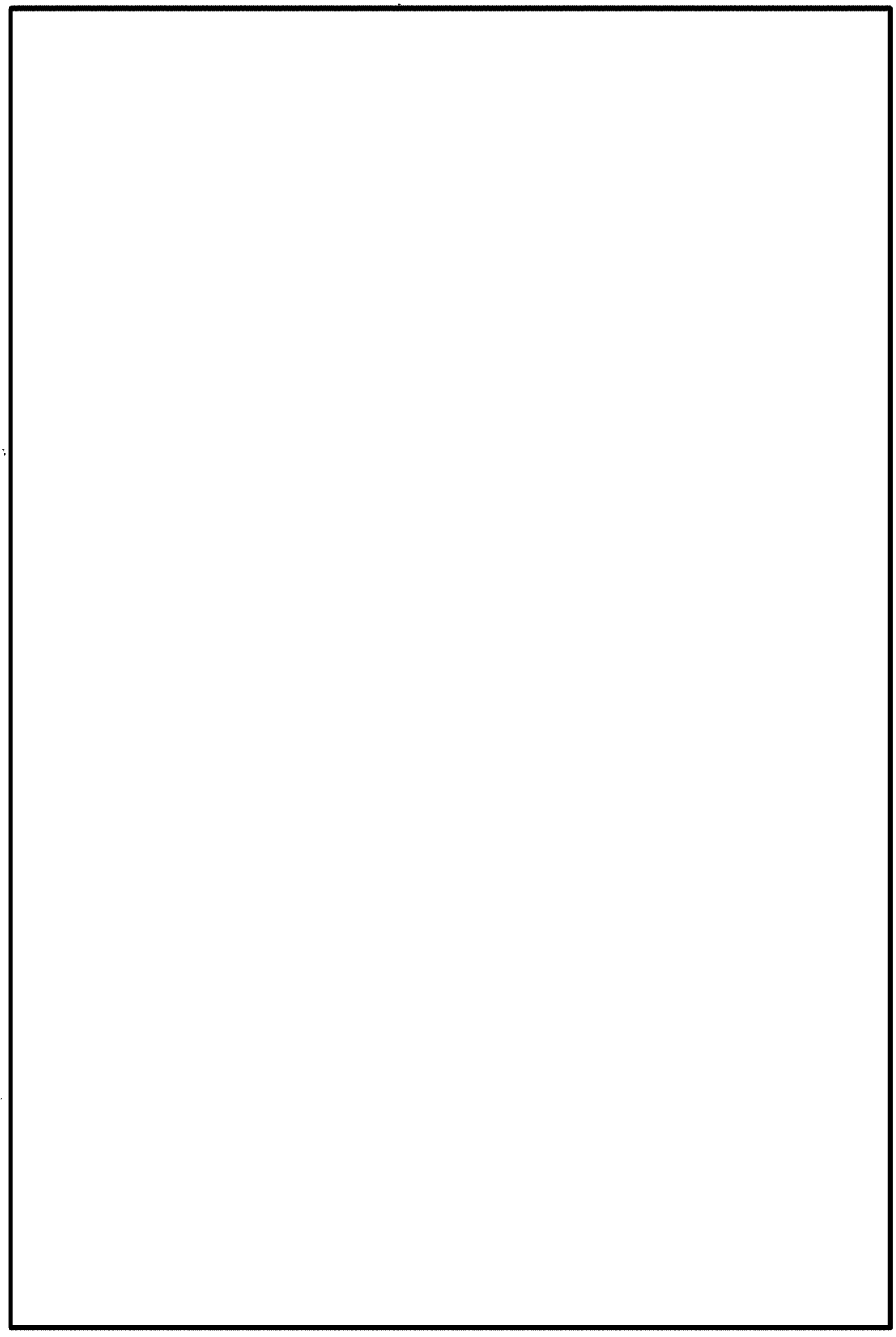

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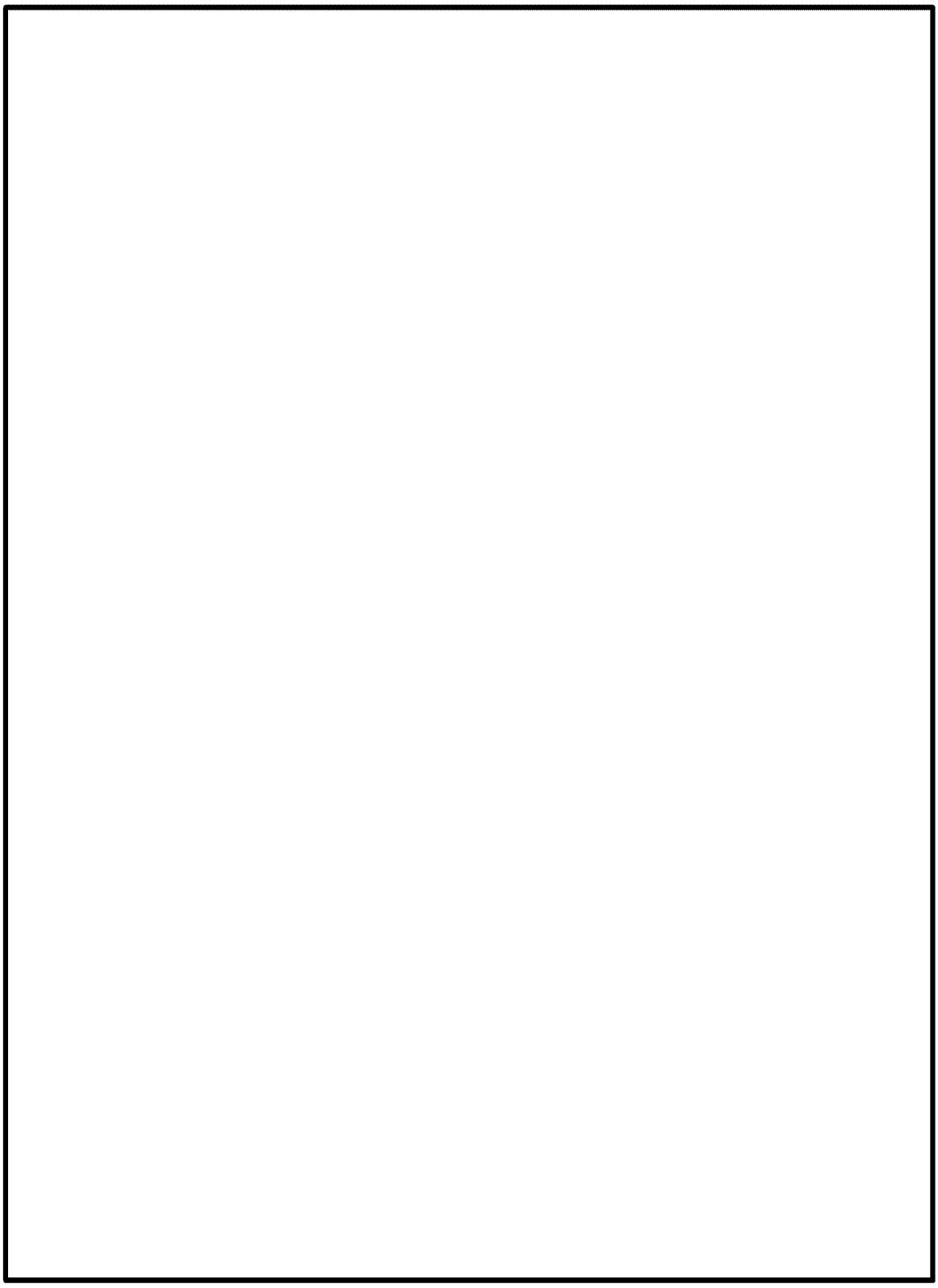

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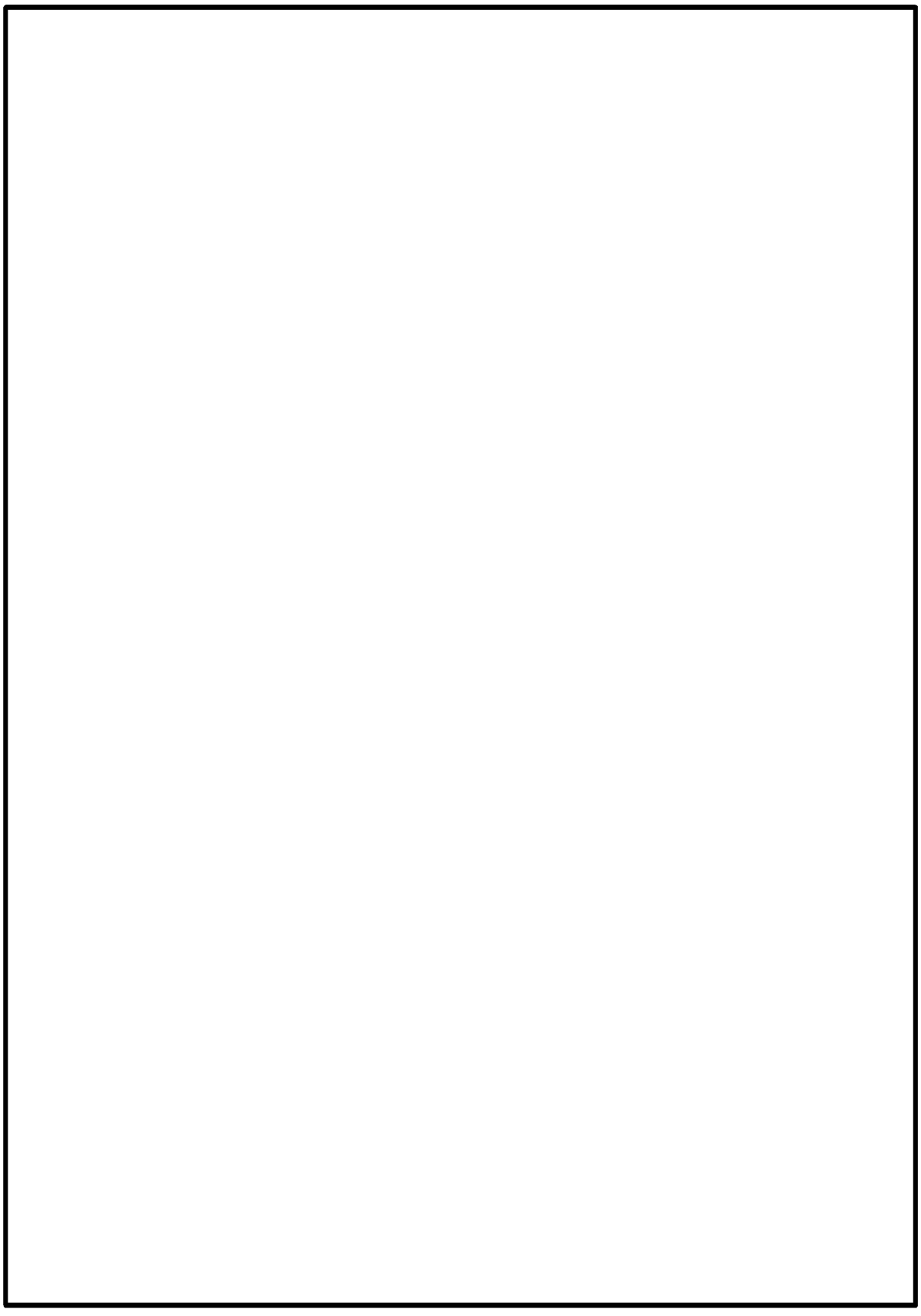

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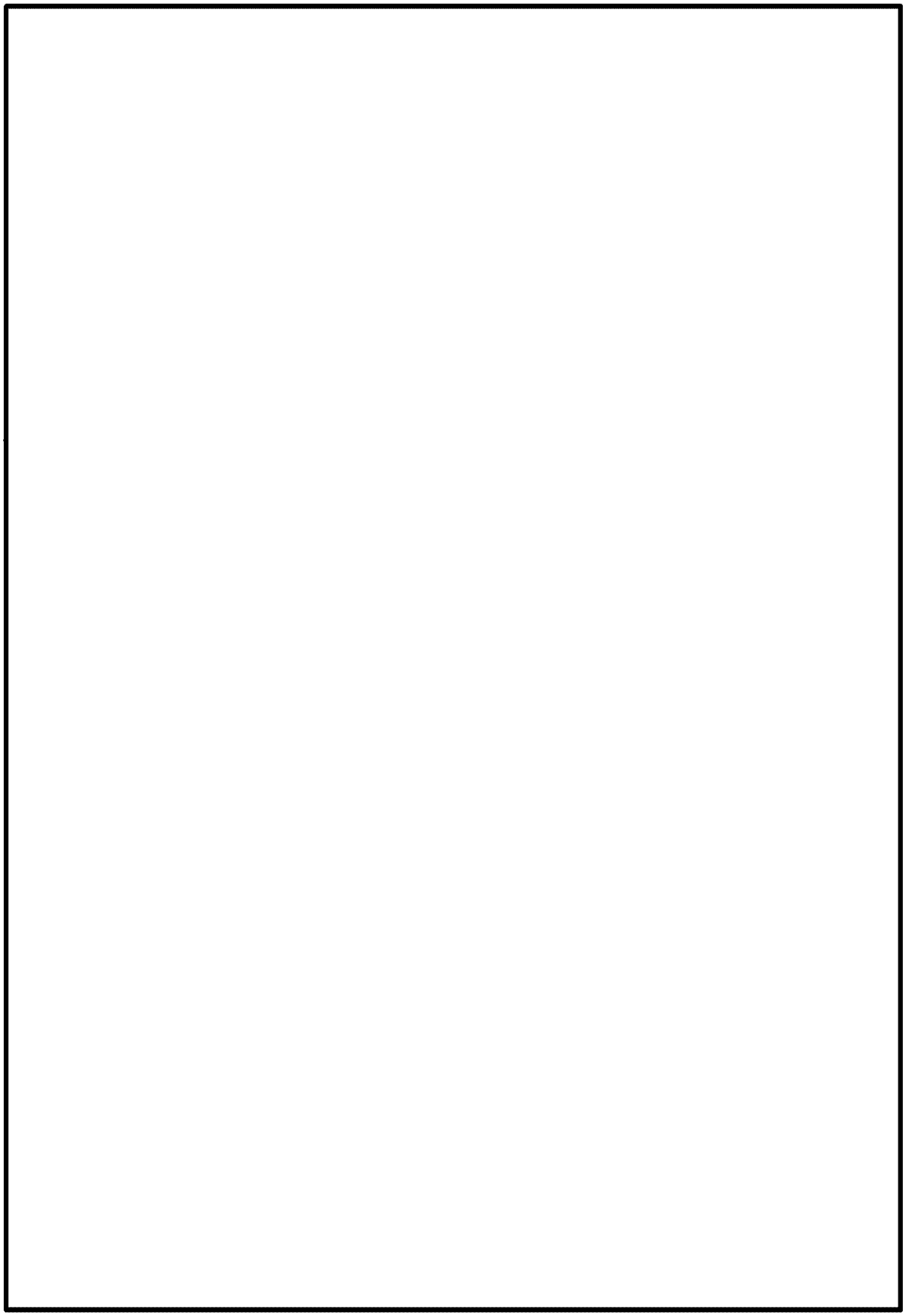

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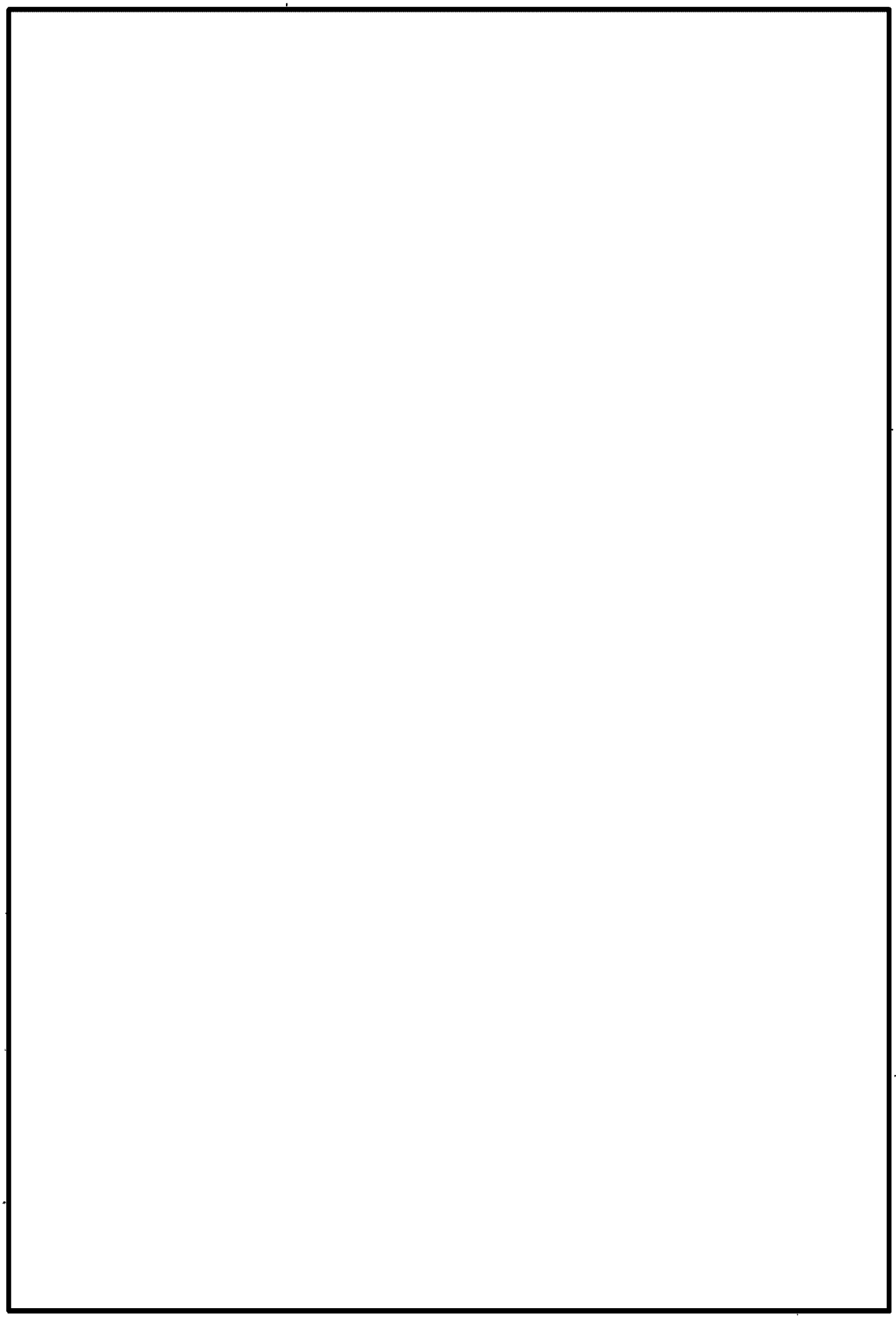

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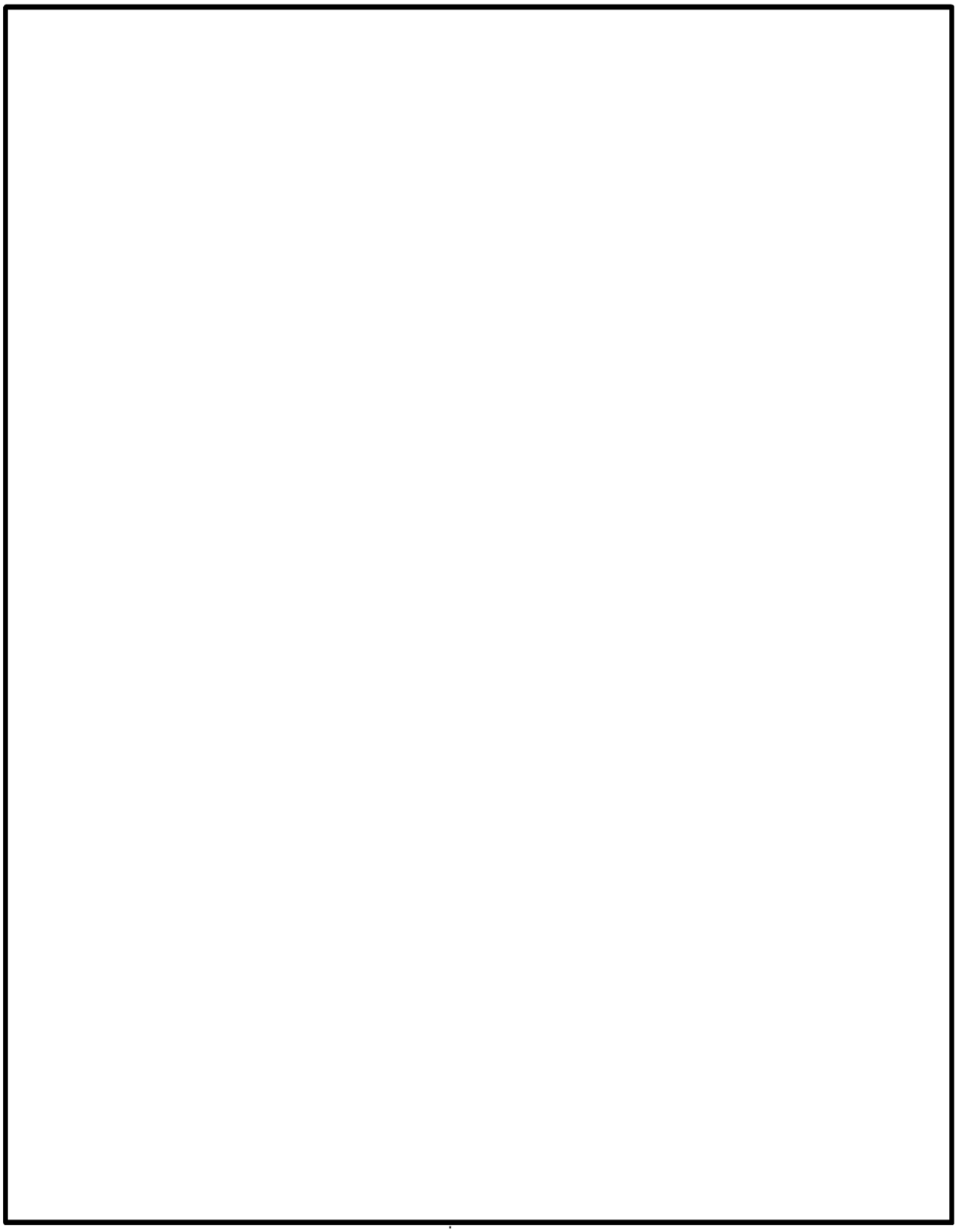

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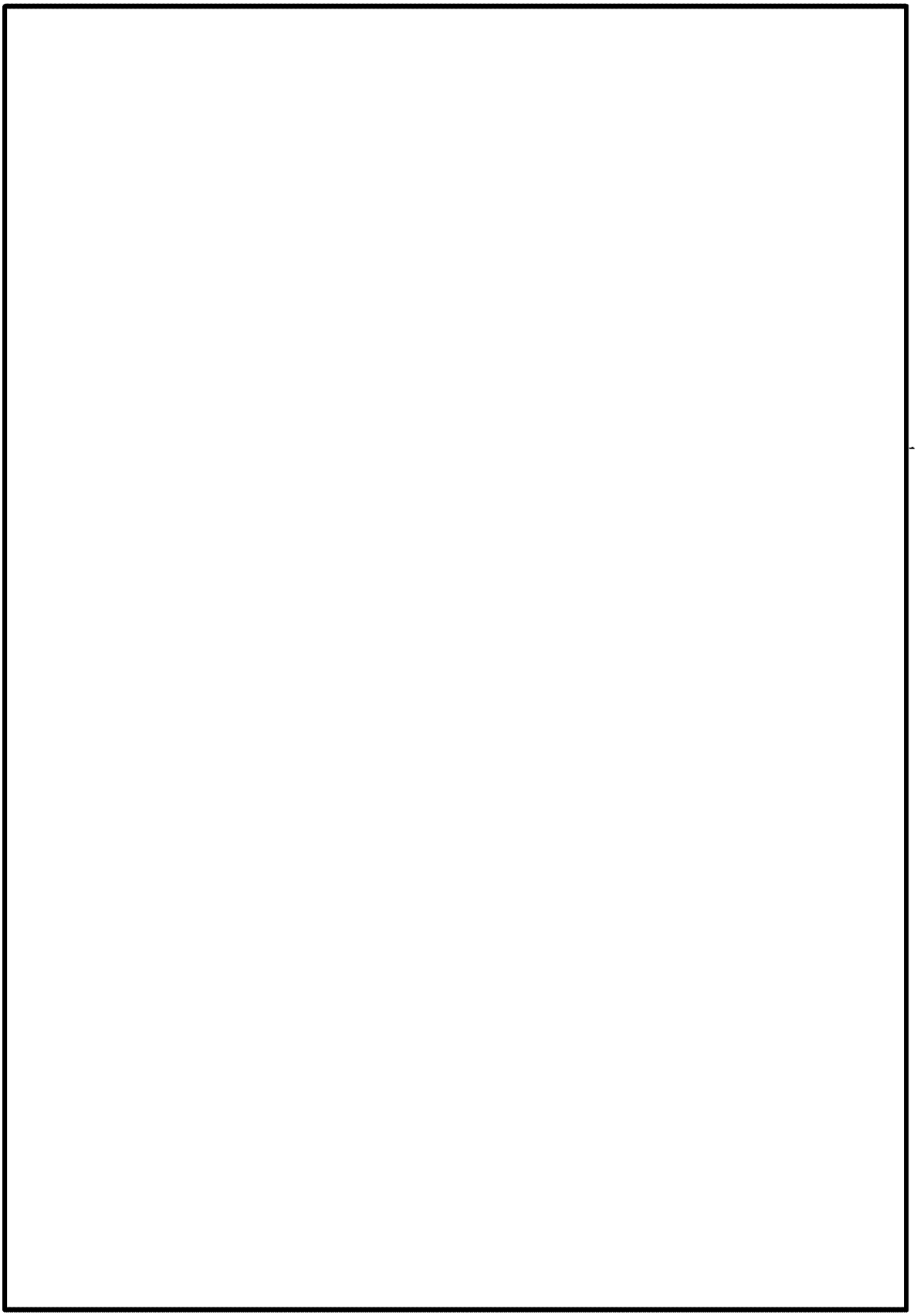

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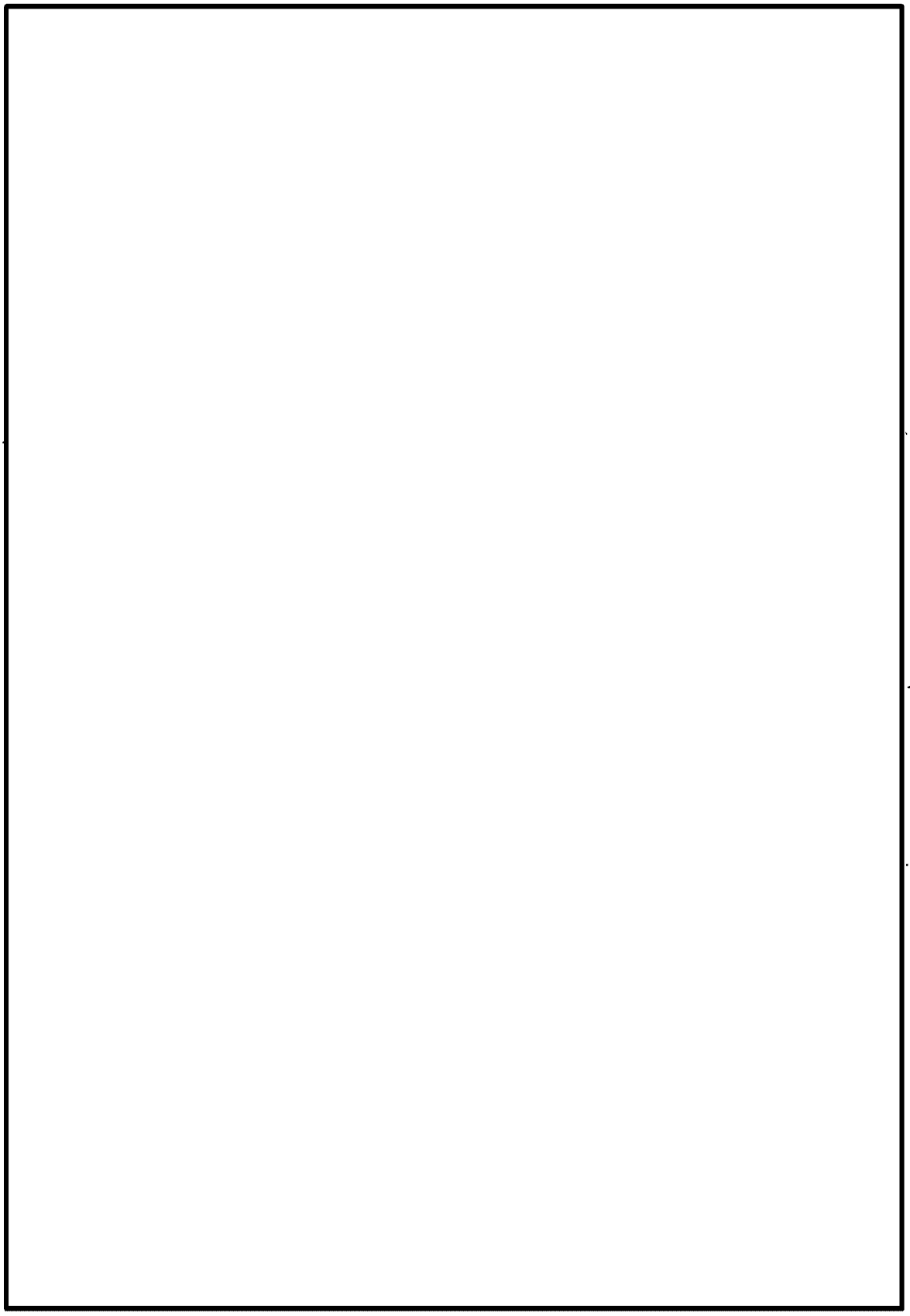

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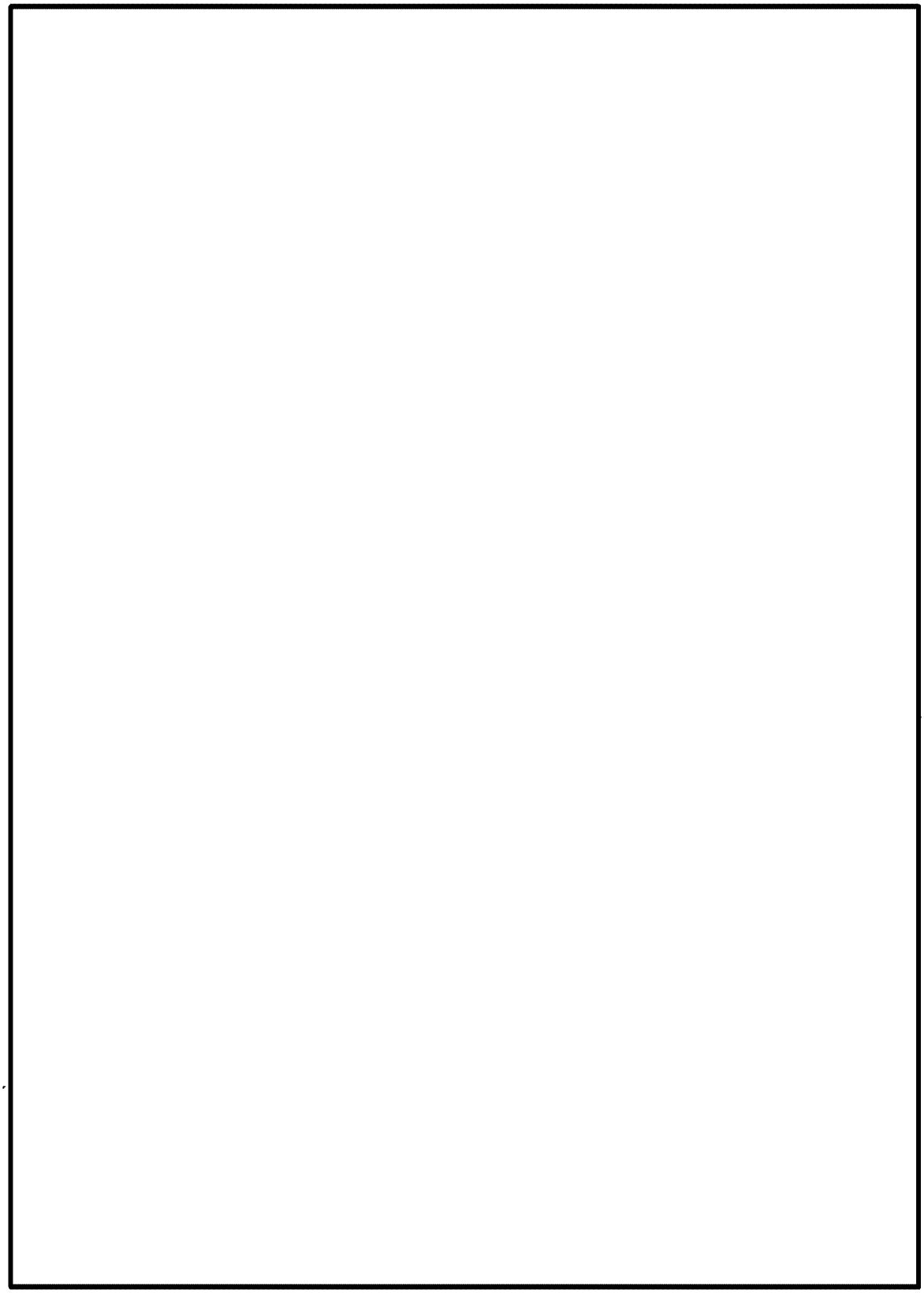

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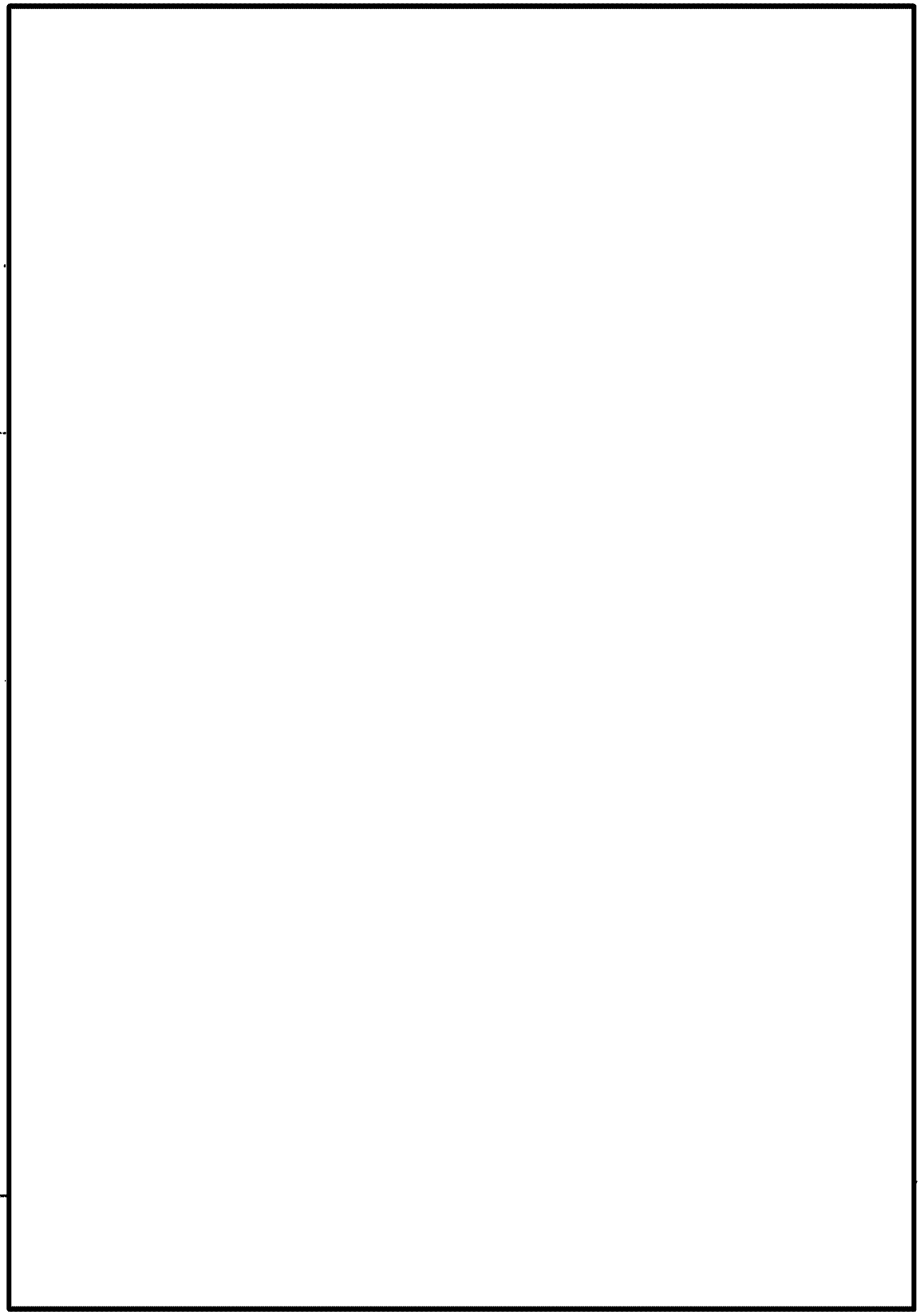

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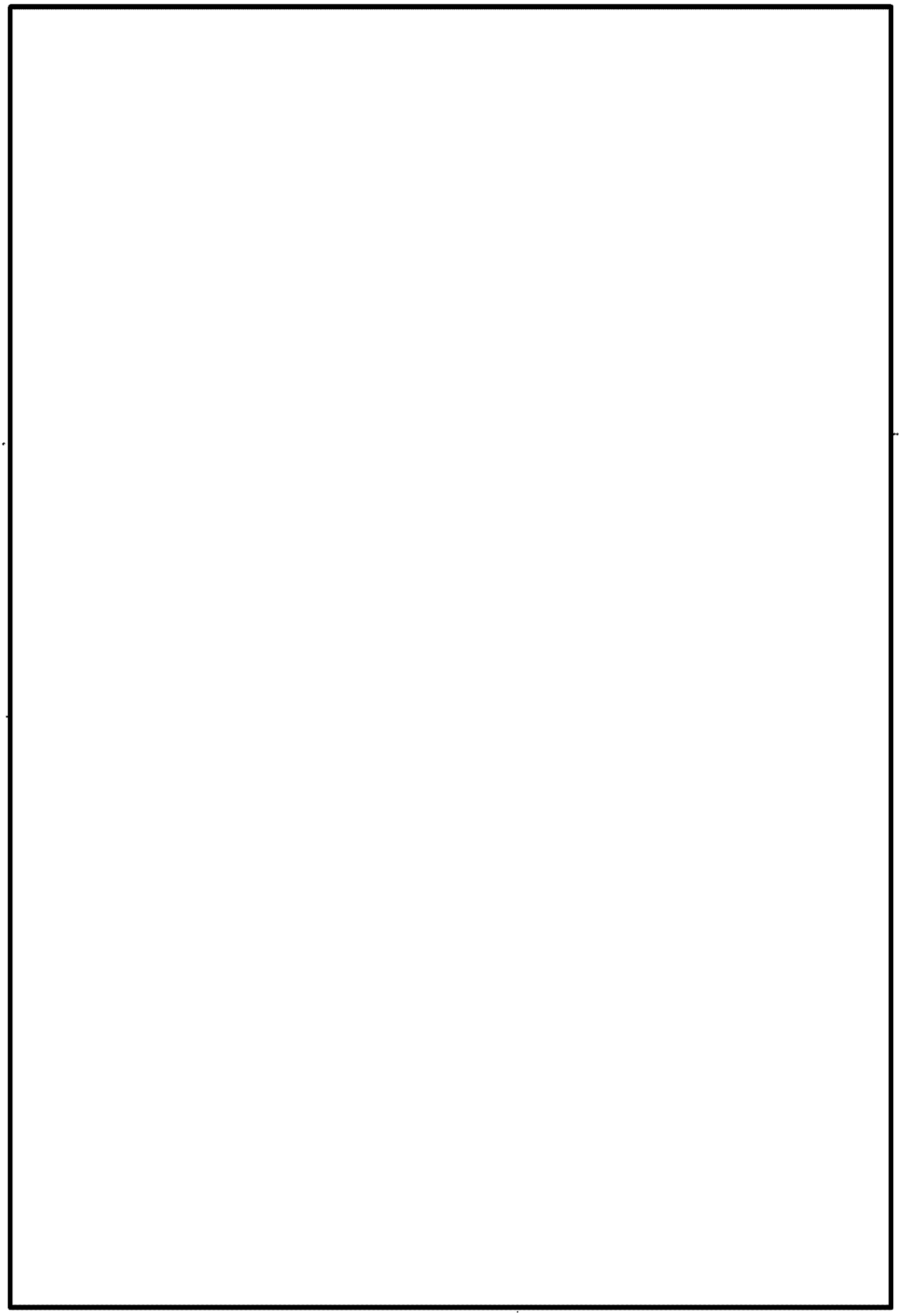

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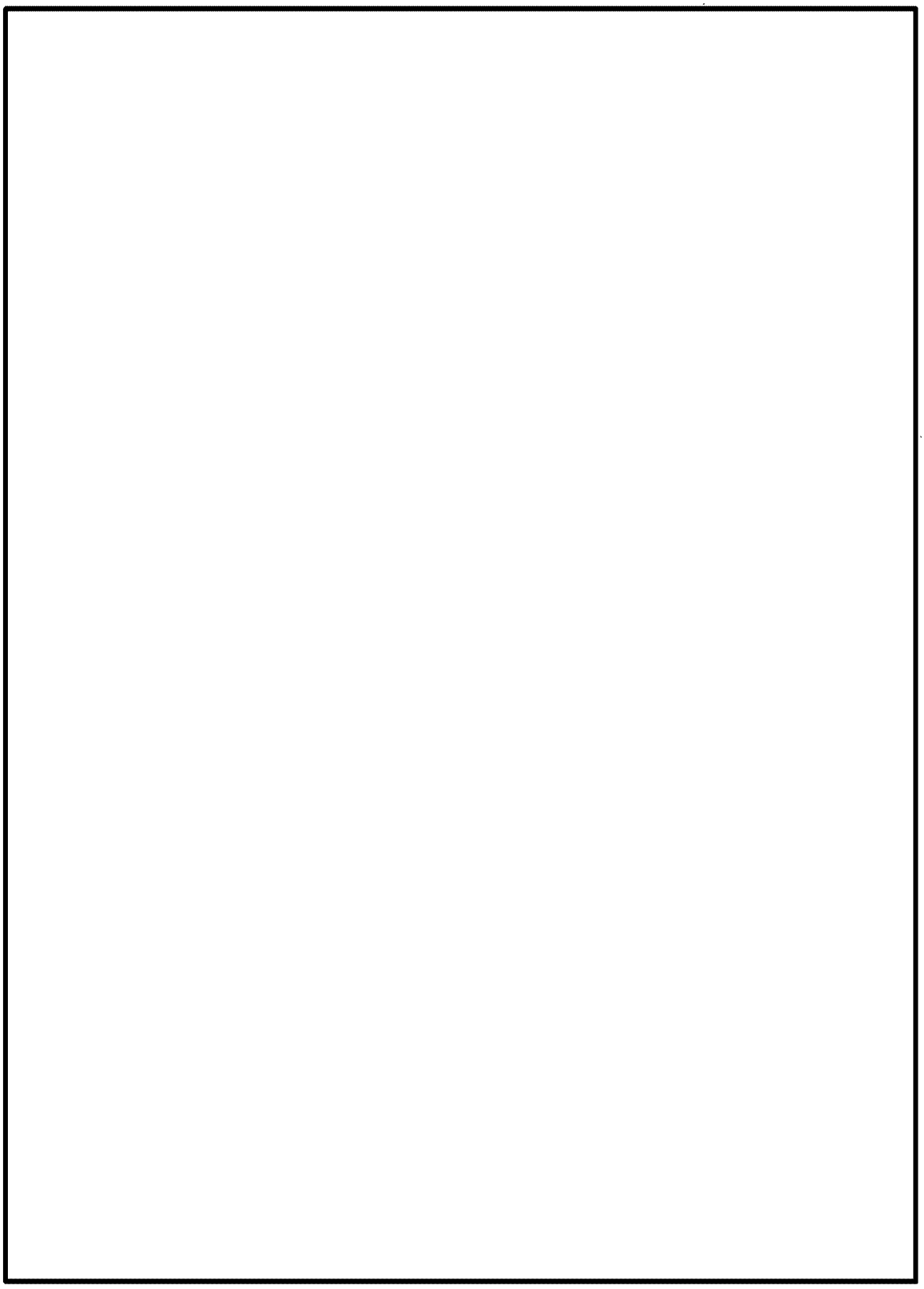

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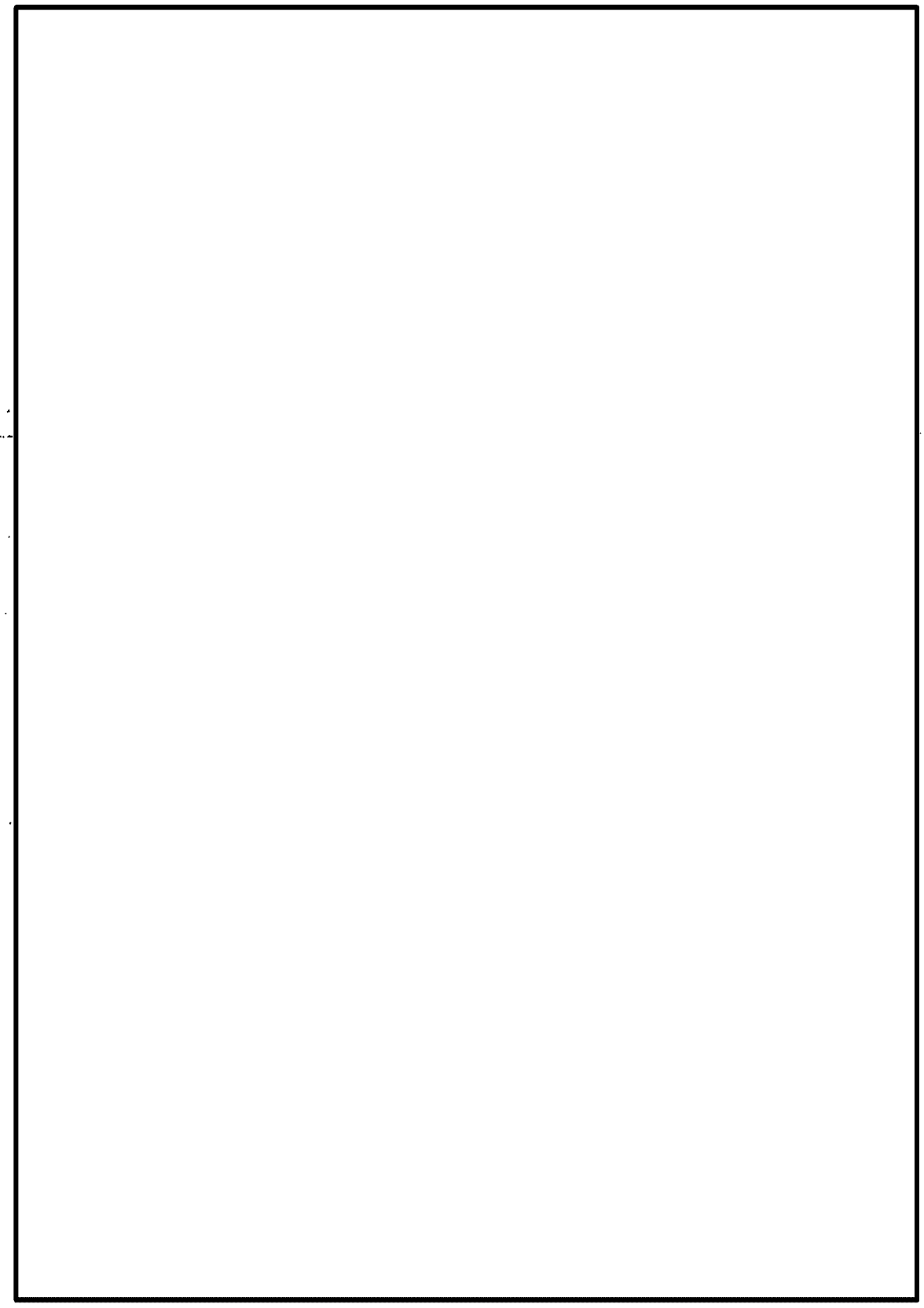

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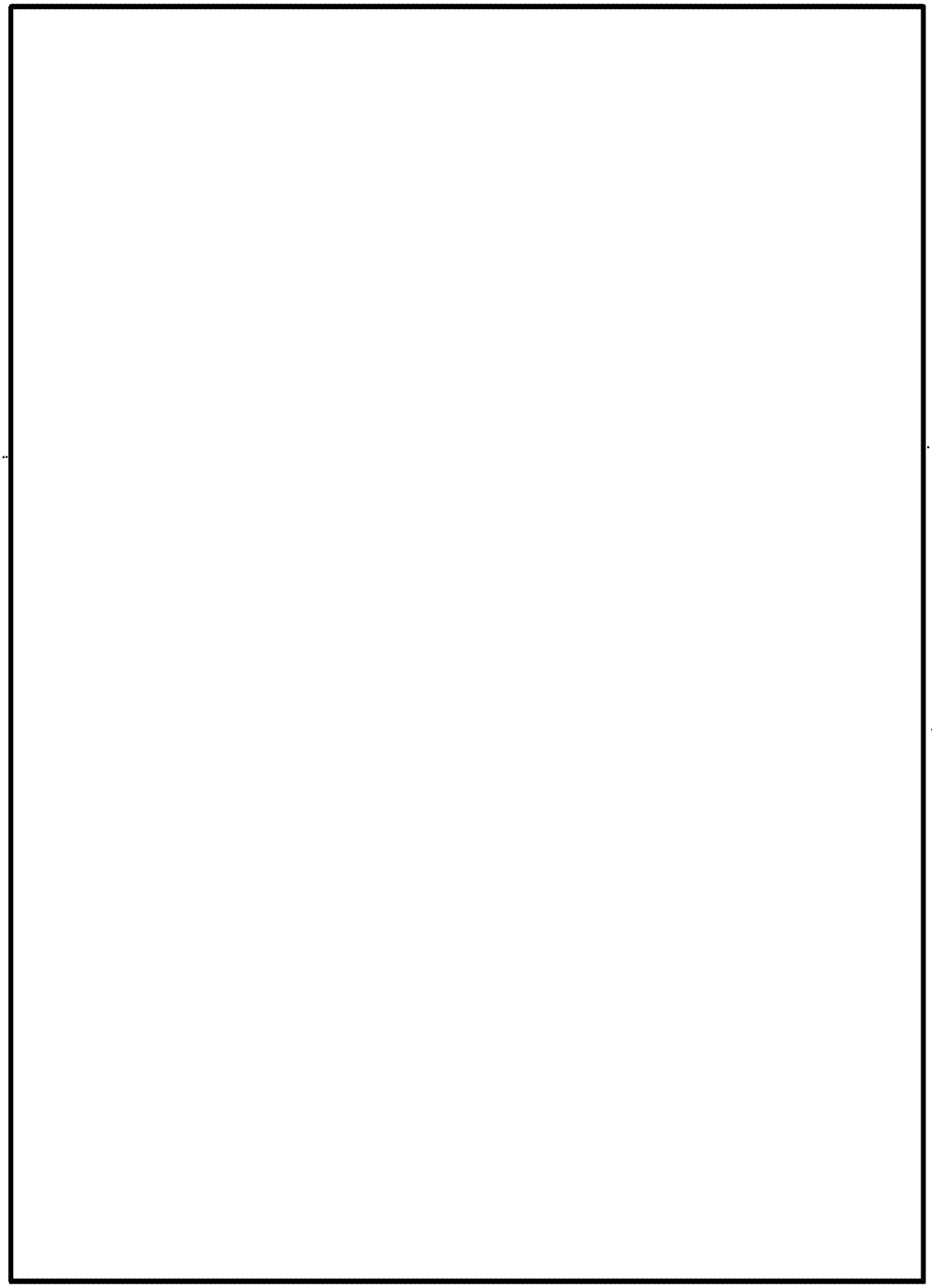

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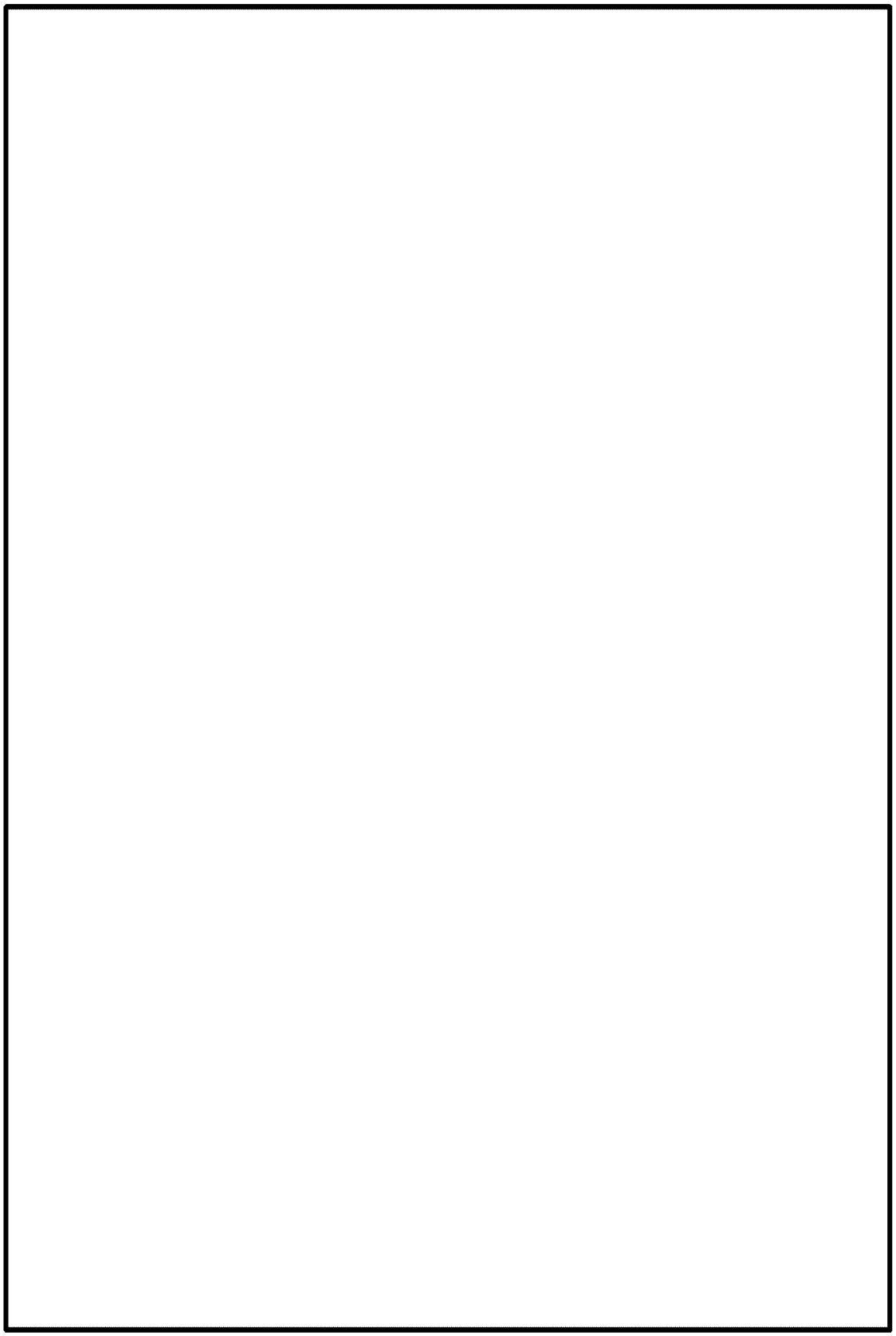

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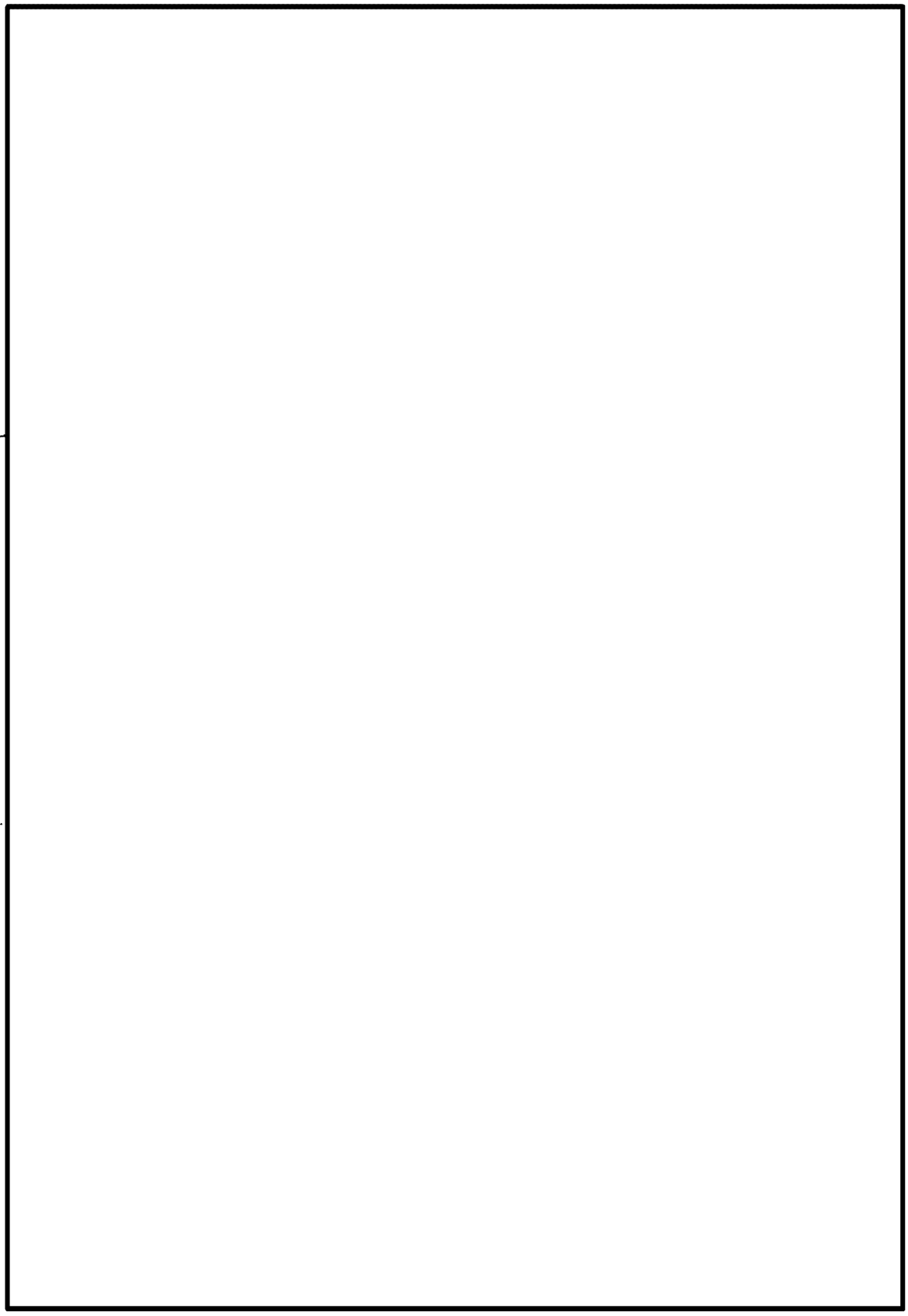


(b)(4)

IN WITNESS WHEREOF, the parties hereto have executed this Contract as of the date first above written.

SELLER:

[redacted]

By:
Name:
Title:
Date:

SELLER:

[redacted]

By:
Title:
Date:

PURCHASER:

STONEHILL MANAGEMENT LLC

By:
Name: Kali Hagopian
Title: Member
Date:

Read and Agreed:
For Purposes of §§ 2.2, 2.3 and 15

[redacted]

By:
Escrow Agent

IN WITNESS WHEREOF, the parties hereto have executed this Contract as of the date first above written.

SELLER:

[redacted]

By:_____
Name: [redacted]
Title:
Date:

SELLER:

[redacted]

By:_____
Name: [redacted]
Title:
Date:

PURCHASER:

STONEHILL MANAGEMENT LLC

By:_____ Member
Name: Rafi Haghani
Title: Member
Date:

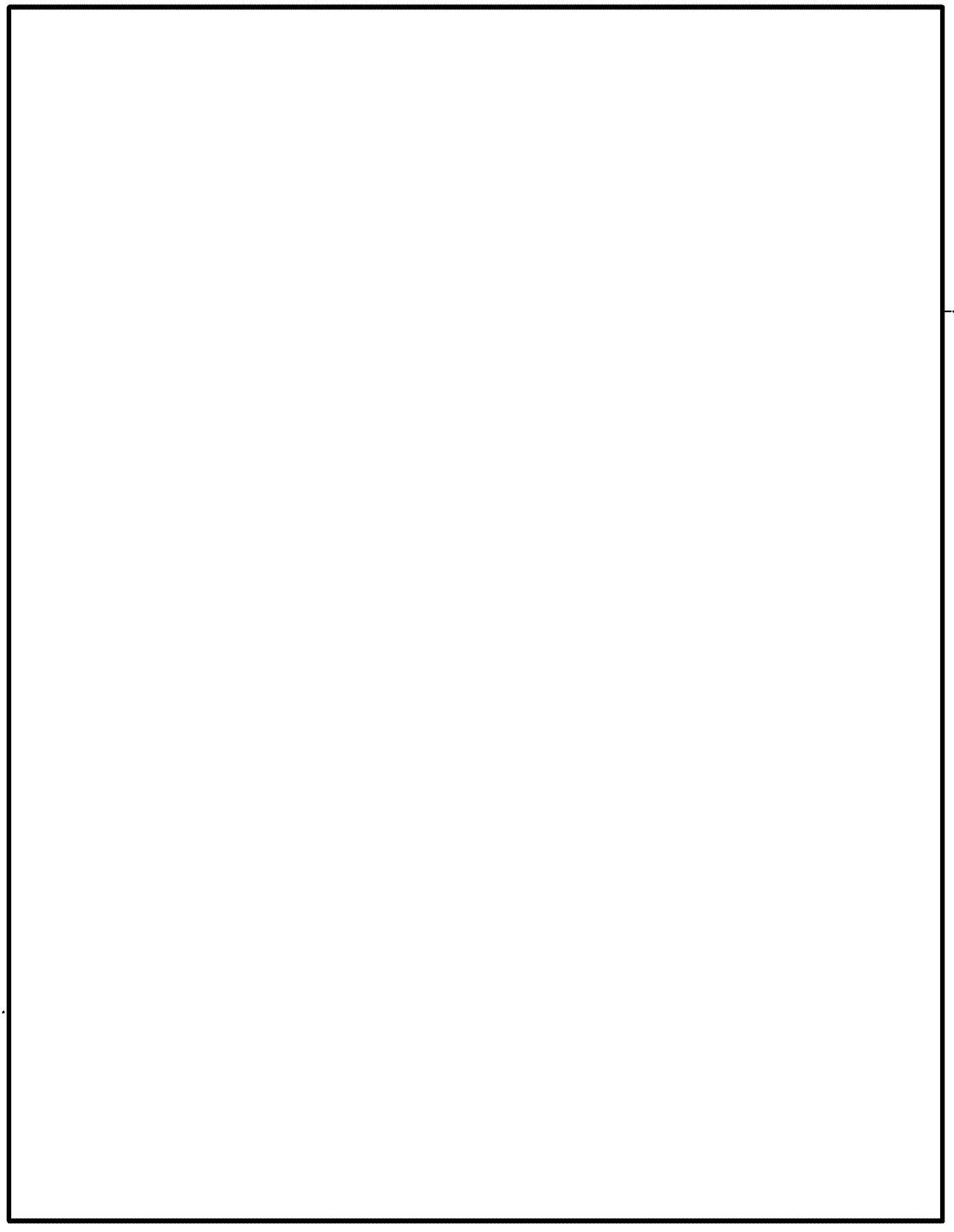
Read and Agreed:
For Purposes of §§ 2.2, 2.3 and 15

[redacted]

By:_____
EscrowAgent

EXHIBIT 1

(b)(4)



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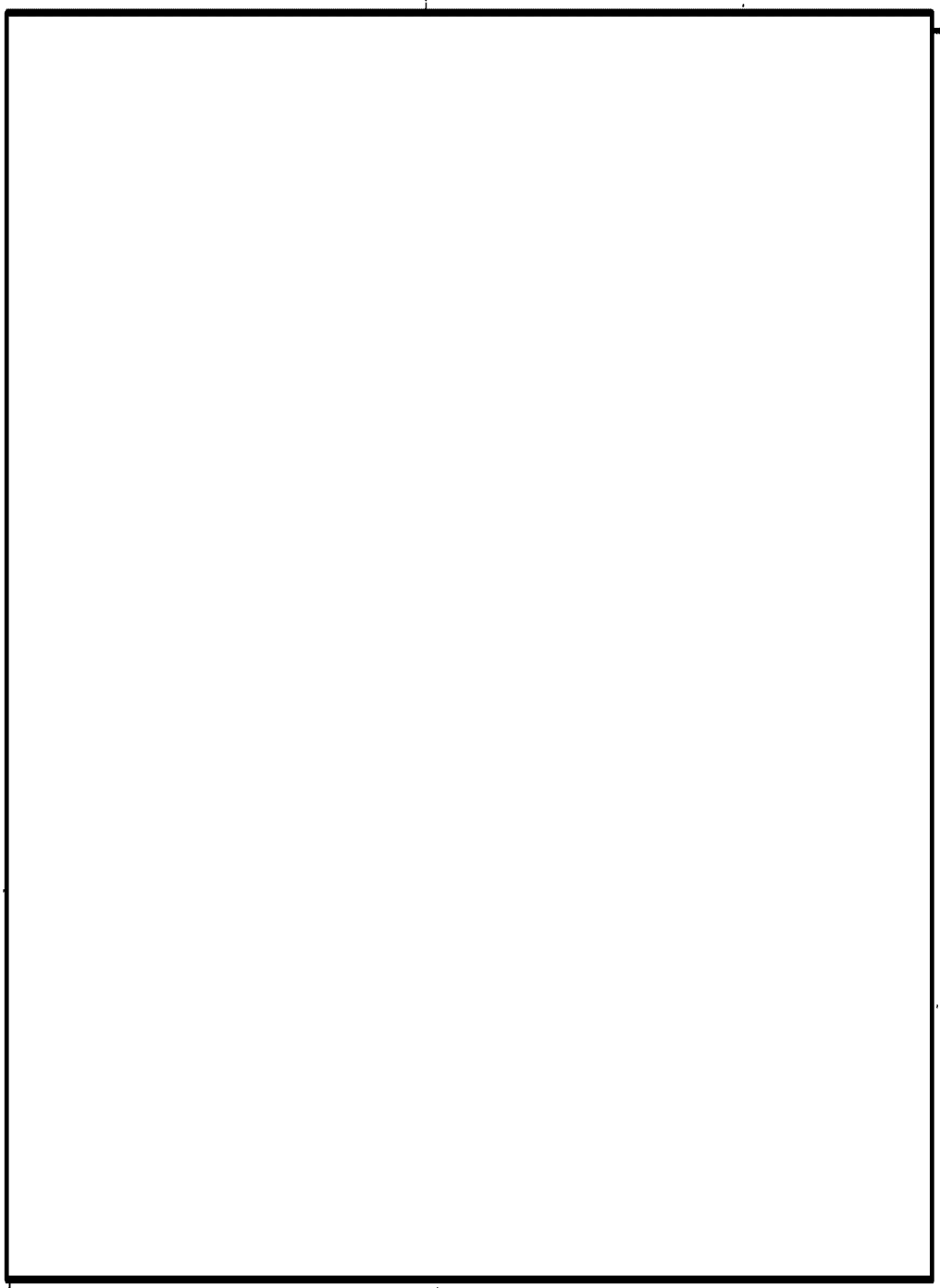


SURVEY NO. 59987

59987001.DWG

REV	DATE	DESCRIPTION	CK	CK
/	5-21-04	TITLE SURVEY		

CERTIFIED TO:
CHICAGO TITLE INSURANCE COMPANY
FLEISCHER BARRIOS SMITH
[redacted]

ESTABLISHED 1876 • SUCCESSOR TO:

COUNTY : QUEENS
TAX BLOCK 2325
STANDARD U.S.

SCALE 1" = 20'
TAX LOT AS SHOWN

MONTROSE
SURVEYING CO., LLP.
CIVIL LAND SURVEYORS

ORIG S.C.

Schedule A Description

ALL that certain plot, piece or parcel of land with the buildings and improvements thereon erected, situate, lying and being in the Second Ward, Borough and County of Queens, City and State of New York, bounded and described as follows:

BEGINNING at the corner formed by the intersection of the southerly side of Queens Blvd. and the easterly side of 64th Street;

RUNNING THENCE Easterly along the southerly side of Queens Blvd. 141.15 feet;

RUNNING THENCE Southerly and at right angles to Queens Blvd. 120.06 feet;

RUNNING THENCE Westerly and parallel with Queens Blvd. 126.22 feet to the easterly side of 64th Street;

RUNNING THENCE Northerly along the easterly side of East 64th Street 120.82 feet to the point or place of BEGINNING.

FAQUNA

ROBERT S. ALTMAN, ESQ., PLLC

27 WHITEHALL STREET, 4TH FLOOR
NEW YORK, N.Y. 10004
TELEPHONE: (212) 232-8713
FAX: (212) 232-8715
E-MAIL: rsalaw@nyctaxbreak.com

August 14, 2015

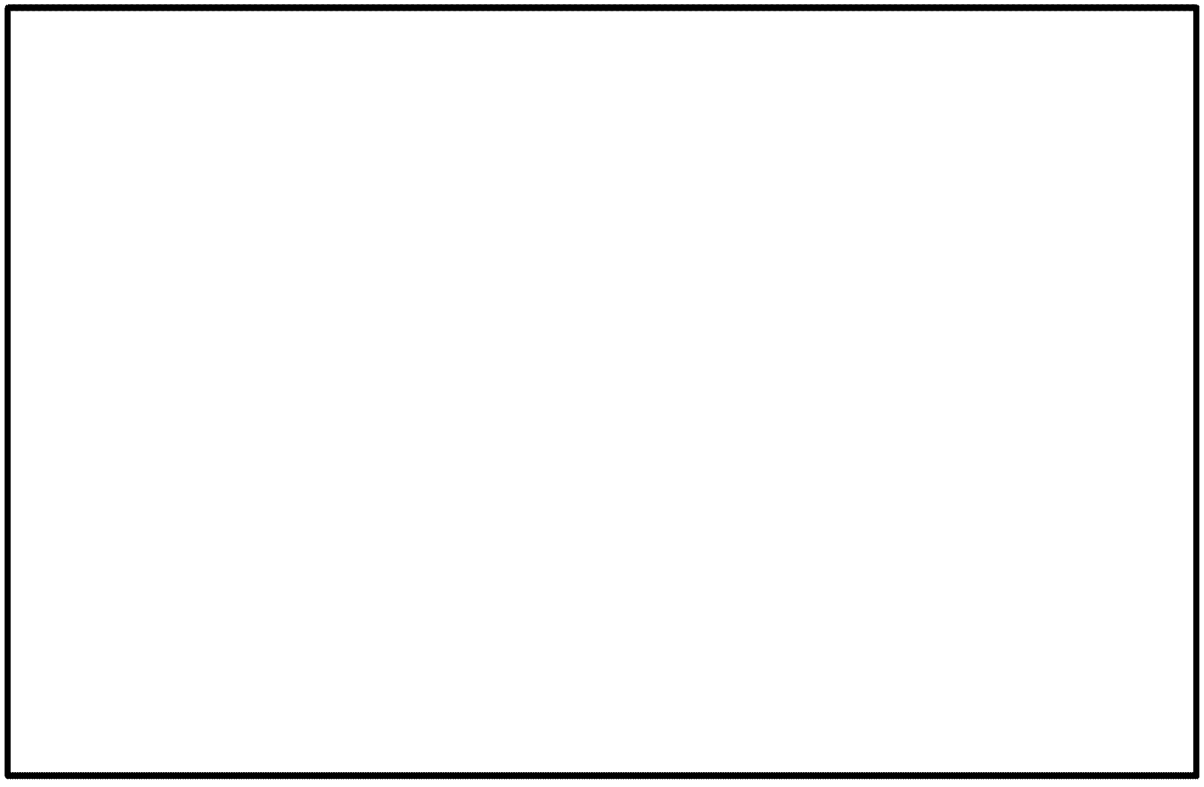
Via Email: centurygroup88@yahoo.com

Mr. George Xu, Managing Member
Queens Blvd Ventures, LLC
35-06 Leavitt Street, Suite CF-A
Flushing, NY 11354
Attn: Tracy

Re: Tax Exemption applications for 64-06 Queens Boulevard, Woodside, NY.

Dear Mr. Xu:

As per my discussions with Tracy, I am presenting my proposed retainer agreement for the work related to tax exemption applications for your property at 64-02 Queens Boulevard, New York (the "Property"). The following letter outlines the terms of our agreement. (b)(4)



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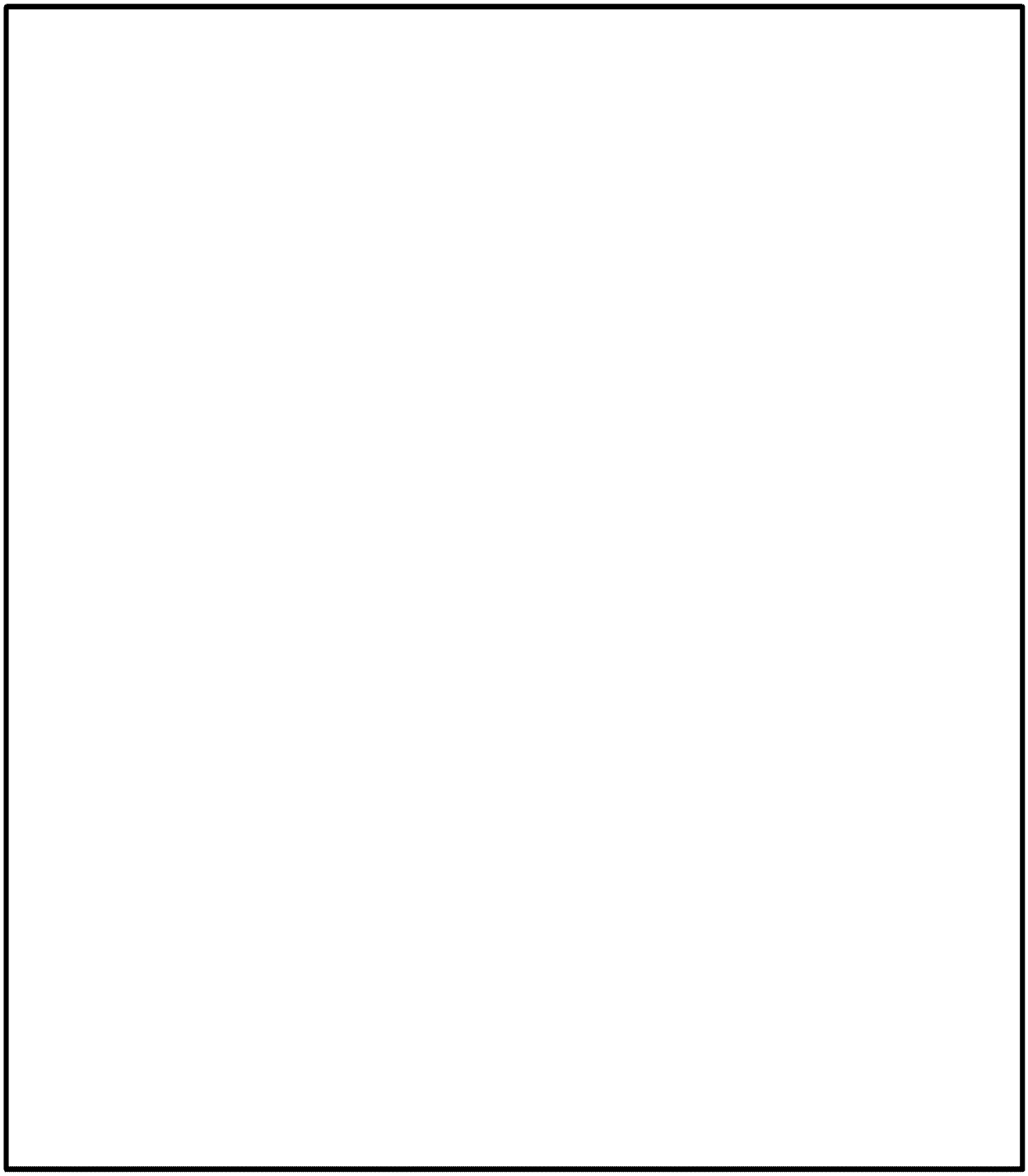

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[redacted]

Very truly yours,

Robert S. Altman

ACCEPTED AND AGREED TO:

Queens Blvd Ventures, LLC

By: _____
George Xu, Managing Member

NYC DEPARTMENT OF FINANCE
OFFICE OF THE CITY REGISTER

This page is part of the instrument. The City Register will rely on the information provided by you on this page for purposes of indexing this instrument.The information on this page will control for indexing purposes in the event of any conflict with the rest of the document.

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RECORDING AND ENDORSEMENT COVER PAGE **PAGE 1 OF 5**

Document ID: 2015031901026001 Document Date: 03-19-2015 Preparation Date: 03-19-2015
Document Type: INITIAL UCC1 FIXTURE FILING
Document Page Count: 3

PRESENTER:
CT LIEN SOLUTIONS
330 N. BRAND BLVD STE 700
46928232JM
GLENDALE, CA 91203
818-662-4100
UCCFILINGRETURN@WOLTERSKLUWER.COM

RETURN TO:
CT LIEN SOLUTIONS
330 N. BRAND BLVD STE 700
46928232JM
GLENDALE, CA 91203
818-662-4100
UCCFILINGRETURN@WOLTERSKLUWER.COM

PROPERTY DATA

Borough	Block	Lot		Unit	Address
QUEENS	2325	32	Partial Lot		64-06 QUEENS BOULEVARD

Property Type: COMMERCIAL REAL ESTATE

Borough	Block	Lot		Unit	Address
QUEENS	2325	32	Partial Lot		64-08 QUEENS BOULEVARD

Property Type: COMMERCIAL REAL ESTATE

☒ Additional Properties on Continuation Page

CROSS REFERENCE DATA

CRFN_____ *or* DocumentID_____ *or* _____ Year____ Reel____ Page____ *or* File Number_____

PARTIES

DEBTOR:
QUEENS BLVD VENTURES, LLC
3506 LEAVITT ST., SUITE CFA
FLUSHING, NY 11354

SECURED PARTY:
CATIIAY BANK, NEW YORK REGION
40-14 MAIN STREET
FLUSHING, NY 11354

FEES AND TAXES

Mortgage :		
Mortgage Amount:	$	0.00
Taxable Mortgage Amount:	$	0.00
Exemption:		
TAXES: County (Basic):	$	0.00
City (Additional):	$	0.00
Spec (Additional):	$	0.00
TASF:	$	0.00
MTA:	$	0.00
NYCTA:	$	0.00
Additional MRT:	$	0.00
TOTAL:	$	0.00
Recording Fee:	$	40.00
Affidavit Fee:	$	0.00

Filing Fee:	$	0.00
NYC Real Property Transfer Tax:	$	0.00
NYS Real Estate Transfer Tax:	$	0.00

RECORDED OR FILED IN THE OFFICE OF THE CITY REGISTER OF THE CITY OF NEW YORK
Recorded/Filed 03-23-2015 11:07
City Register File No.(CRFN):
2015000097722

City Register Official Signature

CLASS ABSTRACT SERVICES, INC.

72 Jericho Turnpike
Suite 3
Mineola, NY 11501

TELEPHONE
(516) 294-4141

TELECOPIER
(516) 294-4600

February 26, 2015

Lee-Lee Chang, Esq.
136-21 Roosevelt Avenue, Suite 304
Flushing, NY 11354

Title No.: CLC 22171Q
Owner: Romana Holding LLC
Purchaser: Queens Blvd Ventures, LLC
Premises: 64-06, 64-08 & 64-10 Queens Blvd.
Woodside, NY

Dear Ms. Chang:

Enclosed please find the Owner's Policy with regard to the above referenced matter.

If we can be of any further assistance please do not hesitate to call us.

Very truly yours,

Rose Ann Waters

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(b)(4)

REGIONAL CENTER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: QB VENTURES EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 14:

Independent Third Party Analysis

The purpose of these documents is to show the viability of the project.

- **Phase I Environmental Site Assessment** for Queens Blvd Venture, LLC, which asses a property of the nature, history, and setting of the subject property. Prepared by FPM Group, dated April of 2015.
- **Phase II Environmental Subsurface Investigation** for Queens Blvd Venture, LLC, which addresses issues presented in a Phase I Environmental Site Assessment. Prepared by EEA Inc., dated May 28, 2004.
- **Phase II Work Plan** for Queens Blvd Venture, LLC, which addresses the environmental concerns identified at the property. Prepared by FPM Group, dated June of 2015.
- **Phase II Subsurface Investigation** for Queens Blvd Venture, LLC, which addresses the environmental concerns identified at the property. Prepared by Advanced Cleanup Technologies, Inc., dated September 3rd, 2014.
- **Health and Safety Plan** for Queens Blvd Venture, LLC, which has the sampling of groundwater, soil, and soil vapor performed at or in proximity to the subject property. Prepared by FPM Group.
- **Figures** for Queens Blvd Venture, LLC. Prepared by FPM Group.

PHASE I ENVIRONMENTAL SITE ASSESSMENT

FOR THE PROPERTY LOCATED AT

64-02 &64-06 QUEENS BOULEVARD

WOODSIDE, NEW YORK

PREPARED FOR

QUEENS BLVD VENTURE, LLC

PREPARED BY

FPMgroup™

909 MARCONI AVENUE
RONKONKOMA, NEW YORK 11779

APRIL 2015

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Conducted on

Address: 64-02 & 64-06 Queens Boulevard
Woodside, New York 11377

FPM File No: 1121g-15-08/01

Prepared for

Client Name: Queens Blvd Venture, LLC

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312 and I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquires in conformance with the standards and practices set forth in 40 CFR Part 312.

The qualifications of the undersigned Environmental Professional and environmental staff contributing to this report are included in Appendix E.

Stephanie O. Davis
Environmental Professional

Signature

Prepared by

FPM Group
909 Marconi Avenue
Ronkonkoma, NY 11779
(Tel) 631-737-6200
(Fax) 631-737-2410

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APPENDICES

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B	State and Federal Database Records
C	Photolog
D	User-Provided Documents
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SECTION 1.0
INTRODUCTION

1.1 Purpose of the Phase I Environmental Site Assessment

The primary purpose of this Phase I Environmental Site Assessment (ESA) is to identify recognized environmental conditions at the subject property. Recognized environmental conditions (RECs) refers to the presence or likely presence of hazardous substances or petroleum products in, on, or at the property due to any release to the environment, under conditions indicative of a release to the environment, and/or under conditions that pose a material threat of a future release to the environment. De minimis conditions are not RECs.

Historic RECs (HRECS) include past releases of hazardous substances or petroleum products that occurred in connection with the property and have been addressed to the satisfaction of the applicable regulatory authority to meet established unrestricted use criteria without subjecting the property to any required controls. HRECs that do not meet the definition of RECs at the time this report was prepared are not listed in the Findings and Conclusions section of this report as RECs.

Controlled RECs (CRECs) include RECs resulting from a past release of petroleum products or hazardous substances that have been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. CRECs, if present, are listed in the Findings and Conclusions section of this report.

This Phase I ESA has been prepared for compliance with the American Society for Testing and Materials (ASTM) Standard Practice E 1527-13 for Phase I ESAs (2013). A Phase I ESA prepared following this Standard is intended to permit the User to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) liability by having performed all appropriate inquiry into previous ownership and uses of the property consistent with good commercial or customary practice. A Phase I ESA also assesses business environmental risk in association with the current or planned commercial use of the property. Additional objectives of the Phase I ESA include the identification of environmental conditions that are in noncompliance with applicable local, state, or federal laws or regulations and recognition of property conditions or practices that may lead to future environmental liability.

1.2 Scope of Services

FPM Group (FPM) was retained by Queens Blvd Venture, LLC (User) to perform a Phase I ESA for the property located at 64-02 & 64-06 Queens Boulevard, Woodside, New York (subject property), referenced by the following Queens Borough Tax Map Number: Block 2325, Lot 32. The scope of services includes those items detailed in the ASTM Standard Practice E 1527-13 and focused on the property history with regard to past land use and development, underground storage tanks (USTs), aboveground storage tanks (ASTs), chemical or hazardous substances spills, storage, use, or generation, and any other pertinent information that would indicate a potential source and/or pathway of contamination at the property. Included in this report, where applicable, is information obtained from interviews with knowledgeable individuals regarding the current and/or past usage of the subject property.

Significant assumptions, if any, are described in the applicable portions of the following sections of this report. Limitations and exceptions, if any, are described in Section 5.2 of this report. Special terms and conditions, if any, affecting the scope of services are described in the applicable portions of the following sections of this report.

1.3 Reliance

FPM understands that the User may rely on this report to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability. The User may also rely on this report to assess business environmental risk in association with the current or planned commercial use of the property, to identify environmental conditions that are in noncompliance with applicable local, state, or federal laws or regulations, and/or to recognize property conditions or practices that may lead to future environmental liability. Reliance on this report by a different User than the User for which this report was prepared is subject to satisfying the User's Responsibilities in Section 6 of ASTM Standard Practice E 1527-13.

It should be noted that portions of this report were prepared using information provided by others. The environmental professional is not required to independently verify the provided information but may rely on this information unless he/she has actual knowledge that certain information is incorrect, or unless it is obvious that certain information is incorrect based on other information obtained in the Phase I ESA or otherwise actually known to the environmental professional.

SECTION 2.0
SUBJECT PROPERTY DESCRIPTION

2.1 Property Location and Legal Description

The subject property is identified as 64-02 & 64-06 Queens Boulevard, Woodside, New York, and is located on the southeast corner of the intersection of Queens Boulevard and 64th Street in the borough of Queens. The subject property is referenced by the following Queens Borough Tax Map number: Block 2325 and Lot 32. The subject property comprises approximately 12,000 square feet and is developed with an approximately 11,000-square-foot one-story commercial building and an associated paved parking area.

2.2 Property Environmental Setting

Groundwater in the vicinity of the property is derived from infiltration of precipitation through the ground surface and surficial deposits to the water table. The original surficial deposits likely consisted primarily of sand and gravel; however, the ground surface has been significantly modified due to previous development. Precipitation that may infiltrate the ground surface will enter the groundwater system. The water table is the upper limit of the groundwater reservoir and is bounded beneath by impervious bedrock which is located approximately 150 feet below mean sea level, or MSL (USGS, 1990).

The regional groundwater flow direction in the property area was obtained from the U.S. Geological Survey publication Water Table of the Upper Glacial Aquifer on Western Long Island, New York in March-April 2000. According to the map, the water table elevation is approximately 40 feet above MSL. Based on the map and the slope of the local topography, the regional groundwater flow direction is anticipated to be generally to the west.

The surface topography of the subject property and vicinity was obtained from the USGS Brooklyn, New York Quadrangle (1967, photorevised 1979). The topographic elevation of the subject property is approximately 50 feet above MSL. Based on these data, the depth to the regional groundwater beneath the subject property is estimated at approximately 10 feet.

No natural surface water bodies are located within one mile of the subject property.

2.3 Property Description and Usage

The subject property building is presently vacant, but was most recently occupied by an Auto Barn auto parts store.

2.4 Adjoining Property Usage

The subject property is surrounded by parcels utilized for residential and commercial purposes. A residential building with commercial retail space on the first floor adjoins the subject property to the west (across 64th Street). The Queens Motor Inn adjoins the subject property to the north (across Queens Boulevard). The FDNY Rescue Co. 4 and Engine Co. 292 adjoins the subject property to the east. Residential buildings adjoin the subject property to the south.

SECTION 3.0
RECORDS REVIEW

Records reviews were conducted during this portion of the study to evaluate the property history, potential environmental concerns on the property, and potential environmental concerns in proximity to the property. Records were obtained from several sources, within reasonable time and cost constraints (within 20 calendar days of our written request and at a nominal cost), as more fully described below.

3.1 Historical Information

➢ Historic Reference Documents

The objective of this portion of the study is to reconstruct the property history as it pertains to land use and development. For this purpose, information was sought from the following sources and is summarized below:

- Sanborn Fire Insurance maps
- Historic aerial photographs

Historic information concerning the property was also obtained from a property representative, User-provided documents, and other sources. This information is summarized in later sections of this report.

Sanborn Fire Insurance Maps of the subject property vicinity were provided by Environmental Data Resources (EDR) for the years 1902, 1914, 1932, 1951, 1981, 1982, 1986, 1988, 1989, 1991 through 1994, 1996, 1999, and 2001 through 2006. Copies of the maps are included in Appendix A. Information obtained from the fire insurance map review is as follows:

1902: The subject property and adjoining properties to the north and east are undeveloped and vacant. Railroad tracks adjoin the subject property to the west and south and appear to be present on the southwest corner of the subject property. A two-story dwelling and a one-story stable are developed on the adjoining property to the southeast at 44-12 65th Street.

1914: No significant changes are noted for the subject property or the adjoining property to the north. The railroad tracks are no longer depicted and it is noted that they will be abandoned. The FDNY building was developed on the adjoining property to the east in 1914. The stable has been removed from the adjoining property to the southeast and a small one-story building has been developed. The building on the adjoining property to the northwest is a market.

1932: A filling station consisting of a one-story garage, a one-story building, and three gas tanks has been developed on the western portion of the subject property. A two-story dwelling and one-story garage have been developed on the adjoining property to the south. The small one-story building has been removed from the adjoining property to the southeast. No significant changes are noted for the adjoining properties to the north and west.

1951: A one-story building labeled lumber has been developed on the subject property to the east of the filling station. The one-story building at the filling station is now a store. A one-story office building has been developed on the adjoining property to the west and the property is used for

used auto sales. A one-story garage has been developed on the adjoining property to the southeast. No significant changes are noted for the adjoining properties to the south, east, and north.

1981: The subject property has been redeveloped with the current commercial building constructed in 1960. A parking lot is present to the west of the building in the area where the filling station and gas tanks were formerly depicted. The adjoining property to the west has been redeveloped with a one-story commercial and warehouse building constructed in 1963. The adjoining property to the north was developed with a two-story building constructed in 1961; this building is occupied by the Queens Motor Inn Motel and contains 55 units. No significant changes are noted for the adjoining properties to the east, south, and southeast.

1982: No significant changes are noted for the subject property or the adjoining properties to the north, east, south, and southeast. The building on the adjoining property to the west is now all warehouse space and the commercial space has been removed.

1986-1991: No significant changes are noted for the subject property or the adjoining properties.

1992: No significant changes are noted for the subject property or the adjoining properties to the north, east, south, and southeast. The building on the adjoining property to the west is now occupied as commercial space.

1993-2005: No significant changes are noted for the subject property or the adjoining properties.

2006: No significant changes are noted for the subject property or the adjoining properties to the north, east, south, and southeast. The building on the adjoining property to the west has been removed.

A June 2010 aerial photograph of the subject property vicinity was obtained through the Google Earth website; a copy is included in Appendix A. The subject property and adjoining properties generally appear in their current configurations.

In summary, railroad tracks were present on the southwest corner of the subject property prior to 1914. Between 1914 and 1932 a filling station consisting of a one-story garage, a one-story building, and three gas tanks was developed on the western portion of the property. Between 1932 and 1951 a one-story lumber building was developed to the east of the filling station and the one-story building at the filling station was used as a store. The subject property was redeveloped with the current commercial building and parking lot in 1960; the parking lot occupies the area where the filling station and gas tanks were formerly depicted. The commercial buildings currently surrounding the subject property were developed between circa 1914 and 1963.

➢ Historic Agency Records

Historic records for the subject property were sought from several local agencies during this study. Factors such as chemical spills or storage, USTs, and other information that would indicate a potential source of contamination at or in the vicinity of the property were investigated using these records. Information requests were made by FPM during this Phase I ESA from the following sources:

- New York City Department of Finance, Queens County Office of the City Register
- City of New York, Department of City Planning website

- New York City Department of Buildings (DOB) website
- City of New York Fire Department (FDNY)
- Environmental Data Resources Inc. (EDR)
- Google Earth website
- New York City Department of Environmental Protection (NYCDEP)
- New York City Department of Health (NYCDOH)
- New York State Department of Environmental Conservation (NYSDEC)
- United States Environmental Protection Agency (USEPA)

Information pertaining to property ownership was obtained from the New York City Department of Finance, New York County Office of the City Register. A summary of the property ownership information is included in Table 3.1.1. The current owner of the subject property is Queens Blvd Ventures, LLC, which has owned the property since February 2015. Previously, the subject property was owned by various commercial entities. No industrial ownership is apparent.

TABLE 3.1.1
OWNERSHIP HISTORY
64-02 & 64-06 QUEENS BOULEVARD, WOODSIDE, NEW YORK
BLOCK 2325, LOT 32*

Owner	Date
Queens Blvd Ventures, LLC	2/23/2015 to Present
Romana Holding LLC	6/28/2004 to 2/23/2015
The Beer Boys, Inc.	8/31/1978 to 6/28/2004
Frederick Schroeter	4/8/1968 to 8/31/1978
Schroeter Lumber Corp.	4/8/1968 to 4/8/1968
Frederick Schroeter	Prior to 4/8/1968

Lot 32 was previously listed as Lots 26 and 30.
Source: New York County Office of the City Register

Information obtained from the City of New York, Department of City Planning website indicates that the subject property is zoned for residential and retail commercial use as R7X R4-1 with a C2-3 overlay. The property is presently e-designated as E-163 on the current zoning map (copy in Appendix A) for hazardous materials, air, and noise.

The New York City DOB website was accessed on March 17, 2015 to review complaints, violations, Certificates of Occupancy (COs), and permits regarding the subject property. CO #136513 was issued on September 1, 1960 for new building permit #1996-59. CO #204583 was issued on September 26, 1986 for alteration permit #1180-84. The first floor of the building contained space for

retail sales, offices, accessory storage, and loading and unloading. A mezzanine contained office and storage space. There was also an accessory parking lot for 12 cars. Two resolved complaints were filed in 1989 for illegal signs. A violation was issued in 1986 and was dismissed on November 14, 1986. New building permits were issued in 1917, 1921, 1933, 1937, and 1959. Alteration permits (unspecified alterations) were issued in 1970 and 1984. Copies of the information obtained during review of the online DOB records are included in Appendix A.

The FDNY was contacted on March 3, 2015 and information pertaining to fuel oil tanks, tank removals, tank leaks and violations was requested. Responses were received on March 19 and 23, 2015 indicating that the FDNY does not maintain any such files. Copies of the FDNY request and response are included in Appendix A.

The NYCDEP was contacted on March 3, 2015 and information regarding the use, storage and disposal of hazardous waste, USTs, ASTs, environmental inspections, reviews, violations and remediation was requested. A response was received on March 17, 2015 indicating that the NYCDEP does not maintain any such files. Copies of the NYCDEP request and response are included in Appendix A.

The NYCDOH was contacted on March 3, 2015 and information regarding chemical or hazardous material storage and/or disposal, USTs, ASTs, sampling, inspections, violations, remediation and industrial files was requested. A response was received on March 16, 2015 acknowledging the request. If any files are made available, they will be reviewed and any pertinent information will be forwarded. Copies of the NYCDOH request and response are included in Appendix A.

The NYSDEC was contacted on March 3, 2015 and information regarding hazardous waste substance regulation, sampling, remediation, violations, waste disposal, discharge monitoring, non-compliance, inspections, monitoring, environmental permits and engineering was requested. A response was received on March 17, 2015 indicating that the NYSDEC does not maintain any such files. Copies of the NYSDEC request and response are included in Appendix A.

The USEPA Region II database was accessed on March 3, 2015 (www.epa.gov/region02/) and the subject property did not appear on the Resource Conservation and Recovery Act (RCRA) or on the Comprehensive Environmental Resource Conservation and Liability Information System (CERCLIS) databases, or as a No Further Remedial Action Planned (NFRAP) site.

3.2 Federal and State Environmental Records Sources

Standard federal and state databases were accessed by EDR to identify areas of potential concern in the vicinity of the subject property. The search distances were chosen in accordance with the ASTM Standard for Phase I ESAs (ASTM, E 1527-13, Section 8.2.1) as summarized in Table 3.2.1. Table 3.2.1 also includes the federal and state database information summary, the proximity of the properties of environmental concern to the subject property, and the hydrologic position of the properties of environmental concern with respect to the subject property. It should be noted that the locations of the properties of environmental concern were evaluated with respect to the regional groundwater flow direction (west). Properties of environmental concern located downgradient and at a distance from the subject property were presumed not to present a concern because of their hydraulic location. Pertinent portions of the state and federal database search results are included in Appendix B.

TABLE 3.2.1
FEDERAL AND STATE DATABASE INFORMATION SUMMARY
64-02 & 64-06 QUEENS BOULEVARD, WOODSIDE, NEW YORK

Database	Search Distance (Miles)	Site	Proximity to Subject Property
FEDERAL			
National Priority List	1.0	None	-
Delisted NPL	0.5	None	-
CERCLIS and CERCLIS- No Further Remedial Action Planned	0.5	None	-
RCRA CORRACTS facilities	1.0	None	-
RCRA – Treatment, Storage, Disposal facilities	0.5	None	-
RCRA – Generator/ Transporter	Site and Adjoining	None	-
RCRA – No Longer Registered	Site and Adjoining	NYC Fire Dept Engine Co 292 64-18 Queens Boulevard	Adjoining E
		Con Edison Manhole 1263 Queens Boulevard and 64th Street	Adjoining NW
IC/EC Registries	Site	None	-
Emergency Response Notification System	Site	None	-
FINDS	-	None	-
STATE			
Brownfield Cleanup Program/ Voluntary Cleanup Program Sites	0.5	None	-
Inactive Hazardous Waste Disposal Sites	1.0	None	-
Hazardous Substances Waste Disposal Sites	1.0	None	-
Petroleum and Chemical Bulk Storage	Site and Adjoining	Engine Company 292 64-10 Queens Boulevard	Adjoining E
Solid Waste Landfill	0.5	SDR Process Corp. 50-15 69th Place	0.44 miles SE Up/crossgradient
		Con Edison 50-40 70th Street	0.48 miles SE Up/crossgradient
SPILLS and LUSTS (adjoining or upgradient and active only)	0.5	Vault #6100 64th Street and Queens Boulevard	Adjoining NW
		NYC Fire Dept Co 292 64-18 Queens Boulevard	Adjoining E
		Amoco Service Station 65-10 Queens Boulevard	0.06 miles E Upgradient
IC/EC Registries	Site	None	-

Source: EDR

The subject property was identified as an e-designated site. The designation is E-163 for hazardous materials, air, and noise. No further information is provided and the property was not listed on any of the other environmental databases. The e-designation is likely related to the former filling station at the subject property.

The NYC Fire Department Engine Company 292, adjoining the subject property to the east (upgradient) at 64-18 Queens Boulevard, was identified on the RCRA No Longer Registered (NLR), NYSDEC Spills, and Petroleum Bulk Storage (PBS) databases. The facility was last listed as a large-quantity generator of ignitable waste, lead, benzene, and chlordane in August 1994. No RCRA violations or enforcement actions were noted. NYSDEC spill number 92-05404 was assigned on August 11, 1992. This spill is related to spill number 94-04336 which was assigned on June 28, 1994. The spill reports do not identify why the spill numbers were issued, but apparently a spill of 100 gallons of petroleum occurred. It is noted that the spills should be closed because the NYC Department of General Services (DGS) removed the drums containing the petroleum contaminants. The two spills were closed on August 11, 1992 and October 3, 1997, respectively. Spill number 12-03463 was assigned on July 10, 2012 following the release of approximately 15 gallons of #2 fuel oil due to an overfill during a delivery. The spill was contained and cleaned up, no drains or soil was affected, and the spill was closed on July 12, 2012. The facility was identified on the PBS database for a 2,500-gallon #2 fuel oil AST installed in December 1980 and removed in March 2001 and an in-service 550-gallon diesel AST installed in February 1998. A request was submitted to the NYSDEC on March 31, 2015 for any files related to these three closed spills. A response had not yet been received at the time this report was prepared. If any files are made available, they will be reviewed and any pertinent information will be forwarded. A copy of the NYSDEC request is included in Appendix A. Based on the available information, which indicates that the spills are closed and no subsurface remediation was apparently required, this site does not pose an environmental concern for the subject property.

The intersection of Queens Boulevard and 64th Street, adjoining the subject property to the northwest (downgradient), was identified on the RCRA NLR and NYSDEC Spills databases. Con Edison Manhole #1263 was identified on the RCRA NLR database due to miscellaneous polychlorinated biphenyl (PCB) wastes and petroleum oil with less than 500 parts per million (ppm) PCBs generated onsite. No RCRA violations or enforcement actions were noted. Spill number 02-11002 was assigned to Vault #6100 on February 2, 2003 following the release of approximately 170 gallons of dielectric fluid from a leaking transformer. Impacted soil was removed from the vault and the vault was cleaned. No sewers were reportedly affected. The spill was closed on April 3, 2003. A request was submitted to the NYSDEC on March 31, 2015 for any files related to this closed spill. A response had not yet been received at the time this report was prepared. If any files are made available, they will be reviewed and any pertinent information will be forwarded. A copy of the NYSDEC request is included in Appendix A. Based on the available information, this site does not pose an environmental concern for the subject property.

Two facilities were identified on the Solid Waste Landfill database within the ASTM search radius. SDR Process Corp., located approximately 0.44 miles southeast (up/crossgradient) of the subject property at 50-15 69th Place, was identified as an inactive transfer station. Con Edison, located approximately 0.48 miles southeast (up/crossgradient) of the subject property at 50-40 70th Street, was identified as an inactive transfer station. No further information was provided for either facility. Based on the available information, these sites do not pose an environmental concern for the subject property.

An Amoco Service Station, located approximately 0.06 miles east (upgradient) of the subject property at 65-10 Queens Boulevard, was identified on the Leaking Underground Storage Tank (LUST) and NYSDEC Spills databases. Spill number 11-03843 was assigned on July 7, 2011 following a tank test

failure on a waste/used oil tank. No further information was provided and this spill remains active. Spill number 89-03239 was assigned on June 28, 1989 following the discovery of gasoline contamination during the removal of 14 550-gallon tanks. Approximately 140 cubic yards of impacted soil were removed and monitoring wells were installed. Free-phase product is present in several of the monitoring wells and the groundwater is impacted with benzene, toluene, ethylbenzene, and xylenes (BTEX). During groundwater monitoring it was determined that the site-specific groundwater flows to the south-southwest, which places this site hydraulically crossgradient from the subject property. Remediation is ongoing and the spill remains active. Spill number 05-10718 was assigned on December 13, 2005 following a line test failure on a gasoline fuel line. The line was repaired and passed a retest. The spill was closed on December 19, 2005. Based on the available information, which indicates that this site is not upgradient of the subject property, this site does not pose an environmental concern for the subject property.

There were no other sites identified within the ASTM-designated search radii that appear to present an environmental concern for the subject property.

3.3 Previous Investigations

A Phase II ESA was prepared for the subject property in May 2004 by EEA, Inc. (EEA). A copy of this report was provided by the User and is included in Appendix D. It was noted that a previous Phase I ESA prepared for the subject property (not provided) identified a permit noting 10 gasoline tanks and 4 gasoline pumps formerly present at the property. The 1932 and 1951 Sanborn Fire Insurance Maps also showed three gasoline tanks on the northwest portion of the property, which was labeled as a filling station. EEA performed a magnetometer survey of the property and conducted six soil borings in the northwest portion of the subject property where the USTs had been located. The magnetometer survey did not identify any former USTs, which suggests that the USTs may have been removed during redevelopment of the property. Five samples were collected from the six soil borings at a depth of 12 feet below grade (estimated to be below the bottom of the former USTs) and were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and total petroleum hydrocarbons (TPH). All of the detections were below the 6NYCRR Part 375 Soil Cleanup Objectives (SCOs) for unrestricted use. It was concluded that the former use of the property as a filling station had not resulted in subsurface impacts. There were no recommendations for further investigation.

A Phase II Subsurface Investigation was prepared for the subject property in September 2014 by Advanced Cleanup Technologies, Inc. (ACT). A copy of this report was provided by the User and is included in Appendix D. ACT performed a geophysical survey, conducted three soil borings, and collected two soil vapor samples from the parking lot. The geophysical survey did not identify any anomalies suggestive of USTs. Six soil samples were collected from the three soil borings located in the areas showing the greatest potential for contamination. The soil samples were analyzed for VOCs, SVOCs, Target Analyte List (TAL) metals, polychlorinated biphenyls (PCBs), and pesticides. Acetone was the only VOC detected above its unrestricted use SCO in two soil samples, but the detections were below the restricted residential use SCO. Acetone was noted to be a common laboratory contaminant. The metals cadmium, copper, lead, nickel, and/or zinc were detected above unrestricted use SCOs in two of the soil samples. All of these metals detections were below the restricted residential use SCOs. The metals detections were attributed to the presence of historic fill. No SVOCs, PCBs, or pesticides were detected in the soil samples above the unrestricted use SCOs. The two soil vapor samples were analyzed for VOCs and three of the VOCs, tetrachloroethene (PCE), trichloroethene (TCE), and methylene chloride, were detected at levels above the indoor air Air Guideline Values in the October 2006 New York State Department of Health (NYSDOH) "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York". The PCE and TCE detections were found at levels for which the NYSDOH would require no further action, monitoring, or mitigation (depending on the associated indoor air concentrations of PCE and TCE).

3.4 User-Provided Information

The Phase II ESA reports discussed above were provided by the User. FPM provided the User with a User Questionnaire to assist FPM in obtaining information about the subject property relevant to identifying RECs. Specialized knowledge or experience of the User with respect to the property and commonly known or reasonably ascertainable information about the property within the local community were specifically requested. A copy of the completed questionnaire is included in Appendix D. The User noted that the purchase price is the same as the appraised value of the property.

The User was requested to provide a copy of recorded land title records and judicial records concerning the property from which information could be obtained concerning environmental liens or activity and use limitations (AULs) that may be present. The User was also asked to provide any actual knowledge of environmental liens or AULs that may encumber the property. The User did not report any liens or AULs for the property.

FPM understands that this Phase I ESA is being performed by the User to qualify for landowner liability protection for CERCLA liability and to assess business risk.

SECTION 4.0
PROPERTY RECONNAISSANCE

FPM personnel inspected the subject property on March 16, 2015. All areas of the property were accessible at the time of the inspection. A property representative accompanied FPM during the reconnaissance and was interviewed to obtain information regarding uses and physical characteristics of the property. Information obtained during the interview is included in the appropriate sections below. A photolog documenting current property conditions is included in Appendix C.

The subject property comprises approximately 12,000 square feet and is developed with an approximately 11,000-square-foot one-story commercial building and an associated paved parking area. A site plan depicting the current property features is shown in Figure 4.1.

Occupant/Operation:

The subject property building is presently vacant.

Prior Occupants/Use:

The current commercial building at the subject property was developed in 1960 and has been occupied by various stores, including most recently an Auto Barn auto parts store. A filling station with gasoline tanks was developed on the western portion of the subject property between 1914 and 1932 and remained until sometime between 1951 and 1960. A lumber building was developed to the east of the filling station between 1931 and 1951 and remained until sometime between 1951 and 1960. Railroad tracks were present on the southwest portion of the property prior to 1914.

Hazardous Substance/Petroleum Products Inventory:

No hazardous substances or petroleum products were observed at the subject property at the time of the inspection.

ASTs/USTs Inventory:

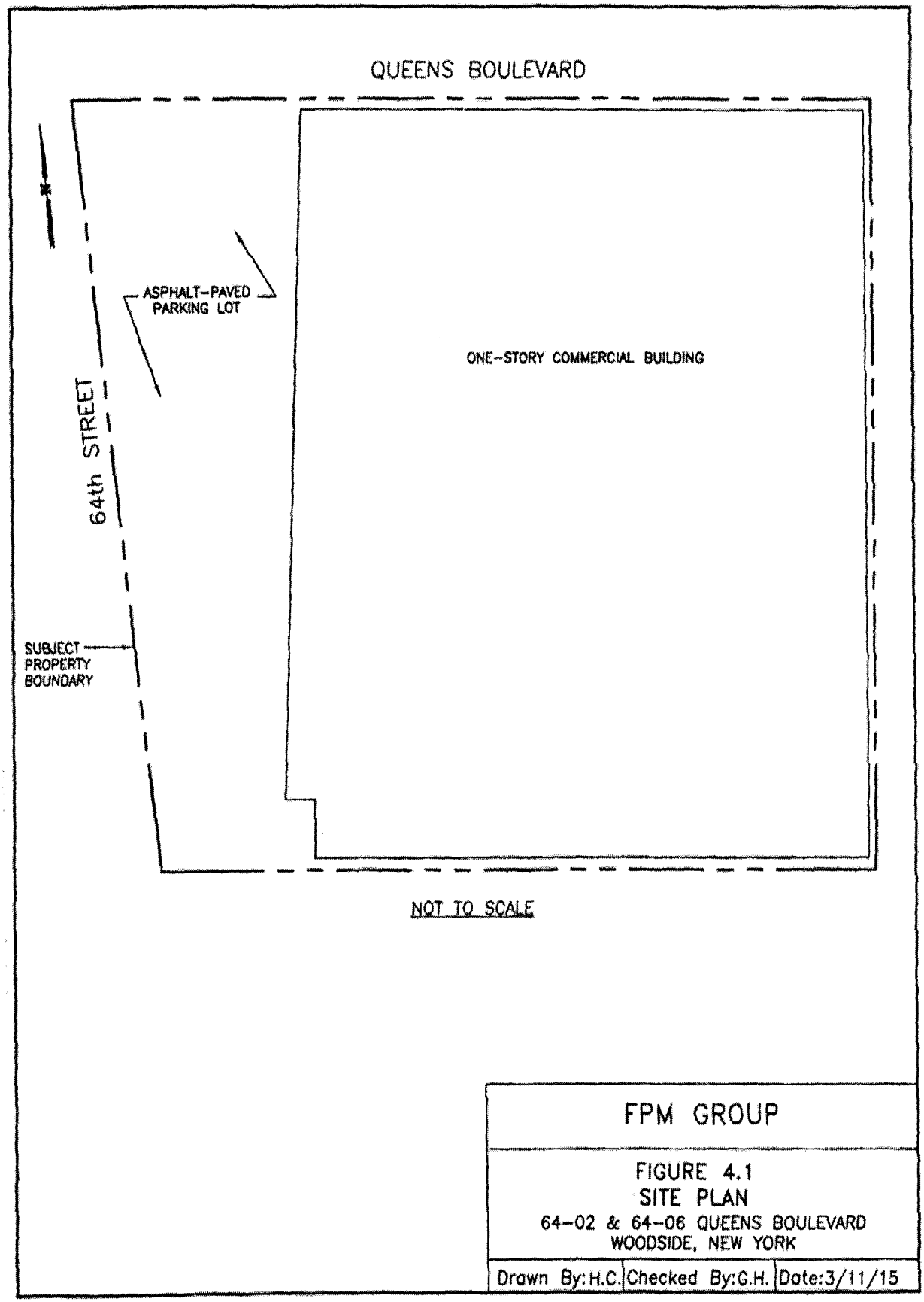
No visible evidence of any ASTs or USTs (fill pipes, vent pipes, supply lines) was noted during the site inspection.

Sanitary Waste Management

The subject property is connected to the municipal sewer system. No evidence of any current or former onsite sanitary waste disposal systems was noted during the site inspection.

Solid Waste Disposal:

Solid waste is containerized for offsite disposal. Solid waste consisting of old shelving and other materials associated with the former retail use of the subject property was noted throughout the building. No significant staining, leakage, or other evidence of inappropriate disposal was noted in association with the waste.


QUEENS BOULEVARD
ASPHALT-PAVED PARKING LOT
ONE-STORY COMMERCIAL BUILDING
64th STREET
SUBJECT PROPERTY BOUNDARY
NOT TO SCALE
FPM GROUP
FIGURE 4.1
SITE PLAN
64-02 & 64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK
Drawn By:H.C.
Checked By:G.H.
Date:3/11/15

Drums/Unidentified Substance Containers:

An empty 55-gallon drum was noted in the building. No evidence of staining or leakage was noted in association with the drum.

Wells:

No wells were noted on the subject property at the time of the inspection. The subject property is connected to the municipal water supply.

Heating, Ventilation and Cooling:

The subject property is heated with roof-mounted natural gas-fired units. No potential oil-fired heating systems were observed.

PCB Electrical Components:

No potential PCB-containing electrical components were noted on the subject property at the time of the inspection.

Staining and Corrosion:

No significant staining or corrosion was observed during the site inspection.

Floor Drains and Sumps:

No floor drains or sumps were observed at the subject property at the time of the inspection.

Stormwater Drainpools/Subsurface Drainage Structures:

No stormwater drainpools or subsurface drainage structures were observed at the subject property at the time of the inspection.

Stressed Vegetation:

No stressed vegetation was observed at the subject property at the time of inspection. .

Dumping:

No evidence of dumping was observed on the subject property at the time of inspection.

Disturbed Soil Mounding/Excavation:

No evidence of disturbed soil or excavation was observed at the subject property at the time of the inspection.

Radon:

Due to the depth to bedrock in the property area, radon does not appear to be a concern at the subject property. Based on the 1993 U.S. Geological Survey Open-file Report 93-292-B entitled "Geologic Radon Potential of EPA Region 2", the average indoor radon concentration in Queens County is 1.4

picocuries per liter and is among the lowest concentrations in New York State. The USEPA recommends that action be taken to reduce radon concentrations if they exceed four picocuries per liter. Radon does not appear to be a concern at the subject property.

Radiation:

There was no indication that past or present property activities may have included the generation or storage of radiation sources at the subject property.

Adjoining Property Descriptions:

The subject property is surrounded by parcels utilized for residential and commercial purposes. A residential building with commercial retail space on the first floor adjoins the subject property to the west (across 64th Street). The Queens Motor Inn adjoins the subject property to the north (across Queens Boulevard). The FDNY Rescue Co. 4 and Engine Co. 292 adjoins the subject property to the east. Residential buildings adjoin the subject property to the south. Based on FPM's observations of the adjoining properties from the vantage point of the subject property and adjacent public roads, no visible environmental concerns were noted.

SECTION 5.0
FINDINGS AND CONCLUSIONS

5.1 Findings and Opinions

FPM has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-13 for the property located at 64-02 & 64-06 Queens Boulevard, Woodside, New York. Any exceptions to, or deletions from, this practice are described in Section 5.2 of this report.

This assessment was used to identify the potential presence of Recognized Environmental Conditions (RECs), historic RECs (HRECs), controlled RECs (CRECs), and de minimis conditions in connection with the property. Any RECs, HRECs, CRECs, and/or de minimis conditions identified for the property are described below.

- The subject property occupies approximately 12,000 square feet on the southeast corner of the intersection of Queens Boulevard and 64th Street in the borough of Queens and is referenced by the following Queens Borough Tax Map number: Queens, Block 2325 and Lot 32. The subject property is developed with an 11,000-square-foot one-story commercial building and an associated paved parking area. The property is currently owned by Queens Blvd Ventures, LLC, which has owned the property since February 2015. The property was previously owned by various commercial entities. No industrial ownership is apparent. The subject property is zoned for residential and retail commercial use as R7X R4-1 with a C2-3 overlay. The property is presently e-designated as E-163 on the current zoning map for hazardous materials, air, and noise.

- The subject property was originally developed with railroad tracks on the southwest corner of the property prior to 1914. Between 1914 and 1932 a filling station consisting of a one-story garage, a one-story store building, and three gas tanks was developed on the western portion of the property, with the tanks located beneath the northwestern portion of the property. Between 1932 and 1951 a one-story lumber building was developed to the east of the filling station. The subject property was redeveloped with the current commercial building and parking lot in 1960. The subject property building is currently vacant and was most recently occupied as an Auto Barn auto parts store. The E-163 designation for hazardous materials likely resulted from the former filling station use.

- A Phase II ESA was conducted by others at the subject property in May 2004 to assess the former filling station area. A previous Phase I ESA of the subject property identified a permit noting 10 gasoline tanks and 4 gasoline pumps formerly present at the property, consistent with the Sanborn Fire Insurance Map information. A magnetometer survey was performed for the filling station area and no USTs were identified. Six soil borings were performed in the area where in the USTs were formerly present, with five samples collected from 12 feet below grade and analyzed for VOCs, SVOCs, and TPH. All of the detections were below the 6NYCRR Part 375 SCOs for unrestricted use. It was concluded that the former filling station and associated USTs had not impacted the property subsurface. No recommendations were made for further investigation and no remedial activities were indicated. The former filling station and associated gasoline tanks appear to be an HREC based on the results of this investigation.

- A Phase II Subsurface Investigation was conducted by others at the subject property in September 2014 to further assess the former filling station area. A geophysical survey of the parking lot did not identify any anomalies suggestive of USTs. Three soil borings were conducted

in the parking lot and six soil samples were collected analyzed for VOCs, SVOCs, TAL metals, PCBs, and pesticides. Acetone, a common lab contaminant, was the only VOC detected above its unrestricted use SCO in two soil samples, but the detections were below the restricted residential use SCO. Cadmium, copper, lead, nickel, and/or zinc were detected above unrestricted use SCOs in two of the soil samples; all of these metals detections were below the restricted residential use SCOs and were attributed to the presence of historic fill. No SVOCs, PCBs, or pesticides were detected in the soil samples above the unrestricted use SCOs. Two soil vapor samples were collected from the parking lot and analyzed for VOCs. PCE, TCE, and methylene chloride were detected at levels above the NYSDOH Air Guideline Values for indoor air; the PCE and TCE detections were at levels for which the NYSDOH would require no further action, monitoring, or mitigation, depending on the associated indoor air concentrations of PCE and TCE. The elevated levels of PCE, TCE, and methylene chloride in the soil vapor are a REC. The former filling station and associated gasoline tanks appear to be an HREC based on the results of this investigation and the 2004 investigation.

- Groundwater is present at a depth of approximately 10 feet below grade beneath the subject property and generally flows to the west.

- An empty 55-gallon drum was noted in the building. No evidence of staining or leakage was noted in association with the drum.

- Solid waste is containerized for offsite disposal. Solid waste consisting of old shelving and other materials associated with the former retail use of the subject property was noted throughout the building. No significant staining, leakage, or other evidence of inappropriate disposal was noted in association with the waste.

- The subject property is heated with roof-mounted natural gas-fired units. No potential oil-fired heating systems were observed or reported for the property.

- The subject property is connected to the municipal water supply. No wells were observed at the subject property.

- No indications of current or former onsite sanitary waste disposal systems were noted at the property. The subject property is connected to the municipal sewer system.

- No ASTs/USTs, hazardous substances, petroleum products, unidentified containers, PCB electrical components, staining, corrosion, floor drains, sumps, stormwater drainpools, subsurface drainage structures, stressed vegetation, disturbed soil mounding, excavations, or evidence of potential radiation were observed at the subject property during the inspection. Radon is not expected to present a concern.

- The subject property is adjoined by properties utilized for residential and commercial purposes. No visible environmental concerns were noted.

- The potential for hazardous substances or petroleum products to migrate at the property in any form (solid and liquid at the surface and in the subsurface, and vapor in the subsurface) was evaluated. Based on the available information, which indicates that PCE, TCE, and methylene chloride are present in the soil vapor below the parking lot, it is possible that hazardous substances and/or petroleum products are present in the subsurface of the subject property. Although the previous Phase II investigations did not identify any contamination associated with the former gasoline tanks in the area where it was most likely to be present, there is the potential

for soil vapor intrusion for buildings at the subject property. It does not appear that hazardous substances and/or petroleum products have the potential to migrate onto the property from nearby environmental sites.

5.2 Deviations and Data Gaps

The only identified deviations and/or data gaps that may affect our ability to identify RECs, HRECS, and/or CRECS are as follows:

- Records regarding the subject property were requested from the NYCDOH. A final response has not yet been received from this agency. Although the NYCDOH may maintain pertinent information, much of the anticipated information has been provided from other sources. Therefore, this data gap is not considered significant.

5.3 Conclusions and Recommendations

Based on the findings and opinions, and considering the deviations, limitations, and data gaps, we conclude that the following RECs, HRECS, and CRECS have been identified for the property:

- The presence of PCE, TCE, and methylene chloride in the soil vapor below the parking lot area is considered a REC.

- The former filling station and associated gasoline tanks is considered an HREC.

Based on the identified RECs, HRECS, and CRECs, we have developed the following recommendations:

- The PCE, TCE, and methylene chloride levels detected in soil vapor beneath the parking lot are not suggestive of a significant source. However, any new construction at the subject property should be equipped with a vapor barrier and sub-slab piping, in the event that mitigation is needed for soil vapor intrusion.

- As the property is e-designated for hazardous materials, a Phase II investigation will be necessary. It is recommended that a Phase II Investigation Work Plan be developed in accordance with the requirements of the NYC Office of Environmental Remediation and that the Phase II Work Plan be submitted to the NYC Office of Environmental Remediation, together with this Phase I ESA Report, for review and approval

SECTION 6.0
DISCLAIMER

Observations and conclusions in this report are limited to those areas addressed in the study and represent our best judgment using the practices set forth in the ASTM Standard with which this report complies, as well as our past experience. Our investigation has been scientific and thorough; however, it is possible that certain areas of this property may pose environmental concerns that are, as yet, undiscovered. The following considerations apply to this report:

- A Phase I ESA is a non-invasive evaluation. No sample collection or subsurface analysis was conducted at the subject property as part of this Phase I ESA unless expressly detailed in this report.

- This Phase I ESA is based on the version of the ASTM Standard for Phase I ESAs (E 1527) under which it was prepared, as specified in Section 1 of this report, and other current environmental regulations as detailed herein. Future changes in environmental regulations and/or regulatory agency guidance may affect the interpretations and conclusions in this report.

- Asbestos-containing building materials, lead-based paint, mold, and indoor air quality are considered non-scope issues under the ASTM Standard for Phase I ESAs. This report does not address these potential environmental issues except as expressly described herein.

- Information acquired and evaluated during this Phase I ESA was provided by others. In accordance with the ASTM Standard, FPM is not required to independently verify the accuracy of provided information but may rely on this information unless we have additional information that indicates that the provided information is incorrect.

- This Phase I ESA report is dated, and the findings contained herein are based on the visible conditions existing at the subject property on the date of the inspection and as indicated in the provided information. Alterations of the subject property that may occur subsequent to the date of this report are not addressed herein.

- This Phase I ESA report is subject to the Terms and Conditions of the contract under which it was prepared.

SECTION 7.0
REFERENCES

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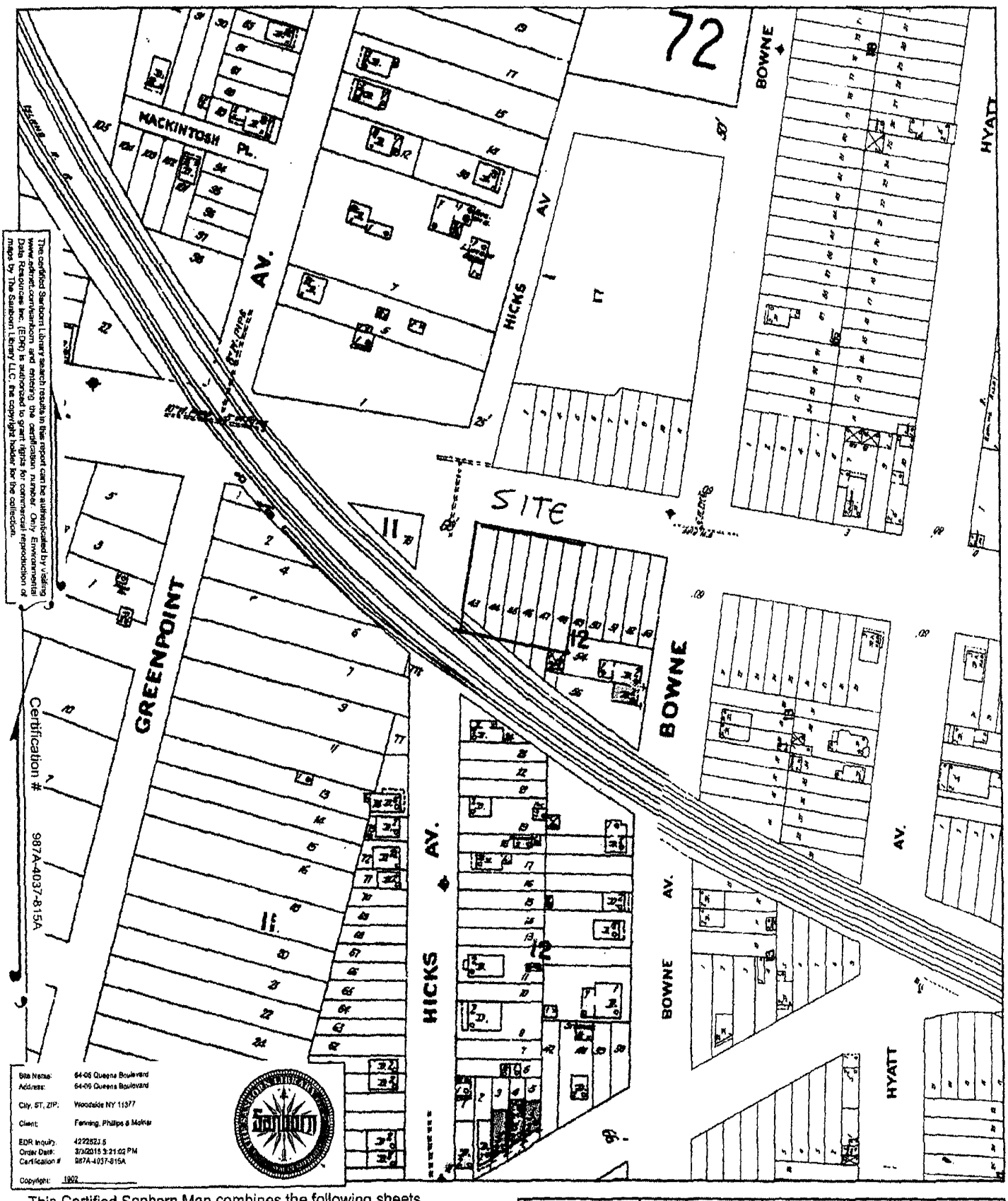
User. 2015. Information pertaining to the subject property.

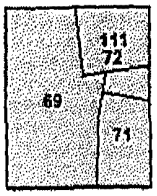
APPENDIX A

LOCAL RECORDS

1902 Certified Sanborn Map



This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.



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Volume 3, Sheet 111
Volume 3, Sheet 71
Volume 3, Sheet 72

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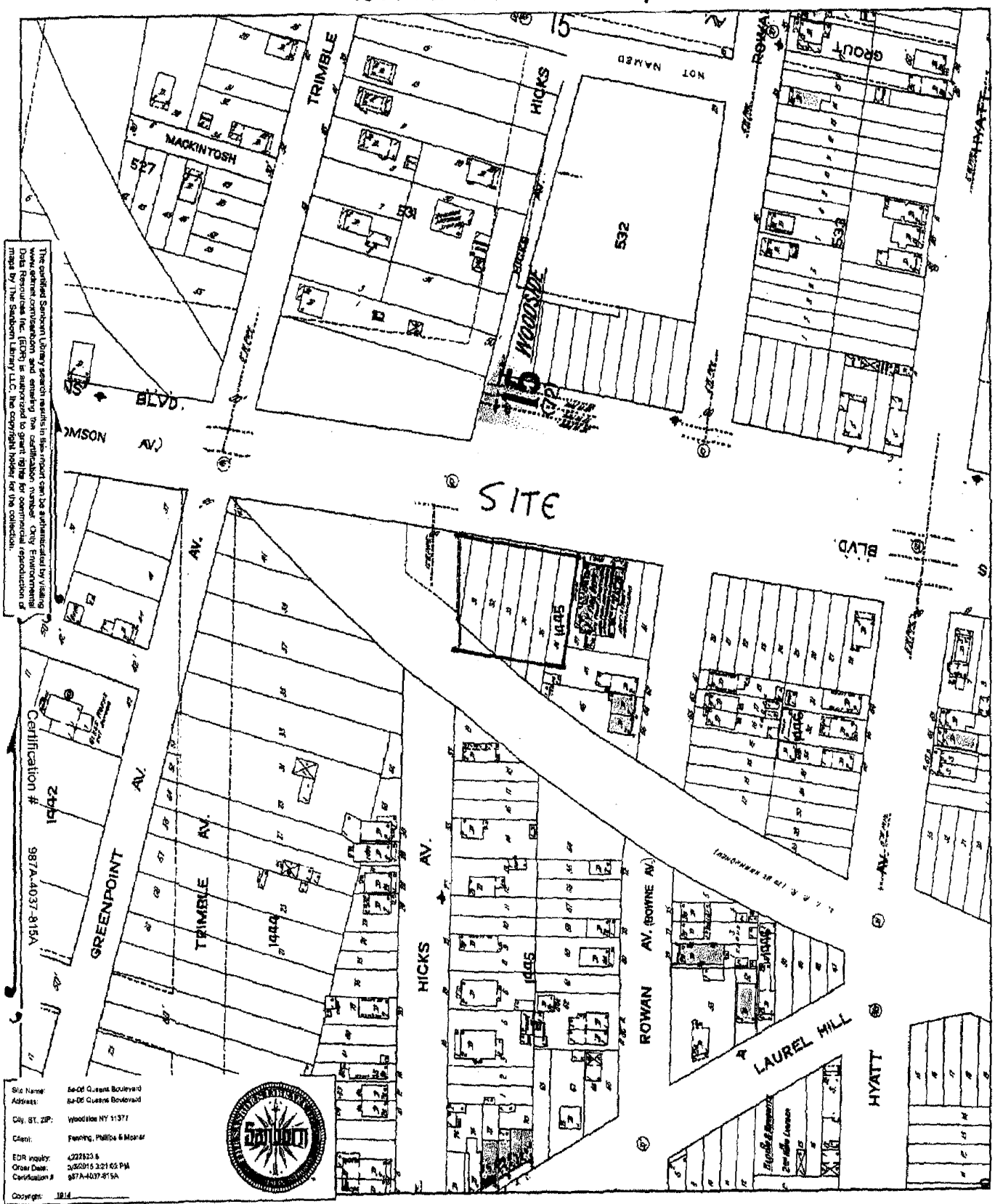
1914 Certified Sanborn Map



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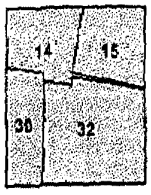

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Volume 9, Sheet 14
Volume 9, Sheet 15
Volume 9, Sheet 30

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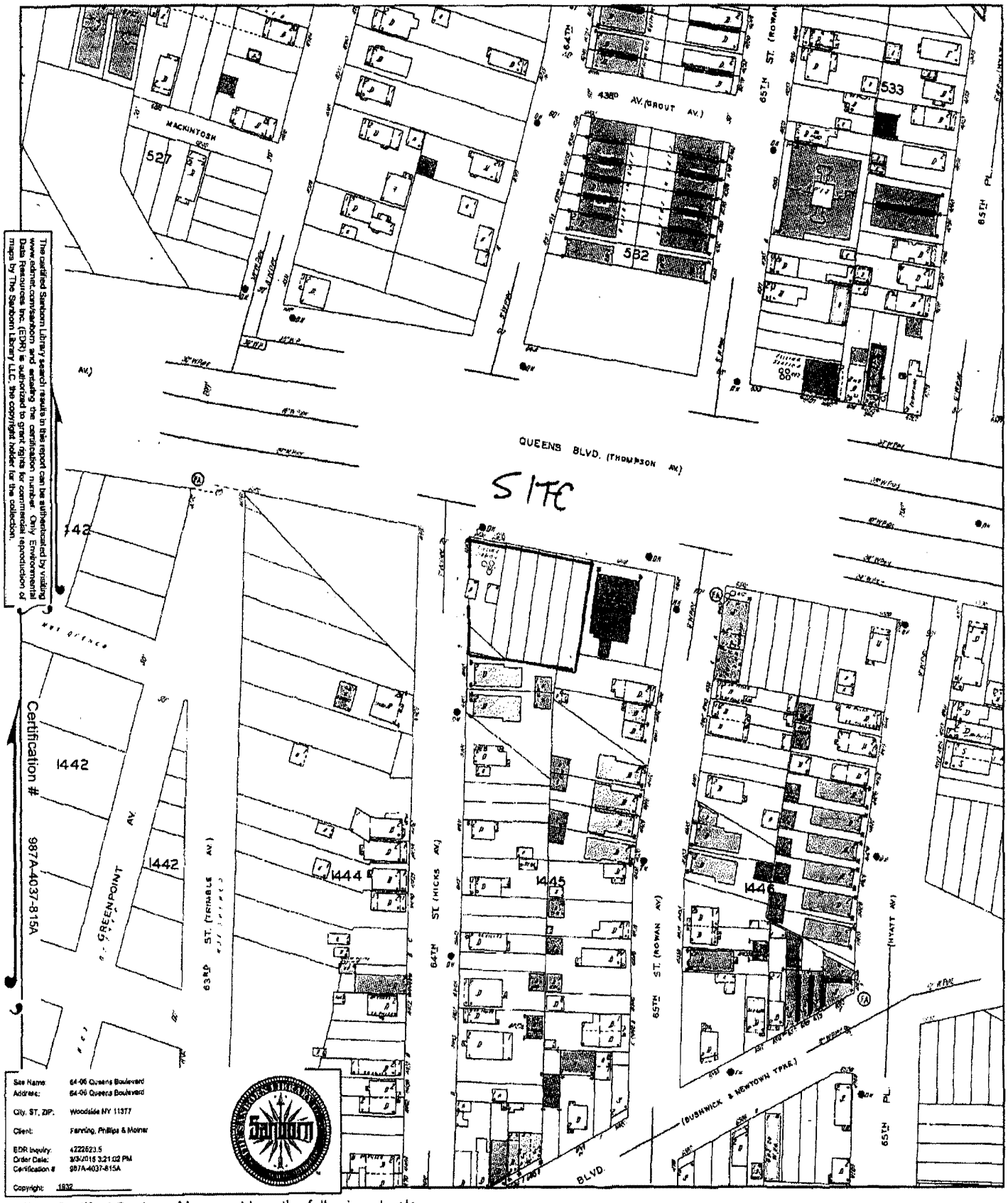

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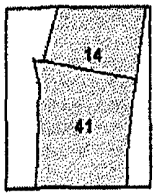

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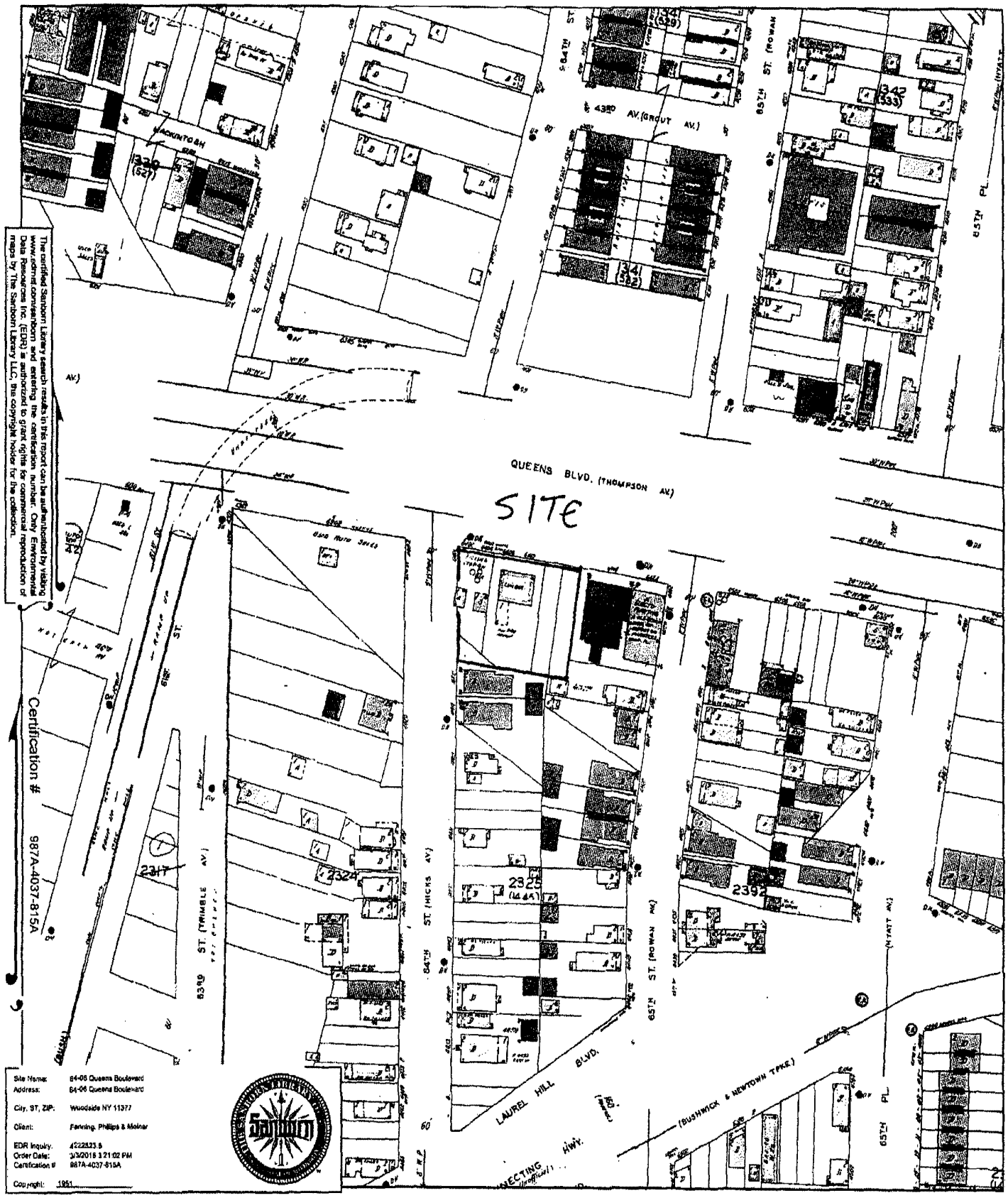

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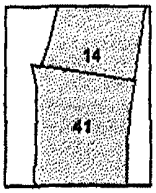

Volume 9, Sheet 14
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0 Feet 150 300 600

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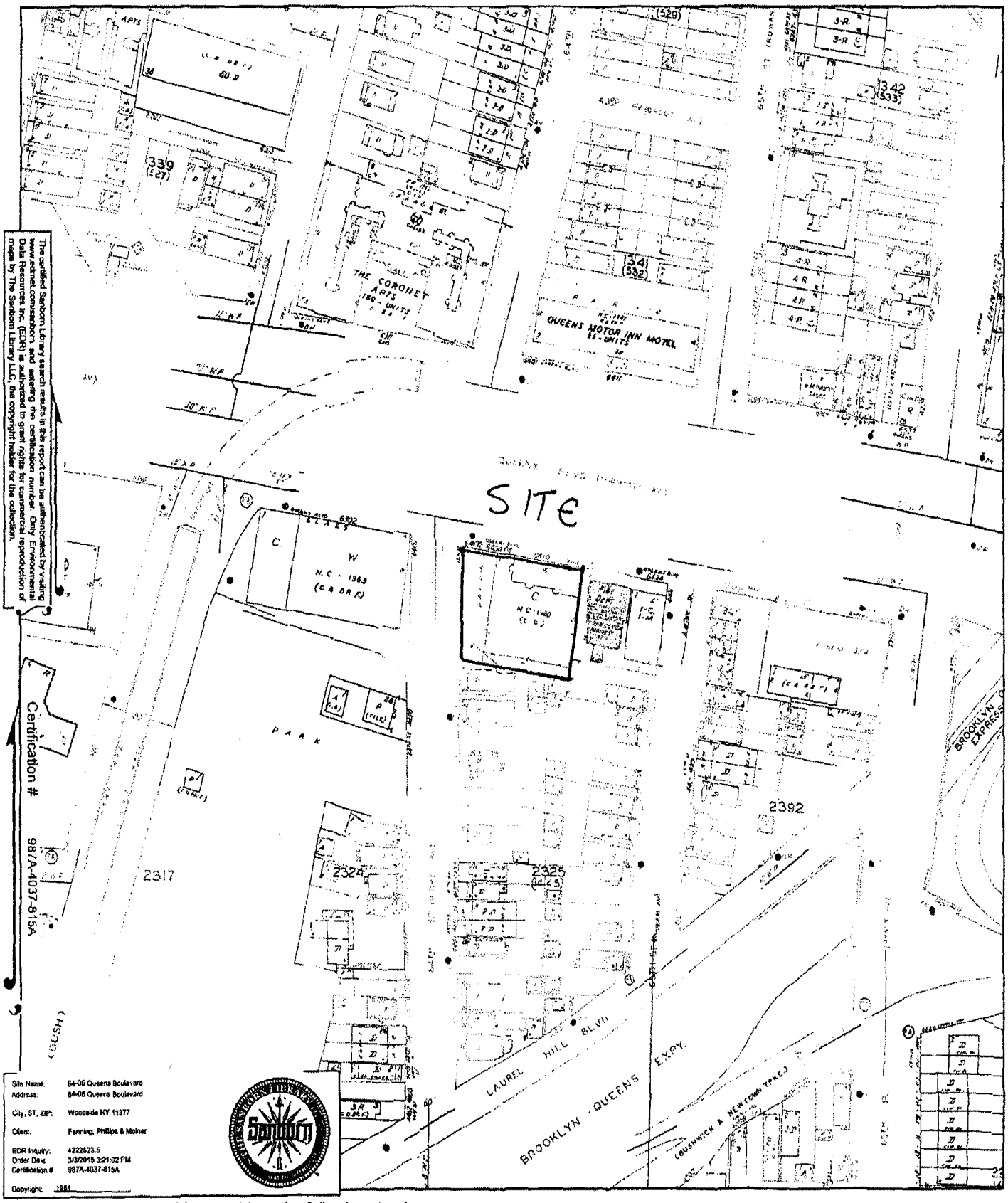
1981 Certified Sanborn Map



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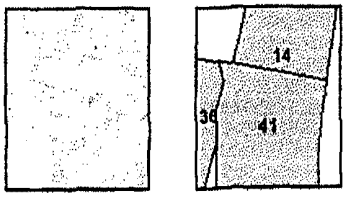

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Volume 9, Sheet 41

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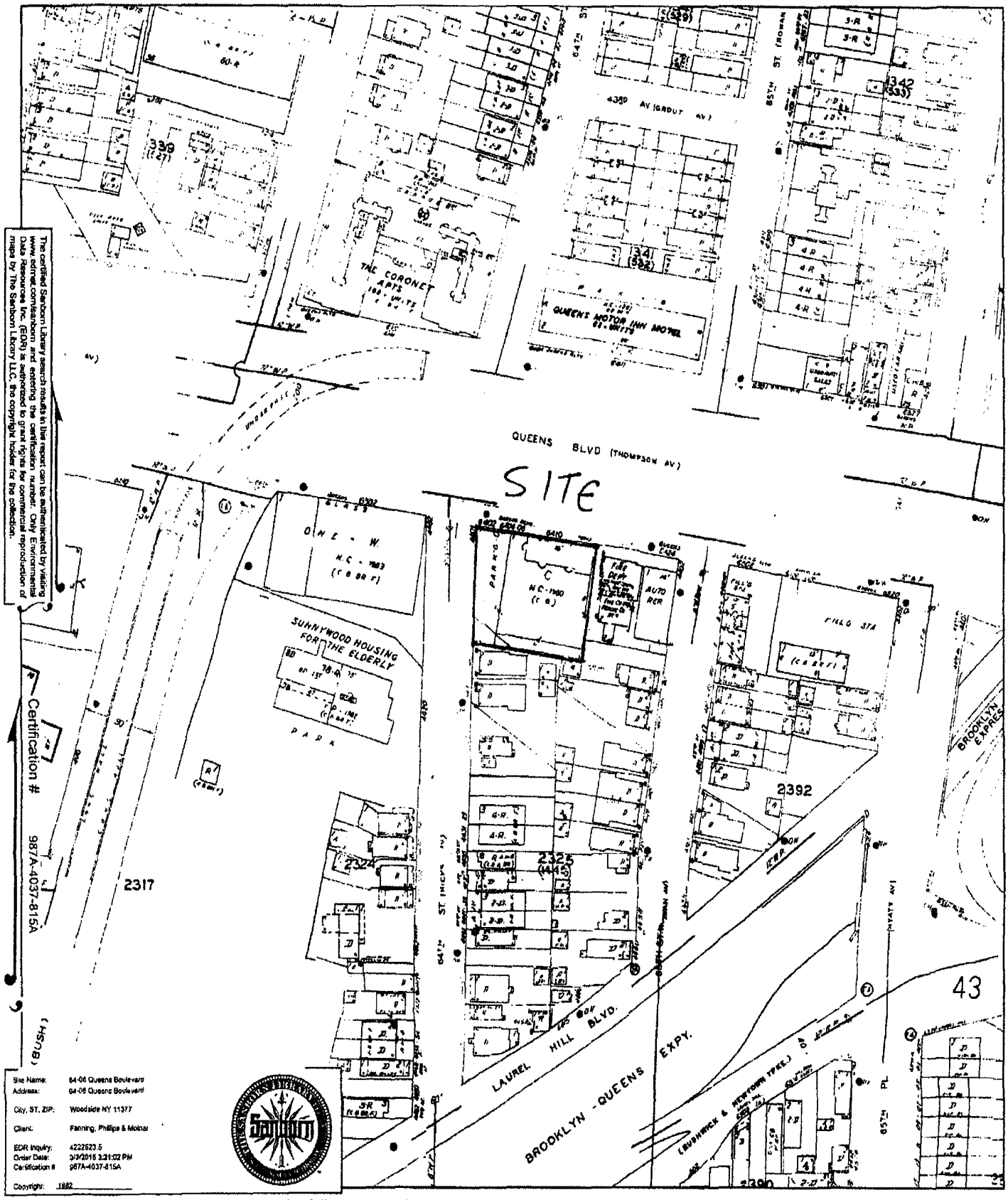

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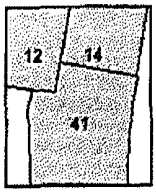

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Volume 9, Sheet 41
Volume 9, Sheet 12

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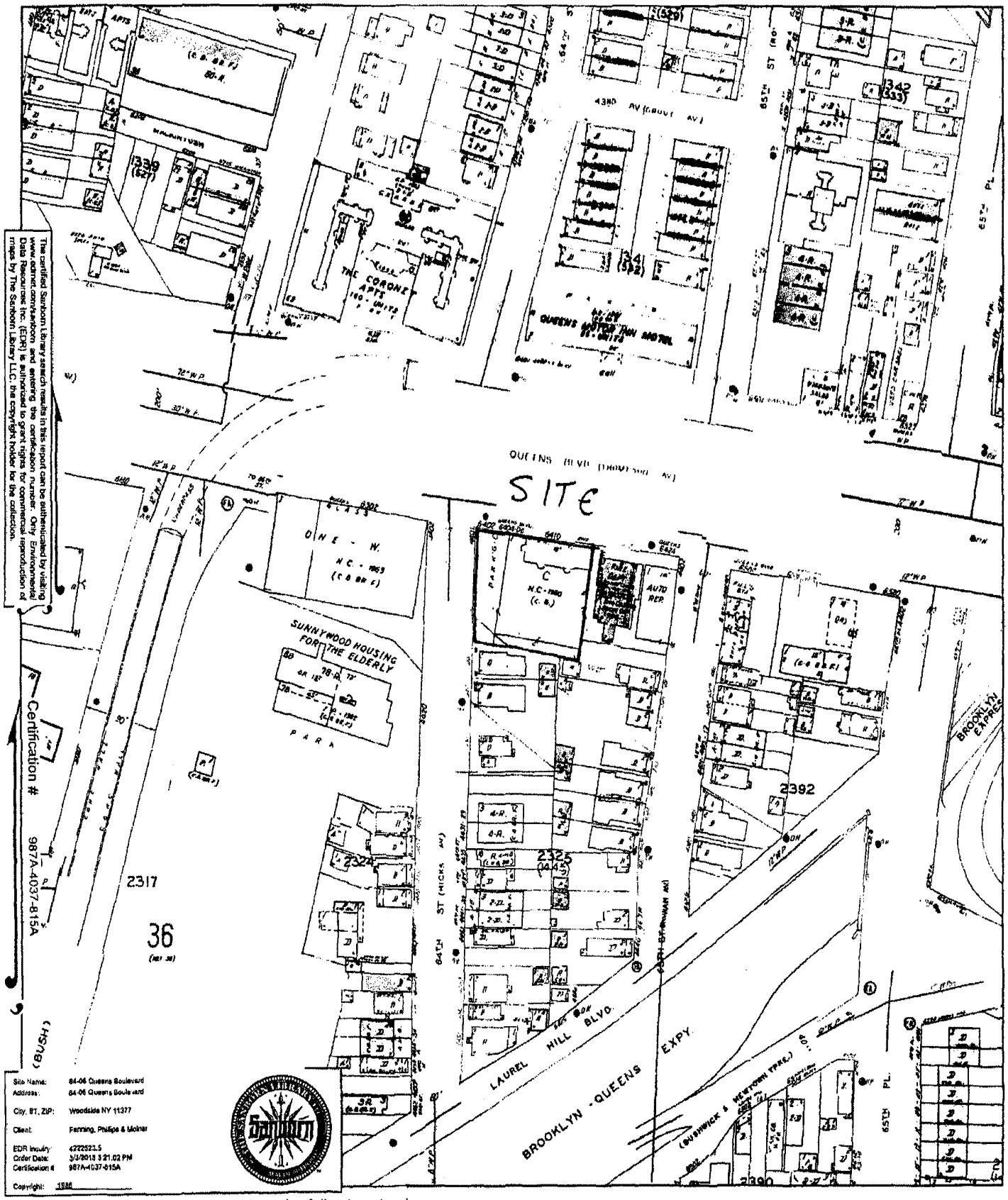

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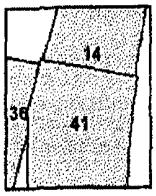

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Volume 9, Sheet 41

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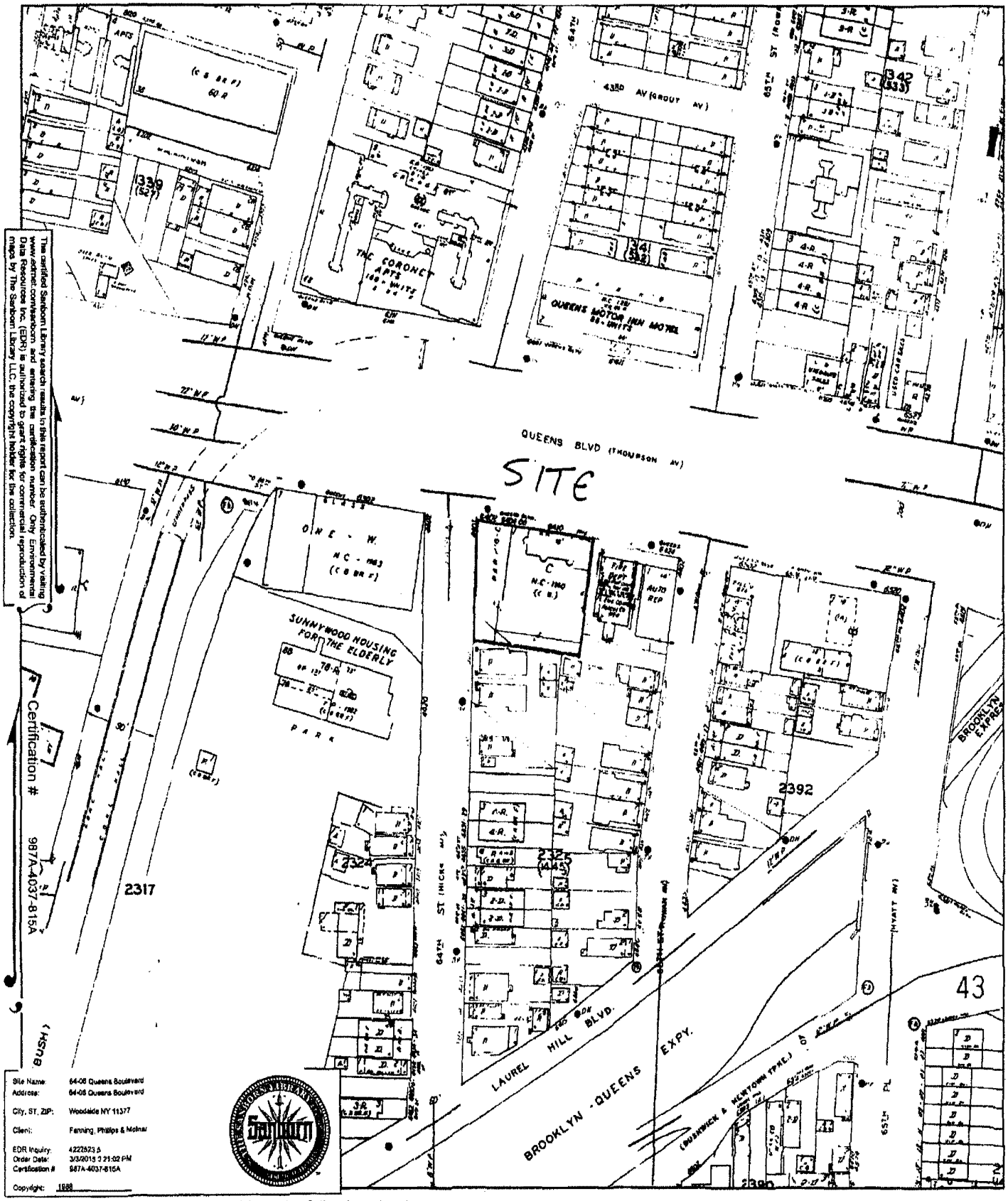

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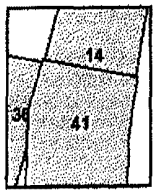

Volume 9, Sheet 14
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Volume 9, Sheet 41

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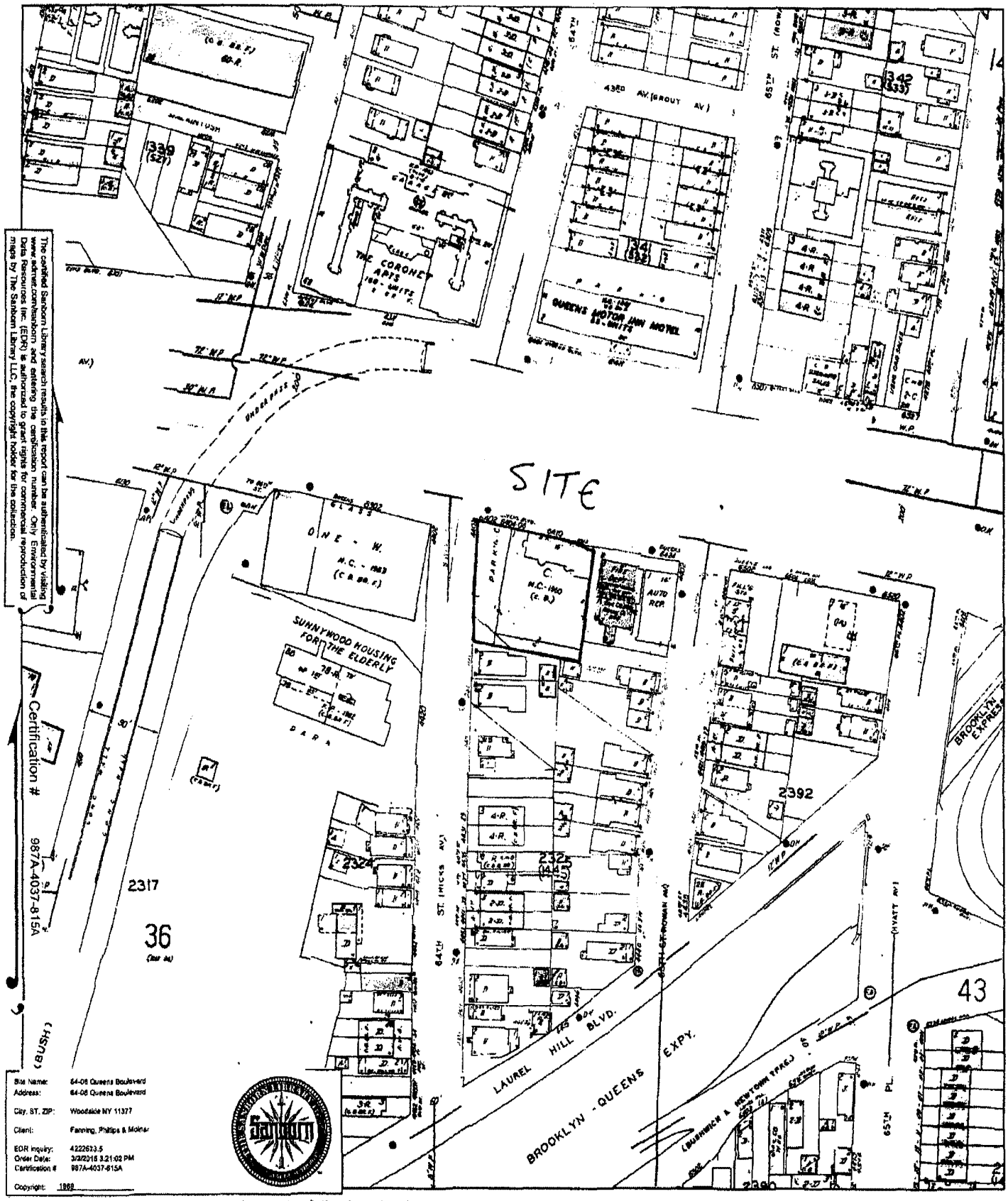

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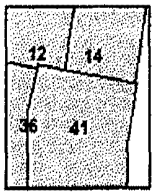

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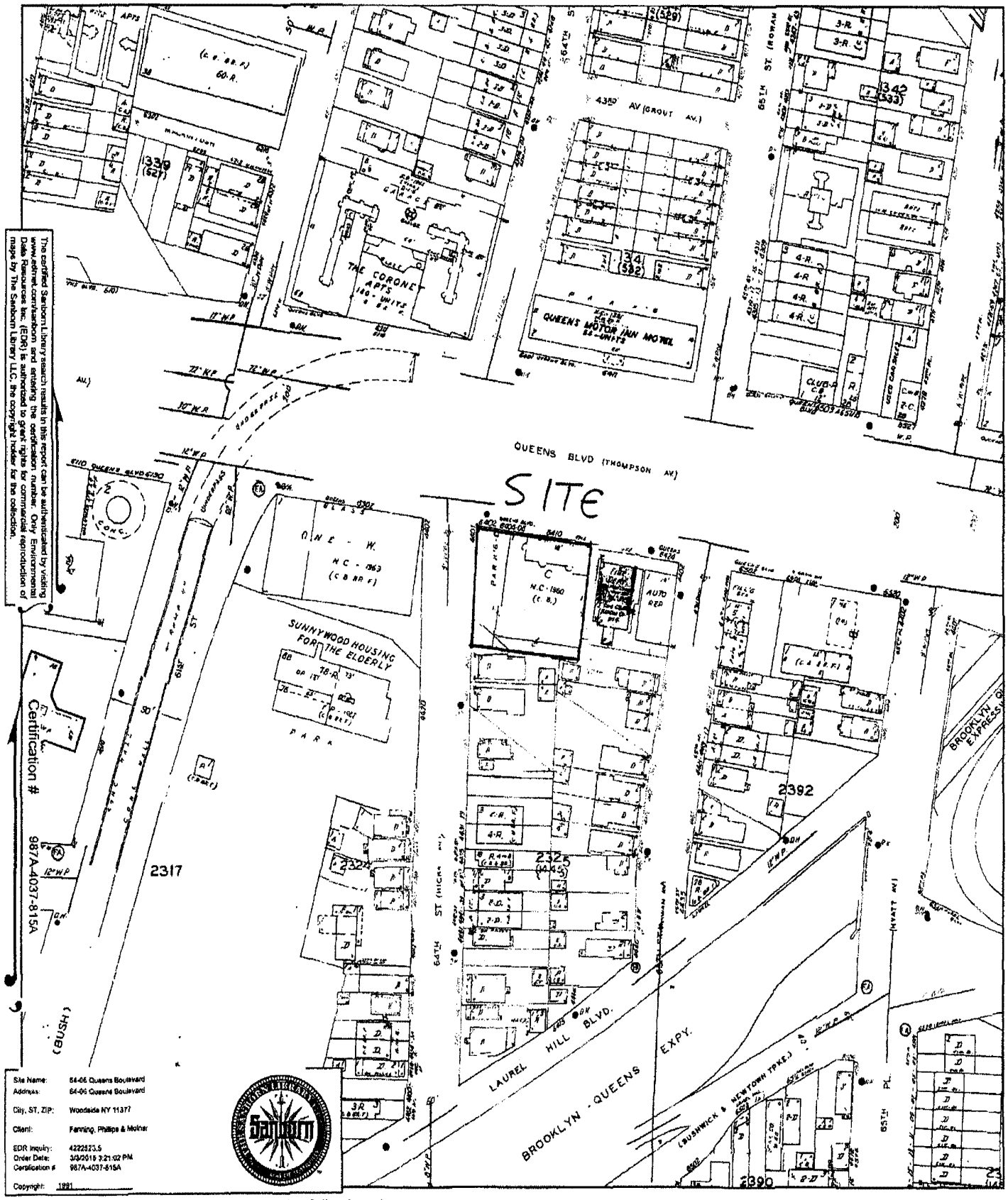

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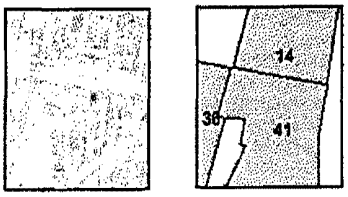

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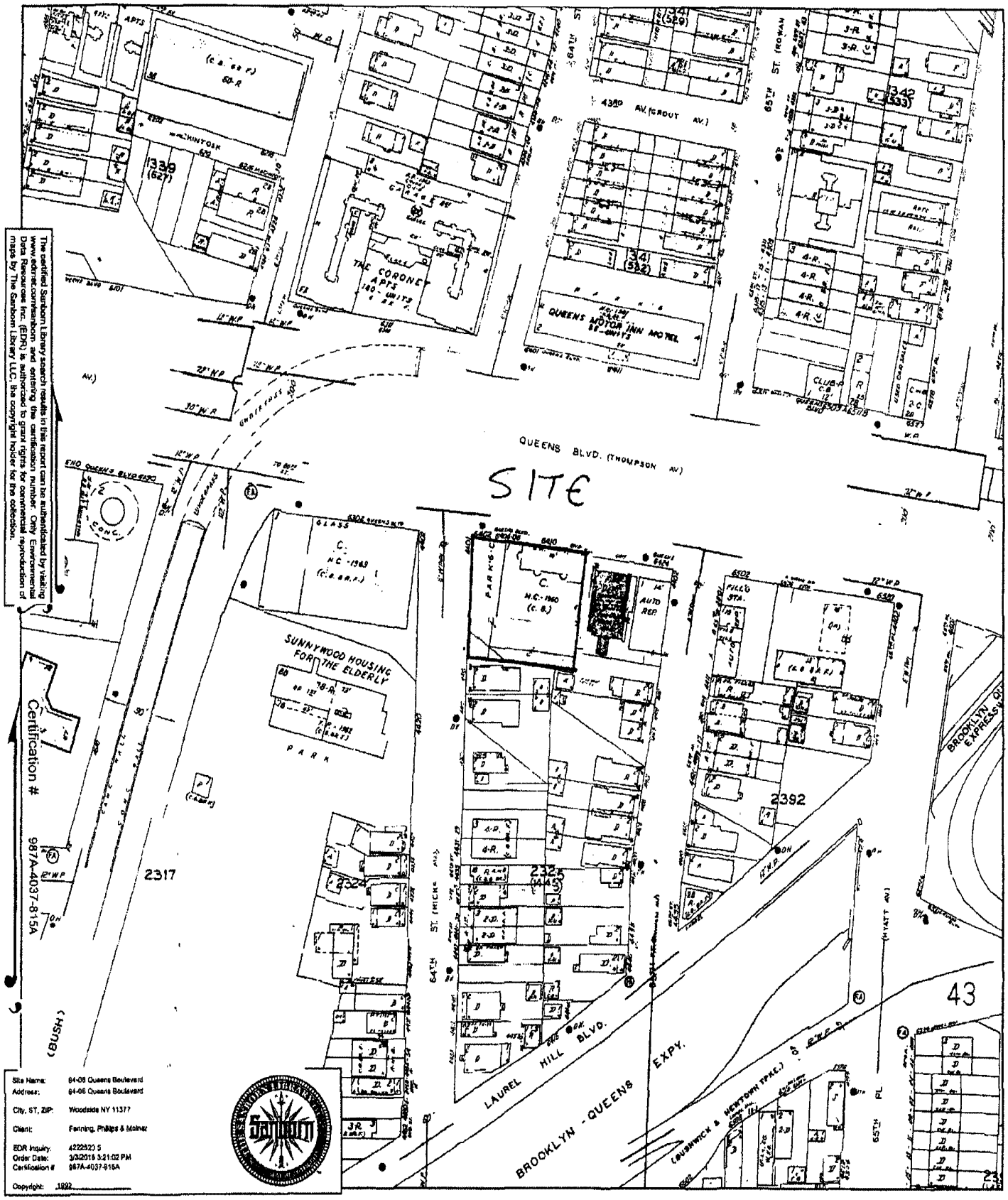

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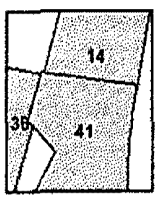

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0 Feet 150 300 600

N

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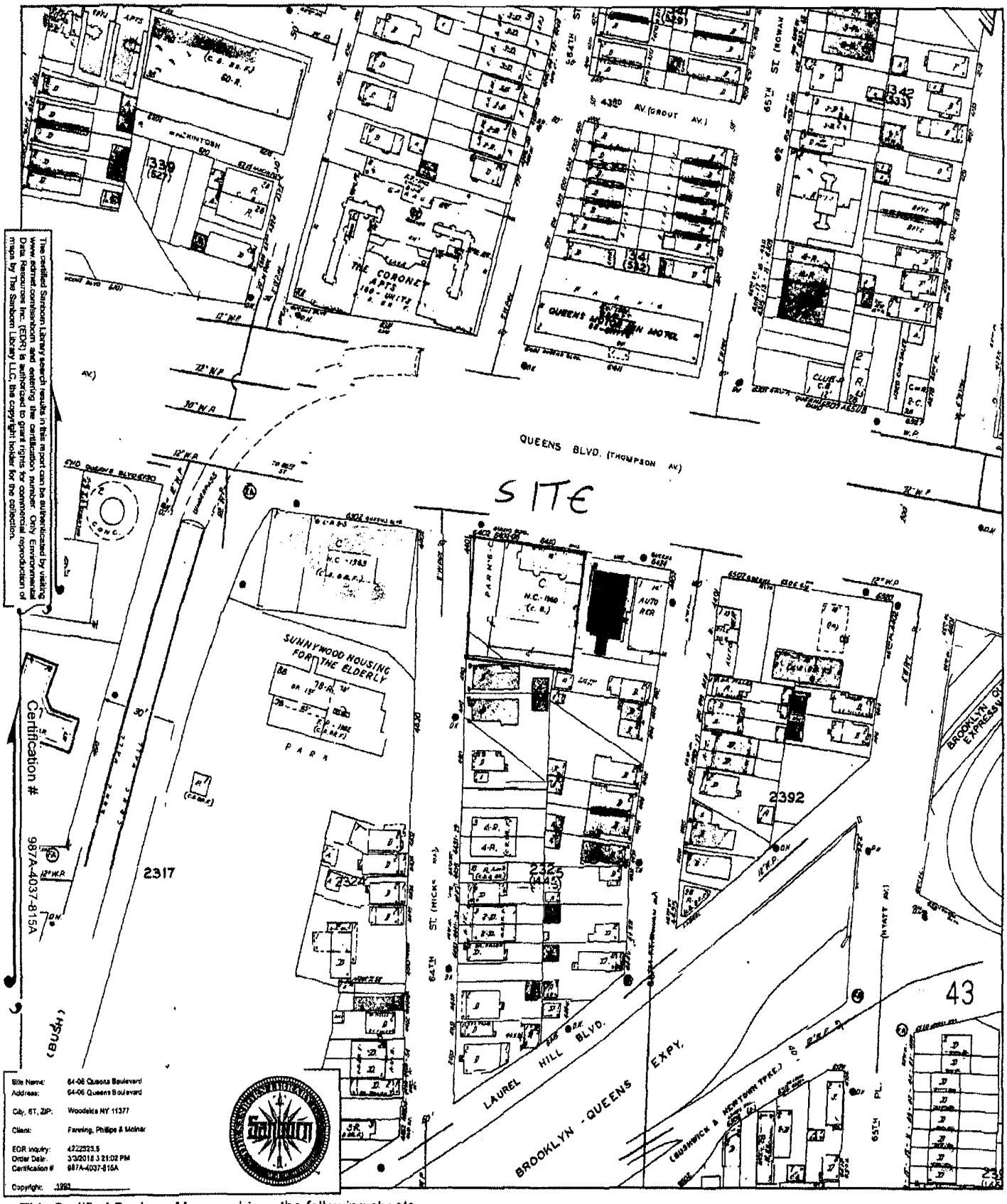

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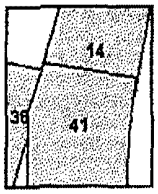

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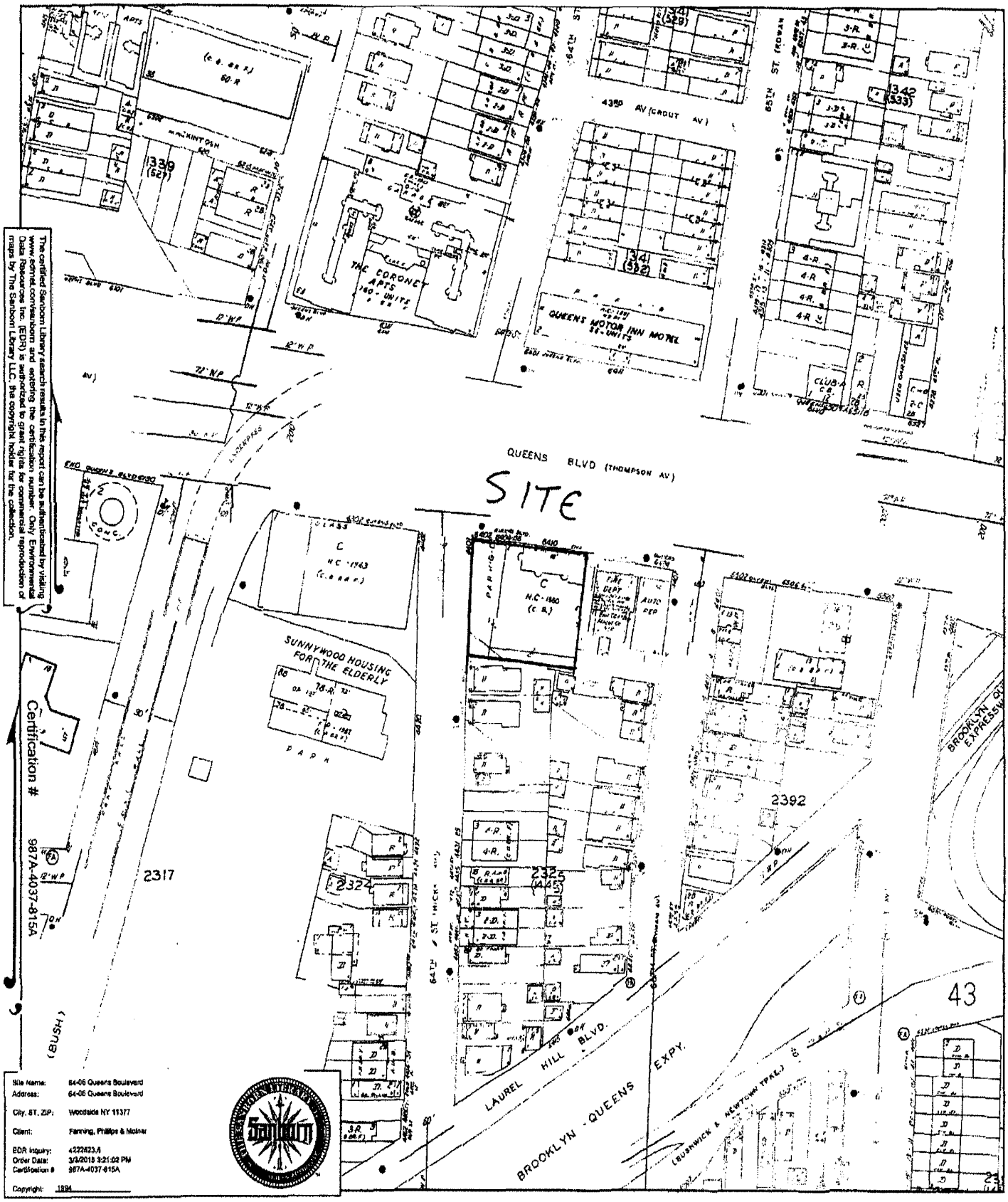

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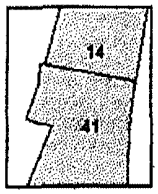

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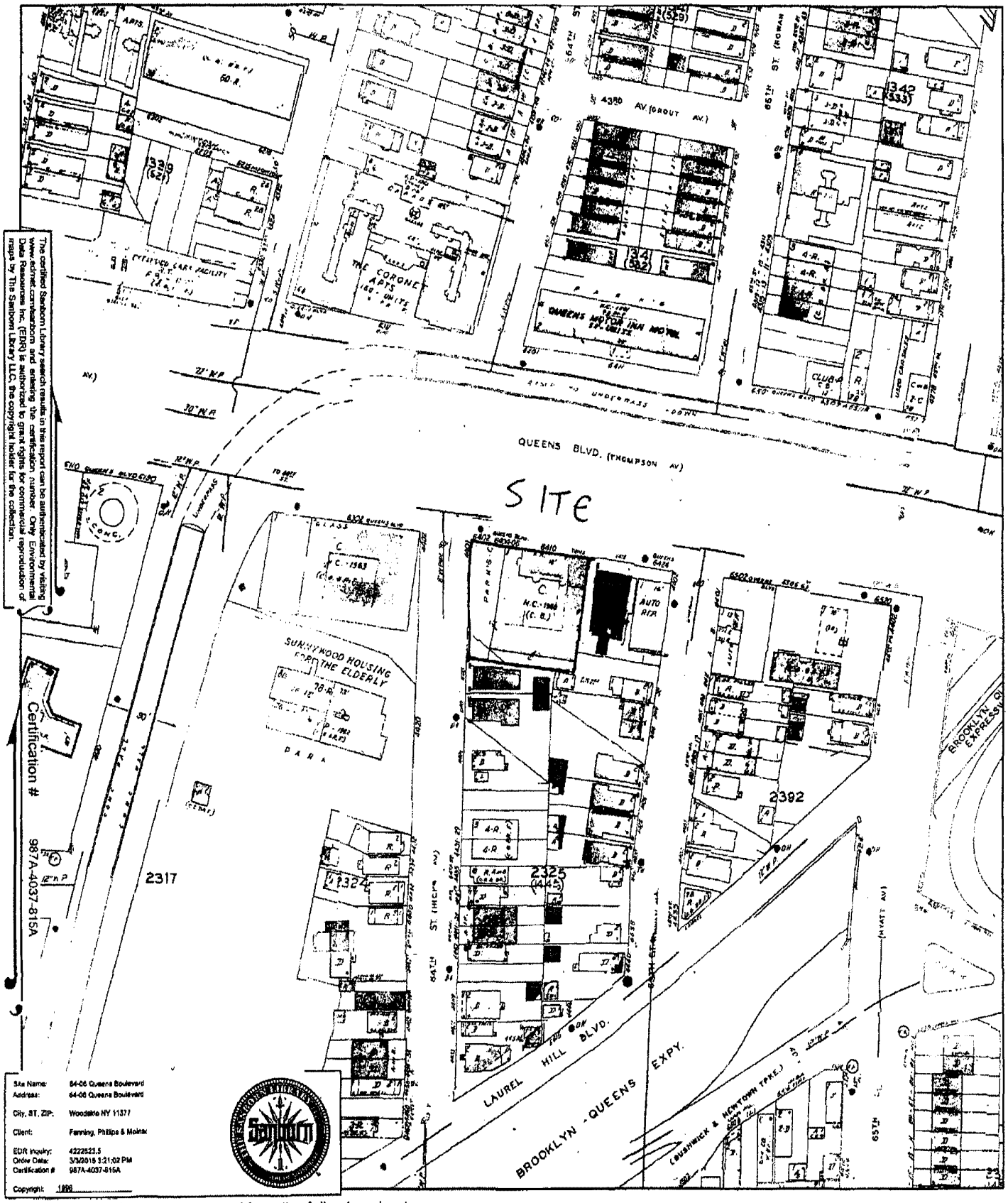

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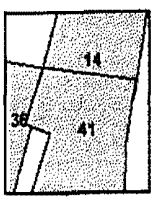

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0 Feet 150 300 600

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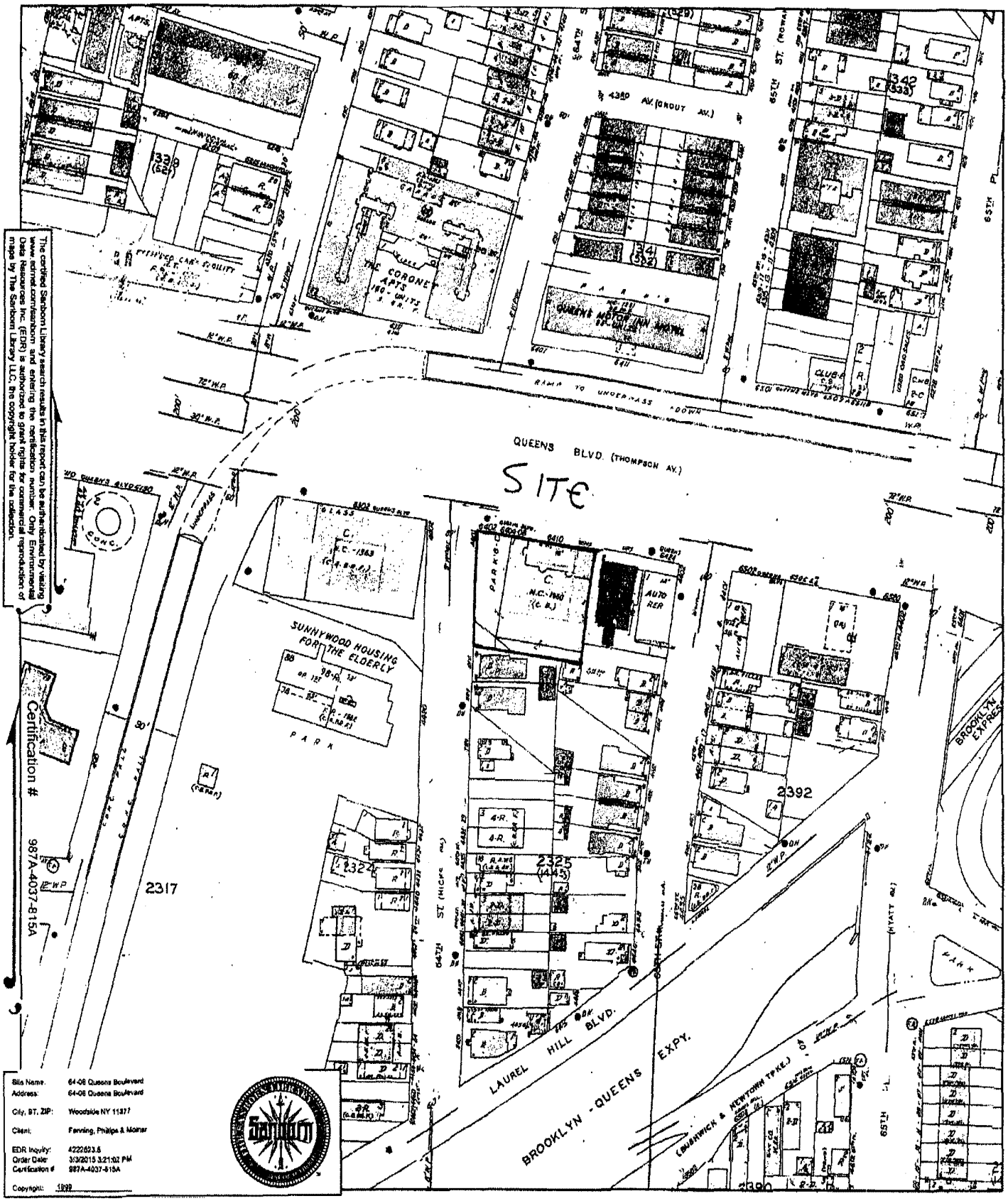

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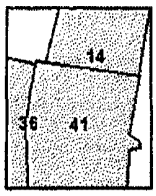

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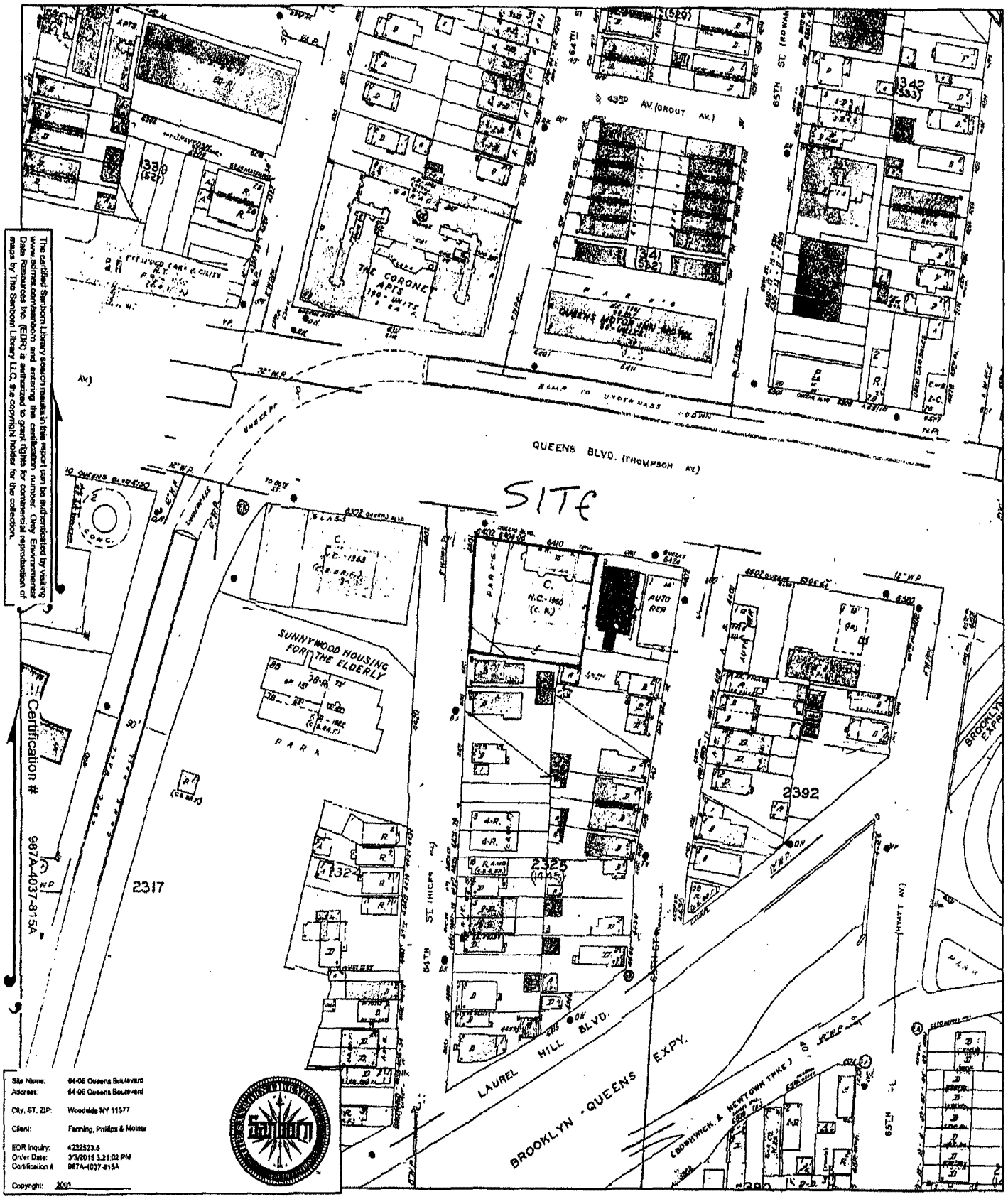

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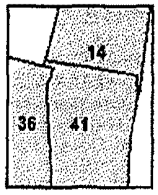

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Volume 9, Sheet 36

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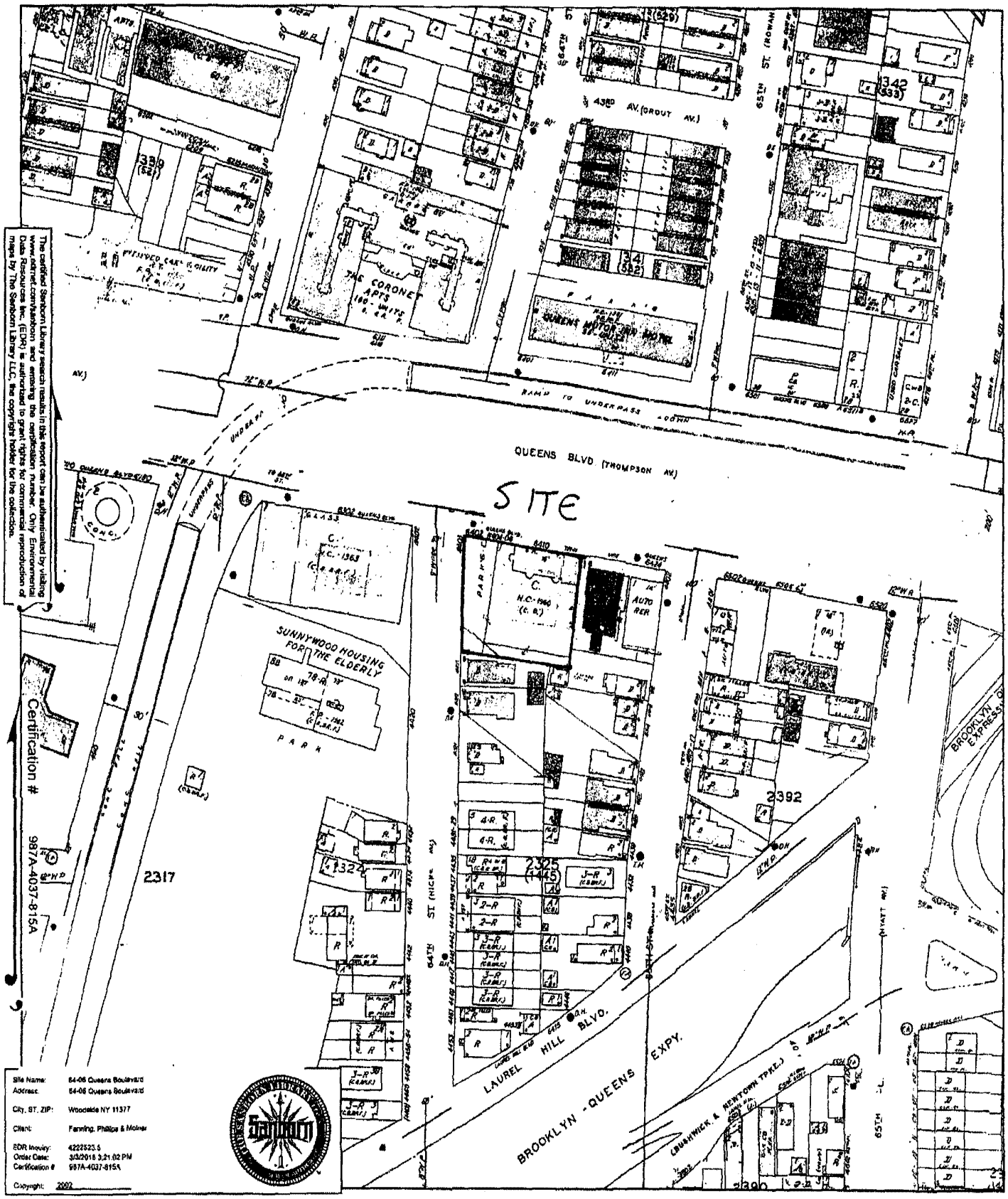

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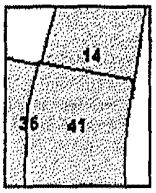

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Volume 9, Sheet 41

0 Feet 150 300 600

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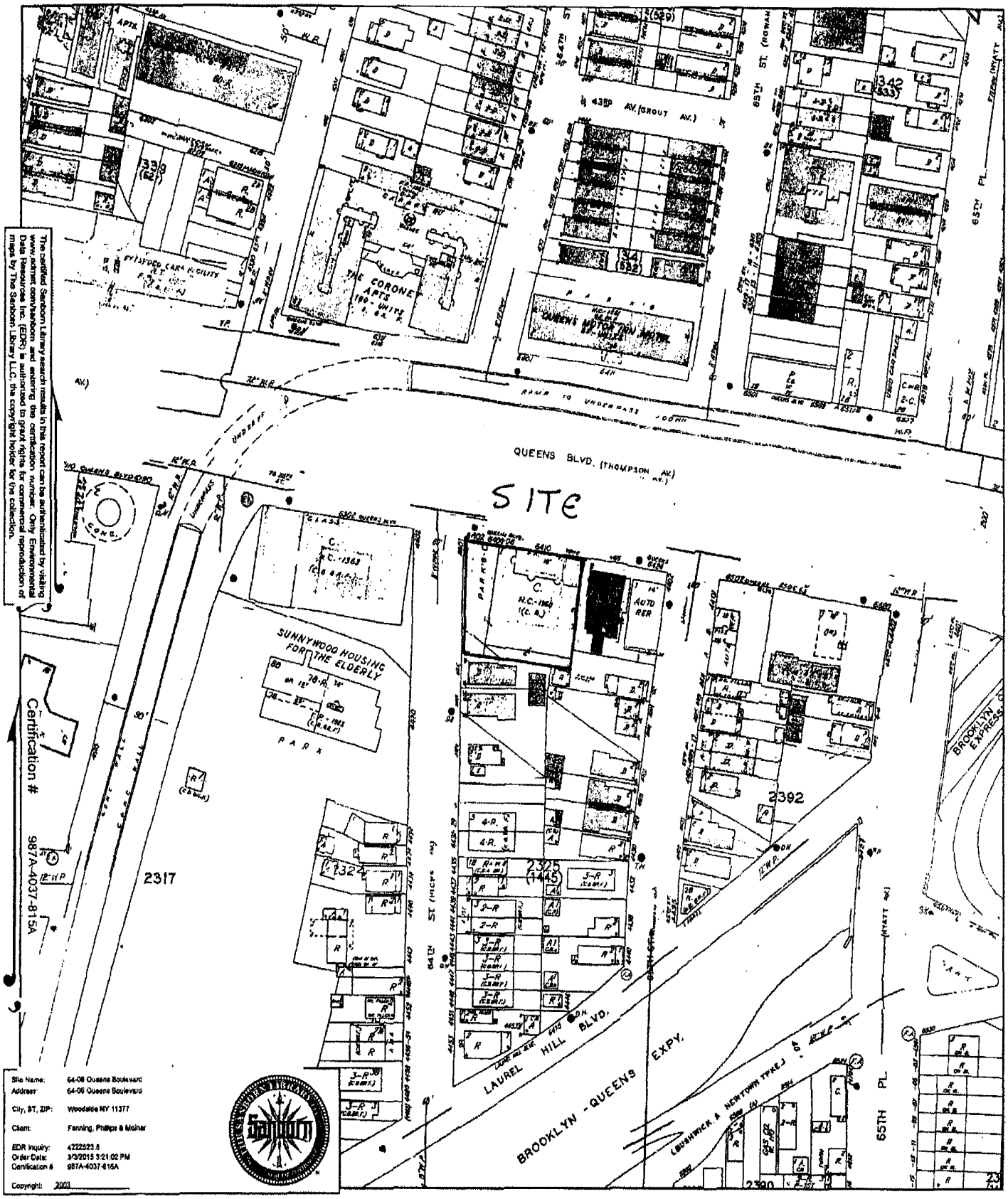

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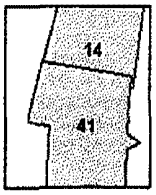

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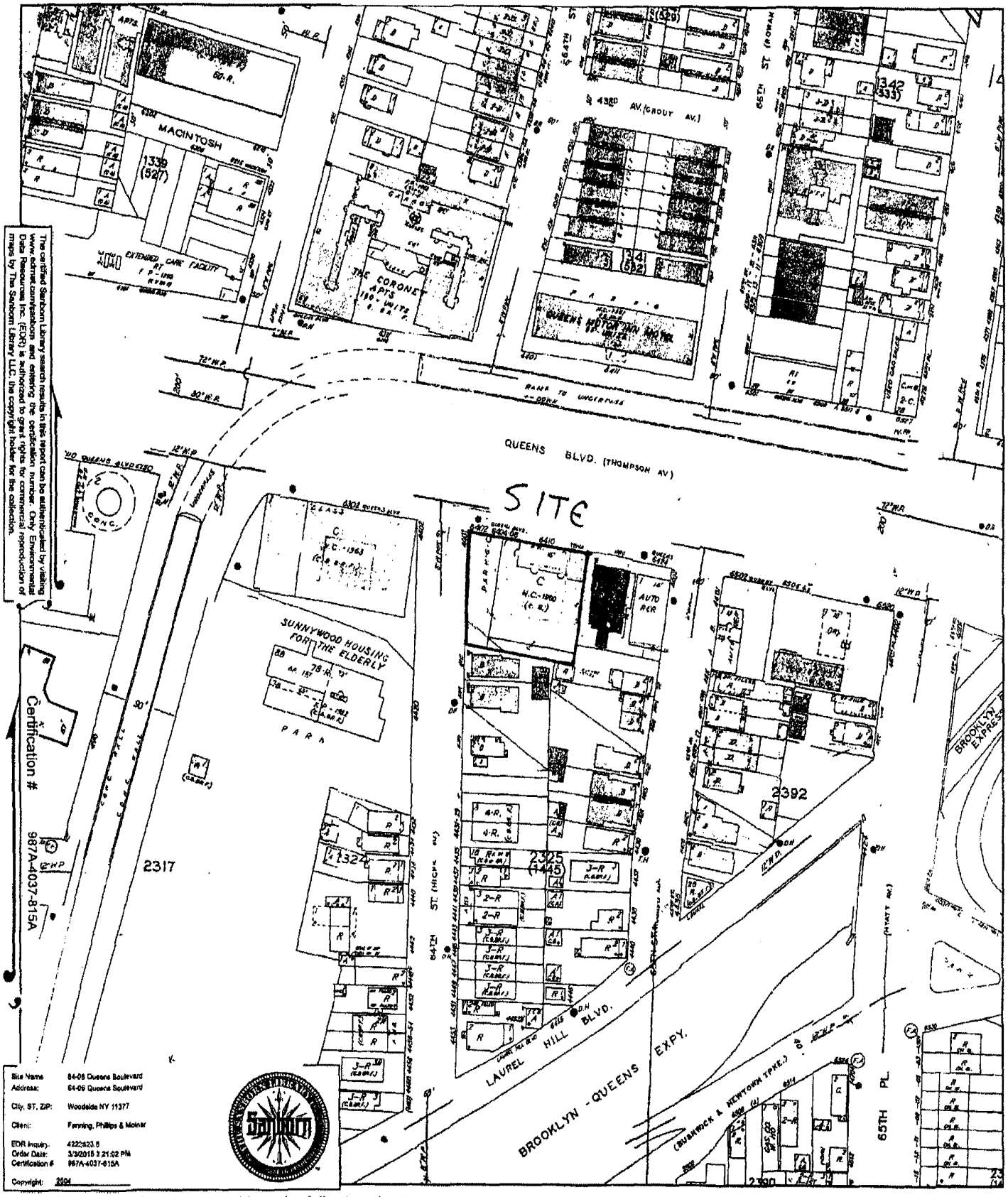
2004 Certified Sanborn Map



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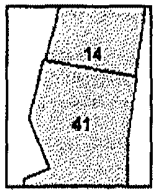

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Volume 9, Sheet 41

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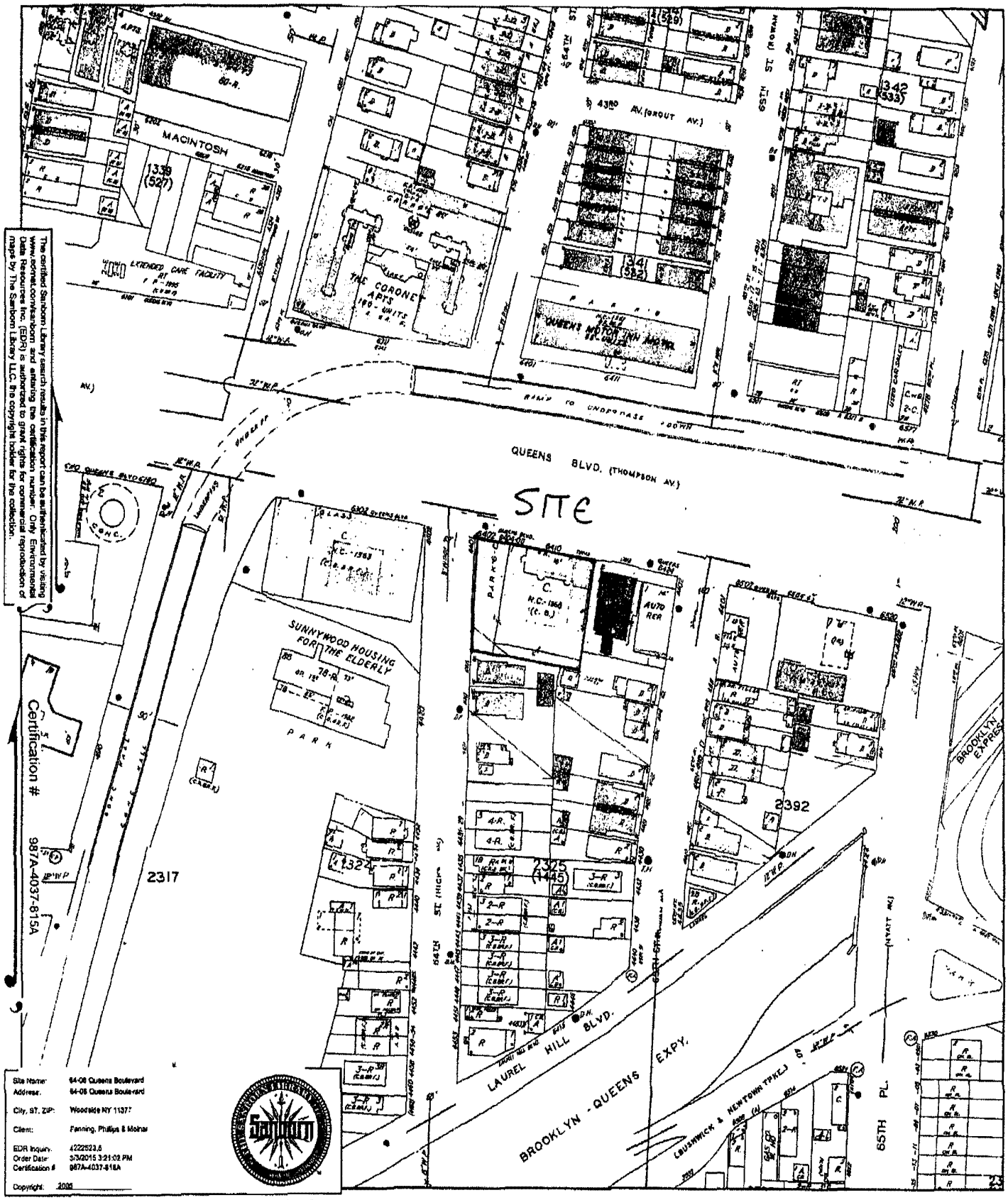

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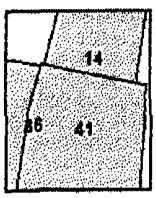

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Volume 9, Sheet 41

0 Feet 150 300 600

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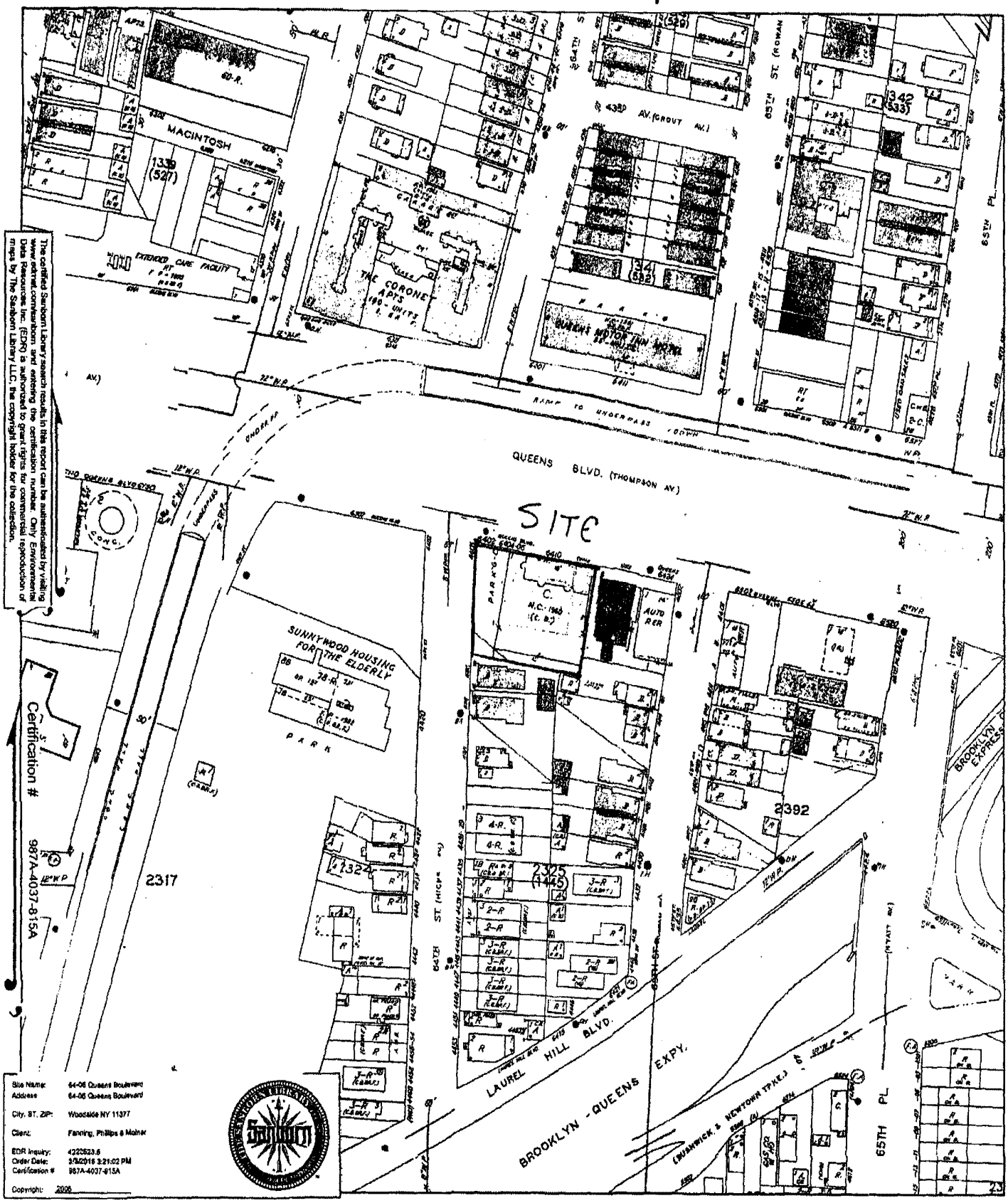
2006 Certified Sanborn Map



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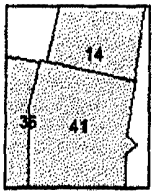

Volume 9, Sheet 14
Volume 9, Sheet 36
Volume 9, Sheet 41

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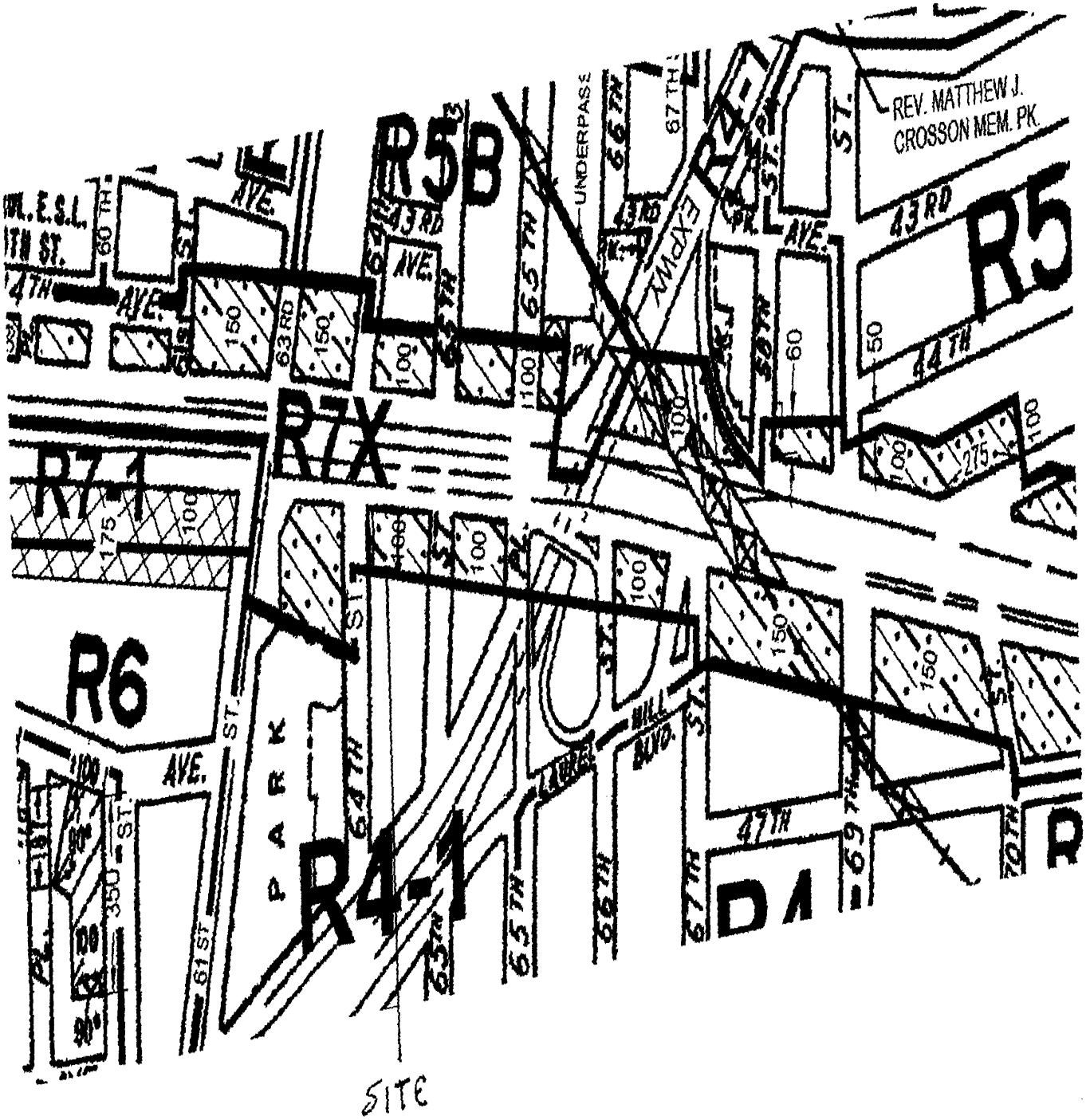
SITE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MILL BLVD.
43RD AVE.
44TH
47TH
63RD
64TH
65TH
66TH
67TH
61ST ST.
SITE

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BOROUGH OF QUEENS, THE CITY OF NEW YORK

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Date 9/28/

CERTIFICATE OF OCCUPANCY

(Standard form adopted by the Board of Standards and Appeals and issued pursuant to Section 646 of the New York Charter, and Sections C26-1102 to C26-1107 inclusive, Administrative Code 2141.1 to 2141.7, Building Code.)

This certificate supersedes C. O. No.

To the owner or owners of the building or premises:

THIS CERTIFIES that the new [illegible] building—premises located at

[illegible] Block 8325 Lot 32 W 35

conforms substantially to the approved plans and specifications, and to the requirements of the building code and all other laws and ord[illegible]ances, and of the rules and regulations of the Board of Standards and Appeals, applicable to a building of its class and kind at the time the permit was issued; and

CERTIFIES FURTHER that the provisions of Section 2405 of the New York Charter have been complied with as certified by a report of the Fire Commissioner to the Borough Superintendent.

N.B. and Alt. No. [illegible] Construction classification— Fireproof

Occupancy classification— Comm. Height 1 Stories 1 Feet 25

Date of completion— 8/28/28 Located in [illegible] Fire District

B & C Area 1 1/2 Height Zone at time of issuance of permit

This certificate is issued subject to the conditions and restrictions specified and in the following form filed by the Board of Standards and Appeals: [illegible]

PERMISSIBLE USE AND OCCUPANCY

STORY	LIVE LOADS Lbs. per Sq. Ft.	PERSONS ACCOMMODATED MALE	FEMALE	TOTAL	USE
1	[illegible]	5	5	[illegible]	[illegible]

[illegible]

CERTIFICATE WILL BE NULL AND VOID IF ALTERED IN ANY MANNER OR ACCOMPANIED BY ANY ALTERATION OF PLANS.

(Page 1)

CERTIFICATE OF OCCUPANCY

NO CHANGE OF THE OCCUPANCY INCONSISTENT WITH THIS CERTIFICATE SHALL

Unless an appeal for the same has been obtained from the Borough Superintendent, no change or enlargement in the structural parts of the building, or altering the light and ventilation of any part thereof, or its exit facilities, shall be made; no enlargement, whether by extending on any side or by increasing in height shall be made; nor shall the building [illegible] public or another; nor shall there be any reduction or diminution of the area of the lot or plot upon which the building is located.

The building or any part thereof shall not be used for any purpose other than that for which it is certified.

The occupancy, maximum, theoretical floor, or estimated loads producing the same stresses in the construction, in any story shall not exceed the loads specified on reverse side; the number of persons of either sex in any story shall not exceed that specified when sex is indicated, nor shall the aggregate number of persons occupying places of the above [illegible] the use to which any story may be put shall be restricted to that fixed by the certificate except as specifically stated.

This certificate does not relieve the owner or owners or any other person or persons in possession or control of the building, or any part thereof, from obtaining such other permits, licenses or approvals as may be required by law for the use or occupancy for which the building is designed or intended; nor from obtaining all permits, licenses or approvals required by law for the [illegible] of any equipment; nor from the installation of fire alarm signal devices required by law; nor from complying with any lawful order for additional fire extinguishing appliances issued by the Commissioner of the Fire Department; nor from complying with any lawful order issued with the object of maintaining the building in a safe or lawful condition; nor from complying with any [illegible] in public highways or other public places, whether attached to or part of the building or not.

If this certificate is marked "temporary", it is applicable only to those parts of the building indicated [illegible] and applies for the limited use and occupancy of only such parts of the building; it is subject to all the [illegible] and conditions specified in the first or permanent certificate; it is not applicable to any building under the [illegible] of the Fire Department unless it is also approved and endorsed by them, and it must be replaced by a [illegible].

If this certificate is for an existing building erected prior to March 14, 1916, it has been duly inspected and it has been found to have been occupied or arranged to be occupied prior to March 14, 1916, as noted on the reverse side, and that on information and belief, since that date there has been no alteration or conversion as a result of which the classification or subject to the Building Code, or that would necessitate compliance with some special requirement of [illegible] the Multiple Dwelling Law or any other law or ordinance; that there are no notices of violations or orders pending in the Department of Buildings at this time; that Section 646F of the New York City Charter has been complied with as certified by a report of the Fire Commissioner to the Borough Superintendent, and that, so long as the building is not altered, except by permission of the Borough Superintendent, the existing use and occupancy may be continued.

"§646F. No certificate of occupancy shall be issued for any building, structure, enclosure, place or premises wherein provisions for sprinklers, standpipes, explosives, inflammables and other dangerous substances, articles, compounds or substances are stored, or wherein automatic or other fire alarm systems or fire extinguishing equipment are required by law to be or are installed, until the fire commissioner has tested and inspected and has certified his approval in writing of the installation of such containers, systems or equipment to the Borough Superintendent of the borough in which the installation has been made. Such approval shall be recorded on the certificate of occupancy."

Additional copies of this certificate may be obtained at a nominal charge by the owner of the building or premises upon payment of a fee of fifty cents per copy.

35000

THE CITY OF NEW YORK

DEPARTMENT OF BUILDINGS

CERTIFICATE OF OCCUPANCY

BOROUGH QUEENS DATE: 9/26/86 NO. Q. 204583

This certificate supersedes C.O. No. Q. 136513 ZONING DISTRICT C2-2/R-4

THIS CERTIFIES that the new—altered—enlarged—building—premises located at

64-04/10 QUEENS BLVD. Block 2325 Lot 26,30,32

CONFORMS SUBSTANTIALLY TO THE APPROVED PLANS AND SPECIFICATIONS AND TO THE REQUIREMENTS OF ALL APPLICABLE LAWS, RULES, AND REGULATIONS FOR THE USES AND OCCUPANCIES SPECIFIED HEREIN

PERMISSIBLE USE AND OCCUPANCY

ALT. 1180/84

STORY	LIVE LOAD LBS. PER SQ. FT.	NO. OF HOUSING ACCOMMODATIONS PERMITTED	ZONING DWELLING OR ROOMING UNITS	BUILDING CODE HAZARDOUS GROUP	ZONING USE GROUP	BUILDING CODE OCCUPANCY GROUP	DESCRIPTION OF USE
1st	OR.GR.	60			6		RETAIL SALES, OFFICE, ACCESSORY STORAGE, LOADING & UNLOADING, ACCESSORY PARKING FOR (12) CARS.
MEZZ.	50						OFFICE, STORAGE.

OPEN SPACE USES _____
(SPECIFY—PARKING SPACES, LOADING BERTHS, OTHER USES, NONE)

NO CHANGES OF USE OR OCCUPANCY SHALL BE MADE UNLESS A NEW AMENDED CERTIFICATE OF OCCUPANCY IS OBTAINED

THIS CERTIFICATE OF OCCUPANCY IS ISSUED SUBJECT TO FURTHER LIMITATIONS, CONDITIONS AND SPECIFICATIONS NOTED ON THE REVERSE SIDE.

BOROUGH SUPERINTENDENT COMMISSIONER

☐ ORIGINAL ☑ OFFICE COPY—DEPARTMENT OF BUILDINGS ☐ COPY

B Form 94 (Back) (Rev. 6/82)

THAT THE ZONING LOT ON WHICH THE PREMISES IS LOCATED IS BOUNDED AS FOLLOWS:

BEGINNING at a point on the SOUTHEAST corner formed by the intersection of
QUEENS BLVD. and 64th ST.

running thence _____ feet; thence _____ feet;
thence E 141.15' feet; thence S 120.06' feet;
thence W 126.17' feet; thence N 120.92' feet;
thence _____ feet; thence _____ feet;
to the point or place of beginning.

ALT. No. 1180/84 DATE OF COMPLETION 7/17/86 CONSTRUCTION CLASSIFICATION NON-FIRE
BUILDING OCCUPANCY GROUP CLASSIFICATION COMM. HEIGHT 1 STORIES, 18'6" FEET

THE FOLLOWING FIRE DETECTION AND EXTINGUISHING SYSTEMS ARE REQUIRED AND WERE INSTALLED IN COMPLIANCE WITH APPLICABLE LAWS.

	NONE YES	NO		NONE YES	NO
STANDPIPE SYSTEM			AUTOMATIC SPRINKLER SYSTEM		
YARD HYDRANT SYSTEM					
STANDPIPE FIRE TELEPHONE AND SIGNALLING SYSTEM					
SMOKE DETECTOR					
FIRE ALARM AND SIGNAL SYSTEM					

STORM DRAINAGE DISCHARGES INTO:
A) STORM SEWER ☐ B) COMBINED SEWER ☐ C) PRIVATE SEWAGE DISPOSAL SYSTEM ☐

SANITARY DRAINAGE DISCHARGES INTO:
A) SANITARY SEWER ☐ B) COMBINED SEWER ☐ C) PRIVATE SEWAGE DISPOSAL SYSTEM ☐

LIMITATIONS OR RESTRICTIONS:
BOARD OF STANDARDS AND APPEALS CAL. NO. _____
CITY PLANNING COMMISSION CAL. NO. _____
OTHERS:

NYC Buildings

NYC

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NYC Department of Buildings

Complaints By Address

Click here for information on how to remove a Stop Work Order from your property

2 Total Complaints

View SWO Complaints BIN: 4053651

Looking for a list of complaint category codes or disposition codes?
(Adobe Acrobat Reader required)

Complaint Number	Address	Date Entered	Category	Inspection Date	Disposition	Status
4007667	64-10 QUEENS BLVD ILLEGAL ELECTRICAL SIGNS	11/21/1989	49	02/02/1990	I2	RES
4006517	64-10 QUEENS BLVD ILLEGAL SIGNS	09/29/1989	49	01/23/1991	XX	RES

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

NYC Buildings

NYC

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NYC Department of Buildings

DOB Violations

Premises: 64-06 QUEENS BOULEVARD QUEENS **BIN: 4053651 Block: 2325 Lot: 32**

NUMBER	TYPE	FILE DATE
V* 012386C441C2	DOB VIOLATION - DISMISSED	00/00/1986

DISMISSAL DATE: 11/14/1986 **BADGE NO.:** 0000

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

NYC Buildings

NYC

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NYC Department of Buildings

Actions

Premises: 64-06 QUEENS BOULEVARD QUEENS BIN: 4053651 Block: 2325 Lot: 32

NUMBER		TYPE	FILE DATE
			00/00/0000
ALT 582-70(LOTS26		ALTERATION	00/00/1970
ALT 30&32)1180-84		ALTERATION	00/00/1984
BN 1100-58(L323456)		BUILDING NOTICE	00/00/1958
COQ 136513-60(NB1996-59)	(PDF)	CERTIFICATE OF OCCUPANCY - QUEENS	00/00/1960
COQ 204583(ALT1180-84)	(PDF)	CERTIFICATE OF OCCUPANCY - QUEENS	08/08/1984
ES 108-68(LOT32)		ELECTRIC SIGN	00/00/1968
ES 108-68(64-06-10)		ELECTRIC SIGN	00/00/1968
ES 104-72		ELECTRIC SIGN	00/00/1972
ES 105-72		ELECTRIC SIGN	00/00/1972
ES 242-77		ELECTRIC SIGN	00/00/1977
ES 243-77		ELECTRIC SIGN	00/00/1977
ES 244-77(64-10)		ELECTRIC SIGN	00/00/1977
ES 523-78(64-10)		ELECTRIC SIGN	00/00/1978
ES 524-78(64-10)		ELECTRIC SIGN	00/00/1978
ES 525-78		ELECTRIC SIGN	00/00/1978
ES 526-78		ELECTRIC SIGN	00/00/1978
ES 118-85		ELECTRIC SIGN	06/20/1985
ES 119-85		ELECTRIC SIGN	08/08/1985
ES 120-85		ELECTRIC SIGN	08/08/1985
ES 121-85		ELECTRIC SIGN	08/08/1985
NB 1546-17		NEW BUILDING	00/00/1917
NB 4579-21		NEW BUILDING	00/00/1921
NB 1887-33		NEW BUILDING	00/00/1933
NB 3683-37		NEW BUILDING	00/00/1937

Next

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

NYC Buildings

NYC

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NYC Department of Buildings

Actions

Premises: 64-06 QUEENS BOULEVARD QUEENS BIN: 4053651 Block: 2325 Lot: 32

NUMBER	TYPE	FILE DATE
NB 1996-59	NEW BUILDING	00/00/1959
PR 355-63(L32)		00/00/1963
PR 1204-85(64-04-10)		08/08/1985
V* 012386C441C2	DOB VIOLATION - DISMISSED	00/00/1986

DISMISSAL DATE: 11/14/1986 **BADGE NO.:** 0000

Previous

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

FIRE DEPARTMENT – CITY OF NEW YORK

Public Records Unit / Fire Records Section

9 MetroTech Center

Brooklyn, New York 11201-3857

(718) 999-2681 or 2682

Violation Special Report

Request Form

FPM file NO 1121g-15-08/01

SECTION A CUSTOMER INFORMATION

Please print the required information below.

George Holmes % FPM Group
Name

909 Marconi Avenue
Address

Ronkonkoma, NY 11779
State Zip Code

(631) 737-6200
Telephone Number

OFFICE USE ONLY

Cashier / Search No.

RRU Staff Accepted By/Initials:

Searched By:

Total Amount:

Note: Please make sure you complete this form and attach all required documents. Enclose a check or money order made payable to the **NYC Fire Department and a stamped self-addressed envelope (with postage).** Mail checks or money orders directly to the address and unit listed above. **DO NOT MAIL CASH.**

SECTION B REQUEST VIOLATION REPORT FEE $10.00 / PER REPORT

Please print the required information below.

64-06 Queens Boulevard (Block 2375, Lot 32) | | Queens | |
House No Street Name | Floor(s) | Apt(s) | Borough | Box #

- [x] EXISTING- ALL NOTICES OF VIOLATION AND VIOLATION ORDERS ISSUED BY THE FIRE PREVENTION
- [ ] DISMISSED- ALL NOTICES OF VIOLATION AND VIOLATION ORDERS ISSUED BY FIRE PREVENTION
- [x] EXISTING- ALL SUMMONSES
- [ ] DISMISSED- ALL SUMMONSES

Note: A "dismissed" status means that the condition no longer exists, according to agency records. Also, please be advised that this search will not include records manually kept by Fire or Engine Companies.

Note: Requests will be responded to within 10 business days.

PR4 (July-08)

FIRE DEPARTMENT – CITY OF NEW YORK

Public Records Unit / Tanks Section

9 MetroTech Center
Brooklyn, New York 11201-3857
(718) 999-2441 or 2442

Fuel Tank Special Report

Request Form

FPM file No 1121g-15-08/01

SECTION A **CUSTOMER INFORMATION**

Please print the required information below.

George Holmes c/o FPM Group
Name

909 Marconi Avenue
Address

Ronkonkoma, NY 11779
State Zip Code

(631) 737-6200
Telephone Number

OFFICE USE ONLY

Cashier / Search No.

PRU Staff
Accepted By/Initials:

Searched By:

Total Amount:

Note: Please make sure you complete this form and attach all required documents. Enclose a check or money order made payable to the NYC Fire Department and a stamped self-addressed envelope (with postage). Mail checks or money orders directly to the address and unit listed above. DO NOT MAIL CASH.

SECTION B **FUEL TANK REPORT - FEE $10.00 / PER REPORT**

64-06 Queens Boulevard (Block 2325, Lot 32) Queens
House Number Street Name Borough

- [x] THE TOTAL AMOUNT AND SIZE OF EXISTING FUEL OIL / HEATING TANKS
- [x] THE TOTAL AMOUNT AND SIZE OF REMOVED OR SEALED FUEL OIL / HEATING TANKS
- [x] THE TOTAL AMOUNT AND SIZE OF EXISTING BURIED MOTOR VEHICLE TANKS
- [x] THE TOTAL AMOUNT AND SIZE OF REMOVED OR SEALED BURIED MOTOR VEHICLE TANKS
- [ ] MOST RECENT TANK / PIPING TEST RESULTS
- [x] HISTORY OF BURIED TANKS LEAKS

Note: Requests will be responded to within 10 business days.

PR3 (July-08)

FIRE DEPARTMENT – CITY OF NEW YORK

Public Records Unit / Fire Records Section

9 MetroTech Center

Brooklyn, New York 11201-3857

(718) 999-2681 or 2682

Violation Special Report

Request Form

FPM file NO 1121q-15-08/01

SECTION A CUSTOMER INFORMATION

Please print the required information below.

George Holmes Yo FPM Group
Name

909 Marcon Avenue
Address

Ronkonkoma, NY 11779
State Zip Code

(631) 737-6200
Telephone Number

OFFICE USE ONLY

Cashier / Search No.

PRU Staff
Accepted By/Initials:

Searched By:

Total Amount:

Note: Please make sure you complete this form and attach all required documents. Enclose a check or money order made payable to the **NYC Fire Department and a stamped self-addressed envelope (with postage).** Mail checks or money orders directly to the address and unit listed above. **DO NOT MAIL CASH.**

SECTION B REQUEST VIOLATION REPORT FEE $10.00 / PER REPORT

Please print the required information below.

64-02	Queens Boulevard (Block 2325, Lot 30)			Queens	
House No	Street Name	Floor(s)	Apt(s)	Borough	Box #

☒ EXISTING- ALL NOTICES OF VIOLATION AND VIOLATION ORDERS ISSUED BY THE FIRE PREVENTION

☐ DISMISSED- ALL NOTICES OF VIOLATION AND VIOLATION ORDERS ISSUED BY FIRE PREVENTION

☒ EXISTING- ALL SUMMONSES

☐ DISMISSED- ALL SUMMONSES

Note: A "dismissed" status means that the condition no longer exists, according to agency records. Also, please be advised that this search will not include records manually kept by Fire or Engine Companies.

Note: Requests will be responded to within 10 business days.

PR4 (July-08)

FIRE DEPARTMENT – CITY OF NEW YORK

Public Records Unit / Tanks Section

9 MetroTech Center
Brooklyn, New York 11201-3857
(718) 999-2441 or 2442

Fuel Tank Special Report

Request Form

FPM file No 1121g-15-08/01

SECTION A **CUSTOMER INFORMATION**

Please print the required information below.

George Holmes c/o FPM Group
Name

909 Marconi Avenue
Address

Ronkonkoma, NY 11779
State Zip Code

(631) 737-6200
Telephone Number

OFFICE USE ONLY

Cashier / Search No.

PRU Staff
Accepted By/Initials:

Searched By:

Total Amount:

Note: Please make sure you complete this form and attach all required documents. Enclose a check or money order made payable to the **NYC Fire Department and a stamped self-addressed envelope (with postage).** Mail checks or money orders directly to the address and unit listed above. **DO NOT MAIL CASH.**

SECTION B **FUEL TANK REPORT - FEE $10.00 / PER REPORT**

64-02 Queens Boulevard (Block 2325 Lot 30) Queens
House Number Street Name Borough

- [x] THE TOTAL AMOUNT AND SIZE OF EXISTING FUEL OIL / HEATING TANKS
- [x] THE TOTAL AMOUNT AND SIZE OF REMOVED OR SEALED FUEL OIL / HEATING TANKS
- [x] THE TOTAL AMOUNT AND SIZE OF EXISTING BURIED MOTOR VEHICLE TANKS
- [x] THE TOTAL AMOUNT AND SIZE OF REMOVED OR SEALED BURIED MOTOR VEHICLE TANKS
- [ ] MOST RECENT TANK / PIPING TEST RESULTS
- [x] HISTORY OF BURIED TANKS LEAKS

Note: Requests will be responded to within 10 business days.

PR3 (July-08)

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FIRE DEPARTMENT

9 METROTECH CENTER BROOKLYN, N.Y. 11201-3857

PUBLIC RECORDS UNIT
TANKS SECTION

Ref No: T- 44725

GEORGE HOLMES C/O FPM GROUP
909 MARION AVENUE
RONKONKOMA, NEW YORK 11779
631-737-0200

Dear Customer / Representative,

We have completed a search for address and the requsted information listed below. In the "Status" box below, we have listed the results and any additional comments we may have regarding the search.

*Search Type Customer Requested	$40 - (Both) Fuel / Motor - Existing & Removed		
*Search Address	64-02 QUEENS BLVD.		
*Borough	05 - Queens		
*Payment Type	02-Check	*Payment No.	38192
*Data Entered	3/13/2015	*Entered By	DR
Account Number		Requested Folder	

No. of Tanks	No. of Gallons	Tank Type	Fuel Type	Conversion

***Additional Information**

***Status** Completed - Record not found

IMPORTANT NOTICE: THIS REPORT IS NOT VALID IF ALTERED, CORRECTED OR WITHOUT FDNY CERTIFICATION STAMP AND UNIT EMPLOYEE'S SIGNATURE.

Place FDNY Certification Stamp Below

THIS IS TO CERTIFY THAT THIS IS A TRUE COPY OF THE ORIGINAL RECORD ON FILE WITH FDNY

SIGNATURE DR

If you need further assistance or additional information, please call (718) 999-2441; 8 am - 4pm (Monday - Friday).

Thank you,

Public Records Representative

E- 3/13/2015 DR
C- 3/13/2015 DR

cc-File

FIRE DEPARTMENT

9 METROTECH CENTER BROOKLYN, N.Y. 11201-3857

PUBLIC RECORDS UNIT
TANKS SECTION

Ref No: T- 44726

GEORGE HOLMES C/O FPM GROUP
909 MARION AVENUE
RONKONKOMA, NEW YORK 11779
631-737-0200

Dear Customer / Representative,

We have completed a search for address and the requsted information listed below. In the "Status" box below, we have listed the results and any additional comments we may have regarding the search.

*Search Type Customer Requested	$10 - Motor - History of Leaks		
*Search Address	64-02 QUEENS BLVD.		
*Borough	05 - Queens		
*Payment Type	02-Check	*Payment No.	38192
*Data Entered	3/13/2015	*Entered By	DR
Account Number		Requested Folder	

No. of Tanks	No. of Gallons	Tank Type	Fuel Type	Conversion

***Additional Information**

***Status** Completed - Record not found

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Thank you,

Public Records Representative

E- 3/13/2015 DR
C- 3/13/2015 DR

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FIRE DEPARTMENT

9 METROTECH CENTER BROOKLYN, N.Y. 11201-3857

PUBLIC RECORDS UNIT
VIOLATIONS SECTION

Ref No: V- 129244

GEORGE HOLMES
c/o FPM GROUP
909 MARCONI AVE
RONKONKOMA, NY 11779
631-737-6200

Dear Customer / Representative,

We have completed a search for address and the requsted information listed below. In the "Status" box below, we have listed the results and any additional comments we may have regarding the search.

*Title Search No	*None	*Customer / Order No	*None

*Search Address	*Borough	*Search Type
64-06 QUEENS BLVD	05 - Queens	$20 - Existing Viol. & Summonses

*Payment	02-Check	*Payment No.	38192

Listed Record(s)

No Violation Notices Found.
No Violation Orders Found.

***Status** Search Completed - No Record Found

IMPORTANT NOTICE: THIS REPORT IS NOT VALID IF ALTERED, CORRECTED OR WITHOUT FDNY CERTIFICATION STAMP AND UNIT EMPLOYEE'S SIGNATURE.

Place FDNY Certification Stamp Below
I CERTIFY THAT THIS IS A TRUE COPY OF AN ORIGINAL FIRE DEPT. RECORD, KEPT IN THE NORMAL COURSE OF BUSINESS.

SIGN:

If you need further assistance or additional information, please call (718) 999-2441; 8 am - 4pm (Monday - Friday).

Thank you,

Public Records Representative

E-3/17/2015 CH

cc - File

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FIRE DEPARTMENT

9 METROTECH CENTER BROOKLYN, N.Y. 11201-3857

PUBLIC RECORDS UNIT
TANKS SECTION

Ref No: T- 44727

GEORGE HOLMES C/O FPM GROUP
909 MARION AVENUE
RONKONKOMA, NEW YORK 11779
631-737-0200

Dear Customer / Representative,

We have completed a search for address and the requsted information listed below. In the "Status" box below, we have listed the results and any additional comments we may have regarding the search.

*Search Type Customer Requested	$40 - (Both) Fuel / Motor - Existing & Removed		
*Search Address	64-06 QUEENS BLVD.		
*Borough	05 - Queens		
*Payment Type	02-Check	*Payment No.	38192
*Data Entered	3/13/2015	*Entered By	DR
Account Number		Requested Folder	

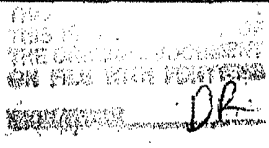
No. of Tanks	No. of Gallons	Tank Type	Fuel Type	Conversion

***Additional Information**

***Status** Completed - Record not found

IMPORTANT NOTICE: THIS REPORT IS NOT VALID IF ALTERED, CORRECTED OR WITHOUT FDNY CERTIFICATION STAMP AND UNIT EMPLOYEE'S SIGNATURE.

Place FDNY Certification Stamp Below



If you need further assistance or additional information, please call (718) 999-2441; 8 am - 4pm (Monday - Friday).

Thank you,

Public Records Representative

E- 3/13/2015 DR
C- 3/13/2015 DR

cc-File

FIRE DEPARTMENT

9 METROTECH CENTER BROOKLYN, N.Y. 11201-3857

PUBLIC RECORDS UNIT
TANKS SECTION

Ref No: T- 44728

GEORGE HOLMES C/O FPM GROUP
909 MARION AVENUE
RONKONKOMA, NEW YORK 11779
631-737-0200

Dear Customer / Representative,

We have completed a search for address and the requsted information listed below. In the "Status" box below, we have listed the results and any additional comments we may have regarding the search.

*Search Type Customer Requested	$10 - Motor - History of Leaks		
*Search Address	64-06 QUEENS BLVD.		
*Borough	05 - Queens		
*Payment Type	02-Check	*Payment No.	38192
*Data Entered	3/13/2015	*Entered By	DR
Account Number		Requested Folder	

No. of Tanks	No. of Gallons	Tank Type	Fuel Type	Conversion

***Additional Information**

***Status** Completed - Record not found

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Place FDNY Certification Stamp Below

THIS IS TO CERTIFY THAT THIS IS A TRUE COPY OF THE OFFICIAL DOCUMENT ON FILE WITH FDNY

SIGNATURE

If you need further assistance or additional information, please call (718) 999-2441; 8 am - 4pm (Monday - Friday).

Thank you,

Public Records Representative

E- 3/13/2015 DR
C- 3/13/2015 DR

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FIRE DEPARTMENT

9 METROTECH CENTER BROOKLYN, N.Y. 11201-3857

PUBLIC RECORDS UNIT
VIOLATIONS SECTION

Ref No: V- 129243

GEORGE HOLMES
c/o FPM GROUP
909 MARCONI AVE
RONKONKOMA, NY 11779
631-737-6200

Dear Customer / Representative,

We have completed a search for address and the requsted information listed below. In the "Status" box below, we have listed the results and any additional comments we may have regarding the search.

*Title Search No	*None	*Customer / Order No	*None

*Search Address	*Borough	*Search Type
64-02 QUEENS BLVD	05 - Queens	$20 - Existing Viol. & Summonses

*Payment	02-Check	*Payment No.	38192

Listed Record(s)

No Violation Notices Found.
No Violation Orders Found.

***Status** Search Completed - No Record Found

IMPORTANT NOTICE: THIS REPORT IS NOT VALID IF ALTERED, CORRECTED OR WITHOUT FDNY CERTIFICATION STAMP AND UNIT EMPLOYEE'S SIGNATURE.

Place FDNY Certification Stamp Below

I CERTIFY THAT THIS IS A TRUE COPY OF AN ORIGINAL FIRE DEPT. RECORD, KEPT IN THE NORMAL COURSE OF BUSINESS.

SIGN:

If you need further assistance or additional information, please call (718) 999-2441; 8 am - 4pm (Monday - Friday).

Thank you,

Public Records Representative

E-3/17/2015 CH

cc- File

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION

Application for Records, Article 6 - New York State Public Officers Law, Freedom of Information Law

FPM File No 11219 - 15-08/01

Complete Part I of this form. Please refer to instruction sheet for assistance in completing this form. If responsive records are located, you will be notified and informed of the required payment. Advance payment is required in check or money order payable to the City of New York before documents will be released. Send the complete application to the Records Access Officer at NYC DEP, Bureau of Legal Affairs, 59-17 Junction Blvd., 19th Fl., Flushing, NY 11373 or fax to (718) 595-6543

PART I. APPLICATION - Check Bureau(s) known or believed to have the record(s):

- ☐ Executive
- ☐ General Counsel
- ☐ Agency Chief Contracting Office
- ☐ Bureau of Customer Services (Water Bills)
- ☒ Bureau of Environmental Compliance
- ☒ Asbestos
- ☒ Hazardous Materials
- ☒ Air & Noise
- ☒ Environmental Control Board
- ☐ Bureau of Environmental Engineering
- ☒ Office of Environmental Planning and Assessment
- ☒ Bureau of Wastewater Treatment
- ☒ Sewer discharge violations
- ☐ Bureau of Water and Sewer Operations
- ☒ Water Records
- ☒ Sewer Records
- ☐ Bureau of Water Supply
- ☐ Water Quality
- ☐ DEP Police
- ☐ _____

I hereby apply to ☒ inspect or ○ receive copies of the following records (use additional sheets as needed and attach):

All available records pertaining to the following property:
64-06 Queens Boulevard (Block 2325, Lot 32)
Woodside 11377

Name: George Holmes Phone: (631) 737-6200 E-Mail: geholmes@fpmgroup.com
Firm: FPM Group
Address: 909 Marconi Avenue, Ronkonkoma, NY 11779
Signature: _____ Date: March 3, 2015

PART II. DISPOSITION OF REQUEST (*TO BE COMPLETED BY THE DEPARTMENT*)

• •APPROVED • APPROVED IN PART - - To arrange for access to the records, please contact:

(Department Representative) (Bureau) (Phone No.)

Number of Pages:_____ x$.25 per page = Cost:_____

• •DENIED • •DENIED IN PART - - for reason(s) checked: References are to Sec. 87 of the Public Officers Law.

- ☐ Exempt: State/Fed. Statute (2(a))
- ☐ Invasion of personal privacy (2(b))
- ☐ Competitive position injury (2(d))
- ☐ Exempt: Law Enforcement (2(e))
- ☐ Inter/Intra-agency material (2(g))
- ☐ (Other)_____

Brief Description of records not subject to disclosure_____

A denial, in whole or in part, may be appealed within 30 days by writing to the NYCDEP FOIL Appeals Officer, 59-17 Junction Blvd., 19th Fl., Flushing, NY 11373

☐ **UNAVAILABLE** - - for reason(s) checked:

- • Not described in sufficient detail
- • After search, no records responsive to request located
- • (Other)_____
- • Not maintained by this Department

LOG NO.:_____

(Department Representative) (Bureau) (Date)

• • • Fee Waived • • • Check/M.O. received • • • Check/M.O. requested DOC# 050303

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION

Application for Records, Article 6 - New York State Public Officers Law, Freedom of Information Law

FPM File No 1121g-15-08/01

Complete Part I of this form. Please refer to instruction sheet for assistance in completing this form. If responsive records are located, you will be notified and informed of the required payment. Advance payment is required in check or money order payable to the City of New York before documents will be released. Send the complete application to the Records Access Officer at NYC DEP, Bureau of Legal Affairs, 59-17 Junction Blvd., 19th Fl., Flushing, NY 11373 or fax to (718) 595-6543

PART I. APPLICATION - Check Bureau(s) known or believed to have the record(s):

- ☐ Executive
- ☐ General Counsel
- ☐ Agency Chief Contracting Office
- ☐ Bureau of Customer Services (Water Bills)
- ☒ Bureau of Environmental Compliance
- ☒ Asbestos
- ☒ Hazardous Materials
- ☒ Air & Noise
- ☒ Environmental Control Board
- ☐ Bureau of Environmental Engineering
- ☒ Office of Environmental Planning and Assessment
- ☒ Bureau of Wastewater Treatment
- ☒ Sewer discharge violations
- ☐ Bureau of Water and Sewer Operations
- ☒ Water Records
- ☒ Sewer Records
- ☐ Bureau of Water Supply
- ☐ Water Quality
- ☐ DEP Police
- ☐ _____

I hereby apply to ☒ inspect or ○ receive copies of the following records (use additional sheets as needed and attach):

All available records pertaining to the following property:
64-02 Queens Boulevard (Block 2325, Lot 30)
Woodside 11377

Name: George Holmes Phone: (631) 737-6200 E-Mail: g.holmes@fpmgroup.com
Firm: FPM Group
Address: 909 Marconi Avenue, Ronkonkoma, NY 11779
Signature: _____ Date: March 3, 2015

PART II. DISPOSITION OF REQUEST ***(TO BE COMPLETED BY THE DEPARTMENT)***

• •APPROVED • APPROVED IN PART - - To arrange for access to the records, please contact:

(Department Representative) (Bureau) (Phone No.)

Number of Pages:_____ x$.25 per page = Cost:_____

• •DENIED • •DENIED IN PART - - for reason(s) checked: References are to Sec. 87 of the Public Officers Law.

- ☐ Exempt: State/Fed. Statute (2(a))
- ☐ Invasion of personal privacy (2(b))
- ☐ Competitive position injury (2(d))
- ☐ Exempt: Law Enforcement (2(e))
- ☐ Inter/Intra-agency material (2(g))
- ☐ (Other)_____

Brief Description of records not subject to disclosure_____

A denial, in whole or in part, may be appealed within 30 days by writing to the NYCDEP FOIL Appeals Officer, 59-17 Junction Blvd., 19th Fl., Flushing, NY 11373

☐ **UNAVAILABLE** - - for reason(s) checked:

- Not described in sufficient detail
- After search, no records responsive to request located
- (Other)_____
- Not maintained by this Department

LOG NO.:_____

(Department Representative) **(Bureau)** **(Date)**

• • •Fee Waived • • •Check/M.O. received • • •Check/M.O. requested DOC# 050303

NYC Environmental Protection

RECEIVED
MAR 17 2015

March 11, 2015

Emily Lloyd
Commissioner

Michael Gilsenan
Assistant Commissioner
Environmental Compliance

59-17 Junction Boulevard
Flushing, NY 11373

George Holmes
FPM Group
909 Marconi Avenue
Ronkonkoma, NY 11779

Dear Mr. Holmes:

In response to your Freedom of Information Law information request of 3/3/2015, the Division of Air/Noise Enforcement and Policy has searched its files for records pertaining to 64-02 Queens Boulevard and:

☐ Has located and enclosed the requested documents.

☐ A total of _____ pages of materials have been located, for which we are required to charge a fee of $.25 per page. Please send your check, in the amount of $_____, to:

Records Access Officer
NYC Department of Environmental Protection
59-17 Junction Boulevard, 19th Floor
Flushing, NY 11373

The check should be made payable to **The City of New York** and include the Log # noted below.

☐ Upon receipt of the check, copies of these records will be sent to you.

☒ Does not have the requested documents.

Sincerely,

Geraldine Kelpin
Director, Air/Noise Enforcement & Policy

Log # 131601

CC-File

FPM group _____ Engineering and Environmental Science

FPM Group, Ltd.
FPM Engineering Group, P.C.
formerly Fanning, Phillips and Molnar

CORPORATE HEADQUARTERS
909 Marconi Avenue
Ronkonkoma, NY 11779
631/737-6200
Fax 631/737-2410

VIA FAX

March 3, 2015

Ms. Renee Bryant
FOIA Officer
NYCDOH
125 Worth Street
New York, NY

Re: **Phase I Environmental Site Assessment for a Property located in Queens, New York**
FPM File No. 1121g-15-08/01

Dear Ms. Bryant:

In accordance with the Freedom of Information Act (FOIA), this is a written request to review all files at the NYCDOH for the following property located in **Queens**:

- 64-02 and 64-06 Queens Boulevard, Woodside 11377 (Block 2325, Lot 32)

Specifically, I am requesting files pertaining to hazardous/toxic/chemical waste storage and disposal, violations, spills, under/above ground storage tanks, remediation, sampling, sanitation, or any other environmental concerns at this property.

Please confirm no other divisions maintain files for these properties and contact me as soon as this information becomes available for my review. Thank you for your prompt attention to this request.

Sincerely,

George Holmes
Hydrogeologist

GH:tac

S:\United Construction\64-02 and 64-06 QB Woodside\NYCDOH.LET.docx

RECEIVED
MAR 16 2015

NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE
Mary T. Bassett, MD, MPH
Commissioner

3/10/2015

FPM Group
909 Marconi Avenue
Ronkonkoma, NY 11779
Attention: *George Holmes*

Re: *64-02 AND 64-08 Queens Blvd, Woodside*
Control #: *2015FR00631*

The New York City Department of Health and Mental Hygiene acknowledges receipt of your Freedom of Information Law request. It has been assigned the above-noted control number and has been forwarded to the following bureau or office for processing:

Bureau / Office

[ ] Healthy Homes Program
Ben DelPercio
(646) 632-6006

[X] Environmental Health Services
Dylsia Tapia or Shirley Wiley
(646) 632-6494

[ ] Contract Services
Ellen Rieser
(347) 396-6629

[ ] Bureau of Human Resources
Ana Perez
(347) 396-2108

[ ] Communicable Diseases
Beth Nivin
(347) 396-2616

[ ] Other _____

You should receive a response from the program/bureau within twenty(20) business days. Please note that responses are provided electronically whenever possible, and that there is a fee of 25 cents per page for copies of records not available electronically. You will be advised by the program/bureau of the fee that is due and, upon receipt of your payment by check or money order, the copies will be forwarded to you.

All inquiries about the status of your request should be made with the program/bureau noted.

Sincerely,

Chari Anhouse, Esquire
Records Access Officer
42-09 28th Street, CN31
Long Island City, NY 11101
347-396-6078/6116(P)
347-396-6087(F)
recordsaccess@health.nyc.gov

CC-file

FPM group _____ Engineering and Environmental Science

FPM Group, Ltd.
FPM Engineering Group, P.C.
formerly Fanning, Phillips and Molnar

CORPORATE HEADQUARTERS
909 Marconi Avenue
Ronkonkoma, NY 11779
631/737-6200
Fax 631/737-2410

VIA EMAIL

March 3, 2015

FOI Officer
NYSDEC – Region 2
Attn: Fawzy I. Abdelsadek

Re: **Phase I Environmental Site Assessment for a Property located in Queens, New York**
FPM File No. 1121g-15-18/01

Dear Fawzy:

In accordance with the Freedom of Information Act (FOIA), this is a written request to review all files at the NYSDEC for the following property located in **Queens**:

- 64-02 and 64-06 Queens Boulevard, Woodside 11377 (Block 2325, Lot 32)

Specifically, I am requesting files pertaining to remediation, environmental permits, hazardous materials or any other environmental concerns at this property.

Thank you for your prompt attention to this request.

Sincerely,

George Holmes
Hydrogeologist

GH:tac

S:\United Construction\64-02 and 64-06 QB Woodside\NYSDEC.LET.docx

Holmes, George

From: dec.sm.r2foil.Foil [r2foil.Foil@dec.ny.gov]
Sent: Tuesday, March 17, 2015 2:09 PM
To: Holmes, George
Subject: R2-15-676 no records

R2-15-676	Holmes, George g.holmes@fpm-group.com	64-02 and 64-06 Queens Boulevard, Wo NY: N1, N2-both

Dear Ms. /Mr.:

NYSDEC/Region 2 has reviewed your request for the above referenced records under New York State's Freedom of Information Law (FOIL). Please note that most of our records are filed by number under the names of individuals or corporations. We have no way of locating or retrieving records if they are filed under names or addresses other than those you have provided.

If no records have been located, this does not necessarily mean, and should not be interpreted to mean that there have never been any violations, complaints, claims, investigations or inquiries involving those names or addresses. We cannot make any representations as to whether there are or have been any such violations, complaints, Claims, investigations or inquiries.

☒ after a diligent search of Region 2 available files, no records could be located for the names and/or addresses you provided.

Please email your future FOILs to Region directly to the following email address: r2foil.foil@dec.ny.gov

Thank you for your request. If additional information is needed, please call Gloria Silva/FOIL Secretary at (718) 482-4507, or email me at: r2foil.foil@dec.ny.gov

Sincerely yours,
Fawzy I. Abdelsadek, Ph.D., P.E.
Regional Enforcement Coordinator

FPM group _____ Engineering and Environmental Science

FPM Group, Ltd.
FPM Engineering Group, P.C.
formerly Fanning, Phillips and Molnar

CORPORATE HEADQUARTERS
909 Marconi Avenue
Ronkonkoma, NY 11779
631/737-6200
Fax 631/737-2410

VIA EMAIL

March 31, 2015

FOI Officer
NYSDEC – Region 2
Attn: Fawzy I. Abdelsadek

Re: **Phase I Environmental Site Assessment for a Property located in Queens, New York**
FPM File No. 1121g-15-18/01

Dear Fawzy:

In accordance with the Freedom of Information Act (FOIA), this is a written request to review all files at the NYSDEC for the following property located in **Queens**:

- 64-18 Queens Boulevard, Woodside 11377 (Block 2325, Lot 37)

Specifically, I am requesting files pertaining to remediation, environmental permits, hazardous materials or any other environmental concerns at this property, including any files related to spill numbers 92-05404, 94-04336, and 12-03463.

Thank you for your prompt attention to this request.

Sincerely,

George Holmes
Hydrogeologist

GH:tac

S:\United Construction\64-02 and 64-06 QB Woodside\NYSDEC.LET.docx

FPM group _____ Engineering and Environmental Science

FPM Group, Ltd.
FPM Engineering Group, P.C.
formerly Fanning, Phillips and Molnar

CORPORATE HEADQUARTERS
909 Marconi Avenue
Ronkonkoma, NY 11779
631/737-6200
Fax 631/737-2410

VIA EMAIL

March 31, 2015

FOI Officer
NYSDEC – Region 2
Attn: Fawzy I. Abdelsadek

Re: **Phase I Environmental Site Assessment for a Property located in Queens, New York**
FPM File No. 1121g-15-18/01

Dear Fawzy:

In accordance with the Freedom of Information Act (FOIA), this is a written request to review all files at the NYSDEC for the following property located in **Queens**:

- Queens Boulevard and 64th Street, Woodside 11377

Specifically, I am requesting files pertaining to remediation, environmental permits, hazardous materials or any other environmental concerns at this property, including any files related to spill number 02-11002.

Thank you for your prompt attention to this request.

Sincerely,

George Holmes
Hydrogeologist

GH:tac

S:\United Construction\64-02 and 64-06 QB Woodside\NYSDEC.LET.docx

APPENDIX B

STATE AND FEDERAL DATABASE RECORDS

64-06 Queens Boulevard
64-06 Queens Boulevard
Woodside, NY 11377

Inquiry Number: 4222523.2s
March 03, 2015

The EDR Radius Map™ Report

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

FORM-LBF-LMH

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Map Findings Summary	4
Map Findings	8
Orphan Summary	492
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

GeoCheck - Not Requested

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer - Copyright and Trademark Notice

This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

64-06 QUEENS BOULEVARD
QUEENS County, NY 11377

COORDINATES

Latitude (North):	40.7407000 - 40° 44' 26.52"
Longitude (West):	73.9014000 - 73° 54' 5.04"
Universal Tranverse Mercator:	Zone 18
UTM X (Meters):	592758.4
UTM Y (Meters):	4510342.0
Elevation:	42 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	40073-F8 BROOKLYN, NY
Most Recent Revision:	1995
North Map:	40073-G8 CENTRAL PARK, NY NJ
Most Recent Revision:	1995

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20110710
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
Site - LOT 32,TAXBLOCK 2325 64-06 QUEENS BOULEVARD QUEENS, NY 11377	NY E DESIGNATION	N/A

EXECUTIVE SUMMARY

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ..... CERCLIS No Further Remedial Action Planned

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls
LUCIS ..... Land Use Control Information System

Federal ERNS list

ERNS ..... Emergency Response Notification System

State- and tribal - equivalent CERCLIS

NY VAPOR REOPENED ..... Vapor Intrusion Legacy Site List

State and tribal leaking storage tank lists

NY HIST LTANKS ..... Listing of Leaking Storage Tanks
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

NY CBS UST ..... Chemical Bulk Storage Database

NY MOSF UST..... Major Oil Storage Facilities Database
NY MOSF AST..... Major Oil Storage Facilities Database
NY MOSF..... Major Oil Storage Facility Site Listing
INDIAN UST..... Underground Storage Tanks on Indian Land
FEMA UST..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

NY ENG CONTROLS..... Registry of Engineering Controls
NY INST CONTROL..... Registry of Institutional Controls
NY RES DECL..... Restrictive Declarations Listing

State and tribal voluntary cleanup sites

NY VCP..... Voluntary Cleanup Agreements
INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

NY ERP..... Environmental Restoration Program Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
ODI..... Open Dump Inventory
NY SWRCY..... Registered Recycling Facility List
NY SWTIRE..... Registered Waste Tire Storage & Facility List
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs
NY DEL SHWS..... Delisted Registry Sites
US HIST CDL..... National Clandestine Laboratory Register

Local Land Records

LIENS 2..... CERCLA Lien Information
NY LIENS..... Spill Liens Information

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
NY Hist Spills..... SPILLS Database
NY SPILLS 90..... SPILLS 90 data from FirstSearch
NY SPILLS 80..... SPILLS 80 data from FirstSearch

Other Ascertainable Records

DOT OPS..... Incident and Accident Data

EXECUTIVE SUMMARY

DOD..... Department of Defense Sites
FUDS..... Formerly Used Defense Sites
CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
UMTRA..... Uranium Mill Tailings Sites
US MINES..... Mines Master Index File
TRIS..... Toxic Chemical Release Inventory System
TSCA..... Toxic Substances Control Act
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing
SSTS..... Section 7 Tracking Systems
ICIS..... Integrated Compliance Information System
PADS..... PCB Activity Database System
MLTS..... Material Licensing Tracking System
RADINFO..... Radiation Information Database
RAATS..... RCRA Administrative Action Tracking System
RMP..... Risk Management Plans
NY HSWDS..... Hazardous Substance Waste Disposal Site Inventory
NY UIC..... Underground Injection Control Wells
NY SPDES..... State Pollutant Discharge Elimination System
INDIAN RESERV..... Indian Reservations
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing
NY Financial Assurance..... Financial Assurance Information Listing
NY COAL ASH..... Coal Ash Disposal Site Listing
PRP..... Potentially Responsible Parties
PCB TRANSFORMER..... PCB Transformer Registration Database
COAL ASH DOE..... Steam-Electric Plant Operation Data
LEAD SMELTERS..... Lead Smelter Sites
EPA WATCH LIST..... EPA WATCH LIST
US FIN ASSUR..... Financial Assurance Information
COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP..... EDR Proprietary Manufactured Gas Plants

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

NY RGA HWS..... Recovered Government Archive State Hazardous Waste Facilities List
NY RGA LF..... Recovered Government Archive Solid Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA CORRACTS facilities list

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 12/09/2014 has revealed that there is 1 CORRACTS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
X *SAFETY-KLEEN SYSTEMS INC WOODS*	*58-05 SAND AVENUE*	*SW 1/2 - 1 (0.528 mi.)*	*133*	*472*

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 12/09/2014 has revealed that there is 1 RCRA-SQG site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
X BP PRODUCTS NORTH AMERICA INC	60-11 QUEENS BLVD SUITE	WNW 1/8 - 1/4 (0.173 mi.)	P70	318

State- and tribal - equivalent CERCLIS

NY SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Environmental Conservation's Inactive Hazardous waste Disposal Sites in New York State.

A review of the NY SHWS list, as provided by EDR, and dated 02/16/2015 has revealed that there are 2 NY SHWS sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
X *DEWALT SERVICE CENTER*	*56-15 QUEENS BOULEVARD*	*WNW 1/4 - 1/2 (0.416 mi.)*	*124*	*437*
X *CLEANERS PRODUCTS SUPPLY INC.*	*50-45 BARNETT AVENUE*	*NW 1/2 - 1 (0.895 mi.)*	*134*	*487*

Class Code: Significant threat to the public health or environment - action required.

EXECUTIVE SUMMARY

State and tribal landfill and/or solid waste disposal site lists

NY SWF/LF: The Solid Waste Facilities/Landfill Sites records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data come from the list.

A review of the NY SWF/LF list, as provided by EDR, and dated 01/06/2015 has revealed that there are 2 NY SWF/LF sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
ulcg – SDR PROCESS CORP.	50-15 69TH PLACE	SE 1/4 - 1/2 (0.440 mi.)	128	466
ulcg – ***CON EDISON***	***50-40 70 ST***	***SE 1/4 - 1/2 (0.481 mi.)***	***132***	***470***

State and tribal leaking storage tank lists

NY LTANKS: Leaking Storage Tank Incident Reports. These records contain an inventory of reported leaking storage tank incidents reported from 4/1/86 through the most recent update. They can be either leaking underground storage tanks or leaking aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills

A review of the NY LTANKS list, as provided by EDR, and dated 02/16/2015 has revealed that there are 31 NY LTANKS sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
THE CORONET	***63-11 QUEENS BOULEVARD***	***WNW 0 - 1/8 (0.039 mi.)***	***B10***	***30***
Spill Number/Closed Date: 8906960 / 3/6/2003				
65-02 QUEENS BLVD	65-02 QUEENS BOULEVARD	ENE 0 - 1/8 (0.046 mi.)	C13	53
Spill Number/Closed Date: 0211821 / 7/14/2003				
ug – ***AMOCO SERVICE STATION 441***	***65-10 QUEENS BLVD***	***E 0 - 1/8 (0.058 mi.)***	***C18***	***62***
Spill Number/Closed Date: 1103843 / Not Reported				
ABONDONED PROPERTY	65-09 QUEENS BLVD	ENE 0 - 1/8 (0.072 mi.)	D24	103
Spill Number/Closed Date: 0010597 / 4/27/2006				
AMOCO SERVICE STA #849	***60-11 QUEENS BLVD***	***WNW 1/8 - 1/4 (0.173 mi.)***	***P69***	***315***
Spill Number/Closed Date: 0305424 / 12/9/2004				
CLOSED-LACKOF RECENT INFO	40016 62ND ST.	NNW 1/8 - 1/4 (0.239 mi.)	Y96	359
Spill Number/Closed Date: 8707190 / 3/4/2003				
59-44 48TH AVE	59-44 48TH AVE	SW 1/4 - 1/2 (0.252 mi.)	107	383
Spill Number/Closed Date: 9601004 / 4/20/1996				
CLOSED-LACKOF RECENT INFO	40015 61ST ST	NNW 1/4 - 1/2 (0.263 mi.)	108	384
Spill Number/Closed Date: 8707133 / 3/4/2003				
APARTMENT COMPLEX	40-15 61ST ST	NNW 1/4 - 1/2 (0.294 mi.)	AD111	394
Spill Number/Closed Date: 0302046 / 7/2/2003				
WOODSIDE RLTY LLC	***61-17 WOODSIDE AVENUE***	***NNW 1/4 - 1/2 (0.300 mi.)***	***AD113***	***410***
Spill Number/Closed Date: 0307724 / 7/11/2006				
BROOKLYN QUEENS EXPRSS.	WOODSIDE AVE OVERPASS	ENE 1/4 - 1/2 (0.302 mi.)	114	414
Spill Number/Closed Date: 0506838 / 9/6/2005				
PANAGIDES RESIDENCE	58-54 43RD AVE	WNW 1/4 - 1/2 (0.309 mi.)	115	415
Spill Number/Closed Date: 9403459 / 6/10/1994				
Spill Number/Closed Date: 9510505 / 11/21/1995				
58-02 QUEENS BLVD/GAS ST	58-02 QUEENS BLVD/GAS S	WNW 1/4 - 1/2 (0.335 mi.)	116	417
Spill Number/Closed Date: 9103571 / 3/14/2000				

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
6913 WOODSIDE AVE Spill Number/Closed Date: 9513654 / 1/30/1996	6913 WOODSIDE AVE	ENE 1/4 - 1/2 (0.337 mi.)	117	418
TANK TEST FAILURE Spill Number/Closed Date: 0800494 / 3/22/2010	39-21 65TH PLACE	NNE 1/4 - 1/2 (0.339 mi.)	118	419
WWRL RADIO - TTF Spill Number/Closed Date: 9610408 / 11/21/2014	***41-32 58TH STREET***	***NW 1/4 - 1/2 (0.372 mi.)***	***119***	***421***
NYPD BUILDING MAINTENANCE SECT Spill Number/Closed Date: 1202886 / Not Reported	***59-06 LAUREL HILL BOULE***	***SW 1/4 - 1/2 (0.380 mi.)***	***120***	***424***
MR. VITO ARABASCIO Spill Number/Closed Date: 9414759 / 2/9/1995	40-12 67TH STREET	NNE 1/4 - 1/2 (0.400 mi.)	121	430
58-17 WOODSIDE AVE/QUEENS Spill Number/Closed Date: 9007530 / 10/10/1990	58-17 WOODSIDE AVENUE	NW 1/4 - 1/2 (0.405 mi.)	122	431
TUSCAN DAIRY Spill Number/Closed Date: 8710767 / 3/20/2006	***51-40 59TH STREET***	***SW 1/4 - 1/2 (0.416 mi.)***	***123***	***433***
G A F SEELIG INC Spill Number/Closed Date: 9612639 / 5/12/1999	***59-05 52ND AVE***	***SSW 1/4 - 1/2 (0.436 mi.)***	***126***	***456***
46-05 56TH ST/QUEENS/UPS Spill Number/Closed Date: 8907313 / 3/8/1990	46-05 56TH STREET	W 1/4 - 1/2 (0.439 mi.)	127	465
OLD GAS STATION Spill Number/Closed Date: 0107899 / 7/11/2006	57-01 ROOSEVELT AV	NW 1/4 - 1/2 (0.452 mi.)	129	467
ROOSEVELT AV&69TH ST/QUNS Spill Number/Closed Date: 9100605 / 4/17/1991	ROOSEVELT AVE & 69TH ST	NE 1/4 - 1/2 (0.472 mi.)	130	468
60-06 39TH AVE/QUEENS Spill Number/Closed Date: 8709238 / 9/30/1992	60-06 39TH AVE	NNW 1/4 - 1/2 (0.475 mi.)	131	469

Lower Elevation	Address	Direction / Distance	Map ID	Page
SILVER TOWERS Spill Number/Closed Date: 9413343 / 11/5/1996	125-10 QUEENS BLVD	E 0 - 1/8 (0.098 mi.)	F33	125
46-19 65TH PL/QUEENS Spill Number/Closed Date: 9012801 / 3/14/1991	46-19 65TH PLACE	SE 1/8 - 1/4 (0.140 mi.)	49	150
MOBIL # 11397 Spill Number/Closed Date: 9012777 / 8/25/1994 Spill Number/Closed Date: 0509205 / 4/4/2006	***68-09 QUEENS BLVD***	***E 1/4 - 1/2 (0.278 mi.)***	***109***	***385***
EXXON SERVICE STATION Spill Number/Closed Date: 9701296 / 4/29/1997	69TH ST & QUEENS BLVD	E 1/4 - 1/2 (0.294 mi.)	AC110	393
EXXON USA #37036 Spill Number/Closed Date: 0312172 / 4/8/2004	***69-02 QUEENS BOULEVARD***	***E 1/4 - 1/2 (0.296 mi.)***	***AC112***	***395***
70-31 48TH AVE. Spill Number/Closed Date: 8706632 / 7/26/1993	70-31 48TH AVE.	ESE 1/4 - 1/2 (0.420 mi.)	125	455

EXECUTIVE SUMMARY

State and tribal registered storage tank lists

NY TANKS: This database contains records of facilities that are or have been regulated under Bulk Storage Program. Tank information for these facilities may not be releasable by the state agency.

A review of the NY TANKS list, as provided by EDR, and dated 12/29/2014 has revealed that there is 1 NY TANKS site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
BIG SIX TOWERS, INC	*59-55 47TH AVE*	*WSW 1/8 - 1/4 (0.173 mi.)*	*Q67*	*191*

NY UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database

A review of the NY UST list, as provided by EDR, and dated 12/29/2014 has revealed that there are 12 NY UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
THE CORONET	*63-11 QUEENS BOULEVARD*	*WNW 0 - 1/8 (0.039 mi.)*	*B10*	*30*
AUTO REPAIR AUTHORITY INC.	*65-02 QUEENS BOULEVARD*	*ENE 0 - 1/8 (0.046 mi.)*	*C12*	*45*
AMOCO SERVICE STATION 441	*65-10 QUEENS BLVD*	*E 0 - 1/8 (0.058 mi.)*	*C18*	*62*
65-09 QUEENS BLVD.	65-09 QUEENS BLVD	ENE 0 - 1/8 (0.072 mi.)	D22	97
BP #24351	60-11 QUEENS BOULEVARD	WNW 0 - 1/8 (0.079 mi.)	E27	107
THE WOODCREST	43-06 63 ST	NNW 0 - 1/8 (0.108 mi.)	G35	129
QUEENS BLVD. EXT. CARE FAC.	61-11 QUEENS BOULEVARD	WNW 1/8 - 1/4 (0.129 mi.)	J43	142
NAFPAKTOS REALTY LLC	*61-15 43RD AVENUE*	*NW 1/8 - 1/4 (0.167 mi.)*	*L62*	*182*
HYATT AVE. ASSOCIATES, LLC	*42-25 65TH PLACE*	*NE 1/8 - 1/4 (0.181 mi.)*	*71*	*321*
THE WINSTON LLC	43-14 60TH ST	NW 1/8 - 1/4 (0.205 mi.)	S80	338
MADISON APARTMENTS	*40-14 62ND STREET*	*NNW 1/8 - 1/4 (0.250 mi.)*	*Y106*	*379*

Lower Elevation	Address	Direction / Distance	Map ID	Page
BIG SIX TOWERS	59-55 47TH AVENUE	WSW 1/8 - 1/4 (0.173 mi.)	Q68	311

NY AST: The Aboveground Storage Tank database contains registered ASTs. The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database.

A review of the NY AST list, as provided by EDR, and dated 12/29/2014 has revealed that there are 17 NY AST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ENGINE COMPANY 292	64-10 QUEENS BLVD.	NNW 0 - 1/8 (0.020 mi.)	A5	19
AUTO REPAIR AUTHORITY INC.	*65-02 QUEENS BOULEVARD*	*ENE 0 - 1/8 (0.046 mi.)*	*C12*	*45*
JUAN RODRIGUEZ (CAPIRA REALTY	43-05 65 STREET	NNE 0 - 1/8 (0.105 mi.)	34	126
QUEENS BLVD. EXT. CARE FAC.	61-11 QUEENS BOULEVARD	WNW 1/8 - 1/4 (0.129 mi.)	J42	140
FANO, LLC	61-18 43RD AVENUE	NW 1/8 - 1/4 (0.147 mi.)	L51	154
HELMINE REALTY CO	*61-20 43 AVE*	*NW 1/8 - 1/4 (0.147 mi.)*	*L52*	*156*
43-05 61ST ST	43-05 61ST ST	NW 1/8 - 1/4 (0.167 mi.)	L61	180
HYATT AVE. ASSOCIATES, LLC	*42-25 65TH PLACE*	*NE 1/8 - 1/4 (0.181 mi.)*	*71*	*321*
60-05 44TH AVE	*60-05 44TH AVE*	*WNW 1/8 - 1/4 (0.185 mi.)*	*74*	*328*
THE WINSTON LLC	43-14 60TH ST	NW 1/8 - 1/4 (0.205 mi.)	S79	336
59-29 QUEENS BLVD. REALTY CORP	*59-29 QUEENS BLVD*	*WNW 1/8 - 1/4 (0.221 mi.)*	*X88*	*348*

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
41-34 60TH STREET ASSOCIATES	*41-34 -60 ST*	*NW 1/8 - 1/4 (0.241 mi.)*	*AA98*	*363*
APOLLO REALTY CO.	*41-19 60TH STREET*	*NW 1/8 - 1/4 (0.244 mi.)*	*AA99*	*367*
A&K AUTO REPAIR ENTERPRISE, IN	68-01 QUEENS BOULEVARD	E 1/8 - 1/4 (0.245 mi.)	Z100	370
41-15 60TH ST	*41-15 60TH ST*	*NW 1/8 - 1/4 (0.245 mi.)*	*AA102*	*373*

Lower Elevation	Address	Direction / Distance	Map ID	Page
BIG SIX TOWERS INC	*59-55 47TH AVE*	*WSW 1/8 - 1/4 (0.173 mi.)*	*Q65*	*186*
D&H AUTO REPAIR INC.	67-02 QUEENS BOULEVARD	E 1/8 - 1/4 (0.212 mi.)	T83	342

State and tribal Brownfields sites

NY BROWNFIELDS: Brownfields Site List

A review of the NY BROWNFIELDS list, as provided by EDR, and dated 02/16/2015 has revealed that there is 1 NY BROWNFIELDS site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DEWALT SERVICE CENTER	*56-15 QUEENS BOULEVARD*	*WNW 1/4 - 1/2 (0.416 mi.)*	*124*	*437*

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Registered Storage Tanks

NY HIST UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Conservation's Petroleum Bulk Storage (PBS) Database

A review of the NY HIST UST list, as provided by EDR, and dated 01/01/2002 has revealed that there are 4 NY HIST UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
THE CORONET	*63-11 QUEENS BOULEVARD*	*WNW 0 - 1/8 (0.039 mi.)*	*B10*	*30*
NAFPAKTOS REALTY LLC	*61-15 43RD AVENUE*	*NW 1/8 - 1/4 (0.167 mi.)*	*L62*	*182*
HYATT AVE. ASSOCIATES, LLC	*42-25 65TH PLACE*	*NE 1/8 - 1/4 (0.181 mi.)*	*71*	*321*
MADISON APARTMENTS	*40-14 62ND STREET*	*NNW 1/8 - 1/4 (0.250 mi.)*	*Y106*	*379*

Records of Emergency Release Reports

NY Spills: Data collected on spills reported to NYSDEC. is required by one or more of the following: Article 12 of the Navigation Law, 6 NYCRR Section 613.8 (from PBS regs), or 6 NYCRR Section 595.2 (from CBS regs). It includes spills active as of April 1, 1986, as well as spills occurring since this date.

A review of the NY Spills list, as provided by EDR, and dated 02/16/2015 has revealed that there are

EXECUTIVE SUMMARY

40 NY Spills sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
VAULT #6100 Spill Number/Closed Date: 0211002 / 4/3/2003	64TH ST & QUEENS BL	NW 0 - 1/8 (0.023 mi.)	A6	22
NYC FIRE DEPT CO 292 Spill Number/Closed Date: 9205404 / 8/11/1992 Spill Number/Closed Date: 1203463 / 7/12/2012 Spill Number/Closed Date: 9404336 / 10/3/1997	***64-18 QUEENS BLVD***	***E 0 - 1/8 (0.024 mi.)***	***A8***	***25***
VAULT 2213 Spill Number/Closed Date: 9812460 / 10/17/2002	QUEENS BLVD / 65TH ST	ENE 0 - 1/8 (0.048 mi.)	C16	58
AMOCO SERVICE STATION 441 Spill Number/Closed Date: 8903239 / Not Reported Spill Number/Closed Date: 0510718 / 12/19/2005	***65-10 QUEENS BLVD***	***E 0 - 1/8 (0.058 mi.)***	***C18***	***62***
SPILL NUMBER 9830011 Spill Number/Closed Date: 9830011 / 3/4/2003	65-09 QUEENS BLVD	ENE 0 - 1/8 (0.072 mi.)	D21	96
TWO GAL LEAK FROM VEH 60624 Spill Number/Closed Date: 0613087 / 3/16/2007	63 STREET & QUEENS BLVD	WNW 0 - 1/8 (0.073 mi.)	E25	104
MANHOLE#16636 Spill Number/Closed Date: 0412918 / 6/22/2005	QUEENS BLVD/65 PLACE	E 0 - 1/8 (0.093 mi.)	F28	119
AMOCO Spill Number/Closed Date: 0203335 / 6/28/2002	65TH PL/QUEENS BLVD	E 0 - 1/8 (0.093 mi.)	F29	121
VS 7327 Spill Number/Closed Date: 0605342 / 11/15/2006	65 PLACE & QUEENS BLVD	E 0 - 1/8 (0.093 mi.)	F30	122
AMOCO GASOLINE Spill Number/Closed Date: 9600065 / 4/2/1996	QUEENS BLVD/65TH PLACE	E 0 - 1/8 (0.095 mi.)	F31	123
MANHOLE 2269 Spill Number/Closed Date: 9913581 / 12/21/2001	43RD AVE & 63RD ST	NNW 0 - 1/8 (0.117 mi.)	H37	132
MH 2269 Spill Number/Closed Date: 0008928 / 12/18/2001	63RD ST/43RD AVE	NNW 0 - 1/8 (0.117 mi.)	H38	133
EXTENDED CARE FACILITY Spill Number/Closed Date: 0505575 / 10/14/2005	6111 QUEENS BLVD	WNW 1/8 - 1/4 (0.128 mi.)	J41	139
MANHOLE #1388 Spill Number/Closed Date: 0004952 / 10/23/2001	QUEENS BLVD & 61ST ST	WNW 1/8 - 1/4 (0.133 mi.)	J46	146
MANHOLE 16674 Spill Number/Closed Date: 0102341 / 9/10/2009	QUEENS BLVD/61ST ST	WNW 1/8 - 1/4 (0.133 mi.)	J47	148
COMMERCIAL BUSINESS Spill Number/Closed Date: 0507133 / 9/14/2005	61-18 43RD AVE	NW 1/8 - 1/4 (0.147 mi.)	L53	160
AMOCO SERVICE STA #849 Spill Number/Closed Date: 9800331 / 8/8/2002	***60-11 QUEENS BLVD***	***WNW 1/8 - 1/4 (0.173 mi.)***	***P69***	***315***
PRIVATE RESIDENCE Spill Number/Closed Date: 0410194 / 3/4/2005	42-37 64TH ST	N 1/8 - 1/4 (0.185 mi.)	73	327
42-48 65TH PLACE Spill Number/Closed Date: 9503975 / 7/1/1995	42-48 65TH PLACE	NE 1/8 - 1/4 (0.200 mi.)	77	334
MANHOLE 13755 Spill Number/Closed Date: 0010737 / 2/28/2001	43 RD AVE /60TH ST	NW 1/8 - 1/4 (0.209 mi.)	S81	340
SPILL NUMBER 0302107 Spill Number/Closed Date: 0302107 / 5/29/2003	61ST ST/LAUREL HILL BL	SSW 1/8 - 1/4 (0.220 mi.)	W87	347
MANHOLE PB #627 Spill Number/Closed Date: 0607481 / 4/24/2007	WOODSIDE AVE AND 65TH S	NNE 1/8 - 1/4 (0.223 mi.)	U89	352

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Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
213536; QUEENS BLVD AND 59TH P Spill Number/Closed Date: 0814446 / 11/29/2008	QUEENS BLVD AND 59TH PL	WNW 1/8 - 1/4 (0.226 mi.)	X91	354
DRUM RUN- ON SIDE OF ROAD Spill Number/Closed Date: 0404774 / 9/13/2004	63RD STREET/HICKS DRIVE	N 1/8 - 1/4 (0.227 mi.)	V92	355
RAHMAN HOME Spill Number/Closed Date: 0700837 / 7/9/2007	4839 61ST STREET	SSW 1/8 - 1/4 (0.231 mi.)	W93	356
SPILL NUMBER 0306785 Spill Number/Closed Date: 0306785 / 11/13/2003	WOODSIDE AVE & 64 ST	N 1/8 - 1/4 (0.234 mi.)	95	358
TRANSFORMER MANHOLE 6425 Spill Number/Closed Date: 9912515 / 8/27/2008	WOODSIDE AVE/63RD STREE	N 1/8 - 1/4 (0.245 mi.)	AB101	372
63RD STREET AT Spill Number/Closed Date: 0306635 / 11/13/2003	WOODSIDE AVE	N 1/8 - 1/4 (0.247 mi.)	AB104	377
RESIDENCE Spill Number/Closed Date: 9905266 / 9/1/1999	65-41 WOODSIDE AVENUE	NE 1/8 - 1/4 (0.248 mi.)	105	378

Lower Elevation	Address	Direction / Distance	Map ID	Page
44-37 64TH ST/QUEENS Spill Number/Closed Date: 9001388 / 5/5/1990	44-37 64TH STREET	SSW 0 - 1/8 (0.038 mi.)	9	29
BROOKLYN QUEENS EXPWY Spill Number/Closed Date: 9410193 / 10/31/1994	BQE QUEENS BLVD EXIT	E 0 - 1/8 (0.113 mi.)	F36	131
KENS FOODS - RYDER TRUCK Spill Number/Closed Date: 9702530 / 5/30/1997	65TH PLACE LAUREL HILL	S 1/8 - 1/4 (0.134 mi.)	I48	149
66-20 QUEENS BOULEVARD Spill Number/Closed Date: 9610339 / 11/19/1996	66-20 QUEENS BOULEVARD	E 1/8 - 1/4 (0.154 mi.)	K55	162
FRAMED HOUSES Spill Number/Closed Date: 0810589 / 1/5/2009	48-16 65TH STREET	S 1/8 - 1/4 (0.161 mi.)	N59	178
SPILL NUMBER 0403092 Spill Number/Closed Date: 0403092 / 7/23/2004	59-55 47TH AVE	WSW 1/8 - 1/4 (0.173 mi.)	Q66	190
BIG SIX TOWERS, INC Spill Number/Closed Date: 0803507 / 7/7/2008 Spill Number/Closed Date: 0403090 / 6/2/2010	***59-55 47TH AVE***	***WSW 1/8 - 1/4 (0.173 mi.)***	***Q67***	***191***
48-39 63RD ST/STERN Spill Number/Closed Date: 9110329 / 1/2/1992	48-39 63RD ST	SSW 1/8 - 1/4 (0.195 mi.)	R75	331
48-10 65TH ST Spill Number/Closed Date: 9701857 / 2/19/2003	48-10 65TH ST	S 1/8 - 1/4 (0.196 mi.)	76	333
IN FRONT OF Spill Number/Closed Date: 1111540 / 12/29/2011	48-23 63RD ST	SSW 1/8 - 1/4 (0.202 mi.)	R78	335
4856-66 BROADWAY GAS STA Spill Number/Closed Date: 8700506 / 8/12/1987	4856-66TH STREET	SE 1/8 - 1/4 (0.224 mi.)	90	353

EXECUTIVE SUMMARY

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 12/09/2014 has revealed that there are 9 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
NYC FIRE DEPT ENGINE CO 292	*64-18 QUEENS BLVD*	*NNW 0 - 1/8 (0.018 mi.)*	*A4*	*17*
CON EDISON MANHOLR 1263	*QUEENS BLVD & 64 RD*	*NW 0 - 1/8 (0.023 mi.)*	*A7*	*23*
AMOCO SERVICE STATION 441	*65-10 QUEENS BLVD*	*E 0 - 1/8 (0.058 mi.)*	*C18*	*62*
E ZAPPI DERMATOPATHOLOGY LAB I	*63-11 QUEENS BLVD*	*NNW 0 - 1/8 (0.074 mi.)*	*26*	*105*
BIG TOWER CLEANERS	*60-28 QUEENS BLVD*	*WNW 1/8 - 1/4 (0.161 mi.)*	*M57*	*163*
NYSDOT CONTRACT D254603	*61-04 LAUREL HILL BLVD*	*SSW 1/8 - 1/4 (0.218 mi.)*	*W86*	*346*
E C I CORP	*68TH ST & QUEENS BLVD*	*E 1/8 - 1/4 (0.239 mi.)*	*Z97*	*361*

Lower Elevation	Address	Direction / Distance	Map ID	Page
NYSDOT BIN 1065589 -BQE OVER L	*BQE RT I 278*	*S 0 - 1/8 (0.123 mi.)*	*I40*	*135*
PIGASOS SERVICE STATION CO	*66-04 QUEENS BLVD*	*E 1/8 - 1/4 (0.146 mi.)*	*K50*	*151*

NY MANIFEST: Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

A review of the NY MANIFEST list, as provided by EDR, and dated 01/01/2015 has revealed that there are 14 NY MANIFEST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CON EDISON MANHOLR 1263	*QUEENS BLVD & 64 RD*	*NW 0 - 1/8 (0.023 mi.)*	*A7*	*23*
NYC FIRE DEPT CO 292	*64-18 QUEENS BLVD*	*E 0 - 1/8 (0.024 mi.)*	*A8*	*25*
THE CORONET	*63-11 QUEENS BOULEVARD*	*WNW 0 - 1/8 (0.039 mi.)*	*B10*	*30*
AMOCO SERVICE STATION 441	*65-10 QUEENS BLVD*	*E 0 - 1/8 (0.058 mi.)*	*C18*	*62*
CON EDISON	63 ST & MCINTOSH	NNW 0 - 1/8 (0.097 mi.)	G32	124
NYNEX	QUEENS BLVD & 61ST ST	WNW 1/8 - 1/4 (0.133 mi.)	J44	144
NYNEX	QUEENS BLVD/61ST	WNW 1/8 - 1/4 (0.133 mi.)	J45	146
BIG SIX CLEANERS	*60-28 QUEENS BLVD*	*WNW 1/8 - 1/4 (0.161 mi.)*	*M58*	*169*
CON EDISON	FO 4152 63 ST	N 1/8 - 1/4 (0.214 mi.)	V85	345
E C I CORP	*68TH ST & QUEENS BLVD*	*E 1/8 - 1/4 (0.239 mi.)*	*Z97*	*361*

Lower Elevation	Address	Direction / Distance	Map ID	Page
BELL ATLANTIC-NY	LAUREL HILL BLVD & 65 P	SSE 0 - 1/8 (0.118 mi.)	39	134
NYSDOT BIN 1065589 -BQE OVER L	*BQE RT I 278*	*S 0 - 1/8 (0.123 mi.)*	*I40*	*135*
CON EDISON	4833 65 ST	S 1/8 - 1/4 (0.166 mi.)	N60	179
CON EDISON	6626 LAUREL HILL BLVD	ESE 1/8 - 1/4 (0.182 mi.)	O72	326

EXECUTIVE SUMMARY

NY DRYCLEANERS: A listing of all registered drycleaning facilities.

A review of the NY DRYCLEANERS list, as provided by EDR, and dated 01/12/2015 has revealed that there is 1 NY DRYCLEANERS site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
BIG SIX CLEANERS	*60-28 QUEENS BLVD*	*WNW 1/8 - 1/4 (0.161 mi.)*	*M58*	*169*

NY E DESIGNATION: Lots designation with an ?E? on the Zoning Maps of the City of New York for potential hazardous material contamination, air and/or noise quality impacts.

A review of the NY E DESIGNATION list, as provided by EDR, and dated 12/03/2014 has revealed that there are 6 NY E DESIGNATION sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
LOT 30,TAXBLOCK 2325	QUEENS BOULEVARD	NW 0 - 1/8 (0.012 mi.)	A2	12
LOT 77,TAXBLOCK 1341	64-11 QUEENS BOULEVARD	N 0 - 1/8 (0.043 mi.)	11	42
LOT 20,TAXBLOCK 2392	65-02 QUEENS BOULEVARD	ENE 0 - 1/8 (0.046 mi.)	C14	54
LOT 23,TAXBLOCK 2392	65-10 QUEENS BOULEVARD	E 0 - 1/8 (0.058 mi.)	C17	59
LOT 39,TAXBLOCK 2324	63-06 QUEENS BOULEVARD	WNW 0 - 1/8 (0.064 mi.)	B20	92
LOT 1,TAXBLOCK 1342	65-09 QUEENS BOULEVARD	ENE 0 - 1/8 (0.072 mi.)	D23	101

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there are 8 EDR US Hist Auto Stat sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	6424 QUEENS BLVD	N 0 - 1/8 (0.016 mi.)	A3	17
Not reported	6502 QUEENS BLVD	E 0 - 1/8 (0.047 mi.)	C15	57
Not reported	6510 QUEENS BLVD	E 0 - 1/8 (0.060 mi.)	C19	91
Not reported	6011 QUEENS BLVD	WNW 1/8 - 1/4 (0.172 mi.)	P64	185
Not reported	4750 59TH PL	WSW 1/8 - 1/4 (0.247 mi.)	103	377

Lower Elevation	Address	Direction / Distance	Map ID	Page
Not reported	6604 QUEENS BLVD	E 1/8 - 1/4 (0.150 mi.)	K54	161
Not reported	6614 LAUREL HILL BLVD	ESE 1/8 - 1/4 (0.172 mi.)	O63	185
Not reported	6702 QUEENS BLVD	E 1/8 - 1/4 (0.212 mi.)	T82	341

EXECUTIVE SUMMARY

EDR US Hist Cleaners: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR US Hist Cleaners list, as provided by EDR, has revealed that there are 3 EDR US Hist Cleaners sites within approximately 0.25 miles of the target property.

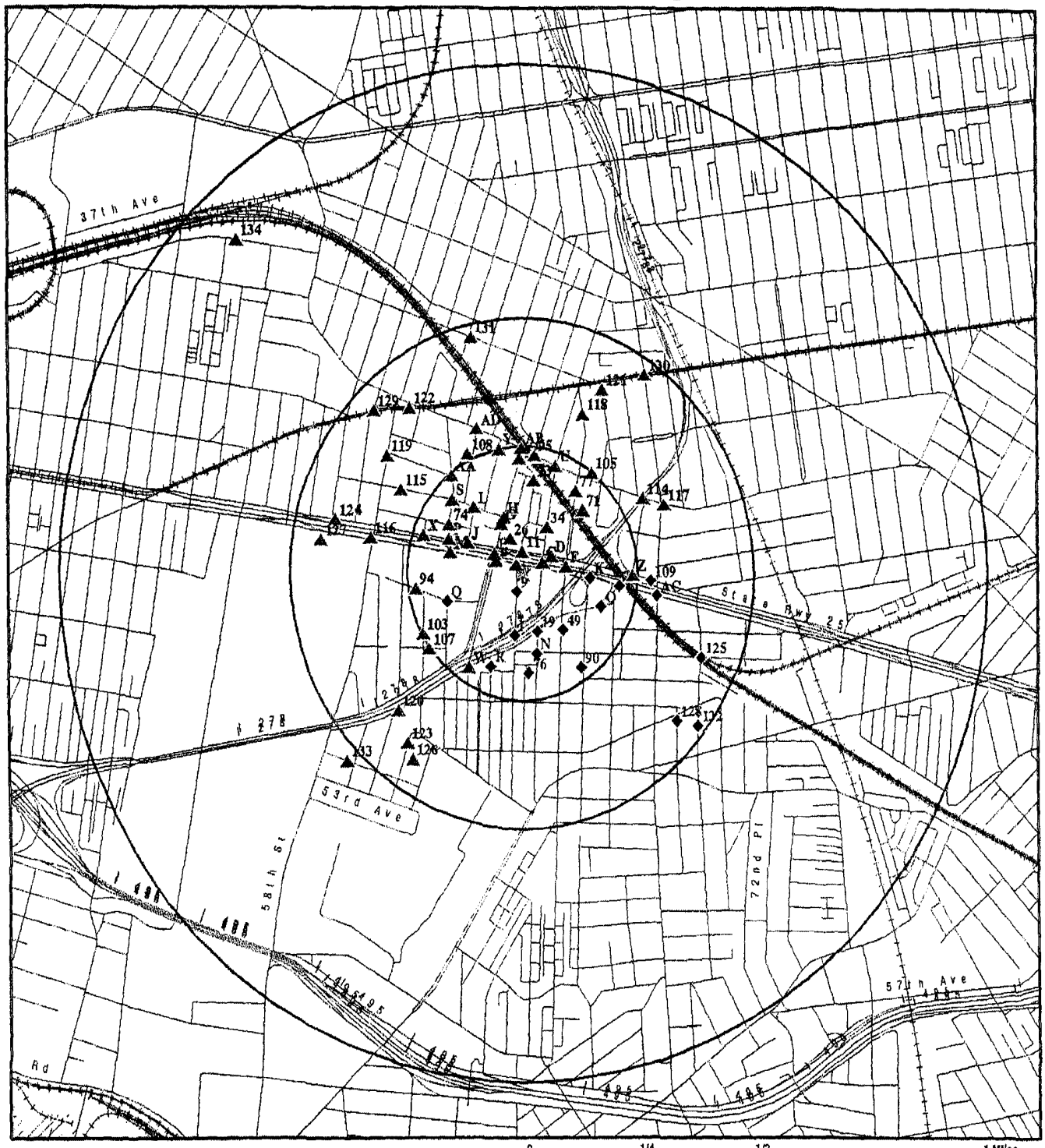
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	6028 QUEENS BLVD	WNW 1/8 - 1/4 (0.160 mi.)	M56	163
Not reported	6414 WOODSIDE AVE	NNE 1/8 - 1/4 (0.213 mi.)	U84	344
Not reported	5915 47TH AVE	W 1/8 - 1/4 (0.233 mi.)	94	358

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 16 records.

Site Name	Database(s)
QUEENS BOULEVARD EXTENDED CARE FAC	US AIRS
QUEENS WEST (HUNTER'S POINT) PARCE	NY ENG CONTROLS, NY INST CONTROL, NY VCP
QUEENS MEDALLION LEASING	NY SHWS, NY MANIFEST, NY BROWNFIELDS
ACCURATE ASSOCIATES	CORRACTS, RCRA-LQG, ICIS, RAATS, NJ MANIFEST, NY MANIFEST
BROADWAY AND QUEENS BLVD PLUME TRA	NY SHWS
34TH AVE. & 62ND ST. PLUME	NY SHWS
WHITE SUN CLEANERS	NY SHWS
ROEHR CHEMICALS, INC.	NY SHWS
QUEENS WEST - SOUTH	NY SHWS
OUTLET CITY	NY SHWS
QUEENS BLVD AND 52ND ST PLUME TRAC	NY SHWS
BUILD-IT-GREENINYC/BIGICOMPOST	NY SWF/LF
82-11 QUEENS BLVD/SUNOCO	NY LTANKS
PEPSI - TTF	NY LTANKS
86-35 QUEENS BOULEVARD BUILDING	FINDS
QUEENS BOULEVARD EXTENDED CARE FAC	FINDS

OVERVIEW MAP - 4222523.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 64-06 Queens Boulevard ADDRESS: 64-06 Queens Boulevard Woodside NY 11377 LAT/LONG: 40.7407 / 73.9014	CLIENT: Fanning, Phillips & Molnar CONTACT: George Holmes INQUIRY #: 4222523.2s DATE: March 03, 2015 4:39 pm

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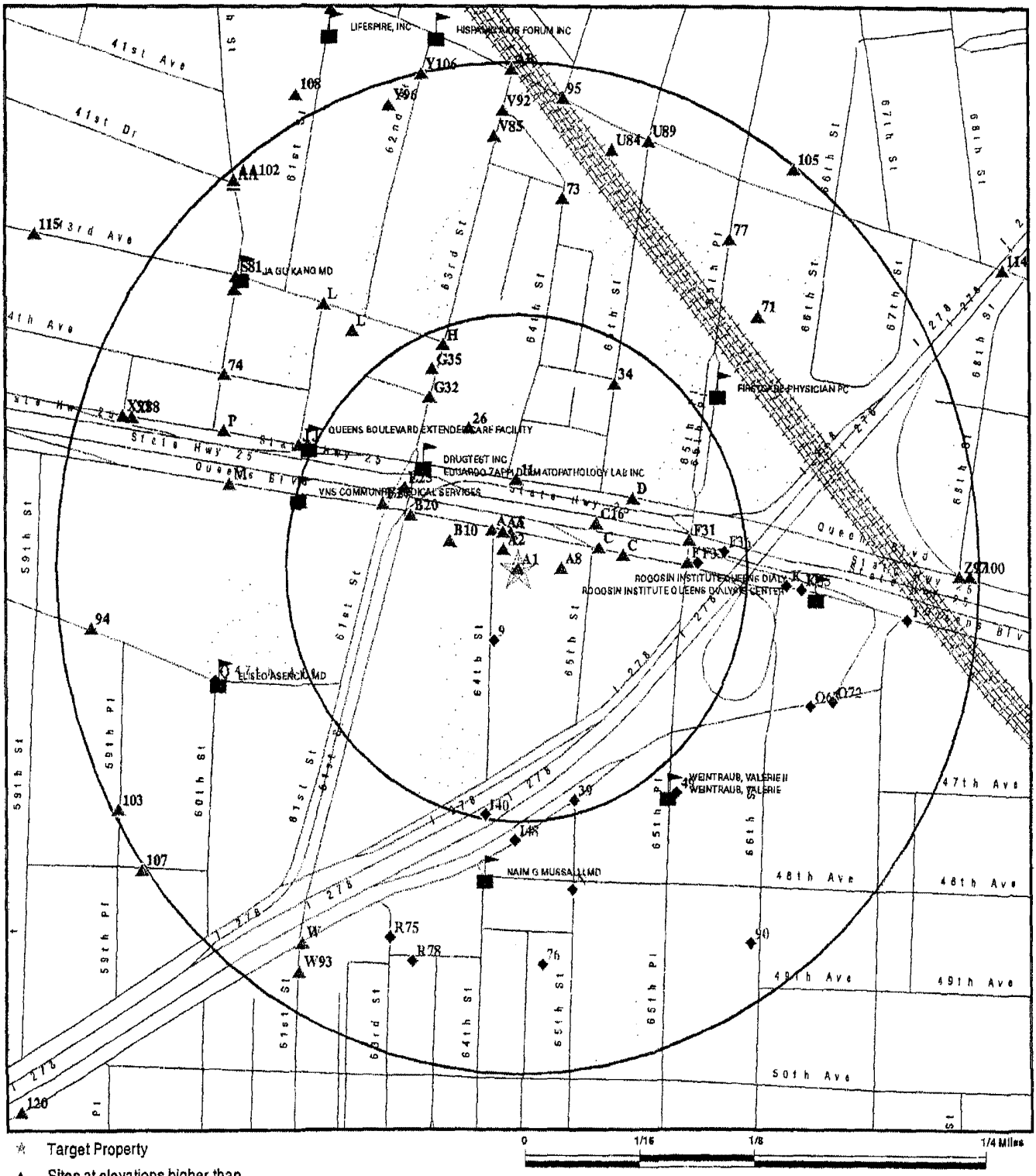
DETAIL MAP - 4222523.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone

This report includes interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 64-06 Queens Boulevard	CLIENT: Fanning, Phillips & Molnar
ADDRESS: 64-06 Queens Boulevard Woodside NY 11377	CONTACT: George Holmes
LAT/LONG: 40.7407 / 73.9014	INQUIRY #: 4222523.2s DATE: March 03, 2015 4:42 pm

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A1
Target
Property

LOT 32,TAXBLOCK 2325
64-06 QUEENS BOULEVARD
QUEENS, NY 11377

NY E DESIGNATION **S108469922**
N/A

Site 1 of 8 in cluster A

Actual:
42 ft.

E DESIGNATION:

Tax Lot(s):	32
E-No:	E-163
Effective Date:	6/29/2006
Satisfaction Date:	Not reported
Ceqr Number:	06DCP065Q
Ulurp Number:	060294ZMQ
Zoning Map No:	9d
Description:	Air Quality - HVAC fuel limited to natural gas
Borough Code:	QN
Community District:	402
Census Tract:	245
Census Block:	1002
School District:	24
City Council District:	26
Fire Company:	E292
Health Area:	41
Police Precinct:	108
Zone District 1:	R4
Zone District 2:	Not reported
Commercial Overlay1:	C2-2
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	C2-2/R4
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	K9
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	RAMONA HOLDING LLC
Lot Area:	000012000
Total Building Floor Area:	00000010926
Commercial Floor Area:	00000010926
Office Floor Area:	00000000000
Retail Floor Area:	00000010926
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0100.00
Lot Depth:	0120.00
Building Frontage:	0099.00
Building Depth:	0110.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5

LOT 32,TAXBLOCK 2325 (Continued) **S108469922**

Basement Type Grade:	5
Land Assessed Value:	00000235800
Total Assessed Value:	00000513000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1926
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.91
Maximum Allowable Far:	00.90
Borough Code:	4
Borough Tax Block And Lot:	4023250032
Condominium Number:	00000
Census Tract 2:	0245
X Coordinate:	1011601
Y Coordinate:	0209152
Zoning Map:	09D
Sanborn Map:	409 041
Tax Map:	41301
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	32
E-No:	E-163
Effective Date:	6/29/2006
Satisfaction Date:	Not reported
Ceqr Number:	06DCP065Q
Ulurp Number:	060294ZMQ
Zoning Map No:	9d
Description:	Underground Gasoline Storage Tanks* Testing Protocol.
Borough Code:	QN
Community District:	402
Census Tract:	245
Census Block:	1002
School District:	24
City Council District:	26
Fire Company:	E292
Health Area:	41
Police Precinct:	108
Zone District 1:	R4
Zone District 2:	Not reported
Commercial Overlay1:	C2-2
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	C2-2/R4

LOT 32,TAXBLOCK 2325 (Continued) **S108469922**

All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	K9
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	RAMONA HOLDING LLC
Lot Area:	000012000
Total Building Floor Area:	00000010926
Commercial Floor Area:	00000010926
Office Floor Area:	00000000000
Retail Floor Area:	00000010926
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0100.00
Lot Depth:	0120.00
Building Frontage:	0099.00
Building Depth:	0110.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000235800
Total Assessed Value:	00000513000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1926
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.91
Maximum Allowable Far:	00.90
Borough Code:	4
Borough Tax Block And Lot:	4023250032
Condominium Number:	00000
Census Tract 2:	0245
X Coordinate:	1011601
Y Coordinate:	0209152
Zoning Map:	09D
Sanborn Map:	409 041
Tax Map:	41301
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006

LOT 32,TAXBLOCK 2325 (Continued) **S108469922**

Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	32
E-No:	E-163
Effective Date:	6/29/2006
Satisfaction Date:	Not reported
Ceqr Number:	06DCP065Q
Ulurp Number:	060294ZMQ
Zoning Map No:	9d
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	QN
Community District:	402
Census Tract:	245
Census Block:	1002
School District:	24
City Council District:	26
Fire Company:	E292
Health Area:	41
Police Precinct:	108
Zone District 1:	R4
Zone District 2:	Not reported
Commercial Overlay1:	C2-2
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	C2-2/R4
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	K9
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	RAMONA HOLDING LLC
Lot Area:	000012000
Total Building Floor Area:	00000010926
Commercial Floor Area:	00000010926
Office Floor Area:	00000000000
Retail Floor Area:	00000010926
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0100.00
Lot Depth:	0120.00
Building Frontage:	0099.00
Building Depth:	0110.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5

LOT 32,TAXBLOCK 2325 (Continued) **S108469922**

Land Assessed Value:	00000235800
Total Assessed Value:	00000513000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1926
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.91
Maximum Allowable Far:	00.90
Borough Code:	4
Borough Tax Block And Lot:	4023250032
Condominium Number:	00000
Census Tract 2:	0245
X Coordinate:	1011601
Y Coordinate:	0209152
Zoning Map:	09D
Sanborn Map:	409 041
Tax Map:	41301
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

A2
NW
< 1/8
0.012 mi.
65 ft.

LOT 30,TAXBLOCK 2325
QUEENS BOULEVARD
QUEENS, NY 11377

Site 2 of 8 in cluster A

NY E DESIGNATION **S108161217**
N/A

Relative:
Higher

Actual:
43 ft.

E DESIGNATION:

Tax Lot(s):	30
E-No:	E-163
Effective Date:	6/29/2006
Satisfaction Date:	Not reported
Ceqr Number:	06DCP065Q
Ulurp Number:	060294ZMQ
Zoning Map No:	9d
Description:	Air Quality - HVAC fuel limited to natural gas
Borough Code:	QN
Community District:	402
Census Tract:	245
Census Block:	1002
School District:	24
City Council District:	26
Fire Company:	E292
Health Area:	41
Police Precinct:	108
Zone District 1:	R4
Zone District 2:	Not reported

LOT 30,TAXBLOCK 2325 (Continued) **S108161217**

Commercial Overlay1:	C2-2
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	C2-2/R4
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G7
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	RAMONA HOLDING LLC
Lot Area:	000003895
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00000
Number of Floors:	000.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0041.00
Lot Depth:	0095.00
Building Frontage:	0000.00
Building Depth:	0000.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000069750
Total Assessed Value:	00000069750
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.00
Maximum Allowable Far:	00.90
Borough Code:	4
Borough Tax Block And Lot:	4023250030
Condominium Number:	00000
Census Tract 2:	0245
X Coordinate:	1011532
Y Coordinate:	0209199
Zoning Map:	09D
Sanborn Map:	409 041
Tax Map:	41301
E Designation No:	Not reported
Date of RPAD Data:	11/2005

LOT 30,TAXBLOCK 2325 (Continued) **S108161217**

Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	30
E-No:	E-163
Effective Date:	6/29/2006
Satisfaction Date:	Not reported
Ceqr Number:	06DCP065Q
Ulurp Number:	060294ZMQ
Zoning Map No:	9d
Description:	Underground Gasoline Storage Tanks* Testing Protocol.
Borough Code:	QN
Community District:	402
Census Tract:	245
Census Block:	1002
School District:	24
City Council District:	26
Fire Company:	E292
Health Area:	41
Police Precinct:	108
Zone District 1:	R4
Zone District 2:	Not reported
Commercial Overlay1:	C2-2
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	C2-2/R4
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G7
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	RAMONA HOLDING LLC
Lot Area:	000003895
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00000
Number of Floors:	000.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0041.00
Lot Depth:	0095.00
Building Frontage:	0000.00

LOT 30,TAXBLOCK 2325 (Continued) **S108161217**

Building Depth:	0000.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000069750
Total Assessed Value:	00000069750
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.00
Maximum Allowable Far:	00.90
Borough Code:	4
Borough Tax Block And Lot:	4023250030
Condominium Number:	00000
Census Tract 2:	0245
X Coordinate:	1011532
Y Coordinate:	0209199
Zoning Map:	09D
Sanborn Map:	409 041
Tax Map:	41301
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	30
E-No:	E-163
Effective Date:	6/29/2006
Satisfaction Date:	Not reported
Ceqr Number:	06DCP065Q
Ulurp Number:	060294ZMQ
Zoning Map No:	9d
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	QN
Community District:	402
Census Tract:	245
Census Block:	1002
School District:	24
City Council District:	26
Fire Company:	E292
Health Area:	41
Police Precinct:	108
Zone District 1:	R4
Zone District 2:	Not reported
Commercial Overlay1:	C2-2

LOT 30,TAXBLOCK 2325 (Continued) **S108161217**

Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	C2-2/R4
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G7
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	RAMONA HOLDING LLC
Lot Area:	000003895
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00000
Number of Floors:	000.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0041.00
Lot Depth:	0095.00
Building Frontage:	0000.00
Building Depth:	0000.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000069750
Total Assessed Value:	00000069750
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.00
Maximum Allowable Far:	00.90
Borough Code:	4
Borough Tax Block And Lot:	4023250030
Condominium Number:	00000
Census Tract 2:	0245
X Coordinate:	1011532
Y Coordinate:	0209199
Zoning Map:	09D
Sanborn Map:	409 041
Tax Map:	41301
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006

LOT 30,TAXBLOCK 2325 (Continued) **S108161217**

Date of Zoning Data: 11/2005
Date of Major Property Data: 11/2005
Date of Landmark Data: 12/2005
Date of Base Map Data: 01/2006
Date of Mass Appraisal Data: 11/2005
Date of Political and Adm Data: 08/2005
Pluto-Base Map Indicator: 1

A3 **EDR US Hist Auto Stat** **1015588450**
North **6424 QUEENS BLVD** **N/A**
< 1/8 **WOODSIDE, NY 11377**
0.016 mi.
87 ft. **Site 3 of 8 in cluster A**

Relative:
Higher

Actual:
44 ft.

EDR Historical Auto Stations:
Name: REMOSIL AUTO REPAIR CORP
Year: 2009
Address: 6424 QUEENS BLVD

A4 **NYC FIRE DEPT ENGINE CO 292** **RCRA NonGen / NLR** **1000912264**
NNW **64-18 QUEENS BLVD** **FINDS** **NY0000564559**
< 1/8 **QUEENS, NY 11368**
0.018 mi.
94 ft. **Site 4 of 8 in cluster A**

Relative:
Higher

Actual:
44 ft.

RCRA NonGen / NLR:
Date form received by agency: 01/01/2007
Facility name: NYC FIRE DEPT ENGINE CO 292
Facility address: 64-18 QUEENS BLVD
QUEENS, NY 11377
EPA ID: NY0000564559
Mailing address: QUEENS BLVD
QUEENS, NY 11377
Contact: Not reported
Contact address: QUEENS BLVD
QUEENS, NY 11377
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: NYC FIRE DEPT ENGINE CO 292
Owner/operator address: 64-18 QUEENS BLVD
QUEENS, NY 11377
Owner/operator country: US
Owner/operator telephone: (914) 268-6660
Legal status: Municipal
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NYC FIRE DEPT ENGINE CO 292
Owner/operator address: 64-18 QUEENS BLVD

NYC FIRE DEPT ENGINE CO 292 (Continued) **1000912264**

QUEENS, NY 11377
Owner/operator country: US
Owner/operator telephone: (914) 268-6660
Legal status: Municipal
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Site name: NYC FIRE DEPT ENGINE CO 292
Classification: Not a generator, verified

Date form received by agency: 07/08/1999
Site name: NYC FIRE DEPT ENGINE CO 292
Classification: Not a generator, verified

Date form received by agency: 08/10/1994
Site name: NYC FIRE DEPT ENGINE CO 292
Classification: Large Quantity Generator

Hazardous Waste Summary:
Waste code: D000
Waste name: Not Defined

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D008
Waste name: LEAD

Waste code: D018
Waste name: BENZENE

NYC FIRE DEPT ENGINE CO 292 (Continued) **1000912264**

Waste code: D020
Waste name: CHLORDANE

Violation Status: No violations found

FINDS:

Registry ID: 110007988179

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

A5 **ENGINE COMPANY 292** **NY AST** **A100175167**
NNW **64-10 QUEENS BLVD.** **N/A**
< 1/8 **QUEENS, NY 11377**
0.020 mi.
103 ft. **Site 5 of 8 in cluster A**

Relative:
Higher

Actual:
44 ft.

AST:
Region: STATE
DEC Region: 2
Site Status: Unregulated/Closed
Facility Id: 2-600533
Program Type: PBS
UTM X: 593633.51462000003
UTM Y: 4510425.3849400003
Expiration Date: 12/23/2001
Site Type: Other

Affiliation Records:
Site Id: 22514
Affiliation Type: Facility Owner
Company Name: FIRE DEPARTMENT
Contact Type: ASST. COMMR. OF FACILITIES
Contact Name: JOSEPH M. MASTROPIETRO
Address1: 9 METROTECH
Address2: Not reported
City: BROOKLYN
State: NY
Zip Code: 11201-3857
Country Code: 001
Phone: (718) 999-7900
EMail: Not reported
Fax Number: Not reported
Modified By: CGFREEDM
Date Last Modified: 5/2/2014

Site Id: 22514
Affiliation Type: Mail Contact
Company Name: FIRE DEPARTMENT
Contact Type: Not reported
Contact Name: ASST. COMMISSIONER JOSEPH M. MASTROPIETRO
Address1: 48-34 35TH STREET

ENGINE COMPANY 292 (Continued) **A100175167**

Address2:	Not reported
City:	LONG ISLAND CITY
State:	NY
Zip Code:	11101
Country Code:	001
Phone:	(718) 784-6510
EMail:	MASTROJ@FDNY.NYC.GOV
Fax Number:	Not reported
Modified By:	CGFREEDM
Date Last Modified:	5/2/2014

Site Id:	22514
Affiliation Type:	On-Site Operator
Company Name:	ENGINE COMPANY 292
Contact Type:	Not reported
Contact Name:	COMPANY OFFICER
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 476-6292
EMail:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	22514
Affiliation Type:	Emergency Contact
Company Name:	FIRE DEPARTMENT
Contact Type:	Not reported
Contact Name:	EOC/NOTIFICATION DESK
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 999-2094
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	8/23/2012

Tank Info:

Tank Number:	#1
Tank Id:	42926
Material Code:	0001
Common Name of Substance:	#2 Fuel Oil (On-Site Consumption)

Equipment Records:

H00 - Tank Leak Detection - None
C01 - Pipe Location - Aboveground
I05 - Overfill - Vent Whistle

ENGINE COMPANY 292 (Continued) **A100175167**

J02 - Dispenser - Suction Dispenser
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
F00 - Pipe External Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)
B01 - Tank External Protection - Painted/Asphalt Coating

Tank Location: 3
Tank Type: Steel/Carbon Steel/Iron
Tank Status: Closed - Removed
Pipe Model: Not reported
Install Date: 12/01/1980
Capacity Gallons: 2500
Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: 03/01/2001
Register: True
Modified By: TRANSLAT
Last Modified: 03/04/2004
Material Name: #2 Fuel Oil (On-Site Consumption)

Tank Number: 001
Tank Id: 42925
Material Code: 0008
Common Name of Substance: Diesel

Equipment Records:

C01 - Pipe Location - Aboveground
J02 - Dispenser - Suction Dispenser
D01 - Pipe Type - Steel/Carbon Steel/Iron
G01 - Tank Secondary Containment - Diking (Aboveground)
A00 - Tank Internal Protection - None
B99 - Tank External Protection - Other
H05 - Tank Leak Detection - In-Tank System (ATG)
I02 - Overfill - High Level Alarm
F00 - Pipe External Protection - None

Tank Location: 3
Tank Type: Steel/Carbon Steel/Iron
Tank Status: In Service
Pipe Model: Not reported
Install Date: 02/01/1998
Capacity Gallons: 550
Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: Not reported
Register: True
Modified By: TRANSLAT
Last Modified: 03/04/2004
Material Name: Diesel

A6 **VAULT #6100** **NY Spills** **S106011162**
NW **64TH ST & QUEENS BL** **N/A**
< 1/8 **QUEENS, NY**
0.023 mi.
122 ft. **Site 6 of 8 in cluster A**

Relative:
Higher

Actual:
43 ft.

SPILLS:

Facility ID:	0211002
Facility Type:	ER
DER Facility ID:	100127
Site ID:	114833
DEC Region:	2
Spill Date:	2/2/2003
Spill Number/Closed Date:	0211002 / 4/3/2003
Spill Cause:	Equipment Failure
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
SWIS:	4101
Investigator:	JHOCONNE
Referred To:	Not reported
Reported to Dept:	2/3/2003
CID:	390
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	2/3/2003
Spill Record Last Update:	4/3/2003
Spiller Name:	LARRY COSTA
Spiller Company:	CON ED
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10003
Spiller Company:	001
Contact Name:	LARRY COSTA
Contact Phone:	(212) 580-6763
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "O'CONNELL"e2mls no. 147-010:02-FEB-2003 20:03 HRS FOUND 1 PINT UNKNOWN OIL ON 1 PINT WATER MIXED WITH LEAVES AND DIRT IN TM6100. NO SEWERS OR WATERWAYS APPEAR TO BE AFFECTED. TOOK SAMPLE - CLEAN UP PENDING RESULTS. WILL HAVE UNIT PRESSURE TESTED. PCB HISTORICAL IS 34 PPMDATED 6/11/96. UPDATE:03-FEB 2003 0100HRS LAB RESULTS RETURNED LSN# 03-00933-001 25 PPM.UPDATE 2/3/03 11:50 HRS. CALLED QUEENS EQUIP. GROUP TO REQUEST PRESSURE TEST FOR THIS TRANSFORMER DUE TO UNKNOWN OIL. SPOKE WITH SUPERVISOR CHRIS HOFFMAN WHO INFORMED ME HE HAD CREW ON LOCATION DRAINING THE UNIT.UPDATE 2-3-03 1200 HRS NETWORK REPORTS HE WAS SENT TO LOCATION TO PRESSURE TEST UNIT. TRANSF IS ON FDR 1Q19 AND WAS DROPPED OFF SYSTEM. HE FOUND UNIT BELOW MIN. HE DID NOT PRESSURE TEST UNIT. AND UNDER 50 PPM TANKER WAS ON LOCATION AND DRAINED TRANSF. TANKER DRAIN 20 GALLONS FROM UNIT. UNIT HOLDS APPROX 190 GALLONS. APPROX 170 GALLONS MISSING. HE SEE OIL MIXED IN DIRT. 2/03/03 13:45 HRS. AFTER DRAINING TRANSFORMER (AS PER PREVIOUS UPDATE) HE PERFORMED A PRESSURE TEST OF THE EMPTY TRANSFORMER AND IT DID NOT HOLD PRESSURE.UPDATE 2/3/03 15:00 HRS. CREW FOUND AN EARTHEN SUMP IN STRUCTURE.UPDATE 2-3-03 1700 HRS B. BAMONTE OS FLUSH DEPT

VAULT #6100 (Continued) **S106011162**

REPORTS INITAL CLEANUP IS COMPLETED. HE DOUBLE WASHED STRUCTUREWITH BIO-JEN 760 . THEY REMOVED ALL LIQUIDS WITH HIS VACTOR. THEY FOUND AND EARTHERN SUMP WITH NO SIGNS OF OIL INTHEM. HE CEMENTED SAME. THEY REMOVED 5 DRUMS OF SOLID WASTE FROM STRUCTURE. ASTORIA TRANSPORTATION PICKED UPDRUMS. TAG REMAINS IN PLACE UNTILL TRANSF IS REMOVED ,UPDATE 2/4/03 10:55 HRS. -- R. LACASSE & A. STUBBS ON VACTOR 60724 REPORTS UNIT WAS REMOVED BY EQUIPMENT. THEY DOUBLE WASHEDSTRUCTURE WITH BIOGEN 760, FOUND SUMP WAS SEALED, AND REMOVED ENV. STOP TAG #26273. CLEANUP 100% COMPLETE. Supv. Robert J. Hutchinson reports that at 1800 Hrs on 2/4/03 while watching truck 60724 dump at Farrington St. saw a heavy sheen of oil come from the load of the truck. The truck was used on the 7-3 shift to complete incident 147010. A 4" diameter 8' long oil boom was placed in the North manhole to prevent the sheen from entering the water treatment facility. Dump personnel was ordered to absorb as much of the sheen as possible and clean up remaining area. At 2000 Hrs. area was completely clean.

Remarks: Transformer in vault was leaking - vaccuum truck was sent to clean it out - transformer contained 190 gallons - vaccuum only got 20 gallons from transformer - the rest of the oil is mixed in with dirt and leaves

Material:

Site ID:	114833
Operable Unit ID:	862051
Operable Unit:	01
Material ID:	514367
Material Code:	0541A
Material Name:	DIELECTRIC FLUID
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	170
Units:	Gallons
Recovered:	20
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

A7 **CON EDISON MANHOLR 1263** **RCRA NonGen / NLR 1010327062**
NW **QUEENS BLVD & 64 RD** **NY MANIFEST NYP004144432**
< 1/8 **QUEENS VILLAGE, NY 11427**
0.023 mi.
122 ft. **Site 7 of 8 in cluster A**

Relative: Higher

Actual: 43 ft.

RCRA NonGen / NLR:

Date form received by agency:	01/11/2007
Facility name:	CON EDISON MANHOLR 1263
Facility address:	QUEENS BLVD & 64 RD NE CORNER OF QUEENS BLVD QUEENS VILLAGE, NY 11427
EPA ID:	NYP004144432
Mailing address:	4 IRVING PL, RM 828 NEW YORK, NY 10003
Contact:	ANTONIO DELGADO
Contact address:	4 IRVING PL, RM 828 NEW YORK, NY 10003
Contact country:	US

CON EDISON MANHOLR 1263 (Continued) **1010327062**

Contact telephone: (718) 204-4201
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/10/2007
Site name: CON EDISON
Classification: Not a generator, verified

Date form received by agency: 01/09/2007
Site name: CON EDISON
Classification: Unverified

Violation Status: No violations found

NY MANIFEST:
EPA ID: NYP004144432
Country: USA

Mailing Info:
Name: CONSOLIDATED EDISON
Contact: FRANKLIN MURRAY
Address: 4 IRVING PLACE RM 828
City/State/Zip: NEW YORK, NY 10003
Country: USA
Phone: 212-460-2808

Manifest:

Document ID: NYE1582272
Manifest Status: Not reported
Trans1 State ID: NYD006982359
Trans2 State ID: Not reported
Generator Ship Date: 08/14/2006
Trans1 Recv Date: 08/14/2006
Trans2 Recv Date: Not reported
TSD Site Recv Date: 08/16/2006
Part A Recv Date: Not reported

CON EDISON MANHOLR 1263 (Continued) **1010327062**

Part B Recv Date:	Not reported
Generator EPA ID:	NYP004144432
Trans1 EPA ID:	18887JU
Trans2 EPA ID:	Not reported
TSDF ID:	NYD077444263
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	00356
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	01.00
Year:	2006

Document ID:	NJA5314570
Manifest Status:	Not reported
Trans1 State ID:	NJ0000027193
Trans2 State ID:	Not reported
Generator Ship Date:	08/12/2006
Trans1 Recv Date:	08/12/2006
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	08/13/2006
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004144432
Trans1 EPA ID:	S5811
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002200046
Waste Code:	B002 - PETROLEUM OIL WITH 50 BUT < 500 PPM PCB
Quantity:	01069
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	2006

A8 **NYC FIRE DEPT CO 292** **NY MANIFEST S102143170**
East **64-18 QUEENS BLVD** **NY Spills N/A**
< 1/8 **QUEENS, NY 11377**
0.024 mi.
125 ft. **Site 8 of 8 in cluster A**

Relative:
Higher

Actual:
42 ft.

NY MANIFEST:

EPA ID:	NY0000564559
Country:	USA

Mailing Info:

Name:	NYC FIRE DEPT CO 292
Contact:	M PICCIRILLO
Address:	64-18 QUEENS BLVD
City/State/Zip:	QUEENS, NY 11377
Country:	USA
Phone:	914-268-6860

Manifest:

NYC FIRE DEPT CO 292 (Continued) **S102143170**

Document ID:	NJA1968657
Manifest Status:	Completed copy
Trans1 State ID:	S5811
Trans2 State ID:	Not reported
Generator Ship Date:	09/07/1994
Trans1 Recv Date:	09/07/1994
Trans2 Recv Date:	/ /
TSD Site Recv Date:	09/07/1994
Part A Recv Date:	/ /
Part B Recv Date:	09/23/1994
Generator EPA ID:	NY0000564559
Trans1 EPA ID:	NJD982281016
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002200046
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00400
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	1994

SPILLS:

Facility ID:	9205404
Facility Type:	ER
DER Facility ID:	151784
Site ID:	180958
DEC Region:	2
Spill Date:	8/11/1992
Spill Number/Closed Date:	9205404 / 8/11/1992
Spill Cause:	Unknown
Spill Class:	Known release that creates potential for fire or hazard. (Highly Improbable)
SWIS:	4101
Investigator:	KSTANG
Referred To:	Not reported
Reported to Dept:	8/11/1992
CID:	Not reported
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	8/11/1992
Cleanup Meets Std:	True
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	8/11/1992
Spill Record Last Update:	10/28/1994
Spiller Name:	Not reported
Spiller Company:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller Company:	001
Contact Name:	Not reported
Contact Phone:	Not reported

NYC FIRE DEPT CO 292 (Continued) **S102143170**

DEC Memo: Prior to Sept, 2004 data translation this spill Lead_DEC Field was "TANG"
Remarks: NYCFD HAZ MAT CLEANING. ALSO REFER TO SPILL # 9404336 ASSIGNED TO MR. TOMASELLO, THE SPILL SHOULD BE CLOSED OUT SINCE NYC DGS SENT CONTRACTOR TO REMOVE ALL THE DRUMS CONTAINING PETROLEUM CONTAMINANTS.

Material:
Site ID: 180958
Operable Unit ID: 972802
Operable Unit: 01
Material ID: 409615
Material Code: 0066A
Material Name: UNKNOWN PETROLEUM
Case No.: Not reported
Material FA: Petroleum
Quantity: 100
Units: Gallons
Recovered: No
Resource Affected: Not reported
Oxygenate: False

Tank Test:

Facility ID: 1203463
Facility Type: ER
DER Facility ID: 151784
Site ID: 466279
DEC Region: 2
Spill Date: 7/10/2012
Spill Number/Closed Date: 1203463 / 7/12/2012
Spill Cause: Human Error
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
SWIS: 4101
Investigator: SMSANGES
Referred To: Not reported
Reported to Dept: 7/10/2012
CID: Not reported
Water Affected: Not reported
Spill Source: Institutional, Educational, Gov., Other
Spill Notifier: Fire Department
Cleanup Ceased: Not reported
Cleanup Meets Std: False
Last Inspection: Not reported
Recommended Penalty: False
UST Trust: False
Remediation Phase: 0
Date Entered In Computer: 7/10/2012
Spill Record Last Update: 7/12/2012
Spiller Name: FDNY HAZMAT 1
Spiller Company: G & D INC FUEL DELIVERY
Spiller Address: 64-18 QUEENS BLVD
Spiller City,St,Zip: QUEENS, NY
Spiller Company: 999
Contact Name: FDNY HAZMAT 1
Contact Phone: (347) 203-6886

NYC FIRE DEPT CO 292 (Continued) **S102143170**

DEC Memo: minor spill during delivery at a fire house. FD on site with oil company cleaning up. No drains or soil.
Remarks: Delivery overfill. Spilled onto street with no sewers affected. Cleanup has been started by FD and cleanup crew from fuel company on scene continuing.

Material:
Site ID: 466279
Operable Unit ID: 1216288
Operable Unit: 01
Material ID: 2214451
Material Code: 0001A
Material Name: #2 Fuel Oil
Case No.: Not reported
Material FA: Petroleum
Quantity: 15
Units: Gallons
Recovered: Not reported
Resource Affected: Not reported
Oxygenate: False
Site ID: 466279
Operable Unit ID: 1216288
Operable Unit: 01
Material ID: 2214452
Material Code: 0001A
Material Name: #2 Fuel Oil
Case No.: Not reported
Material FA: Petroleum
Quantity: 15
Units: Gallons
Recovered: Not reported
Resource Affected: Not reported
Oxygenate: False

Tank Test:

Facility ID: 9404336
Facility Type: ER
DER Facility ID: 150330
Site ID: 179095
DEC Region: 2
Spill Date: 6/28/1994
Spill Number/Closed Date: 9404336 / 10/3/1997
Spill Cause: Unknown
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
SWIS: 4101
Investigator: UNASSIGNED
Referred To: Not reported
Reported to Dept: 6/28/1994
CID: Not reported
Water Affected: Not reported
Spill Source: Unknown
Spill Notifier: Other
Cleanup Ceased: Not reported
Cleanup Meets Std: False

NYC FIRE DEPT CO 292 (Continued) **S102143170**

Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	12/27/1948
Spill Record Last Update:	10/3/1997
Spiller Name:	Not reported
Spiller Company:	UNK
Spiller Address:	Not reported
Spiller City,St,Zip:	***UPDATE***, ZZ
Spiller Company:	999
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "XX"SPILL CLOSED DUE TO INSUFFICIENT DATA.
Remarks:	Not reported

Material:

Site ID:	179095
Operable Unit ID:	1001410
Operable Unit:	01
Material ID:	380948
Material Code:	0064A
Material Name:	UNKNOWN MATERIAL
Case No.:	Not reported
Material FA:	Other
Quantity:	0
Units:	Pounds
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

9
SSW
< 1/8
0.038 mi.
199 ft.

44-37 64TH ST/QUEENS **NY Spills** **S102145786**
44-37 64TH STREET **N/A**
NEW YORK CITY, NY

Relative:
Lower

Actual:
38 ft.

SPILLS:

Facility ID:	9001388
Facility Type:	ER
DER Facility ID:	250522
Site ID:	310370
DEC Region:	2
Spill Date:	5/5/1990
Spill Number/Closed Date:	9001388 / 5/5/1990
Spill Cause:	Unknown
Spill Class:	Not reported
SWIS:	4101
Investigator:	TOMASELLO
Referred To:	Not reported
Reported to Dept:	5/5/1990
CID:	Not reported
Water Affected:	Not reported
Spill Source:	Unknown

LOT 23,TAXBLOCK 2392 (Continued) **S108161213**

Lot Frontage:	0140.00
Lot Depth:	0100.00
Building Frontage:	0063.00
Building Depth:	0029.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000252000
Total Assessed Value:	00000406800
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1967
Year Built Code:	Not reported
Year Altered1:	1986
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.14
Maximum Allowable Far:	00.90
Borough Code:	4
Borough Tax Block And Lot:	4023920023
Condominium Number:	00000
Census Tract 2:	0245
X Coordinate:	1011938
Y Coordinate:	0209094
Zoning Map:	09D
Sanborn Map:	409 041
Tax Map:	41303
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

C18 **AMOCO SERVICE STATION 441** **RCRA NonGen / NLR** **1000174740**
East **65-10 QUEENS BLVD** **NY LTANKS** **NYD981873797**
< 1/8 **WOODSIDE, NY 11377** **NY UST**
0.058 mi. **NY MANIFEST**
307 ft. **Site 7 of 8 in cluster C** **NY Spills**

Relative:
Higher

Actual:
43 ft.

RCRA NonGen / NLR:

Date form received by agency:	01/01/2007
Facility name:	AMOCO SERVICE STATION 441
Facility address:	65-10 QUEENS BLVD WOODSIDE, NY 11377
EPA ID:	NYD981873797
Mailing address:	INTERPACE MORRIS CORP CENTER PARSIPPANY, NY 07054
Contact:	PAUL LINDELL
Contact address:	INTERPACE PARSIPPANY, NY 07054

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Contact country: US
Contact telephone: (914) 765-8192
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: AMOCO OIL CO
Owner/operator address: NOT REQUIRED
NOT REQUIRED, NY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/2001
Owner/Op end date: Not reported

Owner/operator name: AMOCO OIL CO
Owner/operator address: NOT REQUIRED
NOT REQUIRED, NY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/01/2001
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Site name: AMOCO SERVICE STATION 441
Classification: Not a generator, verified

Date form received by agency: 05/09/2001
Site name: AMOCO SERVICE STATION 441
Classification: Small Quantity Generator

Date form received by agency: 07/08/1999
Site name: AMOCO SERVICE STATION 441

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Classification: Not a generator, verified

Date form received by agency: 08/20/1992
Site name: AMOCO SERVICE STATION 441
Classification: Small Quantity Generator

Hazardous Waste Summary:
Waste code: D000
Waste name: Not Defined

Waste code: D001
Waste name: IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.

Waste code: D008
Waste name: LEAD

Waste code: D018
Waste name: BENZENE

Waste code: D039
Waste name: TETRACHLOROETHYLENE

Violation Status: No violations found

LTANKS:
Site ID: 451419
Spill Number/Closed Date: 1103843 / Not Reported
Spill Date: 7/7/2011
Spill Cause: Tank Test Failure
Spill Source: Gasoline Station or other PBS Facility
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Cleanup Ceased: Not reported
Cleanup Meets Standard: False
SWIS: 4101
Investigator: smsanges
Referred To: Not reported
Reported to Dept: 7/7/2011
CID: Not reported
Water Affected: Not reported
Spill Notifier: Other
Last Inspection: Not reported
Recommended Penalty: False
UST Involvement: False
Remediation Phase: 1
Date Entered In Computer: 7/7/2011
Spill Record Last Update: 5/21/2014
Spiller Name: Not reported
Spiller Company: BP
Spiller Address: Not reported
Spiller City,St,Zip: NY

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Spiller County: 999
Spiller Contact: MARK OKAMOTO
Spiller Phone: 732-743-0901
Spiller Extention: Not reported
DEC Region: 2
DER Facility ID: 306806
DEC Memo: Not reported
Remarks: TANK TEST FAIL

Material:
Site ID: 451419
Operable Unit ID: 1201613
Operable Unit: 01
Material ID: 2198161
Material Code: 0022
Material Name: Waste Oil/Used Oil
Case No.: Not reported
Material FA: Petroleum
Quantity: Not reported
Units: Not reported
Recovered: Not reported
Resource Affected: Not reported
Oxygenate: False

Tank Test:

UST:
Id/Status: 2-337625 / Active
Program Type: PBS
Region: STATE
DEC Region: 2
Expiration Date: 10/29/2017
UTM X: 592845.25705999997
UTM Y: 4510616.0907600001
Site Type: Retail Gasoline Sales

Affiliation Records:
Site Id: 16193
Affiliation Type: Facility Owner
Company Name: BP PRODUCTS NORTH AMERICA INC
Contact Type: ENV COMP. SPEC.
Contact Name: MARK OKAMOTO
Address1: PO BOX 6038
Address2: Not reported
City: ARTESIA
State: CA
Zip Code: 90702
Country Code: 001
Phone: (732) 743-0901
EMail: MARK.OKAMOTO@BP.COM
Fax Number: Not reported
Modified By: MSBAPTIS
Date Last Modified: 9/11/2014

Site Id: 16193

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Affiliation Type:	Mail Contact
Company Name:	BP PRODUCTS NORTH AMERICA INC
Contact Type:	ENV COMP. SPEC.
Contact Name:	MARK OKAMOTO
Address1:	PO BOX 6038
Address2:	Not reported
City:	ARTESIA
State:	CA
Zip Code:	90702
Country Code:	001
Phone:	(732) 743-0901
EMail:	MARK.OKAMOTO@BP.COM
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	9/11/2014

Site Id:	16193
Affiliation Type:	On-Site Operator
Company Name:	BP SERVICE STATION #24344
Contact Type:	Not reported
Contact Name:	HONG YOUNG HAN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 672-7773
EMail:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	10/4/2007

Site Id:	16193
Affiliation Type:	Emergency Contact
Company Name:	BP PRODUCTS NORTH AMERICA INC
Contact Type:	Not reported
Contact Name:	MARK OKAMOTO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(908) 227-1893
EMail:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	10/17/2012

Tank Info:

Tank Number:	001
Tank ID:	28766
Tank Status:	In Service
Material Name:	In Service
Capacity Gallons:	4000

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Install Date:	12/01/1986
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	2712
Common Name of Substance:	Gasoline/Ethanol
Tightness Test Method:	21
Date Test:	09/26/2012
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	MSBAPTIS
Last Modified:	12/03/2012

Equipment Records:

B02 - Tank External Protection - Original Sacrificial Anode
E04 - Piping Secondary Containment - Double-Walled (Underground)
H05 - Tank Leak Detection - In-Tank System (ATG)
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
B01 - Tank External Protection - Painted/Asphalt Coating
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
J01 - Dispenser - Pressurized Dispenser
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
L01 - Piping Leak Detection - Interstitial - Electronic Monitoring

Tank Number:	002
Tank ID:	28767
Tank Status:	Closed Prior to Micro Conversion, 03/91
Material Name:	Closed Prior to Micro Conversion, 03/91
Capacity Gallons:	550
Install Date:	12/01/1965
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0009
Common Name of Substance:	Gasoline
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	03/04/2004

Equipment Records:

B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel

AMOCO SERVICE STATION 441 (Continued) **1000174740**

G00 - Tank Secondary Containment - None
I00 - Overfill - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

Tank Number:	003
Tank ID:	28768
Tank Status:	Closed Prior to Micro Conversion, 03/91
Material Name:	Closed Prior to Micro Conversion, 03/91
Capacity Gallons:	550
Install Date:	12/01/1965
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0009
Common Name of Substance:	Gasoline
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	03/04/2004

Equipment Records:

B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
I00 - Overfill - None

Tank Number:	004
Tank ID:	28769
Tank Status:	Closed Prior to Micro Conversion, 03/91
Material Name:	Closed Prior to Micro Conversion, 03/91
Capacity Gallons:	550
Install Date:	12/01/1965
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0009
Common Name of Substance:	Gasoline
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	03/04/2004

Equipment Records:

AMOCO SERVICE STATION 441 (Continued) **1000174740**

B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
I00 - Overfill - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

Tank Number:	005
Tank ID:	28770
Tank Status:	Closed Prior to Micro Conversion, 03/91
Material Name:	Closed Prior to Micro Conversion, 03/91
Capacity Gallons:	550
Install Date:	12/01/1965
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0009
Common Name of Substance:	Gasoline
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	03/04/2004

Equipment Records:

A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
I00 - Overfill - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None

Tank Number:	006
Tank ID:	28771
Tank Status:	Closed Prior to Micro Conversion, 03/91
Material Name:	Closed Prior to Micro Conversion, 03/91
Capacity Gallons:	550
Install Date:	12/01/1965
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0009
Common Name of Substance:	Gasoline
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Modified By: TRANSLAT
Last Modified: 03/04/2004

Equipment Records:

A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
I00 - Overfill - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

Tank Number: 007
Tank ID: 28772
Tank Status: Closed Prior to Micro Conversion, 03/91
Material Name: Closed Prior to Micro Conversion, 03/91
Capacity Gallons: 550
Install Date: 12/01/1965
Date Tank Closed: Not reported
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 0009
Common Name of Substance: Gasoline

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 03/04/2004

Equipment Records:

A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

Tank Number: 008
Tank ID: 28773
Tank Status: Closed Prior to Micro Conversion, 03/91
Material Name: Closed Prior to Micro Conversion, 03/91
Capacity Gallons: 550
Install Date: 12/01/1965
Date Tank Closed: Not reported
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 0009
Common Name of Substance: Gasoline

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 03/04/2004

Equipment Records:

A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
I00 - Overfill - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

Tank Number: 009
Tank ID: 28774
Tank Status: Closed Prior to Micro Conversion, 03/91
Material Name: Closed Prior to Micro Conversion, 03/91
Capacity Gallons: 550
Install Date: 12/01/1965
Date Tank Closed: Not reported
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 0009
Common Name of Substance: Gasoline

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 03/04/2004

Equipment Records:

A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
I00 - Overfill - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None

Tank Number: 010
Tank ID: 28775
Tank Status: Closed Prior to Micro Conversion, 03/91
Material Name: Closed Prior to Micro Conversion, 03/91
Capacity Gallons: 550
Install Date: 12/01/1965
Date Tank Closed: Not reported
Registered: True
Tank Location: Underground

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Tank Type: Steel/carbon steel
Material Code: 0009
Common Name of Substance: Gasoline

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 03/04/2004

Equipment Records:

A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None

Tank Number: 011
Tank ID: 28776
Tank Status: Closed Prior to Micro Conversion, 03/91
Material Name: Closed Prior to Micro Conversion, 03/91
Capacity Gallons: 550
Install Date: 12/01/1965
Date Tank Closed: Not reported
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 0009
Common Name of Substance: Gasoline

Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: TRANSLAT
Last Modified: 03/04/2004

Equipment Records:

A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
I00 - Overfill - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None

Tank Number: 012
Tank ID: 28777
Tank Status: Closed Prior to Micro Conversion, 03/91
Material Name: Closed Prior to Micro Conversion, 03/91
Capacity Gallons: 550

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Install Date:	12/01/1965
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0009
Common Name of Substance:	Gasoline
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	03/04/2004

Equipment Records:

A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
I00 - Overfill - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

Tank Number:	013
Tank ID:	28778
Tank Status:	Closed Prior to Micro Conversion, 03/91
Material Name:	Closed Prior to Micro Conversion, 03/91
Capacity Gallons:	550
Install Date:	12/01/1965
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0009
Common Name of Substance:	Gasoline
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	03/04/2004

Equipment Records:

A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
I00 - Overfill - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

Tank Number: 014

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Tank ID:	28779
Tank Status:	Closed Prior to Micro Conversion, 03/91
Material Name:	Closed Prior to Micro Conversion, 03/91
Capacity Gallons:	550
Install Date:	12/01/1965
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0009
Common Name of Substance:	Gasoline
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	TRANSLAT
Last Modified:	03/04/2004

Equipment Records:

I00 - Overfill - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

Tank Number:	102
Tank ID:	28780
Tank Status:	In Service
Material Name:	In Service
Capacity Gallons:	4000
Install Date:	12/01/1986
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	2712
Common Name of Substance:	Gasoline/Ethanol
Tightness Test Method:	21
Date Test:	09/26/2012
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	MSBAPTIS
Last Modified:	12/03/2012

Equipment Records:

A00 - Tank Internal Protection - None
G00 - Tank Secondary Containment - None
J01 - Dispenser - Pressurized Dispenser
B02 - Tank External Protection - Original Sacrificial Anode
E04 - Piping Secondary Containment - Double-Walled (Underground)
H05 - Tank Leak Detection - In-Tank System (ATG)
L01 - Piping Leak Detection - Interstitial - Electronic Monitoring

AMOCO SERVICE STATION 441 (Continued) **1000174740**

D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
B01 - Tank External Protection - Painted/Asphalt Coating
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin

Tank Number:	103
Tank ID:	28781
Tank Status:	In Service
Material Name:	In Service
Capacity Gallons:	4000
Install Date:	12/01/1986
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	2712
Common Name of Substance:	Gasoline/Ethanol
Tightness Test Method:	21
Date Test:	09/26/2012
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	MSBAPTIS
Last Modified:	12/03/2012

Equipment Records:

A00 - Tank Internal Protection - None
G00 - Tank Secondary Containment - None
J01 - Dispenser - Pressurized Dispenser
B01 - Tank External Protection - Painted/Asphalt Coating
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
L99 - Piping Leak Detection - Other
B02 - Tank External Protection - Original Sacrificial Anode
E04 - Piping Secondary Containment - Double-Walled (Underground)
H05 - Tank Leak Detection - In-Tank System (ATG)
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
L07 - Piping Leak Detection - Pressurized Piping Leak Detector

Tank Number:	104
Tank ID:	28782
Tank Status:	In Service
Material Name:	In Service
Capacity Gallons:	1000
Install Date:	12/01/1986
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Material Code: 0001
Common Name of Substance: #2 Fuel Oil (On-Site Consumption)

Tightness Test Method: 21
Date Test: 07/11/2014
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: BKFALVEY
Last Modified: 08/11/2014

Equipment Records:

A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
H99 - Tank Leak Detection - Other
J02 - Dispenser - Suction Dispenser
B02 - Tank External Protection - Original Sacrificial Anode
I00 - Overfill - None
E00 - Piping Secondary Containment - None
K00 - Spill Prevention - None
C02 - Pipe Location - Underground/On-ground
F02 - Pipe External Protection - Original Sacrificial Anode
L99 - Piping Leak Detection - Other

Tank Number: 105
Tank ID: 28783
Tank Status: In Service
Material Name: In Service
Capacity Gallons: 4000
Install Date: 07/01/1989
Date Tank Closed: Not reported
Registered: True
Tank Location: Underground
Tank Type: Steel/carbon steel
Material Code: 2712
Common Name of Substance: Gasoline/Ethanol

Tightness Test Method: 21
Date Test: 09/26/2012
Next Test Date: Not reported
Pipe Model: Not reported
Modified By: MSBAPTIS
Last Modified: 12/03/2012

Equipment Records:

A00 - Tank Internal Protection - None
J02 - Dispenser - Suction Dispenser
B01 - Tank External Protection - Painted/Asphalt Coating
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
B02 - Tank External Protection - Original Sacrificial Anode
E04 - Piping Secondary Containment - Double-Walled (Underground)
H05 - Tank Leak Detection - In-Tank System (ATG)
L01 - Piping Leak Detection - Interstitial - Electronic Monitoring

AMOCO SERVICE STATION 441 (Continued) **1000174740**

D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
G04 - Tank Secondary Containment - Double-Walled (Underground)
L07 - Piping Leak Detection - Pressurized Piping Leak Detector

Tank Number:	106
Tank ID:	28784
Tank Status:	In Service
Material Name:	In Service
Capacity Gallons:	4000
Install Date:	07/01/1989
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	2712
Common Name of Substance:	Gasoline/Ethanol
Tightness Test Method:	21
Date Test:	09/26/2012
Next Test Date:	Not reported
Pipe Model:	Not reported
Modified By:	MSBAPTIS
Last Modified:	12/03/2012

Equipment Records:

B01 - Tank External Protection - Painted/Asphalt Coating
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
L99 - Piping Leak Detection - Other
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction Dispenser
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
G04 - Tank Secondary Containment - Double-Walled (Underground)
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
B02 - Tank External Protection - Original Sacrificial Anode
E04 - Piping Secondary Containment - Double-Walled (Underground)
H05 - Tank Leak Detection - In-Tank System (ATG)

Tank Number:	107
Tank ID:	45377
Tank Status:	In Service
Material Name:	In Service
Capacity Gallons:	1000
Install Date:	12/01/1986
Date Tank Closed:	Not reported
Registered:	True
Tank Location:	Underground
Tank Type:	Steel/carbon steel
Material Code:	0022
Common Name of Substance:	Waste Oil/Used Oil
Tightness Test Method:	21
Date Test:	07/11/2014

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Next Test Date: Not reported
Pipe Model: Not reported
Modified By: BKFALVEY
Last Modified: 08/11/2014

Equipment Records:

A00 - Tank Internal Protection - None
D00 - Pipe Type - No Piping
G00 - Tank Secondary Containment - None
H99 - Tank Leak Detection - Other
J00 - Dispenser - None
B02 - Tank External Protection - Original Sacrificial Anode
H05 - Tank Leak Detection - In-Tank System (ATG)
L00 - Piping Leak Detection - None
E00 - Piping Secondary Containment - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin

NY MANIFEST:
EPA ID: NYD981873797
Country: USA

Mailing Info:
Name: AMOCO SERVICE
Contact: AMOCO SERVICE
Address: 65-10 QUEENS BLVD
City/State/Zip: WOODSIDE, NY 11377
Country: USA
Phone: 718-672-7773

Manifest:

Document ID: Not reported
Manifest Status: Not reported
Trans1 State ID: NJR000023036
Trans2 State ID: Not reported
Generator Ship Date: 06/12/2014
Trans1 Recv Date: 06/12/2014
Trans2 Recv Date: Not reported
TSD Site Recv Date: 06/13/2014
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD981873797
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID: NJD991291105
Waste Code: Not reported
Quantity: 150
Units: P - Pounds
Number of Containers: 1
Container Type: DM - Metal drums, barrels
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 1
Year: 2014
Manifest Tracking Num: 004059931JJK

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	Y
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H110

Document ID:	CTF0394124
Manifest Status:	Completed copy
Trans1 State ID:	7069A
Trans2 State ID:	Not reported
Generator Ship Date:	10/24/1996
Trans1 Recv Date:	10/24/1996
Trans2 Recv Date:	/ /
TSD Site Recv Date:	10/24/1996
Part A Recv Date:	11/15/1996
Part B Recv Date:	11/15/1996
Generator EPA ID:	NYD981873797
Trans1 EPA ID:	CTD983883745
Trans2 EPA ID:	Not reported
TSDF ID:	CTD021816889
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00125
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	1996

Document ID:	NYA6369201
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	Not reported
Trans2 State ID:	XJ69JG
Generator Ship Date:	02/11/1987
Trans1 Recv Date:	02/11/1987
Trans2 Recv Date:	/ /
TSD Site Recv Date:	02/11/1987
Part A Recv Date:	03/12/1987
Part B Recv Date:	02/28/1987
Generator EPA ID:	NYD981873797
Trans1 EPA ID:	NYD049178296
Trans2 EPA ID:	Not reported
TSDF ID:	NYD049178296
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00400
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Specific Gravity: 100
Year: 1987

Document ID: PAG1519240
Manifest Status: Not reported
Trans1 State ID: PAAH0056
Trans2 State ID: Not reported
Generator Ship Date: 08/14/2000
Trans1 Recv Date: 08/14/2000
Trans2 Recv Date: Not reported
TSD Site Recv Date: 09/01/2000
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD981873797
Trans1 EPA ID: PAD014146179
Trans2 EPA ID: Not reported
TSDF ID: PAD067098822
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00400
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Year: 2000

Document ID: NYA7037577
Manifest Status: Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID: 000000000
Trans2 State ID: 000000000
Generator Ship Date: 08/08/1989
Trans1 Recv Date: 08/08/1989
Trans2 Recv Date: / /
TSD Site Recv Date: 08/09/1989
Part A Recv Date: 09/21/1989
Part B Recv Date: 08/16/1989
Generator EPA ID: NYD981873797
Trans1 EPA ID: NYD082785429
Trans2 EPA ID: Not reported
TSDF ID: NYD082785429
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00080
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 004
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 1989

SPILLS:
Facility ID: 8903239
Facility Type: ER
DER Facility ID: 16173
Site ID: 159398
DEC Region: 2

AMOCO SERVICE STATION 441 (Continued) **1000174740**

Spill Date:	6/28/1989
Spill Number/Closed Date:	8903239 / Not Reported
Spill Cause:	Unknown
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
SWIS:	4101
Investigator:	rjfeng
Referred To:	INVESTIGATION REPORT, RAWP
Reported to Dept:	6/28/1989
CID:	Not reported
Water Affected:	Not reported
Spill Source:	Gasoline Station or other PBS Facility
Spill Notifier:	Other
Cleanup Ceased:	3/24/2004
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	True
Remediation Phase:	5
Date Entered In Computer:	6/30/1989
Spill Record Last Update:	12/16/2014
Spiller Name:	Not reported
Spiller Company:	AMOCO
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	001
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Memo:	06/28/89 Unico removed 12X550s. After excavating the USTs, a strong gasoline odor was detected in soil beneath the underlying bottom slab. At that time, excavation was halted for safety reasons. The FDNY temporarily closed the S/S until it determined that vapors were not present. An additional 3' of contaminated soil was removed from the bottom of the excavation. When excavation was halted, approx 140yds soil was removed to a depth of 16'bgs. Soil at bottom continued to show evidence of contamination.7/3/89 Existing three USTs tightness tested and passed.7/89 Benzene: 1890ppb(MW-1), 5556ppb(MW-2), 773ppb(MW-3), 2ppb(MW-4).8/26/93 MW-3 and MW-4 had a sheen. MW-1 had 2100ppb and MW-2 had 50ppb benzene.9/14-9/15/93 Installed MW-5 & 6.9/29/93 Amoco Meeting- Amoco needs to address soil and GW contamination.10/14-10/15/93 Installed MW-7 & 8.10/26/93 MW-3 had LNAPL. MW-1 had 1500ppb, MW-2 had 790ppb, MW-4 had 9700ppb, MW-5 had 7000ppb, MW-6 had 7900ppb, MW-7 was ND and MW-8 had 13ppb benzene.Now free product in three MWs. Did product pumpdown recharge test. Will be getting reports. DEC told Amoco they need to do a more aggressive remediation. 8/93 A soil gas survey was conducted which indicated that the highest concentrations of VOCs in soil vapor were adjacent to the pump islands and tank cavity. 1997-2001 12 VEFR events were conducted on extraction well(VEW-1) and monitoring well(MW-13), which recovered an estimated 759lbs of hydrocarbon vapor and 4.5gal of LNAPL. 3/14/03 REASSIGNED FROM ROMMEL TO VOUGHT.12/4/03 Reassigned from Vought to Foley. Most recent monitoring report (2Q2003) shows LNAPL in MW-6 (0.03'), MW-9 (0.72'), MW-13 (0.53') and VEW-1 (1.38'). Max BTEX at MW-13 at 159,520ppb. Max MTBE at MW-4 at 82,400ppb. Not fully delineated. Need stip.2/3/04 Sent stip to C. Wein, BP. See spill #0010597/9830011 at 65-09 Queens Blvd.3/19/04 Received 3Q and 4Q reports. Feet of LNAPL detected in four wells in

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fourth quarter. High dissolved concentrations.3/24/04 Stip effective today. Delta will conduct product bail-down test and proposes to install a passive recovery bailer in the wells that contain LNAPL. Investigation summary report due 5/24/04.4/16/04 1Q 2004 monitoring report received. LNAPL in MW-6 (3.18'), in MW-9(0.59'), in MW-13(0.53') and in VEW-1(2.89').Total BTEX ND(MW-10, 11, 12, 14) to 146,610ppb(MW-13. MTBE ND(MW-12) to 103,000ppb (MW-13).5/7/04 Portfolio meeting: Will submit report for SVE pilot completed on VEW-1. Very heterogeneous soils, tight. After 12hrs, recovery drops to 0. SVE to address vadose. EFR didn't work for LNAPL recovery. Need to assess dissolved technologies. Submitting RAP sometime this quarter but unsure of proposal at this time.5/24/04 Subsurface Assessment report received. Two additional wells, MW-16 and MW-17 were drilled from 34.5 to 37.5'bgs. Soil samples collected did not identify VOCs above cleanup objectives. 17 groundwater samples collected. LNAPL was detected in four wells, MW-6(3.09'), MW-9(0.43'), MW-13(0.58'),MW-16(0.03'), and VEW-1(2.84'). Total BTEX ranged from ND(MW-12) to 122,810ppb(MW-13). MTBE ranged from ND(MW-7, MW-12) to 83,800ppb(MW-13).On 5/5/04, Delta conducted a baildown test on monitoring well MW-6 to determine the transmissivity of the formation with respect to LNAPL. Delta plans to install passive skimmers in MW-6, MW-9, and MW-13 to recover LNAPL(as per the stip).SVE pilot results to be submitted under separate cover. Delineation may not be possible across 65th Pl due to interference with BQE. 7/13/04 SVE feasibility pilot testing, analysis and report submitted. The test showed that there is a sufficient quantity of hydrocarbons available for recovery, but low permeability soils limit the effectiveness of SVE as a remedial option. Delta will continue to monitor GW and further evaluate SVE to determine its applicability.8/6/04 Received 2Q04 monitoring report. LNAPL in MW-6(3.09'), VEW-1(2.89'), MW-9(.43'), MW-13(.58') and MW-16(.03'). Passive recovery bailers have been installed in wells with LNAPL.11/5/04 Requested additional delineation crossgradient of MW-5, MW-16 and MW-17. Also upgradient of MW-9. The BQE runs below 65th St. Delta assessed these options previously and determined that it was too dangerous to install on 65th St. The upgradient well would be on the other side of a four lane roadway and is probably too far to be helpful. Approved delineation and requested RAP be submitted as per stip. RAP due 12/20/04.1/20/05 Email from B. Fisher, Delta. Delta conducted the MPE pilot and are currently evaulating the results. The pilot test report will be completed by 1/21/05 and assuming the results are favorable, the RAP will be submitted by 1/28/05.2/2/05 Received pilot test results and RAP for MPE.4/5/05 4Q04- LNAPL-0.16'(MW-16), 0.11'(MW-18) and 0.45'(VEW-1). BTEX ranged from ND(MW-10,11,12,14) to 360800ppb(MW-18). MTBE ranged from ND(MW-12) to 134000ppb(MW-4). DTW 25-34'bgs.4/26/05 3Q04- 0.04'(MW-16), 0.43'(VEW-1). BTEX from ND(MW-10,12,14) to 78420ppb(MW-4). MTBE from ND(MW-7,12) to 106000ppb(MW-4). DTW 25-34'bgs.4/27/05 Portfolio meeting- GW 27-30'bgs. Tight soils. Impacts at tank mat suspected to be source. In saturated and capillary fringe zone. Passive skimmers in MW-6,9,13 removed 3gal LNAPL from 6/04-8/04. Off-site wells MW-16,17. SVE had limited ROI at EW-1. MPE pilot on MW-13. 10 extraction wells. Isolating points b/c of tight soils and utilizing skimmers.MPE pilot showed 2.52ft of drawdown in VEW-1 and 0.25ft in MW-5. VEW-1 and MW-5 are located 5.5ft and 50.5ft from MW-13(pilot extraction well). Approx 170gal of water was removed from MW-13 over 8hrs. 0.35gpm was achieved. No measurable LNAPL was recovered. A 10HP

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LRP connected to a 1" PVC stinger, set approx 1.5' below the water table, effectively influences soil vapor within a 65ft by 25ft lateral area from MW-13.Contaminant mass is estimated with 285,450 cubic feet of soil, 1323gal of LNAPL, 7954lbs of total VOCs (16lbs in soil and 7938lbs LNAPL).7/11/05 Approved RAP for MPE. To be implemented within 45days(8/25/05).9/16/05 1Q05- DTW 25.5-33.7'bgs. 0.51' LNAPL in MW-18, 0.58' in VEW-1. BTEX from ND(MW-10,14,15) to 247,990ppb(MW-18). MTBE from ND(MW-12)to 110000ppb(MW-13).9/19/05 Email from B. Fisher- MPE is currently not operational; however, since the NYSDEC's July 11, 2005 approval of Delta's MPE RAP, have been initiating the construction of the system. Building, permitting, and installing the system has taken longer than expected. The MPE system and housing for the system have been constructed off-site; however, several of the system components, including the LRP pump and some of the electronics, have had considerable lead times which have taken Delta longer than expected to acquire. In addition, an electrical upgrade is required to the service station; therefore, Delta submitted an application to New York City's electrical permitting office to get the appropriate permit to upgrade the electric service, but unfortunately the permit has a lead time of approximately 50-80 days from the time the application is submitted. They are expectingthe permit by mid to late October. Delta plans to finish the construction of the MPE system and housing with the outstanding components, relocate the system to the site, hook the MPE system up with each extraction well line, and provide the appropriate fencing/protection for the system and carbon units on-site. Once the electrical upgrade permit is acquired in mid to late October, Delta expects to start up the MPE system. 9/29/05 2Q05- DTW 23.68 to 33.42 ft. 0.01' LNAPL detected in MW-6 and 0.34' in MW-18. BTEX from ND(MW-10,11,12) to 122480ppb(MW-13). MTBE from ND(MW-12) to 114000ppb(MW-13).10/3/05 Email from D. Taylor, Delta. Will be working in coming weeks for the proposed MPE system. Sent letter for obtaining permits to install piping under sidewalk. 12/6/05 3Q05- DTW 24.61-33.80'bgs. 0.82' LNAPL in MW-18 and 0.80' in VEW-1. BTEX from ND(MW-1,3,7,8,11,12,14,VEW-1) to 226710ppb(MW-18). MTBE from ND(MW-7,8) to 120000ppb(MW-5).3/16/06 Met with BP and Delta. Dave Taylor of Delta is project manager. DTW 27-30'bgs, transmissivity 8.96X10^-7 ft2/min. MW-16,17,18 installed this year. Limited vadose zone contamination. Delay due to Con Ed electric drop. MPE system startup 3/06. There are 5-6 extraction wells. System generates 27"Hg(35cfm) but Delta plans to concentrate on one well ar a time and then optimize by ROI readings.6/8/2006 - Feng - project reassigned to RJFeng. (RJF)8/3/20006 - Feng - 1Q2006, 6/5/2006, by Delta. The site is an active gasoline station. As of sampling on 1/31/2006, groundwater flows to south at depth of 23.77' to 33.45' bg. 18 monitoring wells and 1 vapor extraction well. W-1, 2,752 ppb BTEX (1,430 ppb B, 429 ppb T, 383 ppb E, 510 ppb X), 28,000 ppb MTBE. W-2, 6.6 ppb BTEX , 3,350 ppb MTBE. W-3, 23,790 ppb BTEX (5,290 ppb B, 12,600 ppb T, 1,070 ppb E, 4,830 ppb X), 32,500 ppb MTBE. W-4, 79,210 ppb BTEX (11,800 ppb B, 55,700 ppb T, 1,890 ppb E, 9,820 ppb X), 92,700 ppb MTBE. W-5, 6,389 ppb BTEX (991 ppb B, 356 ppb T, 892 ppb E, 4,150 ppb X), 5,550 ppb MTBE. W-6, 25,665 ppb BTEX (2,130 ppb B, 14,100 ppb T, 975 ppb E, 8,460 ppb X), 39,300 ppb MTBE. W-7, BTEX ND, 0.36J MTBE. W-8, 90.5 ppb BTEX, 48.1 ppb MTBE. W-9, 47,510 ppb BTEX (1,730 ppb B, 30,700 ppb T, 1,980 ppb E, 13,100 ppb X), 29,600 ppb MTBE. W-10, 25 ppb BTEX, 6,150 ppb MTBE. W-11, BTEX ND, 2.5 ppb MTBE. W-12, BTEX ND, less than 1 ppb MTBE. W-13, dried. W-14, BTEX ND, 6.2

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ppb MTBE. W-15, 0.77 ppb BTEX, 2.1 ppb MTBE. W-16, 33,705 ppb BTEX (225 ppb B, 21,800 ppb T, 1,700 ppb E, 9,950 ppb X), 245 ppb MTBE. W-17, 724 ppb BTEX, 133 ppb MTBE. W-18, 37,766 ppb BTEX (2,940 ppb B, 28,000 ppb T, 966 ppb E, 5,860 ppb X), 33,700 ppb MTBE. VEW-1, 175,560 ppb BTEX, (11,000 ppb B, 150,000 T, 2,260 ppb E, 12,300 ppb X), 39,100 ppb MTBE. (RJF)9/25/2006 - Feng - Quarterly Monitoring Report, 2Q2006, 7/6/2006, by Delta. Groundwater sampling ang gauging on 4/18/2006. DTW 24.89' to 33.66' and flows to south-southwest. LNAPL present in MW-6 (0.68'), MW-18 (0.58') and VEW-1 (1.06'). Total BTEX range from ND (MW-2, MW-10, MW-11, and MW-15) to 225,880 (VEW-1). MTBE range from 2.3 (MW-11) to 119,000 (MW-4). (RJF)9/28/2006 - Feng - Portfolio Meeting with BP and Delta. MPE started operating on 3/2006. Tied clay, less opportunity to transport and also recovery. Currently system running at: 22" Hg and between 5 and 65 SCFM at various extraction wells (MW-1, 6, 13, 16, 17, and 18). Cummulative system recovery to date (after 718 hours operating): 3.9 lbs BTEX, 37.7 lbs MTBE, 327 lbs TPH, 18,836 gallons of impacted groundwater treated (primarily from MW-17), no LNAPL recovered. Will continued to optimize the system. (RJF)2/8/2007 - Feng - Quarterly Remedial System Operation and Maintenance Report, 2Q2006, 1/9/2007. MPE system started up 6/13/2006. O&M site visit on 6/15/2006, 1 of 6 extraction wells (MW-18) was operating. Influent and effluent vapor and groundwater samples taken. Total 27.45 lbs of BTEX, 3.19 lbs of MTBE and 241.85 lbs of TPH recovered after 48 hours of system operation. Delta plan to continue MPE system operation. (RJF)2/8/2007 - Feng - 3Q2006, 1/25/2007, by Delta. Groundwater sampled and gauged 7/25/2006. 17/19 monitoring wells. DTW 24.11' to 33.57' bg. Flows south-southwest. LNAPL in MW-6 (0.02'), MW-16 (0.12') and VEW-1 (0.56'). MW-1, 3,099 ppb BTEX, 18,000 ppb MTBE. MW-2, BTEX ND, 6,110 pb MTBE. MW-3, 48,830 ppb BTEX, 39,500 ppb MTBE. MW-4, 71,710 ppb BTEX, 83,600 ppb MTBE. MW-5, 5,602 ppb BTEX, 3,250 ppb MTBE. MW-6, 36,280 ppb BTEX, 38,200 ppb MTBE. MW-7, ND. MW-8, 84 ppb BTEX, 62.8 ppb MTBE. MW-9, 31,950 ppb BTEX, 23,800 ppb MTBE. MW-10, BTEX ND, 6,340 ppb MTBE. MW-11, ND. MW-12, ND. MW-13, insufficient water. MW-14, BTEX ND, 3.6 ppb MTBE. MW-15, BTEX ND, 0.59 ppb MTBE. MW-16, 65,590 ppb BTEX, 214 ppb MTBE. MW-17, 281 ppb BTEX, 53.4 ppb MTBE. MW-18, 52,790 ppb BTEX, 76,600 ppb MTBE. (RJF)6/13/2007 - Feng - 4Q2006, 2/13/2007. Groundwater sampled 10/18/2006. 18/19 monitoring wells were sampled. DTW 25.33' to 33.62' bg. Flows to south-southwest. LNAPL in MW-6 (0.19'), MW-18 (0.01') and VEW-1 (0.01'). MW-1, 3,554 ppb BTEX, 10,400 ppb MTBE. MW-2, BTEX ND, 4,800 ppb MTBE. MW-3, 48,740 ppb BTEX, 42,800 ppb MTBE. MW-4, 102,970 ppb BTEX, 109,000 ppb MTBE. MW-5, 7,164 ppb BTEX, 2,450 ppb MTBE. MW-6, 43,080 ppb BTEX, 41,100 ppb MTBE. MW-7, ND. MW-8, 48 ppb BTEX, 75 ppb MTBE. MW-9, 29,200 ppb BTEX, 21,700 ppb MTBE. MW-10, BTEX ND, 134 ppb MTBE. MW-11, 10.2 ppb MTBE. MW-12, ND. MW-13, not sampled. MW-4, ND. MW-15, ND. MW-16, 47,354 ppb BTEX, 241 ppb MTBE. MW-17, 486 ppb BTEX, 579 ppb MTBE. MW-18, 70,920 ppb BTEX, 72,200 ppb MTBE. VEW-1, 177,450 ppb BTEX, 54,100 ppb MTBE. (RJF)7/20/2007 - Feng - 1Q2007, 6/15/2007. Groundwater sampled 1/4/2007. 17/19 monitoring wells were smapled. DTW 25.42' to 33.59' bg. Flows to south-southwest. No LNAPL. MW-1, 2,687 ppb BTEX, 11,800 ppb MTBE. MW-2, 4.3 ppb BTEX, 6,500 ppb MTBE. MW-3, 41,890 ppb BTEX, 37,400 ppb MTBE. MW-4, 95,030 ppb BTEX, 87,800 ppb MTBE. MW-5, 4,910 ppb BTEX, 3,320 ppb MTBE. MW-6, 238 ppb BTEX, 349 ppb MTBE. MW-7, 0.65 ppb BTEX, less than 1 ppb MTBE. MW-8, 9.6 ppb BTEX, 51.2 ppb MTBE. MW-9, 22,200 ppb BTEX, 21,200 ppb MTBE. MW-10, 8.6 ppb BTEX, 50.6 ppb MTBE. MW-11, BTEX ND, 31.3 ppb MTBE.

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MW-12, 3.0 ppb BTEX, less than 1 ppb MTBE. MW-13, not accessible. MW-14, 4.7 ppb BTEX, 2.6 ppb MTBE. MW-15, not accessible. MW-16, 68,134 ppb BTEX, less than 200 ppb MTBE. MW-17, 383 ppb BTEX, 376 ppb MTBE. MW-18, 63,530 ppb BTEX, 77,000 ppb MTBE. VEW-1, 193,730 ppb BTEX, 44,700 ppb MTBE. (RJF)12/12/2007 - Feng - 2Q2007, 8/2/2007. Active service station. Groundwater gauged and sampled 4/5/2007. The site is being remediated via the execution of Multi Phase Extraction events on a regular basis. 17/19 monitoring wells were gauged and sampled. DTW 25.41' to 33.61' bg. Flows to south-southwest. LNAPL in VEW-1 (0.01'). BTEX range ND to 193,720 ppb (VEW-1). MTBE range ND to 67,400 ppb (MW-4). (RJF)1/9/2008 - Feng - 3Q2007, 10/29/2007. Active Service Station. The monitoring well network was gauged and sampled on 7/27/2007. The site is being remediated via the execution of Multi Phase Extraction events. 18/19 monitoring wells were gauged. DTW 24.62' to 33.30' bg. Flows to south-southwest. No LNAPL. 17 wells were sampled. BTEX range ND to 43,700 ppb (VEW-1). MTBE range ND to 43,700 ppb (MW-4). (RJF)2/13/2008 - Feng - 4Q2007, 11/16/2007. Active service station. The monitoring well network was gauged and sampled on 10/9/2007. The site is being remediated via the execution of Multi Phase Extraction events. 18/19 monitoring wells were gauged. DTW 24.83' to 33.54' bg. Flows to south-southwest. LNAPL in MW-18 (0.04') and VEW-1 (0.03'). 17 monitoring wells were sampled. BTEX range ND to 142,330 ppb (VEW-1). MTBE range ND to 50,300 ppb (MW-4). 1Q2008, 2/7/2008. Active Service Station. The monitoring well network was gauged and sampled on 1/16/2008. The site is being remediated via the execution of MPE events. 18 wells were gauged. DTW 24.93' to 33.51' bg. Flows to south-southwest. LNAPL in MW-18 (0.07'). 17 wells were sampled. BTEX range ND to 123,100 ppb (VEW-1). MTBE range ND to 38,000 (MW-3). (RJF)6/18/2008 - Feng - Portfolio meeting with BP and Delta. The permanent MPE system was installed and started in 6/2006. During the past 2 years, the system was on and off due to the cooling problem. The system will be continued to run and groundwater monitoring. System optimization will be made. (RJF)10/29/2008 - 2Q2008, 9/11/2008, by Delta. Active service station. the monitoring well network ws gauged and sampled on 4/30/2008. the site is being remediated via the MPE system. 19 wells were gauged. NO LNAPL. DTW 24.91' to 36.62' bg. flows to south-southwest. 18 wells were sampled. MW-13 was not sampled because it was dry. BTEX range ND to 126,600 ug/L (MW-4). MTBE range ND to 69,000 ug/L (MW-18). 3Q2008, 9/29/2008, by Delta. Active service station. The monitoring well network was gauged and sampled on 7/23, 24/2008. The site is being remediated via the MPE system. 16 wells were gauged. MW-8 and Mw-15 had no access, MW-13 was obstructed. No LNAPL. DTW 24.90' to 33.53' bg. Flows to south-southwest. 19 wells were sampled. BTEX range ND to 122,600 ug/L (MW-4). MTBE range ND to 52,000 ug/L (MW-18). (RJF)3/3/2009 - 4Q2008, 11/13/2008, by Delta. Active service station. The monitoring well network was gauged and sampled on 10/10/2008. The site is being remediated via the MPE system. 19 wells were gauged. NO LNAPL. DTW 24.93' to 33.66' bg. Flows to south-southwest. 19 wells were sampled. BTEX rnage ND to 103,500 ug/L (MW-4). MTBE range ND to 61,000 ug/L. (RJF)5/22/2009 - Reviewed Drilling Work Plan, dated 3/31/2009, by Delta. Delta proposes to install 2 monitoring wells, SHARA due within 90 days of the approval. Have comment on the proposed well MW-20 location. (RJF)8/5/2009 - Approve the Drilling Work Plan, according to the meeting on 7/30/2009, proposed MW-20 will be relocated to the south of MW-11. Letter to BP and Delta. SHARA is due 11/2009. (RJF)6/2/2010 - 4Q2009, 1/17/2010, by EnviroTrac. Active BP service

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station. The monitoring well network was gauged and sampled on 10/23/2009. The site is being remediated via the multiphase extraction system and monthly product recovery events. A new offsite monitoring well was installed and a report summarizing the details of the installation will be submitted by Delta under separate cover. 20 wells were gauged. LNAPL in VEW-1 (0.32'). DTW 25.31-33.78' bg. Flows to south-southwest. 19 wells were sampled. Max benzene 9,900 ug/L (MW-4). Max BTEX 95,900 ug/L (MW-13). Max MTBE 90,000 ug/L (MW-18). 1Q2010, 4/12/2010, by EnviroTrac. The monitoring well network was gauged and sampled on 1/29/2010. This site is being remediated via the MPE system and monthly product recovery events. 1 monitoring well MW-20 was installed in 12/2009, and SHARA will be submited. 20 wells were gauged. LNAPL in MW-18 (0.06') and VEW-1 (0.44'). DTW 24.89-33.63' bg. Flows to south-southwest. 18 wells were sampled. MW-18 and VEW-1 with LNAPL, MW-15 with immobile vehicle, not sampled. Max benzene 9,700 ug/L (MW-4). Max BTEX 56,000 ug/L (MW-4). Max MTBE 73,000 ug/L (MW-9). MW-20, low/ND.6/15/2010 - Subsurface Hydrocarbon Assessment Report Addedum, dated March 30, 2010, by Delta. On 9/16/2009 and 12/29/2009, MW-19 and MW-20 were installed respectively using a hollow stem auger drilling rig equipped with a split-spoon sampler. 3 soil samples were collected. MW-19 (20-20.5'), 57J ug/kg total VOCs. MW-19 (29-29.5'), 310 ug/kg MTBE, 874 ug/kg total VOCs. MW-20 (26-26.5'), VOCs ND. Groundwater samples were collected on 1/29/2010, unit in ug/L. MW-1, 182.4 BTEX, 530 MTBE. MW-2, 4.77 BTEX, 650 MTBE. MW-3, 7,640 BTEX, 12,000 MTBE. MW-4, 56,000 BTEX, 19,000 MTBE. MW-5, 3,033 BTEX, 200 MTBE. MW-6, 10,760 BTEX, 43,000 MTBE. MW-7, BTEX ND, less than 0.50 MTBE. MW-8, BTEX ND, 31 MTBE. MW-9, 15,800 BTEX, 73,000 MTBE. MW-10, 0.77J BTEX, 4.4 MTBE. MW-11, 3.7 BTEX, less than 0.50 MTBE. MW-12, 2.85 BTEX, less than 0.50 MTBE. MW-13, 51,200 BTEX, 28,000 MTBE. MW-14, 4.7 BTEX, less than 0.50 MTBE. MW-15, 8,115 BTEX, less than 2.5 MTBE. MW-17, 42.5 BTEX, 17 MTBE. MW-19, 440 benzene, 4,500 toluene, 380 ethylbenzene, 2,050 xylenes, 7,370 BTEX, 3,100 MTBE. 58 isopropylbenzene, 190 n-propylbenzene, 12J p-isopropylbenzene, 1,200 1,2,4-trimethylbenzene, 480 1,3,5-trimethylbenzene, 37 n-butylbenzene, 22J sec-butylbenzene, 55 naphthalene, 12,524 total VOCs. Delta recommends expanding the existing groundwater monitoring network with an additional well MW-21 to be installed along the south side of Queens Blvd and to the west MW-19. Groundwater sampling at the existing monitoring well will continue on a quarterly monitoring schedule. 6/21/2010 - email to Delta. DEC require delineation in the north of MW-18, MW-9 and MW-19, at the median/divider in Queens Blvd or across Queens Blvd in addition to the MW-21 that being proposed. work plan 7/2010. 7/26/2010 - 2Q2010, 7/14/2010, by Delta. Gauged and sampled on 4/21/2010. LNAPL in MW-18 (0.05'). Flows to south southwest. Max BTEX 94,900 ug/L (MW-4). Max MTBE 42,200 (MW-5). 08/06/2010: This spill was temporarily (for 6 months) transferred to A. Doronova. - AD12/06/2010: Received a pdf copy of the 3rd quarter 2010 groundwater monitoring report. DL the report to eDocs. AD12/23/2010: Reviewed the report. The monitoring well network was gauged and sampled on July 28, 2010. Total 18 wells were sampled. MW-15 was not sampled due to no access. BTEX and MTBE concentrations are ND and very low in 7 wells: MW-7 (ND and 0.5ppb), MW-8 (5.7ppb and 16ppb), MW-11 (0.5ppb and 0.5ppb), MW-12 (ND and 0.5ppb), MW-14 (ND and 0.5ppb), MW-17 (7ppb and 12ppb) and MW-20 (ND and 0.5ppb). Moderate levels of BTEX and MTBE were noted in 4 wells: MW-1 (394ppb and 430ppb), MW-2 (2.4ppb and 260ppb), MW-5 (1,865ppb and 130ppb) and

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MW-10 (ND and 3,300ppb). Significant concentrations of BTEX and MTBE were detected in the following wells: MW-3 (16,000ppb and 8,300ppb), MW-4 (42,600ppb and 5,800ppb), MW-6 (9,500ppb and 42,000ppb), MW-9 (11,060ppb and 45,000ppb), MW-13 (40,000ppb and 58,000ppb), MW-16 (11,700ppb and 6ppb) and MW-19 (22,500ppb and 6,800ppb). Max BTEX is 42,600 ug/L (MW-4) and max MTBE is 58,000 ug/L (MW-13). LNAPL was detected in wells: VEW-1 (0.03') and MW-18 (0.05'). DTW 25.31-33.78' bg. Flows to south-southwest. Delta recommends to continue groundwater monitoring and remedial activities at the site.
AD01/05/2011: Received a grounwater monitoring report for 4th quarter of 2010. DL the pdf copy of the report to eDocs. Will review.
AD02/09/2011: Reviewed the report. The monitoring well network was gauged and sampled on October 11, 2010. Total 20 wells were sampled. MW-18 was not sampled due to a presence of free product (0.12"). BTEX and MTBE concentrations were ND or very low in 8 wells: MW-1 (17.6ppb and 150ppb), MW-2 (1.9ppb and 99ppb), MW-7 (ND and 0.5ppb), MW-8 (2ppb and 21ppb), MW-11 (1.2ppb and 0.5ppb), MW-12 (ND and 0.5ppb), MW-14 (ND and 0.5ppb), MW-17 (2.5ppb and 6ppb) and MW-20 (0.62ppb and 0.5ppb). Moderate levels of BTEX and MTBE were noted in 2 wells: MW-5 (1,404ppb and 240ppb) and MW-10 (2.4ppb and 3,000ppb). Significant concentrations of BTEX and MTBE were detected in the following wells: VEW-1 (111,400ppb and 35,000ppb), MW-3 (11,300ppb and 5,600ppb), MW-4 (20,800ppb and 3,800ppb), MW-6 (4,980ppb and 36,000ppb), MW-9 (27,300ppb and 63,000ppb), MW-13 (39,400ppb and 58,000ppb), MW-16 (12,330ppb and 0.50ppb) and MW-19 (12,690ppb and 5,600ppb). Max BTEX is 111,400 ug/L (VEW-1) and max MTBE is 56,000 ug/L (MW-13). DTW 25.31-33.78' bg. Flows to south-southwest. Delta recommends to continue groundwater monitoring and remedial activities at the site.
AD4/8/2011 - spill transferred back to JFeng. 4/22/2011 - 1Q2011, 4/5/2011, by Anteagroup. The groundwater was sampled on 1/13/2011. Product in VEW-1 (0.03'), MW-18 (0.14'). High level of BTEX and MTBE in MW-3 (7,020 ug/L BTEX, 3,300 MTBE), MW-4 (14,900 BTEX, 3,700 MTBE), MW-5 (1,588 BTEX, 140 MTBE), MW-6 (4,430 BTEX, 36,000 MTBE), MW-9 (25,100 BTEX, 62,000 MTBE), MW-13 (33,140 BTEX, 53,000 MTBE), MW-16 (16,535 BTEX, less than 5.0 MTBE), MW-19 (17,310 BTEX, 4,900 MTBE). Delta intends to continue groundwater monitoring and remediation activities at the site. email to Chris Meyer " I need some updates on this one. Is the MPE system back on operation now? And also have you submitted any work plan for the wells installation in Queens Blvd or across Queens Blvd? The 1Q2011 quarterly report did not show any new wells nor any remediation activities are going on. There are product in some wells and high level of BTEX and MTBE in multiple wells. "9/23/2011 - 2Q2011, 8/25/2011, by Antreagroup. The groundwater samples were collected on April 27, 2011. 20 wells were sampled. 20 wells were sampled. High BTEX and MTBE in multiple wells. LNAPL in MW-18 (0.01'). MW-3, 15,000 ug/L BTEX, 8,300 ug/L MTBE. MW-4, 65,800 ug/L BTEX, 7,200 ug/L MTBE. MW-6, 6,730 ug/L BTEX, 40,000 ug/L MTBE. MW-9, 27,300 ug/L BTEX, 62,000 ug/L MTBE. MW-13, 28,300 ug/L BTEX, 10,000 ug/L MTBE. MW-16, 8,710 ug/L BTEX, less than 2.5 MTBE. MW-19, 5,770 ug/L BTEX, 2,800 ug/L MTBE. MPE system is operational onsite. Vapor and water influent and effluent samples were collected. Approximately 9,650 gallons of impacted water were treated by the MPE system during 2Q2011. 9/26/2011 - email from Gordon Hinshalwood of Anteagroup "I wanted to let you know that we have encountered operational issues with our two dual-phase extraction systems located at 65-10 Queens Blvd and at 3055 Westchester Ave. Both systems are currently shut down as a result of

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these issues. These systems have both historically recovered significant quantities of hydrocarbons from the subsurface, but we have more recently been challenged with maintenance/ageing performance issues, and are therefore actively looking at other possible solutions to complete the site remediation efforts. We will follow with additional notification as we determine the appropriate path forward." 1/10/2011 - 3Q2011, 12/2/2011, by Antea Group. The groundwater samples were collected on July 14, 2011. 20 wells were sampled. LNAPL in MW-18 (0.10'), VEW-1 (0.05'). High BTEX and MTBE in multiple wells. MW-3, 29,300 ug/L BTEX, 10,000 ug/L MTBE. MW-4, 48,200 ug/L BTEX, 3,300 ug/L MTBE. MW-6, 6,160 ug/L BTEX, 37,000 ug/L MTBE. MW-9, 20,600 ug/L BTEX, 66,000 ug/L MTBE. MW-13, 30,470 ug/L BTEX, 49,000 ug/L MTBE. MW-16, 5,567 ug/L BTEX, less than 2.5 ug/L MTBE. MW-19, 8,280 ug/L BTEX, 4,100 ug/L MTBE. LNAPL was found in the liquid separator tank and the origin of the LNAPL was found to be from the liquid ring pump. The MPE system is currently non operational. The system has demonstrated decreasing hydrocarbon recovery trends over time, and recent operational difficulties have presented significant challenges in maintaining system operation. Alternative methods of site remediation are under consideration at this time. 8/16/2012 - 1Q2012, 4/30/2012, by GES. The groundwater was sampled on 1/24/2012. LNAPL in MW-18 (0.10'), not sampled. LNAPL in MW-6 and MW-9 (Sheen), the was was purged and sampled. DTW 33.70 (MW-15) to 24.41 (MW-12) below TOC. Flows to southwest. MW-19, 1,370 BTEX, 5,700 MTBE. VEW-1, 205,100 BTEX, 9,300 MTBE. MW-6, 12,700 BTEX, 57,000 MTBE. MW-9, 20,140 BTEX, 37,000 MTBE. MW-13, 25,010 BTEX, 15,000 MTBE. MW-3, 26,100 BTEX, 11,000 MTBE. MW-4, 48,800 BTEX, 5,500 MTBE. MW-1, 49 BTEX, 120 MTBE. MW-15, BTEX ND, 32 MTBE. MW-16, 5,643 BTEX, MTBE ND. MW-5, 1,298 BTEX, 86 MTBE. MW-17, BTEX ND, 2.2 MTBE. MW-2, 2 BTEX, 160 MTBE. The next sampling will be in 4/2012. 9/6/2012 - Reviewed Feasibility Study Work Plan, dated 8/23/2012, by GES. GES propose to install 2 SVE wells or monitoring wells, and 2 AS wells for the Vacuum Enhanced Groundwater Extraction (VEGE) and SVE/AS pilot test. Email to BP/GES. No comment provided on the pilot test part and let them plan ahead with the pilot test. Comments were given on the Generic Site Investigation Work Plan. 1) additional soil sample for vertical delineation; 2) drilling depth; 3) Investigation Derived Waste. see eDoc. According to GES's email, they might start the pilot 9/17/2012. 1/4/2013 - 3Q2012, 10/31/2012, by GES. The groundwater was sampled on 7/17/2012. DTW 24.27 (MW-12) to 33.62 (MW-7). LNAPL in MW-18 (0.49'). Flows to southwest. MW-19, 2,890 BTEX, 4,400 MTBE. VEW-1, 123,400 BTEX, 15,000 MTBE. MW-6, 8,090 BTEX, 52,000 MTBE. MW-9, 15,940 BTEX, 92,000 MTBE. MW-13, 12,180 BTEX, 6,800 MTBE. MW-10, 150 MTBE. MW-4, 26,200 BTEX, 7,500 MTBE. MW-3, 23,900 BTEX, 8,800 MTBE. MW-16, 6,909 BTEX. MW-5, 2,849 BTEX, 320 MTBE. MW-2, 1.82 BTEX, 190 MTBE. On 9/11-20/2012, conducted drilling activities which included the installation of 2 monitoring wells (MW-A and MW-B) and 2 sparge point wells (SP-1 and SP-2) in accordance with the August 2012 FSWP. Will conduct the SVE/AS and VEGE pilot testing. 1/10/2013 - email to Eddie Savarese of GES for product recovery. 1/14/2013 - response from Eddie Savarese of GES " GES conducted a Pilot Test at this site and is in the process of preparing a Summary Report to the NYSDEC. In the interim, GES proposes to install product passive skimmers and/or absorbent product recovery socks at monitoring wells MW-18, MW-A and MW-B where product is observed. In addition, GES will install a product recovery drum with an overpack, vent, and grounding rod to store recovered LPH."

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5/2/2013 - Reviewed Feasibility Study Report, dated 3/18/2013, by GES. In 9/2012, two extraction wells MW-A and MW-B, and two Air Sparge wells SP-1 and SP-2 were installed. And between 11/27-28/2012, feasibility testing activities were conducted using GES's Data Acquisition and Processing Laboratory (DAPL). The results of the feasibility study indicated that SVE/AS can be feasibly implemented at the site and the VEGE is not an appropriate remedial alternative. GES proposed to conduct additional delineation of the location, extent, and magnitude of the trapped product and delineation at the north and west of the canopy and the southeast of monitoring well MW-B before an appropriate remedial strategy for the site could be determined because of the increase thickness was observed during the January 2013 groundwater sampling event. Reviewed 4Q2012 and 1Q2013. In 2/2013, passive skimmers were installed in MW-A, MW-B and MW-18 and absorbent socks were installed at MW-6 and VEW-1 to recover LPH. Performed monthly LPH recovery at MW-A, MW-B, MW-6 and MW-18. NO LPH were detected at VEW-1. DTW 24.86 (MW-12) to 33.67 (MW-7). Flows to southwest. MW-9, 20,560 BTEX, 59,000 MTBE. email to BP/GES to approve the proposed delineation. A work plan or investigation report shall be expected. In the mean time, product removal shall be continue. 5/10/2013 - Reviewed Proposed Boring Location map, dated 5/2/2013. GES proposed 5 soil borings, 2 soil borings/monitoring wells, 1 step-off soil boring. Locations are fine. Reviewed the Generic Site Investigation Work Plan. Same comments as previously review. 1) "clean" sample for vertical delineation; 2) site specific drilling depth; 3) investigation derived waste issue. Email to BP/GES approving the delineation work and comments on the Generic Work Plan.12/4/2014 - Reviewed Remedial Action Plan, dated 11/14/2014, by GES. GES proposed to install SVE/AS system. SVE wells screen 15-30 feet. AS wells screen 35-38 feet. SVE ROI 22 feet. AS ROI 15 feet. Email comments to GES "1) The RAP mentioned about upwelling which caused by AS/SVE application for about 5 feet, some up to 7 feet in the feasibility study. Is it because of the site lithology? And do you need to adjust vacuum/pressure to be applied to reduce some of the upwelling? 2) AS wells screen to 35-38 feet. Water table at 28-32 feet. The screen depth shall be fine if you are targeting the petroleum impacted water. But the RAP also mentioned the adsorbed-phase hydrocarbon contamination are at 22-38 feet. Are you also targeting the contamination at 38 feet? If so, the AS wells shall screen deeper than 38 feet as the AS bubble would not go laterally, but only vertically.3) For air emission requirement, you have to meet the STIP and the 2003 Memo based on Central Office guidance. I have attached the 2003 Memo."12/16/2014 - Email from GES on 12/10/2014 and 12/12/2014 responding to DEC comments. Approved RAWP calls for the installation and operation of SVE/AS system. Letter to BP/GES.

Remarks: UNICO WAS DOING A TANK EXCAVATION OF (14) 550'S, CONTAMINATED SOIL WASDISCOVERED UNDER TANKS.SPILL REASSIGNED FROM SIGONA TO ROMMEL.

Material:

Site ID:	159398
Operable Unit ID:	928663
Operable Unit:	01
Material ID:	447350
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum

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Quantity:	-1
Units:	Pounds
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	True
Site ID:	159398
Operable Unit ID:	928663
Operable Unit:	01
Material ID:	2106610
Material Code:	1213A
Material Name:	MTBE (METHYL-TERT-BUTYL ETHER)
Case No.:	01634044
Material FA:	Hazardous Material
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Resource Affected:	Not reported
Oxygenate:	True

Tank Test:

Site ID:	159398
Spill Tank Test:	1535652
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	Unknown

Facility ID:	0510718
Facility Type:	ER
DER Facility ID:	306806
Site ID:	356745
DEC Region:	2
Spill Date:	12/13/2005
Spill Number/Closed Date:	0510718 / 12/19/2005
Spill Cause:	Other
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
SWIS:	4101
Investigator:	SMSANGES
Referred To:	Not reported
Reported to Dept:	12/13/2005
CID:	406
Water Affected:	Not reported
Spill Source:	Gasoline Station or other PBS Facility
Spill Notifier:	Tank Tester
Cleanup Ceased:	Not reported
Cleanup Meets Std:	True
Last Inspection:	Not reported
Recommended Penalty:	False
UST Trust:	False
Remediation Phase:	0
Date Entered In Computer:	12/13/2005

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Spill Record Last Update:	12/19/2005
Spiller Name:	MARK OKAMOTO
Spiller Company:	BP GAS STATION
Spiller Address:	65-10 QUEENS BLVD
Spiller City,St,Zip:	WOODSIDE, NY 11377
Spiller Company:	001
Contact Name:	MARK OKAMOTO
Contact Phone:	(732) 743-0901
DEC Memo:	Sangesland spoke to Bob Minissale at Crompco. He said on 12/13 the mid grade fuel line failed a pressure test.on 12/14 the line was serviced and a leak was found on a flex line at pump #4. Line was repaired. On 12/15 the system was retested and the whole system passed. Closed
Remarks:	Line test failure. Double wall line. Unsure if there was a release to the environment.

Material:

Site ID:	356745
Operable Unit ID:	1114043
Operable Unit:	01
Material ID:	2104120
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	Not reported
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	356745
Spill Tank Test:	1549586
Tank Number:	Not reported
Tank Size:	0
Test Method:	01
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Watchdog
Last Modified:	12/13/2005
Test Method:	Petro-Tite/Petro Comp

C19 **EDR US Hist Auto Stat** **1015591264**
East **N/A**
< 1/8 **6510 QUEENS BLVD**
0.060 mi. **WOODSIDE, NY 11377**
315 ft. **Site 8 of 8 in cluster C**

Relative: EDR Historical Auto Stations:
Higher

Name:	YANGS AMOCO SVCE STATION
Year:	1999
Address:	6510 QUEENS BLVD

Actual: **43 ft.**

Name:	YANGS AMOCO SVCE STATION
Year:	2000
Address:	6510 QUEENS BLVD

46-05 56TH ST/QUEENS/UPS (Continued) **S100145663**

Material:
Site ID:	202201
Operable Unit ID:	932397
Operable Unit:	01
Material ID:	444100
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1
Units:	Not reported
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:
Site ID:	202201
Spill Tank Test:	1536301
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	Unknown

128
SE
1/4-1/2
0.440 mi.
2325 ft.

SDR PROCESS CORP.
50-15 69TH PLACE
WOODSIDE, NY 11377

NY SWF/LF **S103592347**
N/A

Relative:
Lower

Actual:
32 ft.

SWF/LF:
Flag:	INACTIVE
Region Code:	2
Phone Number:	Not reported
Owner Name:	320 CASANOVA CO
Owner Type:	Private
Owner Address:	537 W 35TH ST
Owner Addr2:	Not reported
Owner City,St,Zip:	NEW YORK, NY
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	Not reported
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported
Activity Desc:	Transfer station - permit
Activity Number:	[03T33]
Active:	No
East Coordinate:	593312
North Coordinate:	4510090
Accuracy Code:	Not reported

SDR PROCESS CORP. (Continued) **S103592347**

Regulatory Status: None
Waste Type: Not reported
Authorization #: 0
Authorization Date: Not reported
Expiration Date: Not reported

129
NW
1/4-1/2
0.452 mi.
2385 ft.

OLD GAS STATION **NY LTANKS** **S105230344**
57-01 ROOSEVELT AV **N/A**
QUEENS, NY

Relative:
Higher

Actual:
68 ft.

LTANKS:

Site ID:	144941
Spill Number/Closed Date:	0107899 / 7/11/2006
Spill Date:	11/2/2001
Spill Cause:	Tank Failure
Spill Source:	Gasoline Station or other PBS Facility
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	4101
Investigator:	WBWELLIN
Referred To:	Not reported
Reported to Dept:	11/2/2001
CID:	390
Water Affected:	Not reported
Spill Notifier:	Local Agency
Last Inspection:	Not reported
Recommended Penalty:	False
UST Involvement:	True
Remediation Phase:	0
Date Entered In Computer:	11/2/2001
Spill Record Last Update:	7/11/2006
Spiller Name:	KEITH CARTLEY
Spiller Company:	OLD GAS STATION .
Spiller Address:	57-01 ROOSEVELT AV
Spiller City,St,Zip:	QUEENS, ZZ
Spiller County:	001
Spiller Contact:	KEITH CARTLEY
Spiller Phone:	(718) 349-1093
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	123529
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "ROMMEL"12/9/03 MT ///////TRANSFERRED FROM TIPPLE TO ROMMEL07/11/2006 No info. Close file.
Remarks:	underground storage failed - soil will be removed

Material:

Site ID:	144941
Operable Unit ID:	845943
Operable Unit:	01
Material ID:	529157
Material Code:	0009
Material Name:	Gasoline

60-06 39TH AVE/QUEENS (Continued) **S100144973**

Material:

Site ID:	181463
Operable Unit ID:	914489
Operable Unit:	01
Material ID:	464564
Material Code:	0001A
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1
Units:	Not reported
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	181463
Spill Tank Test:	1533138
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	Unknown

132
SE
1/4-1/2
0.481 mi.
2541 ft.

CON EDISON
50-40 70 ST
QUEENS, NY 11377

NY SWF/LF S105841781
NY MANIFEST N/A

Relative:
Lower

Actual:
30 ft.

SWF/LF:

Flag:	INACTIVE
Region Code:	2
Phone Number:	7186723246
Owner Name:	Not reported
Owner Type:	Not reported
Owner Address:	Not reported
Owner Addr2:	Not reported
Owner City,St,Zip:	Not reported
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	FRANK
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported
Activity Desc:	Transfer station - permit
Activity Number:	[41T09]
Active:	No
East Coordinate:	593355
North Coordinate:	4510081
Accuracy Code:	Not reported

CON EDISON (Continued) **S105841781**

Regulatory Status: Not reported
Waste Type: Not reported
Authorization #: Not reported
Authorization Date: Not reported
Expiration Date: Not reported

NY MANIFEST:
EPA ID: NYP004562955
Country: USA

Mailing Info:
Name: CON EDISON
Contact: TOM TEELING
Address: 4 IRVING PLACE 15TH FLOOR
City/State/Zip: NEW YORK, NY 10003
Country: USA
Phone: Not reported

Manifest:

Document ID: Not reported
Manifest Status: Not reported
Trans1 State ID: NJD003812047
Trans2 State ID: Not reported
Generator Ship Date: 06/12/2014
Trans1 Recv Date: 06/12/2014
Trans2 Recv Date: Not reported
TSD Site Recv Date: 06/13/2014
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYP004562955
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID: NJD991291105
Waste Code: Not reported
Quantity: 50
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 1
Container Type: TT - Cargo tank, tank trucks
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 1
Year: 2014
Manifest Tracking Num: 002424425GBF
Import Ind: N
Export Ind: N
Discr Quantity Ind: N
Discr Type Ind: N
Discr Residue Ind: N
Discr Partial Reject Ind: N
Discr Full Reject Ind: N
Manifest Ref Num: Not reported
Alt Fac RCRA Id: Not reported
Alt Fac Sign Date: Not reported
Mgmt Method Type Code: H110

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/16/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites
A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/16/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens
Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/16/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: EPA
Telephone: N/A
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/21/2014
Date Data Arrived at EDR: 10/07/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/09/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 09/18/2014
Date Data Arrived at EDR: 09/19/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 02/26/2015
Next Scheduled EDR Contact: 06/15/2015
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/03/2014
Date Data Arrived at EDR: 12/12/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 48

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 09/30/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 37

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: Inactive Hazardous Waste Disposal Sites in New York State

Referred to as the State Superfund Program, the Inactive Hazardous Waste Disposal Site Remedial Program is the cleanup program for inactive hazardous waste sites and now includes hazardous substance sites

Date of Government Version: 02/16/2015
Date Data Arrived at EDR: 02/18/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 9

Source: Department of Environmental Conservation
Telephone: 518-402-9622
Last EDR Contact: 02/18/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Annually

VAPOR REOPENED: Vapor Intrustion Legacy Site List
New York is currently re-evaluating previous assumptions and decisions regarding the potential for soil vapor intrusion exposures at sites. As a result, all past, current, and future contaminated sites will be evaluated to determine whether these sites have the potential for exposures related to soil vapor intrusion.

Date of Government Version: 11/01/2014
Date Data Arrived at EDR: 11/19/2014
Date Made Active in Reports: 01/12/2015
Number of Days to Update: 54

Source: Department of Environmenal Conservation
Telephone: 518-402-9814
Last EDR Contact: 02/20/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Facility Register
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 01/06/2015
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 21

Source: Department of Environmental Conservation
Telephone: 518-457-2051
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Semi-Annually

State and tribal leaking storage tank lists

LTANKS: Spills Information Database
Leaking Storage Tank Incident Reports. These records contain an inventory of reported leaking storage tank incidents reported from 4/1/86 through the most recent update. They can be either leaking underground storage tanks or leaking aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills.

Date of Government Version: 02/16/2015
Date Data Arrived at EDR: 02/18/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 9

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 02/18/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

HIST LTANKS: Listing of Leaking Storage Tanks
A listing of leaking underground and aboveground storage tanks. The causes of the incidents are tank test failures, tank failures or tank overfills. In 2002, the Department of Environmental Conservation stopped providing updates to its original Spills Information Database. This database includes fields that are no longer available from the NYDEC as of January 1, 2002. Current information may be found in the NY LTANKS database. Department of Environmental Conservation.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 07/08/2005
Date Made Active in Reports: 07/14/2005
Number of Days to Update: 6

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 07/07/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 07/30/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/06/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 19

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 11/04/2014
Date Data Arrived at EDR: 11/07/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 10

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/08/2015
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/10/2014
Date Data Arrived at EDR: 11/14/2014
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 87

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/05/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 12

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal registered storage tank lists

TANKS: Storage Tank Facility Listing
This database contains records of facilities that are or have been regulated under Bulk Storage Program. Tank information for these facilities may not be releasable by the state agency.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 12/30/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 30

Source: Department of Environmental Conservation
Telephone: 518-402-9543
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

UST: Petroleum Bulk Storage (PBS) Database
Facilities that have petroleum storage capacities in excess of 1,100 gallons and less than 400,000 gallons.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 12/30/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 30

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: No Update Planned

CBS UST: Chemical Bulk Storage Database
Facilities that store regulated hazardous substances in underground tanks of any size

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 10/24/2005
Next Scheduled EDR Contact: 01/23/2006
Data Release Frequency: No Update Planned

MOSF UST: Major Oil Storage Facilities Database
Facilities that may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: No Update Planned

AST: Petroleum Bulk Storage
Registered Aboveground Storage Tanks.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 12/30/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 30

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: No Update Planned

CBS AST: Chemical Bulk Storage Database
Facilities that store regulated hazardous substances in aboveground tanks with capacities of 185 gallons or greater, and/or in underground tanks of any size.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

MOSF AST: Major Oil Storage Facilities Database
Facilities that may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: No Update Planned

CBS: Chemical Bulk Storage Site Listing
These facilities store regulated hazardous substances in aboveground tanks with capacities of 185 gallons or greater, and/or in underground tanks of any size

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 12/30/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 30

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

MOSF: Major Oil Storage Facility Site Listing
These facilities may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 12/30/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 30

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/06/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 8

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 11/03/2014
Date Data Arrived at EDR: 11/05/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 12

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 07/30/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 271

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 11/13/2014
Date Data Arrived at EDR: 11/18/2014
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 83

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/10/2014
Date Data Arrived at EDR: 11/14/2014
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 87

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 11/04/2014
Date Data Arrived at EDR: 11/07/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 10

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/12/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

ENG CONTROLS: Registry of Engineering Controls
Environmental Remediation sites that have engineering controls in place.

Date of Government Version: 02/16/2015
Date Data Arrived at EDR: 02/18/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 9

Source: Department of Environmental Conservation
Telephone: 518-402-9553
Last EDR Contact: 02/18/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Quarterly

INST CONTROL: Registry of Institutional Controls
Environmental Remediation sites that have institutional controls in place.

Date of Government Version: 02/16/2015
Date Data Arrived at EDR: 02/18/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 9

Source: Department of Environmental Conservation
Telephone: 518-402-9553
Last EDR Contact: 02/18/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Quarterly

ENV RES DECL: Environmental Restrictive Declarations
The Environmental Restrictive Declarations (ERD) listed were recorded in connection with a zoning action against the noted Tax Blocks and Tax Lots, or portion thereof, and are available in the property records on file at the Office of the City Register for Bronx, Kings, New York and Queens counties or at the Richmond County Clerk's office. They contain environmental requirements with respect to hazardous materials, air quality and/or noise in accordance with Section 11-15 of this Resolution.

Date of Government Version: 11/21/2014
Date Data Arrived at EDR: 12/24/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 36

Source: New York City Department of City Planning
Telephone: 212-720-3300
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Varies

RES DECL: Restrictive Declarations Listing
A restrictive declaration is a covenant running with the land which binds the present and future owners of the property. As a condition of certain special permits, the City Planning Commission may require an applicant to sign and record a restrictive declaration that places specified conditions on the future use and development of the property. Certain restrictive declarations are indicated by a D on zoning maps.

Date of Government Version: 11/18/2010
Date Data Arrived at EDR: 06/30/2014
Date Made Active in Reports: 07/21/2014
Number of Days to Update: 21

Source: NYC Department of City Planning
Telephone: 212-720-3401
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 10/01/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 36

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/31/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

VCP: Voluntary Cleanup Agreements

New York established its Voluntary Cleanup Program (VCP) to address the environmental, legal and financial barriers that often hinder the redevelopment and reuse of contaminated properties. The Voluntary Cleanup Program was developed to enhance private sector cleanup of brownfields by enabling parties to remediate sites using private rather than public funds and to reduce the development pressures on "greenfield" sites.

Date of Government Version: 02/16/2015
Date Data Arrived at EDR: 02/18/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 9

Source: Department of Environmental Conservation
Telephone: 518-402-9711
Last EDR Contact: 02/18/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Semi-Annually

State and tribal Brownfields sites

ERP: Environmental Restoration Program Listing

In an effort to spur the cleanup and redevelopment of brownfields, New Yorkers approved a $200 million Environmental Restoration or Brownfields Fund as part of the $1.75 billion Clean Water/Clean Air Bond Act of 1996 (1996 Bond Act). Enhancements to the program were enacted on October 7, 2003. Under the Environmental Restoration Program, the State provides grants to municipalities to reimburse up to 90 percent of on-site eligible costs and 100% of off-site eligible costs for site investigation and remediation activities. Once remediated, the property may then be reused for commercial, industrial, residential or public use.

Date of Government Version: 02/16/2015
Date Data Arrived at EDR: 02/18/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 9

Source: Department of Environmental Conservation
Telephone: 518-402-9622
Last EDR Contact: 02/18/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Quarterly

BROWNFIELDS: Brownfields Site List

A Brownfield is any real property where redevelopment or re-use may be complicated by the presence or potential presence of a hazardous waste, petroleum, pollutant, or contaminant.

Date of Government Version: 02/16/2015
Date Data Arrived at EDR: 02/18/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 9

Source: Department of Environmental Conservation
Telephone: 518-402-9764
Last EDR Contact: 02/18/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Semi-Annually

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/22/2014
Date Data Arrived at EDR: 12/22/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 38

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWTIRE: Registered Waste Tire Storage & Facility List
A listing of facilities registered to accept waste tires.

Date of Government Version: 08/01/2006
Date Data Arrived at EDR: 11/15/2006
Date Made Active in Reports: 11/30/2006
Number of Days to Update: 15

Source: Department of Environmental Conservation
Telephone: 518-402-8694
Last EDR Contact: 01/19/2015
Next Scheduled EDR Contact: 05/04/2015
Data Release Frequency: Annually

SWRCY: Registered Recycling Facility List
A listing of recycling facilities.

Date of Government Version: 01/06/2015
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 21

Source: Department of Environmental Conservation
Telephone: 518-402-8705
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Semi-Annually

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 11/10/2014
Date Data Arrived at EDR: 12/01/2014
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 70

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/25/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Quarterly

DEL SHWS: Delisted Registry Sites
A database listing of sites delisted from the Registry of Inactive Hazardous Waste Disposal Sites.

Date of Government Version: 02/16/2015
Date Data Arrived at EDR: 02/18/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 9

Source: Department of Environmental Conservation
Telephone: 518-402-9622
Last EDR Contact: 02/18/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Annually

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 11/10/2014
Date Data Arrived at EDR: 12/01/2014
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 70

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/25/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

HIST UST: Historical Petroleum Bulk Storage Database
These facilities have petroleum storage capacities in excess of 1,100 gallons and less than 400,000 gallons. This database contains detailed information per site. It is no longer updated due to the sensitive nature of the information involved. See UST for more current data.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 06/02/2006
Date Made Active in Reports: 07/20/2006
Number of Days to Update: 48

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/23/2006
Next Scheduled EDR Contact: 01/22/2007
Data Release Frequency: Varies

HIST AST: Historical Petroleum Bulk Storage Database
These facilities have petroleum storage capabilities in excess of 1,100 gallons and less than 400,000 gallons. This database contains detailed information per site. No longer updated due to the sensitive nature of the information involved. See AST for more current data.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 06/02/2006
Date Made Active in Reports: 07/20/2006
Number of Days to Update: 48

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/23/2006
Next Scheduled EDR Contact: 01/22/2007
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LIENS: Spill Liens Information
Lien information from the Oil Spill Fund.

Date of Government Version: 02/09/2015
Date Data Arrived at EDR: 02/12/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 15

Source: Office of the State Comptroller
Telephone: 518-474-9034
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 10/01/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 36

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

SPILLS: Spills Information Database
Data collected on spills reported to NYSDEC as required by one or more of the following: Article 12 of the Navigation Law, 6 NYCRR Section 613.8 (from PBS regs), or 6 NYCRR Section 595.2 (from CBS regs). It includes spills active as of April 1, 1986, as well as spills occurring since this date.

Date of Government Version: 02/16/2015
Date Data Arrived at EDR: 02/18/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 9

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 02/18/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

HIST SPILLS: SPILLS Database
This database contains records of chemical and petroleum spill incidents. Under State law, petroleum and hazardous chemical spills that can impact the waters of the state must be reported by the spiller (and, in some cases, by anyone who has knowledge of the spills). In 2002, the Department of Environmental Conservation stopped providing updates to its original Spills Information Database. This database includes fields that are no longer available from the NYDEC as of January 1, 2002. Current information may be found in the NY SPILLS database. Department of Environmental Conservation.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 07/08/2005
Date Made Active in Reports: 07/14/2005
Number of Days to Update: 6

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 07/07/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SPILLS 80: SPILLS80 data from FirstSearch
Spills 80 includes those spill and release records available from FirstSearch databases prior to 1990. Typically, they may include chemical, oil and/or hazardous substance spills recorded before 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 80.

Date of Government Version: 11/02/2010
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 03/07/2013
Number of Days to Update: 63

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SPILLS 90: SPILLS90 data from FirstSearch
Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 12/14/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/12/2013
Number of Days to Update: 40

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/09/2014
Date Data Arrived at EDR: 12/29/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 12/29/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/03/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 06/06/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 8

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/24/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 31

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 12/24/2014
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ROD: Records Of Decision
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Varies

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 12/30/2014
Date Data Arrived at EDR: 12/31/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 29

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 12/30/2014
Next Scheduled EDR Contact: 03/16/2015
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 01/29/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/31/2014
Date Data Arrived at EDR: 10/29/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 8

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 01/09/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 33

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/16/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 12/29/2014
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 21

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 12/04/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/07/2014
Date Data Arrived at EDR: 10/08/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 08/16/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: EPA
Telephone: (212) 637-3000
Last EDR Contact: 02/27/2015
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 08/01/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/24/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Biennially

HSWDS: Hazardous Substance Waste Disposal Site Inventory

The list includes any known or suspected hazardous substance waste disposal sites. Also included are sites delisted from the Registry of Inactive Hazardous Waste Disposal Sites and non-Registry sites that U.S. EPA Preliminary Assessment (PA) reports or Site Investigation (SI) reports were prepared. Hazardous Substance Waste Disposal Sites are eligible to be Superfund sites now that the New York State Superfund has been refinanced and changed. This means that the study inventory has served its purpose and will no longer be maintained as a separate entity. The last version of the study inventory is frozen in time. The sites on the study will not automatically be made Superfund sites, rather each site will be further evaluated for listing on the Registry. So overtime they will be added to the registry or not.

Date of Government Version: 01/01/2003
Date Data Arrived at EDR: 10/20/2006
Date Made Active in Reports: 11/30/2006
Number of Days to Update: 41

Source: Department of Environmental Conservation
Telephone: 518-402-9564
Last EDR Contact: 05/26/2009
Next Scheduled EDR Contact: 08/24/2009
Data Release Frequency: No Update Planned

UIC: Underground Injection Control Wells

A listing of enhanced oil recovery underground injection wells.

Date of Government Version: 12/05/2014
Date Data Arrived at EDR: 12/09/2014
Date Made Active in Reports: 01/12/2015
Number of Days to Update: 34

Source: Department of Environmental Conservation
Telephone: 518-402-8056
Last EDR Contact: 12/09/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Quarterly

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2015
Date Data Arrived at EDR: 02/04/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 23

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/04/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Annually

DRYCLEANERS: Registered Drycleaners
A listing of all registered drycleaning facilities.

Date of Government Version: 01/12/2015
Date Data Arrived at EDR: 01/13/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 16

Source: Department of Environmental Conservation
Telephone: 518-402-8403
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Varies

SPDES: State Pollutant Discharge Elimination System
New York State has a state program which has been approved by the United States Environmental Protection Agency for the control of wastewater and stormwater discharges in accordance with the Clean Water Act. Under New York State law the program is known as the State Pollutant Discharge Elimination System (SPDES) and is broader in scope than that required by the Clean Water Act in that it controls point source discharges to groundwaters as well as surface waters.

Date of Government Version: 11/06/2014
Date Data Arrived at EDR: 11/07/2014
Date Made Active in Reports: 11/25/2014
Number of Days to Update: 18

Source: Department of Environmental Conservation
Telephone: 518-402-8233
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: No Update Planned

AIRS: Air Emissions Data
Point source emissions inventory data.

Date of Government Version: 12/03/2014
Date Data Arrived at EDR: 12/23/2014
Date Made Active in Reports: 02/04/2015
Number of Days to Update: 43

Source: Department of Environmental Conservation
Telephone: 518-402-8452
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Annually

E DESIGNATION: E DESIGNATION SITE LISTING
The (E (Environmental)) designation would ensure that sampling and remediation take place on the subject properties, and would avoid any significant impacts related to hazardous materials at these locations. The (E) designations would require that the fee owner of the sites conduct a testing and sampling protocol, and remediation where appropriate, to the satisfaction of the NYCDEP before the issuance of a building permit by the Department of Buildings pursuant to the provisions of Section 11-15 of the Zoning Resolution (Environmental Requirements). The (E) designations also include a mandatory construction-related health and safety plan which must be approved by NYCDEP.

Date of Government Version: 12/03/2014
Date Data Arrived at EDR: 12/24/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 36

Source: New York City Department of City Planning
Telephone: 718-595-6658
Last EDR Contact: 12/22/2014
Next Scheduled EDR Contact: 04/06/2015
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/18/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for hazardous waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 10/01/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 23

Source: Department of Environmental Conservation
Telephone: 518-402-8712
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Varies

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 02/06/2015
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/30/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/09/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

COAL ASH: Coal Ash Disposal Site Listing

A listing of coal ash disposal site locations.

Date of Government Version: 01/08/2015
Date Data Arrived at EDR: 01/09/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 20

Source: Department of Environmental Conservation
Telephone: 518-402-8660
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information
All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 11/19/2014
Date Data Arrived at EDR: 11/21/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 69

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/16/2015
Next Scheduled EDR Contact: 06/01/2015
Data Release Frequency: Quarterly

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 02/13/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List
The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/13/2015
Next Scheduled EDR Contact: 05/25/2015
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial assurance information.

Date of Government Version: 01/06/2015
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 21

Source: Department of Environmental Conservation
Telephone: 518-402-8660
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Quarterly

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 11/25/2014
Date Data Arrived at EDR: 11/26/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/15/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: N/A

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 02/06/2015
Next Scheduled EDR Contact: 04/13/2015
Data Release Frequency: Annually

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA HWS: Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Conservation in New York.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: Department of Environmental Conservation
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Environmental Conservation in New York.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/10/2014
Number of Days to Update: 193

Source: Department of Environmental Conservation
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COUNTY RECORDS

CORTLAND COUNTY:

Cortland County Storage Tank Listing
A listing of aboveground storage tank sites located in Cortland County.

Date of Government Version: 12/17/2014
Date Data Arrived at EDR: 12/19/2014
Date Made Active in Reports: 01/13/2015
Number of Days to Update: 25

Source: Cortland County Health Department
Telephone: 607-753-5035
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Quarterly

Cortland County Storage Tank Listing
A listing of underground storage tank sites located in Cortland County.

Date of Government Version: 12/17/2014
Date Data Arrived at EDR: 12/19/2014
Date Made Active in Reports: 01/13/2015
Number of Days to Update: 25

Source: Cortland County Health Department
Telephone: 607-753-5035
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Quarterly

NASSAU COUNTY:

Registered Tank Database
A listing of aboveground storage tank sites located in Nassau County.

Date of Government Version: 11/20/2013
Date Data Arrived at EDR: 11/22/2013
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 81

Source: Nassau County Health Department
Telephone: 516-571-3314
Last EDR Contact: 02/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: No Update Planned

Storage Tank Database
A listing of aboveground storage tank sites located in Nassau County.

Date of Government Version: 02/15/2011
Date Data Arrived at EDR: 02/23/2011
Date Made Active in Reports: 03/29/2011
Number of Days to Update: 34

Source: Nassau County Office of the Fire Marshal
Telephone: 516-572-1000
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

Registered Tank Database
A listing of underground storage tank sites located in Nassau County.

Date of Government Version: 11/20/2013
Date Data Arrived at EDR: 11/22/2013
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 81

Source: Nassau County Health Department
Telephone: 516-571-3314
Last EDR Contact: 02/05/2015
Next Scheduled EDR Contact: 04/20/2015
Data Release Frequency: No Update Planned

Storage Tank Database
A listing of underground storage tank sites located in Nassau County.

Date of Government Version: 02/15/2011
Date Data Arrived at EDR: 02/23/2011
Date Made Active in Reports: 03/29/2011
Number of Days to Update: 34

Source: Nassau County Office of the Fire Marshal
Telephone: 516-572-1000
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

ROCKLAND COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Petroleum Bulk Storage Database
A listing of aboveground storage tank sites located in Rockland County.

Date of Government Version: 12/15/2014
Date Data Arrived at EDR: 12/18/2014
Date Made Active in Reports: 01/13/2015
Number of Days to Update: 26

Source: Rockland County Health Department
Telephone: 914-364-2605
Last EDR Contact: 12/05/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Quarterly

Petroleum Bulk Storage Database
A listing of underground storage tank sites located in Rockland County.

Date of Government Version: 12/15/2014
Date Data Arrived at EDR: 12/18/2014
Date Made Active in Reports: 01/13/2015
Number of Days to Update: 26

Source: Rockland County Health Department
Telephone: 914-364-2605
Last EDR Contact: 12/05/2014
Next Scheduled EDR Contact: 03/23/2015
Data Release Frequency: Quarterly

SUFFOLK COUNTY:

Storage Tank Database
A listing of aboveground storage tank sites located in Suffolk County.

Date of Government Version: 01/30/2014
Date Data Arrived at EDR: 02/28/2014
Date Made Active in Reports: 04/03/2014
Number of Days to Update: 34

Source: Suffolk County Department of Health Services
Telephone: 631-854-2521
Last EDR Contact: 11/03/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: No Update Planned

Storage Tank Database
A listing of underground storage tank sites located in Suffolk County.

Date of Government Version: 01/30/2014
Date Data Arrived at EDR: 02/28/2014
Date Made Active in Reports: 04/03/2014
Number of Days to Update: 34

Source: Suffolk County Department of Health Services
Telephone: 631-854-2521
Last EDR Contact: 11/03/2014
Next Scheduled EDR Contact: 02/16/2015
Data Release Frequency: No Update Planned

WESTCHESTER COUNTY:

Listing of Storage Tanks
A listing of aboveground storage tank sites located in Westchester County.

Date of Government Version: 12/11/2014
Date Data Arrived at EDR: 12/12/2014
Date Made Active in Reports: 01/13/2015
Number of Days to Update: 32

Source: Westchester County Department of Health
Telephone: 914-813-5161
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

Listing of Storage Tanks
A listing of underground storage tank sites located in Westchester County.

Date of Government Version: 12/11/2014
Date Data Arrived at EDR: 12/12/2014
Date Made Active in Reports: 01/13/2015
Number of Days to Update: 32

Source: Westchester County Department of Health
Telephone: 914-813-5161
Last EDR Contact: 02/02/2015
Next Scheduled EDR Contact: 05/18/2015
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/17/2014
Next Scheduled EDR Contact: 03/02/2015
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/12/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/21/2014
Date Made Active in Reports: 08/25/2014
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/19/2015
Next Scheduled EDR Contact: 05/04/2015
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/15/2014
Date Made Active in Reports: 08/13/2014
Number of Days to Update: 29

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/23/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Annually

VT MANIFEST: Hazardous Waste Manifest Data
Hazardous waste manifest information.

Date of Government Version: 12/22/2014
Date Data Arrived at EDR: 02/06/2015
Date Made Active in Reports: 02/27/2015
Number of Days to Update: 21

Source: Department of Environmental Conservation
Telephone: 802-241-3443
Last EDR Contact: 01/19/2015
Next Scheduled EDR Contact: 05/04/2015
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/20/2014
Date Made Active in Reports: 08/07/2014
Number of Days to Update: 48

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/12/2014
Next Scheduled EDR Contact: 03/30/2015
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Day Care Providers
Source: Department of Health
Telephone: 212-676-2444

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Freshwater Wetlands
Source: Department of Environmental Conservation
Telephone: 518-402-8961

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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APPENDIX C

PHOTOLOG

Photo #1 – General view of the subject property.

Photo #2 – General view of the building interior (typical).

Photo #3 – Empty 55-gallon drum.

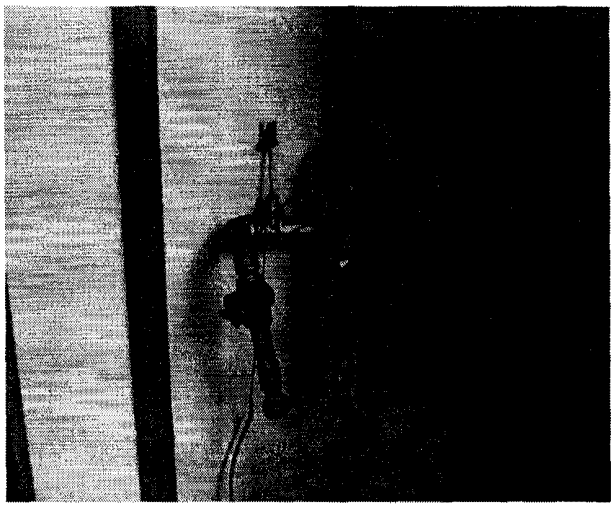

Photo #4 – Former natural gas connection.

Photo #5 – General view of the asphalt-paved parking lot to the west of the building (typical).

APPENDIX D

USER-PROVIDED DOCUMENTS

PHASE II ENVIRONMENTAL
SUBSURFACE INVESTIGATION
PROPERTY LOCATED AT
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

May 28, 2004
Project No.: 04716

Prepared for:

MR. SIMON ROTHKRUG
ROTHKRUG, ROTHKRUG, WEINBURG & SPECTOR
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GREAT NECK, NEW YORK

Prepared by:

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PHASE II ENVIRONMENTAL SUBSURFACE INVESTIGATION
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

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Figure 1: Site Location Plan

APPENDIX:
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B. Laboratory Data Sheets
C. Soil Boring Log Reports
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EXECUTIVE SUMMARY

This investigation was completed to address issues presented in a Phase I Environmental Site Assessment (ESA) conducted by G.C. Environmental, Inc. (GCE) issued February 4, 2004, and on the limited soil gas survey issued by Fleming Lee Shue on March 2004. A sampling and analysis program was designed to determine if prior and/or present uses on the subject property have impacted the subsurface soils and environment as outlined in our Scope of Work dated April 26, 2004. The sampling and analysis plan consisted of soil quality testing using analytical test methods consistent with expected parameters and agency soil cleanup guidelines. The following presents an evaluation of our investigation.

EEA conducted the Phase II Environmental Site Assessment based on the finding of the previous Phase I ESA. These findings indicated that the western portion of the site was a gasoline station from circa 1923 to circa 1955. In addition, regulatory records indicated that a permit was issued for a portion of the property for ten (10) buried gasoline tanks and also indicated that there were four (4) gasoline pumps located on the northwestern portion of the site. In addition, the 1932 and the 1951 Sanborn Fire Insurance maps showed three (3) gasoline tanks located on the northwestern portion of the site and labeled it as a "filling station". Based on the information from the previous Phase I, the following tasks were completed during EEA's Phase II Subsurface Investigation:

Geophysical Survey – Magnetometer

During field activities, EEA performed a magnetometer survey over the property to determine if any underground storage tanks (USTs) were present on the property using a Fisher TW-6 magnetometer. The survey was conducted in the arESA of the suspected USTs around the former gasoline service station and auto repair facility. The survey did not indicate that there were any USTs present in the subsurface.

EEA concludes that the tanks had been removed at an earlier time and does not recommend any further action.

Former Gasoline Service Station

At the location of the former gasoline service station, six (6) soil borings were advanced to depth. Of these six soil borings, five (5) soil samples were selected for laboratory analysis based on field observations and field screening via a portable Organic Vapor Analyzer (OVA). Soil samples were analyzed for volatile organic compounds (VOCs) via USEPA Method 8021,

semi-volatile organic compounds (SVOCs) via USEPA Method 8270 and total petroleum hydrocarbons (TPH) via USEPA Method 8015. Results of soil analysis indicated that soil boring B-1 had some low-level concentrations of SVOCS above the New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) criteria. All five soil samples also had detections for TPH, however the concentrations were well below any regulatory guidelines. EEA concludes that the former gasoline station had not significantly impacted soil at the property.

Based on the analytical results, EEA does not recommend any further action in regards to the former gasoline station.

There are no recommendations for additional site investigation or remedial corrective action for this property at this time based upon the information disclosed in our investigation.

I. INTRODUCTION

This investigation was completed to address issues addressed in our Scope of Work dated April 26, 2004. A sampling and analysis program was designed to determine if prior and/or present uses on the subject property have impacted the subsurface soils and environment. The sampling and analysis plan consisted of soil quality testing using analytical test methods consistent with expected parameters and agency soil cleanup guidelines. The following presents an evaluation of our investigation.

EEA conducted the Phase II Environmental Site Assessment based on the finding of the previous Phase I ESA. These findings indicated that the western portion of the site was a gasoline station from circa 1923 to circa 1955. In addition, regulatory records indicated that a permit was issued for a portion of the property for ten (10) buried gasoline tanks and also indicated that there were four (4) gasoline pumps located on the northwestern portion of the site. In addition, the 1932 and the 1951 Sanborn Fire Insurance maps showed three (3) gasoline tanks located on the northwestern portion of the site and labeled it as a "filling station". Based on the information from the previous Phase I, EEA's initiated the Phase II Subsurface Investigation:

EEA initiated field activities on May 10, 2004; all Phase II field activities were completed by that date. This report summarizes the work performed, the results of the investigation, and the recommended remedial action requirements (if any).

II. SCOPE OF WORK PERFORMED

a. Health and Safety Plan

EEA uses a company Generic Health and Safety Plan for all investigative work relating to performing Phase II Environmental Subsurface Investigations. The HASP assigns responsibilities, establishes personal protection standards, recommends operating procedures, and provides for contingencies that may arise during performance of the assessment at the site. The protocols in the HASP apply to all personnel involved in the work activities including EEA, all outside subcontractors, client, or regulatory agencies present during the performance of the work. In addition, the following safety equipment is maintained on-site for responding to potential emergency situations: portable eyewash, ABC fire extinguisher, and first aid kit. Telephone numbers of emergency response units in the area are also posted where all those working at the site can ESAily see them. All personnel working at the site will also be required to receive training in respirator fitting, emergency procedures, equipment decontamination, and specific task procedures. All personnel involved with the collection of soil or water will have successfully completed the 40-hour OSHA Hazardous Materials Training Program.

b. Subsurface Utility Location, Permits and Bonding

EEA notified the New York City/Long Island One Call Center under the New York State Regulation Code 753 prior to initiating the work to identify the location of underground utilities in the vicinity of the proposed boring locations. The confirmation number assigned to the site was #1240288. Any permits for soil boring were obtained from the local agencies. In addition, any license and permit bonding required was secured for the work.

c. Investigation Work Summary

All soil sampling was completed using a Geoprobe Model 54LT using the *Macrocore* soil sampling system. Samples were field screened for volatile organic vapors using an organic vapor meter (OVM). If no reading was found, then the bottom sample or the sample determined to be the most representative was selected for laboratory testing. The geophysical survey was conducted utilizing a Fisher TW-6 magnetometer.

- A geophysical survey (magnetometer) to investigate USTs
- Six (6) soil borings (B-1,B-2, B-3, B-4, B-5 and B-6) to investigate the location of the former gasoline station on-site.

d. Geophysical Survey - Magnetometer

EEA performed a magnetometer survey over the property to determine if any USTs were present on the property. The survey was performed with a Fisher TW-6 magnetometer in the areas of the suspected underground tanks (around the former gasoline station and auto repair facility). The survey did not indicate that there were any USTs present in the subsurface. EEA concludes that these USTs had been removed at an earlier time.

e. Former Gasoline Service Station

Six (6) soil borings were completed in order to investigate the area of the former gasoline service station. The soil borings were completed to a depth of 12 feet using a Geoprobe Model 54LT and *Macrocore* soil sampling system. Each sample was field screened for volatile organic vapors using an OVM. Based on field observations and OVM readings, five (5) soil boring samples were submitted for laboratory analysis. Samples were selected based upon the results of the OVM field screening. The sample with the highest OVM reading was selected for testing. If no reading was found, then the bottom sample or the sample determined to be the most representative was selected for laboratory testing Each sample sent to the laboratory was tested for volatile organic compounds (VOCs via US EPA Method 8021), semi-volatile organic compounds (SVOCs via US EPA Method 8270) and TPH (via US EPA Method 8015). Soil sample B-1 had some low-level concentrations of SVOCs (Benzo (a) Anthracene and Benzo (a) Pyrene) slightly above the NYSDEC TAGM criteria. Also, all five soil samples had detections for TPH, however the concentrations are well below any regulatory guidelines. Based on the

minor detections for SVOCs and TPH, EEA concludes that the former gasoline service station has not impacted subsurface soils on the property.

III. RESULTS OF LABORATORY ANALYSES

Ecotest Laboratories, Inc. (NYSDOH Certification #10320) prepared the results of the soil samples. Tables 1 and 2 present a summary of the results and a comparison to New York State Department of Environmental Conservation (NYSDEC) STARS Memo #1 and Technical and Administrative Guidance Manual (TAGM) cleanup guidelines. The chain-of-custody records, as well as the analytical laboratory data sheets, are presented in the Appendix to this report.

The soil sample collection locations are presented in Figure 1. The soil boring report logs present the field observations made at each soil boring location and site photographs are presented in the Appendix to this report.

IV. FINDINGS AND CONCLUSIONS

a. Geophysical Survey - Magnetometer

The magnetometer survey did not indicate that USTs were still present in the vicinity of the former gasoline service station and auto repair facility. EEA concludes that these tanks had been removed at an earlier time.

b. Former Gasoline Service Station

Six (6) soil borings were advanced in the area of the former gasoline service station, and of these, five (5) soil samples were submitted for laboratory analysis. Analytical results indicate that soil boring B-1 had some low-level concentrations of SVOCS above the NYSDEC TAGM criteria. Also, all five soil samples had detections for TPH, however the concentration were well below any regulatory guidelines. EEA concludes that the former USTs had been removed and that the former USTs have not significantly impacted subsurface conditions at the subject property.

The NYSDEC has developed the "guidelines" in order for DEC case managers to determine potential cleanup recommendations at various sites thoughout the state. The New York City Department of Environmental Protection (NYCDEP) and USEPA have developed similar guidelines. The NYSDEC and NYCDEP consider each site on a case-by-case basis in consideration of the property usage and its location to sensitive human, wildlife and environmental interests. Industrial properties are treated differently than residential or environmentally sensitive areas. In order to determine the specific requirements regarding potential remedial corrective action, EEA recommends that this report is reviewed by the applicable regulating agency.

TABLE 1
SOIL ANALYTICAL RESULTS: VOLATILE ORGANIC COMPOUNDS
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

Sample ID & Sample Depth	B-1 12ft	B-2 12ft	B-3 12ft	B-5 12ft	B-6 12ft
Matrix	Soil	Soil	Soil	Soil	Soil
Sampling Date	5/10/2004	5/10/2004	5/10/2004	5/10/2004	5/10/2004

VOLATILE ORGANIC COMPOUNDS (ug/Kg)	NYSDEC Soil Cleanup Objectives (TAGM) (ug/Kg)	US EPA METHOD 8021				
124-Trimethylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
135-Trimethylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
Benzene	60	<5.4	<5.2	<5.4	<5.5	<5.6
Ethyl Benzene	5,500	<5.4	<5.2	<5.4	<5.5	<5.6
Isopropylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
m + p Xylene	1,200	<11	<10	<11	<11	<11
n-Butylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
n-Propylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
Naphthalene(v)	13,000	<5.4	<5.2	<5.4	<5.5	<5.6
o Xylene	1,200	<5.4	<5.2	<5.4	<5.5	<5.6
p-isopropyltoluene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
sec-Butylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
ter.ButylMethylEther	NE	<5.4	<5.2	<5.4	<5.5	<5.6
tert-Butylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
Toluene	1,500	<5.4	<5.2	<5.4	<5.5	<5.6
Xylene	1,200	<16	<16	<16	<16	<17

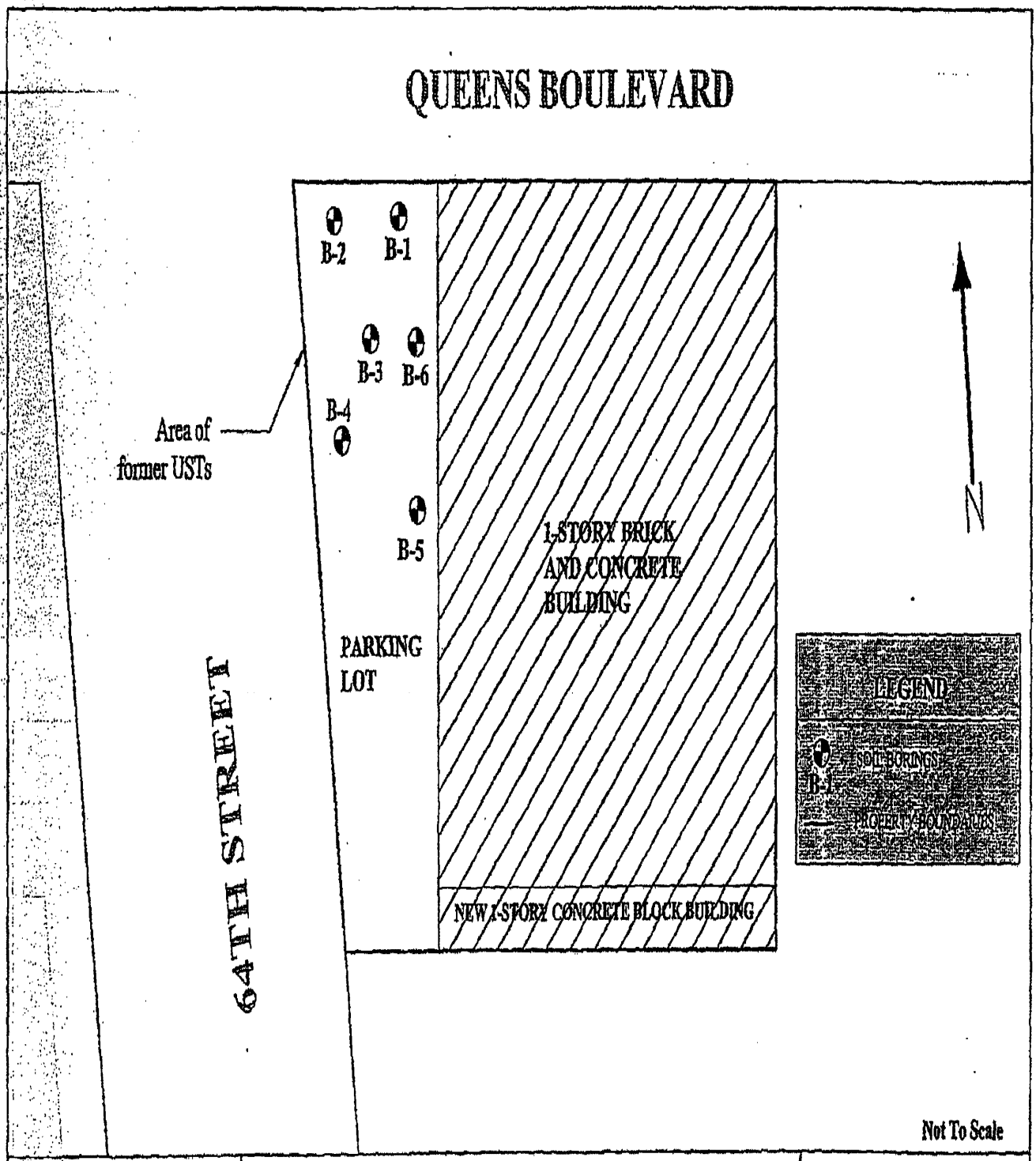
Notes:
< = Analyte not detected above the Laboratory Reporting Limit (detection limit noted)
NYSDEC = New York State Department of Environmental Conservation
TAGM = Technical and Administrative Guidance Memorandum
NE = TAGM guidelines Not Established
Bold indicates analytes detected above the Laboratory Reporting Limi
indicated analytes detected above the TAGM guideline

TABLE 2
SOIL ANALYTICAL RESULTS: SEMI-VOLATILE ORGANIC COMPOUNDS & TOTAL PETROLEUM HYDROCARBONS
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

Sample ID & Sample Depth		B-1 12ft	B-2 12ft	B-3 12ft	B-5 12ft	B-6 12ft
Matrix		Soil	Soil	Soil	Soil	Soil
Sampling Date		5/10/2004	5/10/2004	5/10/2004	5/10/2004	5/10/2004
SEMI-VOLATILE ORGANIC COMPOUNDS (ug/Kg)	**NYSDEC Soil Cleanup Objectives (TAGM) (ug/Kg)**	US EPA METHOD 8270				
Acenaphthene	50,000	<330	<310	<330	<330	<340
Anthracene	50,000	<330	<310	<330	<330	<340
Benzo(a)anthracene	224	**330**	<310	<330	<330	<340
Benzo(a)pyrene	61	**380**	<310	<330	<330	<340
Benzo(b)fluoranthene	1,100	**410**	<310	<330	<330	<340
Benzo(ghi)perylene	50,000	<330	<310	<330	<330	<340
Benzo(k)fluoranthene	1,100	**410**	<310	<330	<330	<340
Chrysene	400	**350**	<310	<330	<330	<340
Dibenzo(a,h)anthracene	14	<330	<310	<330	<330	<340
Fluoranthene	50,000	<330	<310	<330	<330	<340
Fluorene	50,000	<330	<310	<330	<330	<340
Indeno(1,2,3-cd)pyrene	3,200	<330	<310	<330	<330	<340
Naphthalene(sv)	13,000	<330	<310	<330	<330	<340
Phenanthrene	50,000	<330	<310	<330	<330	<340
Pyrene	50,000	**500**	<310	<330	<330	<340

Sample ID & Sample Depth		B-1 12ft	B-2 12ft	B-3 12ft	B-5 12ft	B-6 12ft
Matrix		Soil	Soil	Soil	Soil	Soil
Sampling Date		5/10/2004	5/10/2004	5/10/2004	5/10/2004	5/10/2004
TOTAL PETROLEUM HYDROCARBONS (mg/kg)	**NYSDEC Soil Cleanup Objectives (TAGM) (mg/Kg)**	US EPA METHOD 8015 GC				
Petrol. Hydrocarbons	NE	**150**	**3.5**	**160**	**6**	**1.1**

Notes:
< = Analyte not detected above the Laboratory Reporting Limit (detection limit noted)
NYSDEC = New York State Department of Environmental Conservation
TAGM = Technical and Administrative Guidance Memorandum
NE = TAGM guidelines Not Established
Bold indicates analytes detected above the Laboratory Reporting Limi
Bold indicated analytes detected above the TAGM guideline



EEA, Inc.

55 Hilton Avenue
Garden City, New York
(516) 746-4400

Figure 1: Site Location Plan
64-06 Queens Boulevard
Woodside, New York

Job No.: 04716

Drawn By: FI

Date: 5/28/04

V. RECOMMENDATIONS

There are no recommendations for additional site investigation or remedial corrective action for this property at this time based upon the information disclosed in our investigation.

VI. SAMPLING METHODOLOGY

a. Soil Sampling

Soil samples were obtained by utilizing a Geoprobe Model 54 LT utilizing the *Macrocore* soil sampling system. An organic vapor analysis was performed on all soil samples using a Thermo Environmental Instruments Inc. 580B photo-ionization detector (OVM). Generally, the sample producing the highest organic vapor reading was sent to the laboratory for analysis. If no reading was found, the sample was selected based upon visual analysis to be best representative of the location.

Soils at the site consisted of brown, fine to medium grained sand intermixed with gravel, stones and brick where fill material was encountered and brown, fine to medium grained sand and some silt where native material was encountered. Soil borings were advanced to a depth of 12 feet below grade and ground water was not encountered on-site.

b. Quality Assurance and Quality Control QA/QC Plan

EBA implements a QA/QC Plan to ensure sample integrity and avoid contamination and/or cross-contamination of samples. All sampling equipment is cleaned before each sample is collected. When petroleum hydrocarbon contamination is encountered, all equipment is steam-cleaned. The following procedures are followed in the decontamination process:

Step 1: Steam clean equipment.
Step 2: Scrub with a bristle brush using a non-phosphate detergent (such as Alconox).
Step 3: Rinse with hot tap water.
Step 4: Rinse twice with deionized water.
Step 5: Air dry.
Step 6 Nitric Acid (5%) solution rinse (if sampling for metals)
Step 7: Rinse twice with deionized water.
Step 8: Air dry.

VII QUALIFICATIONS

EBA, Inc. is an environmental consulting firm that has undertaken environmental pollution investigations, development feasibility studies, and environmental site assessment

studies since 1979. These site evaluation studies have been prepared for major lenders, public corporations, businesses, developers and governmental agencies. Approximately 4,000 parcels have been evaluated in the metropolitan New York-New Jersey area during the past twenty years, ranging from Phase I Environmental Site Assessments to comprehensive subsurface hazardous material investigations and testing programs. EEA also prepares bid specifications for remedial cleanup actions and supervises site cleanup.

EEA's principals and senior managers for the hazardous waste investigations each have over 20 years experience in environmental consulting, with established credentials in the field.

Individual qualifications of EEA personnel, including specific credentials of persons involved in the preparation of this report can be provided upon request.

VIII. DISCLAIMER

This report is for use by Mr. Simon Rothkrug of the Rothkrug, Rothkrug, Weinburg & Spector, and is only to be used as a guide in determining the potential for contamination by toxic or hazardous materials on the subject property at the time of the site visit. This Phase II Environmental Subsurface Investigation was undertaken in accordance with generally accepted protocols, including ASTM Standards Related to the Phase II Environmental Site Assessment Process. This Phase II Investigation is based principally on the review of historic and regulatory records (made available within a reasonable time period), relating to past occupants and usage of the subject property, as well as activities at nearby sites, and upon a visual assessment of the subject property, and makes no determinations with respect to portions of the subject property and its structures which were not inspected. Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable qualified professionals practicing in this or similar situations. The interpretation of the field data is based on good judgement and experience. However, no matter how qualified the professional or detailed the investigation, subsurface conditions cannot always be predicted beyond the points of actual sampling and testing. No other warranty, expressed or implied, is made to the professional advice included in this report.

Any and all liability on the part of EEA, Inc. shall be limited solely to EEA's professional liability insurance (errors and omissions coverage of one million dollars). EEA, Inc. shall have no liability for any other damages, whether consequential, compensatory, punitive, or special, arising out of, incidental to, or as a result of, this assessment. EEA, Inc. assumes no liability for the use of this report by any person or entity other than the institution and/or entities or persons for whom it has been prepared.

APPENDIX A

CHAIN-OF CUSTODY

ECO TEST LABORATORIES, INC. • ENVIRONMENTAL TESTING

177 Sheffield Avenue, North Babylon, New York 11703
(631) 422-5777 • FAX (631) 422-5770

CHAIN OF CUSTODY RECORD

Client: EEA Inc.
Address: 55 Hilton Ave
Garden City NY 11530
Phone: (516) 746-4430 FAX: (516) 746-4435
Person receiving report: N. Recchia
Sampled by: NR
Source: Rod's Automotive
PO No.: EEA 04716

MATRIX (Soil/Water/Air)	COLLECTED DATE	COLLECTED TIME	SAMPLE IDENTIFICATION	TOTAL # OF CONTAINERS	TYPE & NUMBER OF CONTAINERS: USEPA 8021 (STARS)	USEPA 8260 (STARS) TPHC	8015 (GC)	REMARKS-TESTS REQUIRED / SPECIAL TURNAROUND / SPECIAL D.C. etc.
Soil	5/10	0945	B-1 12ft	1	✓	✓	✓	
Soil	5/10	0930	B-2 12ft	1	✓	✓	✓	
Soil	5/10	1000	B-3 12ft	1	✓	✓	✓	
Soil	5/10	0930	B-5 12ft	1	✓	✓	✓	
Soil	5/10	1005	B-6 12ft	1	✓	✓	✓	

Relinquished by: (Signature)	DATE/TIME	SEAL INTACT?	Received by: (Signature)	Relinquished by: (Signature)	DATE/TIME	SEAL INTACT?	Received by: (Signature)
Representing:	5/10 1730	YES NO NA	Representing:	Representing:		YES NO NA	Representing:
Relinquished by: (Signature)	DATE/TIME	SEAL INTACT?	Received by: (Signature)	Relinquished by: (Signature)	DATE/TIME	SEAL INTACT?	Received by: (Signature)
Representing:		YES NO NA	Representing:	Representing:		YES NO NA	Representing:

APPENDIX B

LABORATORY ANALYTICAL REPORT

EcoTest Laboratories, Inc.

377 Sheffield Avenue377 Sheffield Avenue
North Babylon, New York 11703
(631) 422-5777
Fax: (631) 422-5770

FAX TRANSMISSION COVER SHEET

Date: May 28, 2004

To: Fariha Islam

Fax:

Re: Rodi Automotive, EEA#04716
Lab No. 242008 (.01-.05)

Sender: Sophia Sparkes

YOU SHOULD RECEIVE 16 PAGE(S), INCLUDING THIS COVER SHEET.
IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL (631) 422-5777

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-6777 • FAX (631) 422-6770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.01 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, ERA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0845
MATRIX:Soil SAMPLE: B-1 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Toluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Ethyl Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	10.869	EPA8021
o Xylene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Xylene	ug/Kg	< 16		05/12/04	16.304	EPA8021
Isopropylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Propylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
sec-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Naphthalene(v)	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
tert-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
% Solids		92		05/12/04	0.1	SM18\2540G

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.01 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0845
MATRIX:Soil SAMPLE: B-1 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 330		05/13/04	326.08	EPA8270
Acenaphthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Fluorene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Phenanthrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Anthracene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Fluoranthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Pyrene	ug/Kg	500		05/13/04	326.08	EPA8270
Benzo(a)anthracene	ug/Kg	330		05/13/04	326.08	EPA8270
Chrysene	ug/Kg	350		05/13/04	326.08	EPA8270
Benzo(b)fluoranthene	ug/Kg	410	**	05/13/04	326.08	EPA8270
Benzo(k)fluoranthene	ug/Kg	410	**	05/13/04	326.08	EPA8270
Benzo(a)pyrene	ug/Kg	380	*	05/13/04	326.08	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 330	*	05/13/04	326.08	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 330	*	05/13/04	326.08	EPA8270
Benzo(ghi)perylene	ug/Kg	< 330	*	05/13/04	326.08	EPA8270

cc:

LRL=Laboratory Reporting Limit

REMARKS: #Total = 820 ug/Kg, unable to separate isomers.
*Estimated due to low internal standard recovery, *43%. Low recovery due to interference. QC limit is 50%.

DIRECTOR

rn = 19182 NYSDOH ID # 10320 Page 2 of 3

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.01 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Bacchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0845

MATRIX:Soil SAMPLE: B-1 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Total Pet.Hydro.(GC)	mg/Kg	150		05/18/04	4.3478	EPA8015

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.02 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Ranchis PO#:

SOURCE OF SAMPLE: Rodi Automotive, URA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0990
MATRIX:Soil SAMPLE: B-2 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Benzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Toluene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Ethyl Benzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
m + p Xylene	ug/Kg	< 10		05/12/04	10.416	EPA8021
o Xylene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Xylene	ug/Kg	< 16		05/12/04	15.625	EPA8021
Isopropylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
n-Propylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
sec-Butylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
n-Butylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Naphthalene(V)	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
tert-Butylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
% Solids		96		05/12/04	0.1	SM18254OG

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-8770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.02 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0930
MATRIX:Soil SAMPLE: B-2 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 310		05/13/04	312.5	EPA8270
Acenaphthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Fluorene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Phenanthrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Anthracene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Fluoranthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Pyrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(a)anthracene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Chrysene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(a)pyrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(ghi)perylene	ug/Kg	< 310		05/13/04	312.5	EPA8270

ND:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

cn = 19105 NYSDOH ID # 10320 Page 2 of 9

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-6777 • FAX (631) 422-6770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.02 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0930
MATRIX:Soil SAMPLE: B-2 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	3.5		05/18/04	0.4166	EPA8015

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19186 NYSDOH ID # 10320

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-6777 • FAX (631) 422-6770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.03 05/20/04

Energy & Environmental Analysis, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Bencbia PO#:

SOURCE OF SAMPLE: Rodi Automotive, RHA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1000
MATRIX:Soil SAMPLE: B-3 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Toluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Ethyl Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	10.869	EPA8021
o Xylene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Xylene	ug/Kg	< 16		05/12/04	16.304	EPA8021
Isopropylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Propylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
sec-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Naphthalene(v)	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
tert-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
% Solids		92		05/12/04	0.1	SM18S2540G

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.04 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1030
MATRIX:Soil SAMPLE: B-5 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 330		05/13/04	329.67	EPA8270
Acenaphthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Fluorene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Phenanthrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Anthracene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Fluoranthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Pyrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(a)anthracene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Chrysene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(a)pyrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(ghi)perylene	ug/Kg	< 330		05/13/04	329.67	EPA8270

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

TN = 49191 NYSDOH ID # 10320 Page 2 of 3

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.04 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, ERA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1030
MATRIX:Soil SAMPLE: B-5 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	6.0		05/17/04	0.4395	EPA8015

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-8777 • FAX (631) 422-8770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.05 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Radi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1100
MATRIX:Soil SAMPLE: A-6 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Benzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Toluene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Ethyl Benzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	11.235	EPA8021
o Xylene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Xylene	ug/Kg	< 17		05/12/04	16.853	EPA8021
Isopropylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
n-Propylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
sec-Butylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
n-Butylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Naphthalene(v)	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
tert-Butylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
% Solids		89		05/12/04	0.1	SM18 2540G

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19193 NYSDOH ID # 10320

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04					SHEET 1 OF 1
CLIENT: Simon Rothkrug					LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY					B - 2
REMARKS: Former UST area					PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR	DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification	DRILL RIG
		Direct			DRILL METHOD
TYPE	MACROCORE	Push			GEOPROBE LT 64 MACROCORE
SIZE	2 inch O.D.	GH 42			
SURFACE ELEVATION: NA		Surface Materials: Asphalt 2"			

WATER LEVEL (IN OPEN BOREHOLE): Not established

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND and some stone and gravel (Fill).
5	S-2	4-8	0	Dry		Brown, fine grained SAND (Fill).
	*S-3	8-12	0	Dry		Brown, fine to coarse grained SAND and cobbles; GRAVEL (SP).
10						EOB @ 12 feet
15						
20						
25						* soil sample collected for laboratory analysis
30						

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY						B - 3
REMARKS: Former gasoline UST area (moved first location -refusal)						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt 2"				

WATER LEVEL (IN OPEN BOREHOLE): Not established

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND, some GRAVEL (Fill).
5	S-2	4-8	0	Dry		
	*S-3	8-12	0	Dry		
10						Brown, fine to coarse grained SAND, some GRAVEL (SP).
						EOB @ 12 feet
15						
20						* soil sample collected for laboratory analysis
25						
30						

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY						B - 4
REMARKS: Former gasoline UST area						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 54 MACROCORE
SIZE	2 Inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt				
WATER LEVEL (IN OPEN BOREHOLE): Not established						

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to coarse SAND, some SILT.
5	S-2	4-8	0	Dry		Brown, fine grained SAND (SP). (Clean) No tank bed here
	S-3	8-12	0	Dry		Same as above,
10						
15						EOB @ 12 feet
20						
25						
30						

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO. 242008.05 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1100
MATRIX:Soil SAMPLE: B-6 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 340		05/13/04	337.07	EPA8270
Acenaphthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Fluorene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Phenanthrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Anthracene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Fluoranthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Pyrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(a)anthracene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Chrysene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(a)pyrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(ghi)perylene	ug/Kg	< 340		05/13/04	337.07	EPA8270

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. P.N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.05 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Radi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1100
MATRIX:Soil SAMPLE: B-6 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	1.1		05/17/04	0.4494	EPA8015

on:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

APPENDIX C

SOIL BORING LOG REPORTS

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY						B - 1
REMARKS: Former gasoline tank USTs						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt				

WATER LEVEL (IN OPEN BOREHOLE): Not established

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND, some GRAVEL and stone fill.
5	S-2	4-8	0	Dry		Brown, fine to medium grained SAND, little stone and GRAVEL (fill). (Former Tank Bed)
	*S-3	8-12	5	Dry		Brown, fine to medium SAND, little stone and GRAVEL (Fill).
10						Brown, fine to coarse grained SAND and cobbles, stone and GRAVEL (SP)
						EOB @ 12 feet
15						
20						* soil sample collected for laboratory analysis
25						
30						

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY						B - 5
REMARKS: Former gasoline UST area						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 64 MACROCORE
SIZE	2 inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt				
WATER LEVEL (IN OPEN BOREHOLE): Not established						

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND, stones, red-brick, GRAVEL (Fill).
	S-2	4-8	0	Dry		
5						
	*S-3	8-12	0	Moist		Red-brown, fine grained SAND, SILT and some GRAVEL (SP).
10						
						EOB @ 12 feet
15						
20						
						* soil sample collected for laboratory analysis
25						
30						

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY						B - 6
REMARKS: Former gasoline tank areas & pump island						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt				
WATER LEVEL (IN OPEN BOREHOLE): Not established						

DEPTH (bg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown-black, fine to coarse grained SAND, brick, GRAVEL and stone (Fill).
	S-2	4-8	0	Dry		Brown-red, fine SAND and SILT, little GRAVEL (SP).
5						
	*S-3	8-12	0	Moist		
10						
						EOB @ 12 feet
15						
20						* soil sample collected for laboratory analysis
25						
30						

APPENDIX D

SITE PHOTOGRAPHS

AUTO
PARTS

PHASE II SUBSURFACE INVESTIGATION

64-02/06 Queens Boulevard
Woodside, New York 11977
Block 2325, Lots 26, 30 and 32

ACT Project No. 7791-WDNY

September 3rd, 2014

Prepared for:

Mr. Charles Lin
Cathay Bank
41-14 Main Street
Flushing, New York 11354

Prepared by:

Advanced Cleanup Technologies, Inc.
110 Main Street, Suite #103
Port Washington, New York 11050

TABLE OF CONTENTS

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2.3	Previous Environmental Reports	2
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3.3	Sub-Slab Soil Vapor Sampling	5
3.4	Soil Quality	6
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FIGURES

NUMBER	TITLE
1	Site Diagram
2	Sampling Diagram

TABLES

NUMBER	TITLE
1	Volatile Organic Compounds in Soil
2	Semi-Volatile Organic Compounds in Soil
3	PCBs/Pesticides in Soil
4	Metals in Soil
5	Volatile Organic Compounds in Soil Vapor

APPENDICES

SECTION	TITLE
A	Previous Environmental Reports
B	Boring Logs
C	Laboratory Reports

1.0 INTRODUCTION AND SCOPE OF INVESTIGATION

A Phase II Subsurface Investigation was performed by Advanced Cleanup Technologies, Inc. (ACT) from August 14th through August 15th, 2014 at the property located at 64-02/06 Queens Boulevard, Woodside, New York ("the site"). The purpose for the subsurface investigation was to determine any impacts associated with the historical usage of the subject property as a gasoline filling station. The site is also listed with a Hazardous Materials designation E-138 specifically for Underground Gasoline Storage Tanks (USTs) – Testing Protocol, Window Wall Attenuation and Alternate Ventilation and lastly Air Quality – HVAC fuel limited to natural gas.

The scope of work included the performance of a geophysical survey to determine the existence of suspect underground gasoline and fuel oil tanks. The scope of work also included the collection of soil samples from three soil borings, and the sampling of three-soil vapor probes. Finally, the scope of work included the laboratory analysis of six soil samples and two soil vapor samples by a New York State Department of Health (NYSDOH) certified laboratory in accordance with protocols established by the United States Environmental Protection Agency (USEPA).

Soil quality data was compared to New York State Department of Environmental Conservation (NYSDEC) soil cleanup objectives contained in NYSDEC Part 375-6.8(a) Unrestricted Used Soil Cleanup Objectives, appropriate Part 375-6.8(b) Restricted Soil Cleanup Objectives. Soil vapor was data was compared to Table 3.1 of the NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York", October 2006.

2.0 SITE DESCRIPTION

2.1 Site Location

The site is located on the south side of Queens Boulevard at the intersection with 64th Street in a commercial and residential area in the western portion of the borough of Brooklyn, New York. The site is bounded by 64th Street followed by an eight story commercial and residential apartment building to the west, a three story commercial property to the east, Queens Boulevard followed by a two story Motor Inn to the North two story residential homes to the south.

The nearest surface water body, the Maspeth Creek, is located approximately 2 miles to the southwest and regional groundwater is expected to flow to the southwest towards the Maspeth Creek.

2.2 General Description

The site (Block 2325, Lots 26, 30 and 32) consists of a one story commercial building and a parking lot. The most recent use of the property is for an auto parts retail store (Auto Barn). The site is approximately 16,562 square feet in area and the building has a footprint of approximately 10,926 square feet. A diagram of site features is included as Figure 1.

2.3 Previous Environmental Reports

A Subsurface Investigation Report dated May 28th, 2004, was prepared by EEA Inc. The purpose of the report was to address issues presented in a Phase I Environmental Site Assessment (Phase I) by G.C. Environmental, Inc. in February 2004 and a limited soil gas survey by Fleming Lee Shue in March 2004. The scope of work included the use of a magnetometer for the location of possible USTs, the installation of 6 soil borings and the analysis of five soil samples. The report concluded the following:

- Soil along the northeast portion of the parking lot contained low-level concentrations of semi-volatile organic compounds above regulatory criteria.

- All of the soil samples contained detections of [Total Petroleum Hydrocarbons] below regulatory criteria.

EEA Inc. recommended that the subsurface investigation be presented to the applicable regulatory agency.

A Phase I Environmental Site Assessment report was prepared by Merritt Environmental Consulting Corp. (Merritt) dated October 24th, 2013. The Phase I report identified the following pertinent recognized environmental conditions:

- Historical usage of the property as a gasoline filling station. Historical sources showed three gasoline storage tanks present at the property from 1932-1951;
- Hazardous Materials E-Designation for the subject property E-163 specifically for Underground Gasoline Storage Tanks (USTs) – Testing Protocol, Window Wall Attenuation and Alternate Ventilation and lastly Air Quality – HVAC fuel limited to natural gas.

Available copies of the above-referenced reports are included as Appendix A.

3.0 FINDINGS OF THE INVESTIGATION

3.1 Geophysical Investigation

A geophysical survey was performed on June 30th, 2014 and encompassed all accessible portions of the parking lot. The survey was performed to determine the existence and locations of suspected USTs at the site. The survey notes are included in Appendix B.

The survey was performed utilizing an SIR-2000 GPR Unit and a 500 megahertz transducer, which allowed for the identification of anomalies to a depth of 10 feet bgs. The transducer was pulled along pre-determined transects, emitting radar into the subsurface. The radar signal reflects off stratigraphical materials and foreign objects in the subsurface and back to the transducer based upon differences in the conductivity and dielectric constant of subsurface features. The radar signal is then converted into an electrical signal, which is visually displayed on a video monitor.

No anomalies were identified large enough to be indicative of USTs. Anomalies that were identified were indicative of conduit piping and minor debris at various locations beneath the fairly uniform asphalt parking lot.

GPR is primarily used as a preliminary survey of a property for the development of subsurface information prior to a formal site assessment. Surface cover or obstructions, subsurface soil types and buried debris can mask or conceal the presence and precise locations of underground structures or even suggest their presence when none exist. The presence, absence or precise locations of underground structures indicated during a GPR survey should be confirmed by excavation, subsurface sampling or other invasive procedures.

3.2 Soil Boring Installation

Three soil borings were installed at the locations indicated in Figure 2. The soil borings were installed utilizing a truck-mounted Geoprobe-style drill unit in combination with 5-foot macro-core soil samplers containing dedicated acetate liners. Soil samples were visually examined for lithology and the presence of contamination and field screened utilizing a Photovac 2020 hand held photoionization detector (PID). The PID is capable of detecting organic vapors at concentrations as low as 0.1 parts per million (ppm). All down hole drilling equipment was decontaminated between sampling events to minimize the possibility of cross-contamination. Copies of the boring logs are included in Appendix B.

The soil boring located at SB-1 was installed to a depth of 15 feet bgs in the southern portion of the site in the parking lot. The soil generally consisted of light brown silty sand mixed with pebbles and clay. The water table was not encountered. PID readings were 0.0ppm throughout the boring with a reading of 1.5ppm at 3.5'. A large rock got lodged in the samples at 15'bgs and no sample was collected from the bottom. Soil samples were collected from 3-5' bgs where a slight PID reading was recorded.

Soil boring, SB-2 was installed to a depth of 15 feet bgs in the eastern portion of the parking lot. The soil generally consisted of light brown silty sand mixed with pebbles and clay. The water table was not encountered. PID readings were 0.0 ppm throughout the boring. Soil samples were collected from 3-5' bgs beneath the asphalt and fill layer and 12 to 14 feet bgs.

SB-3 was installed to a depth of 20 feet bgs in the northwestern corner of the parking lot. The soil generally consisted of light brown medium sand mixed with silt and pebbles. The water table was not encountered. PID readings were 0.0 ppm throughout the boring. The sample from 15-20' bgs became lodged in the sampler and recovery efforts compromised the characterization. A composite sample was collected from that depth. Soil samples were collected from 0-4' bgs, 5-8' bgs and 15 to 12 feet bgs.

All soil samples were containerized and placed in a cooler for laboratory analysis and transmitted under chain of custody to York Analytical Laboratories (NYSDOH # 10854). Soil samples were analyzed for VOCs in accordance with USEPA Method 8260, SVOCs in accordance with EPA Method 8270, TAL Metals in accordance with USEPA Method 6000/7000 and PCB's/Pesticides in accordance with USEPA Methods 8081/8082. Copies of the laboratory reports are contained as Appendix C.

3.3 Sub-Slab Soil Vapor Sampling

Two sub-slab soil vapor probes were installed through the asphalt parking lot at the locations indicated in Figure 2. A six-inch woven stainless steel soil vapor implant was installed to a depth of 5 feet bgs in SV-1 and SV-2. The implants were fitted with ¼ inch inner diameter polyethylene tubing. The annulus around the implant was backfilled with glass beads. A three-foot layer of bentonite slurry was placed above the implant to prevent ambient air infiltration. The remainder of the borehole was backfilled with native soil and a bentonite grout seal installed at the ground surface. All drilling equipment was decontaminated between locations to minimize the possibility of cross-contamination.

The portion of polyethylene tube emerging from the ground was connected to a low flow vacuum pump that purged the probe of soil vapor at a rate that did not exceed 0.2 liters per minute. A 6-Liter stainless steel Summa canister with a flow regulator set to a flow rate of approximately 0.025 liters per minute was connected to the polyethylene tubing and collected soil vapor approximately 4 to 6 hours until the canisters were full.

All air samples were collected utilizing 6-Liter stainless steel Summa canisters connected to

low-flow regulators, which were numbered and supplied by York Analytical Laboratories. The regulators were set to a flow rate of approximately 0.025 liters per minute for a 4-6 hour sample. Field notes are provided in Appendix A.

Two air samples were transmitted under chain of custody to York Analytical Laboratories. All samples were analyzed volatile organic compounds (VOCs) in accordance with EPA TO-15. Methodologies used for soil vapor assessment conform to the *NYS DOH Final Guidance on Soil Vapor Intrusion, October 2006.* Copies of the laboratory reports are contained as Appendix B.

3.4 Soil Quality

The analytical results for the soil samples SB-1 (3-5), SB-2 (3-5), SB-2 (12-14), SB-3 (0-4), SB-3 (5-8) and SB-3 (15-20) are summarized in Tables 1 through 4. The soil quality data was compared to unrestricted, restricted residential and commercial use soil cleanup objectives (UUSCOs, RRSCOs and CSCOs) contained in Table 6.8 of 6 NYCRR Part 375.

It can be seen from Table 1 that no VOCs were detected above soil cleanup objectives in SB-1 (3-5), SB-2 (3-5), SB-2 (12-14), SB-3 (15-18) and SB-4 (14-16)). Acetone was the only VOC detected above UUSCO's in SB-3 (0-4) and SB-3 (5-8) and is commonly utilized as a laboratory solvent and a possible artifact from laboratory equipment. SB-3 (0-4) and SB-3 (5-8) contained low-level concentrations of Tetrachloroethene (PCE) below regulatory standards. TCE is a common solvent most commonly utilized in dry cleaning activities.

Table 2 indicates that no SVOCs were detected above soil cleanup objectives. Table 3 summarizes the extent of PCB and Pesticides in the soil beneath the site. No PCBs or Pesticides were detected above method detection limits in any of the samples.

Concentrations of TAL metals in soil beneath the site are summarized in Table 4. A total of 5 metals were detected above cleanup objectives. Copper was detected above UUSCO in SB-2 (3-5) and SB-3 (0-4) with a maximum concentration of 85.7 µg/kg. Lead was detected above its UUSCO in SB-2 (3-5) and SB-3 (0-4) with a maximum concentration of 239 µg/kg. Nickel (32.7 µg/kg) and

Cadmium (3.76 µg/kg) were detected above their respective UUSCOs in SB-2 (3-5). Zinc was found to exceed its UUSCO in SB-2 (3-5) and SB-3 (0-4) with the highest concentration of 1,890 µg/kg. Metals are commonly found at higher concentrations in urban areas due to the presence of fill materials. All of the highest concentrations of metals were detected at the shallow sampling interval, indicating that ground water is unlikely the source of the contamination.

Based on the sampling results described above, the majority of the metal contamination is restricted to shallow soils in middle to northern side of the parking lot. All compounds were detected below their respective restricted residential soil cleanup objectives.

3.5 Sub-Slab Soil Vapor Results

The analytical results for the sub-slab soil vapor samples SV-1 and SV-2 are summarized in Table 5. The soil vapor data collected during this investigation was compared to guidance values in NYSDOH's "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (NYSDOH, 2006).

As shown in Table 5, the soil vapor samples contained levels of both chlorinated and non-chlorinated compounds all below their respective guidance values. The NYSDOH has guidelines for three compounds including Trichloroethene (TCE), Tetrachloroethene (PCE) and Methylene chloride. TCE was detected in SV-2 above its guideline of 5 $\mu g/m^3$ with a concentration of 12 $\mu g/m^3$. PCE was detected in both samples in exceedence of the guideline of 30 $\mu g/m^3$; SV-2 contained the maximum concentration of 460 $\mu g/m^3$. Methylene chloride was detected above its guideline of 60 $\mu g/m^3$ in SV-2 with a concentration of 67 $\mu g/m^3$. TCE, PCE and Methylene chloride are classified as solvents and are commonly found in industrial and urban areas. The most prevalent compound detected in soil vapor was Acetone a common laboratory solvent and a possible artifact from laboratory equipment. Low levels of petroleum compounds were detected in soil vapor and would be consistent with the historic use of the site for a gasoline filling station as well as an auto parts store.

4.0 CONCLUSIONS

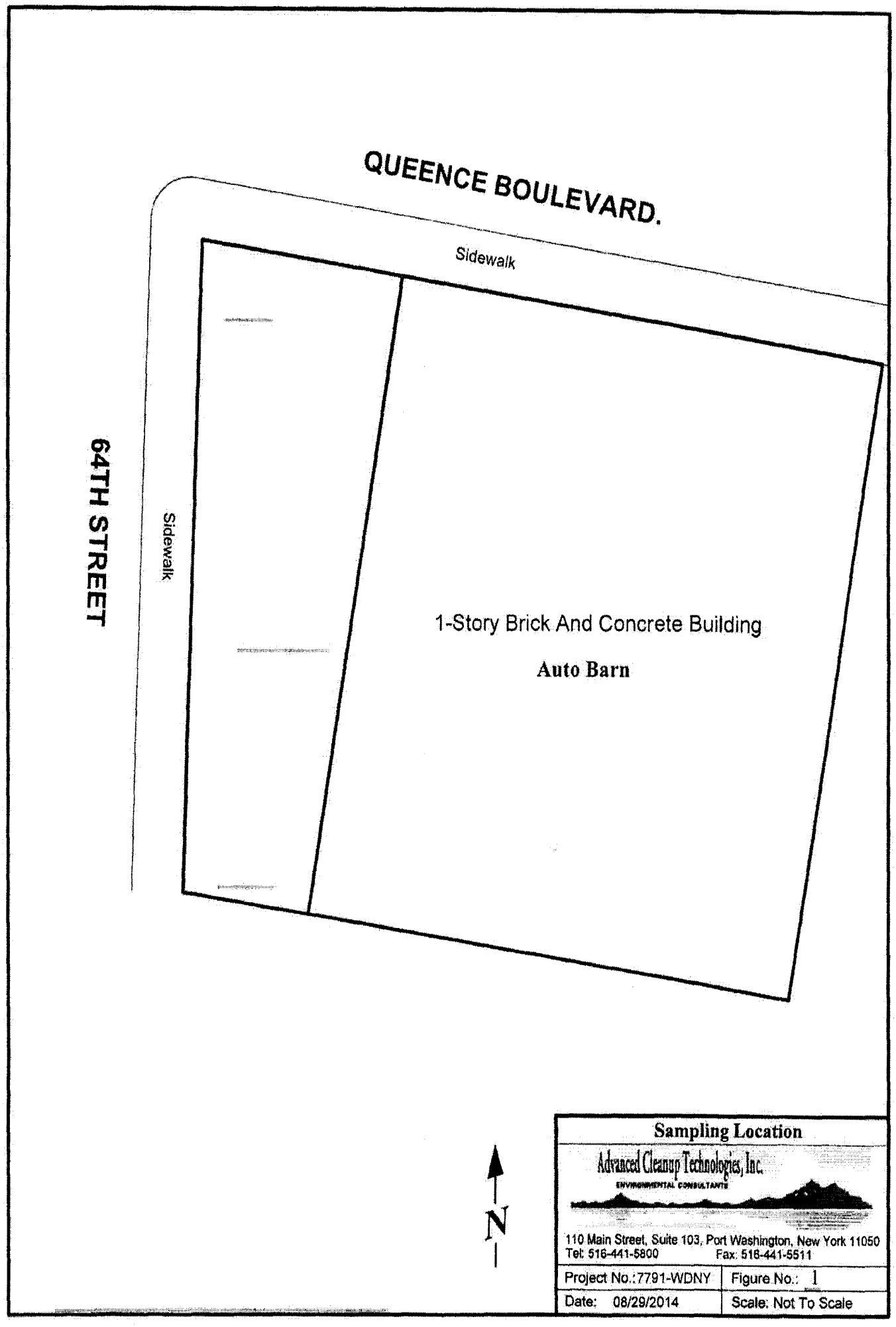
The results of this subsurface investigation are contained in this report. Based upon this investigation, ACT makes the following conclusions concerning the soil and groundwater quality beneath the site.

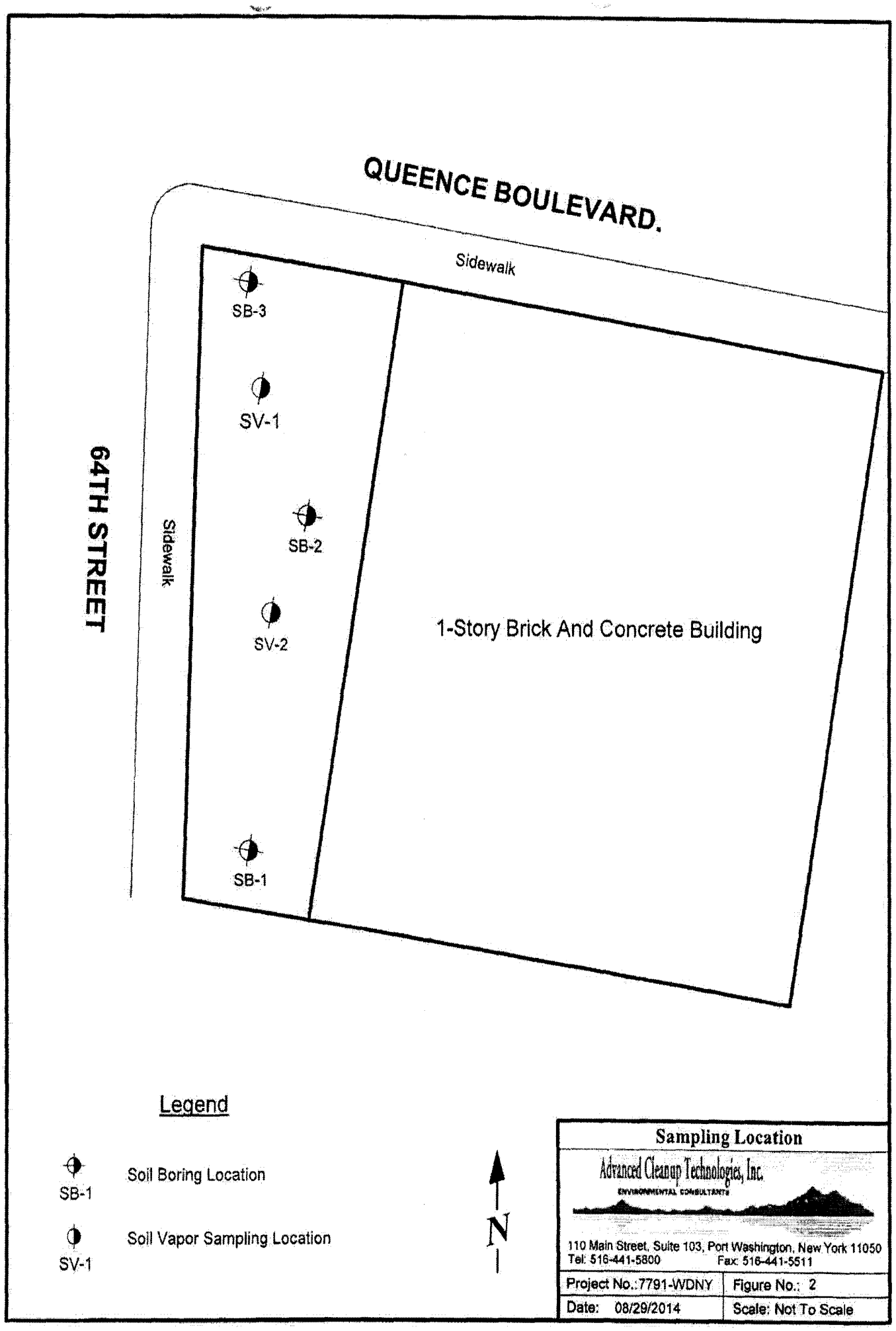
- The GPR survey did not identify the presence of any USTs beneath the site;
- No VOCs except low concentrations of acetone were detected above soil cleanup objectives in the soil beneath the site and acetone appears to be a laboratory artifact;
- Shallow soils beneath the northern section of the parking lot are contaminated with metals above unrestricted use soil cleanup objectives, which could be indicative of historical fill materials commonly found in the area of the site;
- Elevated concentrations of solvents such as TCE, PCE and Methylene chloride in soil vapor should be investigated further and remediated during future development at the property. This can be accomplished through the installation of a vapor barrier and a sub-slab depressurization system;
- The E-designations assigned to the property should be satisfied with the New York City Office of Environmental Remediation (OER) prior to property development. This report should be provided to them for review and comments.
- No significant soil contamination was found beneath the site and the contamination present does not pose a threat to the surrounding area.

EXCLUSIONS AND DISCLAIMER

The purpose of this investigation was to assess the potential environmental liabilities at the subject site with respect to data, which Advanced Cleanup Technologies, Inc. has accumulated during the Phase II Environmental Site Assessment. The conclusions presented in this report are based solely on the observations of the site at the time of the investigation. Data provided, including information provided by others, was utilized in assessing the site conditions. The accuracy of this report is subject to the accuracy of the information provided. Advanced Cleanup Technologies, Inc. is not responsible for areas not seen or information not collected. This report is given without a warranty or guarantee of any kind, expressed or implied. Advanced Cleanup Technologies, Inc. assumes no responsibility for losses associated with the use of this report.

FIGURES


QUEENCE BOULEVARD.
Sidewalk
64TH STREET
Sidewalk
1-Story Brick And Concrete Building
Auto Barn
N
Sampling Location
Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
110 Main Street, Suite 103, Port Washington, New York 11050
Tel: 516-441-5800 Fax: 516-441-5511
Project No.:7791-WDNY
Figure No.: 1
Date: 08/29/2014
Scale: Not To Scale


QUEENCE BOULEVARD.
Sidewalk
64TH STREET
Sidewalk
SB-3
SV-1
SB-2
SV-2
SB-1
1-Story Brick And Concrete Building
Legend
SB-1
Soil Boring Location
SV-1
Soil Vapor Sampling Location
N
Sampling Location
Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS
110 Main Street, Suite 103, Port Washington, New York 11050
Tel: 516-441-5800 Fax: 516-441-5511
Project No.:7791-WDNY
Figure No.: 2
Date: 08/29/2014
Scale: Not To Scale

TABLES

Table 1

Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8260
64-02/05 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	Standard UUSCO [1]	Standard RRSCO [2]	Standard CSCO [3]	SB-1 (3-5) 8/14/14	SB-2 (3-5) 8/15/14	SB-2 (12-14) 8/15/14
1,1,1,2-Tetrachloroethane	NS	NS	NS	<2.1	<2.4	<2.3
1,1,1-Trichloroethane	680	100,000	500,000	<2.1	<2.4	<2.3
1,1,2,2-Tetrachloroethane	NS	NS	NS	<2.1	<2.4	<2.3
1,1,2-Trichloro-1,2,2-trifluoroethane	NS	NS	NS	<2.1	<2.4	<2.3
1,1,2-Trichloroethane	NS	NS	NS	<2.1	<2.4	<2.3
1,1-Dichloroethane	270	26,000	240,000	<2.1	<2.4	<2.3
1,1-Dichloroethene	330	100,000	500,000	<2.1	<2.4	<2.3
1,2,4-Trichlorobenzene	NS	NS	NS	<2.1	<2.4	<2.3
1,2,4-Trimethylbenzene	4,700	5,200	19,000	<2.1	<2.4	<2.3
1,2-Dibromo-3-chloropropane	NS	NS	NS	<2.1	<2.4	<2.3
1,2-Dibromoethane	NS	NS	NS	<2.1	<2.4	<2.3
1,2-Dichlorobenzene	1,100	100,000	500,000	<2.1	<2.4	<2.3
1,2-Dichloroethane	20	3,100	30,000	<2.1	<2.4	<2.3
1,2-Dichloropropane	NS	NS	NS	<2.1	<2.4	<2.3
1,3,5-Trimethylbenzene	4,700	5,200	19,000	<2.1	<2.4	<2.3
1,3-Dichlorobenzene	2,400	49,000	280,000	<2.1	<2.4	<2.3
1,4-Dichlorobenzene	1,800	13,000	130,000	<2.1	<2.4	<2.3
1,4-Dioxane	980	1,300	13,000	<41	<48	<45
2-Butanone	120	100,000	500,000	<2.1	<2.4	<2.3
2-Hexanone	NS	NS	NS	<2.1	<2.4	<2.3
4-Methyl-2-pentanone	NS	NS	NS	<2.1	<2.4	<2.3
Acetone	50	100,000	500,000	**13**	**20**	**16**
Acrolein	NS	NS	NS	<2.1	<2.4	<2.3
Acrylonitrile	NS	NS	NS	<2.1	<2.4	<2.3
Benzene	60	4,800	44,000	<2.1	<2.4	<2.3
Bromodichloromethane	NS	NS	NS	<2.1	<2.4	<2.3
Bromoform	NS	NS	NS	<2.1	<2.4	<2.3
Bromomethane	NS	NS	NS	<2.1	<2.4	<2.3
Carbon disulfide	NS	NS	NS	<2.1	<2.4	<2.3
Carbon tetrachloride	760	2,400	22,000	<2.1	<2.4	<2.3
Chlorobenzene	1,100	100,000	500,000	<2.1	<2.4	<2.3
Chloroethane	NS	NS	NS	<2.1	<2.4	<2.3
Chloroform	370	49,000	350,000	<2.1	<2.4	<2.3
Chloromethane	NS	NS	NS	<2.1	<2.4	<2.3
cis-1,2-Dichloroethene	250	100,000	500,000	<2.1	<2.4	<2.3
cis-1,3-Dichloropropene	NS	NS	NS	<2.1	<2.4	<2.3
Dibromochloromethane	NS	NS	NS	<2.1	<2.4	<2.3
Dibromomethane	NS	NS	NS	<2.1	<2.4	<2.3
Dichlorodifluoromethane	NS	NS	NS	<2.1	<2.4	<2.3
Ethylbenzene	1,000	41,000	390,000	<2.1	<2.4	<2.3
Hexachlorobutadine	NS	NS	NS	<2.1	<2.4	<2.3
Isopropylbenzene	NS	NS	NS	<2.1	<2.4	<2.3
Methyl acetate	NS	NS	NS	<2.1	<2.4	<2.3
Methyl tert-butyl ether	930	100,000	500,000	<2.1	<2.4	<2.3
Methylene chloride	50	100,000	500,000	**7.2**	<2.4	<2.3
n-Butylbenzene	NS	NS	NS	<2.1	<2.4	<2.3
n-Propylbenzene	NS	NS	NS	<2.1	<2.4	<2.3
o-Xylene	NS	NS	NS	<2.1	<2.4	<2.3
p- & m- Xylenes	NS	NS	NS	<4.1	<4.8	<4.5
p-Isopropyltoluene	NS	NS	NS	<2.1	<2.4	<2.3
sec-Butylbenzene	NS	NS	NS	<2.1	<2.4	<2.3
Styrene	NS	NS	NS	<2.1	<2.4	<2.3
tert-Butyl alcohol (TBA)	NS	NS	NS	<2.1	<2.4	**6.1**
tert-Butylbenzene	NS	NS	NS	<2.1	<2.4	<2.3
Tetrachloroethene	1,300	19,000	150,000	<2.1	<2.4	<2.3
Toluene	700	100,000	500,000	<2.1	<2.4	<2.3
trans-1,2-Dichloroethene	100,000	100,000	500,000	<2.1	<2.4	<2.3
trans-1,3-Dichloropropene	NS	NS	NS	<2.1	<2.4	<2.3
Trichloroethene	470	21,000	200,000	<2.1	<2.4	<2.3
Trichlorofluoromethane	NS	NS	NS	<2.1	<2.4	<2.3
Vinyl chloride	20	900	13,000	<2.1	<2.4	<2.3
Xylenes (Total)	260	100,000	500,000	<6.2	<7.2	<6.8

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory standard
NS = No Standard

Table 1 continued.

Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8260
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	Standard UUSCO [1]	 RRSCO [2]	 CSCO [3]	SB-3 (0-4) 8/15/14	SB-3 (5-8) 8/14/15	SB-3 (15-20) 8/14/14
1,1,1,2-Tetrachloroethane	NS	NS	NS	<2.0	<2.7	<2.7
1,1,1-Trichloroethane	680	100,000	500,000	<2.0	<2.7	<2.7
1,1,2,2-Tetrachloroethane	NS	NS	NS	<2.0	<2.7	<2.7
1,1,2-Trichloro-1,2,2-trifluoroethane	NS	NS	NS	<2.0	<2.7	<2.7
1,1,2-Trichloroethane	NS	NS	NS	<2.0	<2.7	<2.7
1,1-Dichloroethane	270	26,000	240,000	<2.0	<2.7	<2.7
1,1-Dichloroethene	330	100,000	500,000	<2.0	<2.7	<2.7
1,2,4-Trichlorobenzene	NS	NS	NS	<2.0	<2.7	<2.7
1,2,4-Trimethylbenzene	4,700	5,200	19,000	**29**	<2.7	<2.7
1,2-Dibromo-3-chloropropane	NS	NS	NS	<2.0	<2.7	<2.7
1,2-Dibromoethane	NS	NS	NS	<2.0	<2.7	<2.7
1,2-Dichlorobenzene	1,100	100,000	500,000	<2.0	<2.7	<2.7
1,2-Dichloroethane	20	3,100	30,000	<2.0	<2.7	<2.7
1,2-Dichloropropane	NS	NS	NS	<2.0	<2.7	<2.7
1,3,5-Trimethylbenzene	4,700	5,200	19,000	**13**	<2.7	<2.7
1,3-Dichlorobenzene	2,400	49,000	280,000	<2.0	<2.7	<2.7
1,4-Dichlorobenzene	1,800	13,000	130,000	<2.0	<2.7	<2.7
1,4-Dioxane	980	1,300	13,000	<40	<54	<54
2-Butanone	120	100,000	500,000	**4.8**	**5.0**	<2.7
2-Hexanone	NS	NS	NS	<2.0	<2.7	<2.7
4-Methyl-2-pentanone	NS	NS	NS	<2.0	<2.7	<2.7
Acetone	50	100,000	500,000	**56**	**62**	**19**
Acrolein	NS	NS	NS	<2.0	<2.7	<2.7
Acrylonitrile	NS	NS	NS	<2.0	<2.7	<2.7
Benzene	60	4,800	44,000	<2.0	<2.7	<2.7
Bromodichloromethane	NS	NS	NS	<2.0	<2.7	<2.7
Bromoform	NS	NS	NS	<2.0	<2.7	<2.7
Bromomethane	NS	NS	NS	<2.0	<2.7	<2.7
Carbon disulfide	NS	NS	NS	<2.0	<2.7	<2.7
Carbon tetrachloride	760	2,400	22,000	<2.0	<2.7	<2.7
Chlorobenzene	1,100	100,000	500,000	<2.0	<2.7	<2.7
Chloroethane	NS	NS	NS	<2.0	<2.7	<2.7
Chloroform	370	49,000	350,000	<2.0	<2.7	<2.7
Chloromethane	NS	NS	NS	<2.0	<2.7	<2.7
cis-1,2-Dichloroethene	250	100,000	500,000	<2.0	<2.7	<2.7
cis-1,3-Dichloropropene	NS	NS	NS	<2.0	<2.7	<2.7
Dibromochloromethane	NS	NS	NS	<2.0	<2.7	<2.7
Dibromomethane	NS	NS	NS	<2.0	<2.7	<2.7
Dichlorodifluoromethane	NS	NS	NS	<2.0	<2.7	<2.7
Ethylbenzene	1,000	41,000	390,000	<2.0	<2.7	<2.7
Hexachlorobutadine	NS	NS	NS	<2.0	<2.7	<2.7
Isopropylbenzene	NS	NS	NS	<2.0	<2.7	<2.7
Methyl acetate	NS	NS	NS	<2.0	<2.7	<2.7
Methyl tert-butyl ether	930	100,000	500,000	<2.0	<2.7	<2.7
Methylene chloride	50	100,000	500,000	**5.3**	**5.7**	**6.5**
n-Butylbenzene	NS	NS	NS	<2.0	<2.7	<2.7
n-Propylbenzene	NS	NS	NS	<2.0	<2.7	<2.7
o-Xylene	NS	NS	NS	**3.0**	<2.7	<2.7
p- & m- Xylenes	NS	NS	NS	<2.0	<5.4	<5.4
p-Isopropyltoluene	NS	NS	NS	<2.0	<2.7	<2.7
sec-Butylbenzene	NS	NS	NS	**2.8**	<2.7	<2.7
Styrene	NS	NS	NS	<2.0	<2.7	<2.7
tert-Butyl alcohol (TBA)	NS	NS	NS	**28**	**25**	**5.9**
tert-Butylbenzene	NS	NS	NS	<2.0	<2.7	<2.7
Tetrachloroethene	1,300	19,000	150,000	**26**	**13**	<2.7
Toluene	700	100,000	500,000	<2.0	<2.7	<2.7
trans-1,2-Dichloroethene	100,000	100,000	500,000	<2.0	<2.7	<2.7
trans-1,3-Dichloropropene	NS	NS	NS	<2.0	<2.7	<2.7
Trichloroethene	470	21,000	200,000	<2.0	<2.7	<2.7
Trichlorofluoromethane	NS	NS	NS	<2.0	<2.7	<2.7
Vinyl chloride	20	900	13,000	<2.0	<2.7	<2.7
Xylenes (Total)	260	100,000	500,000	<6.0	<8.0	<8.1

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory standard
NS = No Standard

Table 2

Semi Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8270
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	Standard UUSCO [1]	Standard RRSCO [2]	Standard CSCO [3]	SB-1 (3-5) 8/14/14	SB-2 (3-5) 8/15/14	SB-2 (12-14) 8/15/14
Acenaphthene	20,000	100,000	500,000	<45.7	<92.5	<225
Acenaphthylene	100,000	100,000	500,000	<45.7	<92.5	<225
Acetophenone	NS	NS	NS	<45.7	<92.5	<225
Aniline	48,000	10,000	500,000	<45.7	<92.5	<225
Anthracene	100,000	100,000	500,000	<45.7	<92.5	<225
Atrazine	NS	NS	NS	<45.7	<92.5	<225
Benzaldehyde	NS	NS	NS	<45.7	<92.5	<225
Benzidine	NS	NS	NS	<182	<368	<894
Benzo(a)anthracene	1,000	1,000	5,600	<45.7	**418**	<225
Benzo(a)pyrene	1,000	1,000	1,000	<45.7	<92.5	<225
Benzo(b)fluoranthene	1,000	1,000	5,600	<45.7	**145**	<225
Benzo(g,h,i)perylene	100,000	100,000	500,000	<91.4	<185	<450
Benzoic acid	NS	NS	NS	<124	<251	<610
Benzo(k)fluoranthene	800	3,900	56,000	<45.7	**99.9**	<225
Benzyl alcohol	NS	NS	NS	<91.4	<185	<450
Benzyl butyl phthalate	NS	NS	NS	<45.7	<92.5	<225
1,1'-Biphenyl	NS	NS	NS	<45.7	<92.5	<225
4-Bromophenyl-phenylether	NS	NS	NS	<45.7	<92.5	<225
Caprolactam	NS	NS	NS	<45.7	<92.5	<225
Carbazole	NS	NS	NS	<45.7	<92.5	<225
4-Chloro-3-methylphenol	NS	NS	NS	<91.4	<185	<450
4-Chloroaniline	NS	NS	NS	<91.4	<185	<450
Bis(2-chloroethoxy)methane	NS	NS	NS	<45.7	<92.5	<225
Bis(2-chloroethyl)ether	NS	NS	NS	<45.7	<92.5	<225
Bis(2-chloroisopropyl)ether	NS	NS	NS	<45.7	<92.5	<225
2-Chloronaphthalene	NS	NS	NS	<45.7	<92.5	<225
2-Chlorophenol	NS	NS	NS	<45.7	<92.5	<225
4-Chlorophenyl phenyl ether	NS	NS	NS	<45.7	<92.5	<225
Chrysene	1,000	3,900	56,000	<45.7	**350**	<225
Dibenzo(a,h)anthracene	330	330	560	<45.7	<92.5	<225
Dibenzofuran	NS	NS	NS	<45.7	<92.5	<225
Di-n-butyl phthalate	NS	NS	NS	<45.7	<92.5	<225
1,2-Dichlorobenzene	100,000	100,000	500,000	<45.7	<92.5	<225
1,3-Dichlorobenzene	17,000	49,000	280,000	<45.7	<92.5	<225
1,4-Dichlorobenzene	980	13,000	130,000	<45.7	<92.5	<225
3,3'-Dichlorobenzidine	NS	NS	NS	<182	<368	<894
2,4-Dichlorophenol	NS	NS	NS	<91.4	<185	<450
Diethyl phthalate	NS	NS	NS	<45.7	<92.5	<225
2,4-Dimethylphenol	NS	NS	NS	<45.7	<92.5	<225
Dimethyl phthalate	NS	NS	NS	<45.7	<92.5	<225
4,6-Dinitro-2-methylphenol	NS	NS	NS	<91.4	<185	<450
2,4-Dinitrophenol	NS	NS	NS	<182	<368	<894
2,4-Dinitrotoluene	NS	NS	NS	<91.4	<185	<450
2,6-Dinitrotoluene	NS	NS	NS	<45.7	<92.5	<225
Di-n-octyl phthalate	NS	NS	NS	<45.7	<92.5	<225
1,2-Diphenylhydrazine	NS	NS	NS	<45.7	<92.5	<225
Bis(2-ethylhexyl)phthalate	NS	NS	NS	<45.7	<92.5	<225
Fluoranthene	100,000	100,000	500,000	<45.7	**665**	<225
Fluorene	30,000	100,000	500,000	<45.7	<92.5	<225
Hexachlorobenzene	33	12	60	<45.7	<92.5	<225
Hexachlorobutadiene	NS	NS	NS	<45.7	<92.5	<225
Hexachlorocyclopentadiene	NS	NS	NS	<91.4	<185	<450
Hexachloroethane	NS	NS	NS	<45.7	<92.5	<225
Indeno(1,2,3-c,d)pyrene	500	500	5,600	<45.7	<92.5	<225
Isophorone	NS	NS	NS	<45.7	<92.5	<225
2-Methylnaphthalene	NS	NS	NS	<45.7	<92.5	<225
2-Methylphenol	330	100,000	500,000	<91.4	<185	<450
3- & 4-Methylphenols	NS	NS	NS	<91.4	<185	<450
Naphthalene	12,000	100,000	500,000	<45.7	<92.5	<225
4-Nitroaniline	NS	NS	NS	<91.4	<185	<450
2-Nitroaniline	NS	NS	NS	<45.7	<92.5	<225
3-Nitroaniline	NS	NS	NS	<91.4	<185	<450
Nitrobenzene	NS	NS	NS	<45.7	<92.5	<225
2-Nitrophenol	NS	NS	NS	<45.7	<92.5	<225
4-Nitrophenol	NS	NS	NS	<91.4	<185	<450
N-Nitrosodi-n-propylamine	NS	NS	NS	<45.7	<92.5	<225
N-Nitrosodimethylamine	NS	NS	NS	<45.7	<92.5	<225
N-Nitrosodiphenylamine	NS	NS	NS	<45.7	<92.5	<225
Pentachlorophenol	800	6,700	6,700	<91.4	<185	<450
Phenanthrene	100,000	100,000	500,000	<45.7	**187**	<225
Phenol	330	100,000	500,000	<45.7	<92.5	<225
Pyrene	100,000	100,000	500,000	<45.7	**819**	<225
1,2,4,5-Tetrachlorobenzene	NS	NS	NS	<91.4	<185	<450
2,3,4,6-Tetrachlorophenol	NS	NS	NS	<45.7	<92.5	<225
1,2,4-Trichlolobenzene	NS	NS	NS	<45.7	<92.5	<225
2,4,5-Trichlorophenol	NS	NS	NS	<45.7	<92.5	<225
2,4,6-Trichlorophenol	NS	NS	NS	<45.7	<92.5	<225

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory guidance
NS = No Standard

Table 2 continued.

Semi Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8270
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	Standard UUSCO [1]	Standard RRSCO [2]	Standard CSCO [3]	SB-3 (0-4) 8/15/14	SB-3 (5-8) 8/14/15	SB-3 (15-20) 8/14/14
Acenaphthene	20,000	100,000	500,000	<88.1	<44.1	<42.6
Acenaphthylene	100,000	100,000	500,000	<88.1	<44.1	<42.6
Acetophenone	NS	NS	NS	<88.1	<44.1	<42.6
Aniline	46,000	10,000	500,000	<88.1	<44.1	<42.6
Anthracene	100,000	100,000	500,000	<88.1	<44.1	<42.6
Atrazine	NS	NS	NS	<88.1	<44.1	<42.6
Benzaldehyde	NS	NS	NS	<88.1	<44.1	<42.6
Benzidine	NS	NS	NS	<350	<175	<169
Benzo(a)anthracene	1,000	1,000	5,600	<88.1	<44.1	<42.6
Benzo(a)pyrene	1,000	1,000	1,000	<88.1	<44.1	<42.6
Benzo(b)fluoranthene	1,000	1,000	5,600	<88.1	<44.1	<42.6
Benzo(g,h,i)perylene	100,000	100,000	500,000	<176	<88.3	<85.1
Benzoic acid	NS	NS	NS	<239	<120	<116
Benzo(k)fluoranthene	800	3,900	56,000	<88.1	<44.1	<42.6
Benzyl alcohol	NS	NS	NS	<176	<88.3	<85.1
Benzyl butyl phthalate	NS	NS	NS	<88.1	<44.1	<42.6
1,1'-Biphenyl	NS	NS	NS	<88.1	<44.1	<42.6
4-Bromophenyl-phenylether	NS	NS	NS	<88.1	<44.1	<42.6
Caprolactam	NS	NS	NS	62.7	62.7	<42.6
Carbazole	NS	NS	NS	<88.1	<44.1	<42.6
4-Chloro-3-methylphenol	NS	NS	NS	<176	<88.3	<85.1
4-Chloroaniline	NS	NS	NS	<176	<88.3	<85.1
Bis(2-chloroethoxy)methane	NS	NS	NS	<88.1	<44.1	<42.6
Bis(2-chloroethyl)ether	NS	NS	NS	<88.1	<44.1	<42.6
Bis(2-chloroisopropyl)ether	NS	NS	NS	<88.1	<44.1	<42.6
2-Chloronaphthalene	NS	NS	NS	<88.1	<44.1	<42.6
2-Chlorophenol	NS	NS	NS	<88.1	<44.1	<42.6
4-Chlorophenyl phenyl ether	NS	NS	NS	<88.1	<44.1	<42.6
Chrysene	1,000	3,900	56,000	<88.1	<44.1	<42.6
Dibenzo(a,h)anthracene	330	330	560	<88.1	<44.1	<42.6
Dibenzofuran	NS	NS	NS	<88.1	<44.1	<42.6
Di-n-butyl phthalate	NS	NS	NS	<88.1	<44.1	<42.6
1,2-Dichlorobenzene	100,000	100,000	500,000	<88.1	<44.1	<42.6
1,3-Dichlorobenzene	17,000	49,000	280,000	<88.1	<44.1	<42.6
1,4-Dichlorobenzene	980	13,000	130,000	<88.1	<44.1	<42.6
3,3'-Dichlorobenzidine	NS	NS	NS	<350	<175	<169
2,4-Dichlorophenol	NS	NS	NS	<176	<88.3	<85.1
Diethyl phthalate	NS	NS	NS	<88.1	<44.1	<42.6
2,4-Dimethylphenol	NS	NS	NS	<88.1	<44.1	<42.6
Dimethyl phthalate	NS	NS	NS	<88.1	<44.1	<42.6
4,6-Dinitro-2-methylphenol	NS	NS	NS	<176	<88.3	<85.1
2,4-Dinitrophenol	NS	NS	NS	<350	<175	<169
2,4-Dinitrotoluene	NS	NS	NS	<176	<88.3	<85.1
2,6-Dinitrotoluene	NS	NS	NS	<88.1	<44.1	<42.6
Di-n-octyl phthalate	NS	NS	NS	<88.1	<44.1	<42.6
1,2-Diphenylhydrazine	NS	NS	NS	<88.1	<44.1	<42.6
Bis(2-ethylhexyl)phthalate	NS	NS	NS	<88.1	<44.1	<42.6
Fluoranthene	100,000	100,000	500,000	<88.1	<44.1	<42.6
Fluorene	30,000	100,000	500,000	<88.1	<44.1	<42.6
Hexachlorobenzene	33	12	80	<88.1	<44.1	<42.6
Hexachlorobutadiene	NS	NS	NS	<88.1	<44.1	<42.6
Hexachlorocyclopentadiene	NS	NS	NS	<176	<88.3	<85.1
Hexachloroethane	NS	NS	NS	<88.1	<44.1	<42.6
Indeno(1,2,3-c,d)pyrene	500	500	5,600	<88.1	<44.1	<42.6
Isophorone	NS	NS	NS	<88.1	<44.1	<42.6
2-Methylnephthalene	NS	NS	NS	<88.1	<44.1	<42.6
2-Methylphenol	330	100,000	500,000	<176	<88.3	<85.1
3- & 4-Methylphenols	NS	NS	NS	<176	<88.3	<85.1
Naphthalene	12,000	100,000	500,000	<88.1	<44.1	<42.6
4-Nitroaniline	NS	NS	NS	<176	<88.3	<85.1
2-Nitroaniline	NS	NS	NS	<88.1	<44.1	<42.6
3-Nitroaniline	NS	NS	NS	<176	<88.3	<85.1
Nitrobenzene	NS	NS	NS	<88.1	<44.1	<42.6
2-Nitrophenol	NS	NS	NS	<88.1	<44.1	<42.6
4-Nitrophenol	NS	NS	NS	<176	<88.3	<85.1
N-Nitrosodi-n-propylamine	NS	NS	NS	<88.1	<44.1	<42.6
N-Nitrosodimethylamine	NS	NS	NS	<88.1	<44.1	<42.6
N-Nitrosodiphenylamine	NS	NS	NS	<88.1	<44.1	<42.6
Pentachlorophenol	800	6,700	6,700	<176	<88.3	<85.1
Phenanthrene	100,000	100,000	500,000	<88.1	<44.1	<42.6
Phenol	330	100,000	500,000	<88.1	<44.1	<42.6
Pyrene	100,000	100,000	500,000	<88.1	<44.1	<42.6
1,2,4,5-Tetrachlorobenzene	NS	NS	NS	<176	<88.3	<85.1
2,3,4,6-Tetrachlorophenol	NS	NS	NS	<88.1	<44.1	<42.6
1,2,4-Tricholobenzene	NS	NS	NS	<88.1	<44.1	<42.6
2,4,6-Trichlorophenol	NS	NS	NS	<88.1	<44.1	<42.6
2,4,5-Trichlorophenol	NS	NS	NS	<88.1	<44.1	<42.6

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory guidance
NS = No Standard

Table 3

PCBs and Pesticides in Soil (ug/kg-dry)
EPA Method 8081/8082
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	Standard UUSCO [1]	Standard RRSCO [2]	Standard CSCO [3]	SB-1 (3-5) 8/14/14	SB-2 (3-5) 8/15/14	SB-2 (12-14) 8/15/14
Toxaphene	NS	NS	NS	<90.9	<18.4	<89.4
Methoxychlor	NS	NS	NS	<8.98	<1.82	<8.83
Heptachlor epoxide	NS	NS	NS	<1.80	<0.364	<1.77
Heptachlor	42	420	15,000	<1.80	<0.364	<1.77
gamma-BHC	100	280	9,200	<1.80	<0.364	<1.77
Endrin ketone	NS	NS	NS	<1.80	<0.364	<1.77
Endrin aldehyde	NS	NS	NS	<1.80	<0.364	<1.77
Endrin	14	2,200	89,000	<1.80	<0.364	<1.77
Endosulfan sulfate	2,400	4,800	200,000	<1.80	<0.364	<1.77
Endosulfan II	2,400	4,800	200,000	<1.80	<0.364	<1.77
Endosulfan I	2,400	4,800	200,000	<1.80	<0.364	<1.77
Dieldrin	5	39	1,400	<1.80	<0.364	<1.77
delta-BHC	40	100,000	500,000	<1.80	<0.364	<1.77
Chlordane, total	NS	NS	NS	<7.18	<1.45	<7.06
beta-BHC	36	72	3,000	<1.80	<0.364	<1.77
alpha-BHC	20	97	3,400	<1.80	<0.364	<1.77
Aldrin	5	19	680	<1.80	<0.364	<1.77
4,4'-DDT	3.3	1,700	47,000	<1.80	<0.364	<1.77
4,4'-DDE	3.3	1,800	62,000	<1.80	<0.364	<1.77
4,4'-DDD	3.3	2,600	92,000	<1.80	<0.364	<1.77
Aroclor 1260	100	1,000	1,000	<18.5	<18.7	<18.2
Aroclor 1254	100	1,000	1,000	<18.5	<18.7	<18.2
Aroclor 1248	100	1,000	1,000	<18.5	<18.7	<18.2
Aroclor 1242	100	1,000	1,000	<18.5	<18.7	<18.2
Aroclor 1232	100	1,000	1,000	<18.5	<18.7	<18.2
Aroclor 1221	100	1,000	1,000	<18.5	<18.7	<18.2
Aroclor 1016	100	1,000	1,000	<18.5	<18.7	<18.2

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory standard
NS = No Standard

Table 3 continued.

PCBs and Pesticides in Soil (ug/kg-dry)
EPA Method 8081/8082
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	Standard UUSCO [1]	Standard RRSCO [2]	Standard CSCO [3]	SB-3 (0-4) 8/15/14	SB-3 (5-8) 8/14/15	SB-3 (15-20) 8/14/14
Toxaphene	NS	NS	NS	<87.6	<87.7	<84.6
Methoxychlor	NS	NS	NS	<8.66	<8.67	<8.36
Heptachlor epoxide	NS	NS	NS	<1.73	<1.73	<1.67
Heptachlor	42	420	15,000	<1.73	<1.73	<1.67
gamma-BHC	100	280	9,200	<1.73	<1.73	<1.67
Endrin ketone	NS	NS	NS	<1.73	<1.73	<1.67
Endrin aldehyde	NS	NS	NS	<1.73	<1.73	<1.67
Endrin	14	2,200	89,000	<1.73	<1.73	<1.67
Endosulfan sulfate	2,400	4,800	200,000	<1.73	<1.73	<1.67
Endosulfan II	2,400	4,800	200,000	<1.73	<1.73	<1.67
Endosulfan I	2,400	4,800	200,000	<1.73	<1.73	<1.67
Dieldrin	5	39	1,400	<1.73	<1.73	<1.67
delta-BHC	40	100,000	500,000	<1.73	<1.73	<1.67
Chlordane, total	NS	NS	NS	<6.92	<6.93	<6.69
beta-BHC	36	72	3,000	<1.73	<1.73	<1.67
alpha-BHC	20	97	3,400	<1.73	<1.73	<1.67
Aldrin	5	19	680	<1.73	<1.73	<1.67
4,4'-DDT	3.3	1,700	47,000	<1.73	<1.73	<1.67
4,4'-DDE	3.3	1,800	62,000	<1.73	<1.73	<1.67
4,4'-DDD	3.3	2,600	92,000	<1.73	<1.73	<1.67
Aroclor 1260	100	1,000	1,000	<17.8	<17.9	<17.2
Aroclor 1254	100	1,000	1,000	<17.8	<17.9	<17.2
Aroclor 1248	100	1,000	1,000	<17.8	<17.9	<17.2
Aroclor 1242	100	1,000	1,000	<17.8	<17.9	<17.2
Aroclor 1232	100	1,000	1,000	<17.8	<17.9	<17.2
Aroclor 1221	100	1,000	1,000	<17.8	<17.9	<17.2
Aroclor 1016	100	1,000	1,000	<17.8	<17.9	<17.2

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory standard
NS = No Standard

Table 4

Metals in Soil (mg/kg-dry)
EPA Method 6010
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID / Sample Date	Standard UUSCO [1]	Standard RRSCO [2]	Standard CSCO [3]	SB-1 (3-5) 8/14/14	SB-2 (3-5) 8/15/14	SB-2 (12-14) 8/15/14
Aluminum	NS	NS	NS	11,100	11,900	4,780
Antimony	NS	NS	NS	<0.511	<0.551	<0.535
Arsenic	13	16	16	3.03	3.20	2.24
Barium	350	400	400	36.1	186	35.7
Beryllium	7.2	72	590	<0.109	<0.110	<0.107
Cadmium	2.5	4.3	9.3	<0.326	3.76	<0.321
Calcium	NS	NS	NS	1,540	9,380	4,790
Chromium	30	180	1,500	18.5	24.1	11.7
Cobalt	NS	NS	NS	7.30	14.7	5.62
Copper	50	270	270	12.2	65.7	25.9
Iron	NS	NS	NS	16,400	35,200	11,700
Lead	63	400	1,000	9.80	239	20.1
Magnesium	NS	NS	NS	3,080	4,680	2,390
Manganese	1,600	2,000	10,000	247	477	192
Mercury	0.18	0.81	2.8	<0.0326	0.129	<0.0321
Nickel	30	310	310	17.4	32.7	13.4
Potassium	NS	NS	NS	824	6,450	924
Selenium	3.9	180	1,500	1.22	1.97	<1.07
Silver	2	180	1,500	<0.544	<0.551	<0.535
Sodium	NS	NS	NS	212	168	201
Thallium	NS	NS	NS	<1.09	<1.10	<1.07
Vanadium	NS	NS	NS	26.3	36.6	25.5
Zinc	109	10,000	10,000	31.1	1,890	62.5

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory standard
NS = No Standard

Table 4 continued.

Metals in Soil (mg/kg-dry)
EPA Method 6010
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID / Sample Date	Standard UUSCO [1]	Standard RRSCO [2]	Standard CSCO [3]	SB-3 (0-4) 8/15/14	SB-3 (5-8) 8/14/15	SB-3 (15-20) 8/14/14
Aluminum	NS	NS	NS	9,250	4,630	2,820
Antimony	NS	NS	NS	<0.525	<0.525	<0.507
Arsenic	13	16	16	4.01	1.19	<1.01
Barium	350	400	400	67.1	30.9	27.2
Beryllium	7.2	72	590	<0.105	<0.105	<0.101
Cadmium	2.5	4.3	9.3	<0.315	<0.315	<0.304
Calcium	NS	NS	NS	3,460	1,370	686
Chromium	30	180	1,500	15.6	9.01	7.05
Cobalt	NS	NS	NS	6.85	4.40	3.36
Copper	50	270	270	61.5	23.4	6.61
Iron	NS	NS	NS	14,700	9,300	7,740
Lead	63	400	1,000	75.5	6.38	2.11
Magnesium	NS	NS	NS	2,970	1,830	1,270
Manganese	1,600	2,000	10,000	266	205	208
Mercury	0.18	0.81	2.8	0.0824	<0.0315	<0.0304
Nickel	30	310	310	17.4	9.65	7.55
Potassium	NS	NS	NS	657	532	387
Selenium	3.9	180	1,500	1.05	<1.05	<1.01
Silver	2	180	1,500	<0.525	<0.525	<0.507
Sodium	NS	NS	NS	264	162	101
Thallium	NS	NS	NS	<1.05	<1.05	<1.01
Vanadium	NS	NS	NS	29.9	13.2	13.6
Zinc	109	10,000	10,000	155	39.0	12.1

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory standard
NS = No Standard

Table 5

Volatile Organic Compounds in Soil Vapor, Indoor and Ambient Air (ug/m3)
EPA Method TO-15
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	NYSDOH Indoor Air Guideline [1]	SV-1 8/15/14	SV-2 8/15/14
Vinyl chloride	NA	<2.5	<2.4
Vinyl acetate	NA	<7.0	<6.6
Trichloroethene	5	<2.7	12
1,3-Dichloropropene (trans)	NA	<9.0	<8.5
1,2-Dichloroethene (trans)	NA	<7.8	<7.4
Toluene	NA	29	26
Tetrahydrofuran	NA	<5.8	<5.5
Tetrachloroethene	30	220	460
Styrene	NA	<8.4	<8.0
Propylene	NA	<3.4	<3.2
4-Ethyltoluene	NA	17	14.0
Xylenes (m&p)	NA	41	32
Xylenes (o)	NA	12	9.7
n-Hexane	NA	<7.0	28.0
n-Heptane	NA	8.9	<7.7
Methylene chloride	60	17	67
Methyl tert-butyl ether	NA	<7.1	<6.7
4-Methyl-2-pentanone	NA	<8.1	<7.6
Isopropanol	NA	12	9.60
1,3-Hexachlorobutadiene	NA	<21	<20
Ethylbenzene	NA	10	8.1
Ethyl acetate	NA	<14	<13
Cyclohexane	NA	<6.8	<6.4
1,3-Dichloropropene (cis)	NA	<9.0	<8.5
1,2-Dichloroethene (cis)	NA	<7.8	<7.4
Chloromethane	NA	<4.1	<3.9
Chloroform	NA	<9.6	10
Chloroethane	NA	<5.2	<4.9
Carbon tetrachloride	NA	<3.1	<2.9
Carbon disulfide	NA	<6.2	<5.8
Bromomethane	NA	<7.7	<7.2
Bromoform	NA	<20	<19
Bromodichloromethane	NA	<12	<12
Benzyl Chloride	NA	<10	<9.7
Benzene	NA	<6.3	<6.0
Acetone	NA	1,500	2,200
2-Hexanone	NA	<16	<15
2-Butanone	NA	60	73
1,4-Dioxane	NA	<7.1	<6.7
1,4-Dichlorobenzene	NA	<12	<11
1,3-Dichlorobenzene	NA	<12	<11
1,3-Butadiene	NA	<8.6	<8.1
1,3,5-Trimethylbenzene	NA	<9.7	<9.2
1,2-Dichlorotetrafluoroethane	NA	<14	<13
1,2-Dichloropropane	NA	<9.1	<8.6
1,2-Dichloroethane	NA	<8.0	<7.6
1,2-Dichlorobenzene	NA	<12	<11
1,2,4-Trimethylbenzene	NA	17	17
1,2,4-Trichlorobenzene	NA	<15	<14
1,1-Dichloroethene	NA	7.8	<7.4
1,1-Dichloroethane	NA	<8.0	<7.6
Trichlorofluoromethane	NA	<11	<10
1,1,2-Trichloroethane	NA	<11	<10
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	<15	<14
1,1,2,2-Tetrachloroethane	NA	<14	<13
1,1,1-Trichloroethane	NA	<11	<10
Dichlorodifluoromethane	NA	13	<9.2
1,2-Dibromoethane	NA	<15	<14
Dibromochloromethane	NA	<16	<15
Methyl Methacrylate	NA	<8.1	<7.6
Chlorobenzene	NA	<9.1	<8.6

[1] Table 3.1, NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006)
[3] Matrix 1, NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006)
[4] Matrix 2, NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006)
Bolded values signify detection above method detection limit
Highlighted values signify detection above guidance value
NA = Guidance Value Not Available

APPENDIX A

PREVIOUS ENVIRONMENTAL REPORTS

PHASE II ENVIRONMENTAL
SUBSURFACE INVESTIGATION
PROPERTY LOCATED AT
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

May 28, 2004
Project No.: 04716

Prepared for:

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PHASE II ENVIRONMENTAL SUBSURFACE INVESTIGATION
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

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Figure 1: Site Location Plan

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EXECUTIVE SUMMARY

This investigation was completed to address issues presented in a Phase I Environmental Site Assessment (ESA) conducted by G.C. Environmental, Inc. (GCE) issued February 4, 2004, and on the limited soil gas survey issued by Fleming Lee Shue on March 2004. A sampling and analysis program was designed to determine if prior and/or present uses on the subject property have impacted the subsurface soils and environment as outlined in our Scope of Work dated April 26, 2004. The sampling and analysis plan consisted of soil quality testing using analytical test methods consistent with expected parameters and agency soil cleanup guidelines. The following presents an evaluation of our investigation.

EEA conducted the Phase II Environmental Site Assessment based on the finding of the previous Phase I ESA. These findings indicated that the western portion of the site was a gasoline station from circa 1923 to circa 1955. In addition, regulatory records indicated that a permit was issued for a portion of the property for ten (10) buried gasoline tanks and also indicated that there were four (4) gasoline pumps located on the northwestern portion of the site. In addition, the 1932 and the 1951 Sanborn Fire Insurance maps showed three (3) gasoline tanks located on the northwestern portion of the site and labeled it as a "filling station". Based on the information from the previous Phase I, the following tasks were completed during EEA's Phase II Subsurface Investigation:

Geophysical Survey – Magnetometer

During field activities, EEA performed a magnetometer survey over the property to determine if any underground storage tanks (USTs) were present on the property using a Fisher TW-6 magnetometer. The survey was conducted in the arESA of the suspected USTs around the former gasoline service station and auto repair facility. The survey did not indicate that there were any USTs present in the subsurface.

EEA concludes that the tanks had been removed at an earlier time and does not recommend any further action.

Former Gasoline Service Station

At the location of the former gasoline service station, six (6) soil borings were advanced to depth. Of these six soil borings, five (5) soil samples were selected for laboratory analysis based on field observations and field screening via a portable Organic Vapor Analyzer (OVA). Soil samples were analyzed for volatile organic compounds (VOCs) via USEPA Method 8021,

semi-volatile organic compounds (SVOCs) via USEPA Method 8270 and total petroleum hydrocarbons (TPH) via USEPA Method 8015. Results of soil analysis indicated that soil boring B-1 had some low-level concentrations of SVOCS above the New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) criteria. All five soil samples also had detections for TPH, however the concentrations were well below any regulatory guidelines. EEA concludes that the former gasoline station had not significantly impacted soil at the property.

Based on the analytical results, EEA does not recommend any further action in regards to the former gasoline station.

There are no recommendations for additional site investigation or remedial corrective action for this property at this time based upon the information disclosed in our investigation.

I. INTRODUCTION

This investigation was completed to address issues addressed in our Scope of Work dated April 26, 2004. A sampling and analysis program was designed to determine if prior and/or present uses on the subject property have impacted the subsurface soils and environment. The sampling and analysis plan consisted of soil quality testing using analytical test methods consistent with expected parameters and agency soil cleanup guidelines. The following presents an evaluation of our investigation.

EEA conducted the Phase II Environmental Site Assessment based on the finding of the previous Phase I ESA. These findings indicated that the western portion of the site was a gasoline station from circa 1923 to circa 1955. In addition, regulatory records indicated that a permit was issued for a portion of the property for ten (10) buried gasoline tanks and also indicated that there were four (4) gasoline pumps located on the northwestern portion of the site. In addition, the 1932 and the 1951 Sanborn Fire Insurance maps showed three (3) gasoline tanks located on the northwestern portion of the site and labeled it as a "filling station". Based on the information from the previous Phase I, EEA's initiated the Phase II Subsurface Investigation:

EEA initiated field activities on May 10, 2004; all Phase II field activities were completed by that date. This report summarizes the work performed, the results of the investigation, and the recommended remedial action requirements (if any).

II. SCOPE OF WORK PERFORMED

a. Health and Safety Plan

EEA uses a company Generic Health and Safety Plan for all investigative work relating to performing Phase II Environmental Subsurface Investigations. The HASP assigns responsibilities, establishes personal protection standards, recommends operating procedures, and provides for contingencies that may arise during performance of the assessment at the site. The protocols in the HASP apply to all personnel involved in the work activities including EEA, all outside subcontractors, client, or regulatory agencies present during the performance of the work. In addition, the following safety equipment is maintained on-site for responding to potential emergency situations: portable eyewash, ABC fire extinguisher, and first aid kit. Telephone numbers of emergency response units in the area are also posted where all those working at the site can ESAily see them. All personnel working at the site will also be required to receive training in respirator fitting, emergency procedures, equipment decontamination, and specific task procedures. All personnel involved with the collection of soil or water will have successfully completed the 40-hour OSHA Hazardous Materials Training Program.

b. Subsurface Utility Location, Permits and Bonding

EEA notified the New York City/Long Island One Call Center under the New York State Regulation Code 753 prior to initiating the work to identify the location of underground utilities in the vicinity of the proposed boring locations. The confirmation number assigned to the site was #1240288. Any permits for soil boring were obtained from the local agencies. In addition, any license and permit bonding required was secured for the work.

c. Investigation Work Summary

All soil sampling was completed using a Geoprobe Model 54LT using the *Macrocore* soil sampling system. Samples were field screened for volatile organic vapors using an organic vapor meter (OVM). If no reading was found, then the bottom sample or the sample determined to be the most representative was selected for laboratory testing. The geophysical survey was conducted utilizing a Fisher TW-6 magnetometer.

- A geophysical survey (magnetometer) to investigate USTs
- Six (6) soil borings (B-1,B-2, B-3, B-4, B-5 and B-6) to investigate the location of the former gasoline station on-site.

d. Geophysical Survey - Magnetometer

EEA performed a magnetometer survey over the property to determine if any USTs were present on the property. The survey was performed with a Fisher TW-6 magnetometer in the areas of the suspected underground tanks (around the former gasoline station and auto repair facility). The survey did not indicate that there were any USTs present in the subsurface. EEA concludes that these USTs had been removed at an earlier time.

e. Former Gasoline Service Station

Six (6) soil borings were completed in order to investigate the area of the former gasoline service station. The soil borings were completed to a depth of 12 feet using a Geoprobe Model 54LT and *Macrocore* soil sampling system. Each sample was field screened for volatile organic vapors using an OVM. Based on field observations and OVM readings, five (5) soil boring samples were submitted for laboratory analysis. Samples were selected based upon the results of the OVM field screening. The sample with the highest OVM reading was selected for testing. If no reading was found, then the bottom sample or the sample determined to be the most representative was selected for laboratory testing Each sample sent to the laboratory was tested for volatile organic compounds (VOCs via US EPA Method 8021), semi-volatile organic compounds (SVOCs via US EPA Method 8270) and TPH (via US EPA Method 8015). Soil sample B-1 had some low-level concentrations of SVOCs (Benzo (a) Anthracene and Benzo (a) Pyrene) slightly above the NYSDEC TAGM criteria. Also, all five soil samples had detections for TPH, however the concentrations are well below any regulatory guidelines. Based on the

minor detections for SVOCs and TPH, EEA concludes that the former gasoline service station has not impacted subsurface soils on the property.

III. RESULTS OF LABORATORY ANALYSES

Ecotest Laboratories, Inc. (NYSDOH Certification #10320) prepared the results of the soil samples. Tables 1 and 2 present a summary of the results and a comparison to New York State Department of Environmental Conservation (NYSDEC) STARS Memo #1 and Technical and Administrative Guidance Manual (TAGM) cleanup guidelines. The chain-of-custody records, as well as the analytical laboratory data sheets, are presented in the Appendix to this report.

The soil sample collection locations are presented in Figure 1. The soil boring report logs present the field observations made at each soil boring location and site photographs are presented in the Appendix to this report.

IV. FINDINGS AND CONCLUSIONS

a. Geophysical Survey - Magnetometer

The magnetometer survey did not indicate that USTs were still present in the vicinity of the former gasoline service station and auto repair facility. EEA concludes that these tanks had been removed at an earlier time.

b. Former Gasoline Service Station

Six (6) soil borings were advanced in the area of the former gasoline service station, and of these, five (5) soil samples were submitted for laboratory analysis. Analytical results indicate that soil boring B-1 had some low-level concentrations of SVOCS above the NYSDEC TAGM criteria. Also, all five soil samples had detections for TPH, however the concentration were well below any regulatory guidelines. EEA concludes that the former USTs had been removed and that the former USTs have not significantly impacted subsurface conditions at the subject property.

The NYSDEC has developed the "guidelines" in order for DEC case managers to determine potential cleanup recommendations at various sites thoughout the state. The New York City Department of Environmental Protection (NYCDEP) and USEPA have developed similar guidelines. The NYSDEC and NYCDEP consider each site on a case-by-case basis in consideration of the property usage and its location to sensitive human, wildlife and environmental interests. Industrial properties are treated differently than residential or environmentally sensitive areas. In order to determine the specific requirements regarding potential remedial corrective action, EEA recommends that this report is reviewed by the applicable regulating agency.

TABLE 1
SOIL ANALYTICAL RESULTS: VOLATILE ORGANIC COMPOUNDS
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

Sample ID & Sample Depth	B-1 12ft	B-2 12ft	B-3 12ft	B-5 12ft	B-6 12ft
Matrix	Soil	Soil	Soil	Soil	Soil
Sampling Date	5/10/2004	5/10/2004	5/10/2004	5/10/2004	5/10/2004

VOLATILE ORGANIC COMPOUNDS (ug/Kg)	NYSDEC Soil Cleanup Objectives (TAGM) (ug/Kg)	US EPA METHOD 8021				
124-Trimethylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
135-Trimethylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
Benzene	60	<5.4	<5.2	<5.4	<5.5	<5.6
Ethyl Benzene	5,500	<5.4	<5.2	<5.4	<5.5	<5.6
Isopropylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
m + p Xylene	1,200	<11	<10	<11	<11	<11
n-Butylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
n-Propylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
Naphthalene(v)	13,000	<5.4	<5.2	<5.4	<5.5	<5.6
o Xylene	1,200	<5.4	<5.2	<5.4	<5.5	<5.6
p-Isopropyltoluene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
sec-Butylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
ter.ButylMethylEther	NE	<5.4	<5.2	<5.4	<5.5	<5.6
tert-Butylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
Toluene	1,500	<5.4	<5.2	<5.4	<5.5	<5.6
Xylene	1,200	<16	<16	<16	<16	<17

Notes:
< = Analyte not detected above the Laboratory Reporting Limit (detection limit noted)
NYSDEC = New York State Department of Environmental Conservation
TAGM = Technical and Administrative Guidance Memorandum
NE = TAGM guidelines Not Established
Bold indicates analytes detected above the Laboratory Reporting Limit
Shade indicated analytes detected above the TAGM guideline

TABLE 2
SOIL ANALYTICAL RESULTS: SEMI-VOLATILE ORGANIC COMPOUNDS & TOTAL PETROLEUM HYDROCARBONS
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

Sample ID & Sample Depth	B-1 12ft	B-2 12ft	B-3 12ft	B-5 12ft	B-6 12ft
Matrix	Soil	Soil	Soil	Soil	Soil
Sampling Date	5/10/2004	5/10/2004	5/10/2004	5/10/2004	5/10/2004

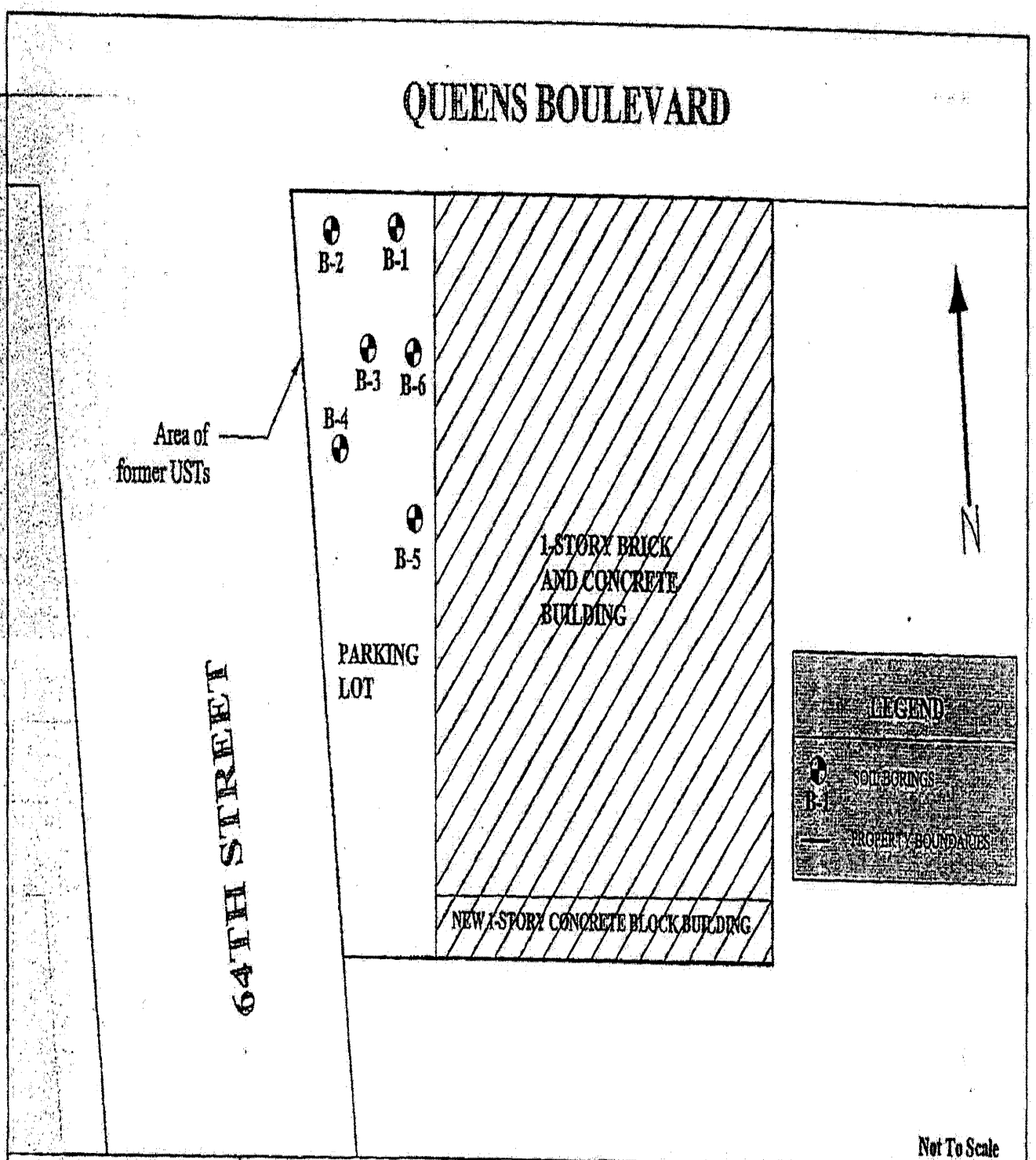
SEMI-VOLATILE ORGANIC COMPOUNDS (ug/Kg)	NYSDEC Soil Cleanup Objectives (TAGM) (ug/Kg)	US EPA METHOD 8270				
Acenaphthene	50,000	<330	<310	<330	<330	<340
Anthracene	50,000	<330	<310	<330	<330	<340
Benzo(a)anthracene	224	330	<310	<330	<330	<340
Benzo(a)pyrene	61	330	<310	<330	<330	<340
Benzo(b)fluoranthene	1,100	410	<310	<330	<330	<340
Benzo(ghi)perylene	50,000	<330	<310	<330	<330	<340
Benzo(k)fluoranthene	1,100	410	<310	<330	<330	<340
Chrysene	400	350	<310	<330	<330	<340
Dibenzo(a,h)anthracene	14	<330	<310	<330	<330	<340
Fluoranthene	50,000	<330	<310	<330	<330	<340
Fluorene	50,000	<330	<310	<330	<330	<340
Indeno(1,2,3-cd)pyrene	3,200	<330	<310	<330	<330	<340
Naphthalene(sv)	13,000	<330	<310	<330	<330	<340
Phenanthrene	50,000	<330	<310	<330	<330	<340
Pyrene	50,000	500	<310	<330	<330	<340

Sample ID & Sample Depth	B-1 12ft	B-2 12ft	B-3 12ft	B-5 12ft	B-6 12ft
Matrix	Soil	Soil	Soil	Soil	Soil
Sampling Date	5/10/2004	5/10/2004	5/10/2004	5/10/2004	5/10/2004

TOTAL PETROLEUM HYDROCARBONS (mg/kg)	NYSDEC Soil Cleanup Objectives (TAGM) (mg/Kg)	US EPA METHOD 8015 GC				
Petrol. Hydrocarbons	NE	150	3.5	160	6	1.1

Notes:

< = Analyte not detected above the Laboratory Reporting Limit (detection limit noted)
NYSDEC = New York State Department of Environmental Conservation
TAGM = Technical and Administrative Guidance Memorandum
NE = TAGM guidelines Not Established
Bold indicates analytes detected above the Laboratory Reporting Limit
Shaded indicated analytes detected above the TAGM guideline



EEA, Inc.

55 Hilton Avenue
Garden City, New York
(516) 746-4400

Figure 1: Site Location Plan
64-06 Queens Boulevard
Woodside, New York

Job No.: 04716

Drawn By: FI

Date: 5/28/04

V. RECOMMENDATIONS

There are no recommendations for additional site investigation or remedial corrective action for this property at this time based upon the information disclosed in our investigation.

VI. SAMPLING METHODOLOGY

a. Soil Sampling

Soil samples were obtained by utilizing a Geoprobe Model 54 LT utilizing the *Macrocore* soil sampling system. An organic vapor analysis was performed on all soil samples using a Thermo Environmental Instruments Inc. 580B photo-ionization detector (OVM). Generally, the sample producing the highest organic vapor reading was sent to the laboratory for analysis. If no reading was found, the sample was selected based upon visual analysis to be best representative of the location.

Soils at the site consisted of brown, fine to medium grained sand intermixed with gravel, stones and brick where fill material was encountered and brown, fine to medium grained sand and some silt where native material was encountered. Soil borings were advanced to a depth of 12 feet below grade and ground water was not encountered on-site.

b. Quality Assurance and Quality Control QA/QC Plan

EEA implements a QA/QC Plan to ensure sample integrity and avoid contamination and/or cross-contamination of samples. All sampling equipment is cleaned before each sample is collected. When petroleum hydrocarbon contamination is encountered, all equipment is steam-cleaned. The following procedures are followed in the decontamination process:

Step 1: Steam clean equipment.
Step 2: Scrub with a bristle brush using a non-phosphate detergent (such as Alconox).
Step 3: Rinse with hot tap water.
Step 4: Rinse twice with deionized water.
Step 5: Air dry.
Step 6 Nitric Acid (5%) solution rinse (if sampling for metals)
Step 7: Rinse twice with deionized water.
Step 8: Air dry.

VII QUALIFICATIONS

EEA, Inc. is an environmental consulting firm that has undertaken environmental pollution investigations, development feasibility studies, and environmental site assessment

studies since 1979. These site evaluation studies have been prepared for major lenders, public corporations, businesses, developers and governmental agencies. Approximately 4,000 parcels have been evaluated in the metropolitan New York-New Jersey area during the past twenty years, ranging from Phase I Environmental Site Assessments to comprehensive subsurface hazardous material investigations and testing programs. EEA also prepares bid specifications for remedial cleanup actions and supervises site cleanup.

EEA's principals and senior managers for the hazardous waste investigations each have over 20 years experience in environmental consulting, with established credentials in the field.

Individual qualifications of EEA personnel, including specific credentials of persons involved in the preparation of this report can be provided upon request.

VIII. DISCLAIMER

This report is for use by Mr. Simon Rothkrug of the Rothkrug, Rothkrug, Weinburg & Spector, and is only to be used as a guide in determining the potential for contamination by toxic or hazardous materials on the subject property at the time of the site visit. This Phase II Environmental Subsurface Investigation was undertaken in accordance with generally accepted protocols, including ASTM Standards Related to the Phase II Environmental Site Assessment Process. This Phase II Investigation is based principally on the review of historic and regulatory records (made available within a reasonable time period), relating to past occupants and usage of the subject property, as well as activities at nearby sites, and upon a visual assessment of the subject property, and makes no determinations with respect to portions of the subject property and its structures which were not inspected. Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable qualified professionals practicing in this or similar situations. The interpretation of the field data is based on good judgement and experience. However, no matter how qualified the professional or detailed the investigation, subsurface conditions cannot always be predicted beyond the points of actual sampling and testing. No other warranty, expressed or implied, is made to the professional advice included in this report.

Any and all liability on the part of EEA, Inc. shall be limited solely to EEA's professional liability insurance (errors and omissions coverage of one million dollars). EEA, Inc. shall have no liability for any other damages, whether consequential, compensatory, punitive, or special, arising out of, incidental to, or as a result of, this assessment. EEA, Inc. assumes no liability for the use of this report by any person or entity other than the institution and/or entities or persons for whom it has been prepared.

APPENDIX A

CHAIN-OF CUSTODY

ECO TEST LABORATORIES, INC. • ENVIRONMENTAL TESTING

177 Sheffield Avenue, North Babylon, New York 11703
(631) 422-5777 • FAX (631) 422-5770

CHAIN OF CUSTODY RECORD

Client: EEA Inc.
Address: 55 Hilton Avenue
Garden City NY 11530
Phone: 516 794-4490 FAX: 516 794-4499
Person receiving report: N. Perchia
Sampled by: AR
Source: Rod's Automotive
Job No.: EEA 04716

MATRIX (Soil, Water, Other)	COLLECTED DATE	COLLECTED TIME	SAMPLE IDENTIFICATION	TOTAL NUMBER OF CONTAINERS	TYPE & NUMBER OF CONTAINERS: USEPA 8021 (STARS)	USEPA 8270 (STARS)	TPHC 8015 (GC)	REMARKS-TESTS REQUIRED SPECIAL TURNAROUND, SPECIAL D.C. etc.
Soil	5/10/11	0945	B-1 12ft	1	✓	✓	✓	
Soil	5/10/11	0955	B-2 12ft	1	✓	✓	✓	
Soil	5/10/11	1005	B-3 12ft	1	✓	✓	✓	
Soil	5/10/11	1040	B-5 12ft	1	✓	✓	✓	
Soil	5/10/11	1050	B-6 12ft	1	✓	✓	✓	

Relinquished by: (Signature) Representing:	DATE/TIME 5/10 1720	SEAL INTACT? YES NO NA	Received by: (Signature) Representing:	Relinquished by: (Signature) Representing:	DATE/TIME	SEAL INTACT? YES NO NA	Received by: (Signature) Representing:
Relinquished by: (Signature) Representing:	DATE/TIME	SEAL INTACT? YES NO NA	Received by: (Signature) Representing:	Relinquished by: (Signature) Representing:	DATE/TIME	SEAL INTACT? YES NO NA	Received by: (Signature) Representing:

APPENDIX B

LABORATORY ANALYTICAL REPORT

EcoTest Laboratories, Inc.

377 Sheffield Avenus377 Sheffield Avenue
North Babylon, New York 11703
(631) 422-5777
Fax: (631) 422-5770

FAX TRANSMISSION COVER SHEET

Date: May 28, 2004

To: Fariha Islam

Fax:

Re: Rodi Automotive, EEA#04716
Lab No. 242008 (.01-.05)

Sender: Sophia Sparkes

YOU SHOULD RECEIVE 16 PAGE(S), INCLUDING THIS COVER SHEET.
IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL (631) 422-5777

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-6777 • FAX (631) 422-6770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.01 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0845
MATRIX:Soil SAMPLE: B-1 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Toluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Ethyl Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	10.869	EPA8021
o Xylene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Xylene	ug/Kg	< 16		05/12/04	16.304	EPA8021
Isopropylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Propylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
sec-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Naphthalene(v)	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
tert-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
% Solids		92		05/12/04	0.1	SM18#2540G

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19181 NYSDOH ID # 10320 Page 1 of 3

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-6777 • FAX (631) 422-6770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.01 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0845
MATRIX:Soil SAMPLE: B-1 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 330		05/13/04	326.08	EPA8270
Acenaphthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Fluorene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Phenanthrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Anthracene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Fluoranthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Pyrene	ug/Kg	500		05/13/04	326.08	EPA8270
Benzo(a)anthracene	ug/Kg	330		05/13/04	326.08	EPA8270
Chrysene	ug/Kg	350		05/13/04	326.08	EPA8270
Benzo(b)fluoranthene	ug/Kg	410	#*	05/13/04	326.08	EPA8270
Benzo(k)fluoranthene	ug/Kg	410	#*	05/13/04	326.08	EPA8270
Benzo(a)pyrene	ug/Kg	380	*	05/13/04	326.08	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 330	*	05/13/04	326.08	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 330	*	05/13/04	326.08	EPA8270
Benzo(ghi)perylene	ug/Kg	< 330	*	05/13/04	326.08	EPA8270

nd:

LRL=Laboratory Reporting Limit

REMARKS: #Total = 820 ug/Kg, unable to separate isomers.
*Estimated due to low internal standard recovery, %43%. Low recovery due to interference. QC limit is 50%.

DIRECTOR

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.01 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Bocchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0845
MATRIX:Soil SAMPLE: B-1 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Total Pet.Hydro.(GC)	mg/Kg	150		05/18/04	4.3478	EPA8015

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19103 NYSDOH ID # 10320 Page 3 of 3

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-8777 • FAX (631) 422-8770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.02 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Radi Automotive, CRA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0930
MATRIX:Soil SAMPLE: A-2 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Benzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Toluene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Ethyl Benzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
m + p Xylene	ug/Kg	< 10		05/12/04	10.416	EPA8021
o Xylene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Xylene	ug/Kg	< 16		05/12/04	15.625	EPA8021
Isopropylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
n-Propylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
sec-Butylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
n-Butylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Naphthalene(V)	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
tert-Butylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
% Solids		96		05/12/04	0.1	SM18#2540G

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19104 NYSDOH ID # 10320

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.02 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rudi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0930
MATRIX:Soil SAMPLE: B-2 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 310		05/13/04	312.5	EPA8270
Acenaphthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Fluorene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Phenanthrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Anthracene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Fluoranthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Pyrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(a)anthracene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Chrysene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(a)pyrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(ghi)perylene	ug/Kg	< 310		05/13/04	312.5	EPA8270

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.02 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, ERA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0930
MATRIX:Soil SAMPLE: B-7 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	3.5		05/18/04	0.4166	EPA8015

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19186 NYSDOH ID # 10320 Page 3 of 3

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-6777 • FAX (631) 422-6770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO. 242008.03 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530

ATTN: Nicholas Becchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, RHA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1000

MATRIX:Soil SAMPLE: B-3 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Toluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Ethyl Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	10.869	EPA8021
o Xylene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Xylene	ug/Kg	< 16		05/12/04	16.304	EPA8021
Isopropylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Propylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
sec-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Naphthalene(v)	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
tert-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
% Solids		92		05/12/04	0.1	SM1825400

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO. 242008.03 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, RRA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1000
MATRIX:Soil SAMPLE: B-9 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 330		05/13/04	326.08	EPA8270
Acenaphthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Fluorene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Phenanthrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Anthracene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Fluoranthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Pyrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(a)anthracene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Chrysene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(a)pyrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(ghi)perylene	ug/Kg	< 330		05/13/04	326.08	EPA8270

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rm = 19188 NYSDOH ID # 10320 Page 2 of 3

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.03 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Necchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1000
MATRIX:Soil SAMPLE: B-3 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	160		05/18/04	0.4347	EPA0015

no;

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rm = 19109 NYSDOH ID # 10320 Page 3 of 3

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.04 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1030
MATRIX:Soil SAMPLE: B-5 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Benzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Toluene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Ethyl Benzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	10.989	EPA8021
o Xylene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Xylene	ug/Kg	< 16		05/12/04	16.483	EPA8021
Isopropylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
n-Propylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
sec-Butylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
n-Butylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Naphthalene(v)	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
tert-Butylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
% Solids		91		05/12/04	0.1	SM182540G

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19190 NYSDOH ID # 10320 Page 1 of 3

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO. 242008.04 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1030
MATRIX:Soil SAMPLE: B-5 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 330		05/13/04	329.67	EPA8270
Acenaphthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Fluorene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Phenanthrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Anthracene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Fluoranthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Pyrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(a)anthracene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Chrysene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(a)pyrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(ghi)perylene	ug/Kg	< 330		05/13/04	329.67	EPA8270

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rm = 19191 NYSDOH ID # 10320

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-6777 • FAX (631) 422-6770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.04 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, ERA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1030
MATRIX:Soil SAMPLE: B-5 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	6.0		05/17/04	0.4395	EPA8015

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-8777 • FAX (631) 422-8770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008R.05 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, ERA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1100
MATRIX:Soil SAMPLE: A-6 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Benzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Toluene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Ethyl Benzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	11.235	EPA8021
o Xylene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Xylene	ug/Kg	< 17		05/12/04	16.853	EPA8021
Isopropylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
n-Propylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
sec-Butylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
n-Butylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Naphthalene(v)	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
tert-Butylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
% Solids		89		05/12/04	0.1	SM18D2540G

on:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19193 NYSDOH ID # 10320

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY						B - 2
REMARKS: Former UST area						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt 2"				

WATER LEVEL (IN OPEN BOREHOLE): Not established

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND and some stone and gravel (Fill).
5	S-2	4-8	0	Dry		Brown, fine grained SAND (Fill).
	*S-3	8-12	0	Dry		Brown, fine to coarse grained SAND and cobbles; GRAVEL (SP).
10						EOB @ 12 feet
15						
20						* soil sample collected for laboratory analysis
25						
30						

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04					SHEET 1 OF 1
CLIENT: Simon Rothkrug					LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY					B - 3
REMARKS: Former gasoline UST area (moved first location –refusal)					PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR	DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification	DRILL RIG
		Direct			DRILL METHOD
TYPE	MACROCORE	Push			GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42			
SURFACE ELEVATION: NA		Surface Materials: Asphalt 2"			
WATER LEVEL (IN OPEN BOREHOLE): Not established					

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND, some GRAVEL (Fill).
5	S-2	4-8	0	Dry		
	*S-3	8-12	0	Dry		Brown, fine to coarse grained SAND, some GRAVEL (SP).
10						EOB @ 12 feet
15						
20						
25						* soil sample collected for laboratory analysis
30						

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY						B - 4
REMARKS: Former gasoline UST area						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 54 MACROCORE
SIZE	2 Inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt				

WATER LEVEL (IN OPEN BOREHOLE): Not established

DEPTH (bg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to coarse SAND, some SILT.
5	S-2	4-8	0	Dry		Brown, fine grained SAND (SP). (Clean) No tank bed here
	S-3	8-12	0	Dry		Same as above,
10						
15						
20						
25						
30						EOB @ 12 feet

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
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Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.05 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Hodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1100
MATRIX:Soil SAMPLE: B-6 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 340		05/13/04	337.07	EPA8270
Acenaphthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Fluorene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Phenanthrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Anthracene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Fluoranthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Pyrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(a)anthracene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Chrysene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(a)pyrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(ghi)perylene	ug/Kg	< 340		05/13/04	337.07	EPA8270

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn - 1.9194 NYSDOH ID # 10320

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. N. BABYLON, N.Y. 11703 (631) 422-6777 FAX (631) 422-6770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.05 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1100
MATRIX:Soil SAMPLE: B-6 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	1.1		05/17/04	0.4494	EPA8015

on:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

tn = 19195 NYSDOH ID # 10320 Page 3 of 3

APPENDIX C

SOIL BORING LOG REPORTS

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-08 Queens Blvd., Woodside, NY						B - 1
REMARKS: Former gasoline tank USTs						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 54 MACROCORE
SIZE	2 Inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt				
WATER LEVEL (IN OPEN BOREHOLE): Not established						

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND, some GRAVEL and stone fill.
5	S-2	4-8	0	Dry		Brown, fine to medium grained SAND, little stone and GRAVEL (fill). (Former Tank Bed)
	*S-3	8-12	5	Dry		Brown, fine to medium SAND, little stone and GRAVEL (Fill). Brown, fine to coarse grained SAND and cobbles, stone and GRAVEL (SP)
10						EOB @ 12 feet
15						
20						* soil sample collected for laboratory analysis
25						
30						

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY						B - 5
REMARKS: Former gasoline UST area						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt				
WATER LEVEL (IN OPEN BOREHOLE): Not established						

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND, stones, red-brick, GRAVEL (Fill).
	S-2	4-8	0	Dry		
5						
	*S-3	8-12	0	Moist		Red-brown, fine grained SAND, SILT and some GRAVEL (SP).
10						
						EOB @ 12 feet
15						
20						
						* soil sample collected for laboratory analysis
25						
30						

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04					SHEET 1 OF 1
CLIENT: Simon Rothkrug					LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY					B - 6
REMARKS: Former gasoline tank areas & pump island					PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR	DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification	DRILL RIG
		Direct			DRILL METHOD
TYPE	MACROCORE	Push			GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42			
SURFACE ELEVATION: NA		Surface Materials: Asphalt			
WATER LEVEL (IN OPEN BOREHOLE): Not established					

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown-black, fine to coarse grained SAND, brick, GRAVEL and stone (Fill).
	S-2	4-8	0	Dry		Brown-red, fine SAND and SILT, little GRAVEL (SP).
5						
	*S-3	8-12	0	Moist		
10						
						EOB @ 12 feet
15						
20						
						* soil sample collected for laboratory analysis
25						
30						

APPENDIX D

SITE PHOTOGRAPHS

AUTO
PARTS
WAREHOUSE

PHASE I ENVIRONMENTAL SITE ASSESSMENT (ESA)

64-02/06 QUEENS BOULEVARD
WOODSIDE, QUEENS, NEW YORK 11377

PREPARED FOR

MONIR MANAGEMENT CORP.

PROJECT NO. M10288

MERRITT
Environmental
Consulting Corp.

77 Arkay Drive, Suite D, Hauppauge, NY 11788
(631) 617-6200, Fax. 631-617-6201

ALL APPROPRIATE INQUIRY (AAI)
PHASE I ENVIRONMENTAL SITE ASSESSMENT (ESA)

ASTM E1527-05

Site Address	64-02/06 Queens Boulevard Woodside, Queens, New York 11377
Prepared for	Monir Management Corp. 175 Great Neck Road Great Neck, New York 11021 Attn: Mr. Rafi Haghani
Prepared By	Merritt Environmental Consulting Corp. 77 Arkay Drive, Suite D Hauppauge, New York 11788 (631) 617-6200 www.merrittec.com
MECC Project No	Project M10288
Inspection Date	October 9, 2013
Summary Date	October 18, 2013
Final Report Date	October 24, 2013

4.1 EXECUTIVE SUMMARY

Merritt Environmental Consulting Corp. (MECC) was retained by Monir Management Corp. to conduct a Phase I Environmental Site Assessment (ESA) at 64-02/06 Queens Boulevard, Woodside, Queens, New York 11377.

The on site investigation was conducted on October 19, 2013.

Based on our site reconnaissance, database review and historical investigation, the following Recognized Environmental Conditions (RECs) were noted at the time of our inspection.

A Recognized Environmental Condition means the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substance or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under compliance with laws.

ITEM	
1	According to the historical sources reviewed, a Filling Station occupied the site during years 1932-1951. The Sanborn Map Three (3) gasoline tanks present during this time along the 64th Street portion of the building. Until additional information is obtained regarding the closure of the tanks /filling station, this constitutes a Recognized Environmental Condition (REC).

- **Research of the NYC Department of Buildings and our database review indicated that the subject property is an "E" designated site.**

  Lot 32, Tax Block 2325
  64-06 Queens Boulevard
  E-No. E-163
  Effective Date: 06/29/06
  Satisfaction date: Not Reported
  Description: Air Quality – HVAC fuel limited to natural gas, Underground Gasoline Storage Tanks* Testing Protocol, Window Wall Attenuation & Alternate Ventilation

  Lot 30, Tax Block 2325
  Queens Boulevard
  E-No. E-163
  Effective Date: 06/29/06
  Satisfaction date: Not Reported
  Description: Air Quality – HVAC fuel limited to natural gas, Underground Gasoline Storage Tanks* Testing Protocol, Window Wall Attenuation & Alternate Ventilation

The "E" designations would require that the fee owner of the site conduct a testing and sampling protocol and remediation where appropriate, to the satisfaction of the NYCOER before the issuance of a building permit by the Department of Buildings. Once approval is granted by the NYCOER, the work can be performed in accordance to required regulations in order to receive a notice of satisfaction.

Under the NYCOER E-designation program, a comprehensive environmental investigation must be conducted in accordance with receiving a NYCOER notice to proceed-notice of satisfaction. The scope of work required, may uncover additional sub-surface impacts not previously discovered or tested for (IE: pesticides/herbicides/metals).

MECC has not been informed of the future usage of the site. Therefore, we cannot comment on the time frame in which the "E" designation would need to be addressed.

The following de minimis conditions were noted but are not considered Recognized Environmental Conditions (RECs).

A de minimis condition is one that generally does not present a material risk of harm to public health or the environment and that generally would not be subject of an enforcement action if brought to the attention of appropriate governmental agencies (excluding local asbestos & lead situations).

ITEM	
1	The current tenant is an auto parts store. As part of their services, they accept used waste oil and antifreeze from customers. A manifest for the disposal of these products was not provided at the time of our inspection.

No Historical Recognized Environmental Conditions (HRECs) were reported. In addition no evidence of HRECs were observed during our on-site inspection/ identified in our database search/historical review.

A Historical Recognized Environmental Condition (HREC) is an environmental condition which in the past would have been considered a Recognized Environmental Condition (REC), but which may or may not be considered a recognized environmental condition currently. Such as a past release of any hazardous substances or petroleum products which has been remediated, with such remediation accepted by the responsible regulatory agency (for example, as evidenced by the issuance of a no further action letter or equivalent).

APPENDIX B

FIELD NOTES

6/30/14

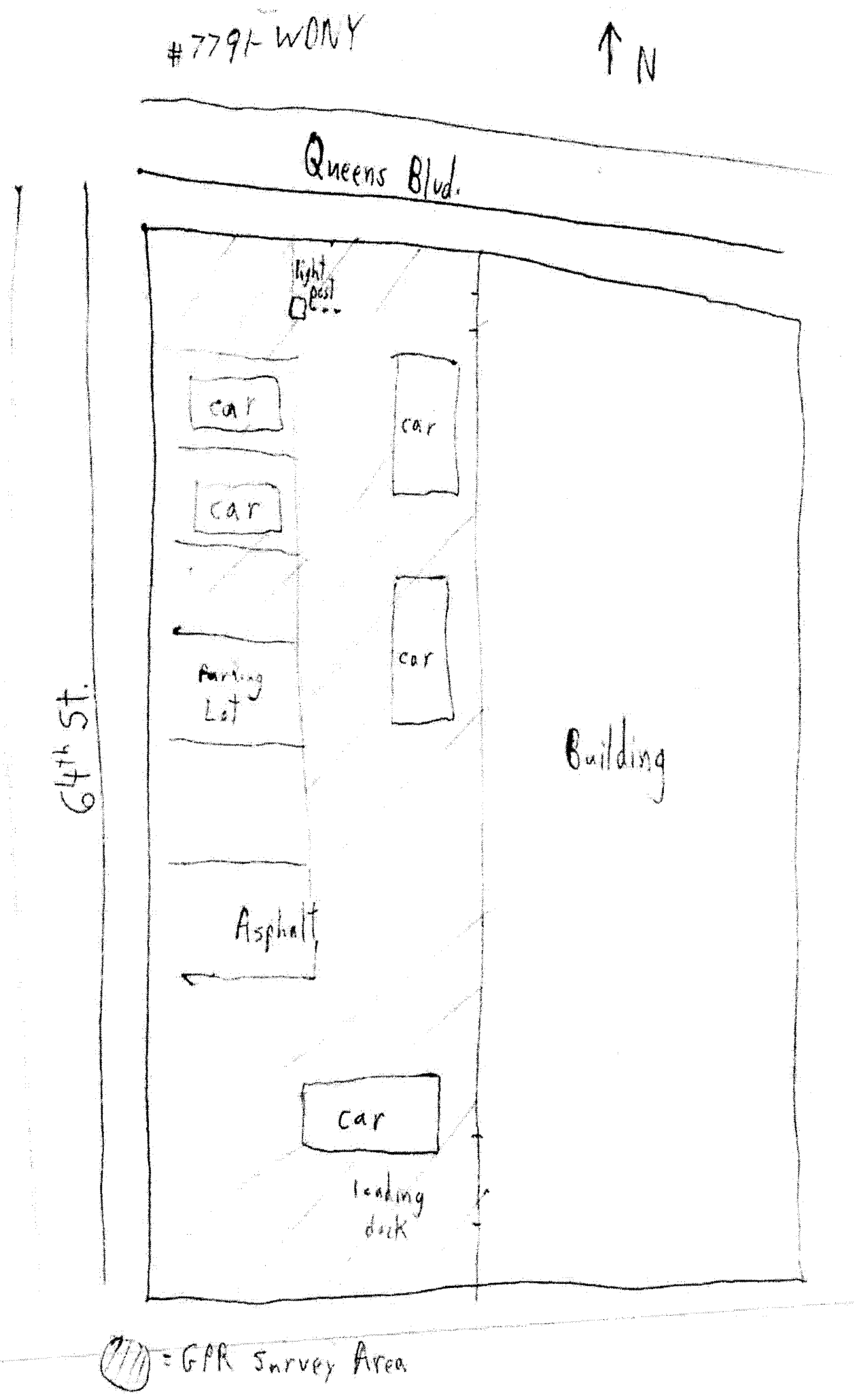
#7791-WDNY
64-02 Queens Blvd., Woodside, NY
GPR Survey
AutoBarn
Parking Lot

Area ≃ 5,000 SF
Depth ≃ 10 ft
Grid ≃ 5'x5'

Asphalt surface

Survey for possible UST's
No access inside building
No access to some locations due to cars.
One anomaly indicative of small diameter piping - typical conduit traced short distance East.
A few minor anomalies indicative of debris.
No anomalies indicative of UST's observed.
Some interference due to cord not working correctly.

#7791 WONY



= GPR Survey Area

APPENDIX C

SOIL BORING LOGS

Soil Boring Log

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

Project No: 7791-WDNY
Site: 64-02/06 Queens Boulevard, Woodside, NY
Client: Cathay Bank
Water Table Level: Not Encountered

Boring No: *SB-1*
Date Drilled: 8/14/14
Geologist: T. Young
J. Diamond

Depth (feet)	Description (Unified Soils Classification)	Sample Depth	PID (ppmv)	Inches of Recovery	Remarks
0	0.0-0.5': Asphalt, concrete		0.0		
	0.5-1.0': Dry, dark yellowish brown, med to	3	0.0		
1	coarse sands	to	0.0		
	1.0-1.8': Dry, brown, medium to very	5	0.0		
2	coarse sands mixed with gravel		0.0	42"	
	1.8-3.0': Dry, light brown, very fine grained		0.0		
3	sands mixed with silt and clay		0.0		
			1.5		
4	3.0-5.0': Dry, light to moderate brown,		0.0		
	medium sands mixed with clay and gravel		0.0		
5			0.0		No odor or staining.
	5.0-6.0': Dry, fall in from shallow depths		0.0		
6			0.0		
	6.0-6.5': Dry, black and white, med sand		0.0		
7			0.0		
	6.5-8.0': Dry, pale orange, coarse sands		0.0	42"	
8	mixed with large gravel		0.0		
			0.0		
9	8.0-10': Dry, light brown, fine to medium		0.0		
	sands mixed with clay		0.0		
10			0.0		No odor or staining.
	10.0-10.8': Dry, fall in from shallow depths		0.0		
11			0.0		
	10.8-11.5': Dry, brown, fine to medium		0.0		
12	sands mixed with silt		0.0		
			0.0	48"	
13	10.5-13.0': Dry, light brown, very fine sand		0.0		
	mixed with silt		0.0		
14	13.0-14.0': Dry, grayish-orange, medium		0.0		
	sands		0.0		
15	14-15': Dry, orange-brown, coarse sands		0.0		
			0.0		
16			0.0		
			0.0		
17			0.0		
			0.0	0"	Large rock lodged inside of sampler. No recovery.
18			0.0		
			0.0		
19			0.0		
			0.0		
20			0.0		End of boring approximately 20' bgs.

Rig Type: ***AMS Power Probe***
Driller: ***ACT - Jeff Diamond***

Reviewed by: ***Paul Stewart***
Sheet No: 1 of 1

Soil Boring Log

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

Project No:	7791-WDNY	**Boring No:**	***SB-2***
Site:	64-02/06 Queens Boulevard, Woodside, NY	**Date Drilled:**	8/15/14
Client:	Cathay Bank	**Geologist:**	T. Young
Water Table Level: Not Encountered			J. Diamond

Depth (feet)	Description (Unified Soils Classification)	Sample Depth	PID (ppmv)	Inches of Recovery	Remarks
0	0.0-0.5': Asphalt, concrete		0.0		
		3	0.0		
1	0.5-2.0': Dry, dark yellow-brown, medium	to	0.0		
	sands mixed with gravel	5	0.0		
2	2.0-2.7': Dry, dark yellow brown, medium		0.0	30"	
	to coarse sands mixed with silt and clay		0.0		
3			0.0		
	2.7-4.0': Dry, light brown, medium to fine		0.0		
4	sands mixed with gray clay		0.0		
			0.0		
5	4.0-4.5': Dry, fall in from shallower depth		0.0		No odor or staining.
	4.5-5.5': Dry, orange to light brown, very		0.0		
6	coarse sands		0.0		
			0.0		
7	5.5-6.5': Dry, yellow brown, medium sands		0.0		
	mixed with pebbles and trace silt		0.0	33.6"	
8			0.0		
	6.5-8.0': Dry, orange brown, medium to		0.0		
9	coarse sands mixed with silt		0.0		
			0.0		
10	8-12': Dry, moderate brown to gray,		0.0		No odor or staining.
	medium to coarse sands mixed with		0.0		
11	frequent gravel and pebbles		0.0		
			0.0		
12	12-13': Dry, light brown, medium to coarse		0.0		
	sands mixed with silt	12	0.0	7"	
13	13-13.3': Dry, brown to gray, medium to	to	0.0		
	coarse sands	14	0.0		
14	13.3-14': Dry, light brown, fine sands,		0.0		
	mixed with silt and clay		0.0		Large rock stuck in sampler.
15			0.0		End of boring approximately 14' bgs.

Rig Type: ***AMS Power Probe***	*Reviewed by:* ***Paul Stewart***
Driller: ***ACT - Jeff Diamond***	*Sheet No: 1 of 1*

Soil Boring Log

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

Project No: 7791-WDNY
Site: 64-02/06 Queens Boulevard, Woodside, NY
Client: Cathay Bank
Water Table Level: Not Encountered

Boring No: *SB-3*
Date Drilled: 8/14/14
Geologist: T. Young
J. Diamond

Depth (feet)	Description (Unified Soils Classification)	Sample Depth	PID (ppmv)	Inches of Recovery	Remarks
0	0.0-0.6': Asphalt		0.0		
	0.6-1.5': Dry, brown, medium grained	0	0.0		
1	sands mixed with gravel	to	0.0		
		4	0.0		
2	1.5-3.0': Dry, brown, medium to coarse		0.0	20.4"	
	sands mixed with silt and trace gravel		0.0		
3	3.0-4.2': Dry, brown to light brown, clay		0.0		
	mixed with coarse sands		1.5		
4	4.2-5.0': Dry, orange to light brown, coarse		0.0		
	sands mixed with frequent large gravel		0.0		
5			0.0		No odor or staining.
	5.0-6.5': Dry, light brown, fine to very fine		0.0		
6	sands mixed with silt		0.0		
	6.5-7.0': Dry, light brown, fine sands	5	0.0		
7	7.0-8.5': Dry, orange to dark yellow,	to	0.0		
	medium to coarse sands	8	0.0	39.6"	
8			0.0		
	8.5-10': Dry, light brown to dark yellow		0.0		
9	orange, fine sands mixed with clay and		0.0		
	gravel		0.0		
10			0.0		No odor or staining.
	10.0-12.2': Dry, light brown, coarse sands		0.0		
11	mixed with frequent gravel		0.0		
			0.0		
12	12.2-13.0': Dry, light brown to yellowish-		0.0		
	orange, fine to medium sands mixed with		0.0	48"	
13	silt		0.0		
	13-14': Dry, light brown, medium sands		0.0		
14	with silt and gravel		0.0		
	14-15': Dry, light brown, very fine sands		0.0		
15	mixed with clay		0.0		
			0.0		
16			0.0		
			0.0		
17	15-20': Dry, moderate yellowish-brown,	15	0.0		
	medium to coarse sands	to	0.0	Unknown	Interior liner stuck in sampler
18		20	0.0		
			0.0		
19			0.0		
			0.0		
20			0.0		End of boring approximately 20' bgs.

Rig Type: ***AMS Power Probe***
Driller: ***ACT - Jeff Diamond***

Reviewed by: ***Paul Stewart***
Sheet No: 1 of 1

APPENDIX D

LABORATORY REPORTS

Technical Report

prepared for:

Advanced Cleanup Technologies, Inc.
110 Main Street
Port Washington NY, 11050
Attention: Theresa Burkard

Report Date: 08/25/2014
Client Project ID: 7791-WDNY
York Project (SDG) No.: 14H0759

CT Cert. No. PH-0723 New Jersey Cert. No. CT-005 New York Cert. No. 10854 PA Cert. No. 68-04440

120 RESEARCH DRIVE STRATFORD, CT 06615 (203) 325-1371 FAX (203) 357-0166

Report Date: 08/25/2014
Client Project ID: 7791-WDNY
York Project (SDG) No.: 14H0759

Advanced Cleanup Technologies, Inc.
110 Main Street
Port Washington NY, 11050
Attention: Theresa Burkard

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on August 19, 2014 and listed below. The project was identified as your project: **7791-WDNY**.

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Notes section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the attachment to this report, and case narrative if applicable.

The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

York Sample ID	Client Sample ID	Matrix	Date Collected	Date Received
14H0759-01	SV-1	Air	08/15/2014	08/19/2014
14H0759-02	SV-2	Air	08/15/2014	08/19/2014

General Notes for York Project (SDG) No.: 14H0759

1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All samples were received in proper condition for analysis with proper documentation, unless otherwise noted.
6. All analyses conducted met method or Laboratory SOP requirements. See the Qualifiers and/or Narrative sections for further information.
7. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
8. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.

Approved By: **Date:** 08/25/2014

Benjamin Gulizia
Laboratory Director

YORK

Sample Information

Client Sample ID: SV-1 **York Sample ID:** 14H0759-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0759	7791-WDNY	Air	August 15, 2014 3:00 pm	08/19/2014

Volatile Organics, EPA TO15 Full List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
75-01-4	Vinyl Chloride	ND		ug/m³	2.5	2.5	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
108-05-4	Vinyl acetate	ND		ug/m³	7.0	7.0	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
79-01-6	Trichloroethylene	ND		ug/m³	2.7	2.7	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/m³	9.0	9.0	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
156-60-5	trans-1,2-Dichloroethylene	ND		ug/m³	7.8	7.8	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
108-88-3	Toluene	29		ug/m³	7.4	7.4	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
109-99-9	Tetrahydrofuran	ND		ug/m³	5.8	5.8	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
127-18-4	Tetrachloroethylene	220		ug/m³	3.4	3.4	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
100-42-5	Styrene	ND		ug/m³	8.4	8.4	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
115-07-1	Propylene	ND		ug/m³	3.4	3.4	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
622-96-8	p-Ethyltoluene	17		ug/m³	9.7	9.7	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
179601-23-1	p- & m- Xylenes	41		ug/m³	17	17	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
95-47-6	o-Xylene	12		ug/m³	8.6	8.6	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
110-54-3	n-Hexane	ND		ug/m³	7.0	7.0	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
142-82-5	n-Heptane	8.9		ug/m³	8.1	8.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-09-2	Methylene chloride	17		ug/m³	14	14	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m³	7.1	7.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
108-10-1	4-Methyl-2-pentanone	ND		ug/m³	8.1	8.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
67-63-0	Isopropanol	12		ug/m³	9.7	9.7	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
87-68-3	Hexachlorobutadiene	ND		ug/m³	21	21	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
100-41-4	Ethyl Benzene	10		ug/m³	8.6	8.6	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
141-78-6	Ethyl acetate	ND		ug/m³	14	14	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
110-82-7	Cyclohexane	ND		ug/m³	6.8	6.8	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/m³	9.0	9.0	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
156-59-2	cis-1,2-Dichloroethylene	ND		ug/m³	7.8	7.8	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
74-87-3	Chloromethane	ND		ug/m³	4.1	4.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
67-66-3	Chloroform	ND		ug/m³	9.6	9.6	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-00-3	Chloroethane	ND		ug/m³	5.2	5.2	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
56-23-5	Carbon tetrachloride	ND		ug/m³	3.1	3.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-15-0	Carbon disulfide	ND		ug/m³	6.2	6.2	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
74-83-9	Bromomethane	ND		ug/m³	7.7	7.7	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-25-2	Bromoform	ND		ug/m³	20	20	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-27-4	Bromodichloromethane	ND		ug/m³	12	12	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD

Sample Information

Client Sample ID: SV-1 **York Sample ID:** 14H0759-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0759	7791-WDNY	Air	August 15, 2014 3:00 pm	08/19/2014

Volatile Organics, EPA TO15 Full List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
100-44-7	Benzyl chloride	ND		ug/m³	10	10	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
71-43-2	Benzene	ND		ug/m³	6.3	6.3	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
67-64-1	Acetone	1500		ug/m³	4.7	4.7	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
591-78-6	2-Hexanone	ND		ug/m³	16	16	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
78-93-3	2-Butanone	60		ug/m³	5.8	5.8	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
123-91-1	1,4-Dioxane	ND		ug/m³	7.1	7.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
106-46-7	1,4-Dichlorobenzene	ND		ug/m³	12	12	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
541-73-1	1,3-Dichlorobenzene	ND		ug/m³	12	12	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
106-99-0	1,3-Butadiene	ND		ug/m³	8.6	8.6	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
108-67-8	1,3,5-Trimethylbenzene	ND		ug/m³	9.7	9.7	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m³	14	14	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
78-87-5	1,2-Dichloropropane	ND		ug/m³	9.1	9.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
107-06-2	1,2-Dichloroethane	ND		ug/m³	8.0	8.0	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
95-50-1	1,2-Dichlorobenzene	ND		ug/m³	12	12	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
95-63-6	1,2,4-Trimethylbenzene	17		ug/m³	9.7	9.7	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
120-82-1	1,2,4-Trichlorobenzene	ND		ug/m³	15	15	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-35-4	1,1-Dichloroethylene	ND		ug/m³	7.8	7.8	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-34-3	1,1-Dichloroethane	ND		ug/m³	8.0	8.0	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-69-4	Trichlorofluoromethane (Freon 11)	ND		ug/m³	11	11	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
79-00-5	1,1,2-Trichloroethane	ND		ug/m³	11	11	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 113	ND		ug/m³	15	15	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/m³	14	14	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
71-55-6	1,1,1-Trichloroethane	ND		ug/m³	11	11	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-71-8	Dichlorodifluoromethane	13		ug/m³	9.8	9.8	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
106-93-4	1,2-Dibromoethane	ND		ug/m³	15	15	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
124-48-1	Dibromochloromethane	ND		ug/m³	16	16	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
80-62-6	Methyl Methacrylate	ND		ug/m³	8.1	8.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
108-90-7	Chlorobenzene	ND		ug/m³	9.1	9.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
	Surrogate Recoveries	**Result**			**Acceptance Range**						
460-00-4	*Surrogate: p-Bromofluorobenzene*	*96.6 %*			*72-118*						

Sample Information

Client Sample ID: SV-2 **York Sample ID:** 14H0759-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0759	7791-WDNY	Air	August 15, 2014 3:00 pm	08/19/2014

Volatile Organics, EPA TO15 Full List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
75-01-4	Vinyl Chloride	ND		ug/m³	2.4	2.4	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
108-05-4	Vinyl acetate	ND		ug/m³	6.6	6.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
79-01-6	Trichloroethylene	12		ug/m³	2.5	2.5	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/m³	8.5	8.5	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
156-60-5	trans-1,2-Dichloroethylene	ND		ug/m³	7.4	7.4	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
108-88-3	Toluene	26		ug/m³	7.0	7.0	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
109-99-9	Tetrahydrofuran	ND		ug/m³	5.5	5.5	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
127-18-4	Tetrachloroethylene	460		ug/m³	3.2	3.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
100-42-5	Styrene	ND		ug/m³	8.0	8.0	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
115-07-1	Propylene	ND		ug/m³	3.2	3.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
622-96-8	p-Ethyltoluene	14		ug/m³	9.2	9.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
179601-23-1	p- & m- Xylenes	32		ug/m³	16	16	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
95-47-6	o-Xylene	9.7		ug/m³	8.1	8.1	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
110-54-3	n-Hexane	28		ug/m³	6.6	6.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
142-82-5	n-Heptane	ND		ug/m³	7.7	7.7	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-09-2	Methylene chloride	67		ug/m³	13	13	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m³	6.7	6.7	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
108-10-1	4-Methyl-2-pentanone	ND		ug/m³	7.6	7.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
67-63-0	Isopropanol	9.6		ug/m³	9.2	9.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
87-68-3	Hexachlorobutadiene	ND		ug/m³	20	20	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
100-41-4	Ethyl Benzene	8.1		ug/m³	8.1	8.1	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
141-78-6	Ethyl acetate	ND		ug/m³	13	13	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
110-82-7	Cyclohexane	ND		ug/m³	6.4	6.4	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/m³	8.5	8.5	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
156-59-2	cis-1,2-Dichloroethylene	ND		ug/m³	7.4	7.4	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
74-87-3	Chloromethane	ND		ug/m³	3.9	3.9	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
67-66-3	Chloroform	10		ug/m³	9.1	9.1	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-00-3	Chloroethane	ND		ug/m³	4.9	4.9	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
56-23-5	Carbon tetrachloride	ND		ug/m³	2.9	2.9	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-15-0	Carbon disulfide	ND		ug/m³	5.8	5.8	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
74-83-9	Bromomethane	ND		ug/m³	7.2	7.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-25-2	Bromoform	ND		ug/m³	19	19	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-27-4	Bromodichloromethane	ND		ug/m³	12	12	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD

Sample Information

Client Sample ID: SV-2 **York Sample ID:** 14H0759-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0759	7791-WDNY	Air	August 15, 2014 3:00 pm	08/19/2014

Volatile Organics, EPA TO15 Full List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
100-44-7	Benzyl chloride	ND		ug/m³	9.7	9.7	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
71-43-2	Benzene	ND		ug/m³	6.0	6.0	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
67-64-1	Acetone	2200		ug/m³	8.9	8.9	37.34	EPA TO-15	08/22/2014 13:36	08/23/2014 21:22	ALD
591-78-6	2-Hexanone	ND		ug/m³	15	15	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
78-93-3	2-Butanone	73		ug/m³	5.5	5.5	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
123-91-1	1,4-Dioxane	ND		ug/m³	6.7	6.7	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
106-46-7	1,4-Dichlorobenzene	ND		ug/m³	11	11	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
541-73-1	1,3-Dichlorobenzene	ND		ug/m³	11	11	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
106-99-0	1,3-Butadiene	ND		ug/m³	8.1	8.1	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
108-67-8	1,3,5-Trimethylbenzene	ND		ug/m³	9.2	9.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m³	13	13	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
78-87-5	1,2-Dichloropropane	ND		ug/m³	8.6	8.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
107-06-2	1,2-Dichloroethane	ND		ug/m³	7.6	7.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
95-50-1	1,2-Dichlorobenzene	ND		ug/m³	11	11	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
95-63-6	1,2,4-Trimethylbenzene	17		ug/m³	9.2	9.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
120-82-1	1,2,4-Trichlorobenzene	ND		ug/m³	14	14	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-35-4	1,1-Dichloroethylene	ND		ug/m³	7.4	7.4	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-34-3	1,1-Dichloroethane	ND		ug/m³	7.6	7.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-69-4	Trichlorofluoromethane (Freon 11)	ND		ug/m³	10	10	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
79-00-5	1,1,2-Trichloroethane	ND		ug/m³	10	10	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/m³	14	14	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/m³	13	13	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
71-55-6	1,1,1-Trichloroethane	ND		ug/m³	10	10	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-71-8	Dichlorodifluoromethane	ND		ug/m³	9.2	9.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
106-93-4	1,2-Dibromoethane	ND		ug/m³	14	14	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
124-48-1	Dibromochloromethane	350		ug/m³	15	15	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
80-62-6	Methyl Methacrylate	ND		ug/m³	7.6	7.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
108-90-7	Chlorobenzene	ND		ug/m³	8.6	8.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
	Surrogate Recoveries	**Result**			**Acceptance Range**						
460-00-4	*Surrogate: p-Bromofluorobenzene*	*95.7 %*			*72-118*						

Notes and Definitions

QL-03 This LCS analyte recovered outside of acceptance limits. The LCS contains approximately 70 compounds, a limited number of which may be outside acceptance windows.

ND Analyte NOT DETECTED at the stated Reporting Limit (RL) or above.

RL REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.

MDL METHOD DETECTION LIMIT - the minimum concentration that can be measured and reported with a 99% confidence that the concentration is greater than zero. If requested or required, a value reported below the RL and above the MDL is considered estimated and is noted with a "J" flag.

NR Not reported

RPD Relative Percent Difference

Wet The data has been reported on an as-received (wet weight) basis

Low Bias Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.

High Bias High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.

Non-Dir. Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

If EPA SW-846 method 8270 is included herein it is noted that the target compound N-nitrosodiphenylamine (NDPA) decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine (DPA). These results could actually represent 100% DPA, 100% NDPA or some combination of the two. For this reason, York reports the combined result for n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration as Diphenylamine.

If Total PCBs are detected and the target aroclors reported are "Not detected", the Total PCB value is reported due to the presence of either or both Aroclors 1262 and 1268 which are non-target aroclors for some regulatory lists.

2-chloroethylvinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

Certification for pH is no longer offered by NYDOH ELAP.

Semi-Volatile and Volatile analyses are reported down to the MDL, with values between the MDL and the RL being "J" flagged as estimated results.

YORK
ANALYTICAL LABORATORIES, INC.
120 RESEARCH DR. STRATFORD, CT 06615
(203) 325-1371 FAX (203) 357-0166

Field Chain-of-Custody Record - AIR

NOTE: York's Std. Terms & Conditions are listed on the back side of this document.
This document serves as your written authorization to York to proceed with the analyses requested and your signature binds you to York's Std. Terms & Conditions unless superseded by written contract.

York Project No. 14H6759

YOUR Information	Report To:	Invoice To:	YOUR Project ID	Turn-Around Time	Report Type/Deliverables
Company: Advanced Chemical Tech	Company: SAME	Company:	7791-WDNY	RUSH - Same Day ☐	Summary Report X
Address: 10 Rt 60 E. Suite 108 Ramapo, NY 10950	Address: SAME	Address: SAME		RUSH - Next Day ☐	Summary w/ QA Summary ☐
Phone No: 516-447-5200	Phone No: 516-681-5200 x165	Phone No: SAME	Purchase Order No.	RUSH - Two Day ☐	CT RCP Package ☐
Contact Person: Jeff Dimond	Attention: Theresa Buckland	Attention: Karen Eschbach	7791/WDNY	RUSH - Three Day ☐	NY ASP A Package ☐
E-Mail Address: Jeff@ACTenviros.com	E-Mail Address: TBuckland@ACTenviros.com	E-Mail Address:	Samples from: CT__ NY X NJ__	RUSH - Four Day ☐	NY ASP B/CLP Pkg ☐
				Standard (5-7 Days) X	NJDEP Reduced ☐
					Electronic Deliverables:
					EDD (Specify Type) ☐
					Standard Excel ☐
					Regulatory Comparison Excel ☐

Print Clearly and Legibly. All information must be completed. Samples will not be logged in and turn-around time clock will not begin until any questions by York are resolved.

Tim Young
Samples Collected/Authorized By (Signature)

Tim Young
Name (Printed)

Air Matrix Codes

- AI- INDOOR Ambient Air
- AO- OUTDOOR Amb. Air
- AE- Vapor Extraction Well/ Process Gas/Effluent
- AS- SOIL Vapor/Sub-Slab

TO15 Volatiles and Other Gas Analyses

EPA TO-15 List	EPA TO-14A List
NYSDEC VI list	Tentatively Identified Compounds
NYSDEC STARS List	Air VPH
Project Specific List by TO-15	Helium
NJDEP Target List	Methane
CTDEP RCP Target List	OTHER

Detection Limits Required

- ≤ 1 ug/m³ ☐
- NYSDEC VI Limits X (VI target compounds)
- NJDEP low level ☐
- Routine Survey ☐
- Other ☐

Special Instructions

Sample Identification	Date Sampled	AIR Matrix	Canister Vacuum Before Sampling (in. Hg)	Canister Vacuum After Sampling (in. Hg)	Choose Analyses Needed from the Menu Above and Enter Below	Sampling Media
SV-1	8/15/14	AS	-30" Hg	-4" Hg	TO-15	6 Liter Summa canister X / Tedlar Bag
SV-2	8/15/14	AS	-30" Hg	-5" Hg	TO-15	6 Liter Summa canister X / Tedlar Bag
						6 Liter Summa canister ☐ / Tedlar Bag
						6 Liter Summa canister ☐ / Tedlar Bag
						6 Liter Summa canister ☐ / Tedlar Bag
						6 Liter Summa canister ☐ / Tedlar Bag
						6 Liter Summa canister ☐ / Tedlar Bag
						6 Liter Summa canister ☐ / Tedlar Bag
						6 Liter Summa canister ☐ / Tedlar Bag
						6 Liter Summa canister ☐ / Tedlar Bag

Comments

Samples Relinquished By: [signature] Date/Time: 8/19/14 1020 hr

Samples Relinquished By: Date/Time:

Samples Received By: [signature] Date/Time: 8/19/14 1015 AM

Samples Received in LAB By: [signature] Date/Time: 8/19/14 1745

Technical Report

prepared for:

Advanced Cleanup Technologies, Inc.
110 Main Street
Port Washington NY, 11050
Attention: Theresa Burkard

Report Date: 08/26/2014
Client Project ID: 7791-WDNY
York Project (SDG) No.: 14H0833

CT Cert. No. PH-0723 New Jersey Cert. No. CT-005 New York Cert. No. 10854 PA Cert. No. 68-04440

120 RESEARCH DRIVE STRATFORD, CT 06615 (203) 325-1371 FAX (203) 357-0166

Report Date: 08/26/2014
Client Project ID: 7791-WDNY
York Project (SDG) No.: 14H0833

Advanced Cleanup Technologies, Inc.
110 Main Street
Port Washington NY, 11050
Attention: Theresa Burkard

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on August 19, 2014 and listed below. The project was identified as your project: **7791-WDNY.**

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Notes section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the attachment to this report, and case narrative if applicable.

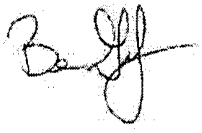
The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

York Sample ID	Client Sample ID	Matrix	Date Collected	Date Received
14H0833-01	SB1 (3-5)	Soil	08/14/2014	08/19/2014
14H0833-02	SB3 (5-8)	Soil	08/14/2014	08/19/2014
14H0833-03	SB3 (15-20)	Soil	08/14/2014	08/19/2014
14H0833-04	SB2 (3-5)	Soil	08/15/2014	08/19/2014
14H0833-05	SB2 (12-14)	Soil	08/15/2014	08/19/2014
14H0833-06	SB3 (0-4)	Soil	08/15/2014	08/19/2014

General Notes for York Project (SDG) No.: 14H0833

1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All samples were received in proper condition for analysis with proper documentation, unless otherwise noted.
6. All analyses conducted met method or Laboratory SOP requirements. See the Qualifiers and/or Narrative sections for further information.
7. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
8. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.

Approved By: 

Date: 08/26/2014

Benjamin Gulizia
Laboratory Director

YORK

Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 11)	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
95-63-6	1,2,4-Trimethylbenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
108-67-8	1,3,5-Trimethylbenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
123-91-1	1,4-Dioxane	ND		ug/kg dry	41	83	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
78-93-3	2-Butanone	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
67-64-1	Acetone	13	CCV-E, B	ug/kg dry	2.1	8.3	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
107-02-8	Acrolein	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
107-13-1	Acrylonitrile	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
71-43-2	Benzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-25-2	Bromoform	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS

Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
75-00-3	Chloroethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
67-66-3	Chloroform	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
74-95-3	Dibromomethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
98-82-8	Isopropylbenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
79-20-9	Methyl acetate	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-09-2	Methylene chloride	7.2	J	ug/kg dry	2.1	8.3	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
104-51-8	n-Butylbenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
103-65-1	n-Propylbenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
95-47-6	o-Xylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
179601-23-1	p- & m- Xylenes	ND		ug/kg dry	4.1	8.3	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
99-87-6	p-Isopropyltoluene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
135-98-8	sec-Butylbenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
100-42-5	Styrene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
98-06-6	tert-Butylbenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
108-88-3	Toluene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
1330-20-7	Xylenes, Total	ND		ug/kg dry	6.2	12	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS

Surrogate Recoveries	Result	Acceptance Range

Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
17060-07-0	*Surrogate: 1,2-Dichloroethane-d4*	*104 %*			*67-130*						
460-00-4	*Surrogate: p-Bromofluorobenzene*	*96.8 %*			*75-127*						
2037-26-5	*Surrogate: Toluene-d8*	*112 %*			*90-112*						

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
83-32-9	Acenaphthene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
208-96-8	Acenaphthylene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
98-86-2	Acetophenone	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
62-53-3	Aniline	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
120-12-7	Anthracene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
1912-24-9	Atrazine	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
100-52-7	Benzaldehyde	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
92-87-5	Benzidine	ND		ug/kg dry	182	362	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
56-55-3	Benzo(a)anthracene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
50-32-8	Benzo(a)pyrene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
205-99-2	Benzo(b)fluoranthene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
191-24-2	Benzo(g,h,i)perylene	ND	ISTD-LO	ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
65-85-0	Benzoic acid	ND		ug/kg dry	124	363	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
207-08-9	Benzo(k)fluoranthene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
100-51-6	Benzyl alcohol	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
92-52-4	1,1'-Biphenyl	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
105-60-2	Caprolactam	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
86-74-8	Carbazole	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
106-47-8	4-Chloroaniline	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH

Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
95-57-8	2-Chlorophenol	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
218-01-9	Chrysene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
53-70-3	Dibenzo(a,h)anthracene	ND	ISTD-LO	ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
132-64-9	Dibenzofuran	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	182	362	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
84-66-2	Diethyl phthalate	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
131-11-3	Dimethyl phthalate	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	182	363	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
122-66-7	1,2-Diphenylhydrazine (as Azobenzene)	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
117-81-7	Bis(2-ethylhexyl)phthalate	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
206-44-0	Fluoranthene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
86-73-7	Fluorene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
118-74-1	Hexachlorobenzene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
67-72-1	Hexachloroethane	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
193-39-5	Indeno(1,2,3-cd)pyrene	ND	ISTD-LO	ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
78-59-1	Isophorone	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
95-48-7	2-Methylphenol	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH

Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
65794-96-9	3- & 4-Methylphenols	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
91-20-3	Naphthalene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
100-01-6	4-Nitroaniline	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
88-74-4	2-Nitroaniline	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
99-09-2	3-Nitroaniline	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
98-95-3	Nitrobenzene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
88-75-5	2-Nitrophenol	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
100-02-7	4-Nitrophenol	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
62-75-9	N-Nitrosodimethylamine	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
87-86-5	Pentachlorophenol	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
85-01-8	Phenanthrene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
108-95-2	Phenol	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
129-00-0	Pyrene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
95-94-3	1,2,4,5-Tetrachlorobenzene	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH

	Surrogate Recoveries	Result	Acceptance Range
367-12-4	*Surrogate: 2-Fluorophenol*	*53.9 %*	*10-105*
4165-62-2	*Surrogate: Phenol-d5*	*62.4 %*	*10-118*
4165-60-0	*Surrogate: Nitrobenzene-d5*	*47.7 %*	*10-140*
321-60-8	*Surrogate: 2-Fluorobiphenyl*	*51.8 %*	*10-126*
118-79-6	*Surrogate: 2,4,6-Tribromophenol*	*64.9 %*	*10-150*
1718-51-0	*Surrogate: Terphenyl-d14*	*57.9 %*	*10-137*

Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Pesticides/PCBs, EPA TCL List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
8001-35-2	Toxaphene	ND		ug/kg dry	90.9	90.9	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
72-43-5	Methoxychlor	ND		ug/kg dry	8.98	8.98	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
1024-57-3	Heptachlor epoxide	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
76-44-8	Heptachlor	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
58-89-9	gamma-BHC (Lindane)	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
53494-70-5	Endrin ketone	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
7421-93-4	Endrin aldehyde	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
72-20-8	Endrin	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
1031-07-8	Endosulfan sulfate	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
33213-65-9	Endosulfan II	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
959-98-8	Endosulfan I	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
60-57-1	Dieldrin	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
319-86-8	delta-BHC	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
57-74-9	Chlordane, total	ND		ug/kg dry	7.18	7.18	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
319-85-7	beta-BHC	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
319-84-6	alpha-BHC	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
309-00-2	Aldrin	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
50-29-3	4,4'-DDT	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
72-55-9	4,4'-DDE	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
72-54-8	4,4'-DDD	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
11096-82-5	Aroclor 1260	ND		ug/kg dry	18.5	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC
11097-69-1	Aroclor 1254	ND		ug/kg dry	18.5	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC
12672-29-6	Aroclor 1248	ND		ug/kg dry	18.5	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC
53469-21-9	Aroclor 1242	ND		ug/kg dry	18.5	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC
11141-16-5	Aroclor 1232	ND		ug/kg dry	18.5	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC
11104-28-2	Aroclor 1221	ND		ug/kg dry	18.5	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC
12674-11-2	Aroclor 1016	ND		ug/kg dry	18.5	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC
1336-36-3	Total PCBs	ND		ug/kg dry	7.40	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC

	Surrogate Recoveries	Result	Acceptance Range
877-09-8	*Surrogate: Tetrachloro-m-xylene*	*81.0 %*	*30-140*
2051-24-3	*Surrogate: Decachlorobiphenyl*	*57.0 %*	*30-140*

Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Metals, Target Analyte

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	11100		mg/kg dry	1.09	1.09	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-36-0	Antimony	ND		mg/kg dry	0.544	0.544	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-38-2	Arsenic	3.03		mg/kg dry	1.09	1.09	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-39-3	Barium	36.1		mg/kg dry	1.09	1.09	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.109	0.109	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-43-9	Cadmium	ND		mg/kg dry	0.326	0.326	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-70-2	Calcium	1450		mg/kg dry	0.544	5.44	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-47-3	Chromium	18.5		mg/kg dry	0.544	0.544	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-48-4	Cobalt	7.30		mg/kg dry	0.544	0.544	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-50-8	Copper	12.2		mg/kg dry	0.544	0.544	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7439-89-6	Iron	16400		mg/kg dry	2.18	2.18	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7439-92-1	Lead	9.80		mg/kg dry	0.326	0.326	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7439-95-4	Magnesium	3080		mg/kg dry	5.44	5.44	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7439-96-5	Manganese	247		mg/kg dry	0.544	0.544	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-02-0	Nickel	17.4		mg/kg dry	0.544	0.544	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-09-7	Potassium	824		mg/kg dry	5.44	5.44	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7782-49-2	Selenium	1.22		mg/kg dry	1.09	1.09	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-22-4	Silver	ND		mg/kg dry	0.544	0.544	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-23-5	Sodium	212		mg/kg dry	10.9	10.9	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-28-0	Thallium	ND		mg/kg dry	1.09	1.09	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-62-2	Vanadium	26.3		mg/kg dry	1.09	1.09	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-66-6	Zinc	31.1		mg/kg dry	1.09	1.09	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW

Mercury by 7473

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 7473 soil

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	ND		mg/kg dry	0.0326	0.0326	1	EPA 7473	08/22/2014 06:55	08/22/2014 08:20	ALD

Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids Prep

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
solids	% Solids	91.9		%	0.100	0.100	1	SM 2540G	08/25/2014 11:13	08/25/2014 16:13	KK

Sample Information

Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 113	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
95-63-6	1,2,4-Trimethylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
108-67-8	1,3,5-Trimethylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
123-91-1	1,4-Dioxane	ND		ug/kg dry	54	110	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
78-93-3	2-Butanone	5.0	J	ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
67-64-1	Acetone	62	CCV-E, B	ug/kg dry	2.7	11	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS

Sample Information

Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
107-02-8	Acrolein	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
107-13-1	Acrylonitrile	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
71-43-2	Benzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-25-2	Bromoform	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
67-66-3	Chloroform	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
74-95-3	Dibromomethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
98-82-8	Isopropylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
79-20-9	Methyl acetate	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-09-2	Methylene chloride	5.7	J	ug/kg dry	2.7	11	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
104-51-8	n-Butylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
103-65-1	n-Propylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
95-47-6	o-Xylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
179601-23-1	p- & m- Xylenes	ND		ug/kg dry	5.4	11	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
99-87-6	p-Isopropyltoluene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
135-98-8	sec-Butylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
100-42-5	Styrene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-65-0	tert-Butyl alcohol (TBA)	25		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
98-06-6	tert-Butylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS

Sample Information

Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
127-18-4	Tetrachloroethylene	13		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
108-88-3	Toluene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
1330-20-7	Xylenes, Total	ND		ug/kg dry	8.0	16	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS

	Surrogate Recoveries	Result		Acceptance Range
17060-07-0	*Surrogate: 1,2-Dichloroethane-d4*	*110 %*		*67-130*
460-00-4	*Surrogate: p-Bromofluorobenzene*	*100 %*		*75-127*
2037-26-5	*Surrogate: Toluene-d8*	*116 %*	*S-08*	*90-112*

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
83-32-9	Acenaphthene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
208-96-8	Acenaphthylene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
98-86-2	Acetophenone	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
62-53-3	Aniline	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
120-12-7	Anthracene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
1912-24-9	Atrazine	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
100-52-7	Benzaldehyde	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
92-87-5	Benzidine	ND		ug/kg dry	175	350	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
56-55-3	Benzo(a)anthracene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
50-32-8	Benzo(a)pyrene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
205-99-2	Benzo(b)fluoranthene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
191-24-2	Benzo(g,h,i)perylene	ND	ISTD-L O	ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
65-85-0	Benzoic acid	ND		ug/kg dry	120	350	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
207-08-9	Benzo(k)fluoranthene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
100-51-6	Benzyl alcohol	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
92-52-4	1,1'-Biphenyl	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH

Sample Information

Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
105-60-2	Caprolactam	62.7	J	ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
86-74-8	Carbazole	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
106-47-8	4-Chloroaniline	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
95-57-8	2-Chlorophenol	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
218-01-9	Chrysene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
53-70-3	Dibenzo(a,h)anthracene	ND	ISTD-LO	ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
132-64-9	Dibenzofuran	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	175	350	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
84-66-2	Diethyl phthalate	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
131-11-3	Dimethyl phthalate	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	175	350	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
122-66-7	1,2-Diphenylhydrazine (as Azobenzene)	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
117-81-7	Bis(2-ethylhexyl)phthalate	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
206-44-0	Fluoranthene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
86-73-7	Fluorene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
118-74-1	Hexachlorobenzene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH

Sample Information

Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
67-72-1	Hexachloroethane	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
193-39-5	Indeno(1,2,3-cd)pyrene	ND	ISTD-L0	ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
78-59-1	Isophorone	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
95-48-7	2-Methylphenol	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
65794-96-9	3- & 4-Methylphenols	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
91-20-3	Naphthalene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
100-01-6	4-Nitroaniline	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
88-74-4	2-Nitroaniline	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
99-09-2	3-Nitroaniline	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
98-95-3	Nitrobenzene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
88-75-5	2-Nitrophenol	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
100-02-7	4-Nitrophenol	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
62-75-9	N-Nitrosodimethylamine	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
87-86-5	Pentachlorophenol	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
85-01-8	Phenanthrene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
108-95-2	Phenol	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
129-00-0	Pyrene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
95-94-3	1,2,4,5-Tetrachlorobenzene	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH

	Surrogate Recoveries	Result	Acceptance Range
367-12-4	*Surrogate: 2-Fluorophenol*	*47.2 %*	*10-105*
4165-62-2	*Surrogate: Phenol-d5*	*53.2 %*	*10-118*
4165-60-0	*Surrogate: Nitrobenzene-d5*	*47.3 %*	*10-140*
321-60-8	*Surrogate: 2-Fluorobiphenyl*	*50.0 %*	*10-126*
118-79-6	*Surrogate: 2,4,6-Tribromophenol*	*64.6 %*	*10-150*

Sample Information

Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
1718-51-0	*Surrogate: Terphenyl-d14*	*67.1 %*			*10-137*						

Pesticides/PCBs, EPA TCL List

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
8001-35-2	Toxaphene	ND		ug/kg dry	87.7	87.7	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
72-43-5	Methoxychlor	ND		ug/kg dry	8.67	8.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
1024-57-3	Heptachlor epoxide	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
76-44-8	Heptachlor	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
58-89-9	gamma-BHC (Lindane)	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
53494-70-5	Endrin ketone	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
7421-93-4	Endrin aldehyde	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
72-20-8	Endrin	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
1031-07-8	Endosulfan sulfate	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
33213-65-9	Endosulfan II	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
959-98-8	Endosulfan I	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
60-57-1	Dieldrin	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
319-86-8	delta-BHC	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
57-74-9	Chlordane, total	ND		ug/kg dry	6.93	6.93	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
319-85-7	beta-BHC	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
319-84-6	alpha-BHC	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
309-00-2	Aldrin	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
50-29-3	4,4'-DDT	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
72-55-9	4,4'-DDE	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
72-54-8	4,4'-DDD	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
11096-82-5	Aroclor 1260	ND		ug/kg dry	17.9	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC
11097-69-1	Aroclor 1254	ND		ug/kg dry	17.9	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC
12672-29-6	Aroclor 1248	ND		ug/kg dry	17.9	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC
53469-21-9	Aroclor 1242	ND		ug/kg dry	17.9	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC
11141-16-5	Aroclor 1232	ND		ug/kg dry	17.9	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC
11104-28-2	Aroclor 1221	ND		ug/kg dry	17.9	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC
12674-11-2	Aroclor 1016	ND		ug/kg dry	17.9	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC
1336-36-3	Total PCBs	ND		ug/kg dry	7.14	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC

Sample Information

Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	Surrogate Recoveries	**Result**		**Acceptance Range**							
877-09-8	*Surrogate: Tetrachloro-m-xylene*	*99.0 %*		*30-140*							
2051-24-3	*Surrogate: Decachlorobiphenyl*	*78.0 %*		*30-140*							

Metals, Target Analyte

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	**4630**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-36-0	Antimony	ND		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-38-2	Arsenic	**1.19**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-39-3	Barium	**30.9**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.105	0.105	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-43-9	Cadmium	ND		mg/kg dry	0.315	0.315	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-70-2	Calcium	**1370**		mg/kg dry	0.525	5.25	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-47-3	Chromium	**9.01**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-48-4	Cobalt	**4.40**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-50-8	Copper	**23.4**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7439-89-6	Iron	**9300**		mg/kg dry	2.10	2.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7439-92-1	Lead	**6.38**		mg/kg dry	0.315	0.315	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7439-95-4	Magnesium	**1830**		mg/kg dry	5.25	5.25	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7439-96-5	Manganese	**205**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-02-0	Nickel	**9.65**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-09-7	Potassium	**532**		mg/kg dry	5.25	5.25	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7782-49-2	Selenium	ND		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-22-4	Silver	ND		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-23-5	Sodium	**162**		mg/kg dry	10.5	10.5	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-28-0	Thallium	ND		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-62-2	Vanadium	**13.2**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-66-6	Zinc	**39.0**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW

Sample Information

Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Mercury by 7473 **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 7473 soil

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	ND		mg/kg dry	0.0315	0.0315	1	EPA 7473	08/22/2014 06:55	08/22/2014 08:58	ALD

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids Prep

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
solids	% Solids	95.2		%	0.100	0.100	1	SM 2540G	08/25/2014 11:13	08/25/2014 16:13	KK

Sample Information

Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 11)	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
95-63-6	1,2,4-Trimethylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
108-67-8	1,3,5-Trimethylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
123-91-1	1,4-Dioxane	ND		ug/kg dry	54	110	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS

Sample Information

Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
78-93-3	2-Butanone	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
67-64-1	Acetone	19	CCV-E, B	ug/kg dry	2.7	11	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
107-02-8	Acrolein	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
107-13-1	Acrylonitrile	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
71-43-2	Benzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-25-2	Bromoform	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
67-66-3	Chloroform	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
74-95-3	Dibromomethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
98-82-8	Isopropylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
79-20-9	Methyl acetate	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-09-2	Methylene chloride	6.5	J	ug/kg dry	2.7	11	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
104-51-8	n-Butylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
103-65-1	n-Propylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
95-47-6	o-Xylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
179601-23-1	p- & m- Xylenes	ND		ug/kg dry	5.4	11	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
99-87-6	p-Isopropyltoluene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS

Sample Information

Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
135-98-8	sec-Butylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
100-42-5	Styrene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-65-0	tert-Butyl alcohol (TBA)	5.9		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
98-06-6	tert-Butylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
108-88-3	Toluene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
1330-20-7	Xylenes, Total	ND		ug/kg dry	8.1	16	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS

	Surrogate Recoveries	Result	Acceptance Range
17060-07-0	*Surrogate: 1,2-Dichloroethane-d4*	*105 %*	*67-130*
460-00-4	*Surrogate: p-Bromofluorobenzene*	*96.5 %*	*75-127*
2037-26-5	*Surrogate: Toluene-d8*	*111 %*	*90-112*

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
83-32-9	Acenaphthene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
208-96-8	Acenaphthylene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
98-86-2	Acetophenone	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
62-53-3	Aniline	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
120-12-7	Anthracene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
1912-24-9	Atrazine	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
100-52-7	Benzaldehyde	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
92-87-5	Benzidine	ND		ug/kg dry	169	337	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
56-55-3	Benzo(a)anthracene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
50-32-8	Benzo(a)pyrene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
205-99-2	Benzo(b)fluoranthene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
191-24-2	Benzo(g,h,i)perylene	ND	ISTD-L0	ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
65-85-0	Benzoic acid	ND		ug/kg dry	116	338	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
207-08-9	Benzo(k)fluoranthene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH

Sample Information

Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
100-51-6	Benzyl alcohol	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
92-52-4	1,1'-Biphenyl	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
105-60-2	Caprolactam	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
86-74-8	Carbazole	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
106-47-8	4-Chloroaniline	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
95-57-8	2-Chlorophenol	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
218-01-9	Chrysene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
53-70-3	Dibenzo(a,h)anthracene	ND	ISTD-L0	ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
132-64-9	Dibenzofuran	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	169	337	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
84-66-2	Diethyl phthalate	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
131-11-3	Dimethyl phthalate	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	169	338	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
122-66-7	1,2-Diphenylhydrazine (as Azobenzene)	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH

Sample Information

Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
117-81-7	Bis(2-ethylhexyl)phthalate	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
206-44-0	Fluoranthene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
86-73-7	Fluorene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
118-74-1	Hexachlorobenzene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
67-72-1	Hexachloroethane	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
193-39-5	Indeno(1,2,3-cd)pyrene	ND	ISTD-LO	ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
78-59-1	Isophorone	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
95-48-7	2-Methylphenol	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
65794-96-9	3- & 4-Methylphenols	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
91-20-3	Naphthalene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
100-01-6	4-Nitroaniline	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
88-74-4	2-Nitroaniline	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
99-09-2	3-Nitroaniline	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
98-95-3	Nitrobenzene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
88-75-5	2-Nitrophenol	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
100-02-7	4-Nitrophenol	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
62-75-9	N-Nitrosodimethylamine	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
87-86-5	Pentachlorophenol	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
85-01-8	Phenanthrene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
108-95-2	Phenol	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
129-00-0	Pyrene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
95-94-3	1,2,4,5-Tetrachlorobenzene	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH

Surrogate Recoveries	Result	Acceptance Range

Sample Information

Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
367-12-4	*Surrogate: 2-Fluorophenol*	*55.8 %*			*10-105*						
4165-62-2	*Surrogate: Phenol-d5*	*63.4 %*			*10-118*						
4165-60-0	*Surrogate: Nitrobenzene-d5*	*57.2 %*			*10-140*						
321-60-8	*Surrogate: 2-Fluorobiphenyl*	*59.6 %*			*10-126*						
118-79-6	*Surrogate: 2,4,6-Tribromophenol*	*64.4 %*			*10-150*						
1718-51-0	*Surrogate: Terphenyl-d14*	*63.6 %*			*10-137*						

Pesticides/PCBs, EPA TCL List

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
8001-35-2	Toxaphene	ND		ug/kg dry	84.6	84.6	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
72-43-5	Methoxychlor	ND		ug/kg dry	8.36	8.36	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
1024-57-3	Heptachlor epoxide	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
76-44-8	Heptachlor	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
58-89-9	gamma-BHC (Lindane)	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
53494-70-5	Endrin ketone	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
7421-93-4	Endrin aldehyde	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
72-20-8	Endrin	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
1031-07-8	Endosulfan sulfate	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
33213-65-9	Endosulfan II	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
959-98-8	Endosulfan I	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
60-57-1	Dieldrin	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
319-86-8	delta-BHC	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
57-74-9	Chlordane, total	ND		ug/kg dry	6.69	6.69	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
319-85-7	beta-BHC	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
319-84-6	alpha-BHC	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
309-00-2	Aldrin	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
50-29-3	4,4'-DDT	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
72-55-9	4,4'-DDE	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
72-54-8	4,4'-DDD	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
11096-82-5	Aroclor 1260	ND		ug/kg dry	17.2	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC
11097-69-1	Aroclor 1254	ND		ug/kg dry	17.2	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC
12672-29-6	Aroclor 1248	ND		ug/kg dry	17.2	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC
53469-21-9	Aroclor 1242	ND		ug/kg dry	17.2	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC

Sample Information

Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
11141-16-5	Aroclor 1232	ND		ug/kg dry	17.2	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC
11104-28-2	Aroclor 1221	ND		ug/kg dry	17.2	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC
12674-11-2	Aroclor 1016	ND		ug/kg dry	17.2	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC
1336-36-3	Total PCBs	ND		ug/kg dry	6.89	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC

	Surrogate Recoveries	Result	Acceptance Range
877-09-8	*Surrogate: Tetrachloro-m-xylene*	*98.0 %*	*30-140*
2051-24-3	*Surrogate: Decachlorobiphenyl*	*81.5 %*	*30-140*

Metals, Target Analyte

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	**2820**		mg/kg dry	1.01	1.01	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-36-0	Antimony	ND		mg/kg dry	0.507	0.507	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-38-2	Arsenic	ND		mg/kg dry	1.01	1.01	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-39-3	Barium	**27.2**		mg/kg dry	1.01	1.01	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.101	0.101	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-43-9	Cadmium	ND		mg/kg dry	0.304	0.304	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-70-2	Calcium	**686**		mg/kg dry	0.507	5.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-47-3	Chromium	**7.05**		mg/kg dry	0.507	0.507	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-48-4	Cobalt	**3.36**		mg/kg dry	0.507	0.507	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-50-8	Copper	**6.61**		mg/kg dry	0.507	0.507	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7439-89-6	Iron	**7740**		mg/kg dry	2.03	2.03	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7439-92-1	Lead	**2.11**		mg/kg dry	0.304	0.304	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7439-95-4	Magnesium	**1270**		mg/kg dry	5.07	5.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7439-96-5	Manganese	**208**		mg/kg dry	0.507	0.507	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-02-0	Nickel	**7.55**		mg/kg dry	0.507	0.507	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-09-7	Potassium	**387**		mg/kg dry	5.07	5.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7782-49-2	Selenium	ND		mg/kg dry	1.01	1.01	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-22-4	Silver	ND		mg/kg dry	0.507	0.507	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-23-5	Sodium	**101**		mg/kg dry	10.1	10.1	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-28-0	Thallium	ND		mg/kg dry	1.01	1.01	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-62-2	Vanadium	**13.6**		mg/kg dry	1.01	1.01	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-66-6	Zinc	**12.1**		mg/kg dry	1.01	1.01	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW

Sample Information

Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Mercury by 7473 **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 7473 soil

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	ND		mg/kg dry	0.0304	0.0304	1	EPA 7473	08/22/2014 06:55	08/22/2014 09:07	ALD

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids Prep

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
solids	% Solids	98.7		%	0.100	0.100	1	SM 2540G	08/25/2014 11:13	08/25/2014 16:13	KK

Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
95-63-6	1,2,4-Trimethylbenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
108-67-8	1,3,5-Trimethylbenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
123-91-1	1,4-Dioxane	ND		ug/kg dry	48	96	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS

Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
78-93-3	2-Butanone	3.5	J	ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
67-64-1	Acetone	20	CCV-E, B	ug/kg dry	2.4	9.6	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
107-02-8	Acrolein	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
107-13-1	Acrylonitrile	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
71-43-2	Benzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-25-2	Bromoform	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
67-66-3	Chloroform	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
74-95-3	Dibromomethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
98-82-8	Isopropylbenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
79-20-9	Methyl acetate	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-09-2	Methylene chloride	ND		ug/kg dry	2.4	9.6	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
104-51-8	n-Butylbenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
103-65-1	n-Propylbenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
95-47-6	o-Xylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
179601-23-1	p- & m- Xylenes	ND		ug/kg dry	4.8	9.6	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
99-87-6	p-Isopropyltoluene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS

Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
135-98-8	sec-Butylbenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
100-42-5	Styrene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
98-06-6	tert-Butylbenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
108-88-3	Toluene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
1330-20-7	Xylenes, Total	ND		ug/kg dry	7.2	14	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS

	Surrogate Recoveries	Result		Acceptance Range
17060-07-0	*Surrogate: 1,2-Dichloroethane-d4*	*106 %*		*67-130*
460-00-4	*Surrogate: p-Bromofluorobenzene*	*104 %*		*75-127*
2037-26-5	*Surrogate: Toluene-d8*	*114 %*	*S-08*	*90-112*

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
83-32-9	Acenaphthene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
208-96-8	Acenaphthylene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
98-86-2	Acetophenone	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
62-53-3	Aniline	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
120-12-7	Anthracene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
1912-24-9	Atrazine	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
100-52-7	Benzaldehyde	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
92-87-5	Benzidine	ND		ug/kg dry	368	734	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
56-55-3	Benzo(a)anthracene	418		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
50-32-8	Benzo(a)pyrene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
205-99-2	Benzo(b)fluoranthene	145	J	ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
191-24-2	Benzo(g,h,i)perylene	ND	ISTD-LO	ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
65-85-0	Benzoic acid	ND		ug/kg dry	251	734	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
207-08-9	Benzo(k)fluoranthene	99.9	J	ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH

Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
100-51-6	Benzyl alcohol	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
92-52-4	1,1'-Biphenyl	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
105-60-2	Caprolactam	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
86-74-8	Carbazole	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
106-47-8	4-Chloroaniline	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
95-57-8	2-Chlorophenol	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
218-01-9	Chrysene	350	J	ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
53-70-3	Dibenzo(a,h)anthracene	ND	ISTD-LO	ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
132-64-9	Dibenzofuran	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	368	734	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
84-66-2	Diethyl phthalate	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
131-11-3	Dimethyl phthalate	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	368	734	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
122-66-7	1,2-Diphenylhydrazine (as Azobenzene)	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH

Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
117-81-7	Bis(2-ethylhexyl)phthalate	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
206-44-0	Fluoranthene	665		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
86-73-7	Fluorene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
118-74-1	Hexachlorobenzene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
67-72-1	Hexachloroethane	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
193-39-5	Indeno(1,2,3-cd)pyrene	ND	ISTD-L0	ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
78-59-1	Isophorone	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
95-48-7	2-Methylphenol	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
65794-96-9	3- & 4-Methylphenols	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
91-20-3	Naphthalene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
100-01-6	4-Nitroaniline	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
88-74-4	2-Nitroaniline	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
99-09-2	3-Nitroaniline	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
98-95-3	Nitrobenzene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
88-75-5	2-Nitrophenol	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
100-02-7	4-Nitrophenol	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
62-75-9	N-Nitrosodimethylamine	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
87-86-5	Pentachlorophenol	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
85-01-8	Phenanthrene	187	J	ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
108-95-2	Phenol	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
129-00-0	Pyrene	819		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
95-94-3	1,2,4,5-Tetrachlorobenzene	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
	Surrogate Recoveries	**Result**			**Acceptance Range**						

Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
367-12-4	*Surrogate: 2-Fluorophenol*	*16.5 %*			*10-105*						
4165-62-2	*Surrogate: Phenol-d5*	*20.6 %*			*10-118*						
4165-60-0	*Surrogate: Nitrobenzene-d5*	*18.7 %*			*10-140*						
321-60-8	*Surrogate: 2-Fluorobiphenyl*	*25.8 %*			*10-126*						
118-79-6	*Surrogate: 2,4,6-Tribromophenol*	*19.1 %*			*10-150*						
1718-51-0	*Surrogate: Terphenyl-d14*	*34.9 %*			*10-137*						

Pesticides/PCBs, EPA TCL List

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
8001-35-2	Toxaphene	ND		ug/kg dry	18.4	18.4	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
72-43-5	Methoxychlor	ND		ug/kg dry	1.82	1.82	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
1024-57-3	Heptachlor epoxide	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
76-44-8	Heptachlor	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
58-89-9	gamma-BHC (Lindane)	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
53494-70-5	Endrin ketone	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
7421-93-4	Endrin aldehyde	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
72-20-8	Endrin	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
1031-07-8	Endosulfan sulfate	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
33213-65-9	Endosulfan II	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
959-98-8	Endosulfan I	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
60-57-1	Dieldrin	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
319-86-8	delta-BHC	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
57-74-9	Chlordane, total	ND		ug/kg dry	1.45	1.45	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
319-85-7	beta-BHC	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
319-84-6	alpha-BHC	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
309-00-2	Aldrin	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
50-29-3	4,4'-DDT	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
72-55-9	4,4'-DDE	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
72-54-8	4,4'-DDD	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
11096-82-5	Aroclor 1260	ND		ug/kg dry	18.7	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
11097-69-1	Aroclor 1254	ND		ug/kg dry	18.7	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
12672-29-6	Aroclor 1248	ND		ug/kg dry	18.7	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
53469-21-9	Aroclor 1242	ND		ug/kg dry	18.7	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC

Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
11141-16-5	Aroclor 1232	ND		ug/kg dry	18.7	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
11104-28-2	Aroclor 1221	ND		ug/kg dry	18.7	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
12674-11-2	Aroclor 1016	ND		ug/kg dry	18.7	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
1336-36-3	Total PCBs	ND		ug/kg dry	7.49	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC

	Surrogate Recoveries	Result	Acceptance Range
877-09-8	*Surrogate: Tetrachloro-m-xylene*	*80.0 %*	*30-140*
2051-24-3	*Surrogate: Decachlorobiphenyl*	*69.5 %*	*30-140*

Metals, Target Analyte

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	11900		mg/kg dry	1.10	1.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-36-0	Antimony	ND		mg/kg dry	0.551	0.551	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-38-2	Arsenic	3.20		mg/kg dry	1.10	1.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-39-3	Barium	186		mg/kg dry	1.10	1.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.110	0.110	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-43-9	Cadmium	3.76		mg/kg dry	0.331	0.331	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-70-2	Calcium	9380		mg/kg dry	0.551	5.51	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-47-3	Chromium	24.1		mg/kg dry	0.551	0.551	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-48-4	Cobalt	14.7		mg/kg dry	0.551	0.551	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-50-8	Copper	85.7		mg/kg dry	0.551	0.551	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7439-89-6	Iron	35200		mg/kg dry	2.20	2.20	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7439-92-1	Lead	239		mg/kg dry	0.331	0.331	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7439-95-4	Magnesium	4680		mg/kg dry	5.51	5.51	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7439-96-5	Manganese	477		mg/kg dry	0.551	0.551	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-02-0	Nickel	32.7		mg/kg dry	0.551	0.551	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-09-7	Potassium	6450		mg/kg dry	5.51	5.51	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7782-49-2	Selenium	1.97		mg/kg dry	1.10	1.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-22-4	Silver	ND		mg/kg dry	0.551	0.551	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-23-5	Sodium	168		mg/kg dry	11.0	11.0	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-28-0	Thallium	ND		mg/kg dry	1.10	1.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-62-2	Vanadium	36.6		mg/kg dry	1.10	1.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-66-6	Zinc	1890		mg/kg dry	1.10	1.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW

Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Mercury by 7473 — Log-in Notes: — Sample Notes:

Sample Prepared by Method: EPA 7473 soil

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	0.129		mg/kg dry	0.0331	0.0331	1	EPA 7473	08/22/2014 06:55	08/22/2014 09:16	ALD

Total Solids — Log-in Notes: — Sample Notes:

Sample Prepared by Method: % Solids Prep

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
solids	% Solids	90.8		%	0.100	0.100	1	SM 2540G	08/25/2014 11:13	08/25/2014 16:13	KK

Sample Information

Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List — Log-in Notes: — Sample Notes:

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
95-63-6	1,2,4-Trimethylbenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
108-67-8	1,3,5-Trimethylbenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
123-91-1	1,4-Dioxane	ND		ug/kg dry	45	90	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS

Sample Information

Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
78-93-3	2-Butanone	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
67-64-1	Acetone	16	CCV-E, B	ug/kg dry	2.3	9.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
107-02-8	Acrolein	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
107-13-1	Acrylonitrile	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
71-43-2	Benzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-25-2	Bromoform	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
67-66-3	Chloroform	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
74-95-3	Dibromomethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
98-82-8	Isopropylbenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
79-20-9	Methyl acetate	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-09-2	Methylene chloride	ND		ug/kg dry	2.3	9.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
104-51-8	n-Butylbenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
103-65-1	n-Propylbenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
95-47-6	o-Xylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
179601-23-1	p- & m- Xylenes	ND		ug/kg dry	4.5	9.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
99-87-6	p-Isopropyltoluene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS

Sample Information

Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
135-98-8	sec-Butylbenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
100-42-5	Styrene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-65-0	tert-Butyl alcohol (TBA)	6.1		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
98-06-6	tert-Butylbenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
108-88-3	Toluene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
1330-20-7	Xylenes, Total	ND		ug/kg dry	6.8	14	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS

	Surrogate Recoveries	Result		Acceptance Range
17060-07-0	*Surrogate: 1,2-Dichloroethane-d4*	*105 %*		*67-130*
460-00-4	*Surrogate: p-Bromofluorobenzene*	*120 %*		*75-127*
2037-26-5	*Surrogate: Toluene-d8*	*119 %*	*S-08*	*90-112*

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
83-32-9	Acenaphthene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
208-96-8	Acenaphthylene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
98-86-2	Acetophenone	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
62-53-3	Aniline	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
120-12-7	Anthracene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
1912-24-9	Atrazine	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
100-52-7	Benzaldehyde	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
92-87-5	Benzidine	ND		ug/kg dry	894	1780	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
56-55-3	Benzo(a)anthracene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
50-32-8	Benzo(a)pyrene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
205-99-2	Benzo(b)fluoranthene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
191-24-2	Benzo(g,h,i)perylene	ND	ISTD-L O	ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
65-85-0	Benzoic acid	ND		ug/kg dry	610	1780	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
207-08-9	Benzo(k)fluoranthene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH

Sample Information

Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
100-51-6	Benzyl alcohol	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
92-52-4	1,1'-Biphenyl	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
105-60-2	Caprolactam	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
86-74-8	Carbazole	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
106-47-8	4-Chloroaniline	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
95-57-8	2-Chlorophenol	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
218-01-9	Chrysene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
53-70-3	Dibenzo(a,h)anthracene	ND	ISTD-LO	ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
132-64-9	Dibenzofuran	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	894	1780	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
84-66-2	Diethyl phthalate	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
131-11-3	Dimethyl phthalate	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	894	1780	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
122-66-7	1,2-Diphenylhydrazine (as Azobenzene)	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH

Sample Information

Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
117-81-7	Bis(2-ethylhexyl)phthalate	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
206-44-0	Fluoranthene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
86-73-7	Fluorene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
118-74-1	Hexachlorobenzene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
67-72-1	Hexachloroethane	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
193-39-5	Indeno(1,2,3-cd)pyrene	ND	ISTD-LO	ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
78-59-1	Isophorone	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
95-48-7	2-Methylphenol	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
65794-96-9	3- & 4-Methylphenols	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
91-20-3	Naphthalene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
100-01-6	4-Nitroaniline	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
88-74-4	2-Nitroaniline	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
99-09-2	3-Nitroaniline	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
98-95-3	Nitrobenzene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
88-75-5	2-Nitrophenol	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
100-02-7	4-Nitrophenol	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
62-75-9	N-Nitrosodimethylamine	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
87-86-5	Pentachlorophenol	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
85-01-8	Phenanthrene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
108-95-2	Phenol	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
129-00-0	Pyrene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
95-94-3	1,2,4,5-Tetrachlorobenzene	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH

Surrogate Recoveries	Result	Acceptance Range

Sample Information

Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
367-12-4	*Surrogate: 2-Fluorophenol*	*51.7 %*			*10-105*						
4165-62-2	*Surrogate: Phenol-d5*	*60.5 %*			*10-118*						
4165-60-0	*Surrogate: Nitrobenzene-d5*	*50.1 %*			*10-140*						
321-60-8	*Surrogate: 2-Fluorobiphenyl*	*76.0 %*			*10-126*						
118-79-6	*Surrogate: 2,4,6-Tribromophenol*	*63.5 %*			*10-150*						
1718-51-0	*Surrogate: Terphenyl-d14*	*94.6 %*			*10-137*						

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
8001-35-2	Toxaphene	ND		ug/kg dry	89.4	89.4	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
72-43-5	Methoxychlor	ND		ug/kg dry	8.83	8.83	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
1024-57-3	Heptachlor epoxide	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
76-44-8	Heptachlor	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
58-89-9	gamma-BHC (Lindane)	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
53494-70-5	Endrin ketone	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
7421-93-4	Endrin aldehyde	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
72-20-8	Endrin	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
1031-07-8	Endosulfan sulfate	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
33213-65-9	Endosulfan II	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
959-98-8	Endosulfan I	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
60-57-1	Dieldrin	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
319-86-8	delta-BHC	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
57-74-9	Chlordane, total	ND		ug/kg dry	7.06	7.06	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
319-85-7	beta-BHC	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
319-84-6	alpha-BHC	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
309-00-2	Aldrin	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
50-29-3	4,4'-DDT	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
72-55-9	4,4'-DDE	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
72-54-8	4,4'-DDD	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
11096-82-5	Aroclor 1260	ND		ug/kg dry	18.2	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC
11097-69-1	Aroclor 1254	ND		ug/kg dry	18.2	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC
12672-29-6	Aroclor 1248	ND		ug/kg dry	18.2	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC
53469-21-9	Aroclor 1242	ND		ug/kg dry	18.2	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC

Sample Information

Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
11141-16-5	Aroclor 1232	ND		ug/kg dry	18.2	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC
11104-28-2	Aroclor 1221	ND		ug/kg dry	18.2	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC
12674-11-2	Aroclor 1016	ND		ug/kg dry	18.2	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC
1336-36-3	Total PCBs	ND		ug/kg dry	7.28	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC

	Surrogate Recoveries	Result	Acceptance Range
877-09-8	*Surrogate: Tetrachloro-m-xylene*	*95.0 %*	*30-140*
2051-24-3	*Surrogate: Decachlorobiphenyl*	*78.0 %*	*30-140*

Metals, Target Analyte

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	4780		mg/kg dry	1.07	1.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-36-0	Antimony	ND		mg/kg dry	0.535	0.535	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-38-2	Arsenic	2.24		mg/kg dry	1.07	1.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-39-3	Barium	35.7		mg/kg dry	1.07	1.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.107	0.107	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-43-9	Cadmium	ND		mg/kg dry	0.321	0.321	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-70-2	Calcium	4790		mg/kg dry	0.535	5.35	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-47-3	Chromium	11.7		mg/kg dry	0.535	0.535	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-48-4	Cobalt	5.62		mg/kg dry	0.535	0.535	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-50-8	Copper	25.9		mg/kg dry	0.535	0.535	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7439-89-6	Iron	11700		mg/kg dry	2.14	2.14	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7439-92-1	Lead	20.1		mg/kg dry	0.321	0.321	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7439-95-4	Magnesium	2390		mg/kg dry	5.35	5.35	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7439-96-5	Manganese	192		mg/kg dry	0.535	0.535	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-02-0	Nickel	13.4		mg/kg dry	0.535	0.535	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-09-7	Potassium	924		mg/kg dry	5.35	5.35	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7782-49-2	Selenium	ND		mg/kg dry	1.07	1.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-22-4	Silver	ND		mg/kg dry	0.535	0.535	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-23-5	Sodium	201		mg/kg dry	10.7	10.7	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-28-0	Thallium	ND		mg/kg dry	1.07	1.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-62-2	Vanadium	25.5		mg/kg dry	1.07	1.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-66-6	Zinc	62.5		mg/kg dry	1.07	1.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW

Sample Information

Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Mercury by 7473 **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 7473 soil

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	ND		mg/kg dry	0.0321	0.0321	1	EPA 7473	08/22/2014 06:55	08/22/2014 09:25	ALD

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids Prep

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
solids	% Solids	93.4		%	0.100	0.100	1	SM 2540G	08/25/2014 11:13	08/25/2014 16:13	KK

Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 113	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
95-63-6	1,2,4-Trimethylbenzene	29		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
108-67-8	1,3,5-Trimethylbenzene	13		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
123-91-1	1,4-Dioxane	ND		ug/kg dry	40	81	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
78-93-3	2-Butanone	4.8		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS

Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
591-78-6	2-Hexanone	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
67-64-1	Acetone	56	CCV-E, B	ug/kg dry	2.0	8.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
107-02-8	Acrolein	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
107-13-1	Acrylonitrile	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
71-43-2	Benzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-25-2	Bromoform	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
67-66-3	Chloroform	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
74-95-3	Dibromomethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
98-82-8	Isopropylbenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
79-20-9	Methyl acetate	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-09-2	Methylene chloride	5.3	J	ug/kg dry	2.0	8.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
104-51-8	n-Butylbenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
103-65-1	n-Propylbenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
95-47-6	o-Xylene	3.0	J	ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
179601-23-1	p- & m- Xylenes	ND		ug/kg dry	4.0	8.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
99-87-6	p-Isopropyltoluene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
135-98-8	sec-Butylbenzene	2.8	J	ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS

Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
100-42-5	Styrene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-65-0	tert-Butyl alcohol (TBA)	28		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
98-06-6	tert-Butylbenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
127-18-4	Tetrachloroethylene	26		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
108-88-3	Toluene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
1330-20-7	Xylenes, Total	ND		ug/kg dry	6.0	12	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS

	Surrogate Recoveries	Result		Acceptance Range
17060-07-0	*Surrogate: 1,2-Dichloroethane-d4*	*107 %*		*67-130*
460-00-4	*Surrogate: p-Bromofluorobenzene*	*103 %*		*75-127*
2037-26-5	*Surrogate: Toluene-d8*	*113 %*	*S-08*	*90-112*

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
83-32-9	Acenaphthene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
208-96-8	Acenaphthylene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
98-86-2	Acetophenone	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
62-53-3	Aniline	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
120-12-7	Anthracene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
1912-24-9	Atrazine	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
100-52-7	Benzaldehyde	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
92-87-5	Benzidine	ND		ug/kg dry	350	699	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
56-55-3	Benzo(a)anthracene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
50-32-8	Benzo(a)pyrene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
205-99-2	Benzo(b)fluoranthene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
191-24-2	Benzo(g,h,i)perylene	ND	ISTD-LO	ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
65-85-0	Benzoic acid	ND		ug/kg dry	239	699	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
207-08-9	Benzo(k)fluoranthene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
100-51-6	Benzyl alcohol	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH

Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
92-52-4	1,1'-Biphenyl	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
105-60-2	Caprolactam	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
86-74-8	Carbazole	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
106-47-8	4-Chloroaniline	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
95-57-8	2-Chlorophenol	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
218-01-9	Chrysene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
53-70-3	Dibenzo(a,h)anthracene	ND	ISTD-LO	ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
132-64-9	Dibenzofuran	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	350	699	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
84-66-2	Diethyl phthalate	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
131-11-3	Dimethyl phthalate	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	350	699	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
122-66-7	1,2-Diphenylhydrazine (as Azobenzene)	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
117-81-7	Bis(2-ethylhexyl)phthalate	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH

Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
206-44-0	Fluoranthene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
86-73-7	Fluorene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
118-74-1	Hexachlorobenzene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
67-72-1	Hexachloroethane	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
193-39-5	Indeno(1,2,3-cd)pyrene	ND	ISTD-LO	ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
78-59-1	Isophorone	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
95-48-7	2-Methylphenol	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
65794-96-9	3- & 4-Methylphenols	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
91-20-3	Naphthalene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
100-01-6	4-Nitroaniline	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
88-74-4	2-Nitroaniline	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
99-09-2	3-Nitroaniline	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
98-95-3	Nitrobenzene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
88-75-5	2-Nitrophenol	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
100-02-7	4-Nitrophenol	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
62-75-9	N-Nitrosodimethylamine	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
87-86-5	Pentachlorophenol	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
85-01-8	Phenanthrene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
108-95-2	Phenol	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
129-00-0	Pyrene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
95-94-3	1,2,4,5-Tetrachlorobenzene	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH

	Surrogate Recoveries	Result	Acceptance Range
367-12-4	*Surrogate: 2-Fluorophenol*	*19.8 %*	*10-105*

Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
4165-62-2	*Surrogate: Phenol-d5*	*25.3 %*			*10-118*						
4165-60-0	*Surrogate: Nitrobenzene-d5*	*15.6 %*			*10-140*						
321-60-8	*Surrogate: 2-Fluorobiphenyl*	*28.0 %*			*10-126*						
118-79-6	*Surrogate: 2,4,6-Tribromophenol*	*11.6 %*			*10-150*						
1718-51-0	*Surrogate: Terphenyl-d14*	*33.3 %*			*10-137*						

Pesticides/PCBs, EPA TCL List

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
8001-35-2	Toxaphene	ND		ug/kg dry	87.6	87.6	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
72-43-5	Methoxychlor	ND		ug/kg dry	8.66	8.66	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
1024-57-3	Heptachlor epoxide	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
76-44-8	Heptachlor	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
58-89-9	gamma-BHC (Lindane)	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
53494-70-5	Endrin ketone	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
7421-93-4	Endrin aldehyde	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
72-20-8	Endrin	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
1031-07-8	Endosulfan sulfate	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
33213-65-9	Endosulfan II	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
959-98-8	Endosulfan I	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
60-57-1	Dieldrin	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
319-86-8	delta-BHC	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
57-74-9	Chlordane, total	ND		ug/kg dry	6.92	6.92	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
319-85-7	beta-BHC	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
319-84-6	alpha-BHC	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
309-00-2	Aldrin	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
50-29-3	4,4'-DDT	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
72-55-9	4,4'-DDE	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
72-54-8	4,4'-DDD	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
11096-82-5	Aroclor 1260	ND		ug/kg dry	17.8	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC
11097-69-1	Aroclor 1254	ND		ug/kg dry	17.8	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC
12672-29-6	Aroclor 1248	ND		ug/kg dry	17.8	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC
53469-21-9	Aroclor 1242	ND		ug/kg dry	17.8	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC
11141-16-5	Aroclor 1232	ND		ug/kg dry	17.8	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC

Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
11104-28-2	Aroclor 1221	ND		ug/kg dry	17.8	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC
12674-11-2	Aroclor 1016	ND		ug/kg dry	17.8	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC
1336-36-3	Total PCBs	ND		ug/kg dry	7.13	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC

	Surrogate Recoveries	Result	Acceptance Range
877-09-8	*Surrogate: Tetrachloro-m-xylene*	*89.0 %*	*30-140*
2051-24-3	*Surrogate: Decachlorobiphenyl*	*73.0 %*	*30-140*

Metals, Target Analyte

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	9250		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-36-0	Antimony	ND		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-38-2	Arsenic	4.01		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-39-3	Barium	67.1		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.105	0.105	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-43-9	Cadmium	ND		mg/kg dry	0.315	0.315	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-70-2	Calcium	3460		mg/kg dry	0.525	5.25	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-47-3	Chromium	15.6		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-48-4	Cobalt	6.85		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-50-8	Copper	61.5		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7439-89-6	Iron	14700		mg/kg dry	2.10	2.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7439-92-1	Lead	75.5		mg/kg dry	0.315	0.315	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7439-95-4	Magnesium	2970		mg/kg dry	5.25	5.25	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7439-96-5	Manganese	266		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-02-0	Nickel	17.4		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-09-7	Potassium	657		mg/kg dry	5.25	5.25	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7782-49-2	Selenium	1.05		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-22-4	Silver	ND		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-23-5	Sodium	264		mg/kg dry	10.5	10.5	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-28-0	Thallium	ND		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-62-2	Vanadium	29.9		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-66-6	Zinc	155		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW

Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Mercury by 7473

Log-in Notes: Sample Notes:

Sample Prepared by Method: EPA 7473 soil

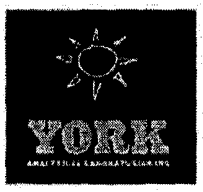
CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	0.0824		mg/kg dry	0.0315	0.0315	1	EPA 7473	08/22/2014 06:55	08/22/2014 09:34	ALD

Total Solids

Log-in Notes: Sample Notes:

Sample Prepared by Method: % Solids Prep

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
solids	% Solids	95.3		%	0.100	0.100	1	SM 2540G	08/25/2014 11:13	08/25/2014 16:13	KK



Volatile Analysis Sample Containers

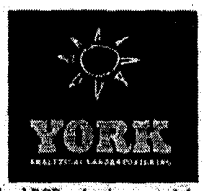
Lab ID	Client Sample ID	Volatile Sample Container
14H0833-01	SB1 (3-5)	40mL Vial with Stir Bar-Cool 4° C
14H0833-02	SB3 (5-8)	40mL Vial with Stir Bar-Cool 4° C
14H0833-03	SB3 (15-20)	40mL Vial with Stir Bar-Cool 4° C
14H0833-04	SB2 (3-5)	40mL Vial with Stir Bar-Cool 4° C
14H0833-05	SB2 (12-14)	40mL Vial with Stir Bar-Cool 4° C
14H0833-06	SB3 (0-4)	40mL Vial with Stir Bar-Cool 4° C

Notes and Definitions

S-08	The recovery of this surrogate was outside of QC limits.
QL-02	This LCS analyte is outside Laboratory Recovery limits due the analyte behavior using the referenced method. The reference method has certain limitations with respect to analytes of this nature.
J	Detected below the Reporting Limit but greater than or equal to the Method Detection Limit (MDL/LOD) or in the case of a TIC, the result is an estimated concentration
ISTD-LO	The internal std associated with this target compound did not meet acceptance criteria (area <50% CCV) at the stated dilution due to matrix effects. Sample was rerun to confirm matrix effects.
CCV-E	The value reported is ESTIMATED. The value is estimated due to its behavior during continuing calibration verification (>20% Difference for average Rf or >20% Drift for quadratic fit).
B	Analyte is found in the associated analysis batch blank. For volatiles, methylene chloride and acetone are common lab contaminants. Data users should consider anything <10x the blank value as artifact.

ND	Analyte NOT DETECTED at the stated Reporting Limit (RL) or above.
RL	REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.
MDL	METHOD DETECTION LIMIT - the minimum concentration that can be measured and reported with a 99% confidence that the concentration is greater than zero. If requested or required, a value reported below the RL and above the MDL is considered estimated and is noted with a "J" flag.
NR	Not reported
RPD	Relative Percent Difference
Wet	The data has been reported on an as-received (wet weight) basis
Low Bias	Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
High Bias	High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
Non-Dir.	Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

If EPA SW-846 method 8270 is included herein it is noted that the target compound N-nitrosodiphenylamine (NDPA) decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine (DPA). These results could actually represent 100% DPA, 100% NDPA or some combination of the two. For this reason, York reports the combined result for n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration as Diphenylamine.



If Total PCBs are detected and the target aroclors reported are "Not detected", the Total PCB value is reported due to the presence of either or both Aroclors 1262 and 1268 which are non-target aroclors for some regulatory lists.

2-chloroethylvinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

Certification for pH is no longer offered by NYDOH ELAP.

Semi-Volatile and Volatile analyses are reported down to the MDL, with values between the MDL and the RL being "J" flagged as estimated results.

YORK ANALYTICAL LABORATORIES
120 RESEARCH DR.
STRATFORD, CT 06615
(203) 325-1371
FAX (203) 357-0166

Field Chain-of-Custody Record

NOTE: York's Std. Terms & Conditions are listed on the back side of this document.
This document serves as your written authorization to York to proceed with the analyses requested and your signature binds you to York's Std. Terms & Conditions.

York Project No. 14H0833

YOUR Information	Report To:	Invoice To:	YOUR Project ID	Turn-Around Time	Report Type
Company: ADVANCED CLEANUP TECH.	Company: SAME	Company: SAME	7791-WDNY	RUSH - Same Day ☐	Summary Report X
Address: 110 MAW ST: SUITE 1G PORT WASHINGTON NY 11050	Address: SAME	Address: SAME	Purchase Order No.	RUSH - Next Day ☐	Summary w/ QA Summary ___
Phone No. 516-441-5800	Phone No. SAME	Phone No. SAME	7791WDNY	RUSH - Two Day ☐	CT RCP Package ___
Contact Person: Jeff Dizmond	Attention: THERESA BUCKLEY	Attention: KAREN FRIEDMAN	Samples from: CT ___ NY X NJ ___	RUSH - Three Day ☐	CTRCP DQA/DUE Pkg ___
E-Mail Address: JeffreyD@ACTENVIRONS.com	E-Mail Address: THERESAB@ACTENVIRONS.com	E-Mail Address:		RUSH - Four Day ☐	NY ASP A Package ___
				Standard(5-7 Days) X	NY ASP B Package ___
					NJDEP Red. Deliv. ___
					Electronic Data Deliverables (EDD)
					Simple Excel ___
					NYSDEC EQuIS ___
					EQuIS (std) ___
					EZ-EDD (EQuIS) ___
					NJDEP SRP HazSite EDD ___
					GIS/KEY (std) ___
					Other ___
					York Regulatory Comparison
					Excel Spreadsheet
					Compare to the following Regs: (please fill in):

Print Clearly and Legibly. All Information must be complete. Samples will NOT be logged in and the turn-around time clock will not begin until any questions by York are resolved.

Tim Young
Samples Collected/Authorized By (Signature)

TIM YOUNG
Name (printed)

Matrix Codes
S - soil
Other - specify(oil, etc.)
WW - wastewater
GW - groundwater
DW - drinking water
Air-A - ambient air
Air-SV - soil vapor

Volatiles		Semi-Vols	Pest/PCB/Herb	Metals	Misc. Org.	Full Lists	Misc.
8260 full	TICs	8270 or 625	8082PCB	RCRA8	TPH GRO	Pri.Poll.	Corrosivity
624	Site Spec.	STARS list	8081Pest	PP13 list	TPH DRO	TCL Organics	Reactivity
STARS list	Nassau Co.	BN Only	8151Herb	TAL	CT ETPH	TAL Metals	Ignitability
BTEX	Suffolk Co.	Acids Only	CT RCP	CT15 list	NY 310-13	Full TCLP	Flash Point
MTBE	Ketones	PAH list	App. IX	TAGM list	TPH 1664	Full App.IX	Sieve Anal.
TCL list	Oxygenates	TAGM list	Site Spec	NJDEP list	Air TO14A	Part.360-Metals	Hetertrophs
TAGM list	TCLP list	CT RCP list	SPLP or TCLP	Total	Air TO15	Part.360-Pesticides	TOX
CT RCP list	524.2	TCL list	TCLP Pest	Dissolved	Air STARS	Part.360-Semivols	BTU/lb
Arom. only	502.2	NJDEP list	TCLP Herb	SPLP or TCLP	Air VPH	Part.360-Volatiles	Aquatic Tox.
Halog.only	NJDEP list	App. IX	Chlordane	Indiv. Metals	Air TICs	NYCDEP Sewer	TOC
App.IX list	SPLP or TCLP	TCLP BNA	608 Pest	LIST Below	Methane	NYSDEC Sewer	Asbestos
8021B list		SPLP or TCLP	608 PCB		Helium	TAGM	Silica

Sample Identification	Date/Time Sampled	Sample Matrix	Choose Analyses Needed from the Menu Above and Enter Below	Container Description(s)
SB1 (3-5)	8/14/14 1050	S	TCL VOCs / TCL SVOCs / TAL Metals / 8082 / 8081	4-4oz VIALS & 1-8oz JAR
SB3 (5-8)	8/14/14 1525	S	↓	4-4oz VIALS, 1-8oz JAR
SB3 (15-20)	8/14/14 1610	S	↓	4-4oz VIALS 1-8oz JAR
SB2 (3-5)	8/15/14 1055	S	↓	4-4oz VIAS, 1-8oz JAR
SB2 (12-19)	8/15/14 1130	S	↓	4-4oz VIAS 1-8oz JAR
SB3 (0-4)	8/15/14 1400	S	↓	4-4oz VIALS 1-8oz JAR

Comments

Preservation Check those Applicable: 4°C X Frozen X HCl X MeOR ___ HNO3 ___ H2SO4 ___ NaOH ___ ZnAc Ascorbic Acid 10/10 Other 10/10 TM

Special Instructions

Field Filtered ☐
Lab to Filter ☐

Samples Relinquished By	Date/Time	Samples Received By	Date/Time
	8/19/14		8/19/14
Samples Relinquished By	Date/Time	Samples Received in LAB By	Date/Time
		TC Fuller	8/19/14 1745

Temperature on Receipt 3.0 °C

Phase I ESA Questionnaire

Property Address: 64-10 Queens Blvd.
Tax Map Number: Block # 7325, Lot # 26,3032
Date: 3/16/2015
Name or Preparer: [illegible]
Relationship to Property: [illegible]

Questions	Response	Comments
Describe the current and former use of the property, including business name(s).	Auto Body Warehouse	
Is there any evidence of current or former service stations, or of commercial\industrial activities that suggest that underground storage tanks may present?	Yes (No) Unknown	
Is there any evidence that aboveground storage tanks may be present?	Yes (No) Unknown	
How is the property building(s) heated and cooled?	Electric & Gas from lines & National Grid	
Is/was there ever a dry cleaner, metal manufacturing facility, or other property occupant that may have used degreasing materials or cleaners?	Yes (No) Unknown	
Is there any evidence that a landfill, dump, waste pile, wastewater lagoon, or other land disposal activity was/is present on the property?	Yes (No) Unknown	
Is there any evidence that hazardous substances or petroleum (paints, solvents, acids, bases, flammables, poisons, fuel oil, or other chemical materials) are/were used on the property?	Yes (No) Unknown	
Is there any evidence that radiological materials or radiological equipment (common in research laboratories, medical facilities, and industrial operations) may be/have been present on the property?	Yes (No) Unknown	
Is there any evidence that electrical equipment, such as transformers, capacitors, and light ballasts, or hydraulic equipment (e.g. lifts, loading dock levelers, and elevators) is/was present on the property?	Yes (No) Unknown	

Is there any evidence that pesticides (including insecticides, fungicides, and rodenticides) have been manufactured or used on the property?	Yes (No) Unknown	
Describe how sanitary waste is managed:	PUBLIC SEWER	
Are there any drains present within the building(s)?	Yes (No) Unknown	
Describe how solid waste (garbage) is managed:	GARBAGE PICK UP	
Are any water supply or monitoring wells present on the property?	Yes No (Unknown)	
Are there any coastal areas, rivers, streams, springs, lakes ponds, swamps, marshes, or other bodies of water on or immediately adjacent to the property? (do not include swimming pools and other similar bodies of water).	Yes (No) Unknown	
Are there any environmental liens recorded for the property? These are often found tin the Exceptions section of a property title report.	Yes (No) Unknown	
Please provide the proposed purchase price and appraised value of the property. If this information is not available, please provide an explanation:	6,000,000 purchase price. 6,300,000 Appraised price.	
Are any previous environmental reports available for the property? If so, copies must be provided.	(Yes) No Unknown	

Signature of Preparer

3/10/2015
Date

APPENDIX E

QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL

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PHASE II ENVIRONMENTAL
SUBSURFACE INVESTIGATION
PROPERTY LOCATED AT
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

May 28, 2004
Project No.: 04716

Prepared for:

MR. SIMON ROTHKRUG
ROTHKRUG, ROTHKRUG, WEINBURG & SPECTOR
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GREAT NECK, NEW YORK

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Senior Hydrogeologist

EEA Inc.
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Garden City, New York 11530
(516) 746-4400
(212) 227-3200

PHASE II ENVIRONMENTAL SUBSURFACE INVESTIGATION
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

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Figure 1: Site Location Plan

APPENDIX:
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EXECUTIVE SUMMARY

This investigation was completed to address issues presented in a Phase I Environmental Site Assessment (ESA) conducted by G.C. Environmental, Inc. (GCE) issued February 4, 2004, and on the limited soil gas survey issued by Fleming Lee Shue on March 2004. A sampling and analysis program was designed to determine if prior and/or present uses on the subject property have impacted the subsurface soils and environment as outlined in our Scope of Work dated April 26, 2004. The sampling and analysis plan consisted of soil quality testing using analytical test methods consistent with expected parameters and agency soil cleanup guidelines. The following presents an evaluation of our investigation.

EEA conducted the Phase II Environmental Site Assessment based on the finding of the previous Phase I ESA. These findings indicated that the western portion of the site was a gasoline station from circa 1923 to circa 1955. In addition, regulatory records indicated that a permit was issued for a portion of the property for ten (10) buried gasoline tanks and also indicated that there were four (4) gasoline pumps located on the northwestern portion of the site. In addition, the 1932 and the 1951 Sanborn Fire Insurance maps showed three (3) gasoline tanks located on the northwestern portion of the site and labeled it as a "filling station". Based on the information from the previous Phase I, the following tasks were completed during EEA's Phase II Subsurface Investigation:

Geophysical Survey – Magnetometer

During field activities, EEA performed a magnetometer survey over the property to determine if any underground storage tanks (USTs) were present on the property using a Fisher TW-6 magnetometer. The survey was conducted in the arESA of the suspected USTs around the former gasoline service station and auto repair facility. The survey did not indicate that there were any USTs present in the subsurface.

EEA concludes that the tanks had been removed at an earlier time and does not recommend any further action.

Former Gasoline Service Station

At the location of the former gasoline service station, six (6) soil borings were advanced to depth. Of these six soil borings, five (5) soil samples were selected for laboratory analysis based on field observations and field screening via a portable Organic Vapor Analyzer (OVA). Soil samples were analyzed for volatile organic compounds (VOCs) via USEPA Method 8021,

semi-volatile organic compounds (SVOCs) via USEPA Method 8270 and total petroleum hydrocarbons (TPH) via USEPA Method 8015. Results of soil analysis indicated that soil boring B-1 had some low-level concentrations of SVOCS above the New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) criteria. All five soil samples also had detections for TPH, however the concentrations were well below any regulatory guidelines. EEA concludes that the former gasoline station had not significantly impacted soil at the property.

Based on the analytical results, EEA does not recommend any further action in regards to the former gasoline station.

There are no recommendations for additional site investigation or remedial corrective action for this property at this time based upon the information disclosed in our investigation.

I. INTRODUCTION

This investigation was completed to address issues addressed in our Scope of Work dated April 26, 2004. A sampling and analysis program was designed to determine if prior and/or present uses on the subject property have impacted the subsurface soils and environment. The sampling and analysis plan consisted of soil quality testing using analytical test methods consistent with expected parameters and agency soil cleanup guidelines. The following presents an evaluation of our investigation.

EEA conducted the Phase II Environmental Site Assessment based on the finding of the previous Phase I ESA. These findings indicated that the western portion of the site was a gasoline station from circa 1923 to circa 1955. In addition, regulatory records indicated that a permit was issued for a portion of the property for ten (10) buried gasoline tanks and also indicated that there were four (4) gasoline pumps located on the northwestern portion of the site. In addition, the 1932 and the 1951 Sanborn Fire Insurance maps showed three (3) gasoline tanks located on the northwestern portion of the site and labeled it as a "filling station". Based on the information from the previous Phase I, EEA's initiated the Phase II Subsurface Investigation:

EEA initiated field activities on May 10, 2004; all Phase II field activities were completed by that date. This report summarizes the work performed, the results of the investigation, and the recommended remedial action requirements (if any).

II. SCOPE OF WORK PERFORMED

a. Health and Safety Plan

EEA uses a company Generic Health and Safety Plan for all investigative work relating to performing Phase II Environmental Subsurface Investigations. The HASP assigns responsibilities, establishes personal protection standards, recommends operating procedures, and provides for contingencies that may arise during performance of the assessment at the site. The protocols in the HASP apply to all personnel involved in the work activities including EEA, all outside subcontractors, client, or regulatory agencies present during the performance of the work. In addition, the following safety equipment is maintained on-site for responding to potential emergency situations: portable eyewash, ABC fire extinguisher, and first aid kit. Telephone numbers of emergency response units in the area are also posted where all those working at the site can ESAily see them. All personnel working at the site will also be required to receive training in respirator fitting, emergency procedures, equipment decontamination, and specific task procedures. All personnel involved with the collection of soil or water will have successfully completed the 40-hour OSHA Hazardous Materials Training Program.

b. Subsurface Utility Location, Permits and Bonding

EEA notified the New York City/Long Island One Call Center under the New York State Regulation Code 753 prior to initiating the work to identify the location of underground utilities in the vicinity of the proposed boring locations. The confirmation number assigned to the site was #1240288. Any permits for soil boring were obtained from the local agencies. In addition, any license and permit bonding required was secured for the work.

c. Investigation Work Summary

All soil sampling was completed using a Geoprobe Model 54LT using the *Macrocore* soil sampling system. Samples were field screened for volatile organic vapors using an organic vapor meter (OVM). If no reading was found, then the bottom sample or the sample determined to be the most representative was selected for laboratory testing. The geophysical survey was conducted utilizing a Fisher TW-6 magnetometer.

- A geophysical survey (magnetometer) to investigate USTs
- Six (6) soil borings (B-1,B-2, B-3, B-4, B-5 and B-6) to investigate the location of the former gasoline station on-site.

d. Geophysical Survey - Magnetometer

EEA performed a magnetometer survey over the property to determine if any USTs were present on the property. The survey was performed with a Fisher TW-6 magnetometer in the areas of the suspected underground tanks (around the former gasoline station and auto repair facility). The survey did not indicate that there were any USTs present in the subsurface. EEA concludes that these USTs had been removed at an earlier time.

e. Former Gasoline Service Station

Six (6) soil borings were completed in order to investigate the area of the former gasoline service station. The soil borings were completed to a depth of 12 feet using a Geoprobe Model 54LT and *Macrocore* soil sampling system. Each sample was field screened for volatile organic vapors using an OVM. Based on field observations and OVM readings, five (5) soil boring samples were submitted for laboratory analysis. Samples were selected based upon the results of the OVM field screening. The sample with the highest OVM reading was selected for testing. If no reading was found, then the bottom sample or the sample determined to be the most representative was selected for laboratory testing Each sample sent to the laboratory was tested for volatile organic compounds (VOCs via US EPA Method 8021), semi-volatile organic compounds (SVOCs via US EPA Method 8270) and TPH (via US EPA Method 8015). Soil sample B-1 had some low-level concentrations of SVOCs (Benzo (a) Anthracene and Benzo (a) Pyrene) slightly above the NYSDEC TAGM criteria. Also, all five soil samples had detections for TPH, however the concentrations are well below any regulatory guidelines. Based on the

minor detections for SVOCs and TPH, EEA concludes that the former gasoline service station has not impacted subsurface soils on the property.

III. RESULTS OF LABORATORY ANALYSES

Ecotest Laboratories, Inc. (NYSDOH Certification #10320) prepared the results of the soil samples. Tables 1 and 2 present a summary of the results and a comparison to New York State Department of Environmental Conservation (NYSDEC) STARS Memo #1 and Technical and Administrative Guidance Manual (TAGM) cleanup guidelines. The chain-of-custody records, as well as the analytical laboratory data sheets, are presented in the Appendix to this report.

The soil sample collection locations are presented in Figure 1. The soil boring report logs present the field observations made at each soil boring location and site photographs are presented in the Appendix to this report.

IV. FINDINGS AND CONCLUSIONS

a. Geophysical Survey - Magnetometer

The magnetometer survey did not indicate that USTs were still present in the vicinity of the former gasoline service station and auto repair facility. EEA concludes that these tanks had been removed at an earlier time.

b. Former Gasoline Service Station

Six (6) soil borings were advanced in the area of the former gasoline service station, and of these, five (5) soil samples were submitted for laboratory analysis. Analytical results indicate that soil boring B-1 had some low-level concentrations of SVOCS above the NYSDEC TAGM criteria. Also, all five soil samples had detections for TPH, however the concentration were well below any regulatory guidelines. EEA concludes that the former USTs had been removed and that the former USTs have not significantly impacted subsurface conditions at the subject property.

The NYSDEC has developed the "guidelines" in order for DEC case managers to determine potential cleanup recommendations at various sites thoughout the state. The New York City Department of Environmental Protection (NYCDEP) and USEPA have developed similar guidelines. The NYSDEC and NYCDEP consider each site on a case-by-case basis in consideration of the property usage and its location to sensitive human, wildlife and environmental interests. Industrial properties are treated differently than residential or environmentally sensitive areas. In order to determine the specific requirements regarding potential remedial corrective action, EEA recommends that this report is reviewed by the applicable regulating agency.

TABLE 1
SOIL ANALYTICAL RESULTS: VOLATILE ORGANIC COMPOUNDS
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

Sample ID & Sample Depth	B-1 12ft	B-2 12ft	B-3 12ft	B-5 12ft	B-6 12ft
Matrix	Soil	Soil	Soil	Soil	Soil
Sampling Date	5/10/2004	5/10/2004	5/10/2004	5/10/2004	5/10/2004

VOLATILE ORGANIC COMPOUNDS (ug/Kg)	NYSDEC Soil Cleanup Objectives (TAGM) (ug/Kg)	US EPA METHOD 8021				
124-Trimethylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
135-Trimethylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
Benzene	60	<5.4	<5.2	<5.4	<5.5	<5.6
Ethyl Benzene	5,500	<5.4	<5.2	<5.4	<5.5	<5.6
Isopropylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
m + p Xylene	1,200	<11	<10	<11	<11	<11
n-Butylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
n-Propylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
Naphthalene(v)	13,000	<5.4	<5.2	<5.4	<5.5	<5.6
o Xylene	1,200	<5.4	<5.2	<5.4	<5.5	<5.6
p-isopropyltoluene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
sec-Butylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
ter.ButylMethylEther	NE	<5.4	<5.2	<5.4	<5.5	<5.6
tert-Butylbenzene	NE	<5.4	<5.2	<5.4	<5.5	<5.6
Toluene	1,500	<5.4	<5.2	<5.4	<5.5	<5.6
Xylene	1,200	<16	<16	<16	<16	<17

Notes:
< = Analyte not detected above the Laboratory Reporting Limit (detection limit noted)
NYSDEC = New York State Department of Environmental Conservation
TAGM = Technical and Administrative Guidance Memorandum
NE = TAGM guidelines Not Established
Bold indicates analytes detected above the Laboratory Reporting Limi
Shade indicated analytes detected above the TAGM guideline

TABLE 2
SOIL ANALYTICAL RESULTS: SEMI-VOLATILE ORGANIC COMPOUNDS & TOTAL PETROLEUM HYDROCARBONS
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

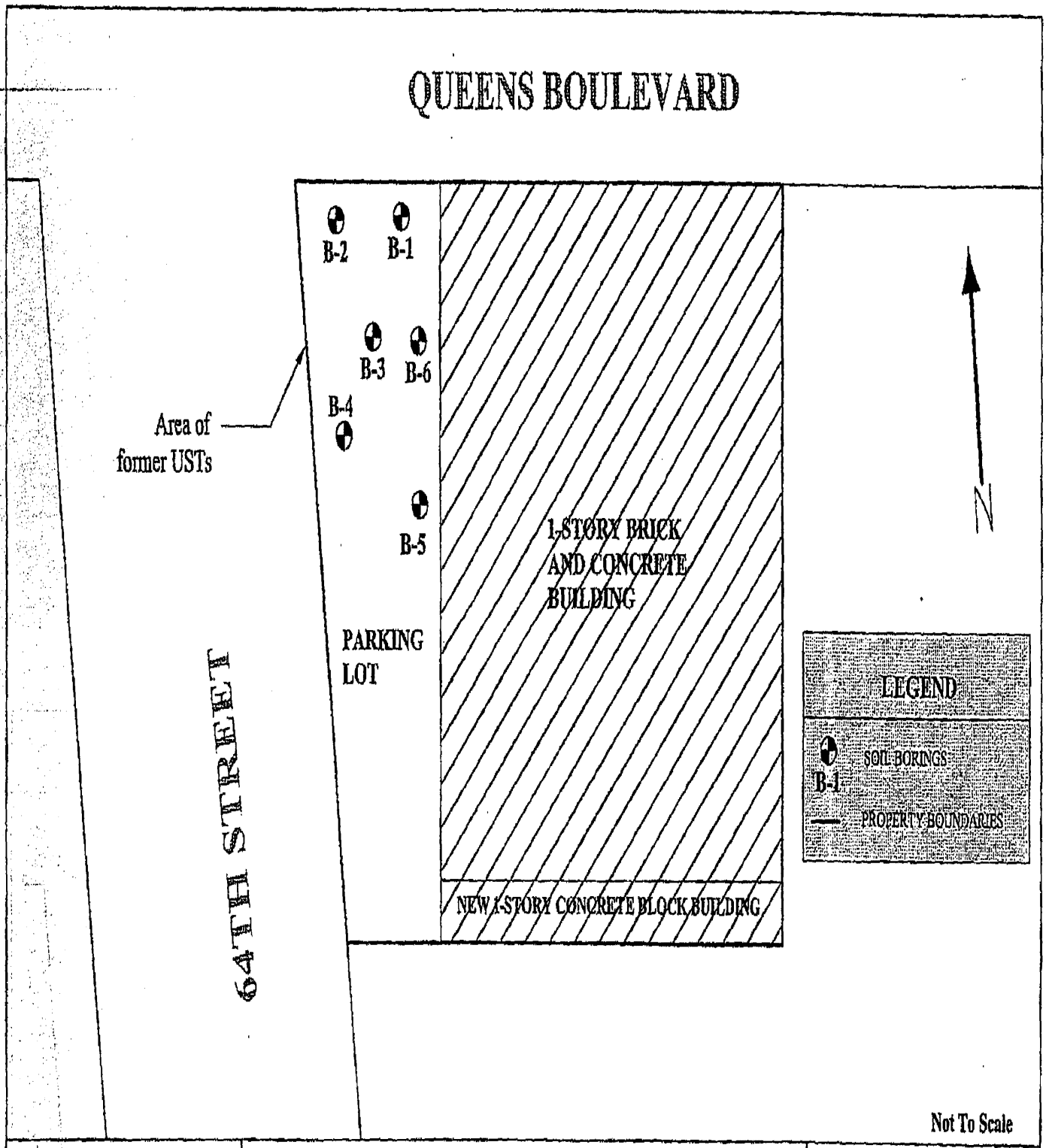
Sample ID & Sample Depth	B-1 12ft	B-2 12ft	B-3 12ft	B-5 12ft	B-6 12ft
Matrix	Soil	Soil	Soil	Soil	Soil
Sampling Date	5/10/2004	5/10/2004	5/10/2004	5/10/2004	5/10/2004

SEMI-VOLATILE ORGANIC COMPOUNDS (ug/Kg)	NYSDEC Soil Cleanup Objectives (TAGM) (ug/Kg)	US EPA METHOD 8270				
Acenaphthene	50,000	<330	<310	<330	<330	<340
Anthracene	50,000	<330	<310	<330	<330	<340
Benzo(a)anthracene	224	**330**	<310	<330	<330	<340
Benzo(a)pyrene	61	**380**	<310	<330	<330	<340
Benzo(b)fluoranthene	1,100	**410**	<310	<330	<330	<340
Benzo(ghi)perylene	50,000	<330	<310	<330	<330	<340
Benzo(k)fluoranthene	1,100	**410**	<310	<330	<330	<340
Chrysene	400	**350**	<310	<330	<330	<340
Dibenzo(a,h)anthracene	14	<330	<310	<330	<330	<340
Fluoranthene	50,000	<330	<310	<330	<330	<340
Fluorene	50,000	<330	<310	<330	<330	<340
Indeno(1,2,3-cd)pyrene	3,200	<330	<310	<330	<330	<340
Naphthalene(sv)	13,000	<330	<310	<330	<330	<340
Phenanthrene	50,000	<330	<310	<330	<330	<340
Pyrene	50,000	**500**	<310	<330	<330	<340

Sample ID & Sample Depth	B-1 12ft	B-2 12ft	B-3 12ft	B-5 12ft	B-6 12ft
Matrix	Soil	Soil	Soil	Soil	Soil
Sampling Date	5/10/2004	5/10/2004	5/10/2004	5/10/2004	5/10/2004

TOTAL PETROLEUM HYDROCARBONS (mg/kg)	NYSDEC Soil Cleanup Objectives (TAGM) (mg/Kg)	US EPA METHOD 8015 GC				
Petrol. Hydrocarbons	NE	**150**	**3.5**	**160**	**6**	**1.1**

Notes:
< = Analyte not detected above the Laboratory Reporting Limit (detection limit noted)
NYSDEC = New York State Department of Environmental Conservation
TAGM = Technical and Administrative Guidance Memorandum
NE = TAGM guidelines Not Established
Bold indicates analytes detected above the Laboratory Reporting Limi
Shade indicated analytes detected above the TAGM guideline:



EEA, Inc.

55 Hilton Avenue
Garden City, New York
(516) 746-4400

Figure 1: Site Location Plan
64-06 Queens Boulevard
Woodside, New York

Job No.: 04716

Drawn By: FI

Date: 5/28/04

V. RECOMMENDATIONS

There are no recommendations for additional site investigation or remedial corrective action for this property at this time based upon the information disclosed in our investigation.

VI. SAMPLING METHODOLOGY

a. Soil Sampling

Soil samples were obtained by utilizing a Geoprobe Model 54 LT utilizing the *Macrocore* soil sampling system. An organic vapor analysis was performed on all soil samples using a Thermo Environmental Instruments Inc. 580B photo-ionization detector (OVM). Generally, the sample producing the highest organic vapor reading was sent to the laboratory for analysis. If no reading was found, the sample was selected based upon visual analysis to be best representative of the location.

Soils at the site consisted of brown, fine to medium grained sand intermixed with gravel, stones and brick where fill material was encountered and brown, fine to medium grained sand and some silt where native material was encountered. Soil borings were advanced to a depth of 12 feet below grade and ground water was not encountered on-site.

b. Quality Assurance and Quality Control QA/QC Plan

EEA implements a QA/QC Plan to ensure sample integrity and avoid contamination and/or cross-contamination of samples. All sampling equipment is cleaned before each sample is collected. When petroleum hydrocarbon contamination is encountered, all equipment is steam-cleaned. The following procedures are followed in the decontamination process:

Step 1: Steam clean equipment.
Step 2: Scrub with a bristle brush using a non-phosphate detergent (such as Alconox).
Step 3: Rinse with hot tap water.
Step 4: Rinse twice with deionized water.
Step 5: Air dry.
Step 6 Nitric Acid (5%) solution rinse (if sampling for metals)
Step 7: Rinse twice with deionized water.
Step 8: Air dry.

VII QUALIFICATIONS

EEA, Inc. is an environmental consulting firm that has undertaken environmental pollution investigations, development feasibility studies, and environmental site assessment

studies since 1979. These site evaluation studies have been prepared for major lenders, public corporations, businesses, developers and governmental agencies. Approximately 4,000 parcels have been evaluated in the metropolitan New York-New Jersey area during the past twenty years, ranging from Phase I Environmental Site Assessments to comprehensive subsurface hazardous material investigations and testing programs. EEA also prepares bid specifications for remedial cleanup actions and supervises site cleanup.

EEA's principals and senior managers for the hazardous waste investigations each have over 20 years experience in environmental consulting, with established credentials in the field.

Individual qualifications of EEA personnel, including specific credentials of persons involved in the preparation of this report can be provided upon request.

VIII. DISCLAIMER

This report is for use by Mr. Simon Rothkrug of the Rothkrug, Rothkrug, Weinburg & Spector, and is only to be used as a guide in determining the potential for contamination by toxic or hazardous materials on the subject property at the time of the site visit. This Phase II Environmental Subsurface Investigation was undertaken in accordance with generally accepted protocols, including ASTM Standards Related to the Phase II Environmental Site Assessment Process. This Phase II Investigation is based principally on the review of historic and regulatory records (made available within a reasonable time period), relating to past occupants and usage of the subject property, as well as activities at nearby sites, and upon a visual assessment of the subject property, and makes no determinations with respect to portions of the subject property and its structures which were not inspected. Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable qualified professionals practicing in this or similar situations. The interpretation of the field data is based on good judgement and experience. However, no matter how qualified the professional or detailed the investigation, subsurface conditions cannot always be predicted beyond the points of actual sampling and testing. No other warranty, expressed or implied, is made to the professional advice included in this report.

Any and all liability on the part of EEA, Inc. shall be limited solely to EEA's professional liability insurance (errors and omissions coverage of one million dollars). EEA, Inc. shall have no liability for any other damages, whether consequential, compensatory, punitive, or special, arising out of, incidental to, or as a result of, this assessment. EEA, Inc. assumes no liability for the use of this report by any person or entity other than the institution and/or entities or persons for whom it has been prepared.

APPENDIX A

CHAIN-OF CUSTODY

ECO TEST LABORATORIES, INC. • ENVIRONMENTAL TESTING

177 Sheffield Avenue, North Babylon, New York 11703
(631) 422-5777 • FAX (631) 422-5770

CHAIN OF CUSTODY RECORD

Client: EEA Inc.
Address: 55 Hilton Avenue
Garden City NY 11530
Phone: (516) 741-4400 FAX: (516) 741-4420
Person receiving report: N. Zenchuk
Sampled by: AR
Source: Roof Asphaltene
Job No.: EEA 04716

MATRIX (Soil, water, etc.)	COLLECTED DATE	COLLECTED TIME	SAMPLE IDENTIFICATION	TOTAL NUMBER OF CONTAINERS	TYPE & NUMBER OF CONTAINERS: USEPA 8021 (STARS)	USEPA 8270 B/N (STARS)	TPHC 8015 (GC)	REMARKS—TESTS REQUIRED SPECIAL TURNAROUND SPECIAL Q.C. etc.
Soil	5/10/04	0945	B-1 12ft	1	✓	✓	✓	
Soil	5/10/04	0950	B-2 12ft	1	✓	✓	✓	
Soil	5/10/04	1000	B-3 12ft	1	✓	✓	✓	
Soil	5/10/04	1030	B-5 12ft	1	✓	✓	✓	
Soil	5/10/04	1100	B-6 12ft	1	✓	✓	✓	

Relinquished by: (Signature)	DATE/TIME	SEAL INTACT?	Received by: (Signature)	Relinquished by: (Signature)	DATE/TIME	SEAL INTACT?	Received by: (Signature)
Representing:	5/10 1730	YES NO NA	Representing:	Representing:		YES NO NA	Representing:
Relinquished by: (Signature)	DATE/TIME	SEAL INTACT?	Received by: (Signature)	Relinquished by: (Signature)	DATE/TIME	SEAL INTACT?	Received by: (Signature)
Representing:		YES NO NA	Representing:	Representing:		YES NO NA	Representing:

APPENDIX B

LABORATORY ANALYTICAL REPORT

EcoTest Laboratories, Inc.

377 Sheffield Avenue377 Sheffield Avenue
North Babylon, New York 11703
(631) 422-5777
Fax: (631) 422-5770

FAX TRANSMISSION COVER SHEET

Date: *May 28, 2004*

To: *Fariha Islam*

Fax:

Re: *Rodi Automotive, EEA#04716*
Lab No. 242008 (.01-.05)

Sender: *Sophia Sparkes*

YOU SHOULD RECEIVE 16 PAGE(S), INCLUDING THIS COVER SHEET.
IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL (631) 422-5777

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-6777 • FAX (631) 422-6770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.01 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0845
MATRIX:Soil SAMPLE: B-1 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Toluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Ethyl Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	10.869	EPA8021
o Xylene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Xylene	ug/Kg	< 16		05/12/04	16.304	EPA8021
Isopropylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Propylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
sec-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Naphthalene(v)	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
tert-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
% Solids		92		05/12/04	0.1	SM182540G

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn # 19181 NYSDOH ID # 10320 Page 1 of 3

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.01 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0845
MATRIX:Soil SAMPLE: B-1 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 330		05/13/04	326.08	EPA8270
Acenaphthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Fluorene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Phenanthrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Anthracene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Fluoranthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Pyrene	ug/Kg	500		05/13/04	326.08	EPA8270
Benzo(a)anthracene	ug/Kg	330		05/13/04	326.08	EPA8270
Chrysene	ug/Kg	350		05/13/04	326.08	EPA8270
Benzo(b)fluoranthene	ug/Kg	410	#*	05/13/04	326.08	EPA8270
Benzo(k)fluoranthene	ug/Kg	410	#*	05/13/04	326.08	EPA8270
Benzo(a)pyrene	ug/Kg	380	*	05/13/04	326.08	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 330	*	05/13/04	326.08	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 330	*	05/13/04	326.08	EPA8270
Benzo(ghi)perylene	ug/Kg	< 330	*	05/13/04	326.08	EPA8270

cc:

LRL=Laboratory Reporting Limit

REMARKS: #Total = 820 ug/Kg, unable to separate isomers.
*Estimated due to low internal standard recovery, *43%. Low recovery due to interference. QC limit is 50%.

DIRECTOR

rn = 19182 NYSDOH ID # 10320 Page 2 of 3

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.01 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Becchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0845
MATRIX:Soil SAMPLE: B-1 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Total Pet.Hydro.(GC)	mg/Kg	150		05/18/04	4.3478	EPA8015

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.02 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530

ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, ERA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0930

MATRIX:Soil SAMPLE: A-2 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Benzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Toluene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Ethyl Benzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
m + p Xylene	ug/Kg	< 10		05/12/04	10.416	EPA8021
o Xylene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Xylene	ug/Kg	< 16		05/12/04	15.625	EPA8021
Isopropylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
n-Propylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
sec-Butylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
n-Butylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Naphthalene(v)	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
tert-Butylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
% Solids		96		05/12/04	0.1	SM18#2540G

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19184 NYSDOH ID # 10320 Page 1 of 3

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377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.02 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0930
MATRIX:Soil SAMPLE: B-2 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 310		05/13/04	312.5	EPA8270
Acenaphthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Fluorene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Phenanthrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Anthracene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Fluoranthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Pyrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(a)anthracene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Chrysene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(a)pyrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(ghi)perylene	ug/Kg	< 310		05/13/04	312.5	EPA8270

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.02 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0930
MATRIX:Soil SAMPLE: B-2 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	3.5		05/18/04	0.4166	EPA8015

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19186 NYSDOH ID # 10320 Page 3 of 3

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO. 242008.03 05/20/04

Energy & Environmental Analysis, Inc.
55 Hilton Avenue
Garden City, NY 11530

ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1000
MATRIX:Soil SAMPLE: B-3 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Toluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Ethyl Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	10.869	EPA8021
o Xylene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Xylene	ug/Kg	< 16		05/12/04	16.304	EPA8021
Isopropylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Propylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
sec-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Naphthalene(v)	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
tert-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
% Solids		92		05/12/04	0.1	SM18S540G

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn # 19107 NYSDOH ID # 10320 Page 1 of 3

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO. 242008.03 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, FEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1000
MATRIX:Soil SAMPLE: B-3 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 330		05/13/04	326.08	EPA8270
Acenaphthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Fluorene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Phenanthrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Anthracene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Fluoranthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Pyrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(a)anthracene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Chrysene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(a)pyrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(ghi)perylene	ug/Kg	< 330		05/13/04	326.08	EPA8270

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19188 NYSDOH ID # 10320

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.03 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1000
MATRIX:Soil SAMPLE: B-3 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	160		05/18/04	0.4347	EPA8015

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19189 NYSDOH ID # 10320 Page 3 of 3

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.04 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1030
MATRIX:Soil SAMPLE: B-5 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Benzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Toluene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Ethyl Benzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	10.989	EPA8021
o Xylene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Xylene	ug/Kg	< 16		05/12/04	16.483	EPA8021
Isopropylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
n-Propylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
sec-Butylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
n-Butylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Naphthalene(v)	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
tert-Butylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
% Solids		91		05/12/04	0.1	SM182540G

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19190 NYSDOH ID # 10320 Page 1 of 3

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.04 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1030
MATRIX:Soil SAMPLE: B-5 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 330		05/13/04	329.67	EPA8270
Acenaphthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Fluorene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Phenanthrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Anthracene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Fluoranthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Pyrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(a)anthracene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Chrysene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(a)pyrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(ghi)perylene	ug/Kg	< 330		05/13/04	329.67	EPA8270

cc:

LRL=Laboratory Reporting Limit

REMARKS:

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rn = 19191 NYSDOH ID # 10320 Page 2 of 3

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Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.04 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, ERA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1030
MATRIX:Soil SAMPLE: B-5 12Ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	6.0		05/17/04	0.4395	EPA8015

cc:

LRL=Laboratory Reporting Limit

REMARKS:

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rn = 19192 NYSDOH ID # 10320 Page 3 of 3

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377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.05 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Necchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1100
MATRIX:Soil SAMPLE: A-6 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Benzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Toluene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Ethyl Benzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	11.235	EPA8021
o Xylene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Xylene	ug/Kg	< 17		05/12/04	16.853	EPA8021
Isopropylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
n-Propylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
sec-Butylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
n-Butylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Naphthalene(v)	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
tert-Butylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
% Solids		89		05/12/04	0.1	SM18 2540G

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19193 NYSDOH ID # 10320 Page 1 of 3

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY						B - 2
REMARKS: Former UST area						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 54 MACROCORE
SIZE	2 Inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt 2"				
WATER LEVEL (IN OPEN BOREHOLE): Not established						

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND and some stone and gravel (Fill).
5	S-2	4-8	0	Dry		Brown, fine grained SAND (Fill).
	*S-3	8-12	0	Dry		
10						Brown, fine to coarse grained SAND and cobbles; GRAVEL (SP).
						EOB @ 12 feet
15						
20						
25						
30						

* soil sample collected for laboratory analysis

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04					SHEET 1 OF 1
CLIENT: Simon Rothkrug					LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY					B - 3
REMARKS: Former gasoline UST area (moved first location –refusal)					PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR	DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification	DRILL RIG
		Direct			DRILL METHOD
TYPE	MACROCORE	Push			GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42			
SURFACE ELEVATION: NA		Surface Materials: Asphalt 2"			

WATER LEVEL (IN OPEN BOREHOLE): Not established

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND, some GRAVEL (Fill).
5	S-2	4-8	0	Dry		
	*S-3	8-12	0	Dry		
10						Brown, fine to coarse grained SAND, some GRAVEL (SP).
						EOB @ 12 feet
15						
20						* soil sample collected for laboratory analysis
25						
30						

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04					SHEET 1 OF 1
CLIENT: Simon Rothkrug					LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY					B - 4
REMARKS: Former gasoline UST area					PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR	DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification	DRILL RIG
		Direct			DRILL METHOD
TYPE	MACROCORE	Push			GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42			
SURFACE ELEVATION: NA		Surface Materials: Asphalt			
WATER LEVEL (IN OPEN BOREHOLE): Not established					

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to coarse SAND, some SILT.
5	S-2	4-8	0	Dry		Brown, fine grained SAND (SP). (Clean) No tank bed here
	S-3	8-12	0	Dry		Same as above,
10						
15						
20						
25						
30						EOB @ 12 feet

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377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.05 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530

ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1100

MATRIX:Soil SAMPLE: B-6 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 340		05/13/04	337.07	EPA8270
Acenaphthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Fluorene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Phenanthrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Anthracene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Fluoranthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Pyrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(a)anthracene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Chrysene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(a)pyrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(ghi)perylene	ug/Kg	< 340		05/13/04	337.07	EPA8270

cc:

LRL=Laboratory Reporting Limit

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377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770
Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.05 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1100
MATRIX:Soil SAMPLE: B-6 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	1.1		05/17/04	0.4494	EPA8015

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19195 NYSDOH ID # 10320 Page 3 of 3

APPENDIX C

SOIL BORING LOG REPORTS

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY						B - 1
REMARKS: Former gasoline tank USTs						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt				
WATER LEVEL (IN OPEN BOREHOLE): Not established						

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND, some GRAVEL and stone fill.
5	S-2	4-8	0	Dry		Brown, fine to medium grained SAND, little stone and GRAVEL (fill). (Former Tank Bed)
	*S-3	8-12	5	Dry		Brown, fine to medium SAND, little stone and GRAVEL (Fill). Brown, fine to coarse grained SAND and cobbles, stone and GRAVEL (SP)
10						EOB @ 12 feet
15						
20						
25						
30						

* soil sample collected for laboratory analysis

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04					SHEET 1 OF 1
CLIENT: Simon Rothkrug					LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY					B - 5
REMARKS: Former gasoline UST area					PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR	DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification	DRILL RIG
		Direct			DRILL METHOD
TYPE	MACROCORE	Push			GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42			
SURFACE ELEVATION: NA		Surface Materials: Asphalt			
WATER LEVEL (IN OPEN BOREHOLE): Not established					

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND, stones, red-brick, GRAVEL (Fill).
	S-2	4-8	0	Dry		
5						
	*S-3	8-12	0	Moist		Red-brown, fine grained SAND, SILT and some GRAVEL (SP).
10						
						EOB @ 12 feet
15						
20						
						* soil sample collected for laboratory analysis
25						
30						

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY						B - 6
REMARKS: Former gasoline tank areas & pump island						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt				
WATER LEVEL (IN OPEN BOREHOLE): Not established						

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown-black, fine to coarse grained SAND, brick, GRAVEL and stone (Fill).
	S-2	4-8	0	Dry		Brown-red, fine SAND and SILT, little GRAVEL (SP).
5						
	*S-3	8-12	0	Moist		
10						
						EOB @ 12 feet
15						
20						
						* soil sample collected for laboratory analysis
25						
30						

APPENDIX D

SITE PHOTOGRAPHS

AUTO
PARTS
LOW LOW
WAREHOUSE
PRICES!

PARTS

Phase II Work Plan

For

64-02 & 64-06 Queens Boulevard, Woodside

Block 2325, Lot 32

OER Project Number 15EHAN504Q

E-Designation E-163

CEQR Number 06DCP065Q

Maspeth/Woodside Rezoning

DRAFT

Prepared for:

Queens Blvd Venture, LLC
35-06 Leavitt Street, Suite CF-A
Flushing, NY 11354

Prepared by:

FPM Group
909 Marconi Avenue
Ronkonkoma, New York 11779

JUNE 2015

PHASE II WORK PLAN

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FIGURES

Figure 1.1.1 – Site Location Map

Figure 1.1.2 – Site Plan

Figure 1.2.1 – Future Development Plan

Figure 3.2.1 – Sample Locations

APPENDICES

Appendix 1 – Previous Environmental Reports

Appendix 2 – Health and Safety Plan

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LIST OF ACRONYMS

Acronym	Definition
AST	Aboveground Storage Tank
CAMP	Community Air Monitoring Plan
C&D	Construction & Demolition
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
CO	Certificate of Occupancy
CPC	City Planning Commission
DSNY	Department of Sanitation
"E"	E-Designation
EAS	Environmental Assessment Statement
EIS	Environmental Impact Statement
ESA	Environmental Site Assessment
EC/IC	Engineering Control and Institutional Control
ELAP	Environmental Laboratory Accreditation Program
FDNY	New York City Fire Department
GPR	Ground Penetrating Radar
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations Emergency Response
IDW	Investigation Derived Waste
Notice - NNO	Notice of No Objection
Notice - NTP	Notice To Proceed
Notice - NOS	Notice Of Satisfaction
Notice - FNOS	Final Notice of Satisfaction
NYC BSA	New York City Board of Standards and Appeals
NYC DCP	New York City Department of City Planning
NYC DEP	New York City Department of Environmental Protection
NYC DOB	New York City Department of Buildings
NYC DOF	New York City Department of Finance
NYC HPD	New York City Housing Preservation and Development
NYCRR	New York Codes Rules and Regulations

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NYC OER	New York City Office of Environmental Remediation
NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYS DEC PBS	New York State Department of Environmental Conservation Petroleum Bulk Storage
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
OSHA	United States Occupational Health and Safety Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PE	Professional Engineer
PID	Photo Ionization Detector
PM	Particulate Matter
QEP	Qualified Environmental Professional
RA	Register Architect
RAP	Remedial Action Plan
RCA	Recycled Concrete Aggregate
RCR	Remedial Closure Report
RD	Restrictive Declaration
RI	Remedial Investigation
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSDS	Sub-Slab Depressurization System
SVOCs	Semi-Volatile Organic Compounds
USCS	Unified Soil Classification System
USGS	United States Geological Survey
UST	Underground Storage Tank
TAL	Target Analyte List
TCL	Target Compound List
TCO	Temporary Certificate of Occupancy
VB	Vapor Barrier
VOCs	Volatile Organic Compounds

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PHASE II WORK PLAN

1.0 INTRODUCTION

This Phase II Environmental Site Investigation (ESI) Work Plan and Health and Safety Plan (HASP) have been developed for the property located at 64-02 & 64-06 Queens Boulevard in the Woodside section of Queens, New York (the Site). This project has been assigned project number OER Project 15EHAN504Q by the New York City Office of Environmental Remediation (OER). This Work Plan describes the proposed investigation that will address the environmental concerns indentified at the property in the April 2015 Phase I Environmental Site Assessment (ESA) report prepared by FPM Group, Ltd. in coordination with the OER. An E-Designation for Hazardous Materials (E-163) was placed on the Site by the New York City Department of City Planning (DCP) as part of the Maspeth/Woodside Rezoning (CEQR 06DCP065Q). The site-specific HASP (Appendix 2) addresses potential hazards, contaminants of concern based on past use and safety requirements associated with investigation activities in accordance with ASTM and OSHA guidelines.

1.1 Site Location and Current Usage

The Site is located in the Woodside section of Queens, New York and is identified as Block 2325 and Lot 32 on the New York City Tax Map. Figure 1.1.1 is a Site location map. The Site is 16,050-square feet and is bounded by Queens Boulevard to the north, residential buildings to the south, FDNY Rescue Co. 4 and Engine Co. 292 to the east, and 64th Street to the west. Currently, the Site is vacant and contains an 11,000-square-foot one-story commercial building with an asphalt-paved parking lot to the west. Figure 1.1.2 is a Site plan showing the current layout of the Site

1.2 Proposed Redevelopment Plan

The proposed use of the Site will be commercial and residential. Redevelopment will include the construction of a one- to eight-story building with a cellar and sub-cellar to a total depth of 21 feet below grade (fbg).

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The layout of the proposed Site development is presented in Figure 1.2.1. The current zoning designation is R7X R4-1 with a C2-3 overlay which permits residential and retail commercial use.

The redevelopment plan includes demolishing the current Site building, with removal and proper offsite disposal of all demolition debris. No sub-grade demolition is anticipated or planned.

The new building will be approximately 15,915 square feet and the sub-cellar will occupy the entire lot, with the exception of approximately 135 square feet on the southeast corner of the Site, which will remain undeveloped. The sub-cellar will contain parking and mechanical rooms. The cellar will contain hotel rooms, mechanical rooms, a lounge, a meeting room, and a terrace. The first floor (ground level) will contain a hotel lobby, hotel rooms, a buffet area, a pantry area, and mechanical rooms. The second and third floors will contain hotel rooms and mechanical rooms. The fourth floor will contain hotel rooms, residential apartments, and mechanical rooms. Floors five through seven will contain residential apartments and mechanical rooms. The eighth floor will contain residential apartments, mechanical rooms, a recreation area, and a terrace. The building will contain 93 hotel rooms, 42 apartments, and three elevators; the total gross area of the building will be 94,524 square feet.

Redevelopment for the sub-cellar will include excavation across the entire Site, with the exception of the 135-square-foot area on the southeast corner, to a depth of 24 fbg. Approximately 14,150 cubic yards of soil will be excavated. Depth to groundwater is estimated at 10 fbg.

1.3 Description of Surrounding Property

The Site is located in a neighborhood with commercial buildings, residential buildings, public facilities and institutions, transportation and utility buildings, open space and recreation areas, and parking areas. The properties in this area are typically zoned R7X with a C2-3 overlay, R4-1, and R5B. The Site is adjoined to the south by residential buildings. The Site is adjoined to the north by a Queens Motor Inn across Queens Boulevard. The Site is adjoined to the west by a residential building with commercial retail space on the first floor across 64th Street. The Site is adjoined to the east by the FDNY Rescue Co. 4 and Engine Co. 292.

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2.0 PREVIOUS ENVIRONMENTAL DOCUMENTATION

2.1 Environmental Investigation Reports

The following environmental work plans and reports were developed for the Site:

Phase I Environmental Site Assessment, February 2004, prepared by G.C. Environmental, Inc.

Phase II Environmental Subsurface Investigation, May 28, 2004, prepared by EEA Inc.

Phase I Environmental Site Assessment, October 24, 2013, prepared by Merritt Environmental Consulting Corp.

Phase II Subsurface Investigation, September 3, 2014, prepared by Advanced Cleanup Technologies, Inc.

Phase I Environmental Site Assessment, April 2015, prepared by FPM Group, Ltd.

Digital (PDF) copies of the available above-referenced environmental reports are included as Appendix 1.

2.3 Phase I Summary

The Phase I report was prepared by FPM Group for Queens Blvd Venture, LLC dated April 2015. This Phase I indentified one recognized environmental condition (REC) and one historic recognized environmental condition (HREC):

1. The Site has been owned by various private and commercial entities. No industrial ownership was reported. The Site was originally developed with railroad tracks on the southwest corner of the property prior to 1914. Between 1914 and 1932 a filling station consisting of a one-story garage, a one-story store building, and three gas tanks was developed on the western portion of the property, with the tanks located beneath the northwestern portion of the property. Between 1932 and 1951 a one-story lumber building was developed to the east of the filling station. The subject property was redeveloped with the current commercial building and parking lot in

1960. The Site is currently vacant and was most recently occupied as an Auto Barn auto parts store.

2. The presence of tetrachloroethene (PCE), trichloroethene (TCE), and methylene chloride in the soil vapor below the parking lot, discussed below in Section 2.4, was identified as a REC.

3. The presence of the former filling station and associated gasoline tanks, in conjunction with the 2004 and 2013 Phase II Investigations discussed below in Section 2.4, was identified as an HREC.

4. Groundwater is estimated at a depth of 10 feet below grade (fbg) and generally flows to the west.

2.4 Findings of Previous Environmental Investigation (if applicable)

The *Phase II Environmental Subsurface Investigation* was prepared by EEA Inc. dated May 28, 2004. Pertinent information obtained from this Phase II Investigation is summarized as follows:

1. A previous Phase I ESA identified a permit issued for the Site for 10 gasoline USTs and 4 gasoline pumps located on the northwest portion of the Site.
2. A magnetometer survey did not identify any USTs at the Site.
3. The stratigraphy of the site, from the surface down, consists of 4 to 10 feet of historic fill, generally consisting of a brown fine to medium grained sand with varying amounts of gravel and brick, underlain by 2 to 12 feet of a brown fine to coarse grained sand with varying amounts of cobbles, gravel, and silt.
4. Soil/fill samples collected during the Phase II Investigation showed no volatile organic compounds (VOCs) or semivolatile organic compounds (SVOCs) detected above Track 1 Unrestricted Use SCOs.

The *Phase II Subsurface Investigation* was prepared by Advanced Cleanup Technologies, Inc. dated September 3, 2014. Pertinent information obtained from this Phase II Investigation is summarized as follows:

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1. A geophysical survey of the parking lot did not identify any anomalies suggestive of USTs at the Site.

2. The stratigraphy of the site, from the surface down, consists of a brown sand with varying amounts of gravel, silt, and clay.

3. Soil/fill samples collected during the Phase II Investigation showed no VOCs detected above Track 1 Unrestricted Use SCOs, with the exception of acetone. The acetone detections were below the Track 2 Restricted Residential Use SCOs, and acetone was noted to be a common laboratory contaminant. The metals cadmium, copper, lead, nickel, and zinc were the only metals detected above Track 1 Unrestricted Use SCOs. The metals detections were all below the Track 2 Restricted Residential Use SCOs. The metals detections were attributed to the presence of historic fill. No SVOCs, polychlorinated biphenyls (PCBs), or pesticides were detected above the Track 1 Unrestricted Use SCOs.

4. Soil vapor samples collected during the Phase II Investigation showed three VOCs, PCE, TCE, and methylene chloride, detected at levels above the indoor air Air Guideline Values in the October 2006 New York State Department of Health (NYSDOH) "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York". The PCE and TCE detections were found at levels for which the NYSDOH would require no further action, monitoring, or mitigation (depending on the associated indoor air concentrations of PCE and TCE).

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3.0 PHASE II ENVIRONMENTAL SITE INVESTIGATION

3.1 Investigation Rationale

➢ Geophysical Survey

The geophysical survey will be performed across the entire site to investigate for the existence of potential USTs and other subsurface infrastructure. Three gas tanks were identified on historic Sanborn maps and a previous Phase I report identified a permit for 10 gasoline USTs. No evidence of any USTs was identified at the Site during the site inspection for the Phase I ESA.

➢ Soil, Soil Vapor and Groundwater

An investigation of soil, soil vapor and groundwater is being performed to investigate for the existence of potential environmental contamination onsite. The rationale for the borings, soil vapor locations and groundwater wells is as follows:

- Six soil borings (SB-1 through SB-6) will be completed at the site to address historic fill conditions and will generally be evenly spaced across the site. Boring SB-1 will also be used to assess potential impacts from the former gasoline USTs identified on the historic Sanborn maps. The borings located near the east and south Site boundaries will also be used to assess potential impacts from offsite sources. The locations of these borings may change depending on the findings of the geophysical survey.
- Monitoring wells MW-1 and MW-2 will be installed to investigate onsite groundwater on the more downgradient side of the Site. Monitoring well MW-1 will also be used to assess potential impacts from the former gasoline USTs identified on the historic Sanborn maps. Monitoring well MW-3 will be installed on the more upgradient side of the Site and will be used to assess potential impacts from offsite sources. These groundwater monitoring wells will also be used to confirm the groundwater flow direction across the Site.
- Five soil vapor samples (SV-1 through SV-5) will be collected from evenly-spaced locations across the Site to assess potential soil vapor impacts that may be present.

3.2 Investigation Procedures

Prior to invasive work, a one-call utility mark-out will be completed in accordance with local laws to locate buried electric, natural gas, telecommunication utilities, etc.

➢ Geophysical Survey

The geophysical survey will be performed using ground penetrating radar (GPR) and magnetic detection equipment across the entire Site prior to conducting investigative borings. Areas that will be surveyed include the entire building footprint and the asphalt-paved parking lot to the west of the building. See Figure 3.2.1 for the proposed geophysical survey area.

➢ Soil Sampling

A qualified environmental driller will advance six investigative borings at the locations shown on Figure 3.2.1. A qualified environmental professional (QEP) will supervise the sampling work, screen the soil samples for environmental impacts, log the screening results, and collect environmental samples for laboratory analysis. Site work will comply with safety guidelines outlined in the HASP (Appendix 2). The investigative borings will be advanced to 25 feet below grade, which is below the water table and the below the development depth, using a direct-push drill rig. The proposed boring location plan is included as Figure 3.2.1. Soil will be collected continuously to the boring termination depth using a Geoprobe dual-tube sampler with disposable acetate sleeves advanced in five-foot increments.

Each sample will be screened for organic vapors with a calibrated photoionization detector (PID) and evaluated for visual and olfactory indications of potential environmental impacts. Soil descriptions will be recorded by the QEP in a field log.

Two soil samples will be collected from each borehole, including one sample to be collected from the zero to two-foot interval and a deeper sample to be collected in the two-foot interval directly above groundwater, which is expected at a depth of approximately 10 fbg (see Table 3.2.1 for proposed samples). In the event that evidence of contamination is observed in a boring, an additional sample will be taken from that location for the purpose of delineating the contamination. If the boring reaches bedrock at a shallower depth, the deeper soil sample will be

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taken from two feet above the bedrock. Samples will not be composite samples but will be discrete grab samples.

➢ Groundwater Sampling

Groundwater is expected to be encountered at 10 fbg. Three temporary groundwater monitoring wells will be installed by inserting (at a minimum), one-inch diameter PVC well screen and riser an estimated five feet into the groundwater via the open boreholes (See Figure 3.2.1 for well locations). The proper screen size will be selected based on the grain size of the soil encountered. In silty conditions, a smaller well screen slot size will be used. The annulus around each well screen will be filled with clean, appropriately-sized silica sand. The wells will then be developed to allow for proper communication between the wells and shallow groundwater. After an equalization period of approximately one week, the wells will be surveyed to a common datum and gauged to determine the depth to groundwater. The groundwater flow direction will be evaluated using these data. The wells will then be sampled using low-flow sampling techniques. One representative groundwater sample will be collected from each well with a peristaltic pump and dedicated polyethylene tubing. Sampling will be conducted in accordance with NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (May 2010) and Sampling Guidelines and Protocols, dated March 1991. Following sample collection, boreholes will be backfilled with soil cuttings, a bentonite plug in the upper

Table 3.2.1: Sample Matrix

Sample Location Number	Sampling Depth Below Grade (ft.)	Sample Type/Grab-Composite
SB-1	0 - 2	Soil/Grab
	8 - 10, Pending field observations	Soil/Grab
SB-2	0 - 2	Soil/Grab
	8 - 10, Pending field observations	Soil/Grab
SB-3	0 - 2	Soil/Grab
	8 - 10, Pending field observations	Soil/Grab
SB-4	0 - 2	Soil/Grab
	8 - 10, Pending field observations	Soil/Grab

SB-5	0 - 2	Soil/Grab
	8 - 10, Pending field observations	Soil/Grab
SB-6	0 - 2	Soil/Grab
	8 - 10, Pending field observations	Soil/Grab
MW-1	5 - 15 (estimated)	Groundwater/Grab
MW-2	5 - 15 (estimated)	Groundwater/Grab
MW-3	5 - 15 (estimated)	Groundwater/Grab
SV-1	8 - 9	Soil Vapor/Grab
SV-2	8 - 9	Soil Vapor/Grab
SV-3	8 - 9	Soil Vapor/Grab
SV-4	8 - 9	Soil Vapor/Grab
SV-5	8 - 9	Soil Vapor/Grab

portion, and capped with concrete. Visibly contaminated soil cuttings will be placed in sealed and labeled DOT-approved 55-gallon drums pending offsite disposal at a permitted facility.

➢ Soil Vapor Sampling

Five soil gas (screening) samples will be collected from the proposed soil vapor sampling locations on Figure 3.2.1. All samples will be collected in accordance with the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH October 2006). Conditions in the field may require adjustment to the sampling locations. The soil vapor probes for samples SV-1 through SV-5 will be installed at depth of approximately eight to nine feet, depending on the depth to groundwater. The soil vapor probes will be installed at least one foot above the smear zone.

The vapor implants will be installed with direct-push sampling equipment or manually using a rotary hammer drill to penetrate the slab, as appropriate. A bentonite seal will be placed at the surface to seal the vapor implants from the surrounding atmosphere. Each implant will be purged prior to sampling; purging will occur at a rate of less than 0.2 L/min.

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Samples will be collected in Summa canisters that have been certified clean by the laboratory and analyzed by using USEPA Method TO-15. The flow rate for both purging and sampling will not exceed 0.2 L/min. Sampling will occur for approximately 24 hours, based on the future residential use of the Site. A sample log sheet will be maintained summarizing the sample identification, date and time of sample collection, sampling depth, identity of samplers, sampling methods and devices, soil vapor purge volumes, volume of the soil vapor extracted, vacuum of canisters before and after the samples are collected, apparent moisture content of the sampling zone, and chain of custody protocols.

As part of the vapor intrusion evaluation, a tracer gas will be used in accordance with NYSDOH protocols to provide quality assurance/quality control (QA/QC) to verify the integrity of the soil vapor probe seals. Helium will be used as the tracer gas and a sealed enclosure will serve to keep it in contact with the probe during testing. A portable monitoring device will be used to analyze a sample of soil vapor for the tracer prior to sampling. If the tracer sample results show a significant presence of the tracer, the probe seals will be adjusted to prevent infiltration. As the conclusion of the sampling round, tracer monitoring will be performed a second time to confirm the integrity of the probe seals.

➢ Investigation Derived Waste

Cuttings may be disposed at the site within the borehole that generated them to within 24 inches of the surface unless:

- Free product or grossly contaminated soil, are present in the cuttings;
- The borehole has penetrated an aquitard, aquiclude or other confining layer; or extends significantly into bedrock;
- Backfilling the borehole with cuttings will create a significant path for vertical movement of contaminants. Soil additives (bentonite) may be added to the cuttings to reduce permeability;
- The soil cannot fit into the borehole.

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Those soil cuttings needing to be managed on-site will be containerized in clearly labeled DOT approved 55-gallon drums for future off-site disposal. All boreholes which require drill cuttings disposal would ultimately be filled with bentonite chips and hydrated. Disposable sampling equipment including, spoons, gloves, bags, paper towels, etc. that came in contact with environmental media will be double bagged and disposed as municipal trash in a facility trash dumpster as non-hazardous trash.

3.3 Sample Analysis

Soil and groundwater samples will be submitted to a New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP)-certified laboratory for Full analysis:

- Volatile Organic Compounds by EPA Method 8260;
- Semivolatile organic compounds by EPA Method 8270;
- Pesticides/PCBs by EPA Method 8081/8082; and
- Target Analyte List metals by EPA Method 6010;

If either LNAPL and/or DNAPL are detected, appropriate samples will be collected for characterization and "finger print analysis" and required regulatory reporting (i.e. spills hotline) will be performed.

All groundwater samples will be analyzed for both filtered and unfiltered metals.

Soil vapor samples will be analyzed for VOCs by using USEPA Method TO-15.

3.4 3.4 Reporting

A Phase II ESI Report will be prepared following completion of the field activities and receipt of the laboratory data. The Report will be prepared using the OER template for the Phase II ESI Report and will provide detailed summaries of the investigative findings and soil and groundwater analytical results compared to the NYSDEC Part 375-6.8(a) Unrestricted Used Soil Cleanup Objectives, appropriate Part 375-6.8(b) Restricted Soil Cleanup Objectives (Restricted Residential and Restricted Commercial Use Soil Cleanup Objectives) and NYSDEC Part 703

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Groundwater Quality Standards (GQS) (class GA) or Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS). The Report will include an updated Site Plan and remedial recommendations, as warranted.

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4.0 QUALITY ASSURANCE/QUALITY CONTROL

4.1 Quality Assurance/Quality Control Procedures

QA/QC procedures will be used to provide performance information with regard to accuracy, precision, sensitivity, representation, completeness, and comparability associated with the sampling and analysis for this investigation. Field QA/QC procedures will be used (1) to document that samples are representative of actual conditions at the Site and (2) identify possible cross-contamination from field activities or sample transit. Laboratory QA/QC procedures and analyses will be used to demonstrate whether analytical results have been biased either by interfering compounds in the sample matrix, or by laboratory techniques that may have introduced systematic or random errors to the analytical process. A summary of the field and laboratory QA/QC procedures is provided below.

4.2 Field QA/QC

Field QA/QC will include the following procedures:

- Calibration of field equipment, including PID, on a daily basis;
- Analysis of trip blank (VOCs only) and duplicate samples;
- Use of dedicated and/or disposable field sampling equipment;
- Proper sample handling and preservation;
- Proper sample chain of custody documentation; and
- Completion of report logs.

The above procedures will be executed as follows:

- Two duplicate samples (one soil and one groundwater sample) will be collected to evaluate field sampling precision or reproducibility of measurements of the same parameter under the given set of conditions;
- Disposable sampling equipment, including acetate sleeves, latex gloves, and disposable bailers (or sample tubing), will be used to minimize cross-contamination between samples;

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- For each of the parameters analyzed, a sufficient sample volume will be collected to adhere to the specific analytical protocol, and provide sufficient sample for reanalysis if necessary;
- Because plasticizers and other organic compounds inherent in plastic containers may contaminate samples requiring organic analysis, samples will be collected in glass containers, with the exception of the nitrate-preserved groundwater sample for metals analysis;
- Appropriate sample preservation techniques, including cold temperature storage at 4° C, will be utilized to ensure that the analytical parameters concentrations do not change between the time of sample collection and analysis; and
- Samples will be analyzed prior to the expiration of the respective holding time for each analytical parameter to ensure the integrity of the analytical results.

4.3 Sample Custody

Sample handling in the field will conform to appropriate sample custody procedures. Field custody procedures include proper sample identification, chain-of-custody forms, and packaging and shipping procedures. Sample labels will be attached to all sampling bottles before field activities begin to ensure proper sample identification. Each label will identify the site and sample location. Styrofoam or bubble wrap will be used to absorb shock and prevent breakage of sample containers. Ice or ice packs will be placed in between the plastic bags for sample preservation purposes.

After each sample is collected and appropriately identified, the following information will be entered into the chain-of-custody form:

- Site name and address;
- Sampler(s)' name(s) and signature(s);
- Names and signatures of persons involved in the chain of possession of samples;
- Sample number;
- Number of containers;

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- Sample location;
- Date and time of collection;
- Type of sample, sample matrix and analyses requested;
- Preservation used (if any); and
- Any pertinent field data collected (pH, temperature, conductivity, Dissolved Oxygen [DO]).

The sampler will sign and date the "Relinquished" blank space prior to removing one copy of the custody form and sealing the remaining copies of the form in a Ziploc plastic bag taped to the underside of the sample cooler lid. The sample cooler will be sealed with tape prior to delivery or shipment to the laboratory.

4.4 Report Logs

Field logs and borings logs will be completed during the course of this investigation. A field log will be completed on a daily basis which will describe all field activities including:

- Project number, name, manager, and address;
- The date and time;
- The weather conditions;
- On-site personnel and associated affiliations;
- Description of field activities; and
- Pertinent sample collection information including sample identification numbers, description of samples, location of sampling points, number of samples taken, method of sample collection and any factors that may affect its quality, time of sample collection, name of collector, and field screening results.

A boring log will be completed for each boring and will include the following information:

- Project number, name, manager, and location;
- The date and time;

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- Drilling company and method used;
- Boring number;
- Total boring depth and water table depths; and
- Pertinent soil sample information including sample number, interval, depth, amount recovered, color, composition, percent moisture, visual and olfactory observations of contamination, and PID readings.

4.5 Laboratory QA/QC

AN ELAP-certified laboratory will be used for all sample analyses. The laboratory will follow the following QA/QC protocols. All samples will be delivered to the laboratory within 24 hours of sample collection. Samples will be received by laboratory personnel, who will inspect the sample cooler(s) to check the integrity of the custody seals. The cooler(s) will then be opened, the samples unpackaged, and the information on the chain-of-custody form examined. If the shipped samples match those described on the chain-of-custody form, the laboratory sample custodian will sign and date the form on the next "Received" blank and assume responsibility for the samples. If problems are noted with the sample shipment, the laboratory custodian will sign the form and record problems in the "Remarks" box. The custodian will then immediately notify the Project Manager so appropriate follow-up steps can be implemented on a timely basis.

A record of the information detailing the handling of a particular sample through each stage of analysis will be maintained by the laboratory. The record will include:

- Job reference, sample matrix, sample number, and date sampled;
- Date and time received by laboratory, holding conditions, and analytical parameters;
- Extraction date, time and extractor's initials (if applicable), analysis date, time, and analyst's initials; and
- QA batch number, date reviewed, and reviewer's initials.

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5.0 HEALTH AND SAFETY PLAN (HASP)

5.1 Health and Safety Plan (HASP)

The investigation Health and Safety Plan (HASP) is included in Appendix 2. The Site Safety Coordinator will be Ben Cancemi. Investigative work performed under this Work Plan will be in full compliance with applicable health and safety laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements. Confined space entry, if any, will comply with OSHA requirements and industry standards and will address potential risks. The parties performing the investigation work will ensure that performance of work is in compliance with the HASP and applicable laws and regulations.

All field personnel involved in investigation activities will participate in training required under 29 CFR 1910.120, including 40-hour hazardous waste operator training and annual 8-hour refresher training. Site Safety Officer will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the HASP and be required to sign a HASP acknowledgment. Site-specific training will be provided to field personnel. Additional safety training may be added depending on the tasks performed. Emergency telephone numbers will be posted at the site location before any work begins. A safety meeting will be conducted before each shift begins. Topics to be discussed include task hazards and protective measures (physical, chemical, environmental); emergency procedures; PPE levels and other relevant safety topics. Meetings will be documented in a log book or specific form. Potential on-site chemicals of concern include VOCs, SVOCs, Pesticides/PCBs, and Heavy Metals (specifically arsenic, lead, and mercury at a minimum). Information fact sheets for each contaminant group and/or MSDS' are included in the HASP.

An emergency contact sheet with names and phone numbers for all pertinent project personnel as well as regulatory hotline information is included in the HASP. That document will define the specific project contacts for use in case of emergency.

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Appendix 1

Previous Environmental Reports

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Appendix 2

Health and Safety Plan

Advanced Cleanup Technologies, Inc.

ENVIRONMENTAL CONSULTANTS

PHASE II SUBSURFACE INVESTIGATION

64-02/06 Queens Boulevard
Woodside, New York 11977
Block 2325, Lots 26, 30 and 32

ACT Project No. 7791-WDNY

September 3rd, 2014

Prepared for:

Mr. Charles Lin
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Prepared by:

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FIGURES

NUMBER	TITLE
1	Site Diagram
2	Sampling Diagram

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NUMBER	TITLE
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APPENDICES

SECTION	TITLE
A	Previous Environmental Reports
B	Boring Logs
C	Laboratory Reports

1.0 INTRODUCTION AND SCOPE OF INVESTIGATION

A Phase II Subsurface Investigation was performed by Advanced Cleanup Technologies, Inc. (ACT) from August 14th through August 15th, 2014 at the property located at 64-02/06 Queens Boulevard, Woodside, New York ("the site"). The purpose for the subsurface investigation was to determine any impacts associated with the historical usage of the subject property as a gasoline filling station. The site is also listed with a Hazardous Materials designation E-138 specifically for Underground Gasoline Storage Tanks (USTs) – Testing Protocol, Window Wall Attenuation and Alternate Ventilation and lastly Air Quality – HVAC fuel limited to natural gas.

The scope of work included the performance of a geophysical survey to determine the existence of suspect underground gasoline and fuel oil tanks. The scope of work also included the collection of soil samples from three soil borings, and the sampling of three-soil vapor probes. Finally, the scope of work included the laboratory analysis of six soil samples and two soil vapor samples by a New York State Department of Health (NYSDOH) certified laboratory in accordance with protocols established by the United States Environmental Protection Agency (USEPA).

Soil quality data was compared to New York State Department of Environmental Conservation (NYSDEC) soil cleanup objectives contained in NYSDEC Part 375-6.8(a) Unrestricted Used Soil Cleanup Objectives, appropriate Part 375-6.8(b) Restricted Soil Cleanup Objectives. Soil vapor was data was compared to Table 3.1 of the NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York", October 2006.

2.0 SITE DESCRIPTION

2.1 Site Location

The site is located on the south side of Queens Boulevard at the intersection with 64th Street in a commercial and residential area in the western portion of the borough of Brooklyn, New York. The site is bounded by 64th Street followed by an eight story commercial and residential apartment building to the west, a three story commercial property to the east, Queens Boulevard followed by a two story Motor Inn to the North two story residential homes to the south.

The nearest surface water body, the Maspeth Creek, is located approximately 2 miles to the southwest and regional groundwater is expected to flow to the southwest towards the Maspeth Creek.

2.2 General Description

The site (Block 2325, Lots 26, 30 and 32) consists of a one story commercial building and a parking lot. The most recent use of the property is for an auto parts retail store (Auto Barn). The site is approximately 16,562 square feet in area and the building has a footprint of approximately 10,926 square feet. A diagram of site features is included as Figure 1.

2.3 Previous Environmental Reports

A Subsurface Investigation Report dated May 28th, 2004, was prepared by EEA Inc. The purpose of the report was to address issues presented in a Phase I Environmental Site Assessment (Phase I) by G.C. Environmental, Inc. in February 2004 and a limited soil gas survey by Fleming Lee Shue in March 2004. The scope of work included the use of a magnetometer for the location of possible USTs, the installation of 6 soil borings and the analysis of five soil samples. The report concluded the following:

- Soil along the northeast portion of the parking lot contained low-level concentrations of semi-volatile organic compounds above regulatory criteria.

- All of the soil samples contained detections of [Total Petroleum Hydrocarbons] below regulatory criteria.

EEA Inc. recommended that the subsurface investigation be presented to the applicable regulatory agency.

A Phase I Environmental Site Assessment report was prepared by Merritt Environmental Consulting Corp. (Merritt) dated October 24th, 2013. The Phase I report identified the following pertinent recognized environmental conditions:

- Historical usage of the property as a gasoline filling station. Historical sources showed three gasoline storage tanks present at the property from 1932-1951;
- Hazardous Materials E-Designation for the subject property E-163 specifically for Underground Gasoline Storage Tanks (USTs) – Testing Protocol, Window Wall Attenuation and Alternate Ventilation and lastly Air Quality – HVAC fuel limited to natural gas.

Available copies of the above-referenced reports are included as Appendix A.

3.0 FINDINGS OF THE INVESTIGATION

3.1 Geophysical Investigation

A geophysical survey was performed on June 30th, 2014 and encompassed all accessible portions of the parking lot. The survey was performed to determine the existence and locations of suspected USTs at the site. The survey notes are included in Appendix B.

The survey was performed utilizing an SIR-2000 GPR Unit and a 500 megahertz transducer, which allowed for the identification of anomalies to a depth of 10 feet bgs. The transducer was pulled along pre-determined transects, emitting radar into the subsurface. The radar signal reflects off stratigraphical materials and foreign objects in the subsurface and back to the transducer based upon differences in the conductivity and dielectric constant of subsurface features. The radar signal is then converted into an electrical signal, which is visually displayed on a video monitor.

No anomalies were identified large enough to be indicative of USTs. Anomalies that were identified were indicative of conduit piping and minor debris at various locations beneath the fairly uniform asphalt parking lot.

GPR is primarily used as a preliminary survey of a property for the development of subsurface information prior to a formal site assessment. Surface cover or obstructions, subsurface soil types and buried debris can mask or conceal the presence and precise locations of underground structures or even suggest their presence when none exist. The presence, absence or precise locations of underground structures indicated during a GPR survey should be confirmed by excavation, subsurface sampling or other invasive procedures.

3.2 Soil Boring Installation

Three soil borings were installed at the locations indicated in Figure 2. The soil borings were installed utilizing a truck-mounted Geoprobe-style drill unit in combination with 5-foot macro-core soil samplers containing dedicated acetate liners. Soil samples were visually examined for lithology and the presence of contamination and field screened utilizing a Photovac 2020 hand held photoionization detector (PID). The PID is capable of detecting organic vapors at concentrations as low as 0.1 parts per million (ppm). All down hole drilling equipment was decontaminated between sampling events to minimize the possibility of cross-contamination. Copies of the boring logs are included in Appendix B.

The soil boring located at SB-1 was installed to a depth of 15 feet bgs in the southern portion of the site in the parking lot. The soil generally consisted of light brown silty sand mixed with pebbles and clay. The water table was not encountered. PID readings were 0.0ppm throughout the boring with a reading of 1.5ppm at 3.5'. A large rock got lodged in the samples at 15'bgs and no sample was collected from the bottom. Soil samples were collected from 3-5' bgs where a slight PID reading was recorded.

Soil boring, SB-2 was installed to a depth of 15 feet bgs in the eastern portion of the parking lot. The soil generally consisted of light brown silty sand mixed with pebbles and clay. The water table was not encountered. PID readings were 0.0 ppm throughout the boring. Soil samples were collected from 3-5' bgs beneath the asphalt and fill layer and 12 to 14 feet bgs.

SB-3 was installed to a depth of 20 feet bgs in the northwestern corner of the parking lot. The soil generally consisted of light brown medium sand mixed with silt and pebbles. The water table was not encountered. PID readings were 0.0 ppm throughout the boring. The sample from 15-20' bgs became lodged in the sampler and recovery efforts compromised the characterization. A composite sample was collected from that depth. Soil samples were collected from 0-4' bgs, 5-8' bgs and 15 to 12 feet bgs.

All soil samples were containerized and placed in a cooler for laboratory analysis and transmitted under chain of custody to York Analytical Laboratories (NYSDOH # 10854). Soil samples were analyzed for VOCs in accordance with USEPA Method 8260, SVOCs in accordance with EPA Method 8270, TAL Metals in accordance with USEPA Method 6000/7000 and PCB's/Pesticides in accordance with USEPA Methods 8081/8082. Copies of the laboratory reports are contained as Appendix C.

3.3 Sub-Slab Soil Vapor Sampling

Two sub-slab soil vapor probes were installed through the asphalt parking lot at the locations indicated in Figure 2. A six-inch woven stainless steel soil vapor implant was installed to a depth of 5 feet bgs in SV-1 and SV-2. The implants were fitted with ¼ inch inner diameter polyethylene tubing. The annulus around the implant was backfilled with glass beads. A three-foot layer of bentonite slurry was placed above the implant to prevent ambient air infiltration. The remainder of the borehole was backfilled with native soil and a bentonite grout seal installed at the ground surface. All drilling equipment was decontaminated between locations to minimize the possibility of cross-contamination.

The portion of polyethylene tube emerging from the ground was connected to a low flow vacuum pump that purged the probe of soil vapor at a rate that did not exceed 0.2 liters per minute. A 6-Liter stainless steel Summa canister with a flow regulator set to a flow rate of approximately 0.025 liters per minute was connected to the polyethylene tubing and collected soil vapor approximately 4 to 6 hours until the canisters were full.

All air samples were collected utilizing 6-Liter stainless steel Summa canisters connected to

low-flow regulators, which were numbered and supplied by York Analytical Laboratories. The regulators were set to a flow rate of approximately 0.025 liters per minute for a 4-6 hour sample. Field notes are provided in Appendix A.

Two air samples were transmitted under chain of custody to York Analytical Laboratories. All samples were analyzed volatile organic compounds (VOCs) in accordance with EPA TO-15. Methodologies used for soil vapor assessment conform to the *NYS DOH Final Guidance on Soil Vapor Intrusion, October 2006.* Copies of the laboratory reports are contained as Appendix B.

3.4 Soil Quality

The analytical results for the soil samples SB-1 (3-5), SB-2 (3-5), SB-2 (12-14), SB-3 (0-4), SB-3 (5-8) and SB-3 (15-20) are summarized in Tables 1 through 4. The soil quality data was compared to unrestricted, restricted residential and commercial use soil cleanup objectives (UUSCOs, RRSCOs and CSCOs) contained in Table 6.8 of 6 NYCRR Part 375.

It can be seen from Table 1 that no VOCs were detected above soil cleanup objectives in SB-1 (3-5), SB-2 (3-5), SB-2 (12-14), SB-3 (15-18) and SB-4 (14-16)). Acetone was the only VOC detected above UUSCO's in SB-3 (0-4) and SB-3 (5-8) and is commonly utilized as a laboratory solvent and a possible artifact from laboratory equipment. SB-3 (0-4) and SB-3 (5-8) contained low-level concentrations of Tetrachloroethene (PCE) below regulatory standards. TCE is a common solvent most commonly utilized in dry cleaning activities.

Table 2 indicates that no SVOCs were detected above soil cleanup objectives. Table 3 summarizes the extent of PCB and Pesticides in the soil beneath the site. No PCBs or Pesticides were detected above method detection limits in any of the samples.

Concentrations of TAL metals in soil beneath the site are summarized in Table 4. A total of 5 metals were detected above cleanup objectives. Copper was detected above UUSCO in SB-2 (3-5) and SB-3 (0-4) with a maximum concentration of 85.7 µg/kg. Lead was detected above its UUSCO in SB-2 (3-5) and SB-3 (0-4) with a maximum concentration of 239 µg/kg. Nickel (32.7 µg/kg) and

Cadmium (3.76 µg/kg) were detected above their respective UUSCOs in SB-2 (3-5). Zinc was found to exceed its UUSCO in SB-2 (3-5) and SB-3 (0-4) with the highest concentration of 1,890 µg/kg. Metals are commonly found at higher concentrations in urban areas due to the presence of fill materials. All of the highest concentrations of metals were detected at the shallow sampling interval, indicating that ground water is unlikely the source of the contamination.

Based on the sampling results described above, the majority of the metal contamination is restricted to shallow soils in middle to northern side of the parking lot. All compounds were detected below their respective restricted residential soil cleanup objectives.

3.5 Sub-Slab Soil Vapor Results

The analytical results for the sub-slab soil vapor samples SV-1 and SV-2 are summarized in Table 5. The soil vapor data collected during this investigation was compared to guidance values in NYSDOH's "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (NYSDOH, 2006).

As shown in Table 5, the soil vapor samples contained levels of both chlorinated and non-chlorinated compounds all below their respective guidance values. The NYSDOH has guidelines for three compounds including Trichloroethene (TCE), Tetrachloroethene (PCE) and Methylene chloride. TCE was detected in SV-2 above its guideline of 5 $\mu g/m^3$ with a concentration of 12 $\mu g/m^3$. PCE was detected in both samples in exceedence of the guideline of 30 $\mu g/m^3$; SV-2 contained the maximum concentration of 460 $\mu g/m^3$. Methylene chloride was detected above its guideline of 60 $\mu g/m^3$ in SV-2 with a concentration of 67 $\mu g/m^3$. TCE, PCE and Methylene chloride are classified as solvents and are commonly found in industrial and urban areas. The most prevalent compound detected in soil vapor was Acetone a common laboratory solvent and a possible artifact from laboratory equipment. Low levels of petroleum compounds were detected in soil vapor and would be consistent with the historic use of the site for a gasoline filling station as well as an auto parts store.

4.0 CONCLUSIONS

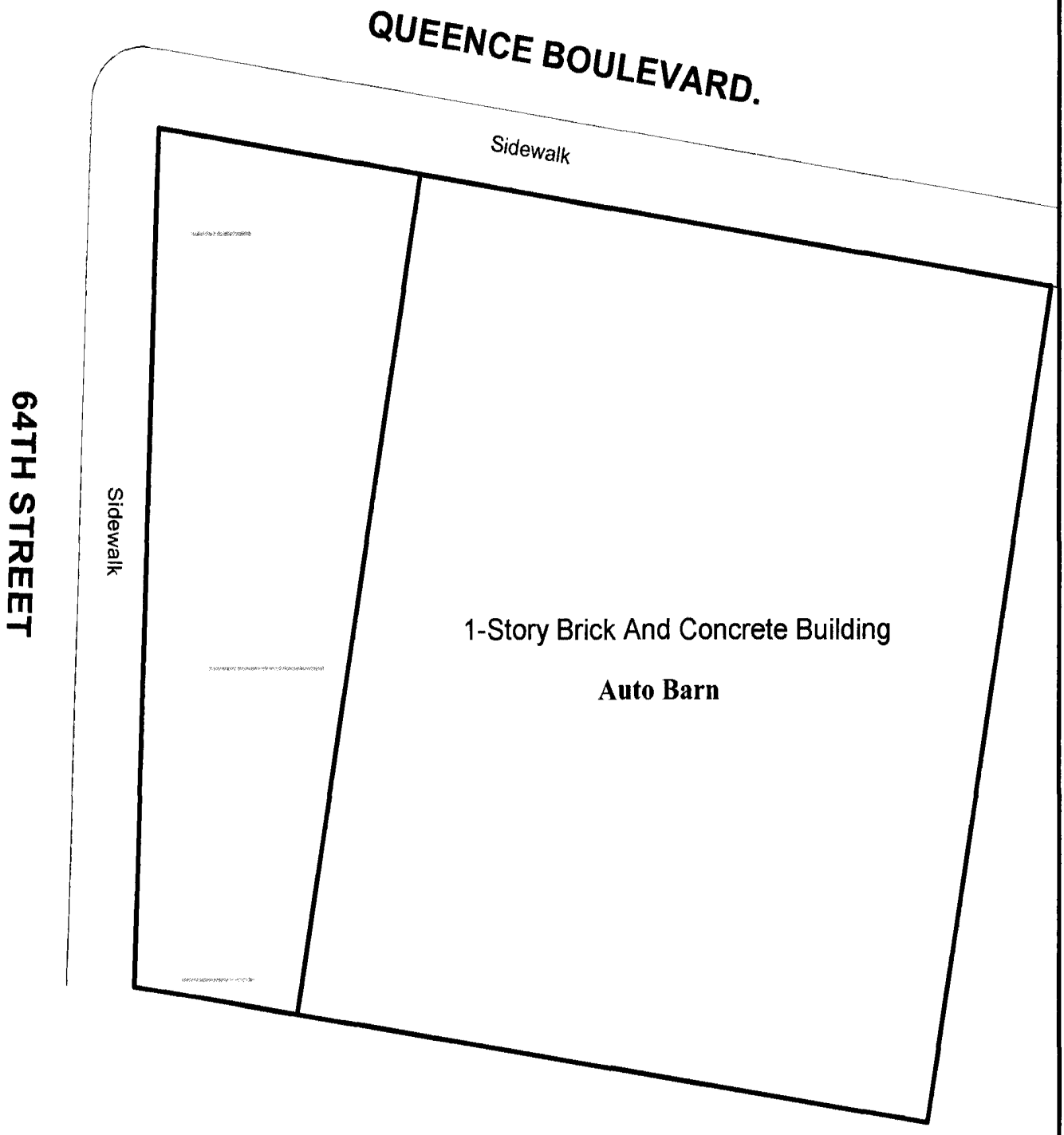
The results of this subsurface investigation are contained in this report. Based upon this investigation, ACT makes the following conclusions concerning the soil and groundwater quality beneath the site.

- The GPR survey did not identify the presence of any USTs beneath the site;
- No VOCs except low concentrations of acetone were detected above soil cleanup objectives in the soil beneath the site and acetone appears to be a laboratory artifact;
- Shallow soils beneath the northern section of the parking lot are contaminated with metals above unrestricted use soil cleanup objectives, which could be indicative of historical fill materials commonly found in the area of the site;
- Elevated concentrations of solvents such as TCE, PCE and Methylene chloride in soil vapor should be investigated further and remediated during future development at the property. This can be accomplished through the installation of a vapor barrier and a sub-slab depressurization system;
- The E-designations assigned to the property should be satisfied with the New York City Office of Environmental Remediation (OER) prior to property development. This report should be provided to them for review and comments.
- No significant soil contamination was found beneath the site and the contamination present does not pose a threat to the surrounding area.

EXCLUSIONS AND DISCLAIMER

The purpose of this investigation was to assess the potential environmental liabilities at the subject site with respect to data, which Advanced Cleanup Technologies, Inc. has accumulated during the Phase II Environmental Site Assessment. The conclusions presented in this report are based solely on the observations of the site at the time of the investigation. Data provided, including information provided by others, was utilized in assessing the site conditions. The accuracy of this report is subject to the accuracy of the information provided. Advanced Cleanup Technologies, Inc. is not responsible for areas not seen or information not collected. This report is given without a warranty or guarantee of any kind, expressed or implied. Advanced Cleanup Technologies, Inc. assumes no responsibility for losses associated with the use of this report.

FIGURES



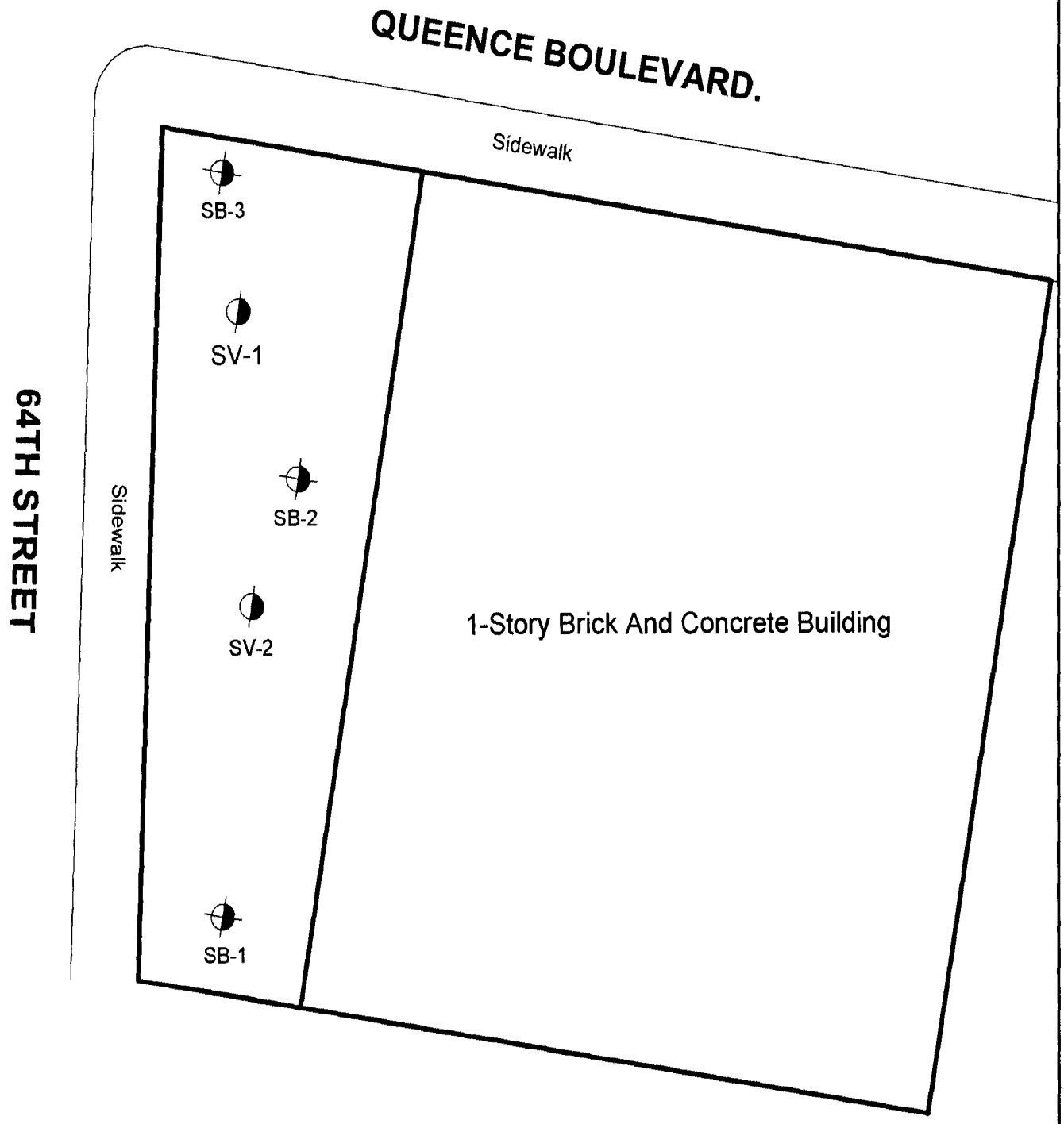
N

Sampling Location

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

110 Main Street, Suite 103, Port Washington, New York 11050
Tel: 516-441-5800 Fax: 516-441-5511

Project No.:7791-WDNY	Figure No.: 1
Date: 08/29/2014	Scale: Not To Scale



Legend

SB-1 — Soil Boring Location

SV-1 — Soil Vapor Sampling Location

N

Sampling Location

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

110 Main Street, Suite 103, Port Washington, New York 11050
Tel: 516-441-5800 Fax: 516-441-5511

Project No.:7791-WDNY	Figure No.: 2
Date: 08/29/2014	Scale: Not To Scale

TABLES

Table 1

Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8260
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	UUSCO [1]	Standard RRSCO [2]	CSCO [3]	SB-1 (3-5) 8/14/14	SB-2 (3-5) 8/15/14	SB-2 (12-14) 8/15/14
1,1,1,2-Tetrachloroethane	NS	NS	NS	<2.1	<2.4	<2.3
1,1,1-Trichloroethane	680	100,000	500,000	<2.1	<2.4	<2.3
1,1,2,2-Tetrachloroethane	NS	NS	NS	<2.1	<2.4	<2.3
1,1,2-Trichloro-1,2,2-trifluoroethane	NS	NS	NS	<2.1	<2.4	<2.3
1,1,2-Trichloroethane	NS	NS	NS	<2.1	<2.4	<2.3
1,1-Dichloroethane	270	26,000	240,000	<2.1	<2.4	<2.3
1,1-Dichloroethene	330	100,000	500,000	<2.1	<2.4	<2.3
1,2,4-Trichlorobenzene	NS	NS	NS	<2.1	<2.4	<2.3
1,2,4-Trimethylbenzene	4,700	5,200	19,000	<2.1	<2.4	<2.3
1,2-Dibromo-3-chloropropane	NS	NS	NS	<2.1	<2.4	<2.3
1,2-Dibromoethane	NS	NS	NS	<2.1	<2.4	<2.3
1,2-Dichlorobenzene	1,100	100,000	500,000	<2.1	<2.4	<2.3
1,2-Dichloroethane	20	3,100	30,000	<2.1	<2.4	<2.3
1,2-Dichloropropane	NS	NS	NS	<2.1	<2.4	<2.3
1,3,5-Trimethylbenzene	4,700	5,200	19,000	<2.1	<2.4	<2.3
1,3-Dichlorobenzene	2,400	49,000	280,000	<2.1	<2.4	<2.3
1,4-Dichlorobenzene	1,800	13,000	130,000	<2.1	<2.4	<2.3
1,4-Dioxane	980	1,300	13,000	<41	<48	<45
2-Butanone	120	100,000	500,000	<2.1	<2.4	<2.3
2-Hexanone	NS	NS	NS	<2.1	<2.4	<2.3
4-Methyl-2-pentanone	NS	NS	NS	<2.1	<2.4	<2.3
Acetone	50	100,000	500,000	**13**	**20**	**16**
Acrolein	NS	NS	NS	<2.1	<2.4	<2.3
Acrylonitrile	NS	NS	NS	<2.1	<2.4	<2.3
Benzene	60	4,800	44,000	<2.1	<2.4	<2.3
Bromodichloromethane	NS	NS	NS	<2.1	<2.4	<2.3
Bromoform	NS	NS	NS	<2.1	<2.4	<2.3
Bromomethane	NS	NS	NS	<2.1	<2.4	<2.3
Carbon disulfide	NS	NS	NS	<2.1	<2.4	<2.3
Carbon tetrachloride	760	2,400	22,000	<2.1	<2.4	<2.3
Chlorobenzene	1,100	100,000	500,000	<2.1	<2.4	<2.3
Chloroethane	NS	NS	NS	<2.1	<2.4	<2.3
Chloroform	370	49,000	350,000	<2.1	<2.4	<2.3
Chloromethane	NS	NS	NS	<2.1	<2.4	<2.3
cis-1,2-Dichloroethene	250	100,000	500,000	<2.1	<2.4	<2.3
cis-1,3-Dichloropropene	NS	NS	NS	<2.1	<2.4	<2.3
Dibromochloromethane	NS	NS	NS	<2.1	<2.4	<2.3
Dibromomethane	NS	NS	NS	<2.1	<2.4	<2.3
Dichlorodifluoromethane	NS	NS	NS	<2.1	<2.4	<2.3
Ethylbenzene	1,000	41,000	390,000	<2.1	<2.4	<2.3
Hexachlorobutadine	NS	NS	NS	<2.1	<2.4	<2.3
Isopropylbenzene	NS	NS	NS	<2.1	<2.4	<2.3
Methyl acetate	NS	NS	NS	<2.1	<2.4	<2.3
Methyl tert-butyl ether	930	100,000	500,000	<2.1	<2.4	<2.3
Methylene chloride	50	100,000	500,000	**7.2**	<2.4	<2.3
n-Butylbenzene	NS	NS	NS	<2.1	<2.4	<2.3
n-Propylbenzene	NS	NS	NS	<2.1	<2.4	<2.3
o-Xylene	NS	NS	NS	<2.1	<2.4	<2.3
p- & m- Xylenes	NS	NS	NS	<4.1	<4.8	<4.5
p-Isopropyltoluene	NS	NS	NS	<2.1	<2.4	<2.3
sec-Butylbenzene	NS	NS	NS	<2.1	<2.4	<2.3
Styrene	NS	NS	NS	<2.1	<2.4	<2.3
tert-Butyl alcohol (TBA)	NS	NS	NS	<2.1	<2.4	**6.1**
tert-Butylbenzene	NS	NS	NS	<2.1	<2.4	<2.3
Tetrachloroethene	1,300	19,000	150,000	<2.1	<2.4	<2.3
Toluene	700	100,000	500,000	<2.1	<2.4	<2.3
trans-1,2-Dichloroethene	100,000	100,000	500,000	<2.1	<2.4	<2.3
trans-1,3-Dichloropropene	NS	NS	NS	<2.1	<2.4	<2.3
Trichloroethene	470	21,000	200,000	<2.1	<2.4	<2.3
Trichlorofluoromethane	NS	NS	NS	<2.1	<2.4	<2.3
Vinyl chloride	20	900	13,000	<2.1	<2.4	<2.3
Xylenes (Total)	260	100,000	500,000	<6.2	<7.2	<6.8

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory standard
NS = No Standard

Table 1 continued.

Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8260
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	Standard UUSCO [1]	 RRSCO [2]	 CSCO [3]	SB-3 (0-4) 8/15/14	SB-3 (5-8) 8/14/15	SB-3 (15-20) 8/14/14
1,1,1,2-Tetrachloroethane	NS	NS	NS	<2.0	<2.7	<2.7
1,1,1-Trichloroethane	680	100,000	500,000	<2.0	<2.7	<2.7
1,1,2,2-Tetrachloroethane	NS	NS	NS	<2.0	<2.7	<2.7
1,1,2-Trichloro-1,2,2-trifluoroethane	NS	NS	NS	<2.0	<2.7	<2.7
1,1,2-Trichloroethane	NS	NS	NS	<2.0	<2.7	<2.7
1,1-Dichloroethane	270	26,000	240,000	<2.0	<2.7	<2.7
1,1-Dichloroethene	330	100,000	500,000	<2.0	<2.7	<2.7
1,2,4-Trichlorobenzene	NS	NS	NS	<2.0	<2.7	<2.7
1,2,4-Trimethylbenzene	4,700	5,200	19,000	**29**	<2.7	<2.7
1,2-Dibromo-3-chloropropane	NS	NS	NS	<2.0	<2.7	<2.7
1,2-Dibromoethane	NS	NS	NS	<2.0	<2.7	<2.7
1,2-Dichlorobenzene	1,100	100,000	500,000	<2.0	<2.7	<2.7
1,2-Dichloroethane	20	3,100	30,000	<2.0	<2.7	<2.7
1,2-Dichloropropane	NS	NS	NS	<2.0	<2.7	<2.7
1,3,5-Trimethylbenzene	4,700	5,200	19,000	**13**	<2.7	<2.7
1,3-Dichlorobenzene	2,400	49,000	280,000	<2.0	<2.7	<2.7
1,4-Dichlorobenzene	1,800	13,000	130,000	<2.0	<2.7	<2.7
1,4-Dioxane	980	1,300	13,000	<40	<54	<54
2-Butanone	120	100,000	500,000	**4.8**	**5.0**	<2.7
2-Hexanone	NS	NS	NS	<2.0	<2.7	<2.7
4-Methyl-2-pentanone	NS	NS	NS	<2.0	<2.7	<2.7
Acetone	50	100,000	500,000	**56**	**62**	**19**
Acrolein	NS	NS	NS	<2.0	<2.7	<2.7
Acrylonitrile	NS	NS	NS	<2.0	<2.7	<2.7
Benzene	60	4,800	44,000	<2.0	<2.7	<2.7
Bromodichloromethane	NS	NS	NS	<2.0	<2.7	<2.7
Bromoform	NS	NS	NS	<2.0	<2.7	<2.7
Bromomethane	NS	NS	NS	<2.0	<2.7	<2.7
Carbon disulfide	NS	NS	NS	<2.0	<2.7	<2.7
Carbon tetrachloride	760	2,400	22,000	<2.0	<2.7	<2.7
Chlorobenzene	1,100	100,000	500,000	<2.0	<2.7	<2.7
Chloroethane	NS	NS	NS	<2.0	<2.7	<2.7
Chloroform	370	49,000	350,000	<2.0	<2.7	<2.7
Chloromethane	NS	NS	NS	<2.0	<2.7	<2.7
cis-1,2-Dichloroethene	250	100,000	500,000	<2.0	<2.7	<2.7
cis-1,3-Dichloropropene	NS	NS	NS	<2.0	<2.7	<2.7
Dibromochloromethane	NS	NS	NS	<2.0	<2.7	<2.7
Dibromomethane	NS	NS	NS	<2.0	<2.7	<2.7
Dichlorodifluoromethane	NS	NS	NS	<2.0	<2.7	<2.7
Ethylbenzene	1,000	41,000	390,000	<2.0	<2.7	<2.7
Hexachlorobutadine	NS	NS	NS	<2.0	<2.7	<2.7
Isopropylbenzene	NS	NS	NS	<2.0	<2.7	<2.7
Methyl acetate	NS	NS	NS	<2.0	<2.7	<2.7
Methyl tert-butyl ether	930	100,000	500,000	<2.0	<2.7	<2.7
Methylene chloride	50	100,000	500,000	**5.3**	**5.7**	**6.5**
n-Butylbenzene	NS	NS	NS	<2.0	<2.7	<2.7
n-Propylbenzene	NS	NS	NS	<2.0	<2.7	<2.7
o-Xylene	NS	NS	NS	**3.0**	<2.7	<2.7
p- & m- Xylenes	NS	NS	NS	<2.0	<5.4	<5.4
p-Isopropyltoluene	NS	NS	NS	<2.0	<2.7	<2.7
sec-Butylbenzene	NS	NS	NS	**2.8**	<2.7	<2.7
Styrene	NS	NS	NS	<2.0	<2.7	<2.7
tert-Butyl alcohol (TBA)	NS	NS	NS	**28**	**25**	**5.9**
tert-Butylbenzene	NS	NS	NS	<2.0	<2.7	<2.7
Tetrachloroethene	1,300	19,000	150,000	**26**	**13**	<2.7
Toluene	700	100,000	500,000	<2.0	<2.7	<2.7
trans-1,2-Dichloroethene	100,000	100,000	500,000	<2.0	<2.7	<2.7
trans-1,3-Dichloropropene	NS	NS	NS	<2.0	<2.7	<2.7
Trichloroethene	470	21,000	200,000	<2.0	<2.7	<2.7
Trichlorofluoromethane	NS	NS	NS	<2.0	<2.7	<2.7
Vinyl chloride	20	900	13,000	<2.0	<2.7	<2.7
Xylenes (Total)	260	100,000	500,000	<6.0	<8.0	<8.1

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory standard
NS = No Standard

Table 2

Semi Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8270
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	Standard UUSCO [1]	 RRSCO [2]	 CSCO [3]	SB-1 (3-5) 8/14/14	SB-2 (3-5) 8/15/14	SB-2 (12-14) 8/15/14
Acenaphthene	20,000	100,000	500,000	<45.7	<92.5	<225
Acenaphthylene	100,000	100,000	500,000	<45.7	<92.5	<225
Acetophenone	NS	NS	NS	<45.7	<92.5	<225
Aniline	48,000	10,000	500,000	<45.7	<92.5	<225
Anthracene	100,000	100,000	500,000	<45.7	<92.5	<225
Atrazine	NS	NS	NS	<45.7	<92.5	<225
Benzaldehyde	NS	NS	NS	<45.7	<92.5	<225
Benzidine	NS	NS	NS	<182	<368	<894
Benzo(a)anthracene	1,000	1,000	5,600	<45.7	**418**	<225
Benzo(a)pyrene	1,000	1,000	1,000	<45.7	<92.5	<225
Benzo(b)fluoranthene	1,000	1,000	5,600	<45.7	**145**	<225
Benzo(g,h,i)perylene	100,000	100,000	500,000	<91.4	<185	<450
Benzoic acid	NS	NS	NS	<124	<251	<610
Benzo(k)fluoranthene	800	3,900	56,000	<45.7	**99.9**	<225
Benzyl alcohol	NS	NS	NS	<91.4	<185	<450
Benzyl butyl phthalate	NS	NS	NS	<45.7	<92.5	<225
1,1'-Biphenyl	NS	NS	NS	<45.7	<92.5	<225
4-Bromophenyl-phenylether	NS	NS	NS	<45.7	<92.5	<225
Caprolactam	NS	NS	NS	<45.7	<92.5	<225
Carbazole	NS	NS	NS	<45.7	<92.5	<225
4-Chloro-3-methylphenol	NS	NS	NS	<91.4	<185	<450
4-Chloroaniline	NS	NS	NS	<91.4	<185	<450
Bis(2-chloroethoxy)methane	NS	NS	NS	<45.7	<92.5	<225
Bis(2-chloroethyl)ether	NS	NS	NS	<45.7	<92.5	<225
Bis(2-chloroisopropyl)ether	NS	NS	NS	<45.7	<92.5	<225
2-Chloronaphthalene	NS	NS	NS	<45.7	<92.5	<225
2-Chlorophenol	NS	NS	NS	<45.7	<92.5	<225
4-Chlorophenyl phenyl ether	NS	NS	NS	<45.7	<92.5	<225
Chrysene	1,000	3,900	56,000	<45.7	**350**	<225
Dibenzo(a,h)anthracene	330	330	560	<45.7	<92.5	<225
Dibenzofuran	NS	NS	NS	<45.7	<92.5	<225
Di-n-butyl phthalate	NS	NS	NS	<45.7	<92.5	<225
1,2-Dichlorobenzene	100,000	100,000	500,000	<45.7	<92.5	<225
1,3-Dichlorobenzene	17,000	49,000	280,000	<45.7	<92.5	<225
1,4-Dichlorobenzene	980	13,000	130,000	<45.7	<92.5	<225
3,3'-Dichlorobenzidine	NS	NS	NS	<182	<368	<894
2,4-Dichlorophenol	NS	NS	NS	<91.4	<185	<450
Diethyl phthalate	NS	NS	NS	<45.7	<92.5	<225
2,4-Dimethylphenol	NS	NS	NS	<45.7	<92.5	<225
Dimethyl phthalate	NS	NS	NS	<45.7	<92.5	<225
4,6-Dinitro-2-methylphenol	NS	NS	NS	<91.4	<185	<450
2,4-Dinitrophenol	NS	NS	NS	<182	<368	<894
2,4-Dinitrotoluene	NS	NS	NS	<91.4	<185	<450
2,6-Dinitrotoluene	NS	NS	NS	<45.7	<92.5	<225
Di-n-octyl phthalate	NS	NS	NS	<45.7	<92.5	<225
1,2-Diphenylhydrazine	NS	NS	NS	<45.7	<92.5	<225
Bis(2-ethylhexyl)phthalate	NS	NS	NS	<45.7	<92.5	<225
Fluoranthene	100,000	100,000	500,000	<45.7	**665**	<225
Fluorene	30,000	100,000	500,000	<45.7	<92.5	<225
Hexachlorobenzene	33	12	60	<45.7	<92.5	<225
Hexachlorobutadiene	NS	NS	NS	<45.7	<92.5	<225
Hexachlorocyclopentadiene	NS	NS	NS	<91.4	<185	<450
Hexachloroethane	NS	NS	NS	<45.7	<92.5	<225
Indeno(1,2,3-c,d)pyrene	500	500	5,600	<45.7	<92.5	<225
Isophorone	NS	NS	NS	<45.7	<92.5	<225
2-Methylnaphthalene	NS	NS	NS	<45.7	<92.5	<225
2-Methylphenol	330	100,000	500,000	<91.4	<185	<450
3- & 4-Methylphenols	NS	NS	NS	<91.4	<185	<450
Naphthalene	12,000	100,000	500,000	<45.7	<92.5	<225
4-Nitroaniline	NS	NS	NS	<91.4	<185	<450
2-Nitroaniline	NS	NS	NS	<45.7	<92.5	<225
3-Nitroaniline	NS	NS	NS	<91.4	<185	<450
Nitrobenzene	NS	NS	NS	<45.7	<92.5	<225
2-Nitrophenol	NS	NS	NS	<45.7	<92.5	<225
4-Nitrophenol	NS	NS	NS	<91.4	<185	<450
N-Nitrosodi-n-propylamine	NS	NS	NS	<45.7	<92.5	<225
N-Nitrosodiumethylamine	NS	NS	NS	<45.7	<92.5	<225
N-Nitrosodiphenylamine	NS	NS	NS	<45.7	<92.5	<225
Pentachlorophenol	800	6,700	6,700	<91.4	<185	<450
Phenanthrene	100,000	100,000	500,000	<45.7	**187**	<225
Phenol	330	100,000	500,000	<45.7	<92.5	<225
Pyrene	100,000	100,000	500,000	<45.7	**819**	<225
1,2,4,5-Tetrachlorobenzene	NS	NS	NS	<91.4	<185	<450
2,3,4,6-Tetrachlorophenol	NS	NS	NS	<45.7	<92.5	<225
1,2,4-Tricholobenzene	NS	NS	NS	<45.7	<92.5	<225
2,4,6-Trichlorophenol	NS	NS	NS	<45.7	<92.5	<225
2,4,5-Trichlorophenol	NS	NS	NS	<45.7	<92.5	<225

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory guidance
NS = No Standard

Table 2 continued.

Semi Volatile Organic Compounds in Soil (ug/kg-dry)
EPA Method 8270
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	Standard UUSCO [1]	 RRSCO [2]	 CSCO [3]	SB-3 (0-4) 8/15/14	SB-3 (5-8) 8/14/15	SB-3 (15-20) 8/14/14
Acenaphthene	20,000	100,000	500,000	<88.1	<44.1	<42.6
Acenaphthylene	100,000	100,000	500,000	<88.1	<44.1	<42.6
Acetophenone	NS	NS	NS	<88.1	<44.1	<42.6
Aniline	48,000	10,000	500,000	<88.1	<44.1	<42.6
Anthracene	100,000	100,000	500,000	<88.1	<44.1	<42.6
Atrazine	NS	NS	NS	<88.1	<44.1	<42.6
Benzaldehyde	NS	NS	NS	<88.1	<44.1	<42.6
Benzidine	NS	NS	NS	<350	<175	<169
Benzo(a)anthracene	1,000	1,000	5,600	<88.1	<44.1	<42.6
Benzo(a)pyrene	1,000	1,000	1,000	<88.1	<44.1	<42.6
Benzo(b)fluoranthene	1,000	1,000	5,600	<88.1	<44.1	<42.6
Benzo(g,h,i)perylene	100,000	100,000	500,000	<176	<88.3	<85.1
Benzoic acid	NS	NS	NS	<239	<120	<116
Benzo(k)fluoranthene	800	3,900	56,000	<88.1	<44.1	<42.6
Benzyl alcohol	NS	NS	NS	<176	<88.3	<85.1
Benzyl butyl phthalate	NS	NS	NS	<88.1	<44.1	<42.6
1,1'-Biphenyl	NS	NS	NS	<88.1	<44.1	<42.6
4-Bromophenyl-phenylether	NS	NS	NS	<88.1	<44.1	<42.6
Caprolactam	NS	NS	NS	62.7	**62.7**	<42.6
Carbazole	NS	NS	NS	<88.1	<44.1	<42.6
4-Chloro-3-methylphenol	NS	NS	NS	<176	<88.3	<85.1
4-Chloroaniline	NS	NS	NS	<176	<88.3	<85.1
Bis(2-chloroethoxy)methane	NS	NS	NS	<88.1	<44.1	<42.6
Bis(2-chloroethyl)ether	NS	NS	NS	<88.1	<44.1	<42.6
Bis(2-chloroisopropyl)ether	NS	NS	NS	<88.1	<44.1	<42.6
2-Chloronaphthalene	NS	NS	NS	<88.1	<44.1	<42.6
2-Chlorophenol	NS	NS	NS	<88.1	<44.1	<42.6
4-Chlorophenyl phenyl ether	NS	NS	NS	<88.1	<44.1	<42.6
Chrysene	1,000	3,900	56,000	<88.1	<44.1	<42.6
Dibenzo(a,h)anthracene	330	330	560	<88.1	<44.1	<42.6
Dibenzofuran	NS	NS	NS	<88.1	<44.1	<42.6
Di-n-butyl phthalate	NS	NS	NS	<88.1	<44.1	<42.6
1,2-Dichlorobenzene	100,000	100,000	500,000	<88.1	<44.1	<42.6
1,3-Dichlorobenzene	17,000	49,000	280,000	<88.1	<44.1	<42.6
1,4-Dichlorobenzene	980	13,000	130,000	<88.1	<44.1	<42.6
3,3'-Dichlorobenzidine	NS	NS	NS	<350	<175	<169
2,4-Dichlorophenol	NS	NS	NS	<176	<88.3	<85.1
Diethyl phthalate	NS	NS	NS	<88.1	<44.1	<42.6
2,4-Dimethylphenol	NS	NS	NS	<88.1	<44.1	<42.6
Dimethyl phthalate	NS	NS	NS	<88.1	<44.1	<42.6
4,6-Dinitro-2-methylphenol	NS	NS	NS	<176	<88.3	<85.1
2,4-Dinitrophenol	NS	NS	NS	<350	<175	<169
2,4-Dinitrotoluene	NS	NS	NS	<176	<88.3	<85.1
2,6-Dinitrotoluene	NS	NS	NS	<88.1	<44.1	<42.6
Di-n-octyl phthalate	NS	NS	NS	<88.1	<44.1	<42.6
1,2-Diphenylhydrazine	NS	NS	NS	<88.1	<44.1	<42.6
Bis(2-ethylhexyl)phthalate	NS	NS	NS	<88.1	<44.1	<42.6
Fluoranthene	100,000	100,000	500,000	<88.1	<44.1	<42.6
Fluorene	30,000	100,000	500,000	<88.1	<44.1	<42.6
Hexachlorobenzene	33	12	60	<88.1	<44.1	<42.6
Hexachlorobutadiene	NS	NS	NS	<88.1	<44.1	<42.6
Hexachlorocyclopentadiene	NS	NS	NS	<176	<88.3	<85.1
Hexachloroethane	NS	NS	NS	<88.1	<44.1	<42.6
Indeno(1,2,3-c,d)pyrene	500	500	5,600	<88.1	<44.1	<42.6
Isophorone	NS	NS	NS	<88.1	<44.1	<42.6
2-Methylnaphthalene	NS	NS	NS	<88.1	<44.1	<42.6
2-Methylphenol	330	100,000	500,000	<176	<88.3	<85.1
3- & 4-Methylphenols	NS	NS	NS	<176	<88.3	<85.1
Naphthalene	12,000	100,000	500,000	<88.1	<44.1	<42.6
4-Nitroaniline	NS	NS	NS	<176	<88.3	<85.1
2-Nitroaniline	NS	NS	NS	<88.1	<44.1	<42.6
3-Nitroaniline	NS	NS	NS	<176	<88.3	<85.1
Nitrobenzene	NS	NS	NS	<88.1	<44.1	<42.6
2-Nitrophenol	NS	NS	NS	<88.1	<44.1	<42.6
4-Nitrophenol	NS	NS	NS	<176	<88.3	<85.1
N-Nitrosodi-n-propylamine	NS	NS	NS	<88.1	<44.1	<42.6
N-Nitrosodiumethylamine	NS	NS	NS	<88.1	<44.1	<42.6
N-Nitrosodiphenylamine	NS	NS	NS	<88.1	<44.1	<42.6
Pentachlorophenol	800	6,700	6,700	<176	<88.3	<85.1
Phenanthrene	100,000	100,000	500,000	<88.1	<44.1	<42.6
Phenol	330	100,000	500,000	<88.1	<44.1	<42.6
Pyrene	100,000	100,000	500,000	<88.1	<44.1	<42.6
1,2,4,5-Tetrachlorobenzene	NS	NS	NS	<176	<88.3	<85.1
2,3,4,6-Tetrachlorophenol	NS	NS	NS	<88.1	<44.1	<42.6
1,2,4-Tricholobenzene	NS	NS	NS	<88.1	<44.1	<42.6
2,4,6-Trichlorophenol	NS	NS	NS	<88.1	<44.1	<42.6
2,4,5-Trichlorophenol	NS	NS	NS	<88.1	<44.1	<42.6

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory guidance
NS = No Standard

Table 3

PCBs and Pesticides In Soil (ug/kg-dry)
EPA Method 8081/8082
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	Standard UUSCO [1]	Standard RRSCO [2]	Standard CSCO [3]	SB-1 (3-5) 8/14/14	SB-2 (3-5) 8/15/14	SB-2 (12-14) 8/15/14
Toxaphene	NS	NS	NS	<90.9	<18.4	<89.4
Methoxychlor	NS	NS	NS	<8.98	<1.82	<8.83
Heptachlor epoxide	NS	NS	NS	<1.80	<0.364	<1.77
Heptachlor	42	420	15,000	<1.80	<0.364	<1.77
gamma-BHC	100	280	9,200	<1.80	<0.364	<1.77
Endrin ketone	NS	NS	NS	<1.80	<0.364	<1.77
Endrin aldehyde	NS	NS	NS	<1.80	<0.364	<1.77
Endrin	14	2,200	89,000	<1.80	<0.364	<1.77
Endosulfan sulfate	2,400	4,800	200,000	<1.80	<0.364	<1.77
Endosulfan II	2,400	4,800	200,000	<1.80	<0.364	<1.77
Endosulfan I	2,400	4,800	200,000	<1.80	<0.364	<1.77
Dieldrin	5	39	1,400	<1.80	<0.364	<1.77
delta-BHC	40	100,000	500,000	<1.80	<0.364	<1.77
Chlordane, total	NS	NS	NS	<7.18	<1.45	<7.06
beta-BHC	36	72	3,000	<1.80	<0.364	<1.77
alpha-BHC	20	97	3,400	<1.80	<0.364	<1.77
Aldrin	5	19	680	<1.80	<0.364	<1.77
4,4´-DDT	3.3	1,700	47,000	<1.80	<0.364	<1.77
4,4´-DDE	3.3	1,800	62,000	<1.80	<0.364	<1.77
4,4´-DDD	3.3	2,600	92,000	<1.80	<0.364	<1.77
Aroclor 1260	100	1,000	1,000	<18.5	<18.7	<18.2
Aroclor 1254	100	1,000	1,000	<18.5	<18.7	<18.2
Aroclor 1248	100	1,000	1,000	<18.5	<18.7	<18.2
Aroclor 1242	100	1,000	1,000	<18.5	<18.7	<18.2
Aroclor 1232	100	1,000	1,000	<18.5	<18.7	<18.2
Aroclor 1221	100	1,000	1,000	<18.5	<18.7	<18.2
Aroclor 1016	100	1,000	1,000	<18.5	<18.7	<18.2

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory standard
NS = No Standard

Table 3 continued.

PCBs and Pesticides In Soil (ug/kg-dry)
EPA Method 8081/8082
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	Standard UUSCO [1]	Standard RRSCO [2]	Standard CSCO [3]	SB-3 (0-4) 8/15/14	SB-3 (5-8) 8/14/15	SB-3 (15-20) 8/14/14
Toxaphene	NS	NS	NS	<87.6	<87.7	<84.6
Methoxychlor	NS	NS	NS	<8.66	<8.67	<8.36
Heptachlor epoxide	NS	NS	NS	<1.73	<1.73	<1.67
Heptachlor	42	420	15,000	<1.73	<1.73	<1.67
gamma-BHC	100	280	9,200	<1.73	<1.73	<1.67
Endrin ketone	NS	NS	NS	<1.73	<1.73	<1.67
Endrin aldehyde	NS	NS	NS	<1.73	<1.73	<1.67
Endrin	14	2,200	89,000	<1.73	<1.73	<1.67
Endosulfan sulfate	2,400	4,800	200,000	<1.73	<1.73	<1.67
Endosulfan II	2,400	4,800	200,000	<1.73	<1.73	<1.67
Endosulfan I	2,400	4,800	200,000	<1.73	<1.73	<1.67
Dieldrin	5	39	1,400	<1.73	<1.73	<1.67
delta-BHC	40	100,000	500,000	<1.73	<1.73	<1.67
Chlordane, total	NS	NS	NS	<6.92	<6.93	<6.69
beta-BHC	36	72	3,000	<1.73	<1.73	<1.67
alpha-BHC	20	97	3,400	<1.73	<1.73	<1.67
Aldrin	5	19	680	<1.73	<1.73	<1.67
4,4´-DDT	3.3	1,700	47,000	<1.73	<1.73	<1.67
4,4´-DDE	3.3	1,800	62,000	<1.73	<1.73	<1.67
4,4´-DDD	3.3	2,600	92,000	<1.73	<1.73	<1.67
Aroclor 1260	100	1,000	1,000	<17.8	<17.9	<17.2
Aroclor 1254	100	1,000	1,000	<17.8	<17.9	<17.2
Aroclor 1248	100	1,000	1,000	<17.8	<17.9	<17.2
Aroclor 1242	100	1,000	1,000	<17.8	<17.9	<17.2
Aroclor 1232	100	1,000	1,000	<17.8	<17.9	<17.2
Aroclor 1221	100	1,000	1,000	<17.8	<17.9	<17.2
Aroclor 1016	100	1,000	1,000	<17.8	<17.9	<17.2

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory standard
NS = No Standard

Table 4

Metals in Soil (mg/kg-dry)
EPA Method 6010
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	Standard UUSCO [1]	 RRSCO [2]	 CSCO [3]	SB-1 (3-5) 8/14/14	SB-2 (3-5) 8/15/14	SB-2 (12-14) 8/15/14
Aluminum	NS	NS	NS	**11,100**	**11,900**	**4,780**
Antimony	NS	NS	NS	<0.511	<0.551	<0.535
Arsenic	13	16	16	**3.03**	**3.20**	**2.24**
Barium	350	400	400	**36.1**	**186**	**35.7**
Beryllium	7.2	72	590	<0.109	<0.110	<0.107
Cadmium	2.5	4.3	9.3	<0.326	**3.76**	<0.321
Calcium	NS	NS	NS	**1,540**	**9,380**	**4,790**
Chromium	30	180	1,500	**18.5**	**24.1**	**11.7**
Cobalt	NS	NS	NS	**7.30**	**14.7**	**5.62**
Copper	50	270	270	**12.2**	**85.7**	**25.9**
Iron	NS	NS	NS	**16,400**	**35,200**	**11,700**
Lead	63	400	1,000	**9.80**	**239**	**20.1**
Magnesium	NS	NS	NS	**3,080**	**4,680**	**2,390**
Manganese	1,600	2,000	10,000	**247**	**477**	**192**
Mercury	0.18	0.81	2.8	<0.0326	**0.129**	<0.0321
Nickel	30	310	310	**17.4**	**32.7**	**13.4**
Potassium	NS	NS	NS	**824**	**6,450**	**924**
Selenium	3.9	180	1,500	**1.22**	**1.97**	<1.07
Silver	2	180	1,500	<0.544	<0.551	<0.535
Sodium	NS	NS	NS	**212**	**168**	**201**
Thallium	NS	NS	NS	<1.09	<1.10	<1.07
Vanadium	NS	NS	NS	**26.3**	**36.6**	**25.5**
Zinc	109	10,000	10,000	**31.1**	**1,890**	**62.5**

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory standard
NS = No Standard

Table 4 continued.

Metals in Soil (mg/kg-dry)
EPA Method 6010
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	Standard UUSCO [1]	 RRSCO [2]	 CSCO [3]	SB-3 (0-4) 8/15/14	SB-3 (5-8) 8/14/15	SB-3 (15-20) 8/14/14
Aluminum	NS	NS	NS	**9,250**	**4,630**	**2,820**
Antimony	NS	NS	NS	<0.525	<0.525	<0.507
Arsenic	13	16	16	**4.01**	**1.19**	<1.01
Barium	350	400	400	**67.1**	**30.9**	**27.2**
Beryllium	7.2	72	590	<0.105	<0.105	<0.101
Cadmium	2.5	4.3	9.3	<0.315	<0.315	<0.304
Calcium	NS	NS	NS	**3,460**	**1,370**	**686**
Chromium	30	180	1,500	**15.6**	**9.01**	**7.05**
Cobalt	NS	NS	NS	**6.85**	**4.40**	**3.36**
Copper	50	270	270	**61.5**	**23.4**	**6.61**
Iron	NS	NS	NS	**14,700**	**9,300**	**7,740**
Lead	63	400	1,000	**75.5**	**6.38**	**2.11**
Magnesium	NS	NS	NS	**2,970**	**1,830**	**1,270**
Manganese	1,600	2,000	10,000	**266**	**205**	**208**
Mercury	0.18	0.81	2.8	**0.0824**	<0.0315	<0.0304
Nickel	30	310	310	**17.4**	**9.65**	**7.55**
Potassium	NS	NS	NS	**657**	**532**	**387**
Selenium	3.9	180	1,500	**1.05**	<1.05	<1.01
Silver	2	180	1,500	<0.525	<0.525	<0.507
Sodium	NS	NS	NS	**264**	**162**	**101**
Thallium	NS	NS	NS	<1.05	<1.05	<1.01
Vanadium	NS	NS	NS	**29.9**	**13.2**	**13.6**
Zinc	109	10,000	10,000	**155**	**39.0**	**12.1**

[1] Unrestricted Use Soil Cleanup Objectives, Table 375-6.8(a), 6 NYCRR 375, NYSDEC 2006
[2] Restricted Residential Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
[3] Commercial Soil Cleanup Objectives, Table 375-6.8(b), 6 NYCRR 375, NYSDEC 2006
Bolded values signify detection above method detection limit
Highlighted values signify exceedance of regulatory standard
NS = No Standard

Table 5

Volatile Organic Compounds in Soil Vapor, Indoor and Ambient Air (ug/m3)
EPA Method TO-15
64-02/06 Queens Boulevard
Woodside, NY

ACT Project No.: 7791-WDNY

Sample ID Sample Date	NYSDOH Indoor Air Guideline [1]	SV-1 8/15/14	SV-2 8/15/14
Vinyl chloride	NA	<2.5	<2.4
Vinyl acetate	NA	<7.0	<6.6
Trichloroethene	5	<2.7	**12**
1,3-Dichloropropene (trans)	NA	<9.0	<8.5
1,2-Dichloroethene (trans)	NA	<7.8	<7.4
Toluene	NA	**29**	**26**
Tetrahydrofuran	NA	<5.8	<5.5
Tetrachloroethene	30	**220**	**460**
Styrene	NA	<8.4	<8.0
Propylene	NA	<3.4	<3.2
4-Ethyltoluene	NA	**17**	**14.0**
Xylenes (m&p)	NA	**41**	**32**
Xylenes (o)	NA	**12**	**9.7**
n-Hexane	NA	<7.0	**28.0**
n-Heptane	NA	**8.9**	<7.7
Methylene chloride	60	**17**	**67**
Methyl tert-butyl ether	NA	<7.1	<6.7
4-Methyl-2-pentanone	NA	<8.1	<7.6
Isopropanol	NA	**12**	**9.60**
1,3-Hexachlorobutadiene	NA	<21	<20
Ethylbenzene	NA	**10**	**8.1**
Ethyl acetate	NA	<14	<13
Cyclohexane	NA	<6.8	<6.4
1,3-Dichloropropene (cis)	NA	<9.0	<8.5
1,2-Dichloroethene (cis)	NA	<7.8	<7.4
Chloromethane	NA	<4.1	<3.9
Chloroform	NA	<9.6	**10**
Chloroethane	NA	<5.2	<4.9
Carbon tetrachloride	NA	<3.1	<2.9
Carbon disulfide	NA	<6.2	<5.8
Bromomethane	NA	<7.7	<7.2
Bromoform	NA	<20	<19
Bromodichloromethane	NA	<12	<12
Benzyl Chloride	NA	<10	<9.7
Benzene	NA	<6.3	<6.0
Acetone	NA	**1,500**	**2,200**
2-Hexanone	NA	<16	<15
2-Butanone	NA	**60**	**73**
1,4-Dioxane	NA	<7.1	<6.7
1,4-Dichlorobenzene	NA	<12	<11
1,3-Dichlorobenzene	NA	<12	<11
1,3-Butadiene	NA	<8.6	<8.1
1,3,5-Trimethylbenzene	NA	<9.7	<9.2
1,2-Dichlorotetrafluoroethane	NA	<14	<13
1,2-Dichloropropane	NA	<9.1	<8.6
1,2-Dichloroethane	NA	<8.0	<7.6
1,2-Dichlorobenzene	NA	<12	<11
1,2,4-Trimethylbenzene	NA	**17**	**17**
1,2,4-Trichlorobenzene	NA	<15	<14
1,1-Dichloroethene	NA	**7.8**	<7.4
1,1-Dichloroethane	NA	<8.0	<7.6
Trichlorofluoromethane	NA	<11	<10
1,1,2-Trichloroethane	NA	<11	<10
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	<15	<14
1,1,2,2-Tetrachloroethane	NA	<14	<13
1,1,1-Trichloroethane	NA	<11	<10
Dichlorodifluoromethane	NA	**13**	<9.2
1,2-Dibromoethane	NA	<15	<14
Dibromochloromethane	NA	<16	<15
Methyl Methacrylate	NA	<8.1	<7.6
Chlorobenzene	NA	<9.1	<8.6

[1] Table 3.1, NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006)
[3] Matrix 1, NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006)
[4] Matrix 2, NYSDOH "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006)
Bolded values signify detection above method detection limit
Highlighted values signify detection above guidance value
NA = Guidance Value Not Available

APPENDIX A

PREVIOUS ENVIRONMENTAL REPORTS

PHASE II ENVIRONMENTAL
SUBSURFACE INVESTIGATION
PROPERTY LOCATED AT
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

May 28, 2004
Project No.: 04716

Prepared for:

MR. SIMON ROTHKRUG
ROTHKRUG, ROTHKRUG, WEINBURG & SPECTOR
185 GREAT NECK ROAD, SUITE 402
GREAT NECK, NEW YORK

Prepared by:

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Geologist

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EEA Inc.

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PHASE II ENVIRONMENTAL SUBSURFACE INVESTIGATION
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

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Figure 1: Site Location Plan

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EXECUTIVE SUMMARY

This investigation was completed to address issues presented in a Phase I Environmental Site Assessment (ESA) conducted by G.C. Environmental, Inc. (GCE) issued February 4, 2004, and on the limited soil gas survey issued by Fleming Lee Shue on March 2004. A sampling and analysis program was designed to determine if prior and/or present uses on the subject property have impacted the subsurface soils and environment as outlined in our Scope of Work dated April 26, 2004. The sampling and analysis plan consisted of soil quality testing using analytical test methods consistent with expected parameters and agency soil cleanup guidelines. The following presents an evaluation of our investigation.

EEA conducted the Phase II Environmental Site Assessment based on the finding of the previous Phase I ESA. These findings indicated that the western portion of the site was a gasoline station from circa 1923 to circa 1955. In addition, regulatory records indicated that a permit was issued for a portion of the property for ten (10) buried gasoline tanks and also indicated that there were four (4) gasoline pumps located on the northwestern portion of the site. In addition, the 1932 and the 1951 Sanborn Fire Insurance maps showed three (3) gasoline tanks located on the northwestern portion of the site and labeled it as a "filling station". Based on the information from the previous Phase I, the following tasks were completed during EEA's Phase II Subsurface Investigation:

Geophysical Survey – Magnetometer

During field activities, EEA performed a magnetometer survey over the property to determine if any underground storage tanks (USTs) were present on the property using a Fisher TW-6 magnetometer. The survey was conducted in the arESA of the suspected USTs around the former gasoline service station and auto repair facility. The survey did not indicate that there were any USTs present in the subsurface.

EEA concludes that the tanks had been removed at an earlier time and does not recommend any further action.

Former Gasoline Service Station

At the location of the former gasoline service station, six (6) soil borings were advanced to depth. Of these six soil borings, five (5) soil samples were selected for laboratory analysis based on field observations and field screening via a portable Organic Vapor Analyzer (OVA). Soil samples were analyzed for volatile organic compounds (VOCs) via USEPA Method 8021,

semi-volatile organic compounds (SVOCs) via USEPA Method 8270 and total petroleum hydrocarbons (TPH) via USEPA Method 8015. Results of soil analysis indicated that soil boring B-1 had some low-level concentrations of SVOCS above the New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) criteria. All five soil samples also had detections for TPH, however the concentrations were well below any regulatory guidelines. EEA concludes that the former gasoline station had not significantly impacted soil at the property.

Based on the analytical results, EEA does not recommend any further action in regards to the former gasoline station.

There are no recommendations for additional site investigation or remedial corrective action for this property at this time based upon the information disclosed in our investigation.

I. INTRODUCTION

This investigation was completed to address issues addressed in our Scope of Work dated April 26, 2004. A sampling and analysis program was designed to determine if prior and/or present uses on the subject property have impacted the subsurface soils and environment. The sampling and analysis plan consisted of soil quality testing using analytical test methods consistent with expected parameters and agency soil cleanup guidelines. The following presents an evaluation of our investigation.

EEA conducted the Phase II Environmental Site Assessment based on the finding of the previous Phase I ESA. These findings indicated that the western portion of the site was a gasoline station from circa 1923 to circa 1955. In addition, regulatory records indicated that a permit was issued for a portion of the property for ten (10) buried gasoline tanks and also indicated that there were four (4) gasoline pumps located on the northwestern portion of the site. In addition, the 1932 and the 1951 Sanborn Fire Insurance maps showed three (3) gasoline tanks located on the northwestern portion of the site and labeled it as a "filling station". Based on the information from the previous Phase I, EEA's initiated the Phase II Subsurface Investigation:

EEA initiated field activities on May 10, 2004; all Phase II field activities were completed by that date. This report summarizes the work performed, the results of the investigation, and the recommended remedial action requirements (if any).

II. SCOPE OF WORK PERFORMED

a. Health and Safety Plan

EEA uses a company Generic Health and Safety Plan for all investigative work relating to performing Phase II Environmental Subsurface Investigations. The HASP assigns responsibilities, establishes personal protection standards, recommends operating procedures, and provides for contingencies that may arise during performance of the assessment at the site. The protocols in the HASP apply to all personnel involved in the work activities including EEA, all outside subcontractors, client, or regulatory agencies present during the performance of the work. In addition, the following safety equipment is maintained on-site for responding to potential emergency situations: portable eyewash, ABC fire extinguisher, and first aid kit. Telephone numbers of emergency response units in the area are also posted where all those working at the site can ESAily see them. All personnel working at the site will also be required to receive training in respirator fitting, emergency procedures, equipment decontamination, and specific task procedures. All personnel involved with the collection of soil or water will have successfully completed the 40-hour OSHA Hazardous Materials Training Program.

b. Subsurface Utility Location, Permits and Bonding

EEA notified the New York City/Long Island One Call Center under the New York State Regulation Code 753 prior to initiating the work to identify the location of underground utilities in the vicinity of the proposed boring locations. The confirmation number assigned to the site was #1240288. Any permits for soil boring were obtained from the local agencies. In addition, any license and permit bonding required was secured for the work.

c. Investigation Work Summary

All soil sampling was completed using a Geoprobe Model 54LT using the *Macrocore* soil sampling system. Samples were field screened for volatile organic vapors using an organic vapor meter (OVM). If no reading was found, then the bottom sample or the sample determined to be the most representative was selected for laboratory testing. The geophysical survey was conducted utilizing a Fisher TW-6 magnetometer.

- A geophysical survey (magnetometer) to investigate USTs
- Six (6) soil borings (B-1,B-2, B-3, B-4, B-5 and B-6) to investigate the location of the former gasoline station on-site.

d. Geophysical Survey - Magnetometer

EEA performed a magnetometer survey over the property to determine if any USTs were present on the property. The survey was performed with a Fisher TW-6 magnetometer in the areas of the suspected underground tanks (around the former gasoline station and auto repair facility). The survey did not indicate that there were any USTs present in the subsurface. EEA concludes that these USTs had been removed at an earlier time.

e. Former Gasoline Service Station

Six (6) soil borings were completed in order to investigate the area of the former gasoline service station. The soil borings were completed to a depth of 12 feet using a Geoprobe Model 54LT and *Macrocore* soil sampling system. Each sample was field screened for volatile organic vapors using an OVM. Based on field observations and OVM readings, five (5) soil boring samples were submitted for laboratory analysis. Samples were selected based upon the results of the OVM field screening. The sample with the highest OVM reading was selected for testing. If no reading was found, then the bottom sample or the sample determined to be the most representative was selected for laboratory testing Each sample sent to the laboratory was tested for volatile organic compounds (VOCs via US EPA Method 8021), semi-volatile organic compounds (SVOCs via US EPA Method 8270) and TPH (via US EPA Method 8015). Soil sample B-1 had some low-level concentrations of SVOCs (Benzo (a) Anthracene and Benzo (a) Pyrene) slightly above the NYSDEC TAGM criteria. Also, all five soil samples had detections for TPH, however the concentrations are well below any regulatory guidelines. Based on the

minor detections for SVOCs and TPH, EEA concludes that the former gasoline service station has not impacted subsurface soils on the property.

III. RESULTS OF LABORATORY ANALYSES

Ecotest Laboratories, Inc. (NYSDOH Certification #10320) prepared the results of the soil samples. Tables 1 and 2 present a summary of the results and a comparison to New York State Department of Environmental Conservation (NYSDEC) STARS Memo #1 and Technical and Administrative Guidance Manual (TAGM) cleanup guidelines. The chain-of-custody records, as well as the analytical laboratory data sheets, are presented in the Appendix to this report.

The soil sample collection locations are presented in Figure 1. The soil boring report logs present the field observations made at each soil boring location and site photographs are presented in the Appendix to this report.

IV. FINDINGS AND CONCLUSIONS

a. Geophysical Survey - Magnetometer

The magnetometer survey did not indicate that USTs were still present in the vicinity of the former gasoline service station and auto repair facility. EEA concludes that these tanks had been removed at an earlier time.

b. Former Gasoline Service Station

Six (6) soil borings were advanced in the area of the former gasoline service station, and of these, five (5) soil samples were submitted for laboratory analysis. Analytical results indicate that soil boring B-1 had some low-level concentrations of SVOCS above the NYSDEC TAGM criteria. Also, all five soil samples had detections for TPH, however the concentration were well below any regulatory guidelines. EEA concludes that the former USTs had been removed and that the former USTs have not significantly impacted subsurface conditions at the subject property.

The NYSDEC has developed the "guidelines" in order for DEC case managers to determine potential cleanup recommendations at various sites thoughout the state. The New York City Department of Environmental Protection (NYCDEP) and USEPA have developed similar guidelines. The NYSDEC and NYCDEP consider each site on a case-by-case basis in consideration of the property usage and its location to sensitive human, wildlife and environmental interests. Industrial properties are treated differently than residential or environmentally sensitive areas. In order to determine the specific requirements regarding potential remedial corrective action, EEA recommends that this report is reviewed by the applicable regulating agency.

TABLE 1
SOIL ANALYTICAL RESULTS: VOLATILE ORGANIC COMPOUNDS
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

Sample ID & Sample Depth	B-1 12ft	B-2 12ft	B-3 12ft	B-5 12ft	B-6 12ft
Matrix	Soil	Soil	Soil	Soil	Soil
Sampling Date	5/10/2004	5/10/2004	5/10/2004	5/10/2004	5/10/2004

VOLATILE ORGANIC COMPOUNDS (ug/Kg)	NYSDEC Soil Cleanup Objectives (TAGM) (ug/Kg)	US EPA METHOD 8021				
124-Trimethylbenzene	NE	< 5.4	< 5.2	< 5.4	< 5.5	< 5.6
135-Trimethylbenzene	NE	< 5.4	< 5.2	< 5.4	< 5.5	< 5.6
Benzene	60	< 5.4	< 5.2	< 5.4	< 5.5	< 5.6
Ethyl Benzene	5,500	< 5.4	< 5.2	< 5.4	< 5.5	< 5.6
Isopropylbenzene	NE	< 5.4	< 5.2	< 5.4	< 5.5	< 5.6
m + p Xylene	1,200	< 11	< 10	< 11	< 11	< 11
n-Butylbenzene	NE	< 5.4	< 5.2	< 5.4	< 5.5	< 5.6
n-Propylbenzene	NE	< 5.4	< 5.2	< 5.4	< 5.5	< 5.6
Naphthalene(v)	13,000	< 5.4	< 5.2	< 5.4	< 5.5	< 5.6
o Xylene	1,200	< 5.4	< 5.2	< 5.4	< 5.5	< 5.6
p-isopropyltoluene	NE	< 5.4	< 5.2	< 5.4	< 5.5	< 5.6
sec-Butylbenzene	NE	< 5.4	< 5.2	< 5.4	< 5.5	< 5.6
ter.ButylMethylEther	NE	< 5.4	< 5.2	< 5.4	< 5.5	< 5.6
tert-Butylbenzene	NE	< 5.4	< 5.2	< 5.4	< 5.5	< 5.6
Toluene	1,500	< 5.4	< 5.2	< 5.4	< 5.5	< 5.6
Xylene	1,200	< 16	< 16	< 16	< 16	< 17

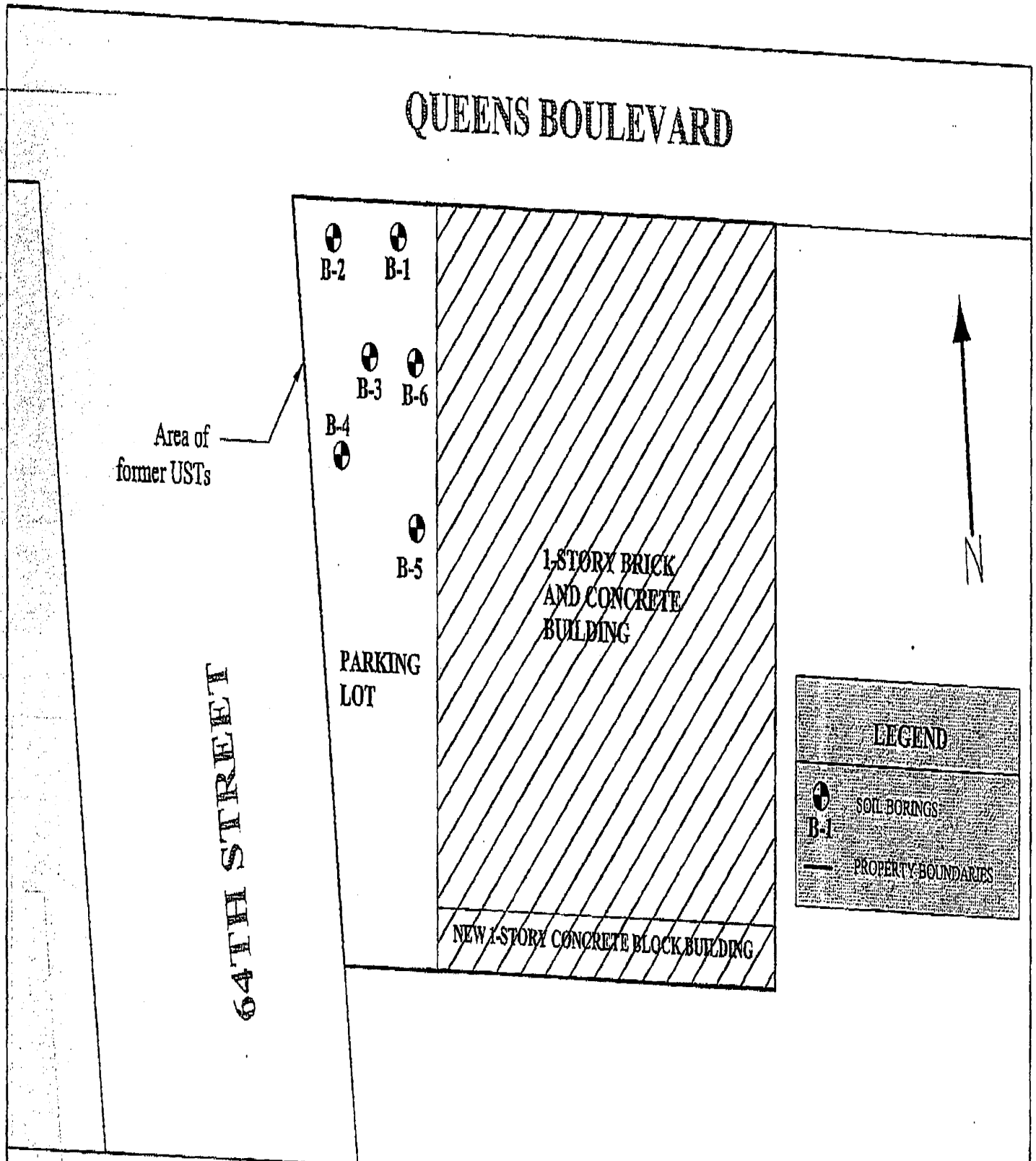
Notes:
< = Analyte not detected above the Laboratory Reporting Limit (detection limit noted)
NYSDEC = New York State Department of Environmental Conservation
TAGM = Technical and Administrative Guidance Memorandum
NE = TAGM guidelines Not Established
Bold indicates analytes detected above the Laboratory Reporting Limi
Shade indicated analytes detected above the TAGM guideline

TABLE 2
SOIL ANALYTICAL RESULTS: SEMI-VOLATILE ORGANIC COMPOUNDS & TOTAL PETROLEUM HYDROCARBONS
64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

Sample ID & Sample Depth		B-1 12ft	B-2 12ft	B-3 12ft	B-5 12ft	B-6 12ft
Matrix		Soil	Soil	Soil	Soil	Soil
Sampling Date		5/10/2004	5/10/2004	5/10/2004	5/10/2004	5/10/2004
SEMI-VOLATILE ORGANIC COMPOUNDS (ug/Kg)	**NYSDEC Soil Cleanup Objectives (TAGM) (ug/Kg)**	US EPA METHOD 8270				
Acenaphthene	50,000	<330	<310	<330	<330	<340
Anthracene	50,000	<330	<310	<330	<330	<340
Benzo(a)anthracene	224	330	<310	<330	<330	<340
Benzo(a)pyrene	61	380	<310	<330	<330	<340
Benzo(b)fluoranthene	1,100	410	<310	<330	<330	<340
Benzo(ghi)perylene	50,000	<330	<310	<330	<330	<340
Benzo(k)fluoranthene	1,100	410	<310	<330	<330	<340
Chrysene	400	350	<310	<330	<330	<340
Dibenzo(a,h)anthracene	14	<330	<310	<330	<330	<340
Fluoranthene	50,000	<330	<310	<330	<330	<340
Fluorene	50,000	<330	<310	<330	<330	<340
Indeno(1,2,3-cd)pyrene	3,200	<330	<310	<330	<330	<340
Naphthalene(sv)	13,000	<330	<310	<330	<330	<340
Phenanthrene	50,000	<330	<310	<330	<330	<340
Pyrene	50,000	500	<310	<330	<330	<340

Sample ID & Sample Depth		B-1 12ft	B-2 12ft	B-3 12ft	B-5 12ft	B-6 12ft
Matrix		Soil	Soil	Soil	Soil	Soil
Sampling Date		5/10/2004	5/10/2004	5/10/2004	5/10/2004	5/10/2004
TOTAL PETROLEUM HYDROCARBONS (mg/kg)	**NYSDEC Soil Cleanup Objectives (TAGM) (mg/Kg)**	US EPA METHOD 8015 GC				
Petrol. Hydrocarbons	NE	150	3.5	160	6	1.1

Notes:
< = Analyte not detected above the Laboratory Reporting Limit (detection limit noted)
NYSDEC = New York State Department of Environmental Conservation
TAGM = Technical and Administrative Guidance Memorandum
NE = TAGM guidelines Not Established
Bold indicates analytes detected above the Laboratory Reporting Limi
Shade indicated analytes detected above the TAGM guideline:



Not To Scale

EEA, Inc.

55 Hilton Avenue
Garden City, New York
(516) 746-4400

Figure 1: Site Location Plan
64-06 Queens Boulevard
Woodside, New York

Job No.: 04716

Drawn By: FI

Date: 5/28/04

V. RECOMMENDATIONS

There are no recommendations for additional site investigation or remedial corrective action for this property at this time based upon the information disclosed in our investigation.

VI. SAMPLING METHODOLOGY

a. Soil Sampling

Soil samples were obtained by utilizing a Geoprobe Model 54 LT utilizing the *Macrocore* soil sampling system. An organic vapor analysis was performed on all soil samples using a Thermo Environmental Instruments Inc. 580B photo-ionization detector (OVM). Generally, the sample producing the highest organic vapor reading was sent to the laboratory for analysis. If no reading was found, the sample was selected based upon visual analysis to be best representative of the location.

Soils at the site consisted of brown, fine to medium grained sand intermixed with gravel, stones and brick where fill material was encountered and brown, fine to medium grained sand and some silt where native material was encountered. Soil borings were advanced to a depth of 12 feet below grade and ground water was not encountered on-site.

b. Quality Assurance and Quality Control QA/QC Plan

EEA implements a QA/QC Plan to ensure sample integrity and avoid contamination and/or cross-contamination of samples. All sampling equipment is cleaned before each sample is collected. When petroleum hydrocarbon contamination is encountered, all equipment is steam-cleaned. The following procedures are followed in the decontamination process:

Step 1: Steam clean equipment.
Step 2: Scrub with a bristle brush using a non-phosphate detergent (such as Alconox).
Step 3: Rinse with hot tap water.
Step 4: Rinse twice with deionized water.
Step 5: Air dry.
Step 6 Nitric Acid (5%) solution rinse (if sampling for metals)
Step 7: Rinse twice with deionized water.
Step 8: Air dry.

VII QUALIFICATIONS

EEA, Inc. is an environmental consulting firm that has undertaken environmental pollution investigations, development feasibility studies, and environmental site assessment

studies since 1979. These site evaluation studies have been prepared for major lenders, public corporations, businesses, developers and governmental agencies. Approximately 4,000 parcels have been evaluated in the metropolitan New York-New Jersey area during the past twenty years, ranging from Phase I Environmental Site Assessments to comprehensive subsurface hazardous material investigations and testing programs. EEA also prepares bid specifications for remedial cleanup actions and supervises site cleanup.

EEA's principals and senior managers for the hazardous waste investigations each have over 20 years experience in environmental consulting, with established credentials in the field.

Individual qualifications of EEA personnel, including specific credentials of persons involved in the preparation of this report can be provided upon request.

VIII. DISCLAIMER

This report is for use by Mr. Simon Rothkrug of the Rothkrug, Rothkrug, Weinburg & Spector, and is only to be used as a guide in determining the potential for contamination by toxic or hazardous materials on the subject property at the time of the site visit. This Phase II Environmental Subsurface Investigation was undertaken in accordance with generally accepted protocols, including ASTM Standards Related to the Phase II Environmental Site Assessment Process. This Phase II Investigation is based principally on the review of historic and regulatory records (made available within a reasonable time period), relating to past occupants and usage of the subject property, as well as activities at nearby sites, and upon a visual assessment of the subject property, and makes no determinations with respect to portions of the subject property and its structures which were not inspected. Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by reputable qualified professionals practicing in this or similar situations. The interpretation of the field data is based on good judgement and experience. However, no matter how qualified the professional or detailed the investigation, subsurface conditions cannot always be predicted beyond the points of actual sampling and testing. No other warranty, expressed or implied, is made to the professional advice included in this report.

Any and all liability on the part of EEA, Inc. shall be limited solely to EEA's professional liability insurance (errors and omissions coverage of one million dollars). EEA, Inc. shall have no liability for any other damages, whether consequential, compensatory, punitive, or special, arising out of, incidental to, or as a result of, this assessment. EEA, Inc. assumes no liability for the use of this report by any person or entity other than the institution and/or entities or persons for whom it has been prepared.

APPENDIX A

CHAIN-OF CUSTODY

ECO TEST LABORATORIES, INC. • ENVIRONMENTAL TESTING

CHAIN OF CUSTODY RECORD

777 Sheffield Avenue, North Babylon, New York 11703
(631) 422-5777 • FAX (631) 422-5770

Client: EEA Inc.
Address: 55 Hilton Avenue
Garden City NY 11530
Phone: (516) 741-4400 FAX: (516) 741-4420
Person receiving report: N. Penkiw
Sampled by: AR
Source: Rod's Automotive
Job No.: EEA 04716

MATRIX (Soil, Water, etc.)	COLLECTED DATE	COLLECTED TIME	SAMPLE IDENTIFICATION	TOTAL NUMBER OF CONTAINERS	TYPE & NUMBER OF CONTAINERS: USEPA 8021 (SIAS)	USEPA 8270 BNA (SIAS)	TPHC 8015 (GC)	REMARKS-TESTS REQUIRED, SPECIAL TURNAROUND, SPECIAL Q.C. etc.
Soil	5/16/04	0945	B-1 12ft	1	✓	✓	✓	
Soil	5/16/04	0950	B-2 12ft	1	✓	✓	✓	
Soil	5/16/04	1000	B-3 12ft	1	✓	✓	✓	
Soil	5/16/04	1030	B-5 12ft	1	✓	✓	✓	
Soil	5/16/04	1110	B-6 12ft	1	✓	✓	✓	

Relinquished by: (Signature)	DATE/TIME	SEAL INTACT?	Received by: (Signature)	Relinquished by: (Signature)	DATE/TIME	SEAL INTACT?	Received by: (Signature)
Representing:	5/16 1730	YES NO NA	Representing:	Representing:		YES NO NA	Representing:
Relinquished by: (Signature)	DATE/TIME	SEAL INTACT?	Received by: (Signature)	Relinquished by: (Signature)	DATE/TIME	SEAL INTACT?	Received by: (Signature)
Representing:		YES NO NA	Representing:	Representing:		YES NO NA	Representing:

APPENDIX B

LABORATORY ANALYTICAL REPORT

EcoTest Laboratories, Inc.

377 Sheffield Avenue377 Sheffield Avenue
North Babylon, New York 11703
(631) 422-5777
Fax: (631) 422-5770

FAX TRANSMISSION COVER SHEET

Date: May 28, 2004

To: Fariha Islam

Fax:

Re: Rodi Automotive, EEA#04716
Lab No. 242008 (.01-.05)

Sender: Sophia Sparkes

YOU SHOULD RECEIVE 16 PAGE(S), INCLUDING THIS COVER SHEET.
IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL (631) 422-5777

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-6777 • FAX (631) 422-6770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.01 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0845
MATRIX:Soil SAMPLE: B-1 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Toluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Ethyl Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	10.869	EPA8021
o Xylene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Xylene	ug/Kg	< 16		05/12/04	16.304	EPA8021
Isopropylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Propylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
sec-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Naphthalene(v)	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
tert-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
% Solids		92		05/12/04	0.1	SM18 2540G

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

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LAB NO.242008.01 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0845
MATRIX:Soil SAMPLE: B-1 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 330		05/13/04	326.08	EPA8270
Acenaphthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Fluorene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Phenanthrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Anthracene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Fluoranthene	ug/Kg	< 390		05/13/04	326.08	EPA8270
Pyrene	ug/Kg	500		05/13/04	326.08	EPA8270
Benzo(a)anthracene	ug/Kg	330		05/13/04	326.08	EPA8270
Chrysene	ug/Kg	350		05/13/04	326.08	EPA8270
Benzo(b)fluoranthene	ug/Kg	410	#*	05/13/04	326.08	EPA8270
Benzo(k)fluoranthene	ug/Kg	410	#*	05/13/04	326.08	EPA8270
Benzo(a)pyrene	ug/Kg	380	*	05/13/04	326.08	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 330	*	05/13/04	326.08	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 330	*	05/13/04	326.08	EPA8270
Benzo(ghi)perylene	ug/Kg	< 330	*	05/13/04	326.08	EPA8270

cc:

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REMARKS: #Total = 820 ug/Kg, unable to separate isomers.
*Estimated due to low internal standard recovery, %43%. Low recovery due to interference. QC limit is 50%.

DIRECTOR

rn = 19182 NYSDOH ID # 10320 Page 2 of 3

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Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.01 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Secchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0845
MATRIX:Soil SAMPLE: B-1 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Total Pet.Hydro.(GC)	mg/Kg	150		05/18/04	4.3478	EPA8015

cc:

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REMARKS:

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Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.02 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, ERA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0930
MATRIX:Soil SAMPLE: A-2 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Benzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Toluene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Ethyl Benzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
m + p Xylene	ug/Kg	< 10		05/12/04	10.416	EPA8021
o Xylene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Xylene	ug/Kg	< 16		05/12/04	15.625	EPA8021
Isopropylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
n-Propylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
sec-Butylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
n-Butylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
Naphthalene(v)	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
tert-Butylbenzene	ug/Kg	< 5.2		05/12/04	5.2083	EPA8021
% Solids		96		05/12/04	0.1	SM18#2540G

cc:

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Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0930
MATRIX:Soil SAMPLE: B-2 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 310		05/13/04	312.5	EPA8270
Acenaphthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Fluorene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Phenanthrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Anthracene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Fluoranthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Pyrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(a)anthracene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Chrysene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(a)pyrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 310		05/13/04	312.5	EPA8270
Benzo(ghi)perylene	ug/Kg	< 310		05/13/04	312.5	EPA8270

cc:

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REMARKS:

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Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.02 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, ERA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:0930
MATRIX:Soil SAMPLE: B-2 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	3.5		05/18/04	0.4166	EPA8015

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19186 NYSDOH ID # 10320

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-6770

Email: ecoteatlab@aol.com Website: www.ecoteatlabs.com

LAB NO.242008.03 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Becchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1000
MATRIX:Soil SAMPLE: B-3 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Toluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Ethyl Benzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	10.869	EPA8021
o Xylene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Xylene	ug/Kg	< 16		05/12/04	16.304	EPA8021
Isopropylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Propylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
sec-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
n-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
Naphthalene(v)	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
tert-Butylbenzene	ug/Kg	< 5.4		05/12/04	5.4347	EPA8021
% Solids		92		05/12/04	0.1	SM18#2540G

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

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LAB NO. 242008.03 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1000
MATRIX:Soil SAMPLE: B-3 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 330		05/13/04	326.08	EPA8270
Acenaphthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Fluorene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Phenanthrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Anthracene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Fluoranthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Pyrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(a)anthracene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Chrysene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(a)pyrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 330		05/13/04	326.08	EPA8270
Benzo(ghi)perylene	ug/Kg	< 330		05/13/04	326.08	EPA8270

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19188 NYSDOH ID # 10320

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING

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LAB NO. 242008.03 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1000
MATRIX:Soil SAMPLE: B-3 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	160		05/18/04	0.4347	EPA0015

PO:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19189 NYSDOH ID # 10320 Page 3 of 3

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING
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ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1030
MATRIX:Soil SAMPLE: B-5 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Benzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Toluene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Ethyl Benzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	10.989	EPA8021
o Xylene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Xylene	ug/Kg	< 16		05/12/04	16.483	EPA8021
Isopropylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
n-Propylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
sec-Butylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
n-Butylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
Naphthalene(v)	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
tert-Butylbenzene	ug/Kg	< 5.5		05/12/04	5.4945	EPA8021
% Solids		91		05/12/04	0.1	SM18254OG

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19190 NYSDOH ID # 10320

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Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

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SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1030
MATRIX:Soil SAMPLE: B-5 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 330		05/13/04	329.67	EPA8270
Acenaphthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Fluorene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Phenanthrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Anthracene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Fluoranthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Pyrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(a)anthracene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Chrysene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(a)pyrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 330		05/13/04	329.67	EPA8270
Benzo(ghi)perylene	ug/Kg	< 330		05/13/04	329.67	EPA8270

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19191 NYSDOH ID # 10320 Page 2 of 3

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Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, ERA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1030
MATRIX:Soil SAMPLE: B-5 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	6.0		05/17/04	0.4395	EPA8015

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19192 NYSDOH ID # 10320 Page 3 of 3

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55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1100
MATRIX:Soil SAMPLE: B-6 12Ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
ter.ButylMethylEther	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Benzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Toluene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Ethyl Benzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
m + p Xylene	ug/Kg	< 11		05/12/04	11.235	EPA8021
o Xylene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Xylene	ug/Kg	< 17		05/12/04	16.853	EPA8021
Isopropylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
n-Propylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
135-Trimethylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
124-Trimethylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
sec-Butylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
p-Isopropyltoluene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
n-Butylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
Naphthalene(v)	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
tert-Butylbenzene	ug/Kg	< 5.6		05/12/04	5.6179	EPA8021
% Solids		89		05/12/04	0.1	SM18 2540G

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04					SHEET 1 OF 1
CLIENT: Simon Rothkrug					LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY					B - 2
REMARKS: Former UST area					PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR	DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification	DRILL RIG
		Direct			DRILL METHOD
TYPE	MACROCORE	Push			GEOPROBE LT 54 MACROCORE
SIZE	2 Inch O.D.	GH 42			
SURFACE ELEVATION: NA		Surface Materials: Asphalt 2"			

WATER LEVEL (IN OPEN BOREHOLE): Not established

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND and some stone and gravel (Fill).
5	S-2	4-8	0	Dry		Brown, fine grained SAND (Fill).
	*S-3	8-12	0	Dry		Brown, fine to coarse grained SAND and cobbles; GRAVEL (SP).
10						EOB @ 12 feet
15						
20						
25						
30						

* soil sample collected for laboratory analysis

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY						B - 3
REMARKS: Former gasoline UST area (moved first location –refusal)						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt 2"				
WATER LEVEL (IN OPEN BOREHOLE): Not established						

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND, some GRAVEL (Fill).
5	S-2	4-8	0	Dry		
	*S-3	8-12	0	Dry		
10						Brown, fine to coarse grained SAND, some GRAVEL (SP).
						EOB @ 12 feet
15						
20						* soil sample collected for laboratory analysis
25						
30						

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY						B - 4
REMARKS: Former gasoline UST area						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt				
WATER LEVEL (IN OPEN BOREHOLE): Not established						

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to coarse SAND, some SILT.
5	S-2	4-8	0	Dry		Brown, fine grained SAND (SP). (Clean) No tank bed here
	S-3	8-12	0	Dry		Same as above,
10						EOB @ 12 feet
15						
20						
25						
30						

ECOTEST LABORATORIES, INC. *ENVIRONMENTAL TESTING*

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (631) 422-5777 • FAX (631) 422-5770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO. 242008.05 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Recchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, EEA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1100
MATRIX:Soil SAMPLE: B-6 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
Naphthalene(sv)	ug/Kg	< 340		05/13/04	337.07	EPA8270
Acenaphthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Fluorene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Phenanthrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Anthracene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Fluoranthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Pyrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(a)anthracene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Chrysene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(b)fluoranthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(k)fluoranthene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(a)pyrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Indeno(1,2,3-cd)pyrene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Dibenzo(a,h)anthracene	ug/Kg	< 340		05/13/04	337.07	EPA8270
Benzo(ghi)perylene	ug/Kg	< 340		05/13/04	337.07	EPA8270

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 1.9194 NYSDOH ID # 10320

ECOTEST LABORATORIES, INC. ENVIRONMENTAL TESTING

377 SHEFFIELD AVE. * N. BABYLON, N.Y. 11703 * (631) 422-5777 * FAX (631) 422-5770

Email: ecotestlab@aol.com Website: www.ecotestlabs.com

LAB NO.242008.05 05/20/04

Energy & Environmental Analysts, Inc.
55 Hilton Avenue
Garden City, NY 11530
ATTN: Nicholas Ronchia PO#:

SOURCE OF SAMPLE: Rodi Automotive, REA#04716
SOURCE OF SAMPLE:
COLLECTED BY: Client DATE COL'D:05/10/04 RECEIVED:05/10/04
TIME COL'D:1100
MATRIX:Soil SAMPLE: B-6 12ft

Results reported on a dry weight basis

ANALYTICAL PARAMETERS	UNITS	RESULT	FLAG	DATE OF ANALYSIS	LRL	ANALYTICAL METHOD
TotalPet.Hydro.(GC)	mg/Kg	1.1		05/17/04	0.4494	EPA8015

cc:

LRL=Laboratory Reporting Limit

REMARKS:

DIRECTOR

rn = 19195 NYSDOH ID # 10320 Page 3 of 3

APPENDIX C

SOIL BORING LOG REPORTS

EEA, INC.

55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04					SHEET 1 OF 1
CLIENT: Simon Rothkrug					LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY					B - 1
REMARKS: Former gasoline tank USTs					PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR	DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification	DRILL RIG
		Direct			DRILL METHOD
TYPE	MACROCORE	Push			GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42			
SURFACE ELEVATION: NA		Surface Materials: Asphalt			
WATER LEVEL (IN OPEN BOREHOLE): Not established					

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND, some GRAVEL and stone fill.
5	S-2	4-8	0	Dry		Brown, fine to medium grained SAND, little stone and GRAVEL (fill). (Former Tank Bed)
	*S-3	8-12	5	Dry		Brown, fine to medium SAND, little stone and GRAVEL (Fill). Brown, fine to coarse grained SAND and cobbles, stone and GRAVEL (SP)
10						
15						EOB @ 12 feet
20						
25						* soil sample collected for laboratory analysis
30						

EEA, INC.

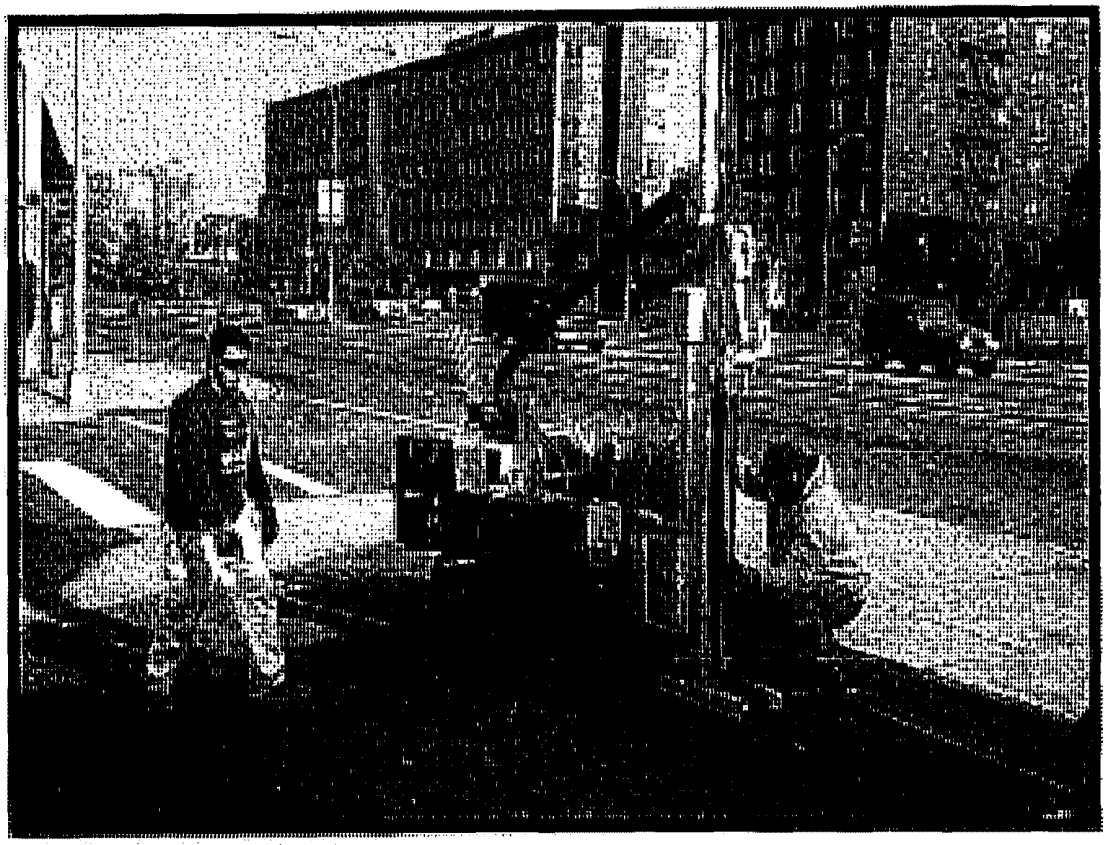
55 HILTON AVENUE, GARDEN CITY, NEW YORK

SOIL BORING REPORT LOG

DATE: 5/10/04						SHEET 1 OF 1
CLIENT: Simon Rothkrug						LOCATION ID#
PROJECT LOCATION: 64-06 Queens Blvd., Woodside, NY						B - 5
REMARKS: Former gasoline UST area						PROJECT #04716
DRILLING CONTRACTOR: TSDT, INC.			LOGGED BY NJR		DRILLER PD/PR	
EQUIPMENT	SOIL SAMPLER	HAMMER WEIGHT/FALL	Casing Type	Monitor Well Specification		DRILL RIG
		Direct				DRILL METHOD
TYPE	MACROCORE	Push				GEOPROBE LT 54 MACROCORE
SIZE	2 inch O.D.	GH 42				
SURFACE ELEVATION: NA		Surface Materials: Asphalt				
WATER LEVEL (IN OPEN BOREHOLE): Not established						

DEPTH (fbg)	SAMPLE	DEPTH (feet)	OVA (ppm)	MOISTURE	STRATA	SOIL – ROCK DESCRIPTION – CLASSIFICATION
	S-1	0-4	0	Dry		Brown, fine to medium grained SAND, stones, red-brick, GRAVEL (Fill).
	S-2	4-8	0	Dry		
5						
	*S-3	8-12	0	Moist		Red-brown, fine grained SAND, SILT and some GRAVEL (SP).
10						
						EOB @ 12 feet
15						
20						
						* soil sample collected for laboratory analysis
25						
30						

AUTO
PARTS
LOW LOW
WAREHOUSE
PRICES!



4.1 EXECUTIVE SUMMARY

Merritt Environmental Consulting Corp. (MECC) was retained by Monir Management Corp. to conduct a Phase I Environmental Site Assessment (ESA) at 64-02/06 Queens Boulevard, Woodside, Queens, New York 11377.

The on site investigation was conducted on October 19, 2013.

Based on our site reconnaissance, database review and historical investigation, the following Recognized Environmental Conditions (RECs) were noted at the time of our inspection.

A Recognized Environmental Condition means the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substance or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under compliance with laws.

ITEM	
1	According to the historical sources reviewed, a Filling Station occupied the site during years 1932-1951. The Sanborn Map Three (3) gasoline tanks present during this time along the 64th Street portion of the building. Until additional information is obtained regarding the closure of the tanks /filling station, this constitutes a Recognized Environmental Condition (REC).

- **Research of the NYC Department of Buildings and our database review indicated that the subject property is an "E" designated site.**

Lot 32, Tax Block 2325
64-06 Queens Boulevard
E-No. E-163
Effective Date: 06/29/06
Satisfaction date: Not Reported
Description: Air Quality – HVAC fuel limited to natural gas, Underground Gasoline Storage Tanks* Testing Protocol, Window Wall Attenuation & Alternate Ventilation

Lot 30, Tax Block 2325
Queens Boulevard
E-No. E-163
Effective Date: 06/29/06
Satisfaction date: Not Reported
Description: Air Quality – HVAC fuel limited to natural gas, Underground Gasoline Storage Tanks* Testing Protocol, Window Wall Attenuation & Alternate Ventilation

The "E" designations would require that the fee owner of the site conduct a testing and sampling protocol and remediation where appropriate, to the satisfaction of the NYCOER before the issuance of a building permit by the Department of Buildings. Once approval is granted by the NYCOER, the work can be performed in accordance to required regulations in order to receive a notice of satisfaction.

Under the NYCOER E-designation program, a comprehensive environmental investigation must be conducted in accordance with receiving a NYCOER notice to proceed-notice of satisfaction. The scope of work required, may uncover additional sub-surface impacts not previously discovered or tested for (IE: pesticides/herbicides/metals).

MECC has not been informed of the future usage of the site. Therefore, we cannot comment on the time frame in which the "E" designation would need to be addressed.

The following de minimis conditions were noted but are not considered Recognized Environmental Conditions (RECs).

A de minimis condition is one that generally does not present a material risk of harm to public health or the environment and that generally would not be subject of an enforcement action if brought to the attention of appropriate governmental agencies (excluding local asbestos & lead situations).

	ITEM
1	The current tenant is an auto parts store. As part of their services, they accept used waste oil and antifreeze from customers. A manifest for the disposal of these products was not provided at the time of our inspection.

No Historical Recognized Environmental Conditions (HRECs) were reported. In addition no evidence of HRECs were observed during our on-site inspection/ identified in our database search/historical review.

A Historical Recognized Environmental Condition (HREC) is an environmental condition which in the past would have been considered a Recognized Environmental Condition (REC), but which may or may not be considered a recognized environmental condition currently. Such as a past release of any hazardous substances or petroleum products which has been remediated, with such remediation accepted by the responsible regulatory agency (for example, as evidenced by the issuance of a no further action letter or equivalent).

APPENDIX B

FIELD NOTES

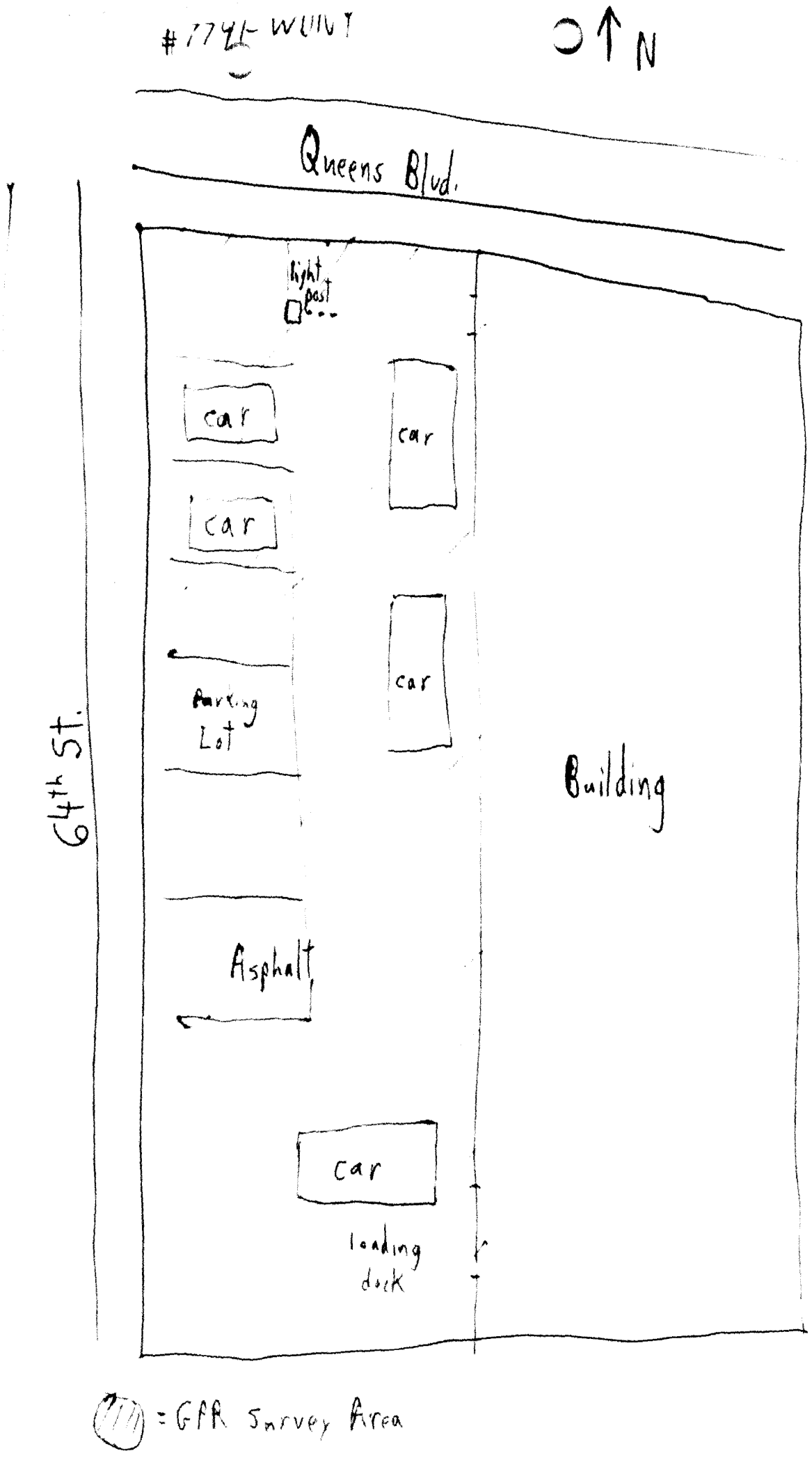
6/30/14

#7791-WDNY
64-02 Queens Blvd., Woodside, NY
GPR Survey
AutoBarn
Parking Lot

Area ≃ 5,000 SF
Depth ≃ 10 ft
Grid ≃ 5'x5'

Asphalt surface

Survey for possible UST's
No access inside building
No access to some locations due to cars.
One anomaly indicative of small diameter piping - typical conduit traced short distance East.
A few minor anomalies indicative of debris.
No anomalies indicative of UST's observed.
Some interference due to cord not working correctly.



= GPR Survey Area

Soil Boring Log

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

Project No: 7791-WDNY
Site: 64-02/06 Queens Boulevard, Woodside, NY
Client: Cathay Bank
Water Table Level: Not Encountered

Boring No: *SB-1*
Date Drilled: 8/14/14
Geologist: T. Young
J. Diamond

Depth (feet)	Description (Unified Soils Classification)	Sample Depth	PID (ppmv)	Inches of Recovery	Remarks
0	0.0-0.5': Asphalt, concrete		0.0		
	0.5-1.0': Dry, dark yellowish brown, med to	3	0.0		
1	coarse sands	to	0.0		
	1.0-1.8': Dry, brown, medium to very	5	0.0		
2	coarse sands mixed with gravel		0.0	42"	
	1.8-3.0': Dry, light brown, very fine grained		0.0		
3	sands mixed with silt and clay		0.0		
			1.5		
4	3.0-5.0': Dry, light to moderate brown,		0.0		
	medium sands mixed with clay and gravel		0.0		
5			0.0		No odor or staining.
	5.0-6.0': Dry, fall in from shallow depths		0.0		
6			0.0		
	6.0-6.5': Dry, black and white, med sand		0.0		
7			0.0		
	6.5-8.0': Dry, pale orange, coarse sands		0.0	42"	
8	mixed with large gravel		0.0		
			0.0		
9	8.0-10': Dry, light brown, fine to medium		0.0		
	sands mixed with clay		0.0		
10			0.0		No odor or staining.
	10.0-10.8': Dry, fall in from shallow depths		0.0		
11			0.0		
	10.8-11.5': Dry, brown, fine to medium		0.0		
12	sands mixed with silt		0.0		
			0.0	48"	
13	10.5-13.0': Dry, light brown, very fine sand		0.0		
	mixed with silt		0.0		
14	13.0-14.0': Dry, grayish-orange, medium		0.0		
	sands		0.0		
15	14-15': Dry, orange-brown, coarse sands		0.0		
			0.0		
16			0.0		
			0.0		
17			0.0		
			0.0	0"	Large rock lodged inside of sampler. No recovery.
18			0.0		
			0.0		
19			0.0		
			0.0		
20			0.0		End of boring approximately 20' bgs.

Rig Type: ***AMS Power Probe***
Driller: ***ACT - Jeff Diamond***

Reviewed by: ***Paul Stewart***
Sheet No: 1 of 1

Soil Boring Log

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

Project No: 7791-WDNY
Site: 64-02/06 Queens Boulevard, Woodside, NY
Client: Cathay Bank
Water Table Level: Not Encountered

Boring No: *SB-2*
Date Drilled: 8/15/14
Geologist: T. Young
J. Diamond

Depth (feet)	Description (Unified Soils Classification)	Sample Depth	PID (ppmv)	Inches of Recovery	Remarks
0	0.0-0.5': Asphalt, concrete		0.0		
		3	0.0		
1	0.5-2.0': Dry, dark yellow-brown, medium	to	0.0		
	sands mixed with gravel	5	0.0		
2	2.0-2.7': Dry, dark yellow brown, medium		0.0	30"	
	to coarse sands mixed with silt and clay		0.0		
3			0.0		
	2.7-4.0': Dry, light brown, medium to fine		0.0		
4	sands mixed with gray clay		0.0		
			0.0		
5	4.0-4.5': Dry, fall in from shallower depth		0.0		No odor or staining.
	4.5-5.5': Dry, orange to light brown, very		0.0		
6	coarse sands		0.0		
			0.0		
7	5.5-6.5': Dry, yellow brown, medium sands		0.0		
	mixed with pebbles and trace silt		0.0	33.6"	
8			0.0		
	6.5-8.0': Dry, orange brown, medium to		0.0		
9	coarse sands mixed with silt		0.0		
			0.0		
10	8-12': Dry, moderate brown to gray,		0.0		No odor or staining.
	medium to coarse sands mixed with		0.0		
11	frequent gravel and pebbles		0.0		
			0.0		
12	12-13': Dry, light brown, medium to coarse		0.0		
	sands mixed with silt	12	0.0	7"	
13	13-13.3': Dry, brown to gray, medium to	to	0.0		
	coarse sands	14	0.0		
14	13.3-14': Dry, light brown, fine sands,		0.0		
	mixed with silt and clay		0.0		Large rock stuck in sampler.
15			0.0		End of boring approximately 14' bgs.

Rig Type: ***AMS Power Probe***
Driller: ***ACT - Jeff Diamond***

Reviewed by: ***Paul Stewart***
Sheet No: 1 of 1

Soil Boring Log

Advanced Cleanup Technologies, Inc.
ENVIRONMENTAL CONSULTANTS

Project No: 7791-WDNY
Site: 64-02/06 Queens Boulevard, Woodside, NY
Client: Cathay Bank
Water Table Level: Not Encountered

Boring No: *SB-3*
Date Drilled: 8/14/14
Geologist: T. Young
J. Diamond

Depth (feet)	Description (Unified Soils Classification)	Sample Depth	PID (ppmv)	Inches of Recovery	Remarks
0	0.0-0.6': Asphalt		0.0		
	0.6-1.5': Dry, brown, medium grained	0	0.0		
1	sands mixed with gravel	to	0.0		
		4	0.0		
2	1.5-3.0': Dry, brown, medium to coarse		0.0	20.4"	
	sands mixed with silt and trace gravel		0.0		
3	3.0-4.2': Dry, brown to light brown, clay		0.0		
	mixed with coarse sands		1.5		
4	4.2-5.0': Dry, orange to light brown, coarse		0.0		
	sands mixed with frequent large gravel		0.0		
5			0.0		No odor or staining.
	5.0-6.5': Dry, light brown, fine to very fine		0.0		
6	sands mixed with silt		0.0		
	6.5-7.0': Dry, light brown, fine sands	5	0.0		
7	7.0-8.5': Dry, orange to dark yellow,	to	0.0		
	medium to coarse sands	8	0.0	39.6"	
8			0.0		
	8.5-10': Dry, light brown to dark yellow		0.0		
9	orange, fine sands mixed with clay and		0.0		
	gravel		0.0		
10			0.0		No odor or staining.
	10.0-12.2': Dry, light brown, coarse sands		0.0		
11	mixed with frequent gravel		0.0		
			0.0		
12	12.2-13.0': Dry, light brown to yellowish-		0.0		
	orange, fine to medium sands mixed with		0.0	48"	
13	silt		0.0		
	13-14': Dry, light brown, medium sands		0.0		
14	with silt and gravel		0.0		
	14-15': Dry, light brown, very fine sands		0.0		
15	mixed with clay		0.0		
			0.0		
16			0.0		
			0.0		
17	15-20': Dry, moderate yellowish-brown,	15	0.0		
	medium to coarse sands	to	0.0	Unknown	Interior liner stuck in sampler
18		20	0.0		
			0.0		
19			0.0		
			0.0		
20			0.0		End of boring approximately 20' bgs.

Rig Type: ***AMS Power Probe***
Driller: ***ACT - Jeff Diamond***

Reviewed by: ***Paul Stewart***
Sheet No: 1 of 1

Technical Report

prepared for:

Advanced Cleanup Technologies, Inc.
110 Main Street
Port Washington NY, 11050
Attention: Theresa Burkard

Report Date: 08/25/2014
Client Project ID: 7791-WDNY
York Project (SDG) No.: 14H0759

CT Cert. No. PH-0723 New Jersey Cert. No CT-005 New York Cert. No. 10854 PA Cert. No. 68-04440

120 RESEARCH DRIVE STRATFORD, CT 06615 (203) 325-1371 FAX (203) 357-0166

Report Date: 08/25/2014
Client Project ID: 7791-WDNY
York Project (SDG) No.: 14H0759

Advanced Cleanup Technologies, Inc.
110 Main Street
Port Washington NY, 11050
Attention: Theresa Burkard

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on August 19, 2014 and listed below. The project was identified as your project: **7791-WDNY**.

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Notes section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the attachment to this report, and case narrative if applicable.

The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

York Sample ID	Client Sample ID	Matrix	Date Collected	Date Received
14H0759-01	SV-1	Air	08/15/2014	08/19/2014
14H0759-02	SV-2	Air	08/15/2014	08/19/2014

General Notes for York Project (SDG) No.: 14H0759

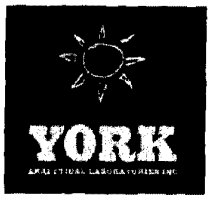
1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All samples were received in proper condition for analysis with proper documentation, unless otherwise noted.
6. All analyses conducted met method or Laboratory SOP requirements. See the Qualifiers and/or Narrative sections for further information.
7. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
8. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.

Approved By:

Date: 08/25/2014

Benjamin Gulizia
Laboratory Director

YORK



Sample Information

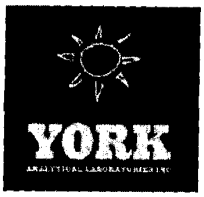
Client Sample ID: SV-1 **York Sample ID:** 14H0759-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0759	7791-WDNY	Air	August 15, 2014 3:00 pm	08/19/2014

Volatile Organics, EPA TO15 Full List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
75-01-4	Vinyl Chloride	ND		ug/m³	2.5	2.5	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
108-05-4	Vinyl acetate	ND		ug/m³	7.0	7.0	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
79-01-6	Trichloroethylene	ND		ug/m³	2.7	2.7	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/m³	9.0	9.0	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
156-60-5	trans-1,2-Dichloroethylene	ND		ug/m³	7.8	7.8	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
108-88-3	Toluene	**29**		ug/m³	7.4	7.4	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
109-99-9	Tetrahydrofuran	ND		ug/m³	5.8	5.8	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
127-18-4	Tetrachloroethylene	**220**		ug/m³	3.4	3.4	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
100-42-5	Styrene	ND		ug/m³	8.4	8.4	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
115-07-1	Propylene	ND		ug/m³	3.4	3.4	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
622-96-8	p-Ethyltoluene	**17**		ug/m³	9.7	9.7	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
179601-23-1	p- & m- Xylenes	**41**		ug/m³	17	17	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
95-47-6	o-Xylene	**12**		ug/m³	8.6	8.6	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
110-54-3	n-Hexane	ND		ug/m³	7.0	7.0	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
142-82-5	n-Heptane	**8.9**		ug/m³	8.1	8.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-09-2	Methylene chloride	**17**		ug/m³	14	14	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m³	7.1	7.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
108-10-1	4-Methyl-2-pentanone	ND		ug/m³	8.1	8.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
67-63-0	Isopropanol	**12**		ug/m³	9.7	9.7	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
87-68-3	Hexachlorobutadiene	ND		ug/m³	21	21	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
100-41-4	Ethyl Benzene	**10**		ug/m³	8.6	8.6	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
141-78-6	Ethyl acetate	ND		ug/m³	14	14	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
110-82-7	Cyclohexane	ND		ug/m³	6.8	6.8	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/m³	9.0	9.0	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
156-59-2	cis-1,2-Dichloroethylene	ND		ug/m³	7.8	7.8	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
74-87-3	Chloromethane	ND		ug/m³	4.1	4.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
67-66-3	Chloroform	ND		ug/m³	9.6	9.6	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-00-3	Chloroethane	ND		ug/m³	5.2	5.2	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
56-23-5	Carbon tetrachloride	ND		ug/m³	3.1	3.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-15-0	Carbon disulfide	ND		ug/m³	6.2	6.2	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
74-83-9	Bromomethane	ND		ug/m³	7.7	7.7	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-25-2	Bromoform	ND		ug/m³	20	20	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-27-4	Bromodichloromethane	ND		ug/m³	12	12	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD



Sample Information

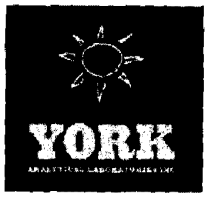
Client Sample ID: SV-1 **York Sample ID:** 14H0759-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0759	7791-WDNY	Air	August 15, 2014 3:00 pm	08/19/2014

Volatile Organics, EPA TO15 Full List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
100-44-7	Benzyl chloride	ND		ug/m³	10	10	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
71-43-2	Benzene	ND		ug/m³	6.3	6.3	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
67-64-1	Acetone	**1500**		ug/m³	4.7	4.7	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
591-78-6	2-Hexanone	ND		ug/m³	16	16	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
78-93-3	2-Butanone	**60**		ug/m³	5.8	5.8	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
123-91-1	1,4-Dioxane	ND		ug/m³	7.1	7.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
106-46-7	1,4-Dichlorobenzene	ND		ug/m³	12	12	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
541-73-1	1,3-Dichlorobenzene	ND		ug/m³	12	12	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
106-99-0	1,3-Butadiene	ND		ug/m³	8.6	8.6	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
108-67-8	1,3,5-Trimethylbenzene	ND		ug/m³	9.7	9.7	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m³	14	14	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
78-87-5	1,2-Dichloropropane	ND		ug/m³	9.1	9.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
107-06-2	1,2-Dichloroethane	ND		ug/m³	8.0	8.0	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
95-50-1	1,2-Dichlorobenzene	ND		ug/m³	12	12	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
95-63-6	1,2,4-Trimethylbenzene	**17**		ug/m³	9.7	9.7	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
120-82-1	1,2,4-Trichlorobenzene	ND		ug/m³	15	15	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-35-4	1,1-Dichloroethylene	ND		ug/m³	7.8	7.8	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-34-3	1,1-Dichloroethane	ND		ug/m³	8.0	8.0	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-69-4	Trichlorofluoromethane (Freon 11)	ND		ug/m³	11	11	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
79-00-5	1,1,2-Trichloroethane	ND		ug/m³	11	11	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 113	ND		ug/m³	15	15	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/m³	14	14	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
71-55-6	1,1,1-Trichloroethane	ND		ug/m³	11	11	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
75-71-8	Dichlorodifluoromethane	**13**		ug/m³	9.8	9.8	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
106-93-4	1,2-Dibromoethane	ND		ug/m³	15	15	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
124-48-1	Dibromochloromethane	ND		ug/m³	16	16	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
80-62-6	Methyl Methacrylate	ND		ug/m³	8.1	8.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
108-90-7	Chlorobenzene	ND		ug/m³	9.1	9.1	19.76	EPA TO-15	08/22/2014 13:36	08/22/2014 21:06	ALD
	Surrogate Recoveries	**Result**			**Acceptance Range**						
460-00-4	*Surrogate: p-Bromofluorobenzene*	*96.6 %*			*72-118*						



Sample Information

Client Sample ID: SV-2 **York Sample ID:** 14H0759-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0759	7791-WDNY	Air	August 15, 2014 3:00 pm	08/19/2014

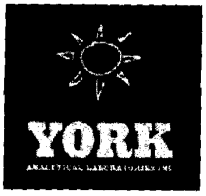
Volatile Organics, EPA TO15 Full List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
75-01-4	Vinyl Chloride	ND		ug/m³	2.4	2.4	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
108-05-4	Vinyl acetate	ND		ug/m³	6.6	6.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
79-01-6	Trichloroethylene	**12**		ug/m³	2.5	2.5	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/m³	8.5	8.5	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
156-60-5	trans-1,2-Dichloroethylene	ND		ug/m³	7.4	7.4	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
108-88-3	Toluene	**26**		ug/m³	7.0	7.0	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
109-99-9	Tetrahydrofuran	ND		ug/m³	5.5	5.5	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
127-18-4	Tetrachloroethylene	**460**		ug/m³	3.2	3.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
100-42-5	Styrene	ND		ug/m³	8.0	8.0	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
115-07-1	Propylene	ND		ug/m³	3.2	3.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
622-96-8	p-Ethyltoluene	**14**		ug/m³	9.2	9.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
179601-23-1	p- & m- Xylenes	**32**		ug/m³	16	16	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
95-47-6	o-Xylene	**9.7**		ug/m³	8.1	8.1	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
110-54-3	n-Hexane	**28**		ug/m³	6.6	6.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
142-82-5	n-Heptane	ND		ug/m³	7.7	7.7	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-09-2	Methylene chloride	**67**		ug/m³	13	13	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/m³	6.7	6.7	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
108-10-1	4-Methyl-2-pentanone	ND		ug/m³	7.6	7.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
67-63-0	Isopropanol	**9.6**		ug/m³	9.2	9.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
87-68-3	Hexachlorobutadiene	ND		ug/m³	20	20	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
100-41-4	Ethyl Benzene	**8.1**		ug/m³	8.1	8.1	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
141-78-6	Ethyl acetate	ND		ug/m³	13	13	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
110-82-7	Cyclohexane	ND		ug/m³	6.4	6.4	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/m³	8.5	8.5	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
156-59-2	cis-1,2-Dichloroethylene	ND		ug/m³	7.4	7.4	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
74-87-3	Chloromethane	ND		ug/m³	3.9	3.9	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
67-66-3	Chloroform	**10**		ug/m³	9.1	9.1	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-00-3	Chloroethane	ND		ug/m³	4.9	4.9	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
56-23-5	Carbon tetrachloride	ND		ug/m³	2.9	2.9	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-15-0	Carbon disulfide	ND		ug/m³	5.8	5.8	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
74-83-9	Bromomethane	ND		ug/m³	7.2	7.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-25-2	Bromoform	ND		ug/m³	19	19	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-27-4	Bromodichloromethane	ND		ug/m³	12	12	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD



Sample Information

Client Sample ID: SV-2 **York Sample ID:** 14H0759-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0759	7791-WDNY	Air	August 15, 2014 3:00 pm	08/19/2014

Volatile Organics, EPA TO15 Full List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA TO15 PREP

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
100-44-7	Benzyl chloride	ND		ug/m³	9.7	9.7	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
71-43-2	Benzene	ND		ug/m³	6.0	6.0	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
67-64-1	Acetone	**2200**		ug/m³	8.9	8.9	37.34	EPA TO-15	08/22/2014 13:36	08/23/2014 21:22	ALD
591-78-6	2-Hexanone	ND		ug/m³	15	15	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
78-93-3	2-Butanone	**73**		ug/m³	5.5	5.5	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
123-91-1	1,4-Dioxane	ND		ug/m³	6.7	6.7	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
106-46-7	1,4-Dichlorobenzene	ND		ug/m³	11	11	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
541-73-1	1,3-Dichlorobenzene	ND		ug/m³	11	11	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
106-99-0	1,3-Butadiene	ND		ug/m³	8.1	8.1	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
108-67-8	1,3,5-Trimethylbenzene	ND		ug/m³	9.2	9.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
76-14-2	1,2-Dichlorotetrafluoroethane	ND		ug/m³	13	13	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
78-87-5	1,2-Dichloropropane	ND		ug/m³	8.6	8.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
107-06-2	1,2-Dichloroethane	ND		ug/m³	7.6	7.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
95-50-1	1,2-Dichlorobenzene	ND		ug/m³	11	11	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
95-63-6	1,2,4-Trimethylbenzene	**17**		ug/m³	9.2	9.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
120-82-1	1,2,4-Trichlorobenzene	ND		ug/m³	14	14	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-35-4	1,1-Dichloroethylene	ND		ug/m³	7.4	7.4	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-34-3	1,1-Dichloroethane	ND		ug/m³	7.6	7.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-69-4	Trichlorofluoromethane (Freon 11)	ND		ug/m³	10	10	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
79-00-5	1,1,2-Trichloroethane	ND		ug/m³	10	10	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/m³	14	14	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/m³	13	13	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
71-55-6	1,1,1-Trichloroethane	ND		ug/m³	10	10	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
75-71-8	Dichlorodifluoromethane	ND		ug/m³	9.2	9.2	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
106-93-4	1,2-Dibromoethane	ND		ug/m³	14	14	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
124-48-1	Dibromochloromethane	**350**		ug/m³	15	15	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
80-62-6	Methyl Methacrylate	ND		ug/m³	7.6	7.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
108-90-7	Chlorobenzene	ND		ug/m³	8.6	8.6	18.67	EPA TO-15	08/22/2014 13:36	08/22/2014 21:56	ALD
	Surrogate Recoveries	**Result**			**Acceptance Range**						
460-00-4	*Surrogate: p-Bromofluorobenzene*	*95.7 %*			*72-118*						

Notes and Definitions

QL-03 This LCS analyte recovered outside of acceptance limits. The LCS contains approximately 70 compounds, a limited number of which may be outside acceptance windows.

ND Analyte NOT DETECTED at the stated Reporting Limit (RL) or above.

RL REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.

MDL METHOD DETECTION LIMIT - the minimum concentration that can be measured and reported with a 99% confidence that the concentration is greater than zero. If requested or required, a value reported below the RL and above the MDL is considered estimated and is noted with a "J" flag.

NR Not reported

RPD Relative Percent Difference

Wet The data has been reported on an as-received (wet weight) basis

Low Bias Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.

High Bias High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.

Non-Dir. Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

If EPA SW-846 method 8270 is included herein it is noted that the target compound N-nitrosodiphenylamine (NDPA) decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine (DPA). These results could actually represent 100% DPA, 100% NDPA or some combination of the two. For this reason, York reports the combined result for n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration as Diphenylamine.

If Total PCBs are detected and the target aroclors reported are "Not detected", the Total PCB value is reported due to the presence of either or both Aroclors 1262 and 1268 which are non-target aroclors for some regulatory lists.

2-chloroethylvinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

Certification for pH is no longer offered by NYDOH ELAP.

Semi-Volatile and Volatile analyses are reported down to the MDL, with values between the MDL and the RL being "J" flagged as estimated results.

YORK
ANALYTICAL LABORATORIES, INC.
120 RESEARCH DR. STRATFORD, CT 06615
(203) 325-1371 FAX (203) 357-0166

Field Chain-of-Custody Record - AIR

NOTE: York's Std. Terms & Conditions are listed on the back side of this document.
This document serves as your written authorization to York to proceed with the analyses requested and your signature binds you to York's Std. Terms & Conditions unless superseded by written contract.

York Project No. 14H6759

YOUR Information	Report To:	Invoice To:	YOUR Project ID	Turn-Around Time	Report Type/Deliverables
Company: Advanced Cleanup Tech	Company: Same	Company:	7791-WDNY	RUSH - Same Day ☐	Summary Report X
Address: 10 Mid St. Suite 105 Pittsburgh PA 15213	Address: Same	Address: Same		RUSH - Next Day ☐	Summary w/ QA Summary ☐
Phone No: 412-441-5500	Phone No: 412-441-5500 x105	Phone No: Same	Purchase Order No.	RUSH - Two Day ☐	CT RCP Package ☐
Contact Person: Jeff Dimond	Attention: Theresa Bullard	Attention: Karen Erickson	779/WDNY	RUSH - Three Day ☐	NY ASP A Package ☐
E-Mail Address: Jeffdimond@atcenviro.com	E-Mail Address: TBullard@atcenviro.com	E-Mail Address:	Samples from: CT__ NY X NJ__	RUSH - Four Day ☐	NY ASP B/CLP Pkg ☐
				Standard (5-7 Days) X	NJDEP Reduced ☐
					Electronic Deliverables
					EDD (Specify Type) ☐
					Standard Excel ☐
					Regulatory Comparison Excel ☐

Print Clearly and Legibly. All information must be complete. Samples will not be logged in and turn-around time clock will not begin until any questions by York are resolved.

Special Instructions

Samples Collected/Authorized By (Signature): Tim Young

Name (printed): Tim Young

Air Matrix Codes

- AI - INDOOR Ambient Air
- AO - OUTDOOR Amb. Air
- AE - Vapor Extraction Well/ Process Gas/Effluent
- AS - SOIL Vapor/Sub-Slab

TO15 Volatiles and Other Gas Analyses

EPA TO-15 List	EPA TO-14A List
NYSDEC VI list	Tentatively Identified Compounds
NYSDEC STARS List	Air VPH
Project Specific List by TO-15	Helium
NJDEP Target List	Methane
CTDEP RCP Target List	OTHER

Detection Limits Required

- ≤ 1 ug/m³ ☐
- NYSDEC VI Limits X (VI target analytes)
- NJDEP low level ☐
- Routine Survey ☐
- Other ☐

Sample Identification	Date Sampled	AIR Matrix	Canister Vacuum Before Sampling (in. Hg)	Canister Vacuum After Sampling (in. Hg)	Choose Analyses Needed from the Menu Above and Enter Below	Sampling Media
SV-1	8/15/14	AS	-30" Hg	-4" Hg	TO-15	6 Liter Summa canister X / Tedlar Bag ☐
SV-2	8/15/14	AS	-30" Hg	-5" Hg	TO-15	6 Liter Summa canister X / Tedlar Bag ☐
						6 Liter Summa canister ☐ / Tedlar Bag ☐
						6 Liter Summa canister ☐ / Tedlar Bag ☐
						6 Liter Summa canister ☐ / Tedlar Bag ☐
						6 Liter Summa canister ☐ / Tedlar Bag ☐
						6 Liter Summa canister ☐ / Tedlar Bag ☐
						6 Liter Summa canister ☐ / Tedlar Bag ☐
						6 Liter Summa canister ☐ / Tedlar Bag ☐
						6 Liter Summa canister ☐ / Tedlar Bag ☐
						6 Liter Summa canister ☐ / Tedlar Bag ☐

Comments

Samples Relinquished By: [signature] Date/Time: 8/19/14 1010 AM

Samples Relinquished By: Date/Time:

Samples Received By: [signature] Date/Time: 8/19/14 1015 AM

Samples Received By: [signature] Date/Time: 8/19/14 1705

Technical Report

prepared for:

Advanced Cleanup Technologies, Inc.
110 Main Street
Port Washington NY, 11050
Attention: Theresa Burkard

Report Date: 08/26/2014
Client Project ID: 7791-WDNY
York Project (SDG) No.: 14H0833

CT Cert. No. PH-0723 New Jersey Cert. No. CT-005 New York Cert. No. 10854 PA Cert. No. 68-04440

120 RESEARCH DRIVE STRATFORD, CT 06615 (203) 325-1371 FAX (203) 357-0166

Report Date: 08/26/2014
Client Project ID: 7791-WDNY
York Project (SDG) No.: 14H0833

Advanced Cleanup Technologies, Inc.
110 Main Street
Port Washington NY, 11050
Attention: Theresa Burkard

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on August 19, 2014 and listed below. The project was identified as your project: **7791-WDNY**.

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Notes section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the attachment to this report, and case narrative if applicable.

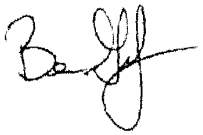
The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

York Sample ID	Client Sample ID	Matrix	Date Collected	Date Received
14H0833-01	SB1 (3-5)	Soil	08/14/2014	08/19/2014
14H0833-02	SB3 (5-8)	Soil	08/14/2014	08/19/2014
14H0833-03	SB3 (15-20)	Soil	08/14/2014	08/19/2014
14H0833-04	SB2 (3-5)	Soil	08/15/2014	08/19/2014
14H0833-05	SB2 (12-14)	Soil	08/15/2014	08/19/2014
14H0833-06	SB3 (0-4)	Soil	08/15/2014	08/19/2014

General Notes for York Project (SDG) No.: 14H0833

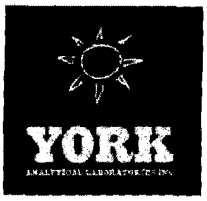
1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All samples were received in proper condition for analysis with proper documentation, unless otherwise noted.
6. All analyses conducted met method or Laboratory SOP requirements. See the Qualifiers and/or Narrative sections for further information.
7. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
8. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.

Approved By: 

Date: 08/26/2014

Benjamin Gulizia
Laboratory Director

YORK



Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 113	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
95-63-6	1,2,4-Trimethylbenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
108-67-8	1,3,5-Trimethylbenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
123-91-1	1,4-Dioxane	ND		ug/kg dry	41	83	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
78-93-3	2-Butanone	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
67-64-1	Acetone	**13**	CCV-E, B	ug/kg dry	2.1	8.3	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
107-02-8	Acrolein	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
107-13-1	Acrylonitrile	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
71-43-2	Benzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-25-2	Bromoform	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS

Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

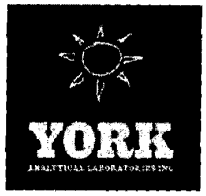
York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
75-00-3	Chloroethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
67-66-3	Chloroform	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
74-95-3	Dibromomethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
98-82-8	Isopropylbenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
79-20-9	Methyl acetate	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-09-2	Methylene chloride	**7.2**	J	ug/kg dry	2.1	8.3	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
104-51-8	n-Butylbenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
103-65-1	n-Propylbenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
95-47-6	o-Xylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
179601-23-1	p- & m- Xylenes	ND		ug/kg dry	4.1	8.3	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
99-87-6	p-Isopropyltoluene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
135-98-8	sec-Butylbenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
100-42-5	Styrene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
98-06-6	tert-Butylbenzene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
108-88-3	Toluene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.1	4.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS
1330-20-7	Xylenes, Total	ND		ug/kg dry	6.2	12	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:10	SS

Surrogate Recoveries	Result	Acceptance Range



Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 5035A

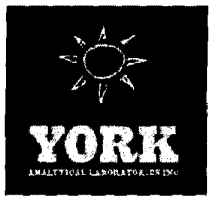
CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
17060-07-0	*Surrogate: 1,2-Dichloroethane-d4*	*104 %*			*67-130*						
460-00-4	*Surrogate: p-Bromofluorobenzene*	*96.8 %*			*75-127*						
2037-26-5	*Surrogate: Toluene-d8*	*112 %*			*90-112*						

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
83-32-9	Acenaphthene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
208-96-8	Acenaphthylene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
98-86-2	Acetophenone	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
62-53-3	Aniline	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
120-12-7	Anthracene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
1912-24-9	Atrazine	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
100-52-7	Benzaldehyde	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
92-87-5	Benzidine	ND		ug/kg dry	182	362	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
56-55-3	Benzo(a)anthracene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
50-32-8	Benzo(a)pyrene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
205-99-2	Benzo(b)fluoranthene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
191-24-2	Benzo(g,h,i)perylene	ND	ISTD-LO	ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
65-85-0	Benzoic acid	ND		ug/kg dry	124	363	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
207-08-9	Benzo(k)fluoranthene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
100-51-6	Benzyl alcohol	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
92-52-4	1,1'-Biphenyl	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
105-60-2	Caprolactam	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
86-74-8	Carbazole	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
106-47-8	4-Chloroaniline	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH



Sample Information

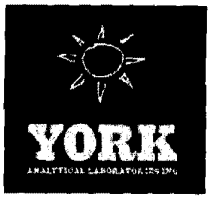
Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
95-57-8	2-Chlorophenol	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
218-01-9	Chrysene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
53-70-3	Dibenzo(a,h)anthracene	ND	ISTD-LO	ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
132-64-9	Dibenzofuran	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	182	362	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
84-66-2	Diethyl phthalate	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
131-11-3	Dimethyl phthalate	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	182	363	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
122-66-7	1,2-Diphenylhydrazine (as Azobenzene)	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
117-81-7	Bis(2-ethylhexyl)phthalate	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
206-44-0	Fluoranthene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
86-73-7	Fluorene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
118-74-1	Hexachlorobenzene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
67-72-1	Hexachloroethane	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
193-39-5	Indeno(1,2,3-cd)pyrene	ND	ISTD-LO	ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
78-59-1	Isophorone	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
95-48-7	2-Methylphenol	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH



Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

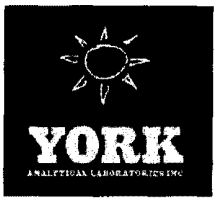
York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
65794-96-9	3- & 4-Methylphenols	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
91-20-3	Naphthalene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
100-01-6	4-Nitroaniline	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
88-74-4	2-Nitroaniline	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
99-09-2	3-Nitroaniline	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
98-95-3	Nitrobenzene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
88-75-5	2-Nitrophenol	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
100-02-7	4-Nitrophenol	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
62-75-9	N-Nitrosodimethylamine	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
87-86-5	Pentachlorophenol	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
85-01-8	Phenanthrene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
108-95-2	Phenol	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
129-00-0	Pyrene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
95-94-3	1,2,4,5-Tetrachlorobenzene	ND		ug/kg dry	91.4	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	45.7	181	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:14	KH

	Surrogate Recoveries	Result	Acceptance Range
367-12-4	*Surrogate: 2-Fluorophenol*	*53.9 %*	*10-105*
4165-62-2	*Surrogate: Phenol-d5*	*62.4 %*	*10-118*
4165-60-0	*Surrogate: Nitrobenzene-d5*	*47.7 %*	*10-140*
321-60-8	*Surrogate: 2-Fluorobiphenyl*	*51.8 %*	*10-126*
118-79-6	*Surrogate: 2,4,6-Tribromophenol*	*64.9 %*	*10-150*
1718-51-0	*Surrogate: Terphenyl-d14*	*57.9 %*	*10-137*



Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Pesticides/PCBs, EPA TCL List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
8001-35-2	Toxaphene	ND		ug/kg dry	90.9	90.9	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
72-43-5	Methoxychlor	ND		ug/kg dry	8.98	8.98	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
1024-57-3	Heptachlor epoxide	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
76-44-8	Heptachlor	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
58-89-9	gamma-BHC (Lindane)	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
53494-70-5	Endrin ketone	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
7421-93-4	Endrin aldehyde	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
72-20-8	Endrin	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
1031-07-8	Endosulfan sulfate	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
33213-65-9	Endosulfan II	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
959-98-8	Endosulfan I	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
60-57-1	Dieldrin	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
319-86-8	delta-BHC	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
57-74-9	Chlordane, total	ND		ug/kg dry	7.18	7.18	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
319-85-7	beta-BHC	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
319-84-6	alpha-BHC	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
309-00-2	Aldrin	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
50-29-3	4,4'-DDT	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
72-55-9	4,4'-DDE	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
72-54-8	4,4'-DDD	ND		ug/kg dry	1.80	1.80	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:44	JW
11096-82-5	Aroclor 1260	ND		ug/kg dry	18.5	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC
11097-69-1	Aroclor 1254	ND		ug/kg dry	18.5	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC
12672-29-6	Aroclor 1248	ND		ug/kg dry	18.5	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC
53469-21-9	Aroclor 1242	ND		ug/kg dry	18.5	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC
11141-16-5	Aroclor 1232	ND		ug/kg dry	18.5	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC
11104-28-2	Aroclor 1221	ND		ug/kg dry	18.5	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC
12674-11-2	Aroclor 1016	ND		ug/kg dry	18.5	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC
1336-36-3	Total PCBs	ND		ug/kg dry	7.40	18.5	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 16:59	AMC

	Surrogate Recoveries	Result	Acceptance Range
877-09-8	*Surrogate: Tetrachloro-m-xylene*	*81.0 %*	*30-140*
2051-24-3	*Surrogate: Decachlorobiphenyl*	*57.0 %*	*30-140*

Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Metals, Target Analyte

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	**11100**		mg/kg dry	1.09	1.09	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-36-0	Antimony	ND		mg/kg dry	0.544	0.544	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-38-2	Arsenic	**3.03**		mg/kg dry	1.09	1.09	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-39-3	Barium	**36.1**		mg/kg dry	1.09	1.09	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.109	0.109	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-43-9	Cadmium	ND		mg/kg dry	0.326	0.326	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-70-2	Calcium	**1450**		mg/kg dry	0.544	5.44	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-47-3	Chromium	**18.5**		mg/kg dry	0.544	0.544	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-48-4	Cobalt	**7.30**		mg/kg dry	0.544	0.544	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-50-8	Copper	**12.2**		mg/kg dry	0.544	0.544	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7439-89-6	Iron	**16400**		mg/kg dry	2.18	2.18	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7439-92-1	Lead	**9.80**		mg/kg dry	0.326	0.326	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7439-95-4	Magnesium	**3080**		mg/kg dry	5.44	5.44	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7439-96-5	Manganese	**247**		mg/kg dry	0.544	0.544	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-02-0	Nickel	**17.4**		mg/kg dry	0.544	0.544	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-09-7	Potassium	**824**		mg/kg dry	5.44	5.44	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7782-49-2	Selenium	**1.22**		mg/kg dry	1.09	1.09	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-22-4	Silver	ND		mg/kg dry	0.544	0.544	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-23-5	Sodium	**212**		mg/kg dry	10.9	10.9	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-28-0	Thallium	ND		mg/kg dry	1.09	1.09	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-62-2	Vanadium	**26.3**		mg/kg dry	1.09	1.09	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW
7440-66-6	Zinc	**31.1**		mg/kg dry	1.09	1.09	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:41	MW

Mercury by 7473

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 7473 soil

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	ND		mg/kg dry	0.0326	0.0326	1	EPA 7473	08/22/2014 06:55	08/22/2014 08:20	ALD

Sample Information

Client Sample ID: SB1 (3-5) **York Sample ID:** 14H0833-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 10:30 am	08/19/2014

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids Prep

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
solids	% Solids	**91.9**		%	0.100	0.100	1	SM 2540G	08/25/2014 11:13	08/25/2014 16:13	KK

Sample Information

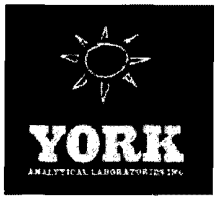
Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 113	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
95-63-6	1,2,4-Trimethylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
108-67-8	1,3,5-Trimethylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
123-91-1	1,4-Dioxane	ND		ug/kg dry	54	110	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
78-93-3	2-Butanone	**5.0**	J	ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
67-64-1	Acetone	**62**	CCV-E. B	ug/kg dry	2.7	11	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS



Sample Information

Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
107-02-8	Acrolein	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
107-13-1	Acrylonitrile	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
71-43-2	Benzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-25-2	Bromoform	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
67-66-3	Chloroform	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
74-95-3	Dibromomethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
98-82-8	Isopropylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
79-20-9	Methyl acetate	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-09-2	Methylene chloride	**5.7**	J	ug/kg dry	2.7	11	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
104-51-8	n-Butylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
103-65-1	n-Propylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
95-47-6	o-Xylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
179601-23-1	p- & m- Xylenes	ND		ug/kg dry	5.4	11	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
99-87-6	p-Isopropyltoluene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
135-98-8	sec-Butylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
100-42-5	Styrene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-65-0	tert-Butyl alcohol (TBA)	**25**		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
98-06-6	tert-Butylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS

Sample Information

Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
127-18-4	Tetrachloroethylene	**13**		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
108-88-3	Toluene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS
1330-20-7	Xylenes, Total	ND		ug/kg dry	8.0	16	1	EPA 8260C	08/22/2014 08:18	08/22/2014 19:45	SS

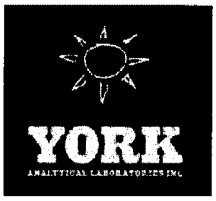
	Surrogate Recoveries	Result		Acceptance Range
17060-07-0	*Surrogate: 1,2-Dichloroethane-d4*	*110 %*		*67-130*
460-00-4	*Surrogate: p-Bromofluorobenzene*	*100 %*		*75-127*
2037-26-5	*Surrogate: Toluene-d8*	*116 %*	*S-08*	*90-112*

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
83-32-9	Acenaphthene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
208-96-8	Acenaphthylene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
98-86-2	Acetophenone	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
62-53-3	Aniline	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
120-12-7	Anthracene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
1912-24-9	Atrazine	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
100-52-7	Benzaldehyde	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
92-87-5	Benzidine	ND		ug/kg dry	175	350	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
56-55-3	Benzo(a)anthracene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
50-32-8	Benzo(a)pyrene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
205-99-2	Benzo(b)fluoranthene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
191-24-2	Benzo(g,h,i)perylene	ND	ISTD-LO	ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
65-85-0	Benzoic acid	ND		ug/kg dry	120	350	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
207-08-9	Benzo(k)fluoranthene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
100-51-6	Benzyl alcohol	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
92-52-4	1,1'-Biphenyl	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH



Sample Information

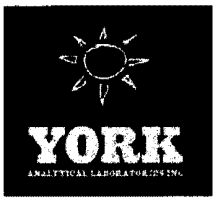
Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
105-60-2	Caprolactam	**62.7**	J	ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
86-74-8	Carbazole	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
106-47-8	4-Chloroaniline	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
95-57-8	2-Chlorophenol	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
218-01-9	Chrysene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
53-70-3	Dibenzo(a,h)anthracene	ND	ISTD-LO	ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
132-64-9	Dibenzofuran	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	175	350	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
84-66-2	Diethyl phthalate	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
131-11-3	Dimethyl phthalate	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	175	350	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
122-66-7	1,2-Diphenylhydrazine (as Azobenzene)	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
117-81-7	Bis(2-ethylhexyl)phthalate	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
206-44-0	Fluoranthene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
86-73-7	Fluorene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
118-74-1	Hexachlorobenzene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH



Sample Information

Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
67-72-1	Hexachloroethane	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
193-39-5	Indeno(1,2,3-cd)pyrene	ND	ISTD-LO	ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
78-59-1	Isophorone	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
95-48-7	2-Methylphenol	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
65794-96-9	3- & 4-Methylphenols	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
91-20-3	Naphthalene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
100-01-6	4-Nitroaniline	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
88-74-4	2-Nitroaniline	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
99-09-2	3-Nitroaniline	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
98-95-3	Nitrobenzene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
88-75-5	2-Nitrophenol	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
100-02-7	4-Nitrophenol	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
62-75-9	N-Nitrosodimethylamine	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
87-86-5	Pentachlorophenol	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
85-01-8	Phenanthrene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
108-95-2	Phenol	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
129-00-0	Pyrene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
95-94-3	1,2,4,5-Tetrachlorobenzene	ND		ug/kg dry	88.3	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	44.1	175	1	EPA 8270D	08/22/2014 14:23	08/24/2014 18:45	KH

	Surrogate Recoveries	Result	Acceptance Range
367-12-4	*Surrogate: 2-Fluorophenol*	*47.2 %*	*10-105*
4165-62-2	*Surrogate: Phenol-d5*	*53.2 %*	*10-118*
4165-60-0	*Surrogate: Nitrobenzene-d5*	*47.3 %*	*10-140*
321-60-8	*Surrogate: 2-Fluorobiphenyl*	*50.0 %*	*10-126*
118-79-6	*Surrogate: 2,4,6-Tribromophenol*	*64.6 %*	*10-150*

Sample Information

Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
1718-51-0	*Surrogate: Terphenyl-d14*	*67.1 %*			*10-137*						

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
8001-35-2	Toxaphene	ND		ug/kg dry	87.7	87.7	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
72-43-5	Methoxychlor	ND		ug/kg dry	8.67	8.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
1024-57-3	Heptachlor epoxide	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
76-44-8	Heptachlor	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
58-89-9	gamma-BHC (Lindane)	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
53494-70-5	Endrin ketone	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
7421-93-4	Endrin aldehyde	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
72-20-8	Endrin	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
1031-07-8	Endosulfan sulfate	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
33213-65-9	Endosulfan II	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
959-98-8	Endosulfan I	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
60-57-1	Dieldrin	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
319-86-8	delta-BHC	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
57-74-9	Chlordane, total	ND		ug/kg dry	6.93	6.93	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
319-85-7	beta-BHC	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
319-84-6	alpha-BHC	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
309-00-2	Aldrin	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
50-29-3	4,4'-DDT	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
72-55-9	4,4'-DDE	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
72-54-8	4,4'-DDD	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:22	JW
11096-82-5	Aroclor 1260	ND		ug/kg dry	17.9	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC
11097-69-1	Aroclor 1254	ND		ug/kg dry	17.9	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC
12672-29-6	Aroclor 1248	ND		ug/kg dry	17.9	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC
53469-21-9	Aroclor 1242	ND		ug/kg dry	17.9	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC
11141-16-5	Aroclor 1232	ND		ug/kg dry	17.9	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC
11104-28-2	Aroclor 1221	ND		ug/kg dry	17.9	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC
12674-11-2	Aroclor 1016	ND		ug/kg dry	17.9	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC
1336-36-3	Total PCBs	ND		ug/kg dry	7.14	17.9	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:18	AMC

Sample Information

Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	Surrogate Recoveries	**Result**		**Acceptance Range**							
877-09-8	*Surrogate: Tetrachloro-m-xylene*	*99.0 %*		*30-140*							
2051-24-3	*Surrogate: Decachlorobiphenyl*	*78.0 %*		*30-140*							

Metals, Target Analyte

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	**4630**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-36-0	Antimony	ND		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-38-2	Arsenic	**1.19**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-39-3	Barium	**30.9**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.105	0.105	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-43-9	Cadmium	ND		mg/kg dry	0.315	0.315	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-70-2	Calcium	**1370**		mg/kg dry	0.525	5.25	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-47-3	Chromium	**9.01**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-48-4	Cobalt	**4.40**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-50-8	Copper	**23.4**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7439-89-6	Iron	**9300**		mg/kg dry	2.10	2.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7439-92-1	Lead	**6.38**		mg/kg dry	0.315	0.315	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7439-95-4	Magnesium	**1830**		mg/kg dry	5.25	5.25	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7439-96-5	Manganese	**205**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-02-0	Nickel	**9.65**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-09-7	Potassium	**532**		mg/kg dry	5.25	5.25	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7782-49-2	Selenium	ND		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-22-4	Silver	ND		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-23-5	Sodium	**162**		mg/kg dry	10.5	10.5	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-28-0	Thallium	ND		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-62-2	Vanadium	**13.2**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW
7440-66-6	Zinc	**39.0**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:45	MW

Sample Information

Client Sample ID: SB3 (5-8) **York Sample ID:** 14H0833-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 3:25 pm	08/19/2014

Mercury by 7473 **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 7473 soil

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	ND		mg/kg dry	0.0315	0.0315	1	EPA 7473	08/22/2014 06:55	08/22/2014 08:58	ALD

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids Prep

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
solids	% Solids	**95.2**		%	0.100	0.100	1	SM 2540G	08/25/2014 11:13	08/25/2014 16:13	KK

Sample Information

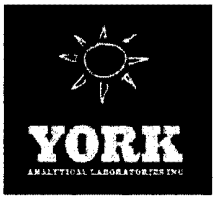
Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 113	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
95-63-6	1,2,4-Trimethylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
108-67-8	1,3,5-Trimethylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
123-91-1	1,4-Dioxane	ND		ug/kg dry	54	110	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS



Sample Information

Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

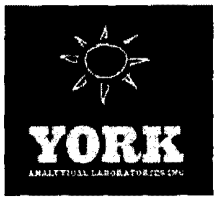
Volatile Organics, NJDEP/TCL/Part 375 List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
78-93-3	2-Butanone	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
67-64-1	Acetone	**19**	CCV-E, B	ug/kg dry	2.7	11	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
107-02-8	Acrolein	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
107-13-1	Acrylonitrile	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
71-43-2	Benzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-25-2	Bromoform	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
67-66-3	Chloroform	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
74-95-3	Dibromomethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
98-82-8	Isopropylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
79-20-9	Methyl acetate	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-09-2	Methylene chloride	**6.5**	J	ug/kg dry	2.7	11	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
104-51-8	n-Butylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
103-65-1	n-Propylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
95-47-6	o-Xylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
179601-23-1	p- & m- Xylenes	ND		ug/kg dry	5.4	11	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
99-87-6	p-Isopropyltoluene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS



Sample Information

Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
135-98-8	sec-Butylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
100-42-5	Styrene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-65-0	tert-Butyl alcohol (TBA)	**5.9**		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
98-06-6	tert-Butylbenzene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
108-88-3	Toluene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.7	5.4	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS
1330-20-7	Xylenes, Total	ND		ug/kg dry	8.1	16	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:20	SS

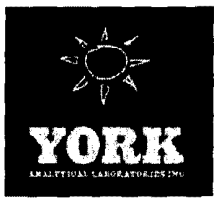
	Surrogate Recoveries	Result	Acceptance Range
17060-07-0	*Surrogate: 1,2-Dichloroethane-d4*	*105 %*	*67-130*
460-00-4	*Surrogate: p-Bromofluorobenzene*	*96.5 %*	*75-127*
2037-26-5	*Surrogate: Toluene-d8*	*111 %*	*90-112*

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
83-32-9	Acenaphthene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
208-96-8	Acenaphthylene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
98-86-2	Acetophenone	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
62-53-3	Aniline	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
120-12-7	Anthracene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
1912-24-9	Atrazine	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
100-52-7	Benzaldehyde	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
92-87-5	Benzidine	ND		ug/kg dry	169	337	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
56-55-3	Benzo(a)anthracene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
50-32-8	Benzo(a)pyrene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
205-99-2	Benzo(b)fluoranthene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
191-24-2	Benzo(g,h,i)perylene	ND	ISTD-LO	ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
65-85-0	Benzoic acid	ND		ug/kg dry	116	338	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
207-08-9	Benzo(k)fluoranthene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH



Sample Information

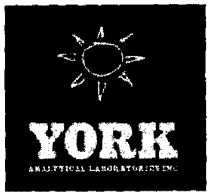
Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
100-51-6	Benzyl alcohol	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
92-52-4	1,1'-Biphenyl	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
105-60-2	Caprolactam	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
86-74-8	Carbazole	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
106-47-8	4-Chloroaniline	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
95-57-8	2-Chlorophenol	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
218-01-9	Chrysene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
53-70-3	Dibenzo(a,h)anthracene	ND	ISTD-LO	ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
132-64-9	Dibenzofuran	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	169	337	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
84-66-2	Diethyl phthalate	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
131-11-3	Dimethyl phthalate	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	169	338	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
122-66-7	1,2-Diphenylhydrazine (as Azobenzene)	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH



Sample Information

Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
117-81-7	Bis(2-ethylhexyl)phthalate	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
206-44-0	Fluoranthene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
86-73-7	Fluorene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
118-74-1	Hexachlorobenzene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
67-72-1	Hexachloroethane	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
193-39-5	Indeno(1,2,3-cd)pyrene	ND	ISTD-LO	ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
78-59-1	Isophorone	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
95-48-7	2-Methylphenol	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
65794-96-9	3- & 4-Methylphenols	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
91-20-3	Naphthalene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
100-01-6	4-Nitroaniline	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
88-74-4	2-Nitroaniline	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
99-09-2	3-Nitroaniline	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
98-95-3	Nitrobenzene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
88-75-5	2-Nitrophenol	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
100-02-7	4-Nitrophenol	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
62-75-9	N-Nitrosodimethylamine	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
87-86-5	Pentachlorophenol	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
85-01-8	Phenanthrene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
108-95-2	Phenol	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
129-00-0	Pyrene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
95-94-3	1,2,4,5-Tetrachlorobenzene	ND		ug/kg dry	85.1	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	42.6	169	1	EPA 8270D	08/22/2014 14:23	08/24/2014 19:15	KH

Surrogate Recoveries	Result	Acceptance Range

Sample Information

Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

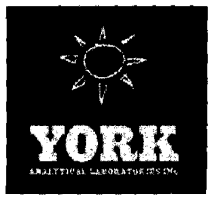
CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
367-12-4	*Surrogate: 2-Fluorophenol*	*55.8 %*			*10-105*						
4165-62-2	*Surrogate: Phenol-d5*	*63.4 %*			*10-118*						
4165-60-0	*Surrogate: Nitrobenzene-d5*	*57.2 %*			*10-140*						
321-60-8	*Surrogate: 2-Fluorobiphenyl*	*59.6 %*			*10-126*						
118-79-6	*Surrogate: 2,4,6-Tribromophenol*	*64.4 %*			*10-150*						
1718-51-0	*Surrogate: Terphenyl-d14*	*63.6 %*			*10-137*						

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
8001-35-2	Toxaphene	ND		ug/kg dry	84.6	84.6	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
72-43-5	Methoxychlor	ND		ug/kg dry	8.36	8.36	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
1024-57-3	Heptachlor epoxide	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
76-44-8	Heptachlor	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
58-89-9	gamma-BHC (Lindane)	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
53494-70-5	Endrin ketone	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
7421-93-4	Endrin aldehyde	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
72-20-8	Endrin	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
1031-07-8	Endosulfan sulfate	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
33213-65-9	Endosulfan II	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
959-98-8	Endosulfan I	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
60-57-1	Dieldrin	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
319-86-8	delta-BHC	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
57-74-9	Chlordane, total	ND		ug/kg dry	6.69	6.69	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
319-85-7	beta-BHC	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
319-84-6	alpha-BHC	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
309-00-2	Aldrin	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
50-29-3	4,4'-DDT	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
72-55-9	4,4'-DDE	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
72-54-8	4,4'-DDD	ND		ug/kg dry	1.67	1.67	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 14:59	JW
11096-82-5	Aroclor 1260	ND		ug/kg dry	17.2	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC
11097-69-1	Aroclor 1254	ND		ug/kg dry	17.2	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC
12672-29-6	Aroclor 1248	ND		ug/kg dry	17.2	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC
53469-21-9	Aroclor 1242	ND		ug/kg dry	17.2	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC



Sample Information

Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
11141-16-5	Aroclor 1232	ND		ug/kg dry	17.2	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC
11104-28-2	Aroclor 1221	ND		ug/kg dry	17.2	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC
12674-11-2	Aroclor 1016	ND		ug/kg dry	17.2	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC
1336-36-3	Total PCBs	ND		ug/kg dry	6.89	17.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:37	AMC

	Surrogate Recoveries	Result	Acceptance Range
877-09-8	*Surrogate: Tetrachloro-m-xylene*	*98.0 %*	*30-140*
2051-24-3	*Surrogate: Decachlorobiphenyl*	*81.5 %*	*30-140*

Metals, Target Analyte

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	**2820**		mg/kg dry	1.01	1.01	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-36-0	Antimony	ND		mg/kg dry	0.507	0.507	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-38-2	Arsenic	ND		mg/kg dry	1.01	1.01	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-39-3	Barium	**27.2**		mg/kg dry	1.01	1.01	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.101	0.101	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-43-9	Cadmium	ND		mg/kg dry	0.304	0.304	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-70-2	Calcium	**686**		mg/kg dry	0.507	5.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-47-3	Chromium	**7.05**		mg/kg dry	0.507	0.507	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-48-4	Cobalt	**3.36**		mg/kg dry	0.507	0.507	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-50-8	Copper	**6.61**		mg/kg dry	0.507	0.507	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7439-89-6	Iron	**7740**		mg/kg dry	2.03	2.03	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7439-92-1	Lead	**2.11**		mg/kg dry	0.304	0.304	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7439-95-4	Magnesium	**1270**		mg/kg dry	5.07	5.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7439-96-5	Manganese	**208**		mg/kg dry	0.507	0.507	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-02-0	Nickel	**7.55**		mg/kg dry	0.507	0.507	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-09-7	Potassium	**387**		mg/kg dry	5.07	5.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7782-49-2	Selenium	ND		mg/kg dry	1.01	1.01	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-22-4	Silver	ND		mg/kg dry	0.507	0.507	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-23-5	Sodium	**101**		mg/kg dry	10.1	10.1	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-28-0	Thallium	ND		mg/kg dry	1.01	1.01	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-62-2	Vanadium	**13.6**		mg/kg dry	1.01	1.01	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW
7440-66-6	Zinc	**12.1**		mg/kg dry	1.01	1.01	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:50	MW

Sample Information

Client Sample ID: SB3 (15-20) **York Sample ID:** 14H0833-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 14, 2014 4:10 pm	08/19/2014

Mercury by 7473 **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 7473 soil

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	ND		mg/kg dry	0.0304	0.0304	1	EPA 7473	08/22/2014 06:55	08/22/2014 09:07	ALD

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids Prep

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
solids	% Solids	**98.7**		%	0.100	0.100	1	SM 2540G	08/25/2014 11:13	08/25/2014 16:13	KK

Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 113	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
95-63-6	1,2,4-Trimethylbenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
108-67-8	1,3,5-Trimethylbenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
123-91-1	1,4-Dioxane	ND		ug/kg dry	48	96	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS

Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
78-93-3	2-Butanone	**3.5**	J	ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
67-64-1	Acetone	**20**	CCV-E, B	ug/kg dry	2.4	9.6	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
107-02-8	Acrolein	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
107-13-1	Acrylonitrile	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
71-43-2	Benzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-25-2	Bromoform	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
67-66-3	Chloroform	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
74-95-3	Dibromomethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
98-82-8	Isopropylbenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
79-20-9	Methyl acetate	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-09-2	Methylene chloride	ND		ug/kg dry	2.4	9.6	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
104-51-8	n-Butylbenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
103-65-1	n-Propylbenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
95-47-6	o-Xylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
179601-23-1	p- & m- Xylenes	ND		ug/kg dry	4.8	9.6	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
99-87-6	p-Isopropyltoluene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS

Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
135-98-8	sec-Butylbenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
100-42-5	Styrene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-65-0	tert-Butyl alcohol (TBA)	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
98-06-6	tert-Butylbenzene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
108-88-3	Toluene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.4	4.8	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS
1330-20-7	Xylenes, Total	ND		ug/kg dry	7.2	14	1	EPA 8260C	08/22/2014 08:18	08/22/2014 20:55	SS

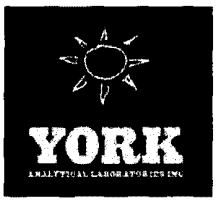
	Surrogate Recoveries	Result		Acceptance Range
17060-07-0	*Surrogate: 1,2-Dichloroethane-d4*	*106 %*		*67-130*
460-00-4	*Surrogate: p-Bromofluorobenzene*	*104 %*		*75-127*
2037-26-5	*Surrogate: Toluene-d8*	*114 %*	*S-08*	*90-112*

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
83-32-9	Acenaphthene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
208-96-8	Acenaphthylene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
98-86-2	Acetophenone	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
62-53-3	Aniline	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
120-12-7	Anthracene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
1912-24-9	Atrazine	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
100-52-7	Benzaldehyde	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
92-87-5	Benzidine	ND		ug/kg dry	368	734	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
56-55-3	Benzo(a)anthracene	**418**		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
50-32-8	Benzo(a)pyrene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
205-99-2	Benzo(b)fluoranthene	**145**	J	ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
191-24-2	Benzo(g,h,i)perylene	ND	ISTD-LO	ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
65-85-0	Benzoic acid	ND		ug/kg dry	251	734	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
207-08-9	Benzo(k)fluoranthene	**99.9**	J	ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH



Sample Information

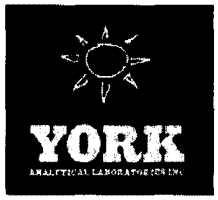
Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
100-51-6	Benzyl alcohol	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
92-52-4	1,1'-Biphenyl	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
105-60-2	Caprolactam	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
86-74-8	Carbazole	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
106-47-8	4-Chloroaniline	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
95-57-8	2-Chlorophenol	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
218-01-9	Chrysene	**350**	J	ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
53-70-3	Dibenzo(a,h)anthracene	ND	ISTD-LO	ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
132-64-9	Dibenzofuran	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	368	734	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
84-66-2	Diethyl phthalate	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
131-11-3	Dimethyl phthalate	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	368	734	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
122-66-7	1,2-Diphenylhydrazine (as Azobenzene)	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH



Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
117-81-7	Bis(2-ethylhexyl)phthalate	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
206-44-0	Fluoranthene	**665**		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
86-73-7	Fluorene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
118-74-1	Hexachlorobenzene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
67-72-1	Hexachloroethane	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
193-39-5	Indeno(1,2,3-cd)pyrene	ND	ISTD-LO	ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
78-59-1	Isophorone	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
95-48-7	2-Methylphenol	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
65794-96-9	3- & 4-Methylphenols	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
91-20-3	Naphthalene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
100-01-6	4-Nitroaniline	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
88-74-4	2-Nitroaniline	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
99-09-2	3-Nitroaniline	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
98-95-3	Nitrobenzene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
88-75-5	2-Nitrophenol	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
100-02-7	4-Nitrophenol	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
62-75-9	N-Nitrosodimethylamine	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
87-86-5	Pentachlorophenol	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
85-01-8	Phenanthrene	**187**	J	ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
108-95-2	Phenol	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
129-00-0	Pyrene	**819**		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
95-94-3	1,2,4,5-Tetrachlorobenzene	ND		ug/kg dry	185	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	92.5	367	2	EPA 8270D	08/22/2014 14:23	08/24/2014 19:46	KH

Surrogate Recoveries	Result	Acceptance Range

Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

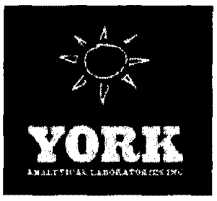
CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
367-12-4	*Surrogate: 2-Fluorophenol*	*16.5 %*			*10-105*						
4165-62-2	*Surrogate: Phenol-d5*	*20.6 %*			*10-118*						
4165-60-0	*Surrogate: Nitrobenzene-d5*	*18.7 %*			*10-140*						
321-60-8	*Surrogate: 2-Fluorobiphenyl*	*25.8 %*			*10-126*						
118-79-6	*Surrogate: 2,4,6-Tribromophenol*	*19.1 %*			*10-150*						
1718-51-0	*Surrogate: Terphenyl-d14*	*34.9 %*			*10-137*						

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
8001-35-2	Toxaphene	ND		ug/kg dry	18.4	18.4	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
72-43-5	Methoxychlor	ND		ug/kg dry	1.82	1.82	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
1024-57-3	Heptachlor epoxide	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
76-44-8	Heptachlor	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
58-89-9	gamma-BHC (Lindane)	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
53494-70-5	Endrin ketone	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
7421-93-4	Endrin aldehyde	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
72-20-8	Endrin	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
1031-07-8	Endosulfan sulfate	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
33213-65-9	Endosulfan II	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
959-98-8	Endosulfan I	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
60-57-1	Dieldrin	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
319-86-8	delta-BHC	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
57-74-9	Chlordane, total	ND		ug/kg dry	1.45	1.45	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
319-85-7	beta-BHC	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
319-84-6	alpha-BHC	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
309-00-2	Aldrin	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
50-29-3	4,4'-DDT	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
72-55-9	4,4'-DDE	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
72-54-8	4,4'-DDD	ND		ug/kg dry	0.364	0.364	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
11096-82-5	Aroclor 1260	ND		ug/kg dry	18.7	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
11097-69-1	Aroclor 1254	ND		ug/kg dry	18.7	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
12672-29-6	Aroclor 1248	ND		ug/kg dry	18.7	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
53469-21-9	Aroclor 1242	ND		ug/kg dry	18.7	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC



Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
11141-16-5	Aroclor 1232	ND		ug/kg dry	18.7	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
11104-28-2	Aroclor 1221	ND		ug/kg dry	18.7	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
12674-11-2	Aroclor 1016	ND		ug/kg dry	18.7	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC
1336-36-3	Total PCBs	ND		ug/kg dry	7.49	18.7	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 17:57	AMC

	Surrogate Recoveries	Result	Acceptance Range
877-09-8	*Surrogate: Tetrachloro-m-xylene*	*80.0 %*	*30-140*
2051-24-3	*Surrogate: Decachlorobiphenyl*	*69.5 %*	*30-140*

Metals, Target Analyte

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	**11900**		mg/kg dry	1.10	1.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-36-0	Antimony	ND		mg/kg dry	0.551	0.551	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-38-2	Arsenic	**3.20**		mg/kg dry	1.10	1.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-39-3	Barium	**186**		mg/kg dry	1.10	1.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.110	0.110	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-43-9	Cadmium	**3.76**		mg/kg dry	0.331	0.331	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-70-2	Calcium	**9380**		mg/kg dry	0.551	5.51	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-47-3	Chromium	**24.1**		mg/kg dry	0.551	0.551	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-48-4	Cobalt	**14.7**		mg/kg dry	0.551	0.551	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-50-8	Copper	**85.7**		mg/kg dry	0.551	0.551	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7439-89-6	Iron	**35200**		mg/kg dry	2.20	2.20	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7439-92-1	Lead	**239**		mg/kg dry	0.331	0.331	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7439-95-4	Magnesium	**4680**		mg/kg dry	5.51	5.51	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7439-96-5	Manganese	**477**		mg/kg dry	0.551	0.551	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-02-0	Nickel	**32.7**		mg/kg dry	0.551	0.551	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-09-7	Potassium	**6450**		mg/kg dry	5.51	5.51	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7782-49-2	Selenium	**1.97**		mg/kg dry	1.10	1.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-22-4	Silver	ND		mg/kg dry	0.551	0.551	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-23-5	Sodium	**168**		mg/kg dry	11.0	11.0	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-28-0	Thallium	ND		mg/kg dry	1.10	1.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-62-2	Vanadium	**36.6**		mg/kg dry	1.10	1.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW
7440-66-6	Zinc	**1890**		mg/kg dry	1.10	1.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:54	MW

Sample Information

Client Sample ID: SB2 (3-5) **York Sample ID:** 14H0833-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 10:50 am	08/19/2014

Mercury by 7473 **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 7473 soil

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	**0.129**		mg/kg dry	0.0331	0.0331	1	EPA 7473	08/22/2014 06:55	08/22/2014 09:16	ALD

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids Prep

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
solids	% Solids	**90.8**		%	0.100	0.100	1	SM 2540G	08/25/2014 11:13	08/25/2014 16:13	KK

Sample Information

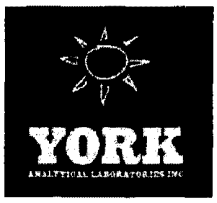
Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 113	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
95-63-6	1,2,4-Trimethylbenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
108-67-8	1,3,5-Trimethylbenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
123-91-1	1,4-Dioxane	ND		ug/kg dry	45	90	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS



Sample Information

Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
78-93-3	2-Butanone	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
67-64-1	Acetone	**16**	CCV-E, B	ug/kg dry	2.3	9.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
107-02-8	Acrolein	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
107-13-1	Acrylonitrile	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
71-43-2	Benzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-25-2	Bromoform	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
67-66-3	Chloroform	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
74-95-3	Dibromomethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
98-82-8	Isopropylbenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
79-20-9	Methyl acetate	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-09-2	Methylene chloride	ND		ug/kg dry	2.3	9.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
104-51-8	n-Butylbenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
103-65-1	n-Propylbenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
95-47-6	o-Xylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
179601-23-1	p- & m- Xylenes	ND		ug/kg dry	4.5	9.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
99-87-6	p-Isopropyltoluene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS

Sample Information

Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
135-98-8	sec-Butylbenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
100-42-5	Styrene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-65-0	tert-Butyl alcohol (TBA)	**6.1**		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
98-06-6	tert-Butylbenzene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
108-88-3	Toluene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.3	4.5	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS
1330-20-7	Xylenes, Total	ND		ug/kg dry	6.8	14	1	EPA 8260C	08/22/2014 08:18	08/22/2014 21:31	SS

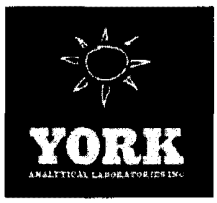
	Surrogate Recoveries	Result		Acceptance Range
17060-07-0	*Surrogate: 1,2-Dichloroethane-d4*	*105 %*		*67-130*
460-00-4	*Surrogate: p-Bromofluorobenzene*	*120 %*		*75-127*
2037-26-5	*Surrogate: Toluene-d8*	*119 %*	*S-08*	*90-112*

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
83-32-9	Acenaphthene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
208-96-8	Acenaphthylene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
98-86-2	Acetophenone	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
62-53-3	Aniline	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
120-12-7	Anthracene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
1912-24-9	Atrazine	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
100-52-7	Benzaldehyde	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
92-87-5	Benzidine	ND		ug/kg dry	894	1780	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
56-55-3	Benzo(a)anthracene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
50-32-8	Benzo(a)pyrene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
205-99-2	Benzo(b)fluoranthene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
191-24-2	Benzo(g,h,i)perylene	ND	ISTD-LO	ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
65-85-0	Benzoic acid	ND		ug/kg dry	610	1780	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
207-08-9	Benzo(k)fluoranthene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH



Sample Information

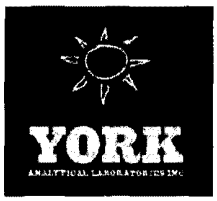
Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
100-51-6	Benzyl alcohol	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
92-52-4	1,1'-Biphenyl	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
105-60-2	Caprolactam	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
86-74-8	Carbazole	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
106-47-8	4-Chloroaniline	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
95-57-8	2-Chlorophenol	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
218-01-9	Chrysene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
53-70-3	Dibenzo(a,h)anthracene	ND	ISTD-LO	ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
132-64-9	Dibenzofuran	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	894	1780	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
84-66-2	Diethyl phthalate	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
131-11-3	Dimethyl phthalate	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	894	1780	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
122-66-7	1,2-Diphenylhydrazine (as Azobenzene)	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH



Sample Information

Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
117-81-7	Bis(2-ethylhexyl)phthalate	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
206-44-0	Fluoranthene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
86-73-7	Fluorene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
118-74-1	Hexachlorobenzene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
67-72-1	Hexachloroethane	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
193-39-5	Indeno(1,2,3-cd)pyrene	ND	ISTD-LO	ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
78-59-1	Isophorone	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
95-48-7	2-Methylphenol	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
65794-96-9	3- & 4-Methylphenols	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
91-20-3	Naphthalene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
100-01-6	4-Nitroaniline	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
88-74-4	2-Nitroaniline	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
99-09-2	3-Nitroaniline	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
98-95-3	Nitrobenzene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
88-75-5	2-Nitrophenol	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
100-02-7	4-Nitrophenol	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
62-75-9	N-Nitrosodimethylamine	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
87-86-5	Pentachlorophenol	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
85-01-8	Phenanthrene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
108-95-2	Phenol	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
129-00-0	Pyrene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
95-94-3	1,2,4,5-Tetrachlorobenzene	ND		ug/kg dry	450	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	225	892	5	EPA 8270D	08/22/2014 14:23	08/24/2014 20:17	KH

Surrogate Recoveries	Result	Acceptance Range

Sample Information

Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
367-12-4	*Surrogate: 2-Fluorophenol*	*51.7 %*			*10-105*						
4165-62-2	*Surrogate: Phenol-d5*	*60.5 %*			*10-118*						
4165-60-0	*Surrogate: Nitrobenzene-d5*	*50.1 %*			*10-140*						
321-60-8	*Surrogate: 2-Fluorobiphenyl*	*76.0 %*			*10-126*						
118-79-6	*Surrogate: 2,4,6-Tribromophenol*	*63.3 %*			*10-150*						
1718-51-0	*Surrogate: Terphenyl-d14*	*94.6 %*			*10-137*						

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
8001-35-2	Toxaphene	ND		ug/kg dry	89.4	89.4	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
72-43-5	Methoxychlor	ND		ug/kg dry	8.83	8.83	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
1024-57-3	Heptachlor epoxide	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
76-44-8	Heptachlor	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
58-89-9	gamma-BHC (Lindane)	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
53494-70-5	Endrin ketone	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
7421-93-4	Endrin aldehyde	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
72-20-8	Endrin	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
1031-07-8	Endosulfan sulfate	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
33213-65-9	Endosulfan II	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
959-98-8	Endosulfan I	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
60-57-1	Dieldrin	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
319-86-8	delta-BHC	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
57-74-9	Chlordane, total	ND		ug/kg dry	7.06	7.06	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
319-85-7	beta-BHC	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
319-84-6	alpha-BHC	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
309-00-2	Aldrin	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
50-29-3	4,4'-DDT	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
72-55-9	4,4'-DDE	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
72-54-8	4,4'-DDD	ND		ug/kg dry	1.77	1.77	5	EPA 8081B/8082A	08/22/2014 10:58	08/26/2014 10:52	JW
11096-82-5	Aroclor 1260	ND		ug/kg dry	18.2	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC
11097-69-1	Aroclor 1254	ND		ug/kg dry	18.2	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC
12672-29-6	Aroclor 1248	ND		ug/kg dry	18.2	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC
53469-21-9	Aroclor 1242	ND		ug/kg dry	18.2	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC

Sample Information

Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
11141-16-5	Aroclor 1232	ND		ug/kg dry	18.2	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC
11104-28-2	Aroclor 1221	ND		ug/kg dry	18.2	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC
12674-11-2	Aroclor 1016	ND		ug/kg dry	18.2	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC
1336-36-3	Total PCBs	ND		ug/kg dry	7.28	18.2	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:16	AMC

	Surrogate Recoveries	Result	Acceptance Range
877-09-8	*Surrogate: Tetrachloro-m-xylene*	*95.0 %*	*30-140*
2051-24-3	*Surrogate: Decachlorobiphenyl*	*78.0 %*	*30-140*

Metals, Target Analyte

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	**4780**		mg/kg dry	1.07	1.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-36-0	Antimony	ND		mg/kg dry	0.535	0.535	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-38-2	Arsenic	**2.24**		mg/kg dry	1.07	1.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-39-3	Barium	**35.7**		mg/kg dry	1.07	1.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.107	0.107	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-43-9	Cadmium	ND		mg/kg dry	0.321	0.321	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-70-2	Calcium	**4790**		mg/kg dry	0.535	5.35	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-47-3	Chromium	**11.7**		mg/kg dry	0.535	0.535	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-48-4	Cobalt	**5.62**		mg/kg dry	0.535	0.535	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-50-8	Copper	**25.9**		mg/kg dry	0.535	0.535	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7439-89-6	Iron	**11700**		mg/kg dry	2.14	2.14	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7439-92-1	Lead	**20.1**		mg/kg dry	0.321	0.321	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7439-95-4	Magnesium	**2390**		mg/kg dry	5.35	5.35	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7439-96-5	Manganese	**192**		mg/kg dry	0.535	0.535	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-02-0	Nickel	**13.4**		mg/kg dry	0.535	0.535	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-09-7	Potassium	**924**		mg/kg dry	5.35	5.35	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7782-49-2	Selenium	ND		mg/kg dry	1.07	1.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-22-4	Silver	ND		mg/kg dry	0.535	0.535	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-23-5	Sodium	**201**		mg/kg dry	10.7	10.7	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-28-0	Thallium	ND		mg/kg dry	1.07	1.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-62-2	Vanadium	**25.5**		mg/kg dry	1.07	1.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW
7440-66-6	Zinc	**62.5**		mg/kg dry	1.07	1.07	1	EPA 6010C	08/22/2014 15:03	08/22/2014 17:59	MW

Sample Information

Client Sample ID: SB2 (12-14) **York Sample ID:** 14H0833-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 11:30 am	08/19/2014

Mercury by 7473 **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 7473 soil

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	ND		mg/kg dry	0.0321	0.0321	1	EPA 7473	08/22/2014 06:55	08/22/2014 09:25	ALD

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids Prep

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
solids	% Solids	**93.4**		%	0.100	0.100	1	SM 2540G	08/25/2014 11:13	08/25/2014 16:13	KK

Sample Information

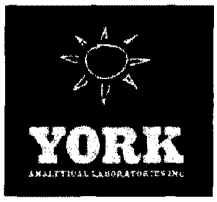
Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
76-13-1	1,2-Trichloro-1,2,2-trifluoroethane (Freon 113	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
95-63-6	1,2,4-Trimethylbenzene	**29**		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
108-67-8	1,3,5-Trimethylbenzene	**13**		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
123-91-1	1,4-Dioxane	ND		ug/kg dry	40	81	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
78-93-3	2-Butanone	**4.8**		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS



Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
591-78-6	2-Hexanone	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
67-64-1	Acetone	**56**	CCV-E, B	ug/kg dry	2.0	8.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
107-02-8	Acrolein	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
107-13-1	Acrylonitrile	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
71-43-2	Benzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-25-2	Bromoform	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
67-66-3	Chloroform	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
74-95-3	Dibromomethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
98-82-8	Isopropylbenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
79-20-9	Methyl acetate	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-09-2	Methylene chloride	**5.3**	J	ug/kg dry	2.0	8.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
104-51-8	n-Butylbenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
103-65-1	n-Propylbenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
95-47-6	o-Xylene	**3.0**	J	ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
179601-23-1	p- & m- Xylenes	ND		ug/kg dry	4.0	8.1	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
99-87-6	p-Isopropyltoluene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
135-98-8	sec-Butylbenzene	**2.8**	J	ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS

Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Volatile Organics, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 5035A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
100-42-5	Styrene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-65-0	tert-Butyl alcohol (TBA)	**28**		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
98-06-6	tert-Butylbenzene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
127-18-4	Tetrachloroethylene	**26**		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
108-88-3	Toluene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.0	4.0	1	EPA 8260C	08/22/2014 08:18	08/22/2014 22:06	SS
1330-20-7	Xylenes, Total	ND		ug/kg dry	6.0	12	1	EPA 8260C	08/22/2014 08 18	08/22/2014 22:06	SS

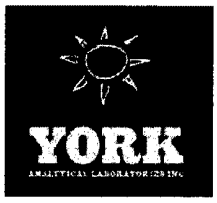
	Surrogate Recoveries	Result		Acceptance Range
17060-07-0	*Surrogate: 1,2-Dichloroethane-d4*	*107 %*		*67-130*
460-00-4	*Surrogate: p-Bromofluorobenzene*	*103 %*		*75-127*
2037-26-5	*Surrogate: Toluene-d8*	*113 %*	*S-08*	*90-112*

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
83-32-9	Acenaphthene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
208-96-8	Acenaphthylene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
98-86-2	Acetophenone	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
62-53-3	Aniline	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
120-12-7	Anthracene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
1912-24-9	Atrazine	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
100-52-7	Benzaldehyde	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
92-87-5	Benzidine	ND		ug/kg dry	350	699	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
56-55-3	Benzo(a)anthracene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
50-32-8	Benzo(a)pyrene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
205-99-2	Benzo(b)fluoranthene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
191-24-2	Benzo(g,h,i)perylene	ND	ISTD-LO	ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
65-85-0	Benzoic acid	ND		ug/kg dry	239	699	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
207-08-9	Benzo(k)fluoranthene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
100-51-6	Benzyl alcohol	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH



Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

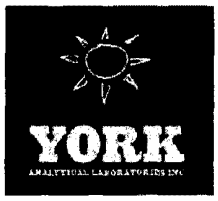
Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
92-52-4	1,1'-Biphenyl	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
105-60-2	Caprolactam	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
86-74-8	Carbazole	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
106-47-8	4-Chloroaniline	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
95-57-8	2-Chlorophenol	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
218-01-9	Chrysene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
53-70-3	Dibenzo(a,h)anthracene	ND	ISTD-LO	ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
132-64-9	Dibenzofuran	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	350	699	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
84-66-2	Diethyl phthalate	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
131-11-3	Dimethyl phthalate	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	350	699	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
122-66-7	1,2-Diphenylhydrazine (as Azobenzene)	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
117-81-7	Bis(2-ethylhexyl)phthalate	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH



Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
206-44-0	Fluoranthene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
86-73-7	Fluorene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
118-74-1	Hexachlorobenzene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
67-72-1	Hexachloroethane	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
193-39-5	Indeno(1,2,3-cd)pyrene	ND	ISTD-LO	ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
78-59-1	Isophorone	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
95-48-7	2-Methylphenol	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
65794-96-9	3- & 4-Methylphenols	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
91-20-3	Naphthalene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
100-01-6	4-Nitroaniline	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
88-74-4	2-Nitroaniline	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
99-09-2	3-Nitroaniline	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
98-95-3	Nitrobenzene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
88-75-5	2-Nitrophenol	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
100-02-7	4-Nitrophenol	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
62-75-9	N-Nitrosodimethylamine	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
87-86-5	Pentachlorophenol	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
85-01-8	Phenanthrene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
108-95-2	Phenol	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
129-00-0	Pyrene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
95-94-3	1,2,4,5-Tetrachlorobenzene	ND		ug/kg dry	176	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
58-90-2	2,3,4,6-Tetrachlorophenol	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	88.1	350	2	EPA 8270D	08/22/2014 14:23	08/24/2014 20:47	KH

	Surrogate Recoveries	Result	Acceptance Range
367-12-4	*Surrogate: 2-Fluorophenol*	*19.8 %*	*10-105*

Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Semi-Volatiles, NJDEP/TCL/Part 375 List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
4165-62-2	*Surrogate: Phenol-d5*	*25.3 %*			*10-118*						
4165-60-0	*Surrogate: Nitrobenzene-d5*	*15.6 %*			*10-140*						
321-60-8	*Surrogate: 2-Fluorobiphenyl*	*28.0 %*			*10-126*						
118-79-6	*Surrogate: 2,4,6-Tribromophenol*	*11.6 %*			*10-150*						
1718-51-0	*Surrogate: Terphenyl-d14*	*33.3 %*			*10-137*						

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
8001-35-2	Toxaphene	ND		ug/kg dry	87.6	87.6	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
72-43-5	Methoxychlor	ND		ug/kg dry	8.66	8.66	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
1024-57-3	Heptachlor epoxide	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
76-44-8	Heptachlor	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
58-89-9	gamma-BHC (Lindane)	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
53494-70-5	Endrin ketone	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
7421-93-4	Endrin aldehyde	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
72-20-8	Endrin	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
1031-07-8	Endosulfan sulfate	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
33213-65-9	Endosulfan II	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
959-98-8	Endosulfan I	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
60-57-1	Dieldrin	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
319-86-8	delta-BHC	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
57-74-9	Chlordane, total	ND		ug/kg dry	6.92	6.92	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
319-85-7	beta-BHC	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
319-84-6	alpha-BHC	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
309-00-2	Aldrin	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
50-29-3	4,4'-DDT	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
72-55-9	4,4'-DDE	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
72-54-8	4,4'-DDD	ND		ug/kg dry	1.73	1.73	5	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 15:29	JW
11096-82-5	Aroclor 1260	ND		ug/kg dry	17.8	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC
11097-69-1	Aroclor 1254	ND		ug/kg dry	17.8	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC
12672-29-6	Aroclor 1248	ND		ug/kg dry	17.8	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC
53469-21-9	Aroclor 1242	ND		ug/kg dry	17.8	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC
11141-16-5	Aroclor 1232	ND		ug/kg dry	17.8	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC

Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Pesticides/PCBs, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
11104-28-2	Aroclor 1221	ND		ug/kg dry	17.8	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC
12674-11-2	Aroclor 1016	ND		ug/kg dry	17.8	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC
1336-36-3	Total PCBs	ND		ug/kg dry	7.13	17.8	1	EPA 8081B/8082A	08/22/2014 10:58	08/22/2014 18:35	AMC

	Surrogate Recoveries	Result	Acceptance Range
877-09-8	*Surrogate: Tetrachloro-m-xylene*	*89.0 %*	*30-140*
2051-24-3	*Surrogate: Decachlorobiphenyl*	*73.0 %*	*30-140*

Metals, Target Analyte

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	**9250**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-36-0	Antimony	ND		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-38-2	Arsenic	**4.01**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-39-3	Barium	**67.1**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.105	0.105	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-43-9	Cadmium	ND		mg/kg dry	0.315	0.315	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-70-2	Calcium	**3460**		mg/kg dry	0.525	5.25	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-47-3	Chromium	**15.6**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-48-4	Cobalt	**6.85**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-50-8	Copper	**61.5**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7439-89-6	Iron	**14700**		mg/kg dry	2.10	2.10	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7439-92-1	Lead	**75.5**		mg/kg dry	0.315	0.315	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7439-95-4	Magnesium	**2970**		mg/kg dry	5.25	5.25	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7439-96-5	Manganese	**266**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-02-0	Nickel	**17.4**		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-09-7	Potassium	**657**		mg/kg dry	5.25	5.25	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7782-49-2	Selenium	**1.05**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-22-4	Silver	ND		mg/kg dry	0.525	0.525	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-23-5	Sodium	**264**		mg/kg dry	10.5	10.5	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-28-0	Thallium	ND		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-62-2	Vanadium	**29.9**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW
7440-66-6	Zinc	**155**		mg/kg dry	1.05	1.05	1	EPA 6010C	08/22/2014 15:03	08/22/2014 18:16	MW

Sample Information

Client Sample ID: SB3 (0-4) **York Sample ID:** 14H0833-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
14H0833	7791-WDNY	Soil	August 15, 2014 2:00 pm	08/19/2014

Mercury by 7473

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 7473 soil

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	**0.0824**		mg/kg dry	0.0315	0.0315	1	EPA 7473	08/22/2014 06:55	08/22/2014 09:34	ALD

Total Solids

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: % Solids Prep

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
solids	% Solids	**95.3**		%	0.100	0.100	1	SM 2540G	08/25/2014 11:13	08/25/2014 16:13	KK

Volatile Analysis Sample Containers

Lab ID	Client Sample ID	Volatile Sample Container
14H0833-01	SB1 (3-5)	40mL Vial with Stir Bar-Cool 4° C
14H0833-02	SB3 (5-8)	40mL Vial with Stir Bar-Cool 4° C
14H0833-03	SB3 (15-20)	40mL Vial with Stir Bar-Cool 4° C
14H0833-04	SB2 (3-5)	40mL Vial with Stir Bar-Cool 4° C
14H0833-05	SB2 (12-14)	40mL Vial with Stir Bar-Cool 4° C
14H0833-06	SB3 (0-4)	40mL Vial with Stir Bar-Cool 4° C

Notes and Definitions

S-08	The recovery of this surrogate was outside of QC limits.
QL-02	This LCS analyte is outside Laboratory Recovery limits due the analyte behavior using the referenced method. The reference method has certain limitations with respect to analytes of this nature.
J	Detected below the Reporting Limit but greater than or equal to the Method Detection Limit (MDL/LOD) or in the case of a TIC, the result is an estimated concentration.
ISTD-LO	The internal std associated with this target compound did not meet acceptance criteria (area <50% CCV) at the stated dilution due to matrix effects. Sample was rerun to confirm matrix effects.
CCV-E	The value reported is ESTIMATED. The value is estimated due to its behavior during continuing calibration verification (>20% Difference for average Rf or >20% Drift for quadratic fit).
B	Analyte is found in the associated analysis batch blank. For volatiles, methylene chloride and acetone are common lab contaminants. Data users should consider anything <10x the blank value as artifact.

ND	Analyte NOT DETECTED at the stated Reporting Limit (RL) or above.
RL	REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.
MDL	METHOD DETECTION LIMIT - the minimum concentration that can be measured and reported with a 99% confidence that the concentration is greater than zero. If requested or required, a value reported below the RL and above the MDL is considered estimated and is noted with a "J" flag.
NR	Not reported
RPD	Relative Percent Difference
Wet	The data has been reported on an as-received (wet weight) basis
Low Bias	Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
High Bias	High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
Non-Dir.	Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

If EPA SW-846 method 8270 is included herein it is noted that the target compound N-nitrosodiphenylamine (NDPA) decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine (DPA). These results could actually represent 100% DPA, 100% NDPA or some combination of the two. For this reason, York reports the combined result for n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration as Diphenylamine.

If Total PCBs are detected and the target aroclors reported are "Not detected", the Total PCB value is reported due to the presence of either or both Aroclors 1262 and 1268 which are non-target aroclors for some regulatory lists.

2-chloroethylvinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

Certification for pH is no longer offered by NYDOH ELAP.

Semi-Volatile and Volatile analyses are reported down to the MDL, with values between the MDL and the RL being "J" flagged as estimated results.

YORK ANALYTICAL LABORATORIES
120 RESEARCH DR.
STRATFORD, CT 06615
(203) 325-1371
FAX (203) 357-0166

Field Chain-of-Custody Record

NOTE: York's Std. Terms & Conditions are listed on the back side of this document. This document serves as your written authorization to York to proceed with the analyses requested and your signature binds you to York's Std. Terms & Conditions.

York Project No. 14H0833

YOUR Information	Report To:	Invoice To:	YOUR Project ID	Turn-Around Time	Report Type
Company: ADVANCED CLEANUP TECH.	Company: SAME	Company: SAME	7791-WDNY	RUSH - Same Day ☐	Summary Report X
Address: 110 MAIN ST. Suite 108 PORT WASHINGTON, NY 11050	Address: SAME	Address: SAME	Purchase Order No.	RUSH - Next Day ☐	Summary w/ QA Summary ___
Phone No. 516-441-5800	Phone No. SAME	Phone No. SAME	7791WDNY	RUSH - Two Day ☐	CT RCP Package ___
Contact Person: Jeff Dizmond	Attention: THERESA BUCKLEY	Attention: KAREN FRIEDMAN	Samples from: CT ___ NY X NJ ___	RUSH - Three Day ☐	CTRCP DQA/DUE Pkg ___
E-Mail Address: JeffreyD@ACTENVIRONS.com	E-Mail Address: THERESAB@ACTENVIRONS.com	E-Mail Address:		RUSH - Four Day ☐	NY ASP A Package ___
				Standard(5-7 Days) X	NY ASP B Package ___
					NJDEP Red. Deliv. ___
					Electronic Data Deliverables (EDD)

Print Clearly and Legibly. All Information must be complete. Samples will NOT be logged in and the turn-around time clock will not begin until any questions by York are resolved.

Tim Young
Samples Collected/Authorized By (Signature)

TIM YOUNG
Name (printed)

Matrix Codes
S - soil
Other - specify(oil, etc.)
WW - wastewater
GW - groundwater
DW - drinking water
Air-A - ambient air
Air-SV - soil vapor

Volatiles		Semi-Vols.	Pest/PCB/Herb	Metals	Misc. Org.	Full Lists	Misc.
8260 full	TICs	8270 or 625	8082PCB	RCRA8	TPH GRO	Pri.Poll.	Corrosivity
624	Site Spec.	STARS list	8081Pest	PP13 list	TPH DRO	TCL Organics	Reactivity
STARS list	Nassau Co.	BN Only	8151Herb	TAL	CT ETPH	TAL Met/CN	Ignitability
BTEX	Suffolk Co.	Acids Only	CT RCP	CT15 list	NY 310-13	Full TCLP	Flash Point
MTBE	Ketones	PAH list	App. IX	TAGM list	TPH 1664	Full App. IX	Sieve Anal.
TCL list	Oxygenates	TAGM list	Site Spec.	NJDEP list	Air TO14A	Part 360-Routine	Heterotrophs
TAGM list	TCLP list	CT RCP list	SPLP or TCLP	Total	Air TO15	Part 360-Baseline	TOX
CT RCP list	524.2	TCL list	TCLP Pest	Dissolved	Air STARS	Part 360-Expanded (No Dioxin/Furans)	BTU/lb.
Arom. only	502.2	NJDEP list	TCLP Herb	SPLP or TCLP	Air VPH	Part 360-Expanded (Full List)	Aquatic Tox.
Halog.only	NJDEP list	App. IX	Chlordane	Indiv. Metals	Air TICs	NYCDEP Sewer	TOC
App.IX list	SPLP or TCLP	TCLP BNA	608 Pest	LIST Below	Methane	NYSDEC Sewer	Asbestos
8021B list		SPLP or TCLP	608 PCB		Helium	TAGM	Silica

Simple Excel ___
NYSDEC EQuIS ___
EQuIS (std) ___
EZ-EDD (EQuIS) ___
NJDEP SRP HazSite EDD ___
GIS/KEY (std) ___
Other ___
York Regulatory Comparison
Excel Spreadsheet ___
Compare to the following Regs. (please fill in):

Sample Identification	Date/Time Sampled	Sample Matrix	Choose Analyses Needed from the Menu Above and Enter Below	Container Description(s)
SB1(3-5)	8/14/14 1050	S	TCL VOCs / TCL SVOCs / TAL Metals / 8082 / 8081	4-40ml VIALS & 1-8oz JAR
SB3(5-8)	8/14/14 1525	S	↓	4-40ml VIALS, 1-8oz JAR
SB3(15-20)	8/14/14 1610	S	↓	4-40ml VIALS 1-8oz JAR
SB2(3-5)	8/15/14 1055	S	↓	4-40ml VIALS, 1-( ) JAR
SB2(12-14)	8/15/14 1130	S	↓	4-40ml VIALS 1-8oz JAR
SB3(0-4)	8/15/14 1400	S	↓	4-40ml VIALS 1-8oz JAR

Comments

Preservation Check those Applicable: 4°C X Frozen X HCl X MeOH ___ HNO3 ___ H2SO4 ___ NaOH ___ ZnAc ___ Ascorbic Acid ___ 10/[illegible]

Special Instructions

Field Filtered ☐
Lab to Filter ☐

Samples Relinquished By: [signature] Date/Time: 8/19/14 1040

Samples Received By: [signature] Date/Time: 8/19/14 1040 hrs

Samples Relinquished By: ___ Date/Time: ___

Samples Received in LAB by: [signature] Date/Time: 8/19/14 1745

Temperature on Receipt: 3.0°C

HEALTH AND SAFETY PLAN

PREPARED FOR

64-02 & 64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

PREPARED BY

FPM group™
909 MARCONI AVENUE
RONKONKOMA, NEW YORK 11779

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APPENDICES

A Material Safety Data Sheets

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SECTION 1.0
INTRODUCTION

This Health and Safety Plan (HASP) has been written for compliance with "OSHA Hazardous Waste Operations Standards (29 CFR 1910.120)", OSHA Construction Standard 29 CFR 1926, the guidance documents, "Standard Operating Safety Guidelines (Office of Solid Waste and Emergency Response, 1988)" and the "Occupational Safety and Health Guidance Manual for Hazardous Waste Activities" (U.S. Department of Health and Human Services, 1985).

1.1 Scope and Applicability of the HASP

This HASP is designed to be applicable to locations where activities associated with the sampling of groundwater, soil, and soil vapor are performed at or in proximity to the Site. This HASP may also be modified or amended to meet specific needs of the work proposed. This HASP will detail the Site safety procedures, Site background, and safety monitoring. Contractors will be required to adopt this HASP in full.

The Health and Safety Officer (HSO) will be present at the Site to inspect the implementation of the HASP; however, it is the sole responsibility of the contractor(s) to comply with the HASP.

The HASP has been formulated as a guide to complement professional judgment and experience. The appropriateness of the information presented should always be evaluated with respect to unforeseen Site conditions which may arise.

1.2 Site Work Zone and Visitors

The Site work zone (a.k.a. exclusion zone) during groundwater, soil, and soil vapor sampling activities will be a 30-foot radius about the work location. This work zone may be extended if, in the judgment of the health and safety officer (HSO), Site conditions warrant a larger work zone.

No visitors will be permitted within the work zone without the consent of the HSO. All visitors will be required to be familiar with, and comply with, the HASP. The HSO will deny access to those whose presence within the work zone is unnecessary or those who are deemed by the HSO to be in non-compliance with the HASP.

All Site workers including the contractors will be required to have 40-hour hazardous material training (eight-hour refresher courses annually), respirator fit test certification, and medical surveillance as stated in 29 CFR 1910.120.

The HSO will also give an on-Site health and safety discussion to all Site personnel, including the contractors, prior to initiating the Site work. Workers not in attendance during the health and safety talk will be required to have the discussion with the HSO prior to entering the work zone.

Emergency telephone numbers and directions to the nearest hospital are found in Table 1.2.1.

TABLE 1.2.1
EMERGENCY TELEPHONE NUMBERS

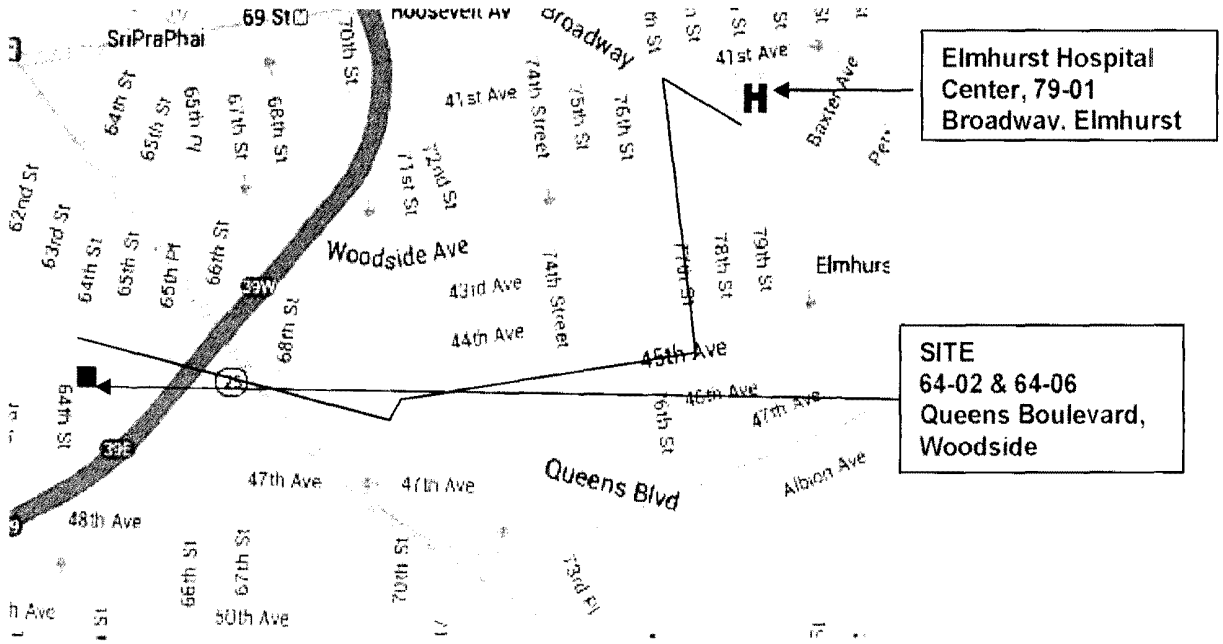
Police	911
Ambulance	911
Poison Control Center	212-764-7667
New York State Spills Hotline	800-457-7362
Elmhurst Hospital Center	718-334-4000

FPM Contact Personnel (Office: 631-737-6200)

Dr. Kevin J. Phillips, P.E.	Cell # 631-374-6066
Ben Cancemi, Project Manager and Health and Safety Officer	Cell # 516-383-7106
Stephanie Davis, Project Coordinator, QA/QC Officer	Cell # 516-381-3400
George Holmes, Alternate Health & Safety Officer	Cell # 631-512-1077

Directions to Elmhurst Hospital Center (718-334-4000)

Turn right from the north side of the Site onto Queens Boulevard and head east about one-half mile to 45th Avenue. Turn left onto 45th Avenue and continue east approximately one-half of a mile to 77th Street. Turn left onto 77th Street and continue north approximately one-quarter mile to Broadway. Turn right onto Broadway and continue approximately one-tenth mile. Elmhurst Hospital Center will be on the left.



SECTION 2.0
KEY PERSONNEL AND RESPONSIBILITIES

The project manager and field activities manager for this project will be Ben Cancemi. Mr. Cancemi will also be the primary HSO. The project field staff may include Stephanie Davis, John Bukoski, and/or George Holmes. Contractor personnel may also be on Site. In the event that Mr. Cancemi is not onsite, the senior FPM staff member onsite will act as HSO and will report to the project manager. Contractor personnel will be provided with health and safety information by the HSO.

SECTION 3.0
SITE BACKGROUND

3.1 Site History and Potential Chemical Constituents at the Site

The Site is located at 64-02 & 64-06 Queens Boulevard, Woodside, New York. There is a vacant approximately 11,000-square-foot one-story commercial building and associated asphalt-paved parking lot at the site. The site is e-designated for hazardous materials. Groundwater, soil, and/or soil vapor at the Site may be impacted with petroleum-related chemicals, the volatile organic compounds (VOCs) acetone, methylene chloride, tetrachloroethene (PCE), trichloroethene (TCE), and the metals cadmium, copper, lead, nickel, and zinc. See Table 3.1.1 below for a list of typical petroleum chemicals and VOCs with threshold limit values.

TABLE 3.1.1
PRIMARY CHEMICALS WITH THRESHOLD LIMIT VALUES
64-02 & 64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

Contaminant	Short Term Exposure Limit (STEL) 15 Minutes	Time-Weighted Average Eight-Hour Exposure Limit
Acetone	1,000 ppm	750 ppm
Benzene	5 ppm	1 ppm
Ethylbenzene	125 ppm	100 ppm
Methylene chloride	125 ppm	25 ppm
o-Xylene	150 ppm	100 ppm
m,p-Xylene	150 ppm	100 ppm
Tetrachloroethene	100 ppm	100 ppm
Toluene	150 ppm	100 ppm
Trichloroethene	200 ppm	100 ppm

SECTION 4.0
TASK/OPERATION HEALTH AND SAFETY ANALYSIS

This section will present health and safety analyses for the groundwater, soil, and soil vapor sampling activities.

4.1 Safety Analysis

Sampling activities will generally be performed by FPM personnel, although contractors will be utilized to provide access to the subsurface with the use of heavy equipment such as direct-push rigs. Safety concerns will include risk of injury due to being struck by equipment, being trapped between moving equipment parts, being struck by dropped materials, and hearing damage due to equipment noise. Site personnel will take precautions against these risks when working in the vicinity of heavy equipment by being aware of equipment locations and movement, by wearing steel-toed boots and hard hats, and by using hearing protection, if necessary. Site personnel who have not previously worked in the vicinity of heavy equipment will be paired with an experienced person for at least one day to familiarize themselves with heavy equipment operations and safety procedures.

A calibrated photoionization detector (PID) will be used to monitor VOCs in the worker's breathing zone during performance of soil borings. Steady-state PID readings greater than 10 ppm in the worker's breathing zone will require upgrading to Level C personal protective equipment. The NYC OER will be notified if there is a need to upgrade to Level C protection. Steady-state readings, for this purpose, will be defined as readings between 10 and 20 parts per million (ppm) above background for a minimum of ten seconds. Readings will be obtained at points approximately one foot above and then around the borehole. These points will define the worker's breathing zone. Level C personal protection, if implemented, will include full-face air-purifying respirators with dust and organic vapor cartridges (personal protective equipment will be7 described in greater detail in Section 7.0). All FPM personnel and contractors must be properly trained and fit tested prior to donning respirators.

Upon encountering PID levels greater than 20 ppm above background in the worker's breathing zone, work will stop until the source of vapors is abated and readings are less than 20 ppm above background. If, at any time, PID readings exceed steady-state levels greater than 50 ppm above background, or any conditions exist which the HSO determines will require Level B personal protective equipment, all work at the Site will cease immediately and all personnel will evacuate the work zone. Evacuation will occur in the upwind direction if discernable. Level B conditions are not anticipated to be encountered; however, if level B conditions arise, no Site work will be performed by FPM or contractors and a complete evaluation of the operation will be performed and this HASP will be modified.

All personnel who may directly contact soil or groundwater will be required to wear chemical-resistant gloves (such as butyl or nitrile) when the potential for dermal contact with the soil or groundwater is possible. Dermal contact with Site soil or groundwater will be avoided.

Hard hats and steel-toe, steel-shank safety boots will be required when work is performed in the vicinity of heavy equipment.

4.2 Other Safety Considerations

4.2.1 Noise

During sampling activities, operation of a direct push rig, or any other operation which may generate potentially harmful levels of noise, the HSO will monitor noise levels with a Realistic[tm] hand-held sound level meter. Noise levels will be monitored in decibels (dBs) in the A-weighted, slow-response mode. Noise level readings that exceed the 29 CFR 1910.95 permissible noise exposure limits will require hearing protection (see Table 4.2.1.1 for permissible noise exposures).

Hearing protection will be available to all Site workers. The hearing protection will consist of foam, expansion-fit earplugs (or other approvable hearing protection) with an Environmental Protection Agency noise reduction rating of at least 29 dB. Hearing protection must alleviate worker exposure to noise to an eight-hour time-weighted average of 85 dB or below. In the event that the hearing protection is inadequate, work will cease until a higher level of hearing protection can be incorporated.

TABLE 4.2.1.1
PERMISSIBLE NOISE EXPOSURES*

Duration Per Day Hours	Sound Level dBA Slow Response
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25	115

Notes:

When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: $C_1/T_1+C_2/T_2$ C_6/T_6 exceeds unity, then, the mixed exposure should be considered to exceed the limit value. Cn indicates the total time of exposure at a specified noise level, and Tn indicates the total time of exposure permitted at that level.

Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

*Standards derived from 29 CFR 1910.95

4.2.2 Slip/Trip/Fall Preventative Measures

To reduce the potential for slipping, tripping, or falling, the work zone will be kept clear of unnecessary equipment. All Site workers will be required to wear work boots with adequate tread to reduce the potential for slipping (work boots must be leather or chemical-resistant and contain steel toes and steel shanks).

4.2.3 Insects and Ticks

Insect and tick problems are expected to be minimal. Potential insect problems include, but are not limited to, bees, wasps, and hornets. Prior to commencement of work, each work area will be surveyed for nests and hives to reduce the possibility of disturbing these insects. In addition, each Site worker will be asked to disclose any allergies related to insect stings or bites. The worker will be requested to keep his or her anti-allergy medicine on Site.

Tick species native to Long Island consist of the pinhead-sized deer tick and the much-larger dog tick. Ticks are not anticipated at the Site due to the paucity of suitable habitat.

4.2.4 Heat/Cold Stress

Heat stress may become a concern, especially if protective clothing is donned that will decrease natural ventilation. To assist in reducing heat stress the following measures will be taken:

- An adequate supply of water or other liquids will be brought on Site. To prevent dehydration, personnel will be encouraged to drink generous amounts of water even if not thirsty.
- A shady rest area will be designated to provide shelter during sunny days.
- In hot weather, workers wearing protective clothing may be rotated.

When the temperature is over 70 degrees Fahrenheit and personnel are wearing protective clothing, heat stress monitoring may be implemented as follows:

- Heart rate may be measured by counting the radial pulse for 30 seconds at the beginning of the rest period. The heart rate should not exceed 110 beats per minute. If the rate is higher, the next work period will be shortened by ten minutes (or 33%). If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle will be shortened by 33%. The HSO will decide on the length of work periods and rest periods based on Site conditions.
- Body temperature may be measured, if deemed necessary, at the beginning of the rest period. Oral temperature should not exceed 99 degrees Fahrenheit. If it does, the next work period will be shortened by ten minutes (or 33%). However, if the oral temperature exceeds 99.7 degrees Fahrenheit at the beginning of the next period, the following work cycle will be further shortened by 33%. Work will not re-commence until by temperature has dropped below 99 degrees Fahrenheit.

Indications of heat stress range from mild (fatigue, irritability, anxiety, decreased concentration, dexterity or movement) to fatal. Medical help will be obtained for serious conditions. Heat-related problems are:

- Heat rash: caused by continuous exposure to heat and humid air and aggravated by chafing clothes. Decreases ability to tolerate heat as well as being a nuisance.

- Heat cramps: caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially salts). Signs: muscle spasm and pain in the extremities and abdomen.

- Heat exhaustion: caused by increased stress on various organs to meet increased demands to cool the body. Signs: shallow breathing; pale, cool, moist skin; profuse sweating; dizziness and lassitude.

- Heat stroke: the most severe form of heat stress. Can be fatal. Medical help must be obtained immediately. Body must be cooled immediately to prevent severe injury and/or death. Signs: red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

Cold exposure is a concern if work is conducted during cold weather or marginally cold weather during precipitation periods or moderate to high wind velocity periods. To assist in reducing cold exposure the following measures will be taken:

- All personnel will be required to wear adequate and appropriate clothing. This will include head gear to prevent the high percentage loss of heat that occurs in this area (thermal liners for hard hats if hard hats are required).

- Provide a readily available warm shelter near each work zone.

- Carefully schedule work and rest periods to account for the current temperature and wind velocity conditions.

- Monitor work patterns and physical condition of workers and rotate personnel, as necessary.

Indications of cold exposure range from shivering, dizziness, numbness, confusion, weakness, impaired judgment, impaired vision to drowsiness. Medical help will be obtained for serious conditions if they occur. Cold exposure-related problems are:

- Frost bite: Ice crystal formation in body tissues. The restricted blood flow to the injured part results in local tissue destruction.

- Hypothermia: Severe exposure to cold temperature resulting in the body losing heat at a rate faster than the body can generate heat. The stages of hypothermia are shivering, apathy, loss of consciousness, decreasing pulse rate and breathing rate and death.

4.2.5 Potential Electrical Hazards

Potential electric hazards consist primarily of underground and overhead power lines. Potential underground electrical hazards will be minimized by having a utility markout performed for both onsite and offsite activities. In addition, available as-built Site blueprints will be used to avoid contact with subsurface utility lines or structures. Overhead electrical hazards will be evaluated by visually observing the work location prior to performing operations which have the potential to contact overhead utilities. No work shall be performed in close proximity to overhead utilities.

4.2.6 The Buddy System

All activities in contaminated or potentially contaminated areas will be conducted by pairing off the Site workers in groups of two (or three if necessary). Each person (buddy) will be able to:

- Provide his or her partner with assistance.
- Observe his or her partner for signs of chemical or heat exposure.
- Periodically check the integrity of his or her partner's protective clothing.
- Notify the HSO or others if emergency help is needed.

The buddy system will be instituted at the beginning of each workday. If new workers arrive on Site, a buddy will be chosen prior to the new worker entering the work zone.

4.2.7 Site Communications

Two sets of communication systems will be established at the Site: internal communication among personnel on-Site, and external communication between on-Site and off-Site personnel.

Internal communication will be used to:

- Alert team members to emergencies.
- Pass along safety information such as heat stress check, protective clothing check, etc.
- Communicate changes in the work to be accomplished.
- Maintain Site control.

Due to ambient noise, verbal communications may be difficult at times. The HSO will carry a whistle (and compressed air horn if respirators are donned) to signal Site workers. A single whistle blast will be the signal to immediately evacuate the work zone through the access control point. This signal will be discussed with all Site workers prior to commencement of work.

An external communication system between on-Site and off-Site personnel will be established to:

- Coordinate emergency response
- Report to the Project Manager
- Maintain contact with essential off-Site personnel

A field telephone will be available at all times in the HSO's vehicle. In addition, the nearest alternate phone will be identified prior to the commencement of Site operations and this location will be relayed to all Site workers.

4.2.8 General Safe Work Practices

Standing orders applicable during Site operations are as follows:

- No smoking, eating, drinking, or application of cosmetics in the work zone.
- No matches or lighters in the work zone.
- All Site workers will enter/exit work zone through the Site access point.
- Any signs of unusual conditions will require reporting the information to the HSO, who will take appropriate action.
- Loose fitting clothing or loose long hair will be prohibited in the work zone during direct push or concrete coring operations.
- A signal person will direct the backing of work vehicles.
- Equipment operators will be instructed to check equipment for abnormalities such as oozing liquids, frayed cables, unusual odors, etc.

SECTION 5.0
PERSONNEL TRAINING REQUIREMENTS

All FPM personnel and contractor personnel will receive adequate training prior to entering the Site. FPM and contractor's personnel will, at a minimum, have completed OSHA-approved, 40-hour hazardous materials Site safety training and OSHA-approved, eight-hour safety refresher course within one year prior to commencing field work. The HSO will have received the OSHA-approved, eight-hour course on managing hazardous waste operations. In addition, each worker must have a minimum of three days field experience under the direct supervision of a trained, experienced supervisor.

Prior to Site fieldwork, the HSO will conduct an in-house review of the project with respect to health and safety with all FPM personnel who will be involved with fieldwork at the Site. The review will include discussions of signs and symptoms of chemical exposure and heat/cold stress that indicate potential medical emergencies presented in Table 5.1. In addition, review of personal protective equipment will be conducted to include the proper use of air-purifying respirators.

Persons receiving the project review/HASP training will sign the HASP acknowledgement form included at the end of this section. The completed form will serve as documentation of the project review/HASP training.

TABLE 5.1
SIGNS AND SYMPTOMS OF EXPOSURE TO CHEMICALS

Type of Hazard	Signs and Symptoms	
Chemical Hazard	Behavioral changes Breathing difficulties Changes in complexion of skin color Confusion Coordination difficulties Coughing Depression Dermatitis Dilated Pupils Dizziness Euphoria Fatigue and/or weakness Flushed face and/or neck Insomnia Irregular heartbeat Irritability	Irritation of eyes, nose, respiratory tract, skin or throat Headache Lacrimation Light-Headedness Muscle Fatigue Nausea Nervousness Numbness in limbs Paresthesia Sleepiness Tingling Tremors Vertigo Visual disturbance Vomiting
Heat Exhaustion	Clammy skin Confusion Dizziness Fainting Fatigue Heat rash	Light-headedness Nausea Profuse sweating Slurred speech Weak pulse
Heat Stroke (may be fatal)	Confusion Convulsions Hot skin, high temperature (yet may feel chilled) Incoherent speech	Staggering gait Sweating stops (yet residual sweat may be present) Unconsciousness

SITE WORKER
HEALTH AND SAFETY TRAINING ACKNOWLEDGMENT

I have read this Health and Safety Plan (HASP) and received training for the Phase II investigation at the 64-02 & 64-06 Queens Boulevard, Woodside, NY Site (the Site) and I have reviewed and understand the potential hazards and the precautions/contingencies of each potential hazard.

I agree to abide by the stipulations of this HASP and further agree to hold FPM Group harmless from, and indemnify against, any accidents which may occur as a result of activities at the Site, regardless of whether or not they were covered in the HASP.

Name: _____ Representing: _____

Sign: _____ Date: _____

Name: _____ Representing: _____

Sign: _____ Date: _____

Name: _____ Representing: _____

Sign: _____ Date: _____

Name: _____ Representing: _____

Sign: _____ Date: _____

Name: _____ Representing: _____

Sign: _____ Date: _____

SECTION 6.0
MEDICAL SURVEILLANCE PROGRAM

All workers at the Site must participate in a medical surveillance program in accordance with 29 CFR 1910.120. A medical examination and consultation must have been performed within the last twelve months to be eligible for fieldwork.

The content of the examination and consultation will include a medical and work history with special emphasis on symptoms related to the handling of hazardous substances, health hazards, and fitness for duty including the ability to wear required personal protective equipment under conditions (i.e., temperature extremes) that may be expected at the work Site. All medical examinations and procedures shall be performed by, or under the supervision of, a licensed physician.

The physician shall furnish a written opinion containing:

- The results of the medical examination and tests.
- The physician's opinion as to whether the employee has any detected medical conditions that would place the worker at increased risk of material impairment of the employee's health from work in hazardous waste operations.
- The physician's recommended limitations upon the worker assigned to the work.
- A statement that the worker has been informed by the physician of the results of the medical examination and any further examination or treatment.

An accurate record of the medical surveillance will be retained. The record will consist of at least the following information:

- The name and social security number of the employee.
- Physician's written opinions, recommended limitations, and results of examinations and tests.
- Any worker medical complaints related to exposure to hazardous substances.

SECTION 7.0
PERSONAL PROTECTIVE EQUIPMENT

7.1 General Considerations

The two basic objectives of the personal protective equipment (PPE) are to protect the wearer from safety and health hazards, and to prevent the wearer from incorrect use and/or malfunction of the PPE.

Potential Site hazards were discussed previously in Section 4.0. The duration of Site activities is estimated to be approximately four weeks. All work is expected to be performed during daylight hours and workdays, in general, are expected to be eight hours in duration.

Personal protection levels for the Site activities, based on investigations of nearby properties, are anticipated to be Level D with the unlikely possibility of upgrading to Level C. The equipment included for each level of protection is provided as follows:

Level C Protection

Personnel protective equipment:

- Air-purifying respirator, full-face, equipped with dust and organic vapor cartridges.
- Chemical-resistant clothing includes: Tyvek^{tm} (spunbonded olefin fibers) for particulate and limited splash protection or Saranex^{tm} (plastic film-laminated Tyvek) for permeation resistance to solvents.
- Coveralls*, or
- Long cotton underwear*
- Gloves (outer), chemical-resistant
- Gloves (inner), chemical-resistant
- Boots (outer), leather or chemical-resistant, steel toe and shank.
- Boot covers (outer), chemical-resistant (disposable)*
- Hard hat (face shield)*
- Escape mask*
- 2-way radio communications (intrinsically safe)*

(*) optional

Criteria for Selection of Level C Protection

Meeting all of these criteria permits use of Level C Protection:

- Oxygen concentrations are not less than 19.5% by volume.
- Measured air concentrations of identified substances will be reduced by the respirator below the substance's threshold limit value (TLV).
- Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any body area left unprotected by chemical-resistant clothing.
- Job functions do not require self-contained breathing apparatus.
- Direct readings are below 50 ppm on the PID.

Level D Protection

Personnel protective equipment:

- Coveralls
- Gloves*
- Boots/shoes, leather or chemical-resistant, steel toe and shank.
- Safety glasses or chemical splash goggles*
- Hard hat (face shield*)
- Escape mask*

(*) optional

Criteria for Selection of Level D Protection

Meeting any of these criteria allows use of Level D Protection:

- No contaminant levels above 5 ppm organic vapors or dusty conditions are present.
- Work functions preclude splashes, immersion, or the reasonable potential for unexpected inhalation of any chemicals above the TLV.

Additional Considerations for Selecting Levels of Protection

Other factors which will be considered in selecting the appropriate level of protection are heat and physical stress. The use of protective clothing and respirators increases physical stress, in particular, heat stress on the wearer. Chemical protective clothing greatly reduces natural ventilation and diminishes the body's ability to regulate its temperature. Even in moderate ambient temperatures, the diminished capacity of the body to dissipate heat can result in one or more heat-related problems.

All chemical protective garments can be a contributing factor to heat stress. Greater susceptibility to heat stress occurs when protective clothing requires the use of a tightly fitted hood against the respirator face piece, or when gloves or boots are taped to the suit. As more body area is covered, less cooling takes place, increasing the probability of heat stress.

Wearing protective equipment also increases the risk of accidents. It is heavy, cumbersome, decreases dexterity, agility, interferes with vision, and is fatiguing to wear. These factors all increase physical stress and the potential for accidents. In particular, the necessity of selecting a level of protection will be balanced against the increased probability of heat stress and accidents.

7.2 Donning and Doffing Ensembles

Donning an Ensemble

A routine will be established and practiced periodically for donning a Level C ensemble. Assistance may be provided for donning and doffing since these operations are difficult to perform alone. Donning will be completed in the decontamination zone.

Table 7.2.1 lists sample procedures for donning a Level C ensemble. These procedures should be modified depending on the particular type of suit and/or when extra gloves and/or boots are used.

Doffing an Ensemble

Exact procedures for removing Level C ensembles must be established and followed to prevent contaminant migration from the work area and transfer of contaminants to the wearer's body, the doffing assistant, and others. Doffing will be completed in the decontamination zone.

Doffing procedures are provided in Table 7.2.2. These procedures should be performed only after decontamination of the suited worker. They require a suitably attired assistant. Throughout the procedures, both worker and assistant should avoid any direct contact with the outside surface of the suit.

7.3 Respirator Fit Testing

The fit or integrity of the facepiece-to-face seal of a respirator affects its performance. Most facepieces fit only a certain percentage of the population; thus each facepiece must be tested on the potential wearer in order to ensure a tight seal. Facial features such as scars, hollow temples, very prominent cheekbones, deep skin creases, dentures or missing teeth, and the chewing of gum and tobacco may interfere with the respirator-to-face seal. Facial hair in the seal area may also interfere with the respirator-to-face seal and should be removed prior to entry into the work zone. A respirator shall not be worn when such conditions prevent a good seal. The worker's diligence in observing these factors shall be evaluated by periodic checks. Fit testing will comply with 29 CFR 1910.1025 regulations.

TABLE 7.2.1
SAMPLE DONNING PROCEDURES

1. Inspect the clothing and respiratory equipment before donning (see Inspection in subsection 7.4).

2. Adjust hard hat or headpiece if worn, to fit user's head.

3. Standing or sitting, step into the legs of the suit; ensure proper placement of the feet within the suit; then gather the suit around the waist.

4. Put on chemical-resistant safety boots over the feet of the suit. Tape the leg cuff over the tops of the boots.

5. Don the respirator and adjust it to be secure, but comfortable.

6. Perform negative and positive respirator facepiece seal test procedures.

   - To conduct a negative-pressure test, close the inlet part with the palm of the hand or squeeze the breathing tube so it does not pass air, and gently inhale for about 10 seconds. Any inward rushing of air indicates a poor fit. Note that a leaking facepiece may be drawn tightly to the face to form a good seal, giving a false indication of adequate fit.

   - To conduct a positive-pressure test, gently exhale while covering the exhalation valve to ensure that a positive pressure can be built up. Failure to build a positive pressure indicates a poor fit.

7. Depending on type of suit:

   - Put on inner gloves (surgical gloves).

   - Additional overgloves, worn over attached suit gloves, may be donned later.

8. Put on hard hat

9. Have assistant observe the wearer for a period of time to ensure that the wearer is comfortable, psychologically stable, and that the equipment is functioning properly.

TABLE 7.2.2
DOFFING PROCEDURES

1. Remove any extraneous or disposable clothing, boot covers, outer gloves, and tape.

2. Remove respirator by loosening straps and pulling straps over the top of the head and move mask away from head. Do not pull mask over the top of the head.

3. Remove arms, one at a time, from suit, avoiding any contact between the outside surface of the suit and wearer's body and lay the suit out flat behind the wearer. Leave internal gloves on, if any.

4. Sitting, if possible, remove both legs from the suit.

5. After suit is removed, remove internal gloves by rolling them off the hand, inside out.

7.4 Inspection

The PPE inspection program will entail five different inspections:

- Inspection and operational testing of equipment received from the factory or distributor.
- Inspection of equipment as it is issued to workers.
- Inspection after use.
- Periodic inspection of stored equipment.
- Periodic inspection when a question arises concerning the appropriateness of the selected equipment, or when problems with similar equipment arise.

The inspection checklist is provided in Table 7.4.1. Records will be kept of all inspection procedures. Individual identification numbers will be assigned to all reusable pieces of equipment and records should be maintained by that number. At a minimum, each inspection should record the ID number, date, inspector, and any unusual conditions or findings. Periodic review of these records may indicate an item or type of item with excessive maintenance costs or a particularly high level of down-time.

7.5 Storage

Clothing and respirators will be stored properly to prevent damage or malfunction due to exposure to dust, moisture, sunlight, damaging chemicals, extreme temperatures, and impact. Storage procedures are as follows:

TABLE 7.4.1
PPE INSPECTION CHECKLIST

CLOTHING

Before use:

- Determine that the clothing material is correct for the specified task at hand.
- Visually inspect for:
  - imperfect seams
  - non-uniform coatings
  - tears
  - malfunctioning closures
- Hold up to light and check for pinholes.
- Flex product:
  - observe for cracks or other signs of shelf deterioration
- If the product has been used previously, inspect inside and out for signs of chemical attack:
  - discoloration, swelling, stiffness

During the work task, periodically inspect for:

- Evidence of chemical attack such as discoloration, swelling, stiffening, and softening. Keep in mind, however, that chemical permeation can occur without any visible effects.
- Closure failure
- Tears
- Punctures
- Seam discontinuities

GLOVES

Before use:

- Pressurize glove to check for pinholes. Either blow into glove, then roll gauntlet toward fingers or inflate glove and hold under water. In either case, no air should escape.

AIR-PURIFYING RESPIRATORS

- Inspect air-purifying respirators:
  - before each use to be sure they have been adequately cleaned
- Check material conditions for:
  - signs of pliability, deterioration, distortion
- Examine cartridges to ensure that:
  - they are the proper type for the intended use
  - the expiration date has not been passed
  - they have not been opened or used previously
- Check faceshields and lenses for:
  - cracks, crazing, fogginess
- Air purifying respirators will be stored individually in resealable plastic bags.

Clothing:

- Potentially contaminated clothing will be stored in an area separate from street clothing.
- Potentially contaminated clothing will be stored in a well-ventilated area, with good air flow around each item, if possible.
- Different types and material of clothing and gloves will be stored separately to prevent issuing the wrong material by mistake.
- Protective clothing will be folded or hung in accordance with manufacturer's recommendations.

Respirators:

- Air-purifying respirators should be dismantled, washed, and placed in sealed plastic bags.

7.6 Maintenance

Specialized maintenance will be performed only by the factory or an authorized repair person. Routine maintenance, such as cleaning, will be performed by the personnel to whom the equipment is assigned. Respirators will be cleaned at the end of each day with alcohol pads or, preferably, by washing with warm soapy water.

7.7 Decontamination Methods

All personnel, clothing, equipment, and samples leaving the (potentially) contaminated, or work zone, area of the Site must be decontaminated to remove any harmful chemicals or infectious organisms that may have adhered to them. Decontamination methods either (1) physically remove contaminants (2) inactivate contaminants by chemical detoxification or disinfection/sterilization, or (3) remove contaminants by a combination of both physical and chemical means. In many cases, gross contamination can be removed by physical means involving dislodging/displacement, rinsing, wiping off, and evaporation. Contaminants that can be removed by physical means include dust, vapors, and volatile liquids. All reusable equipment will be decontaminated by rinsing in a bath of detergent and water (respirators, gloves to be reused). Monitoring equipment will be decontaminated by wiping with paper towels and water.

The effectiveness of the decontamination will be evaluated near the beginning of Site activities and will be modified if determined to be ineffective. Visual observation will be used for this purpose. The HSO will inspect decontaminated materials for discoloration, stains, corrosive effects, visible dirt, or other signs of possible residual contamination.

All disposable PPE will be discarded following use. All used PPE to be discarded will be placed in an appropriate receptacle for disposal.

SECTION 8.0
DECONTAMINATION PROCEDURES FOR SAMPLING EQUIPMENT

All non-dedicated sampling equipment shall be decontaminated prior to, and following, use at each sampling location. Decontamination procedures shall consist of the following:

1. Scrub equipment in a bath of low-phosphate detergent and potable water.

2. Potable water rinse.

3. Air dry.

4. Aluminum foil wrap, shiny side out, for transport.

Personal protective equipment decontamination has been discussed in Subsection 7.7.

All direct-push equipment and other equipment which has contacted Site soil, groundwater, or soil vapor will be decontaminated prior to leaving the Site. Decontamination of this equipment will consist of physically removing adhering soil using hand tools followed by rinsing the equipment with potable water. Decontamination will be performed in the immediate vicinity of the work area so that the removed soil and rinseate will be discharged in the area from which it originated.

SECTION 9.0
CALIBRATION PROCEDURES, FREQUENCIES, AND MAINTENANCE

This section summarizes the calibration procedures, frequencies, and maintenance for the health and safety field monitoring instruments. The manufacturer's owner's manuals for all monitoring equipment to be used will be present at the Site and will be followed.

The monitoring equipment will include a photoionization detector (PID) which measures the concentration of airborne ionizable gases and vapors. The PID does not distinguish between individual compounds and will not read methane. The PID calibration will be performed using ambient air to "zero" the instrument and a 95 to 100 ppm cylinder of isobutylene to calibrate the span. The calibration will be performed in accordance with the manufacturer's instructions.

Additional monitoring instruments may include a dust monitor, a noise monitor, and other equipment, as necessary. All instruments will be calibrated prior to the commencement of each day's work in accordance with the manufacturer's instructions. The instruments will also be charged overnight prior to each day's work. Maintenance will be performed periodically as needed and in accordance with the manufacturer's instructions.

SECTION 10.0
EMERGENCY RESPONSE PLAN

This section will present the Emergency Response Plan (ERP) for the Site. Pre-emergency planning will consist of reviewing the ERP with all workers at the Site prior to initiation of work.

Personnel Roles

It is anticipated that during sampling activities at the Site several persons, including the HSO and contractor personnel, will be onsite. Should an emergency situation arise at the Site, the HSO will assume control and decision-making. The HSO will also resolve all disputes concerning health and safety requirements and precautions. The HSO will also:

- Be authorized to seek and purchase supplies as necessary.
- Have control over activities of everyone entering the Site.

The HSO will communicate, by field telephone or other, with off-Site personnel to include the Project Manager to evaluate data and assist in the decision-making process. Phone numbers for the fire department, police, ambulance, poison control center, NYS Spills Hotlines, are listed in Table 1.2.1 of this document. The hospital which will be utilized during an emergency will be Elmhurst Hospital Center in Elmhurst. The directions to the hospital, along with the hospital's emergency room phone number are presented in Table 1.2.1. Copies of Table 1.2.1 will be available at the Site and will be placed in all vehicles of personnel involved in activities at the Site.

Internal communications will consist of a single whistle (or compressed air horn if Level C is donned) blast. This blast will signal all workers to evacuate the work zone by the nearest exit.

Response Follow-Up

Following an emergency, or incident, a detailed report will be generated by the HSO. All equipment will be restored to pre-emergency conditions. The HASP will be reviewed following an emergency to determine if it provides adequate information to assist in dealing with the emergency. The HASP may be revised to incorporate additional information as needed.

Emergency Recognition and Prevention

Before daily work assignments begin, each day a brief on-Site meeting will be held by the HSO which will address health and safety issues related to the day's work. Prior to initiation of work, a detailed on-Site health and safety meeting will be held to review all potential hazards, contingencies, and safety measures.

Safe Distances and Places of Refuge

The main potential cause of work zone evacuation is a significant vapor release. Vapor release evacuation will be discussed prior to subsurface activities at the Site and in general will be in the upwind direction. Wind direction will be monitored at each work location and all workers will be notified of the direction of evacuation prior to commencement of work. Safe distances will be discussed at each location and determined by the HSO. The PID will be used to determine if workers have evacuated a

sufficient distance.

At all times, vehicles which may be utilized in an emergency for transport to the hospital (or other destination) will have clear access to leave the Site. The HSO will assure that an emergency vehicle does not become blocked-in by other vehicles.

Site Security and Control

The HSO will control entry of personnel into the work zone. No unnecessary persons shall be permitted in the work zone.

Decontamination Procedures During Emergencies

In the event of a medical emergency, decontamination will be performed if it does not interfere with essential treatment. Decontamination will be performed by washing, rinsing, and/or cutting off protective clothing and equipment.

If decontamination cannot be performed, the victim will be wrapped in plastic to reduce contamination to other personnel. Emergency and off-Site medical personnel will be alerted to the potential contamination.

Emergency Medical Treatment and First Aid

Medical emergencies will be treated, in general, by medical experts by transporting the victim to the nearby hospital. A first aid kit will be present on Site for minor medical treatment.

APPENDIX A

MATERIAL SAFETY DATA SHEETS

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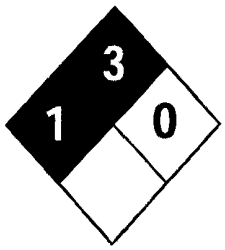
Chemicals & Laboratory Equipment



Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Acetone MSDS

Section 1: Chemical Product and Company Identification

Product Name: Acetone

Catalog Codes: SLA3502, SLA1645, SLA3151, SLA3808

CAS#: 67-64-1

RTECS: AL3150000

TSCA: TSCA 8(b) inventory: Acetone

CI#: Not applicable.

Synonym: 2-propanone; Dimethyl Ketone; Dimethylformaldehyde; Pyroacetic Acid

Chemical Name: Acetone

Chemical Formula: C3-H6-O

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Acetone	67-64-1	100

Toxicological Data on Ingredients: Acetone: ORAL (LD50): Acute: 5800 mg/kg [Rat]. 3000 mg/kg [Mouse]. 5340 mg/kg [Rabbit]. VAPOR (LC50): Acute: 50100 mg/m 8 hours [Rat]. 44000 mg/m 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED]. The substance is toxic to central nervous system (CNS). The substance may be toxic to kidneys, the reproductive system, liver, skin. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 465°C (869°F)

Flash Points: CLOSED CUP: -20°C (-4°F). OPEN CUP: -9°C (15.8°F) (Cleveland).

Flammable Limits: LOWER: 2.6% UPPER: 12.8%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Slightly explosive in presence of open flames and sparks, of oxidizing materials, of acids.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards: Vapor may travel considerable distance to source of ignition and flash back.

Special Remarks on Explosion Hazards:
Forms explosive mixtures with hydrogen peroxide, acetic acid, nitric acid, nitric acid + sulfuric acid, chromic anydride, chromyl chloride, nitrosyl chloride, hexachloromelamine, nitrosyl perchlorate, nitryl perchlorate, permonosulfuric acid, thiodiglycol + hydrogen peroxide, potassium ter-butoxide, sulfur dichloride, 1-methyl-1,3-butadiene, bromoform, carbon, air, chloroform, thitriazylperchlorate.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, acids, alkalis.

Storage:
Store in a segregated and approved area (flammables area) . Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Keep away from direct sunlight and heat and avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 500 STEL: 750 (ppm) from ACGIH (TLV) [United States] TWA: 750 STEL: 1000 (ppm) from OSHA (PEL) [United States] TWA: 500 STEL: 1000 [Austalia] TWA: 1185 STEL: 2375 (mg/m3) [Australia] TWA: 750 STEL: 1500 (ppm) [United Kingdom (UK)] TWA: 1810 STEL: 3620 (mg/m3) [United Kingdom (UK)] TWA: 1800 STEL: 2400 from OSHA (PEL) [United States]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Fruity. Mint-like. Fragrant. Ethereal

Taste: Pungent, Sweetish

Molecular Weight: 58.08 g/mole

Color: Colorless. Clear

pH (1% soln/water): Not available.

Boiling Point: 56.2°C (133.2°F)

Melting Point: -95.35 (-139.6°F)

Critical Temperature: 235°C (455°F)

Specific Gravity: 0.79 (Water = 1)

Vapor Pressure: 24 kPa (@ 20°C)

Vapor Density: 2 (Air = 1)

Volatility: Not available.

Odor Threshold: 62 ppm

Water/Oil Dist. Coeff.: The product is more soluble in water; log(oil/water) = -0.2

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, ignition sources, exposure to moisture, air, or water, incompatible materials.

Incompatibility with various substances: Reactive with oxidizing agents, reducing agents, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 3000 mg/kg [Mouse]. Acute toxicity of the vapor (LC50): 44000 mg/m3 4 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED]. Causes damage to the following organs: central nervous system (CNS). May cause damage to the following organs: kidneys, the reproductive system, liver, skin.

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May affect genetic material (mutagenicity) based on studies with yeast (S. cerevisiae), bacteria, and hamster fibroblast cells. May cause reproductive effects (fertility) based upon animal studies. May contain trace amounts of benzene and formaldehyde which may cancer and birth defects. Human: passes the placental barrier.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritation. May be harmful if absorbed through the skin. Eyes: Causes eye irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. Inhalation: Inhalation at high concentrations affects the sense organs, brain and causes respiratory tract irritation. It also may affect the Central Nervous System (behavior) characterized by dizzness, drowsiness, confusion, headache, muscle weakeness, and possibly motor incoordination, speech abnormalities, narcotic effects and coma. Inhalation may also affect the gastrointestinal tract (nausea, vomiting). Ingestion: May cause irritation of the digestive (gastrointestinal) tract (nausea, vomiting). It may also

affect the Central Nevous System (behavior), characterized by depression, fatigue, excitement, stupor, coma, headache, altered sleep time, ataxia, tremors as well at the blood, liver, and urinary system (kidney, bladder, ureter) and endocrine system. May also have musculoskeletal effects. Chronic Potential Health Effects: Skin: May cause dermatitis. Eyes: Eye irritation.

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 5540 mg/l 96 hours [Trout]. 8300 mg/l 96 hours [Bluegill]. 7500 mg/l 96 hours [Fatthead Minnow]. 0.1 ppm any hours [Water flea].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Acetone UNNA: 1090 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Benzene California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Benzene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Benzene, Formaldehyde Connecticut hazardous material survey.: Acetone Illinois toxic substances disclosure to employee act: Acetone Illinois chemical safety act: Acetone New York release reporting list: Acetone Rhode Island RTK hazardous substances: Acetone Pennsylvania RTK: Acetone Florida: Acetone Minnesota: Acetone Massachusetts RTK: Acetone Massachusetts spill list: Acetone New Jersey: Acetone New Jersey spill list: Acetone Louisiana spill reporting: Acetone California List of Hazardous Substances (8 CCR 339): Acetone TSCA 8(b) inventory: Acetone TSCA 4(a) final test rules: Acetone TSCA 8(a) IUR: Acetone

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R11- Highly flammable. R36- Irritating to eyes. S9- Keep container in a well-ventilated place. S16- Keep away from sources of ignition - No smoking. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References:
-Material safety data sheet issued by: la Commission de la SantÃ© et de la SÃ©curitÃ© du Travail du QuÃ©bec. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. LOLI, RTECS, HSDB databases. Other MSDSs

Other Special Considerations: Not available.

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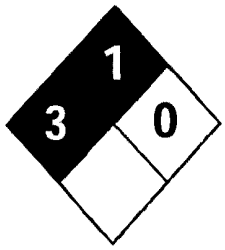

Health	3
Fire	1
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Cadmium MSDS

Section 1: Chemical Product and Company Identification

Product Name: Cadmium

Catalog Codes: SLC3484, SLC5272, SLC2482

CAS#: 7440-43-9

RTECS: EU9800000

TSCA: TSCA 8(b) inventory: Cadmium

CI#: Not applicable.

Synonym:

Chemical Name: Cadmium

Chemical Formula: Cd

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Cadmium	7440-43-9	100

Toxicological Data on Ingredients: Cadmium: ORAL (LD50): Acute: 2330 mg/kg [Rat.]. 890 mg/kg [Mouse]. DUST (LC50): Acute: 50 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, sensitizer), of eye contact (irritant). Severe over-exposure can result in death.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2 (Reasonably anticipated.) by NTP. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, lungs, liver. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact: No known effect on eye contact, rinse with water for a few minutes.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 570°C (1058°F)

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances:
Non-flammable in presence of open flames and sparks, of heat, of oxidizing materials, of reducing materials, of combustible materials, of moisture.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:
Material in powder form, capable of creating a dust explosion. When heated to decomposition it emits toxic fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Highly toxic or infectious materials should be stored in a separate locked safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.01 (ppm) Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Lustrous solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 112.4 g/mole

Color: Silvery.

pH (1% soln/water): Not applicable.

Boiling Point: 765°C (1409°F)

Melting Point: 320.9°C (609.6°F)

Critical Temperature: Not available.

Specific Gravity: 8.64 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water, methanol, diethyl ether, n-octanol.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Not considered to be corrosive for metals and glass.

Special Remarks on Reactivity: Reacts violently with potassium.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 890 mg/kg [Mouse]. Acute toxicity of the dust (LC50): 229.9 mg/m3 4 hour(s) [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2 (Reasonably anticipated.) by NTP. The substance is toxic to kidneys, lungs, liver.

Other Toxic Effects on Humans:
Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, sensitizer).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: An allergen. 0047 Animal: embryotoxic, passes through the placental barrier.

Special Remarks on other Toxic Effects on Humans: May cause allergic reactions, exzema and/or dehydration of the skin.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification:

Identification:

Special Provisions for Transport:

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Cadmium California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Cadmium Pennsylvania RTK: Cadmium Massachusetts RTK: Cadmium TSCA 8(b) inventory: Cadmium SARA 313 toxic chemical notification and release reporting: Cadmium CERCLA: Hazardous substances.: Cadmium

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R26- Very toxic by inhalation. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 1

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -Liste des produits purs tératogènes, mutagènes, cancérogènes. Répertoire toxicologique de la Commission de la Santé et de la Sécurité du Travail du Québec. -Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec. -SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangeureuses au canada. Centre de conformité internatinal Ltée. 1986.

Other Special Considerations: Not available.

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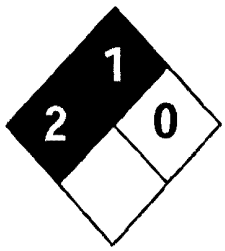

Health	2
Fire	1
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Copper MSDS

Section 1: Chemical Product and Company Identification

Product Name: Copper

Catalog Codes: SLC4939, SLC2152, SLC3943, SLC1150, SLC2941, SLC4729, SLC1936, SLC3727, SLC5515

CAS#: 7440-50-8

RTECS: GL5325000

TSCA: TSCA 8(b) inventory: Copper

CI#: Not available.

Synonym:

Chemical Name: Not available.

Chemical Formula: Cu

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Copper	7440-50-8	100

Toxicological Data on Ingredients: Copper LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of ingestion. Hazardous in case of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (irritant).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Not available.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe dust. Avoid contact with eyes Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If you feel unwell, seek medical attention and show the label when possible.

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 1 (mg/m3) from ACGIH [1990] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 63.54 g/mole

Color: Not available.

pH (1% soln/water): Not applicable.

Boiling Point: 2595°C (4703°F)

Melting Point: 1083°C (1981.4°F)

Critical Temperature: Not available.

Specific Gravity: 8.94 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: The substance is toxic to lungs, mucous membranes.

Other Toxic Effects on Humans:
Very hazardous in case of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Human: passes through the placenta, excreted in maternal milk.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Copper Massachusetts RTK: Copper TSCA 8(b) inventory: Copper CERCLA: Hazardous substances.: Copper

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R36- Irritating to eyes.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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MATERIAL SAFETY DATA SHEET

Gasoline, All Grades **MSDS No. 9950**

EMERGENCY OVERVIEW

DANGER!

EXTREMELY FLAMMABLE - EYE AND MUCOUS MEMBRANE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED - ASPIRATION HAZARD

NFPA 704 (Section 16)

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

1. CHEMICAL PRODUCT and COMPANY INFORMATION

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC (800)424-9300**
COMPANY CONTACT (business hours): Corporate Safety (732)750-6000
MSDS (Environment, Health, Safety) Internet Website www.hess.com

SYNONYMS: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS *

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Gasoline (86290-81-5)	100
Benzene (71-43-2)	0.1 - 4.9 (0.1 - 1.3 reformulated gasoline)
n-Butane (106-97-8)	< 10
Ethyl Alcohol (Ethanol) (64-17-5)	0 - 10
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Tertiary-amyl methyl ether (TAME) (994-05-8)	0 to 17.2
Toluene (108-88-3)	1 - 25
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 - 15

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol or MTBE and/or TAME).

Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

3. HAZARDS IDENTIFICATION

EYES
Moderate irritant. Contact with liquid or vapor may cause irritation.

SKIN
Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY
Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 - Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

4. FIRST AID MEASURES

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION

Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT:	-45 °F (-43°C)
AUTOIGNITION TEMPERATURE:	highly variable; > 530 °F (>280 °C)
OSHA/NFPA FLAMMABILITY CLASS:	1A (flammable liquid)
LOWER EXPLOSIVE LIMIT (%):	1.4%
UPPER EXPLOSIVE LIMIT (%):	7.6%

FIRE AND EXPLOSION HAZARDS

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain MTBE and/or TAME. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 "Low Expansion Foam - 1994 Edition."

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

******USE ONLY AS A MOTOR FUEL******
******DO NOT SIPHON BY MOUTH******

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

EXPOSURE LIMITS

Component (CAS No.)	Exposure Limits			
	Source	TWA (ppm)	STEL (ppm)	Note
Gasoline (86290-81-5)	ACGIH	300	500	A3
Benzene (71-43-2)	OSHA	1	5	Carcinogen
	ACGIH	0.5	2.5	A1, skin
	USCG	1	5	
n-Butane (106-97-8)	ACGIH	1000	--	Aliphatic Hydrocarbon Gases Alkane (C1-C4)
Ethyl Alcohol (ethanol) (64-17-5)	OSHA	1000	--	
	ACGIH	1000	--	A4
Ethyl benzene (100-41-4)	OSHA	100	--	
	ACGIH	100	125	A3
n-Hexane (110-54-3)	OSHA	500	--	
	ACGIH	50	--	Skin
Methyl-tertiary butyl ether [MTBE] (1634-04-4)	ACGIH	50		A3
Tertiary-amyl methyl ether [TAME] (994-05-8)				None established
Toluene (108-88-3)	OSHA	200		Ceiling: 300 ppm; Peak: 500 ppm (10 min.)
	ACGIH	20	--	A4
1,2,4- Trimethylbenzene (95-63-6)	ACGIH	25	--	
Xylene, mixed isomers (1330-20-7)	OSHA	100	--	
	ACGIH	100	150	A4

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as that made of of E.I. DuPont Tychem ®, products or equivalent is recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE

A translucent, straw-colored or light yellow liquid

ODOR
A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with MTBE and/or TAME may have a sweet, ether-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

ODOR THRESHOLD

	Odor Detection	Odor Recognition
Non-oxygenated gasoline:	0.5 - 0.6 ppm	0.8 - 1.1 ppm
Gasoline with 15% MTBE:	0.2 - 0.3 ppm	0.4 - 0.7 ppm
Gasoline with 15% TAME:	0.1 ppm	0.2 ppm

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	85 to 437 °F (39 to 200 °C)
VAPOR PRESSURE:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	AP 3 to 4
SPECIFIC GRAVITY (H_2O = 1):	0.70 – 0.78
EVAPORATION RATE:	10-11 (n-butyl acetate = 1)
PERCENT VOLATILES:	100 %
SOLUBILITY (H_2O):	Non-oxygenated gasoline - negligible (< 0.1% @ 77 °F). Gasoline with 15% MTBE - slight (0.1 - 3% @ 77 °F); ethanol is readily soluble in water

10. STABILITY and REACTIVITY)

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID
Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

INCOMPATIBLE MATERIALS
Keep away from strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY
Acute Dermal LD50 (rabbits): > 5 ml/kg
Acute Oral LD50 (rat): 18.75 ml/kg
Primary dermal irritation (rabbits): slightly irritating
Draize eye irritation (rabbits): non-irritating
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY
Carcinogenicity:OSHA: NO IARC: YES - 2B NTP: NO ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

This product may contain methyl tertiary butyl ether (MTBE): animal and human health effects studies indicate that MTBE may cause eye, skin, and respiratory tract irritation, central nervous system depression and neurotoxicity. MTBE is classified as an animal carcinogen (A3) by the ACGIH.

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. If released, oxygenates such as ethers and alcohols will be expected to exhibit fairly high mobility in soil, and therefore may leach into groundwater. The API (www.api.org) provides a number of useful references addressing petroleum and oxygenate contamination of groundwater.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME:	Gasoline
DOT HAZARD CLASS and PACKING GROUP:	3, PG II
DOT IDENTIFICATION NUMBER:	UN 1203
DOT SHIPPING LABEL:	FLAMMABLE LIQUID

PLACARD:

15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION WT. PERCENT
Benzene (71-43-2)	0.1 to 4.9 (0.1 to 1.3 for reformulated gasoline)
Ethyl benzene (100-41-4)	< 3

n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Toluene (108-88-3)	1 to 15
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 to 15

US EPA guidance documents (www.epa.gov/tri) for reporting Persistent Bioaccumulating Toxics (PBTs) indicate this product may contain the following deminimis levels of toxic chemicals subject to Section 313 reporting:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION - Parts per million (ppm) by weight
Polycyclic aromatic compounds (PACs)	17
Benzo (g,h,i) perylene (191-24-2)	2.55
Lead (7439-92-1)	0.079

CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

INGREDIENT NAME (CAS NUMBER)	Date Listed
Benzene	2/27/1987
Ethyl benzene	6/11/2004
Toluene	1/1/1991

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)
Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION

NFPA® HAZARD RATING	HEALTH:	1	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
HMIS® HAZARD RATING	HEALTH:	1 *	Slight
	FIRE:	3	Serious
	PHYSICAL:	0	Minimal
			* CHRONIC

SUPERSEDES MSDS DATED: 07/01/06

ABBREVIATIONS:

AP = Approximately	< = Less than	> = Greater than
N/A = Not Applicable	N/D = Not Determined	ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
AIHA	American Industrial Hygiene Association	DOT	U.S. Department of Transportation [General Info: (800)467-4922]
ANSI	American National Standards Institute (212)642-4900	EPA	U.S. Environmental Protection Agency
API	American Petroleum Institute (202)682-8000	HMIS	Hazardous Materials Information System

IARC	International Agency For Research On Cancer	REL	Recommended Exposure Limit (NIOSH)
MSHA	Mine Safety and Health Administration	SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
NFPA	National Fire Protection Association (617)770-3000	SCBA	Self-Contained Breathing Apparatus
NIOSH	National Institute of Occupational Safety and Health	SPCC	Spill Prevention, Control, and Countermeasures
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)	STEL	Short-Term Exposure Limit (generally 15 minutes)
NTP	National Toxicology Program	TLV	Threshold Limit Value (ACGIH)
OPA	Oil Pollution Act of 1990	TSCA	Toxic Substances Control Act
OSHA	U.S. Occupational Safety & Health Administration	TWA	Time Weighted Average (8 hr.)
PEL	Permissible Exposure Limit (OSHA)	WEEL	Workplace Environmental Exposure Level (AIHA)
RCRA	Resource Conservation and Recovery Act	WHMIS	Workplace Hazardous Materials Information System (Canada)

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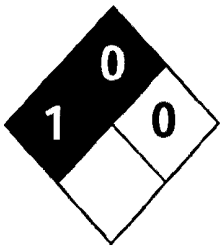

Health	1
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Lead MSDS

Section 1: Chemical Product and Company Identification

Product Name: Lead

Catalog Codes: SLL1291, SLL1669, SLL1081, SLL1459, SLL1834

CAS#: 7439-92-1

RTECS: OF7525000

TSCA: TSCA 8(b) inventory: Lead

CI#: Not available.

Synonym: Lead Metal, granular; Lead Metal, foil; Lead Metal, sheet; Lead Metal, shot

Chemical Name: Lead

Chemical Formula: Pb

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Lead	7439-92-1	100

Toxicological Data on Ingredients: Lead LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Non-flammable in presence of open flames and sparks, of shocks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: When heated to decomposition it emits highly toxic fumes of lead.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.05 (mg/m3) from ACGIH (TLV) [United States] TWA: 0.05 (mg/m3) from OSHA (PEL) [United States] TWA: 0.03 (mg/m3) from NIOSH [United States] TWA: 0.05 (mg/m3) [Canada]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 207.21 g/mole

Color: Bluish-white. Silvery. Gray

pH (1% soln/water): Not applicable.

Boiling Point: 1740°C (3164°F)

Melting Point: 327.43°C (621.4°F)

Critical Temperature: Not available.

Specific Gravity: 11.3 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, excess heat

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Can react vigorously with oxidizing materials. Incompatible with sodium carbide, chlorine trifluoride, trioxane + hydrogen peroxide, ammonium nitrate, sodium azide, disodium acetylide, sodium acetylide, hot concentrated nitric acid, hot concentrated hydrochloric acid, hot concentrated sulfuric acid, zirconium.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. May cause damage to the following organs: blood, kidneys, central nervous system (CNS).

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential: Skin: Lead metal granules or dust: May cause skin irritation by mechanical action. Lead metal foil, shot or sheets: Not likely to cause skin irritation Eyes: Lead metal granules or dust: Can irritate eyes by mechanical action. Lead metal foil, shot or sheets: No hazard. Will not cause eye irritation. Inhalation: In an industrial setting, exposure to lead mainly occurs from inhalation of dust or fumes. Lead dust or fumes: Can irritate the upper respiratory tract (nose, throat) as well as the bronchi and lungsby mechanical action. Lead dust can be absorbed through the respiratory system. However, inhaled lead does not accumulate in the lungs. All of an inhaled dose is eventually abssorbed or transferred to the gastrointestinal tract. Inhalation effects of exposure to fumes or dust of inorganic lead may not develop quickly. Symptoms may include metallic taste, chest pain, decreased physical fitness, fatigue, sleep disturbance, headache, irritability, reduces memory, mood and personality changes, aching bones and muscles, constipation, abdominal pains, decreasing appetite. Inhalation of large amounts may lead to ataxia, deliriuim, convulsions/seizures, coma, and death. Lead metal foil, shot, or sheets: Not an inhalation hazard unless metal is heated. If metal is heated, fumes will be released. Inhalation of these fumes may cause "fume metal fever", which is characterized by flu-like symptoms. Symptoms may include metallic taste, fever, nausea, vomiting, chills, cough, weakness, chest pain, generalized muscle pain/aches, and increased white blood cell count. Ingestion: Lead metal granules or dust: The symptoms of lead poisoning include abdominal pain or cramps (lead cholic), spasms, nausea, vomiting, headache, muscle weakness, hallucinations, distorted perceptions, "lead line" on the gums, metallic taste, loss of appetite, insomnia, dizziness and other symptoms similar to that of inhalation. Acute poisoning may result in high lead levels in the blood and urine, shock, coma and death in extreme cases. Lead metal foil, shot or sheets: Not an ingestion hazard for usual industrial handling.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (female) which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Lead California prop. 65 (no significant risk level): Lead: 0.0005 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Lead Connecticut hazardous material survey.: Lead Illinois toxic substances disclosure to employee act: Lead Illinois chemical safety act: Lead New York release reporting list: Lead Rhode Island RTK hazardous substances: Lead Pennsylvania RTK: Lead

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R20/22- Harmful by inhalation and if swallowed. R33- Danger of cumulative effects. R61- May cause harm to the unborn child. R62- Possible risk of impaired fertility. S36/37- Wear suitable protective clothing and gloves. S44- If you feel unwell, seek medical advice (show the label when possible). S53- Avoid exposure - obtain special instructions before use.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:21 PM

Last Updated: 06/09/2012 12:00 PM

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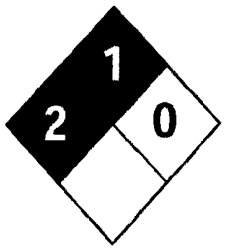

Health	2
Fire	1
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Methylene chloride MSDS

Section 1: Chemical Product and Company Identification

Product Name: Methylene chloride

Catalog Codes: SLM2398, SLM3772, SLM1297, SLM2677, SLM4054

CAS#: 75-09-2

RTECS: PA8050000

TSCA: TSCA 8(b) inventory: Methylene chloride

CI#: Not available.

Synonym: Dichloromethane

Chemical Name: Methylene Chloride

Chemical Formula: C-H2-Cl2

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Methylene chloride	75-09-2	100

Toxicological Data on Ingredients: Methylene chloride: ORAL (LD50): Acute: 1600 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects: Very hazardous in case of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (irritant, permeator). Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects: CARCINOGENIC EFFECTS: Classified + (Proven.) by OSHA. Classified 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, the nervous system, liver, mucous membranes, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact: In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation: Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 556°C (1032.8°F)

Flash Points: Not available.

Flammable Limits: LOWER: 12% UPPER: 19%

Products of Combustion: These products are carbon oxides (CO, CO2), halogenated compounds.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions: Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/ fumes/ vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection: Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: TWA: 50 from ACGIH (TLV) [United States] TWA: 174 from ACGIH (TLV) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 84.93g/mole

Color: Not available.

pH (1% soln/water): Not available.

Boiling Point: 39.75°C (103.5°F)

Melting Point: -96.7°C (-142.1°F)

Critical Temperature: Not available.

Specific Gravity: 1.3266 (Water = 1)

Vapor Pressure: 46.5 kPa (@ 20°C)

Vapor Density: 2.93 (Air = 1)

Volatility: Not available.

Odor Threshold: 214 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; log(oil/water) = 0.1

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, n-octanol, acetone.

Solubility: Easily soluble in methanol, diethyl ether, n-octanol, acetone. Partially soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 1600 mg/kg [Rat]. Acute toxicity of the vapor (LC50): 52000 1 hours [Rat].

Chronic Effects on Humans: CARCINOGENIC EFFECTS: Classified + (Proven.) by OSHA. Classified 2B (Possible for human.) by IARC. Causes damage to the following organs: lungs, the nervous system, liver, mucous membranes, central nervous system (CNS).

Other Toxic Effects on Humans: Very hazardous in case of ingestion, of inhalation. Hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Human: passes through the placenta, excreted in maternal milk.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Dichloromethane UNNA: 1593 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations: California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Methylene chloride California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Methylene chloride Pennsylvania

RTK: Methylene chloride Massachusetts RTK: Methylene chloride TSCA 8(b) inventory: Methylene chloride SARA 313 toxic chemical notification and release reporting: Methylene chloride CERCLA: Hazardous substances.: Methylene chloride

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R22- Harmful if swallowed. R38- Irritating to skin. R41- Risk of serious damage to eyes. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment: Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 10:43 AM

Last Updated: 05/21/2013 12:00 PM

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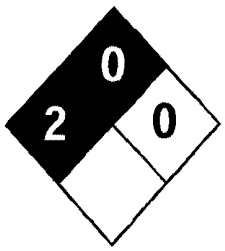

Health	2
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Nickel metal MSDS

Section 1: Chemical Product and Company Identification

Product Name: Nickel metal

Catalog Codes: SLN2296, SLN1342, SLN1954

CAS#: 7440-02-0

RTECS: QR5950000

TSCA: TSCA 8(b) inventory: Nickel metal

CI#: Not applicable.

Synonym: Nickel Metal shot; Nickel metal foil.

Chemical Name: Nickel

Chemical Formula: Ni

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Nickel metal	7440-02-0	100

Toxicological Data on Ingredients: Nickel metal LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant, sensitizer), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (sensitizer), of ingestion, of inhalation (lung sensitizer). CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC. Classified 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to skin. The substance may be toxic to kidneys, lungs, liver, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Material in powder form, capable of creating a dust explosion. This material is flammable in powder form only.

Special Remarks on Explosion Hazards:
Material in powder form, capable of creating a dust explosion. Mixtures containing Potassium Perchlorate with Nickel & Titanium powders & infusorial earth can explode. Adding 2 or 3 drops of approximately 90% peroxyformic acid to powdered nickel will result in explosion. Powdered nickel reacts explosively upon contact with fused ammonium nitrate at temperatures below 200 deg. C.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Keep away from incompatibles such as oxidizing agents, combustible materials, metals, acids.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 1 (mg/m3) from ACGIH (TLV) [United States] Inhalation Respirable. TWA: 0.5 (mg/m3) [United Kingdom (UK)] TWA: 1 (mg/m3) from OSHA (PEL) [United States] InhalationConsult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid. Lustrous solid.)

Odor: Odorless.

Taste: Not available.

Molecular Weight: 58.71 g/mole

Color: Silvery.

pH (1% soln/water): Not applicable.

Boiling Point: 2730°C (4946°F)

Melting Point: 1455°C (2651°F)

Critical Temperature: Not available.

Specific Gravity: Density: 8.908 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:

Insoluble in cold water, hot water. Insoluble in Ammonia. Soluble in dilute Nitric Acid. Slightly soluble in Hydrochloric Acid, Sulfuric Acid.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, combustible materials, metals, acids.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Incompatible with strong acids, selenium, sulfur, wood and other combustibles, nickel nitrate, aluminum, aluminum trichloride, ethylene, p-dioxan, hydrogen, methanol, non-metals, oxidants, sulfur compounds, aniline, hydrogen sulfide, flammable solvents, hydrazine, and metal powders (especially zinc, aluminum, and magnesium), ammonium nitrate, nitryl fluoride, bromine pentafluoride, potassium perchlorate + titanium powder + indusorial earth.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC. Classified 2 (Some evidence.) by NTP. Causes damage to the following organs: skin. May cause damage to the following organs: kidneys, lungs, liver, upper respiratory tract.

Other Toxic Effects on Humans:
Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant, sensitizer), of ingestion.

Special Remarks on Toxicity to Animals:
Lowest Published Lethal Dose/Conc: LDL [Rat] - Route: Oral; Dose: 5000 mg/kg LDL [Guinea Pig] - Route: Oral; Dose: 5000 mg/kg

Special Remarks on Chronic Effects on Humans: May cause cancer based on animal test data

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Nickel dust and fume can irritate skin. Eyes: Nickel dust and fume can irritate eyes. Inhalation: Inhalation of dust or fume may cause respiratory tract irritation with non-productive cough, hoarseness, sore throat, headache, vertigo, weakness, chest pain, followed by delayed effects, including tachypnea, dyspnea, and ARDS. Death due to ARDS has been reported following inhalation of high concentrations of respirable metallic nickel dust. Later effects may include pulmonary edema and fibrosis. Ingestion: Metallic nickel is generally considered not to be acutely toxic if ingested. Ingestion may cause nausea, vomiting, abdominal , and diarrhea. Nickel may damage the kidneys(proteinuria), and may affect liver function. It may also affect behavior (somnolence), and cardiovascular system (increased cornary artery resistance, decreased myocardial contractility, myocardial damage, regional or general arteriolar or venus dilation). Chronic Potential Health Effects: Skin: May cause skin allergy. Nickel and nickel compounds are among the most common sensitizers inducing allergic contact dermatitis. Inhalation: Chronic inhalation nickel dust or fume can cause chronic hypertrophic rhinitis, sinusitis, nasal polyps, perforation of the nasal septum, chronic pulmonary irritation, fibrosis, pulmonary edema, pulmonary eosinophilia, Pneumoconiosis, allergies (asthma-like allergy), and cancer of the nasal sinus cavities, lungs, and possibly other organs. Future exposures can cause asthma attacks with shortness of breath, wheezing, cough, and/or chest tightness. Chronic inhalation of nickel dust or fume may also affect the liver (impaired liver function tests), and blood (changes in red blood cell count). Ingestion: Prolonged or repeated ingestion of nickel can be a source chronic urticaria and other signs of allergy.

Chronic ingestion of Nickel may also affect respiration and cause pneumoconiosis or fibrosis. Note: In the general population, sensitization occurs from exposure to nickel-containing coins, jewelry, watches,

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Nickel metal California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Nickel metal Connecticut hazardous material survey.: Nickel metal Illinois toxic substances disclosure to employee act: Nickel metal Illinois chemical safety act: Nickel metal New York release reporting list: Nickel metal Rhode Island RTK hazardous substances: Nickel metal Pennsylvania RTK: Nickel metal Michigan critical material: Nickel metal Massachusetts RTK: Nickel metal Massachusetts spill list: Nickel metal New Jersey: Nickel metal New Jersey spill list: Nickel metal Louisiana spill reporting: Nickel metal California Director's List of Hazardous Substances: Nickel metal TSCA 8(b) inventory: Nickel metal

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R40- Possible risks of irreversible effects. R43- May cause sensitization by skin contact. S22- Do not breathe dust. S36- Wear suitable protective clothing.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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United States Environmental Protection Agency
Office of Solid Waste Washington, DC 20460
January 2008

Polycyclic Aromatic Hydrocarbons (PAHs)

What are PAHs?

Short for polycyclic aromatic hydrocarbons, PAHs describe chemicals that are often found together in groups of two or more. PAHs are found naturally in the environment but they can also be man-made. In their purest form, PAHs are solid and range in appearance from colorless to white or pale yellow-green. PAHs are created when products like coal, oil, gas, and garbage are burned but the burning process is not complete. Although PAHs can exist in over 100 different combinations, the National Waste Minimization Program defines this group using the Toxic Release Inventory reporting category for polycyclic aromatic compounds.

Chemicals included in this category, by name and CAS number, are:

1. Benzo(a)anthracene, 56-55-3
2. Benzo(a)phenanthrene (chrysene), 218-01-9
3. Benzo(a)pyrene, 50-32-8
4. Benzo(b)fluoranthene, 205-99-2
5. Benzo(j)fluoranthene, 205-82-3
6. Benzo(k)fluoranthene, 207-08-9
7. Benzo(j,k)fluorene (fluoranthene), 206-44-0
8. Benzo(r,s,t)pentaphene, 189-55-9
9. Dibenz(a,h)acridine, 226-36-8
10. Dibenz(a,j)acridine, 224-42-0
11. Dibenzo(a,h)anthracene, 53-70-3
12. Dibenzo(a,e)fluoranthene, 5385-75-1
13. Dibenzo(a,e)pyrene, 192-65-4
14. Dibenzo(a,h)pyrene, 189-64-0
15. Dibenzo(a,l)pyrene, 191-30-0
16. 7H-Dibenzo(c,g)carbazole, 194-59-2
17. 7,12-Dimethylbenz(a)anthracene, 57-97-6
18. Indeno(1,2,3-cd)pyrene 193-39-5
19. 3-Methylcholanthrene, 56-49-5
20. 5-Methylchrysene, 3697-24-3
21. 1-Nitropyrene, 5522-43-0

It should be noted that some PAHs are listed individually on EPA's Priority Chemical list. They are:

1. Acenaphthene, 83-32-9
2. Acenaphtylene, 208-96-8
3. Anthracene, 120-12-7
4. Benzo(g,h,i)perylene, 191-24-2
5. Fluorene, 86-73-7
6. Phenanthrene, 85-01-8
7. Pyrene, 129-00-0

Why are PAHs bad actors?

PAHs are a concern because they are persistent. Because they do not burn very easily, they can stay in the environment for long periods of time. Individual PAHs vary in behavior. Some can turn into a vapor in the air very easily. Most do not break down easily in the water.

What are PAHs used for?

Most PAHs are used to conduct research. However, some PAHs are used to make dyes, plastics, and pesticides. Some are even used in medicines.

How can PAHs enter and leave your body?

One of the most common ways PAHs can enter the body is through breathing contaminated air. PAHs get into your lungs when you breathe them. If you live near a hazardous waste site where PAHs are disposed, you are likely to breathe PAHs. If you eat or drink food and water contaminated with PAHs, you could be

exposed. Exposure to PAHs can also occur if your skin contacts PAH-contaminated soil or products like heavy oils, coal tar, roofing tar, or creosote. Creosote is an oily liquid found in coal tar and is used to preserve wood. Once in your body, PAHs can spread and target fat tissues. Target organs include the kidneys and liver. However, PAHs will leave your body through urine and feces in a matter of days.

How can you be exposed to PAHs?

You can be exposed to PAHs in the environment, in your home, and in the workplace. Because PAHs exist naturally in the environment and are man-made, you can be exposed in a number of ways. Fumes from vehicle exhaust, coal, coal tar, asphalt, wildfires, agricultural burning and hazardous waste sites are all sources of exposure.

You could be exposed to PAHs by breathing cigarette and tobacco smoke, eating foods grown in contaminated soil, or by eating meat or other food that you grilled. Grilling and charring food actually increases the amount of PAHs in the food.

If you work in a plant that makes coal tar, asphalt and aluminum, or that burns trash, you can be exposed to PAHs. You can also be exposed if you work in a facility that uses petroleum or coal, or where wood, corn, and oil are burned.

How can PAHs affect your health?

A number of PAHs have caused tumors in laboratory animals that were exposed to PAHs through their food, from breathing contaminated air, and when it was applied to their skin. When pregnant mice ate high doses of a PAH (benzo(a)pyrene) they experienced reproductive problems. In addition, the offspring of the pregnant mice showed birth defects and a decrease in their body weight. Other effects include damage to the skin, body fluids, and the immune system. However, these effects have not been seen in humans.

Is there a medical test to determine if you have been exposed to PAHs?

There is a test that can measure the presence of PAH in your urine. This test can only tell you if you have been exposed; but it can't reveal how harmful the effects of the exposure will be. This test would have to be performed in a laboratory that has special equipment to detect the PAHs. Another test currently being developed will be able to measure PAHs in your body tissue and blood.

What are the medical treatments in cases of exposure?

Most exposures to PAHs happen every day at very low levels in the air we breathe and the foods we eat. Treatment for a short-term exposure is unlikely. Contact your doctor if you experience symptoms of PAHs poisoning.

What levels of exposure have resulted in harmful health effects?

There is no information available from studies on humans to tell what effects can result from being exposed to individual PAHs at certain levels. However, breathing PAHs and skin contact seem to be associated with cancer in humans. Animal studies showed that mice exposed to 308 parts per million (ppm) of PAHs (specifically benzo (a) pyrene) in food for 10 days (short term exposure) caused birth defects. Mice exposed to 923 ppm of benzo (a) pyrene in food for months caused problems in the liver and blood.

Where can I get more information?

Contact your state health or environmental department, or:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road, N.E., E-29
Atlanta, Georgia 30333

References

1. Agency for Toxic Substances and Disease

Registry (ATSDR), Public Health Statement, *Polycyclic Aromatic Hydrocarbons, December 1990.* U.S. Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA, December 1990.

2. United States Environmental Protection Agency, Office of Environmental Information, *Emergency Planning and Community Right-to-Know Act – Section 313: Guidance for Reporting Toxic Chemicals: Polycyclic Aromatic Compounds Category*, EPA 260-B-01-03, Washington, DC, August 2001.

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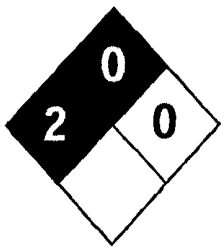

Health	2
Fire	0
Reactivity	0
Personal Protection	G

Material Safety Data Sheet
Tetrachloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Tetrachloroethylene

Catalog Codes: SLT3220

CAS#: 127-18-4

RTECS: KX3850000

TSCA: TSCA 8(b) inventory: Tetrachloroethylene

CI#: Not available.

Synonym: Perchloroethylene; 1,1,2,2-Tetrachloroethylene; Carbon bichloride; Carbon dichloride; Ankilostin; Didakene; Dilatin PT; Ethene, tetrachloro-; Ethylene tetrachloride; Perawin; Perchlor; Perclene; Perclene D; Percosolvel; Tetrachloroethene; Tetraleno; Tetralex; Tetravec; Tetroguer; Tetropil

Chemical Name: Ethylene, tetrachloro-

Chemical Formula: C2-Cl4

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

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International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Tetrachloroethylene	127-18-4	100

Toxicological Data on Ingredients: Tetrachloroethylene: ORAL (LD50): Acute: 2629 mg/kg [Rat]. DERMAL (LD): Acute: >3228 mg/kg [Rabbit]. MIST(LC50): Acute: 34200 mg/m 8 hours [Rat]. VAPOR (LC50): Acute: 5200 ppm 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (anticipated carcinogen) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, peripheral nervous system, respiratory tract, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 25 (ppm) from OSHA (PEL) [United States] TWA: 25 STEL: 100 (ppm) from ACGIH (TLV) [United States] TWA: 170 (mg/m3) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Ethereal.

Taste: Not available.

Molecular Weight: 165.83 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 121.3°C (250.3°F)

Melting Point: -22.3°C (-8.1°F)

Critical Temperature: 347.1°C (656.8°F)

Specific Gravity: 1.6227 (Water = 1)

Vapor Pressure: 1.7 kPa (@ 20°C)

Vapor Density: 5.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 5 - 50 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.4

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:
Miscible with alcohol, ether, chloroform, benzene, hexane. It dissolves in most of the fixed and volatile oils. Solubility in water: 0.015 g/100 ml @ 25 deg. C It slowly decomposes in water to yield Trichloroacetic and Hydrochloric acids.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Oxidized by strong oxidizing agents. Incompatible with sodium hydroxide, finely divided or powdered metals such as zinc, aluminum, magnesium, potassium, chemically active metals such as lithium, beryllium , barium. Protect from light.

Special Remarks on Corrosivity: Slowly corrodes aluminum, iron, and zinc.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2629 mg/kg [Rat]. Acute dermal toxicity (LD50): >3228 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 5200 4 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.

Special Remarks on Toxicity to Animals:
Lowest Publishe Lethal Dose/Conc: LDL [Rabbit] - Route: Oral; Dose: 5000 mg/kg LDL [Dog] - Route: Oral; Dose: 4000 mg/kg LDL [Cat] - Route: Oral; Dose: 4000 mg/kg

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects and birth defects(teratogenic). May affect genetic material (mutagenic). May cause cancer.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes skin irritation with possible dermal blistering or burns. Symtoms may include redness, itching, pain, and possible dermal blistering or burns. It may be absorbed through the skin with possible systemic effects. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Eyes: Contact causes transient eye irritation, lacrimation. Vapors cause eye/conjunctival irritation. Symptoms may include redness and pain. Inhalation: The main route to occupational exposure is by inhalation since it is readily absorbed through the lungs. It causes respiratory tract irritation, . It can affect behavior/central nervous system (CNS depressant and anesthesia ranging from slight inebriation to death, vertigo, somnolence, anxiety, headache, excitement, hallucinations, muscle incoordination, dizziness, lightheadness, disorentiation, seizures, enotional instability, stupor, coma). It may cause pulmonary edema Ingestion: It can cause nausea, vomiting, anorexia, diarrhea, bloody stool. It may affect the liver, urinary system (proteinuria, hematuria, renal failure, renal tubular disorder), heart (arrhythmias). It may affect behavior/central nervous system with symptoms similar to that of inhalation. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may result in excessive drying of the skin, and irritation. Ingestion/Inhalation: Chronic exposure can affect the liver(hepatitis,fatty liver degeneration), kidneys, spleen, and heart (irregular heartbeat/arrhythmias, cardiomyopathy, abnormal EEG), brain, behavior/ central nervous system/peripheral nervous system (impaired memory, numbness of extremeties, peripheral neuropathy and other

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 18.4 mg/l 96 hours [Fish (Fatthead Minnow)]. 18 mg/l 48 hours [Daphnia (daphnia)]. 5 mg/l 96 hours [Fish (Rainbow Trout)]. 13 mg/l 96 hours [Fish (Bluegill sunfish)].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Tetrachloroethylene UNNA: 1897 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Tetrachloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Tetrachloroethylene Connecticut hazardous material survey.: Tetrachloroethylene Illinois toxic substances disclosure to employee act: Tetrachloroethylene Illinois chemical safety act: Tetrachloroethylene New York release reporting list: Tetrachloroethylene Rhode Island RTK hazardous substances: Tetrachloroethylene Pennsylvania RTK: Tetrachloroethylene Minnesota: Tetrachloroethylene Michigan critical material: Tetrachloroethylene Massachusetts RTK: Tetrachloroethylene Massachusetts spill list: Tetrachloroethylene New Jersey: Tetrachloroethylene New Jersey spill list: Tetrachloroethylene Louisiana spill reporting: Tetrachloroethylene California Director's List of Hazardous Substances: Tetrachloroethylene TSCA 8(b) inventory: Tetrachloroethylene TSCA 8(d) H and S data reporting: Tetrachloroethylene: Effective date: 6/1/87; Sunset date: 6/1/97 SARA 313 toxic chemical notification and release reporting: Tetrachloroethylene CERCLA: Hazardous substances.: Tetrachloroethylene: 100 lbs. (45.36 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R40- Possible risks of irreversible effects. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S23- Do not breathe gas/fumes/vapour/spray S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37- Wear suitable gloves. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: g

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Last Updated: 05/21/2013 12:00 PM

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MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
150 Allen Road Suite 302
Basking Ridge, New Jersey 07920
Information: 1-800-416-2505

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: TRICHLOROETHYLENE

TRADE NAMES/SYNONYMS:
MTG MSDS 199; ACETYLENE TRICHLORIDE; ETHYLENE TRICHLORIDE; 1-CHLORO-2,2-DICHLOROETHYLENE; 1,1-DICHLORO-2-CHLOROETHYLENE; TCE; ETHINYL TRICHLORIDE; TRICHLOROETHENE; 1,1,2-TRICHLOROETHYLENE; 1,1,2-TRICHLOROETHENE; UN 1710; RCRA U228; C2HCl3; MAT23850; RTECS KX4550000

CHEMICAL FAMILY: halogenated, alkenes

CREATION DATE: Jan 24 1989
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: TRICHLOROETHYLENE
CAS NUMBER: 79-01-6
PERCENTAGE: >99

COMPONENT: INHIBITORS
CAS NUMBER: Not assigned.
PERCENTAGE: <0.1

COMPONENT: AMINES
CAS NUMBER: Not assigned.
PERCENTAGE: <0.1

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=1 REACTIVITY=0

EMERGENCY OVERVIEW:

COLOR: colorless
PHYSICAL FORM: liquid
ODOR: sweet odor
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, allergic reactions, cancer hazard (in humans)
PHYSICAL HAZARDS: May polymerize. Containers may rupture or explode. May decompose on contact with air, light, moisture, heat or storage and use above room temperature. Releases toxic, corrosive, flammable or explosive gases.

POTENTIAL HEALTH EFFECTS:
INHALATION:
SHORT TERM EXPOSURE: irritation, changes in blood pressure, nausea, vomiting, stomach pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, mood swings, tremors, loss of coordination, visual disturbances, bluish skin color, lung congestion, kidney damage, liver damage, unconsciousness, coma
LONG TERM EXPOSURE: same as effects reported in short term exposure, loss of appetite, weight loss, blood disorders, brain damage, cancer
SKIN CONTACT:
SHORT TERM EXPOSURE: irritation, allergic reactions
LONG TERM EXPOSURE: irritation, allergic reactions, nausea, loss of appetite, weight loss, difficulty breathing, headache, drowsiness, dizziness, joint pain, loss of coordination, visual disturbances, paralysis
EYE CONTACT:
SHORT TERM EXPOSURE: irritation (possibly severe), blurred vision
LONG TERM EXPOSURE: irritation (possibly severe), eye damage
INGESTION:
SHORT TERM EXPOSURE: same as effects reported in short term inhalation
LONG TERM EXPOSURE: same as effects reported in long term inhalation

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

NOTE TO PHYSICIAN: For ingestion, consider gastric lavage. Consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Slight fire hazard.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile).

FLASH POINT: No data available.
LOWER FLAMMABLE LIMIT: 7.8% @ 100 C
UPPER FLAMMABLE LIMIT: 52% @ 100 C
AUTOIGNITION: 770 F (410 C)

6. ACCIDENTAL RELEASE MEASURES

AIR RELEASE:
Reduce vapors with water spray. Collect runoff for disposal as potential hazardous waste.

SOIL RELEASE:
Dig holding area such as lagoon, pond or pit for containment. Dike for later disposal. Absorb with sand or other non-combustible material.

WATER RELEASE:
Absorb with activated carbon. Remove trapped material with suction hoses. Collect spilled material using mechanical equipment. Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

OCCUPATIONAL RELEASE:
Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Small liquid spills: Absorb with sand or other non-combustible material. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Store in a cool, dry place. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
TRICHLOROETHYLENE:
100 ppm OSHA TWA
200 ppm OSHA ceiling
300 ppm OSHA peak (5 minutes in any 2 hours)
50 ppm (269 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993)
200 ppm (1070 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)
10 ppm ACGIH TWA
25 ppm ACGIH STEL
25 ppm NIOSH TWA 10 hour(s)
2 ppm NIOSH ceiling 60 minute(s) (used as halogenated anesthetic gas)

VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
At any detectable concentration -
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape -
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.
Any appropriate escape-type, self-contained breathing apparatus.
For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid
COLOR: colorless
ODOR: sweet odor
MOLECULAR WEIGHT: 131.39
MOLECULAR FORMULA: Cl-C-H-C-Cl2
BOILING POINT: 189 F (87 C)
FREEZING POINT: -99 F (-73 C)
VAPOR PRESSURE: 58 mmHg @ 20 C
VAPOR DENSITY (air=1): 4.53
SPECIFIC GRAVITY (water=1): 1.4642
WATER SOLUBILITY: 0.1%
PH: Not available
VOLATILITY: Not available
ODOR THRESHOLD: 21 ppm
EVAPORATION RATE: 0.69 (carbon tetrachloride=1)
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available
SOLVENT SOLUBILITY:
Soluble: alcohol, ether, acetone, chloroform, benzene, vegetable oils

10. STABILITY AND REACTIVITY

REACTIVITY: May decompose on contact with air, light, moisture, heat or storage and use above room temperature. Releases toxic, corrosive, flammable or explosive gases.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: bases, metals, combustible materials, oxidizing materials

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: phosgene, halogenated compounds, oxides of carbon

POLYMERIZATION: May polymerize. Avoid contact with heat or light and monitor inhibitor content.

11. TOXICOLOGICAL INFORMATION

TRICHLOROETHYLENE:
IRRITATION DATA: 2 mg/24 hour(s) skin-rabbit severe; 20 mg/24 hour(s) eyes-rabbit moderate
TOXICITY DATA: 140700 mg/m3/1 hour(s) inhalation-rat LC50; >20 gm/kg skin-rabbit LD50; 4920 mg/kg oral-rat LD50
CARCINOGEN STATUS: NTP: Anticipated Human Carcinogen; IARC: Human Limited Evidence,

Animal Sufficient Evidence, Group 2A; ACGIH: A2 -Suspected Human Carcinogen
LOCAL EFFECTS:
Irritant: inhalation, skin, eye
ACUTE TOXICITY LEVEL:
Moderately Toxic: ingestion
Slightly Toxic: inhalation
Relatively Non-toxic: dermal absorption
TARGET ORGANS: immune system (sensitizer), central nervous system
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: heart problems
TUMORIGENIC DATA: Available.
MUTAGENIC DATA: Available.
REPRODUCTIVE EFFECTS DATA: Available.
ADDITIONAL DATA: May cross the placenta. Stimulants such as epinephrine may induce ventricular fibrillation.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:
FISH TOXICITY: 3100 ug/L 96 hour(s) LC50 (Mortality) Flagfish (Jordanella floridae)

INVERTEBRATE TOXICITY: 1700 ug/L 7 hour(s) EC50 (Regeneration) Flatworm (Dugesia japonica)

OTHER TOXICITY: 45000 ug/L 48 week(s) LC50 (Mortality) Clawed toad (Xenopus laevis)

FATE AND TRANSPORT:
BIOCONCENTRATION: 17 ug/L 1-14 hour(s) BCF (Residue) Bluegill (Lepomis macrochirus) 8.23 ug/L

13. DISPOSAL CONSIDERATIONS

Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U228. Hazardous Waste Number(s): D040. Dispose of in accordance with U.S. EPA 40 CFR 262 for concentrations at or above the Regulatory level. Regulatory level- 0.5 mg/L. Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Trichloroethylene
ID NUMBER: UN1710
HAZARD CLASS OR DIVISION: 6.1
PACKING GROUP: III
LABELING REQUIREMENTS: 6.1

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Trichloroethylene
UN NUMBER: UN1710
CLASS: 6.1
PACKING GROUP/CATEGORY: III

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
TRICHLOROETHYLENE: 100 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: Yes
FIRE: No
REACTIVE: No
SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65):
TRICHLOROETHYLENE

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.

STATE REGULATIONS:
California Proposition 65:
Known to the state of California to cause the following:
TRICHLOROETHYLENE
Cancer (Apr 01, 1988)

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: D2

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

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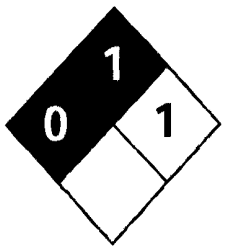


Health	1
Fire	1
Reactivity	1
Personal Protection	E

Material Safety Data Sheet
Zinc Metal MSDS

Section 1: Chemical Product and Company Identification

Product Name: Zinc Metal

Catalog Codes: SLZ1054, SLZ1159, SLZ1267, SLZ1099, SLZ1204

CAS#: 7440-66-6

RTECS: ZG8600000

TSCA: TSCA 8(b) inventory: Zinc Metal

CI#: Not applicable.

Synonym: Zinc Metal Sheets; Zinc Metal Shot; Zinc Metal Strips

Chemical Name: Zinc Metal

Chemical Formula: Zn

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Zinc Metal	7440-66-6	100

Toxicological Data on Ingredients: Zinc Metal LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 480°C (896°F)

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances:
Slightly flammable to flammable in presence of open flames and sparks, of heat, of oxidizing materials, of acids, of alkalis, of moisture. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:
Zinc + NaOH causes ignition. Oxidation of zinc by potassium proceeds with incandescence. Residues from zinc dust /acetic acid reduction operations may ignite after long delay if discarded into waste bins with paper. Incandescent reaction when Zinc and Arsenic or Tellurium, or Selenium are combined. When hydrazine mononitrate is heated in contact with zinc, a flamming decomposition occurs at temperatures a little above its melting point. Contact with acids and alkali hydroxides (sodium hydroxide, postasium hydroxide, calcium hydroxide, etc.) results in evolution of hydrogen with sufficient heat of reaction to ignite the hydrogen gas. Zinc foil ignites if traces of moisture are present. It is water reactive and produces flammable gases on contact with water. It may ignite on contact with water or moist air.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Flammable solid that, in contact with water, emits flammable gases. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Cover with dry earth, sand or other non-combustible material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not breathe dust. Keep away from incompatibles such as oxidizing agents, acids, alkalis, moisture.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep from any possible contact with water. Do not allow water to get into container because of violent reaction.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Lustrous solid. Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 65.39 g/mole

Color: Bluish-grey

pH (1% soln/water): Not applicable.

Boiling Point: 907°C (1664.6°F)

Melting Point: 419°C (786.2°F)

Critical Temperature: Not available.

Specific Gravity: Not available.

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water, methanol, diethyl ether, n-octanol, acetone.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, incompatible materials, moisture

Incompatibility with various substances:
Reactive with oxidizing agents, acids, alkalis. Slightly reactive to reactive with moisture. The product may react violently with water to emit flammable but non toxic gases.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Incompatible with acids, halogenated hydrocarbons, NH4NO3, barium oxide, Ba(NO3)2, Cadmium, CS2, chlorates, Cl2, CrO3, F2, Hydroxylamine, Pb(N3)2, MnCl2, HNO3, performic acid, KClO3, KNO3, N2O2, Selenium, NaClO3, Na2O2, Sulfur, Te, water, (NH4)2S, As2O3, CS2, CaCl2, chlorinated rubber, catalytic metals, halocarbons, o-nitroanisole, nitrobenzene, nonmetals, oxidants, paint primer base, pentacarbonoyliron, transition metal halides, seleninyl bromide, HCl, H2SO4, (Mg +Ba(NO3)2 +BaO2), (ethyl acetoacetate +tribromoneopentyl alcohol. Contact with Alkali Hydroxides(Sodium Hydroxide, Potassium Hydroxide, Calcium Hydroxide, etc) results in evolution of hydrogen. Ammonium nitrate + zinc + water causes a violent reaction with evolution of steam and zinc oxide. May react with water.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritation. Dermal exposure to zinc may produce leg pains, fatigue, anorexia and weight loss. Eyes: May cause eye irritation. Ingestion: May be harmul if swallowed. May cause digestive tract irritation with tightness in throat, nausea, vomiting, diarrhea, loss of appetite, malaise, abdominal pain, fever, and chills. May affect behavior/central nervous system and autonomic nervous system with ataxia, lethargy, staggering gait, mild derrangement in cerebellar function, lightheadness, dizzness, irritability, muscular stiffness, and pain. May also affect blood. Inhalation: Inhalation of zinc dust or fumes may cause respiratory tract and mucous membrane irritation with cough and chest pain. It can also cause "metal fume fever", a flu-like condition characterized appearance of chills, headached fever, maliase, fatigue, sweating, extreme thirst, aches in the legs and chest, and difficulty in breathing. A sweet taste may also be be present in metal fume fever, as well as a dry throat, aches, nausea, and vomiting, and pale grey cyanosis. The toxicological properties of this substance have not been fully investisgated.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: Not available.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
New York release reporting list: Zinc Metal Rhode Island RTK hazardous substances: Zinc Metal Pennsylvania RTK: Zinc Metal Florida: Zinc Metal Michigan critical material: Zinc Metal Massachusetts RTK: Zinc Metal New Jersey: Zinc Metal California Director's List of Hazardous Substances: Zinc Metal TSCA 8(b) inventory: Zinc Metal TSCA 12(b) one time export: Zinc Metal SARA 313 toxic chemical notification and release reporting: Zinc Metal CERCLA: Hazardous substances.: Zinc Metal: 1000 lbs. (453.6 kg)

Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): Not Available

DSCL (EEC):
R15- Contact with water liberates extremely flammable gases. R17- Spontaneously flammable in air. S7/8- Keep container tightly closed and dry.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 1

Reactivity: 1

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 0

Flammability: 1

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

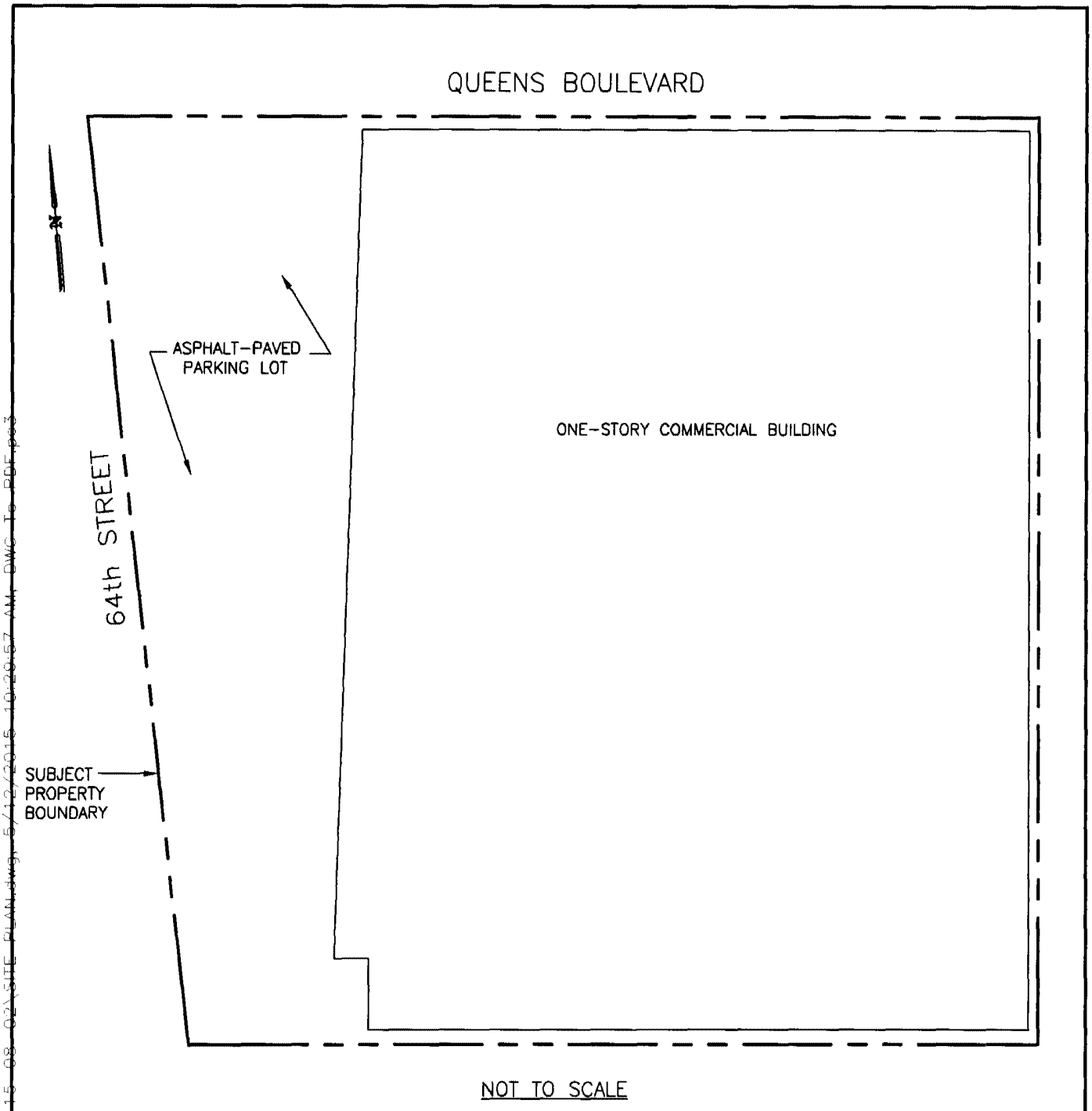
Created: 10/10/2005 12:18 AM

Last Updated: 05/21/2013 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

Source: US Geological Survey 7.5-Minute
Brooklyn, NY Quadrangle

FPM GROUP		
FIGURE 1.1.1 SITE LOCATION MAP 64-02 AND 64-06 QUEENS BOULEVARD WOODSIDE, NEW YORK		
Drawn by: GH	Checked By: GH	Date: 5/4/2015

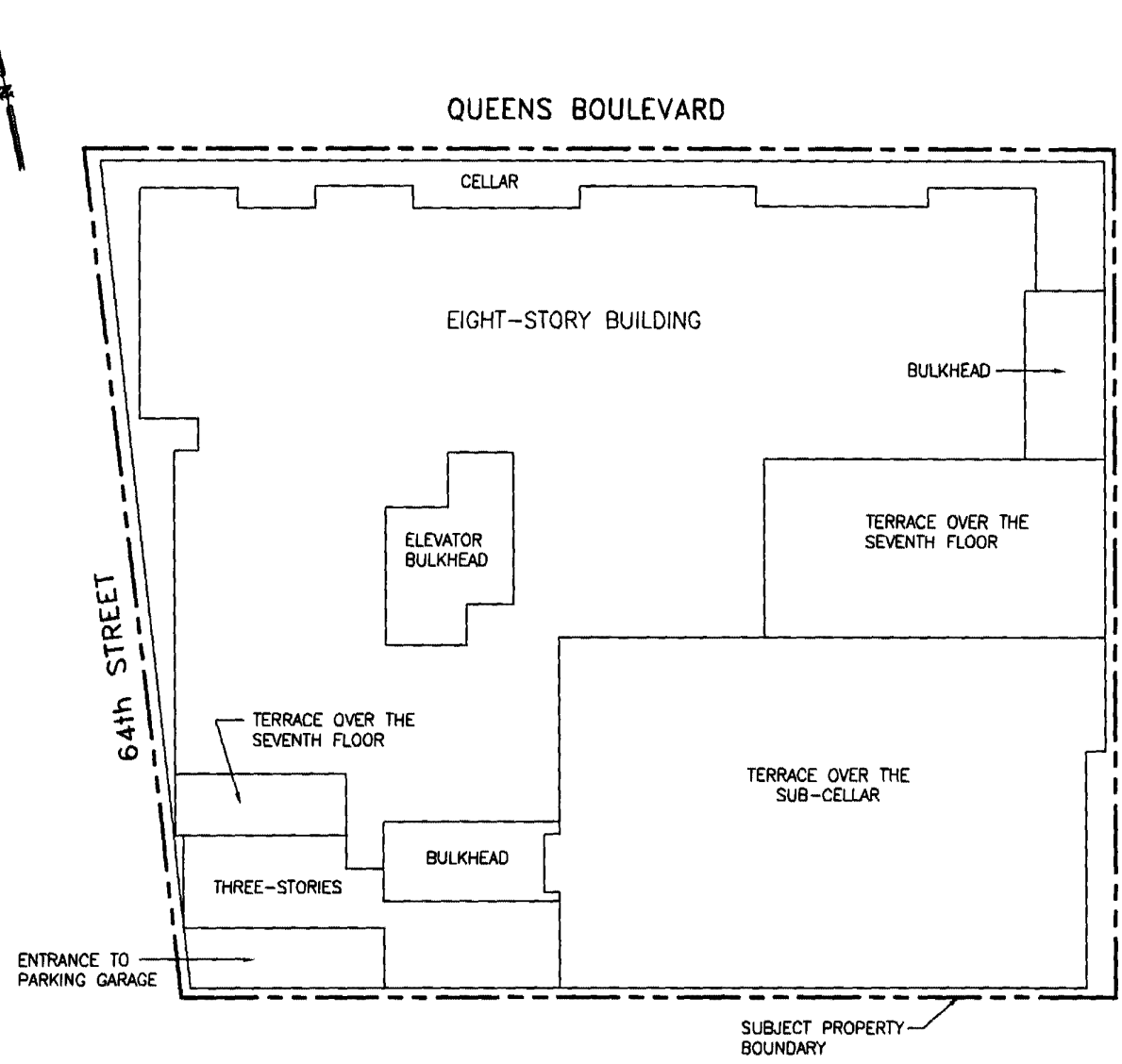


Z:\QUEENS BLVD VENTURE\PHASE II_11219.15.08 02\SITE PLAN.dwg, 5/12/2015 10:29:57 AM, DWG To PDF.pc3

FPM GROUP

FIGURE 1.1.2
SITE PLAN
64-02 & 64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

Drawn By: H.C.	Checked By: G.H.	Date: 4/20/15



APPROXIMATE SCALE

0' 25' 50'

FPM GROUP

FIGURE 1.2.1
FUTURE DEVELOPMENT PLAN
64-02 & 64-06 QUEENS
WOODSIDE, NEW YORK

Drawn By: H.C.	Checked By: G.H.	Date: 6/17/15

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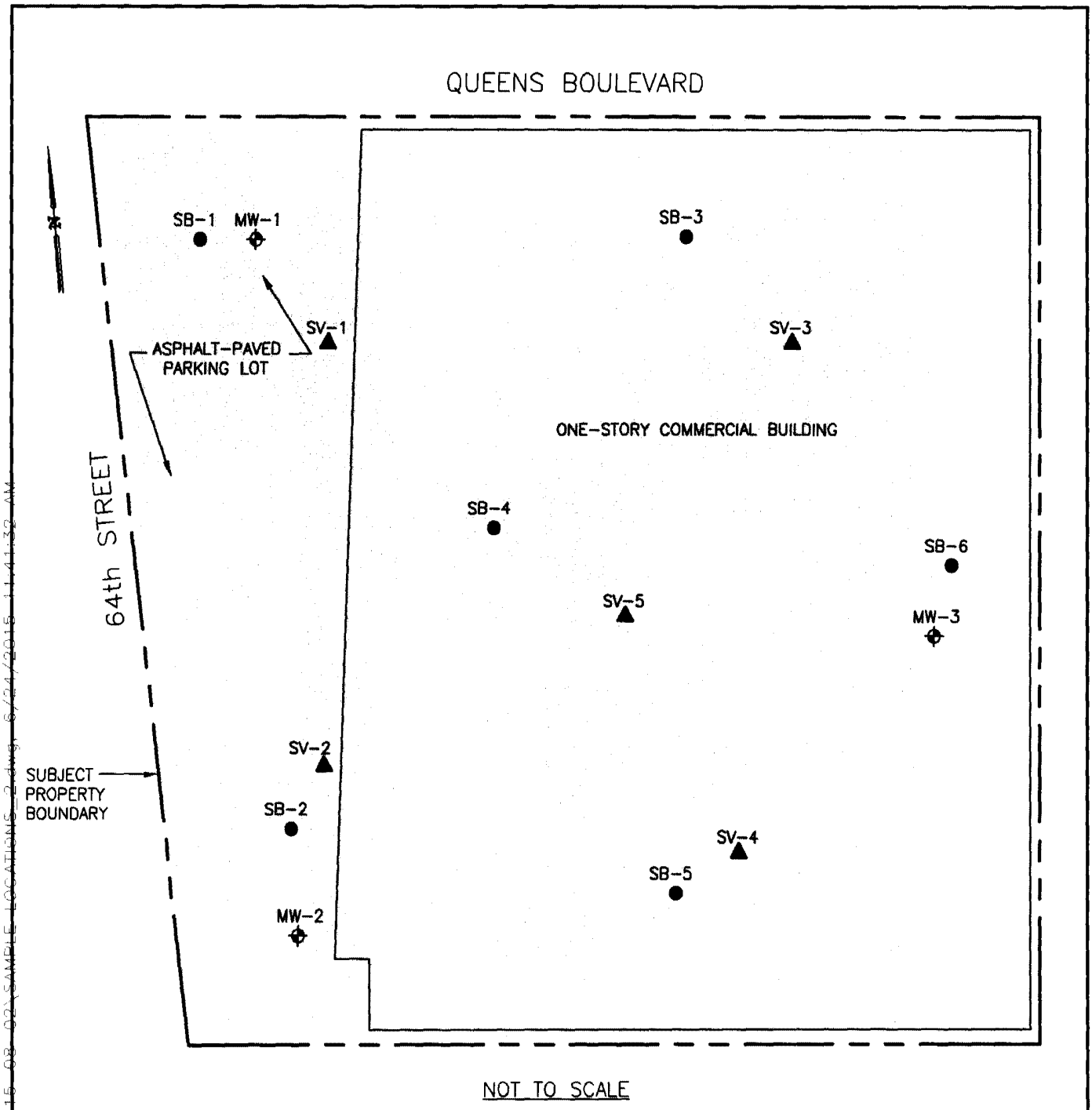

FPM GROUP

FIGURE 3.2.1
SAMPLE LOCATIONS
64-02 & 64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

Drawn By: H.C.	Checked By: G.H.	Date: 6/16/15

Z:\QUEENS BLVD VENTURE\PHASE II-1121a 15-08-02\SAMPLE LOCATIONS-2.dwg, 6/24/2015 11:41:32 AM

NTER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
ROJECT: QB VENTURES EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

xhibit 15:

Permits

e a full discussion of the permits of the project in ed Comprehensive Business Plan (**Exhibit 8**).

ermit Schedule

ermit for Demolition, from New York City Department ngs on July 21, 2015

ermit for Fence, from New York City Department of s on July 21, 2015

ermit for Other Mechanical Means, from New York City ent of Buildings on July 21, 2015

Work Permit Schedules for Holiday Inn	
Permits	Expected date
Demo permit	Jul-15
Plan Approval	May-16
New Build permit	Sep-16
P-R Plan Receipt--New Tree	Nov-16

NYC Buildings

Work Permit Department of Buildings

Permit Number: 421073769-01-DM

Issued: 07/21/2015 Expires: 08/27/2015

Issued to: WEN LIANG TAN

Address: QUEENS 64-06 QUEENS BLVD

Business: TAN DEVELOPMENT, LLC

Contractor No: GC-608213

Description of Work:

FULL DEMOLITION - DEMOLITION OF A ONE STORY COMMERCIAL BUILDING, BY MEANS OF HAND DEMOLITION, INCLUDING USE OF HANDHELD MECHANICAL DEVICES.

Review is requested under Building Code: 2014

SITE FILL: ON-SITE

To see a Zoning Diagram (ZD1) or to challenge a zoning approval filed as part of a New Building application or Alteration application filed after 7/13/2009, please use "My Community" on the Buildings Department web site at www.nyc.gov/buildings.

Emergency Telephone Day or Night: 311

Borough Commissioner:

Commissioner of Buildings:

Tampering with or knowingly making a false entry in or falsely altering this permit is a crime that is punishable by a fine, imprisonment or both.

01 07/23/2015

OP-35A (5/10)

NYC™ Buildings

Work Permit Department of Buildings

Permit Number: 421073769-01-EQ-FN

Issued: 07/21/2015 Expires: 07/20/2016

Issued to: WEN LIANG TAN

Address: QUEENS 64-06 QUEENS BLVD

Business: TAN DEVELOPMENT, LLC

Contractor No: GC-608213

Description of Work:

FULL DEMOLITION - CONSTRUCTION EQUIPMENT - FENCE DEMOLITION OF A ONE STORY COMMERCIAL BUILDING, BY MEANS OF HAND DEMOLITION, INCLUDING USE OF HANDHELD MECHANICAL DEVICES.

Review is requested under Building Code: 2014 SITE FILL: ON-SITE

To see a Zoning Diagram (ZD1) or to challenge a zoning approval filed as part of a New Building application or Alteration application filed after 7/13/2009, please use "My Community" on the Buildings Department web site at www.nyc.gov/buildings.

Emergency Telephone Day or Night: 311

Borough Commissioner: **Commissioner of Buildings:**

Tampering with or knowingly making a false entry in or falsely altering this permit is a crime that is punishable by a fine, imprisonment or both.

01 07/23/2015

OP-35A (5/10)

NYC™ Buildings

Work Permit Department of Buildings

Permit Number: 421073769-02-EQ-OT

Issued: 07/21/2015 Expires: 07/20/2016

Issued to: WEN LIANG TAN

Address: QUEENS 64-06 QUEENS BLVD

Business: TAN DEVELOPMENT, LLC

Contractor No: GC-608213

Description of Work:

FULL DEMOLITION - CONSTRUCTION EQUIPMENT - OTHER MECHANICAL MEANS SUBMITTED FOR USE OF MECHANICAL EQUIPMENT AT THE TIME OF DEMOLITION

Review is requested under Building Code: 2014 SITE FILL: ON-SITE

To see a Zoning Diagram (ZD1) or to challenge a zoning approval filed as part of a New Building application or Alteration application filed after 7/13/2009, please use "My Community" on the Buildings Department web site at www.nyc.gov/buildings.

Emergency Telephone Day or Night: 311

Borough Commissioner:

Commissioner of Buildings:

Tampering with or knowingly making a false entry in or falsely altering this permit is a crime that is punishable by a fine, imprisonment or both.

01 07/23/2015

OP-35A (5/10)

TER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
ROJECT: QB VENTURES EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

xhibit 16:

Financials

ee a full discussion of the financial viability of the
t in the attached Comprehensive Business Plan
(**Exhibit 8**).

and Uses - budget of construction
Projections
ion Letter from Century Construction Group, LLC
their experience in the field and project development
ed September 15, 2015.

Queens Blvd Ventures LLC
35-06 Leavitt Street, Suite CF-A, Flushing NY 11354
Tel: 718.939.1060 Fax: 718.939.1036
Email: centurygroup88@yahoo.com

Project Location : 64-06 Queens Blvd, Woodside, NY
Project Description : 135 rooms of Holiday Inn Express & Suites

CONSTRUCTION COST: (b)(4)

SCOPE OF WORK:

1. GENERAL

1.01 Mobilization & preparation
1.02 Insurance-general liability 25M & workmen comp
1.03 Sign-offs
1.04 Permit applications
1.05 Provide all necessary SOE inspections
1.06 Provide all necessary TR-2 TR-3
1.07 Provide engineer on site for supervision of all foundation and shoring work
1.08 Provide all necessary surveys
1.09 Provide all necessary shop drawings

2. SITEWORK

2.01 Provide and Install roof protection on adjacent buildings
2.02 Scaffold
  a. Provide and install Sidewalk Bridge
  b. Provide and install scaffold to roof
  c. Provide and install protection net to roof
  d. Scaffold reinforcement
2.03 Shoring, Sheeting & Lagging as per SOE
2.04 Temporary Protection Plywood Fence
2.05 Provide and install exterior material hoist
2.06 Excavation and backfill as necessary
2.07 Provide and install sidewalk, trees, curb and curb as per approved BPP

3. MASONRY

3.01 Concrete block as per drawings
3.02 Stucco in rear of building
3.03 Stone on first floor as per rendering

4. CONCRETE

4.01 Foundation wall, straps beams and pile caps
4.02 Concrete Slabs
4.03 Roof Bulkhead
4.04 Sidewalk, curbs and pavement
4.05 Surveys and stakeout
4.06 All waterproofing of exterior foundation walls

5. METALS

5.01 Concrete filled metal pan stairs
5.02 Metal framing and gates
5.03 Roof, railing and ladder
5.04 Structural metal framing
5.05 Provide and install steel dunnage
5.06 Omagalite exterior aluminum panel front and 2 sides

Queens Blvd Ventures LLC
35-06 Leavitt Street, Suite CF-A, Flushing NY 11354
Tel: 718.939.1060 Fax: 718.939.1036
Email: centurygroup88@yahoo.com

(b)(4)

6. THERMAL & MOISTURE PROTECTION

6.01 Roof waterproofing
- a. Six-ply rubber roofing
- b. 2" rigid insulation
- c. Vent sheet
- d. Fire Stone 12 year labor and material warrenty

6.02 Insulation
- a. Exterior wall insulation close cell sprayed on
- b. Interior wall insulation open cell sprayed on

7. DOORS & WINDOWS

7.01 Doors 1 3/4 " solid core doors, frames and hardware
7.02 Aluminum windows & storefront entrance by crystal or equal
7.03 All window system by crystal or equal per window schedule
7.04 All hollow metal door per schedule
7.05 Thermacore 490 garage door
7.06 Provide and install glass railing as per rendering

8. FINISHES

8.01 Gypsum board ceiling w / paint finished
8.02 Gypsum board wall w / paint finished
8.03 Epoxy paint for areaway, Elec.meter Rm., water meter Rm.
8.04 All apartment interior as per finish schedule
8.05 All hallways as per plan and finish schedule
8.06 All commercial, lobby as per design

9. CONVEYING SYSTEM

9.01 Provide and install Thyssen Krupp MRL 250FPM 2300# elevator
9.02 Standard cab $20,000 allowance

10. EQUIPMENT

10.01 Kitchen cabinets allowance is $5,000 per unit
10.02 All appliances
10.03 Bathroom accessories
10.04 Trash chute and compactor
10.05 Kitchen counter top to be Caesar Stone

11. MECHANICAL

11.01 HVAC system as per drawings
11.02 Provide and install exhaust & fresh air system as per drawings
11.03 Provide and install LG PTAC unit
11.04 Provide and install all kitchen and bath exhaust duct and fans
11.05 Provide and install HVAC system for lobby, trash storage and rec room PTAC

12. FIRE SYSTEM

12.01 Sprinkler system as per drawings
12.02 Stand Pipe system as per drawings
12.03 Provide and install sprinkler alarm system as per DOB and FDNY code

Queens Blvd Ventures LLC
35-06 Leavitt Street, Suite CF-A, Flushing NY 11354
Tel: 718.939.1060 Fax: 718.939.1036
Email: centurygroup88@yahoo.com

(b)(4)

13. ELECTRICAL

13.01 Apply and install all electrical meters
13.02 Provide and install electrical panels
13.03 Provide and install lighting fixtures as per plan
13.04 Provide and install emergency exit lights
13.05 Provide and install receptacles
13.06 Provide and install Aiphone color audio / video intercom system
13.07 Provide and install all Verizon, TimeWarner lines
13.08 Provide and install 100 Amp panels in every Apt. unit
13.09 Provide and install 1600 ConEd SEB
13.10 Provide temporary electrical service

14. PLUMBING WORK

14.01 Provide all utility services and meters
14.02 Install copper water supply & no-hub drainage system and all vent pipes
14.03 Supply & install plumbing fixtures as per owner's schedule
14.04 Install new gas main service with meters
14.05 All supply and return water lines
14.06 All kitchen gas pipes to all equipment in builing
14.07 Provide and install 1 duplex water booster and sewer ejector booster pump
14.08 Provide and install RZP as per design
14.09 Provide and install 3 150 Gal HWH and 1 25 Gal electrical HWH per residential
14.10 Provide and install all incoming water, sewer main as per plans

Total Hard Construction Cost :

FURNITURE, FIXTURES & EQUIPMENT (FF&E)

SOFT COST:
Architect & Engineer
Environmental
Interest Reserve

Total Soft Construction Cost :

Total Construction Cost :

LAND COST :

Total Project Cost :

(b)(4) Ten Year Forecast of Income and Expense - Proposed Holiday Inn Express & Suites Woodside, Queens

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Number of Rooms:										
Occupied Rooms:										
Occupancy:										
Average Rate:										
RevPAR:										
OPERATING REVENUE										
Rooms										
Miscellaneous Income										
Total Operating Revenue										
DEPARTMENTAL EXPENSES*										
Rooms										
Total										
DEPARTMENTAL INCOME										
UNDISTRIBUTED OPERATING EXPENSES										
Administrative & General										
Marketing										
Franchise Fee										
Prop. Operations & Maint.										
Utilities										
Total										
GROSS HOUSE PROFIT										
Management Fee										
INCOME BEFORE NON-OPER. INC. & EXP.										
NON-OPERATING INCOME AND EXPENSE										
Property Taxes										
Insurance										
Reserve for Replacement										
Total										
EBITDA LESS RESERVE										

*Departmental expenses are expressed as a percentage of departmental revenues.

September 15, 2015

Attention: EB-5 Unit
U.S. Citizenship and Immigration Services
California Service Center
Department of Homeland Security
24000, Avila Road, Room 2312
Laguna Niguel, CA 92677

Re: Holiday Inn Express & Suites
64-06 Queens Blvd, Woodside, NY 11377

Dear CSC EB-5 Unit Officer:

Century Construction Group was hired by Queens Blvd Ventures, LLC as the general contractor on the above-referenced Project. I am the president of Century Construction Group and have worked in the construction industry for twenty years and have supervised, managed and/or constructed. My experience includes hospitality, commercial interior and residential projects. I have constructed similar projects to the proposed Holiday Inn Express & Suites in term of size, budgets and timeline. These projects include the Marriot Fairfield Inn, the Leavitt Manor Condominium and the Farrington Estate, all located in Flushing. I have been asked by Queens Blvd Ventures, LLC to provide you with some information concerning the Project in connection with certain funding obtained by EB-5.

Century Construction Group has advised that hard construction cost estimate would be [redacted] The construction timeline is 27 months. This Holiday Inn Express & Suites hotel will include a breakfast room, a fitness room, business center, market pantry, outdoor lounge, and vending areas. This hotel will include 135 rooms and suites. The Demolition is scheduled to begin in early October of 2015. I attest that the construction budgets and timeline are estimated based on established industry standards.

(b)(4)

Very Truly Yours,

George Xu
President

35-06 Leavitt St., Suite CF-A Flushing, NY 11354
Tel: (718) 939-1060 Fax: (718) 939-1036
www.centurygroupdevelopment.com

ORIGIN ID:PCTA (212) 233-7473
MONA SHAH
MONA SHAH & ASSOCIATES
299 BROADWAY
SUITE 1005
NEW YORK, NY 10007
UNITED STATES US

SHIP DATE: 25SEP15
ACTWGT: 6.00 LB
CAD: 2731502/INET3670

BILL SENDER

TO **USCIS-CALIFORNIA SERVICE CENTER**
ATTN: EB-5 RC PROCESSING UNIT
24000 AVILA ROAD
2ND FLOOR
LAGUNA NIGUEL CA 92677
(212) 233-7473
INV
PO: 924-526
REF: QB VENTURES EB-5 CAPITAL, LLC
DEPT

539J2/CBB9/31D0

J153015081901uv

FedEx Express

TRK# 0201 **7746 0136 9678**

TUE - 29 SEP AA
**** 2DAY ****

CZ JORA

92677
CA-US **SNA**

CSC

AM SEP 29 15

STAMP #212

924

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
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Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

SECTION 6.0
MEDICAL SURVEILLANCE PROGRAM

All workers at the Site must participate in a medical surveillance program in accordance with 29 CFR 1910.120. A medical examination and consultation must have been performed within the last twelve months to be eligible for fieldwork.

The content of the examination and consultation will include a medical and work history with special emphasis on symptoms related to the handling of hazardous substances, health hazards, and fitness for duty including the ability to wear required personal protective equipment under conditions (i.e., temperature extremes) that may be expected at the work Site. All medical examinations and procedures shall be performed by, or under the supervision of, a licensed physician.

The physician shall furnish a written opinion containing:

- The results of the medical examination and tests.
- The physician's opinion as to whether the employee has any detected medical conditions that would place the worker at increased risk of material impairment of the employee's health from work in hazardous waste operations.
- The physician's recommended limitations upon the worker assigned to the work.
- A statement that the worker has been informed by the physician of the results of the medical examination and any further examination or treatment.

An accurate record of the medical surveillance will be retained. The record will consist of at least the following information:

- The name and social security number of the employee.
- Physician's written opinions, recommended limitations, and results of examinations and tests.
- Any worker medical complaints related to exposure to hazardous substances.

SECTION 7.0
PERSONAL PROTECTIVE EQUIPMENT

7.1 General Considerations

The two basic objectives of the personal protective equipment (PPE) are to protect the wearer from safety and health hazards, and to prevent the wearer from incorrect use and/or malfunction of the PPE.

Potential Site hazards were discussed previously in Section 4.0. The duration of Site activities is estimated to be approximately four weeks. All work is expected to be performed during daylight hours and workdays, in general, are expected to be eight hours in duration.

Personal protection levels for the Site activities, based on investigations of nearby properties, are anticipated to be Level D with the unlikely possibility of upgrading to Level C. The equipment included for each level of protection is provided as follows:

Level C Protection

Personnel protective equipment:

- Air-purifying respirator, full-face, equipped with dust and organic vapor cartridges.
- Chemical-resistant clothing includes: Tyvek^{tm} (spunbonded olefin fibers) for particulate and limited splash protection or Saranex^{tm} (plastic film-laminated Tyvek) for permeation resistance to solvents.
- Coveralls*, or
- Long cotton underwear*
- Gloves (outer), chemical-resistant
- Gloves (inner), chemical-resistant
- Boots (outer), leather or chemical-resistant, steel toe and shank.
- Boot covers (outer), chemical-resistant (disposable)*
- Hard hat (face shield)*
- Escape mask*
- 2-way radio communications (intrinsically safe)*

(*) optional

Criteria for Selection of Level C Protection

Meeting all of these criteria permits use of Level C Protection:

- Oxygen concentrations are not less than 19.5% by volume.
- Measured air concentrations of identified substances will be reduced by the respirator below the substance's threshold limit value (TLV).
- Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any body area left unprotected by chemical-resistant clothing.
- Job functions do not require self-contained breathing apparatus.
- Direct readings are below 50 ppm on the PID.

Level D Protection

Personnel protective equipment:

- Coveralls
- Gloves*
- Boots/shoes, leather or chemical-resistant, steel toe and shank.
- Safety glasses or chemical splash goggles*
- Hard hat (face shield*)
- Escape mask*

(*) optional

Criteria for Selection of Level D Protection

Meeting any of these criteria allows use of Level D Protection:

- No contaminant levels above 5 ppm organic vapors or dusty conditions are present.
- Work functions preclude splashes, immersion, or the reasonable potential for unexpected inhalation of any chemicals above the TLV.

Additional Considerations for Selecting Levels of Protection

Other factors which will be considered in selecting the appropriate level of protection are heat and physical stress. The use of protective clothing and respirators increases physical stress, in particular, heat stress on the wearer. Chemical protective clothing greatly reduces natural ventilation and diminishes the body's ability to regulate its temperature. Even in moderate ambient temperatures, the diminished capacity of the body to dissipate heat can result in one or more heat-related problems.

All chemical protective garments can be a contributing factor to heat stress. Greater susceptibility to heat stress occurs when protective clothing requires the use of a tightly fitted hood against the respirator face piece, or when gloves or boots are taped to the suit. As more body area is covered, less cooling takes place, increasing the probability of heat stress.

Wearing protective equipment also increases the risk of accidents. It is heavy, cumbersome, decreases dexterity, agility, interferes with vision, and is fatiguing to wear. These factors all increase physical stress and the potential for accidents. In particular, the necessity of selecting a level of protection will be balanced against the increased probability of heat stress and accidents.

7.2 Donning and Doffing Ensembles

Donning an Ensemble

A routine will be established and practiced periodically for donning a Level C ensemble. Assistance may be provided for donning and doffing since these operations are difficult to perform alone. Donning will be completed in the decontamination zone.

Table 7.2.1 lists sample procedures for donning a Level C ensemble. These procedures should be modified depending on the particular type of suit and/or when extra gloves and/or boots are used.

Doffing an Ensemble

Exact procedures for removing Level C ensembles must be established and followed to prevent contaminant migration from the work area and transfer of contaminants to the wearer's body, the doffing assistant, and others. Doffing will be completed in the decontamination zone.

Doffing procedures are provided in Table 7.2.2. These procedures should be performed only after decontamination of the suited worker. They require a suitably attired assistant. Throughout the procedures, both worker and assistant should avoid any direct contact with the outside surface of the suit.

7.3 Respirator Fit Testing

The fit or integrity of the facepiece-to-face seal of a respirator affects its performance. Most facepieces fit only a certain percentage of the population; thus each facepiece must be tested on the potential wearer in order to ensure a tight seal. Facial features such as scars, hollow temples, very prominent cheekbones, deep skin creases, dentures or missing teeth, and the chewing of gum and tobacco may interfere with the respirator-to-face seal. Facial hair in the seal area may also interfere with the respirator-to-face seal and should be removed prior to entry into the work zone. A respirator shall not be worn when such conditions prevent a good seal. The worker's diligence in observing these factors shall be evaluated by periodic checks. Fit testing will comply with 29 CFR 1910.1025 regulations.

TABLE 7.2.1
SAMPLE DONNING PROCEDURES

1. Inspect the clothing and respiratory equipment before donning (see Inspection in subsection 7.4).

2. Adjust hard hat or headpiece if worn, to fit user's head.

3. Standing or sitting, step into the legs of the suit; ensure proper placement of the feet within the suit; then gather the suit around the waist.

4. Put on chemical-resistant safety boots over the feet of the suit. Tape the leg cuff over the tops of the boots.

5. Don the respirator and adjust it to be secure, but comfortable.

6. Perform negative and positive respirator facepiece seal test procedures.

   - To conduct a negative-pressure test, close the inlet part with the palm of the hand or squeeze the breathing tube so it does not pass air, and gently inhale for about 10 seconds. Any inward rushing of air indicates a poor fit. Note that a leaking facepiece may be drawn tightly to the face to form a good seal, giving a false indication of adequate fit.

   - To conduct a positive-pressure test, gently exhale while covering the exhalation valve to ensure that a positive pressure can be built up. Failure to build a positive pressure indicates a poor fit.

7. Depending on type of suit:

   - Put on inner gloves (surgical gloves).

   - Additional overgloves, worn over attached suit gloves, may be donned later.

8. Put on hard hat

9. Have assistant observe the wearer for a period of time to ensure that the wearer is comfortable, psychologically stable, and that the equipment is functioning properly.

TABLE 7.2.2
DOFFING PROCEDURES

1. Remove any extraneous or disposable clothing, boot covers, outer gloves, and tape.

2. Remove respirator by loosening straps and pulling straps over the top of the head and move mask away from head. Do not pull mask over the top of the head.

3. Remove arms, one at a time, from suit, avoiding any contact between the outside surface of the suit and wearer's body and lay the suit out flat behind the wearer. Leave internal gloves on, if any.

4. Sitting, if possible, remove both legs from the suit.

5. After suit is removed, remove internal gloves by rolling them off the hand, inside out.

7.4 Inspection

The PPE inspection program will entail five different inspections:

- Inspection and operational testing of equipment received from the factory or distributor.
- Inspection of equipment as it is issued to workers.
- Inspection after use.
- Periodic inspection of stored equipment.
- Periodic inspection when a question arises concerning the appropriateness of the selected equipment, or when problems with similar equipment arise.

The inspection checklist is provided in Table 7.4.1. Records will be kept of all inspection procedures. Individual identification numbers will be assigned to all reusable pieces of equipment and records should be maintained by that number. At a minimum, each inspection should record the ID number, date, inspector, and any unusual conditions or findings. Periodic review of these records may indicate an item or type of item with excessive maintenance costs or a particularly high level of down-time.

7.5 Storage

Clothing and respirators will be stored properly to prevent damage or malfunction due to exposure to dust, moisture, sunlight, damaging chemicals, extreme temperatures, and impact. Storage procedures are as follows:

TABLE 7.4.1
PPE INSPECTION CHECKLIST

CLOTHING

Before use:

- Determine that the clothing material is correct for the specified task at hand.
- Visually inspect for:
  - imperfect seams
  - non-uniform coatings
  - tears
  - malfunctioning closures
- Hold up to light and check for pinholes.
- Flex product:
  - observe for cracks or other signs of shelf deterioration
- If the product has been used previously, inspect inside and out for signs of chemical attack:
  - discoloration, swelling, stiffness

During the work task, periodically inspect for:

- Evidence of chemical attack such as discoloration, swelling, stiffening, and softening. Keep in mind, however, that chemical permeation can occur without any visible effects.
- Closure failure
- Tears
- Punctures
- Seam discontinuities

GLOVES

Before use:

- Pressurize glove to check for pinholes. Either blow into glove, then roll gauntlet toward fingers or inflate glove and hold under water. In either case, no air should escape.

AIR-PURIFYING RESPIRATORS

- Inspect air-purifying respirators:
  - before each use to be sure they have been adequately cleaned
- Check material conditions for:
  - signs of pliability, deterioration, distortion
- Examine cartridges to ensure that:
  - they are the proper type for the intended use
  - the expiration date has not been passed
  - they have not been opened or used previously
- Check faceshields and lenses for:
  - cracks, crazing, fogginess
- Air purifying respirators will be stored individually in resealable plastic bags.

Clothing:

- Potentially contaminated clothing will be stored in an area separate from street clothing.
- Potentially contaminated clothing will be stored in a well-ventilated area, with good air flow around each item, if possible.
- Different types and material of clothing and gloves will be stored separately to prevent issuing the wrong material by mistake.
- Protective clothing will be folded or hung in accordance with manufacturer's recommendations.

Respirators:

- Air-purifying respirators should be dismantled, washed, and placed in sealed plastic bags.

7.6 Maintenance

Specialized maintenance will be performed only by the factory or an authorized repair person. Routine maintenance, such as cleaning, will be performed by the personnel to whom the equipment is assigned. Respirators will be cleaned at the end of each day with alcohol pads or, preferably, by washing with warm soapy water.

7.7 Decontamination Methods

All personnel, clothing, equipment, and samples leaving the (potentially) contaminated, or work zone, area of the Site must be decontaminated to remove any harmful chemicals or infectious organisms that may have adhered to them. Decontamination methods either (1) physically remove contaminants (2) inactivate contaminants by chemical detoxification or disinfection/sterilization, or (3) remove contaminants by a combination of both physical and chemical means. In many cases, gross contamination can be removed by physical means involving dislodging/displacement, rinsing, wiping off, and evaporation. Contaminants that can be removed by physical means include dust, vapors, and volatile liquids. All reusable equipment will be decontaminated by rinsing in a bath of detergent and water (respirators, gloves to be reused). Monitoring equipment will be decontaminated by wiping with paper towels and water.

The effectiveness of the decontamination will be evaluated near the beginning of Site activities and will be modified if determined to be ineffective. Visual observation will be used for this purpose. The HSO will inspect decontaminated materials for discoloration, stains, corrosive effects, visible dirt, or other signs of possible residual contamination.

All disposable PPE will be discarded following use. All used PPE to be discarded will be placed in an appropriate receptacle for disposal.

SECTION 8.0
DECONTAMINATION PROCEDURES FOR SAMPLING EQUIPMENT

All non-dedicated sampling equipment shall be decontaminated prior to, and following, use at each sampling location. Decontamination procedures shall consist of the following:

1. Scrub equipment in a bath of low-phosphate detergent and potable water.

2. Potable water rinse.

3. Air dry.

4. Aluminum foil wrap, shiny side out, for transport.

Personal protective equipment decontamination has been discussed in Subsection 7.7.

All direct-push equipment and other equipment which has contacted Site soil, groundwater, or soil vapor will be decontaminated prior to leaving the Site. Decontamination of this equipment will consist of physically removing adhering soil using hand tools followed by rinsing the equipment with potable water. Decontamination will be performed in the immediate vicinity of the work area so that the removed soil and rinseate will be discharged in the area from which it originated.

SECTION 9.0
CALIBRATION PROCEDURES, FREQUENCIES, AND MAINTENANCE

This section summarizes the calibration procedures, frequencies, and maintenance for the health and safety field monitoring instruments. The manufacturer's owner's manuals for all monitoring equipment to be used will be present at the Site and will be followed.

The monitoring equipment will include a photoionization detector (PID) which measures the concentration of airborne ionizable gases and vapors. The PID does not distinguish between individual compounds and will not read methane. The PID calibration will be performed using ambient air to "zero" the instrument and a 95 to 100 ppm cylinder of isobutylene to calibrate the span. The calibration will be performed in accordance with the manufacturer's instructions.

Additional monitoring instruments may include a dust monitor, a noise monitor, and other equipment, as necessary. All instruments will be calibrated prior to the commencement of each day's work in accordance with the manufacturer's instructions. The instruments will also be charged overnight prior to each day's work. Maintenance will be performed periodically as needed and in accordance with the manufacturer's instructions.

SECTION 10.0
EMERGENCY RESPONSE PLAN

This section will present the Emergency Response Plan (ERP) for the Site. Pre-emergency planning will consist of reviewing the ERP with all workers at the Site prior to initiation of work.

Personnel Roles

It is anticipated that during sampling activities at the Site several persons, including the HSO and contractor personnel, will be onsite. Should an emergency situation arise at the Site, the HSO will assume control and decision-making. The HSO will also resolve all disputes concerning health and safety requirements and precautions. The HSO will also:

- Be authorized to seek and purchase supplies as necessary.
- Have control over activities of everyone entering the Site.

The HSO will communicate, by field telephone or other, with off-Site personnel to include the Project Manager to evaluate data and assist in the decision-making process. Phone numbers for the fire department, police, ambulance, poison control center, NYS Spills Hotlines, are listed in Table 1.2.1 of this document. The hospital which will be utilized during an emergency will be Elmhurst Hospital Center in Elmhurst. The directions to the hospital, along with the hospital's emergency room phone number are presented in Table 1.2.1. Copies of Table 1.2.1 will be available at the Site and will be placed in all vehicles of personnel involved in activities at the Site.

Internal communications will consist of a single whistle (or compressed air horn if Level C is donned) blast. This blast will signal all workers to evacuate the work zone by the nearest exit.

Response Follow-Up

Following an emergency, or incident, a detailed report will be generated by the HSO. All equipment will be restored to pre-emergency conditions. The HASP will be reviewed following an emergency to determine if it provides adequate information to assist in dealing with the emergency. The HASP may be revised to incorporate additional information as needed.

Emergency Recognition and Prevention

Before daily work assignments begin, each day a brief on-Site meeting will be held by the HSO which will address health and safety issues related to the day's work. Prior to initiation of work, a detailed on-Site health and safety meeting will be held to review all potential hazards, contingencies, and safety measures.

Safe Distances and Places of Refuge

The main potential cause of work zone evacuation is a significant vapor release. Vapor release evacuation will be discussed prior to subsurface activities at the Site and in general will be in the upwind direction. Wind direction will be monitored at each work location and all workers will be notified of the direction of evacuation prior to commencement of work. Safe distances will be discussed at each location and determined by the HSO. The PID will be used to determine if workers have evacuated a

sufficient distance.

At all times, vehicles which may be utilized in an emergency for transport to the hospital (or other destination) will have clear access to leave the Site. The HSO will assure that an emergency vehicle does not become blocked-in by other vehicles.

Site Security and Control

The HSO will control entry of personnel into the work zone. No unnecessary persons shall be permitted in the work zone.

Decontamination Procedures During Emergencies

In the event of a medical emergency, decontamination will be performed if it does not interfere with essential treatment. Decontamination will be performed by washing, rinsing, and/or cutting off protective clothing and equipment.

If decontamination cannot be performed, the victim will be wrapped in plastic to reduce contamination to other personnel. Emergency and off-Site medical personnel will be alerted to the potential contamination.

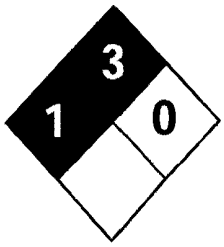
Emergency Medical Treatment and First Aid

Medical emergencies will be treated, in general, by medical experts by transporting the victim to the nearby hospital. A first aid kit will be present on Site for minor medical treatment.

APPENDIX A

MATERIAL SAFETY DATA SHEETS

ScienceLab.com
Chemicals & Laboratory Equipment



Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Acetone MSDS

Section 1: Chemical Product and Company Identification

Product Name: Acetone

Catalog Codes: SLA3502, SLA1645, SLA3151, SLA3808

CAS#: 67-64-1

RTECS: AL3150000

TSCA: TSCA 8(b) inventory: Acetone

CI#: Not applicable.

Synonym: 2-propanone; Dimethyl Ketone; Dimethylformaldehyde; Pyroacetic Acid

Chemical Name: Acetone

Chemical Formula: C3-H6-O

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Acetone	67-64-1	100

Toxicological Data on Ingredients: Acetone: ORAL (LD50): Acute: 5800 mg/kg [Rat]. 3000 mg/kg [Mouse]. 5340 mg/kg [Rabbit]. VAPOR (LC50): Acute: 50100 mg/m 8 hours [Rat]. 44000 mg/m 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED]. The substance is toxic to central nervous system (CNS). The substance may be toxic to kidneys, the reproductive system, liver, skin. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 465°C (869°F)

Flash Points: CLOSED CUP: -20°C (-4°F). OPEN CUP: -9°C (15.8°F) (Cleveland).

Flammable Limits: LOWER: 2.6% UPPER: 12.8%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Slightly explosive in presence of open flames and sparks, of oxidizing materials, of acids.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards: Vapor may travel considerable distance to source of ignition and flash back.

Special Remarks on Explosion Hazards:
Forms explosive mixtures with hydrogen peroxide, acetic acid, nitric acid, nitric acid + sulfuric acid, chromic anydride, chromyl chloride, nitrosyl chloride, hexachloromelamine, nitrosyl perchlorate, nitryl perchlorate, permonosulfuric acid, thiodiglycol + hydrogen peroxide, potassium ter-butoxide, sulfur dichloride, 1-methyl-1,3-butadiene, bromoform, carbon, air, chloroform, thitriazylperchlorate.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, acids, alkalis.

Storage:
Store in a segregated and approved area (flammables area) . Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Keep away from direct sunlight and heat and avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 500 STEL: 750 (ppm) from ACGIH (TLV) [United States] TWA: 750 STEL: 1000 (ppm) from OSHA (PEL) [United States] TWA: 500 STEL: 1000 [Austalia] TWA: 1185 STEL: 2375 (mg/m3) [Australia] TWA: 750 STEL: 1500 (ppm) [United Kingdom (UK)] TWA: 1810 STEL: 3620 (mg/m3) [United Kingdom (UK)] TWA: 1800 STEL: 2400 from OSHA (PEL) [United States]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Fruity. Mint-like. Fragrant. Ethereal

Taste: Pungent, Sweetish

Molecular Weight: 58.08 g/mole

Color: Colorless. Clear

pH (1% soln/water): Not available.

Boiling Point: 56.2°C (133.2°F)

Melting Point: -95.35 (-139.6°F)

Critical Temperature: 235°C (455°F)

Specific Gravity: 0.79 (Water = 1)

Vapor Pressure: 24 kPa (@ 20°C)

Vapor Density: 2 (Air = 1)

Volatility: Not available.

Odor Threshold: 62 ppm

Water/Oil Dist. Coeff.: The product is more soluble in water; log(oil/water) = -0.2

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, ignition sources, exposure to moisture, air, or water, incompatible materials.

Incompatibility with various substances: Reactive with oxidizing agents, reducing agents, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 3000 mg/kg [Mouse]. Acute toxicity of the vapor (LC50): 44000 mg/m3 4 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED]. Causes damage to the following organs: central nervous system (CNS). May cause damage to the following organs: kidneys, the reproductive system, liver, skin.

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May affect genetic material (mutagenicity) based on studies with yeast (S. cerevisiae), bacteria, and hamster fibroblast cells. May cause reproductive effects (fertility) based upon animal studies. May contain trace amounts of benzene and formaldehyde which may cancer and birth defects. Human: passes the placental barrier.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritation. May be harmful if absorbed through the skin. Eyes: Causes eye irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. Inhalation: Inhalation at high concentrations affects the sense organs, brain and causes respiratory tract irritation. It also may affect the Central Nervous System (behavior) characterized by dizzness, drowsiness, confusion, headache, muscle weakeness, and possibly motor incoordination, speech abnormalities, narcotic effects and coma. Inhalation may also affect the gastrointestinal tract (nausea, vomiting). Ingestion: May cause irritation of the digestive (gastrointestinal) tract (nausea, vomiting). It may also

affect the Central Nevous System (behavior), characterized by depression, fatigue, excitement, stupor, coma, headache, altered sleep time, ataxia, tremors as well at the blood, liver, and urinary system (kidney, bladder, ureter) and endocrine system. May also have musculoskeletal effects. Chronic Potential Health Effects: Skin: May cause dermatitis. Eyes: Eye irritation.

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 5540 mg/l 96 hours [Trout]. 8300 mg/l 96 hours [Bluegill]. 7500 mg/l 96 hours [Fatthead Minnow]. 0.1 ppm any hours [Water flea].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Acetone UNNA: 1090 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Benzene California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Benzene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Benzene, Formaldehyde Connecticut hazardous material survey.: Acetone Illinois toxic substances disclosure to employee act: Acetone Illinois chemical safety act: Acetone New York release reporting list: Acetone Rhode Island RTK hazardous substances: Acetone Pennsylvania RTK: Acetone Florida: Acetone Minnesota: Acetone Massachusetts RTK: Acetone Massachusetts spill list: Acetone New Jersey: Acetone New Jersey spill list: Acetone Louisiana spill reporting: Acetone California List of Hazardous Substances (8 CCR 339): Acetone TSCA 8(b) inventory: Acetone TSCA 4(a) final test rules: Acetone TSCA 8(a) IUR: Acetone

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R11- Highly flammable. R36- Irritating to eyes. S9- Keep container in a well-ventilated place. S16- Keep away from sources of ignition - No smoking. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References:
-Material safety data sheet issued by: la Commission de la SantÃ© et de la SÃ©curitÃ© du Travail du QuÃ©bec. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. LOLI, RTECS, HSDB databases. Other MSDSs

Other Special Considerations: Not available.

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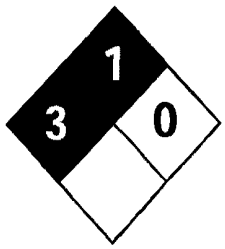

Health	3
Fire	1
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Cadmium MSDS

Section 1: Chemical Product and Company Identification

Product Name: Cadmium

Catalog Codes: SLC3484, SLC5272, SLC2482

CAS#: 7440-43-9

RTECS: EU9800000

TSCA: TSCA 8(b) inventory: Cadmium

CI#: Not applicable.

Synonym:

Chemical Name: Cadmium

Chemical Formula: Cd

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Cadmium	7440-43-9	100

Toxicological Data on Ingredients: Cadmium: ORAL (LD50): Acute: 2330 mg/kg [Rat.]. 890 mg/kg [Mouse]. DUST (LC50): Acute: 50 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, sensitizer), of eye contact (irritant). Severe over-exposure can result in death.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2 (Reasonably anticipated.) by NTP. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, lungs, liver. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact: No known effect on eye contact, rinse with water for a few minutes.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 570°C (1058°F)

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances:
Non-flammable in presence of open flames and sparks, of heat, of oxidizing materials, of reducing materials, of combustible materials, of moisture.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:
Material in powder form, capable of creating a dust explosion. When heated to decomposition it emits toxic fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Highly toxic or infectious materials should be stored in a separate locked safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.01 (ppm) Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Lustrous solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 112.4 g/mole

Color: Silvery.

pH (1% soln/water): Not applicable.

Boiling Point: 765°C (1409°F)

Melting Point: 320.9°C (609.6°F)

Critical Temperature: Not available.

Specific Gravity: 8.64 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water, methanol, diethyl ether, n-octanol.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Not considered to be corrosive for metals and glass.

Special Remarks on Reactivity: Reacts violently with potassium.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 890 mg/kg [Mouse]. Acute toxicity of the dust (LC50): 229.9 mg/m3 4 hour(s) [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2 (Reasonably anticipated.) by NTP. The substance is toxic to kidneys, lungs, liver.

Other Toxic Effects on Humans:
Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, sensitizer).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: An allergen. 0047 Animal: embryotoxic, passes through the placental barrier.

Special Remarks on other Toxic Effects on Humans: May cause allergic reactions, exzema and/or dehydration of the skin.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification:

Identification:

Special Provisions for Transport:

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Cadmium California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Cadmium Pennsylvania RTK: Cadmium Massachusetts RTK: Cadmium TSCA 8(b) inventory: Cadmium SARA 313 toxic chemical notification and release reporting: Cadmium CERCLA: Hazardous substances.: Cadmium

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R26- Very toxic by inhalation. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 1

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -Liste des produits purs tératogènes, mutagènes, cancérogènes. Répertoire toxicologique de la Commission de la Santé et de la Sécurité du Travail du Québec. -Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec. -SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangeureuses au canada. Centre de conformité internatinal Ltée. 1986.

Other Special Considerations: Not available.

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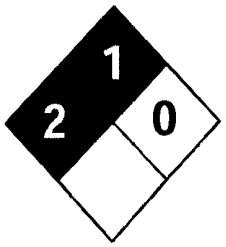

Health	2
Fire	1
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Copper MSDS

Section 1: Chemical Product and Company Identification

Product Name: Copper

Catalog Codes: SLC4939, SLC2152, SLC3943, SLC1150, SLC2941, SLC4729, SLC1936, SLC3727, SLC5515

CAS#: 7440-50-8

RTECS: GL5325000

TSCA: TSCA 8(b) inventory: Copper

CI#: Not available.

Synonym:

Chemical Name: Not available.

Chemical Formula: Cu

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Copper	7440-50-8	100

Toxicological Data on Ingredients: Copper LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of ingestion. Hazardous in case of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (irritant).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation: Not available.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe dust. Avoid contact with eyes Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If you feel unwell, seek medical attention and show the label when possible.

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 1 (mg/m3) from ACGIH [1990] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 63.54 g/mole

Color: Not available.

pH (1% soln/water): Not applicable.

Boiling Point: 2595°C (4703°F)

Melting Point: 1083°C (1981.4°F)

Critical Temperature: Not available.

Specific Gravity: 8.94 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: The substance is toxic to lungs, mucous membranes.

Other Toxic Effects on Humans:
Very hazardous in case of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Human: passes through the placenta, excreted in maternal milk.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Copper Massachusetts RTK: Copper TSCA 8(b) inventory: Copper CERCLA: Hazardous substances.: Copper

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R36- Irritating to eyes.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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MATERIAL SAFETY DATA SHEET

Gasoline, All Grades **MSDS No. 9950**

EMERGENCY OVERVIEW

DANGER!

EXTREMELY FLAMMABLE - EYE AND MUCOUS MEMBRANE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED - ASPIRATION HAZARD

NFPA 704 (Section 16)

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

1. CHEMICAL PRODUCT and COMPANY INFORMATION

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs):	**CHEMTREC (800)424-9300**
COMPANY CONTACT (business hours):	Corporate Safety (732)750-6000
MSDS (Environment, Health, Safety) Internet Website	www.hess.com

SYNONYMS: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS *

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Gasoline (86290-81-5)	100
Benzene (71-43-2)	0.1 - 4.9 (0.1 - 1.3 reformulated gasoline)
n-Butane (106-97-8)	< 10
Ethyl Alcohol (Ethanol) (64-17-5)	0 - 10
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Tertiary-amyl methyl ether (TAME) (994-05-8)	0 to 17.2
Toluene (108-88-3)	1 - 25
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 - 15

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol or MTBE and/or TAME).

Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

3. HAZARDS IDENTIFICATION

EYES
Moderate irritant. Contact with liquid or vapor may cause irritation.

SKIN
Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY
Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 - Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

4. FIRST AID MEASURES

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION
Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT:	-45 °F (-43°C)
AUTOIGNITION TEMPERATURE:	highly variable; > 530 °F (>280 °C)
OSHA/NFPA FLAMMABILITY CLASS:	1A (flammable liquid)
LOWER EXPLOSIVE LIMIT (%):	1.4%
UPPER EXPLOSIVE LIMIT (%):	7.6%

FIRE AND EXPLOSION HAZARDS
Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA
SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain MTBE and/or TAME. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration - refer to NFPA 11 "Low Expansion Foam - 1994 Edition."

FIRE FIGHTING INSTRUCTIONS
Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

******USE ONLY AS A MOTOR FUEL******
******DO NOT SIPHON BY MOUTH******

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

EXPOSURE LIMITS

Component (CAS No.)	Source	Exposure Limits TWA (ppm)	STEL (ppm)	Note
Gasoline (86290-81-5)	ACGIH	300	500	A3
Benzene (71-43-2)	OSHA	1	5	Carcinogen
	ACGIH	0.5	2.5	A1, skin
	USCG	1	5	
n-Butane (106-97-8)	ACGIH	1000	--	Aliphatic Hydrocarbon Gases Alkane (C1-C4)
Ethyl Alcohol (ethanol) (64-17-5)	OSHA	1000	–	
	ACGIH	1000	–	A4
Ethyl benzene (100-41-4)	OSHA	100	–	
	ACGIH	100	125	A3
n-Hexane (110-54-3)	OSHA	500	–	
	ACGIH	50	–	Skin
Methyl-tertiary butyl ether [MTBE] (1634-04-4)	ACGIH	50		A3
Tertiary-amyl methyl ether [TAME] (994-05-8)				None established
Toluene (108-88-3)	OSHA	200		Ceiling: 300 ppm; Peak: 500 ppm (10 min.)
	ACGIH	20	–	A4
1,2,4- Trimethylbenzene (95-63-6)	ACGIH	25	–	
Xylene, mixed isomers (1330-20-7)	OSHA	100	–	
	ACGIH	100	150	A4

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as that made of of E.I. DuPont Tychem ®, products or equivalent is recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE

A translucent, straw-colored or light yellow liquid

ODOR
A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with MTBE and/or TAME may have a sweet, ether-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

ODOR THRESHOLD

	Odor Detection	Odor Recognition
Non-oxygenated gasoline:	0.5 - 0.6 ppm	0.8 - 1.1 ppm
Gasoline with 15% MTBE:	0.2 - 0.3 ppm	0.4 - 0.7 ppm
Gasoline with 15% TAME:	0.1 ppm	0.2 ppm

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	85 to 437 °F (39 to 200 °C)
VAPOR PRESSURE:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	AP 3 to 4
SPECIFIC GRAVITY (H_2O = 1):	0.70 – 0.78
EVAPORATION RATE:	10-11 (n-butyl acetate = 1)
PERCENT VOLATILES:	100 %
SOLUBILITY (H_2O):	Non-oxygenated gasoline - negligible (< 0.1% @ 77 °F). Gasoline with 15% MTBE - slight (0.1 - 3% @ 77 °F); ethanol is readily soluble in water

10. STABILITY and REACTIVITY)

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID
Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

INCOMPATIBLE MATERIALS
Keep away from strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY
Acute Dermal LD50 (rabbits): > 5 ml/kg
Acute Oral LD50 (rat): 18.75 ml/kg
Primary dermal irritation (rabbits): slightly irritating
Draize eye irritation (rabbits): non-irritating
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY
Carcinogenicity:OSHA: NO IARC: YES - 2B NTP: NO ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

This product may contain methyl tertiary butyl ether (MTBE): animal and human health effects studies indicate that MTBE may cause eye, skin, and respiratory tract irritation, central nervous system depression and neurotoxicity. MTBE is classified as an animal carcinogen (A3) by the ACGIH.

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. If released, oxygenates such as ethers and alcohols will be expected to exhibit fairly high mobility in soil, and therefore may leach into groundwater. The API (www.api.org) provides a number of useful references addressing petroleum and oxygenate contamination of groundwater.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME:	Gasoline
DOT HAZARD CLASS and PACKING GROUP:	3, PG II
DOT IDENTIFICATION NUMBER:	UN 1203
DOT SHIPPING LABEL:	FLAMMABLE LIQUID

PLACARD:

15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION WT. PERCENT
Benzene (71-43-2)	0.1 to 4.9 (0.1 to 1.3 for reformulated gasoline)
Ethyl benzene (100-41-4)	< 3

n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Toluene (108-88-3)	1 to 15
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 to 15

US EPA guidance documents (www.epa.gov/tri) for reporting Persistent Bioaccumulating Toxics (PBTs) indicate this product may contain the following deminimis levels of toxic chemicals subject to Section 313 reporting:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION - Parts per million (ppm) by weight
Polycyclic aromatic compounds (PACs)	17
Benzo (g,h,i) perylene (191-24-2)	2.55
Lead (7439-92-1)	0.079

CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

INGREDIENT NAME (CAS NUMBER)	Date Listed
Benzene	2/27/1987
Ethyl benzene	6/11/2004
Toluene	1/1/1991

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)
Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION

NFPA® HAZARD RATING	HEALTH:	1	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
HMIS® HAZARD RATING	HEALTH:	1 *	Slight
	FIRE:	3	Serious
	PHYSICAL:	0	Minimal
			* CHRONIC

SUPERSEDES MSDS DATED: 07/01/06

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
AIHA	American Industrial Hygiene Association	DOT	U.S. Department of Transportation [General Info: (800)467-4922]
ANSI	American National Standards Institute (212)642-4900	EPA	U.S. Environmental Protection Agency
API	American Petroleum Institute (202)682-8000	HMIS	Hazardous Materials Information System

IARC	International Agency For Research On Cancer	REL	Recommended Exposure Limit (NIOSH)
MSHA	Mine Safety and Health Administration	SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
NFPA	National Fire Protection Association (617)770-3000	SCBA	Self-Contained Breathing Apparatus
NIOSH	National Institute of Occupational Safety and Health	SPCC	Spill Prevention, Control, and Countermeasures
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)	STEL	Short-Term Exposure Limit (generally 15 minutes)
NTP	National Toxicology Program	TLV	Threshold Limit Value (ACGIH)
OPA	Oil Pollution Act of 1990	TSCA	Toxic Substances Control Act
OSHA	U.S. Occupational Safety & Health Administration	TWA	Time Weighted Average (8 hr.)
PEL	Permissible Exposure Limit (OSHA)	WEEL	Workplace Environmental Exposure Level (AIHA)
RCRA	Resource Conservation and Recovery Act	WHMIS	Workplace Hazardous Materials Information System (Canada)

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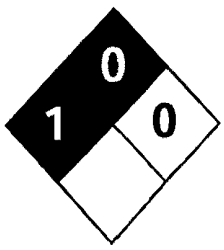

Health	1
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Lead MSDS

Section 1: Chemical Product and Company Identification

Product Name: Lead

Catalog Codes: SLL1291, SLL1669, SLL1081, SLL1459, SLL1834

CAS#: 7439-92-1

RTECS: OF7525000

TSCA: TSCA 8(b) inventory: Lead

CI#: Not available.

Synonym: Lead Metal, granular; Lead Metal, foil; Lead Metal, sheet; Lead Metal, shot

Chemical Name: Lead

Chemical Formula: Pb

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Lead	7439-92-1	100

Toxicological Data on Ingredients: Lead LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Non-flammable in presence of open flames and sparks, of shocks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: When heated to decomposition it emits highly toxic fumes of lead.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.05 (mg/m3) from ACGIH (TLV) [United States] TWA: 0.05 (mg/m3) from OSHA (PEL) [United States] TWA: 0.03 (mg/m3) from NIOSH [United States] TWA: 0.05 (mg/m3) [Canada]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 207.21 g/mole

Color: Bluish-white. Silvery. Gray

pH (1% soln/water): Not applicable.

Boiling Point: 1740°C (3164°F)

Melting Point: 327.43°C (621.4°F)

Critical Temperature: Not available.

Specific Gravity: 11.3 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, excess heat

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Can react vigorously with oxidizing materials. Incompatible with sodium carbide, chlorine trifluoride, trioxane + hydrogen peroxide, ammonium nitrate, sodium azide, disodium acetylide, sodium acetylide, hot concentrated nitric acid, hot concentrated hydrochloric acid, hot concentrated sulfuric acid, zirconium.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. May cause damage to the following organs: blood, kidneys, central nervous system (CNS).

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential: Skin: Lead metal granules or dust: May cause skin irritation by mechanical action. Lead metal foil, shot or sheets: Not likely to cause skin irritation Eyes: Lead metal granules or dust: Can irritate eyes by mechanical action. Lead metal foil, shot or sheets: No hazard. Will not cause eye irritation. Inhalation: In an industrial setting, exposure to lead mainly occurs from inhalation of dust or fumes. Lead dust or fumes: Can irritate the upper respiratory tract (nose, throat) as well as the bronchi and lungsby mechanical action. Lead dust can be absorbed through the respiratory system. However, inhaled lead does not accumulate in the lungs. All of an inhaled dose is eventually abssorbed or transferred to the gastrointestinal tract. Inhalation effects of exposure to fumes or dust of inorganic lead may not develop quickly. Symptoms may include metallic taste, chest pain, decreased physical fitness, fatigue, sleep disturbance, headache, irritability, reduces memory, mood and personality changes, aching bones and muscles, constipation, abdominal pains, decreasing appetite. Inhalation of large amounts may lead to ataxia, deliriuim, convulsions/seizures, coma, and death. Lead metal foil, shot, or sheets: Not an inhalation hazard unless metal is heated. If metal is heated, fumes will be released. Inhalation of these fumes may cause "fume metal fever", which is characterized by flu-like symptoms. Symptoms may include metallic taste, fever, nausea, vomiting, chills, cough, weakness, chest pain, generalized muscle pain/aches, and increased white blood cell count. Ingestion: Lead metal granules or dust: The symptoms of lead poisoning include abdominal pain or cramps (lead cholic), spasms, nausea, vomiting, headache, muscle weakness, hallucinations, distorted perceptions, "lead line" on the gums, metallic taste, loss of appetite, insomnia, dizziness and other symptoms similar to that of inhalation. Acute poisoning may result in high lead levels in the blood and urine, shock, coma and death in extreme cases. Lead metal foil, shot or sheets: Not an ingestion hazard for usual industrial handling.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (female) which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Lead California prop. 65 (no significant risk level): Lead: 0.0005 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Lead Connecticut hazardous material survey.: Lead Illinois toxic substances disclosure to employee act: Lead Illinois chemical safety act: Lead New York release reporting list: Lead Rhode Island RTK hazardous substances: Lead Pennsylvania RTK: Lead

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R20/22- Harmful by inhalation and if swallowed. R33- Danger of cumulative effects. R61- May cause harm to the unborn child. R62- Possible risk of impaired fertility. S36/37- Wear suitable protective clothing and gloves. S44- If you feel unwell, seek medical advice (show the label when possible). S53- Avoid exposure - obtain special instructions before use.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:21 PM

Last Updated: 06/09/2012 12:00 PM

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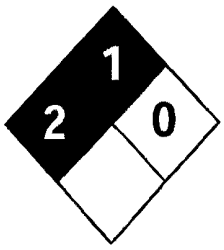

Health	2
Fire	1
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Methylene chloride MSDS

Section 1: Chemical Product and Company Identification

Product Name: Methylene chloride

Catalog Codes: SLM2398, SLM3772, SLM1297, SLM2677, SLM4054

CAS#: 75-09-2

RTECS: PA8050000

TSCA: TSCA 8(b) inventory: Methylene chloride

CI#: Not available.

Synonym: Dichloromethane

Chemical Name: Methylene Chloride

Chemical Formula: C-H2-Cl2

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Methylene chloride	75-09-2	100

Toxicological Data on Ingredients: Methylene chloride: ORAL (LD50): Acute: 1600 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects: Very hazardous in case of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (irritant, permeator). Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects: CARCINOGENIC EFFECTS: Classified + (Proven.) by OSHA. Classified 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, the nervous system, liver, mucous membranes, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact: In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation: Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 556°C (1032.8°F)

Flash Points: Not available.

Flammable Limits: LOWER: 12% UPPER: 19%

Products of Combustion: These products are carbon oxides (CO, CO2), halogenated compounds.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions: Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/ fumes/ vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection: Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: TWA: 50 from ACGIH (TLV) [United States] TWA: 174 from ACGIH (TLV) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 84.93g/mole

Color: Not available.

pH (1% soln/water): Not available.

Boiling Point: 39.75°C (103.5°F)

Melting Point: -96.7°C (-142.1°F)

Critical Temperature: Not available.

Specific Gravity: 1.3266 (Water = 1)

Vapor Pressure: 46.5 kPa (@ 20°C)

Vapor Density: 2.93 (Air = 1)

Volatility: Not available.

Odor Threshold: 214 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; log(oil/water) = 0.1

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, n-octanol, acetone.

Solubility: Easily soluble in methanol, diethyl ether, n-octanol, acetone. Partially soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 1600 mg/kg [Rat]. Acute toxicity of the vapor (LC50): 52000 1 hours [Rat].

Chronic Effects on Humans: CARCINOGENIC EFFECTS: Classified + (Proven.) by OSHA. Classified 2B (Possible for human.) by IARC. Causes damage to the following organs: lungs, the nervous system, liver, mucous membranes, central nervous system (CNS).

Other Toxic Effects on Humans: Very hazardous in case of ingestion, of inhalation. Hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Human: passes through the placenta, excreted in maternal milk.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Dichloromethane UNNA: 1593 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations: California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Methylene chloride California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Methylene chloride Pennsylvania

RTK: Methylene chloride Massachusetts RTK: Methylene chloride TSCA 8(b) inventory: Methylene chloride SARA 313 toxic chemical notification and release reporting: Methylene chloride CERCLA: Hazardous substances.: Methylene chloride

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R22- Harmful if swallowed. R38- Irritating to skin. R41- Risk of serious damage to eyes. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment: Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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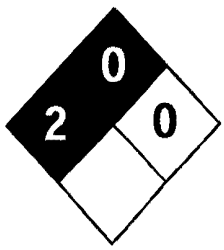

Health	2
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Nickel metal MSDS

Section 1: Chemical Product and Company Identification

Product Name: Nickel metal

Catalog Codes: SLN2296, SLN1342, SLN1954

CAS#: 7440-02-0

RTECS: QR5950000

TSCA: TSCA 8(b) inventory: Nickel metal

CI#: Not applicable.

Synonym: Nickel Metal shot; Nickel metal foil.

Chemical Name: Nickel

Chemical Formula: Ni

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Nickel metal	7440-02-0	100

Toxicological Data on Ingredients: Nickel metal LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant, sensitizer), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (sensitizer), of ingestion, of inhalation (lung sensitizer). CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC. Classified 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to skin. The substance may be toxic to kidneys, lungs, liver, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Material in powder form, capable of creating a dust explosion. This material is flammable in powder form only.

Special Remarks on Explosion Hazards:
Material in powder form, capable of creating a dust explosion. Mixtures containing Potassium Perchlorate with Nickel & Titanium powders & infusorial earth can explode. Adding 2 or 3 drops of approximately 90% peroxyformic acid to powdered nickel will result in explosion. Powdered nickel reacts explosively upon contact with fused ammonium nitrate at temperatures below 200 deg. C.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Keep away from incompatibles such as oxidizing agents, combustible materials, metals, acids.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 1 (mg/m3) from ACGIH (TLV) [United States] Inhalation Respirable. TWA: 0.5 (mg/m3) [United Kingdom (UK)] TWA: 1 (mg/m3) from OSHA (PEL) [United States] InhalationConsult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid. Lustrous solid.)

Odor: Odorless.

Taste: Not available.

Molecular Weight: 58.71 g/mole

Color: Silvery.

pH (1% soln/water): Not applicable.

Boiling Point: 2730°C (4946°F)

Melting Point: 1455°C (2651°F)

Critical Temperature: Not available.

Specific Gravity: Density: 8.908 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:

Insoluble in cold water, hot water. Insoluble in Ammonia. Soluble in dilute Nitric Acid. Slightly soluble in Hydrochloric Acid, Sulfuric Acid.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, combustible materials, metals, acids.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Incompatible with strong acids, selenium, sulfur, wood and other combustibles, nickel nitrate, aluminum, aluminum trichloride, ethylene, p-dioxan, hydrogen, methanol, non-metals, oxidants, sulfur compounds, aniline, hydrogen sulfide, flammable solvents, hydrazine, and metal powders (especially zinc, aluminum, and magnesium), ammonium nitrate, nitryl fluoride, bromine pentafluoride, potassium perchlorate + titanium powder + indusorial earth.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC. Classified 2 (Some evidence.) by NTP. Causes damage to the following organs: skin. May cause damage to the following organs: kidneys, lungs, liver, upper respiratory tract.

Other Toxic Effects on Humans:
Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant, sensitizer), of ingestion.

Special Remarks on Toxicity to Animals:
Lowest Published Lethal Dose/Conc: LDL [Rat] - Route: Oral; Dose: 5000 mg/kg LDL [Guinea Pig] - Route: Oral; Dose: 5000 mg/kg

Special Remarks on Chronic Effects on Humans: May cause cancer based on animal test data

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Nickel dust and fume can irritate skin. Eyes: Nickel dust and fume can irritate eyes. Inhalation: Inhalation of dust or fume may cause respiratory tract irritation with non-productive cough, hoarseness, sore throat, headache, vertigo, weakness, chest pain, followed by delayed effects, including tachypnea, dyspnea, and ARDS. Death due to ARDS has been reported following inhalation of high concentrations of respirable metallic nickel dust. Later effects may include pulmonary edema and fibrosis. Ingestion: Metallic nickel is generally considered not to be acutely toxic if ingested. Ingestion may cause nausea, vomiting, abdominal , and diarrhea. Nickel may damage the kidneys(proteinuria), and may affect liver function. It may also affect behavior (somnolence), and cardiovascular system (increased cornary artery resistance, decreased myocardial contractility, myocardial damage, regional or general arteriolar or venus dilation). Chronic Potential Health Effects: Skin: May cause skin allergy. Nickel and nickel compounds are among the most common sensitizers inducing allergic contact dermatitis. Inhalation: Chronic inhalation nickel dust or fume can cause chronic hypertrophic rhinitis, sinusitis, nasal polyps, perforation of the nasal septum, chronic pulmonary irritation, fibrosis, pulmonary edema, pulmonary eosinophilia, Pneumoconiosis, allergies (asthma-like allergy), and cancer of the nasal sinus cavities, lungs, and possibly other organs. Future exposures can cause asthma attacks with shortness of breath, wheezing, cough, and/or chest tightness. Chronic inhalation of nickel dust or fume may also affect the liver (impaired liver function tests), and blood (changes in red blood cell count). Ingestion: Prolonged or repeated ingestion of nickel can be a source chronic urticaria and other signs of allergy.

Chronic ingestion of Nickel may also affect respiration and cause pneumoconiosis or fibrosis. Note: In the general population, sensitization occurs from exposure to nickel-containing coins, jewelry, watches,

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Nickel metal California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Nickel metal Connecticut hazardous material survey.: Nickel metal Illinois toxic substances disclosure to employee act: Nickel metal Illinois chemical safety act: Nickel metal New York release reporting list: Nickel metal Rhode Island RTK hazardous substances: Nickel metal Pennsylvania RTK: Nickel metal Michigan critical material: Nickel metal Massachusetts RTK: Nickel metal Massachusetts spill list: Nickel metal New Jersey: Nickel metal New Jersey spill list: Nickel metal Louisiana spill reporting: Nickel metal California Director's List of Hazardous Substances: Nickel metal TSCA 8(b) inventory: Nickel metal

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R40- Possible risks of irreversible effects. R43- May cause sensitization by skin contact. S22- Do not breathe dust. S36- Wear suitable protective clothing.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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United States Environmental Protection Agency
Office of Solid Waste Washington, DC 20460
January 2008

Polycyclic Aromatic Hydrocarbons (PAHs)

What are PAHs?

Short for polycyclic aromatic hydrocarbons, PAHs describe chemicals that are often found together in groups of two or more. PAHs are found naturally in the environment but they can also be man-made. In their purest form, PAHs are solid and range in appearance from colorless to white or pale yellow-green. PAHs are created when products like coal, oil, gas, and garbage are burned but the burning process is not complete. Although PAHs can exist in over 100 different combinations, the National Waste Minimization Program defines this group using the Toxic Release Inventory reporting category for polycyclic aromatic compounds.

Chemicals included in this category, by name and CAS number, are:

1. Benzo(a)anthracene, 56-55-3
2. Benzo(a)phenanthrene (chrysene), 218-01-9
3. Benzo(a)pyrene, 50-32-8
4. Benzo(b)fluoranthene, 205-99-2
5. Benzo(j)fluoranthene, 205-82-3
6. Benzo(k)fluoranthene, 207-08-9
7. Benzo(j,k)fluorene (fluoranthene), 206-44-0
8. Benzo(r,s,t)pentaphene, 189-55-9
9. Dibenz(a,h)acridine, 226-36-8
10. Dibenz(a,j)acridine, 224-42-0
11. Dibenzo(a,h)anthracene, 53-70-3
12. Dibenzo(a,e)fluoranthene, 5385-75-1
13. Dibenzo(a,e)pyrene, 192-65-4
14. Dibenzo(a,h)pyrene, 189-64-0
15. Dibenzo(a,l)pyrene, 191-30-0
16. 7H-Dibenzo(c,g)carbazole, 194-59-2
17. 7,12-Dimethylbenz(a)anthracene, 57-97-6
18. Indeno(1,2,3-cd)pyrene 193-39-5
19. 3-Methylcholanthrene, 56-49-5
20. 5-Methylchrysene, 3697-24-3
21. 1-Nitropyrene, 5522-43-0

It should be noted that some PAHs are listed individually on EPA's Priority Chemical list. They are:

1. Acenaphthene, 83-32-9
2. Acenaphtylene, 208-96-8
3. Anthracene, 120-12-7
4. Benzo(g,h,i)perylene, 191-24-2
5. Fluorene, 86-73-7
6. Phenanthrene, 85-01-8
7. Pyrene, 129-00-0

Why are PAHs bad actors?

PAHs are a concern because they are persistent. Because they do not burn very easily, they can stay in the environment for long periods of time. Individual PAHs vary in behavior. Some can turn into a vapor in the air very easily. Most do not break down easily in the water.

What are PAHs used for?

Most PAHs are used to conduct research. However, some PAHs are used to make dyes, plastics, and pesticides. Some are even used in medicines.

How can PAHs enter and leave your body?

One of the most common ways PAHs can enter the body is through breathing contaminated air. PAHs get into your lungs when you breathe them. If you live near a hazardous waste site where PAHs are disposed, you are likely to breathe PAHs. If you eat or drink food and water contaminated with PAHs, you could be

exposed. Exposure to PAHs can also occur if your skin contacts PAH-contaminated soil or products like heavy oils, coal tar, roofing tar, or creosote. Creosote is an oily liquid found in coal tar and is used to preserve wood. Once in your body, PAHs can spread and target fat tissues. Target organs include the kidneys and liver. However, PAHs will leave your body through urine and feces in a matter of days.

How can you be exposed to PAHs?

You can be exposed to PAHs in the environment, in your home, and in the workplace. Because PAHs exist naturally in the environment and are man-made, you can be exposed in a number of ways. Fumes from vehicle exhaust, coal, coal tar, asphalt, wildfires, agricultural burning and hazardous waste sites are all sources of exposure.

You could be exposed to PAHs by breathing cigarette and tobacco smoke, eating foods grown in contaminated soil, or by eating meat or other food that you grilled. Grilling and charring food actually increases the amount of PAHs in the food.

If you work in a plant that makes coal tar, asphalt and aluminum, or that burns trash, you can be exposed to PAHs. You can also be exposed if you work in a facility that uses petroleum or coal, or where wood, corn, and oil are burned.

How can PAHs affect your health?

A number of PAHs have caused tumors in laboratory animals that were exposed to PAHs through their food, from breathing contaminated air, and when it was applied to their skin. When pregnant mice ate high doses of a PAH (benzo(a)pyrene) they experienced reproductive problems. In addition, the offspring of the pregnant mice showed birth defects and a decrease in their body weight. Other effects include damage to the skin, body fluids, and the immune system. However, these effects have not been seen in humans.

Is there a medical test to determine if you have been exposed to PAHs?

There is a test that can measure the presence of PAH in your urine. This test can only tell you if you have been exposed; but it can't reveal how harmful the effects of the exposure will be. This test would have to be performed in a laboratory that has special equipment to detect the PAHs. Another test currently being developed will be able to measure PAHs in your body tissue and blood.

What are the medical treatments in cases of exposure?

Most exposures to PAHs happen every day at very low levels in the air we breathe and the foods we eat. Treatment for a short-term exposure is unlikely. Contact your doctor if you experience symptoms of PAHs poisoning.

What levels of exposure have resulted in harmful health effects?

There is no information available from studies on humans to tell what effects can result from being exposed to individual PAHs at certain levels. However, breathing PAHs and skin contact seem to be associated with cancer in humans. Animal studies showed that mice exposed to 308 parts per million (ppm) of PAHs (specifically benzo (a) pyrene) in food for 10 days (short term exposure) caused birth defects. Mice exposed to 923 ppm of benzo (a) pyrene in food for months caused problems in the liver and blood.

Where can I get more information?

Contact your state health or environmental department, or:

Agency for Toxic Substances and Disease Registry
Division of Toxicology
1600 Clifton Road, N.E., E-29
Atlanta, Georgia 30333

References

1. Agency for Toxic Substances and Disease

Registry (ATSDR), Public Health Statement, *Polycyclic Aromatic Hydrocarbons, December 1990.* U.S. Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA, December 1990.

2. United States Environmental Protection Agency, Office of Environmental Information, *Emergency Planning and Community Right-to-Know Act – Section 313: Guidance for Reporting Toxic Chemicals: Polycyclic Aromatic Compounds Category*, EPA 260-B-01-03, Washington, DC, August 2001.

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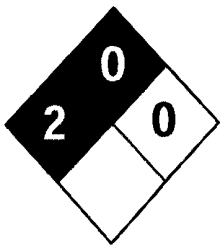

Health	2
Fire	0
Reactivity	0
Personal Protection	G

Material Safety Data Sheet
Tetrachloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Tetrachloroethylene

Catalog Codes: SLT3220

CAS#: 127-18-4

RTECS: KX3850000

TSCA: TSCA 8(b) inventory: Tetrachloroethylene

CI#: Not available.

Synonym: Perchloroethylene; 1,1,2,2-Tetrachloroethylene; Carbon bichloride; Carbon dichloride; Ankilostin; Didakene; Dilatin PT; Ethene, tetrachloro-; Ethylene tetrachloride; Perawin; Perchlor; Perclene; Perclene D; Percosolvel; Tetrachloroethene; Tetraleno; Tetralex; Tetravec; Tetroguer; Tetropil

Chemical Name: Ethylene, tetrachloro-

Chemical Formula: C2-Cl4

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Tetrachloroethylene	127-18-4	100

Toxicological Data on Ingredients: Tetrachloroethylene: ORAL (LD50): Acute: 2629 mg/kg [Rat]. DERMAL (LD): Acute: >3228 mg/kg [Rabbit]. MIST(LC50): Acute: 34200 mg/m 8 hours [Rat]. VAPOR (LC50): Acute: 5200 ppm 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (anticipated carcinogen) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, peripheral nervous system, respiratory tract, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 25 (ppm) from OSHA (PEL) [United States] TWA: 25 STEL: 100 (ppm) from ACGIH (TLV) [United States] TWA: 170 (mg/m3) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Ethereal.

Taste: Not available.

Molecular Weight: 165.83 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 121.3°C (250.3°F)

Melting Point: -22.3°C (-8.1°F)

Critical Temperature: 347.1°C (656.8°F)

Specific Gravity: 1.6227 (Water = 1)

Vapor Pressure: 1.7 kPa (@ 20°C)

Vapor Density: 5.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 5 - 50 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.4

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:
Miscible with alcohol, ether, chloroform, benzene, hexane. It dissolves in most of the fixed and volatile oils. Solubility in water: 0.015 g/100 ml @ 25 deg. C It slowly decomposes in water to yield Trichloroacetic and Hydrochloric acids.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Oxidized by strong oxidizing agents. Incompatible with sodium hydroxide, finely divided or powdered metals such as zinc, aluminum, magnesium, potassium, chemically active metals such as lithium, beryllium , barium. Protect from light.

Special Remarks on Corrosivity: Slowly corrodes aluminum, iron, and zinc.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2629 mg/kg [Rat]. Acute dermal toxicity (LD50): >3228 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 5200 4 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.

Special Remarks on Toxicity to Animals:
Lowest Publishe Lethal Dose/Conc: LDL [Rabbit] - Route: Oral; Dose: 5000 mg/kg LDL [Dog] - Route: Oral; Dose: 4000 mg/kg LDL [Cat] - Route: Oral; Dose: 4000 mg/kg

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects and birth defects(teratogenic). May affect genetic material (mutagenic). May cause cancer.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes skin irritation with possible dermal blistering or burns. Symtoms may include redness, itching, pain, and possible dermal blistering or burns. It may be absorbed through the skin with possible systemic effects. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Eyes: Contact causes transient eye irritation, lacrimation. Vapors cause eye/conjunctival irritation. Symptoms may include redness and pain. Inhalation: The main route to occupational exposure is by inhalation since it is readily absorbed through the lungs. It causes respiratory tract irritation, . It can affect behavior/central nervous system (CNS depressant and anesthesia ranging from slight inebriation to death, vertigo, somnolence, anxiety, headache, excitement, hallucinations, muscle incoordination, dizziness, lightheadness, disorentiation, seizures, enotional instability, stupor, coma). It may cause pulmonary edema Ingestion: It can cause nausea, vomiting, anorexia, diarrhea, bloody stool. It may affect the liver, urinary system (proteinuria, hematuria, renal failure, renal tubular disorder), heart (arrhythmias). It may affect behavior/central nervous system with symptoms similar to that of inhalation. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may result in excessive drying of the skin, and irritation. Ingestion/Inhalation: Chronic exposure can affect the liver(hepatitis,fatty liver degeneration), kidneys, spleen, and heart (irregular heartbeat/arrhythmias, cardiomyopathy, abnormal EEG), brain, behavior/ central nervous system/peripheral nervous system (impaired memory, numbness of extremeties, peripheral neuropathy and other

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 18.4 mg/l 96 hours [Fish (Fatthead Minnow)]. 18 mg/l 48 hours [Daphnia (daphnia)]. 5 mg/l 96 hours [Fish (Rainbow Trout)]. 13 mg/l 96 hours [Fish (Bluegill sunfish)].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Tetrachloroethylene UNNA: 1897 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Tetrachloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Tetrachloroethylene Connecticut hazardous material survey.: Tetrachloroethylene Illinois toxic substances disclosure to employee act: Tetrachloroethylene Illinois chemical safety act: Tetrachloroethylene New York release reporting list: Tetrachloroethylene Rhode Island RTK hazardous substances: Tetrachloroethylene Pennsylvania RTK: Tetrachloroethylene Minnesota: Tetrachloroethylene Michigan critical material: Tetrachloroethylene Massachusetts RTK: Tetrachloroethylene Massachusetts spill list: Tetrachloroethylene New Jersey: Tetrachloroethylene New Jersey spill list: Tetrachloroethylene Louisiana spill reporting: Tetrachloroethylene California Director's List of Hazardous Substances: Tetrachloroethylene TSCA 8(b) inventory: Tetrachloroethylene TSCA 8(d) H and S data reporting: Tetrachloroethylene: Effective date: 6/1/87; Sunset date: 6/1/97 SARA 313 toxic chemical notification and release reporting: Tetrachloroethylene CERCLA: Hazardous substances.: Tetrachloroethylene: 100 lbs. (45.36 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R40- Possible risks of irreversible effects. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S23- Do not breathe gas/fumes/vapour/spray S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37- Wear suitable gloves. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: g

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Last Updated: 05/21/2013 12:00 PM

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MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
150 Allen Road Suite 302
Basking Ridge, New Jersey 07920
Information: 1-800-416-2505

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: TRICHLOROETHYLENE

TRADE NAMES/SYNONYMS:
MTG MSDS 199; ACETYLENE TRICHLORIDE; ETHYLENE TRICHLORIDE; 1-CHLORO-2,2-DICHLOROETHYLENE; 1,1-DICHLORO-2-CHLOROETHYLENE; TCE; ETHINYL TRICHLORIDE; TRICHLOROETHENE; 1,1,2-TRICHLOROETHYLENE; 1,1,2-TRICHLOROETHENE; UN 1710; RCRA U228; C2HCl3; MAT23850; RTECS KX4550000

CHEMICAL FAMILY: halogenated, alkenes

CREATION DATE: Jan 24 1989
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: TRICHLOROETHYLENE
CAS NUMBER: 79-01-6
PERCENTAGE: >99

COMPONENT: INHIBITORS
CAS NUMBER: Not assigned.
PERCENTAGE: <0.1

COMPONENT: AMINES
CAS NUMBER: Not assigned.
PERCENTAGE: <0.1

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=1 REACTIVITY=0

EMERGENCY OVERVIEW:

COLOR: colorless
PHYSICAL FORM: liquid
ODOR: sweet odor
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, allergic reactions, cancer hazard (in humans)
PHYSICAL HAZARDS: May polymerize. Containers may rupture or explode. May decompose on contact with air, light, moisture, heat or storage and use above room temperature. Releases toxic, corrosive, flammable or explosive gases.

POTENTIAL HEALTH EFFECTS:
INHALATION:
SHORT TERM EXPOSURE: irritation, changes in blood pressure, nausea, vomiting, stomach pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, mood swings, tremors, loss of coordination, visual disturbances, bluish skin color, lung congestion, kidney damage, liver damage, unconsciousness, coma
LONG TERM EXPOSURE: same as effects reported in short term exposure, loss of appetite, weight loss, blood disorders, brain damage, cancer
SKIN CONTACT:
SHORT TERM EXPOSURE: irritation, allergic reactions
LONG TERM EXPOSURE: irritation, allergic reactions, nausea, loss of appetite, weight loss, difficulty breathing, headache, drowsiness, dizziness, joint pain, loss of coordination, visual disturbances, paralysis
EYE CONTACT:
SHORT TERM EXPOSURE: irritation (possibly severe), blurred vision
LONG TERM EXPOSURE: irritation (possibly severe), eye damage
INGESTION:
SHORT TERM EXPOSURE: same as effects reported in short term inhalation
LONG TERM EXPOSURE: same as effects reported in long term inhalation

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

NOTE TO PHYSICIAN: For ingestion, consider gastric lavage. Consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Slight fire hazard.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile).

FLASH POINT: No data available.
LOWER FLAMMABLE LIMIT: 7.8% @ 100 C
UPPER FLAMMABLE LIMIT: 52% @ 100 C
AUTOIGNITION: 770 F (410 C)

6. ACCIDENTAL RELEASE MEASURES

AIR RELEASE:
Reduce vapors with water spray. Collect runoff for disposal as potential hazardous waste.

SOIL RELEASE:
Dig holding area such as lagoon, pond or pit for containment. Dike for later disposal. Absorb with sand or other non-combustible material.

WATER RELEASE:
Absorb with activated carbon. Remove trapped material with suction hoses. Collect spilled material using mechanical equipment. Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.

OCCUPATIONAL RELEASE:
Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Small liquid spills: Absorb with sand or other non-combustible material. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Store in a cool, dry place. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
TRICHLOROETHYLENE:
100 ppm OSHA TWA
200 ppm OSHA ceiling
300 ppm OSHA peak (5 minutes in any 2 hours)
50 ppm (269 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993)
200 ppm (1070 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)
10 ppm ACGIH TWA
25 ppm ACGIH STEL
25 ppm NIOSH TWA 10 hour(s)
2 ppm NIOSH ceiling 60 minute(s) (used as halogenated anesthetic gas)

VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
At any detectable concentration -
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape -
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.
Any appropriate escape-type, self-contained breathing apparatus.
For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid
COLOR: colorless
ODOR: sweet odor
MOLECULAR WEIGHT: 131.39
MOLECULAR FORMULA: Cl-C-H-C-Cl2
BOILING POINT: 189 F (87 C)
FREEZING POINT: -99 F (-73 C)
VAPOR PRESSURE: 58 mmHg @ 20 C
VAPOR DENSITY (air=1): 4.53
SPECIFIC GRAVITY (water=1): 1.4642
WATER SOLUBILITY: 0.1%
PH: Not available
VOLATILITY: Not available
ODOR THRESHOLD: 21 ppm
EVAPORATION RATE: 0.69 (carbon tetrachloride=1)
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available
SOLVENT SOLUBILITY:
Soluble: alcohol, ether, acetone, chloroform, benzene, vegetable oils

10. STABILITY AND REACTIVITY

REACTIVITY: May decompose on contact with air, light, moisture, heat or storage and use above room temperature. Releases toxic, corrosive, flammable or explosive gases.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: bases, metals, combustible materials, oxidizing materials

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: phosgene, halogenated compounds, oxides of carbon

POLYMERIZATION: May polymerize. Avoid contact with heat or light and monitor inhibitor content.

11. TOXICOLOGICAL INFORMATION

TRICHLOROETHYLENE:
IRRITATION DATA: 2 mg/24 hour(s) skin-rabbit severe; 20 mg/24 hour(s) eyes-rabbit moderate
TOXICITY DATA: 140700 mg/m3/1 hour(s) inhalation-rat LC50; >20 gm/kg skin-rabbit LD50; 4920 mg/kg oral-rat LD50
CARCINOGEN STATUS: NTP: Anticipated Human Carcinogen; IARC: Human Limited Evidence,

Animal Sufficient Evidence, Group 2A; ACGIH: A2 -Suspected Human Carcinogen
LOCAL EFFECTS:
Irritant: inhalation, skin, eye
ACUTE TOXICITY LEVEL:
Moderately Toxic: ingestion
Slightly Toxic: inhalation
Relatively Non-toxic: dermal absorption
TARGET ORGANS: immune system (sensitizer), central nervous system
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: heart problems
TUMORIGENIC DATA: Available.
MUTAGENIC DATA: Available.
REPRODUCTIVE EFFECTS DATA: Available.
ADDITIONAL DATA: May cross the placenta. Stimulants such as epinephrine may induce ventricular fibrillation.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:
FISH TOXICITY: 3100 ug/L 96 hour(s) LC50 (Mortality) Flagfish (Jordanella floridae)

INVERTEBRATE TOXICITY: 1700 ug/L 7 hour(s) EC50 (Regeneration) Flatworm (Dugesia japonica)

OTHER TOXICITY: 45000 ug/L 48 week(s) LC50 (Mortality) Clawed toad (Xenopus laevis)

FATE AND TRANSPORT:
BIOCONCENTRATION: 17 ug/L 1-14 hour(s) BCF (Residue) Bluegill (Lepomis macrochirus) 8.23 ug/L

13. DISPOSAL CONSIDERATIONS

Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U228. Hazardous Waste Number(s): D040. Dispose of in accordance with U.S. EPA 40 CFR 262 for concentrations at or above the Regulatory level. Regulatory level- 0.5 mg/L. Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Trichloroethylene
ID NUMBER: UN1710
HAZARD CLASS OR DIVISION: 6.1
PACKING GROUP: III
LABELING REQUIREMENTS: 6.1

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Trichloroethylene
UN NUMBER: UN1710
CLASS: 6.1
PACKING GROUP/CATEGORY: III

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
TRICHLOROETHYLENE: 100 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: Yes
FIRE: No
REACTIVE: No
SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65):
TRICHLOROETHYLENE

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.

STATE REGULATIONS:
California Proposition 65:
Known to the state of California to cause the following:
TRICHLOROETHYLENE
Cancer (Apr 01, 1988)

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: D2

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

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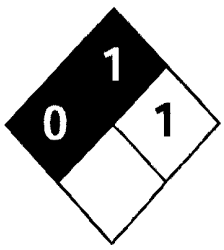


Health	1
Fire	1
Reactivity	1
Personal Protection	E

Material Safety Data Sheet
Zinc Metal MSDS

Section 1: Chemical Product and Company Identification

Product Name: Zinc Metal

Catalog Codes: SLZ1054, SLZ1159, SLZ1267, SLZ1099, SLZ1204

CAS#: 7440-66-6

RTECS: ZG8600000

TSCA: TSCA 8(b) inventory: Zinc Metal

CI#: Not applicable.

Synonym: Zinc Metal Sheets; Zinc Metal Shot; Zinc Metal Strips

Chemical Name: Zinc Metal

Chemical Formula: Zn

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Zinc Metal	7440-66-6	100

Toxicological Data on Ingredients: Zinc Metal LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 480°C (896°F)

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances:
Slightly flammable to flammable in presence of open flames and sparks, of heat, of oxidizing materials, of acids, of alkalis, of moisture. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:
Zinc + NaOH causes ignition. Oxidation of zinc by potassium proceeds with incandescence. Residues from zinc dust /acetic acid reduction operations may ignite after long delay if discarded into waste bins with paper. Incandescent reaction when Zinc and Arsenic or Tellurium, or Selenium are combined. When hydrazine mononitrate is heated in contact with zinc, a flamming decomposition occurs at temperatures a little above its melting point. Contact with acids and alkali hydroxides (sodium hydroxide, postasium hydroxide, calcium hydroxide, etc.) results in evolution of hydrogen with sufficient heat of reaction to ignite the hydrogen gas. Zinc foil ignites if traces of moisture are present. It is water reactive and produces flammable gases on contact with water. It may ignite on contact with water or moist air.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Flammable solid that, in contact with water, emits flammable gases. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Cover with dry earth, sand or other non-combustible material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not breathe dust. Keep away from incompatibles such as oxidizing agents, acids, alkalis, moisture.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep from any possible contact with water. Do not allow water to get into container because of violent reaction.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Lustrous solid. Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 65.39 g/mole

Color: Bluish-grey

pH (1% soln/water): Not applicable.

Boiling Point: 907°C (1664.6°F)

Melting Point: 419°C (786.2°F)

Critical Temperature: Not available.

Specific Gravity: Not available.

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water, methanol, diethyl ether, n-octanol, acetone.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, incompatible materials, moisture

Incompatibility with various substances:
Reactive with oxidizing agents, acids, alkalis. Slightly reactive to reactive with moisture. The product may react violently with water to emit flammable but non toxic gases.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Incompatible with acids, halogenated hydrocarbons, NH4NO3, barium oxide, Ba(NO3)2, Cadmium, CS2, chlorates, Cl2, CrO3, F2, Hydroxylamine, Pb(N3)2, MnCl2, HNO3, performic acid, KClO3, KNO3, N2O2, Selenium, NaClO3, Na2O2, Sulfur, Te, water, (NH4)2S, As2O3, CS2, CaCl2, chlorinated rubber, catalytic metals, halocarbons, o-nitroanisole, nitrobenzene, nonmetals, oxidants, paint primer base, pentacarbonoyliron, transition metal halides, seleninyl bromide, HCl, H2SO4, (Mg +Ba(NO3)2 +BaO2), (ethyl acetoacetate +tribromoneopentyl alcohol. Contact with Alkali Hydroxides(Sodium Hydroxide, Potassium Hydroxide, Calcium Hydroxide, etc) results in evolution of hydrogen. Ammonium nitrate + zinc + water causes a violent reaction with evolution of steam and zinc oxide. May react with water.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritation. Dermal exposure to zinc may produce leg pains, fatigue, anorexia and weight loss. Eyes: May cause eye irritation. Ingestion: May be harmul if swallowed. May cause digestive tract irritation with tightness in throat, nausea, vomiting, diarrhea, loss of appetite, malaise, abdominal pain. fever, and chills. May affect behavior/central nervous system and autonomic nervous system with ataxia, lethargy, staggering gait, mild derrangement in cerebellar function, lightheadness, dizzness, irritability, muscular stiffness, and pain. May also affect blood. Inhalation: Inhalation of zinc dust or fumes may cause respiratory tract and mucous membrane irritation with cough and chest pain. It can also cause "metal fume fever", a flu-like condition characterized appearance of chills, headached fever, maliase, fatigue, sweating, extreme thirst, aches in the legs and chest, and difficulty in breathing. A sweet taste may also be be present in metal fume fever, as well as a dry throat, aches, nausea, and vomiting, and pale grey cyanosis. The toxicological properties of this substance have not been fully investisgated.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: Not available.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
New York release reporting list: Zinc Metal Rhode Island RTK hazardous substances: Zinc Metal Pennsylvania RTK: Zinc Metal Florida: Zinc Metal Michigan critical material: Zinc Metal Massachusetts RTK: Zinc Metal New Jersey: Zinc Metal California Director's List of Hazardous Substances: Zinc Metal TSCA 8(b) inventory: Zinc Metal TSCA 12(b) one time export: Zinc Metal SARA 313 toxic chemical notification and release reporting: Zinc Metal CERCLA: Hazardous substances.: Zinc Metal: 1000 lbs. (453.6 kg)

Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): Not Available

DSCL (EEC):
R15- Contact with water liberates extremely flammable gases. R17- Spontaneously flammable in air. S7/8- Keep container tightly closed and dry.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 1

Reactivity: 1

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 0

Flammability: 1

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

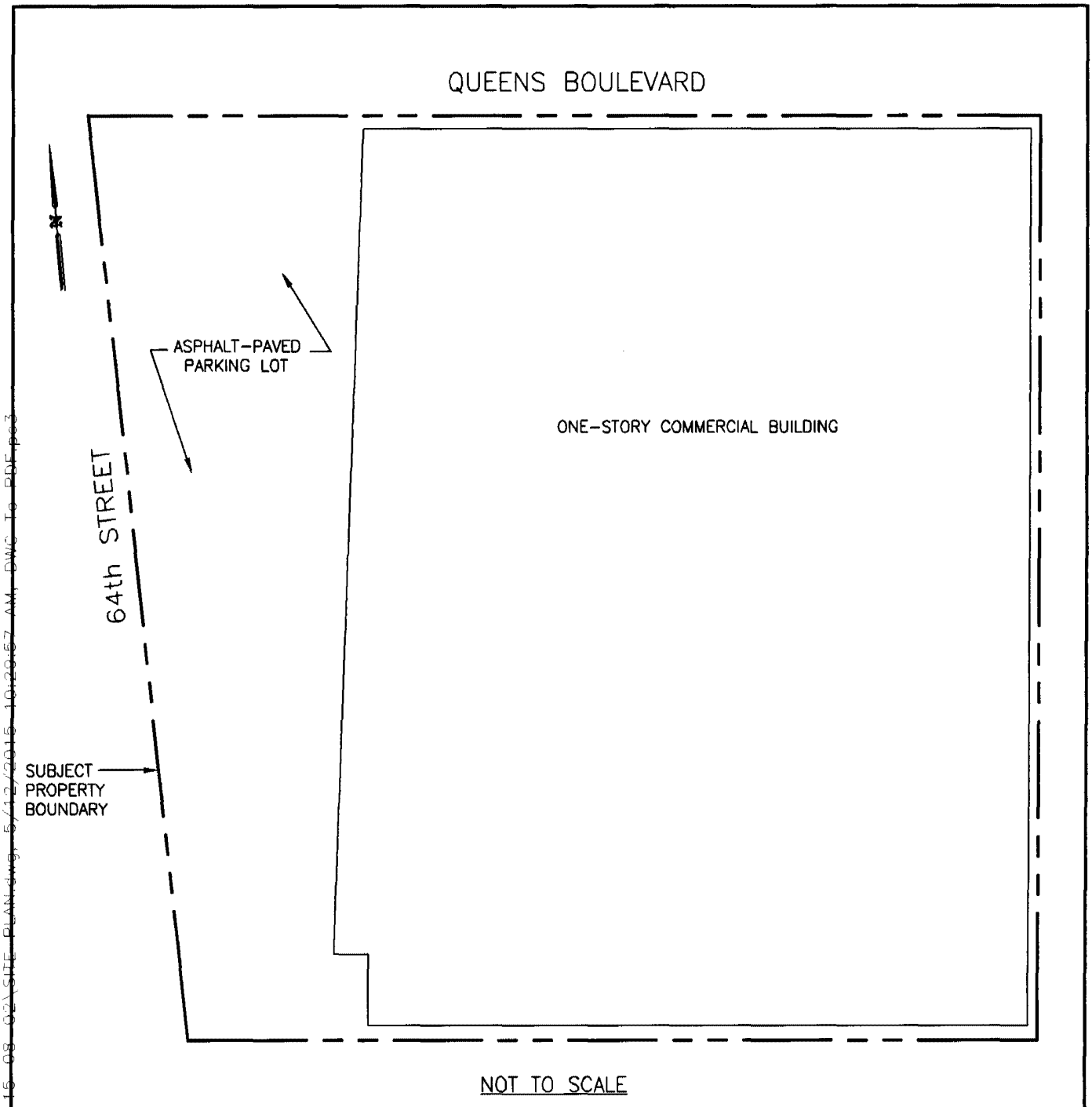
Created: 10/10/2005 12:18 AM

Last Updated: 05/21/2013 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

Source: US Geological Survey 7.5-Minute
Brooklyn, NY Quadrangle

FPM GROUP		
FIGURE 1.1.1 SITE LOCATION MAP 64-02 AND 64-06 QUEENS BOULEVARD WOODSIDE, NEW YORK		
Drawn by: GH	Checked By: GH	Date: 5/4/2015



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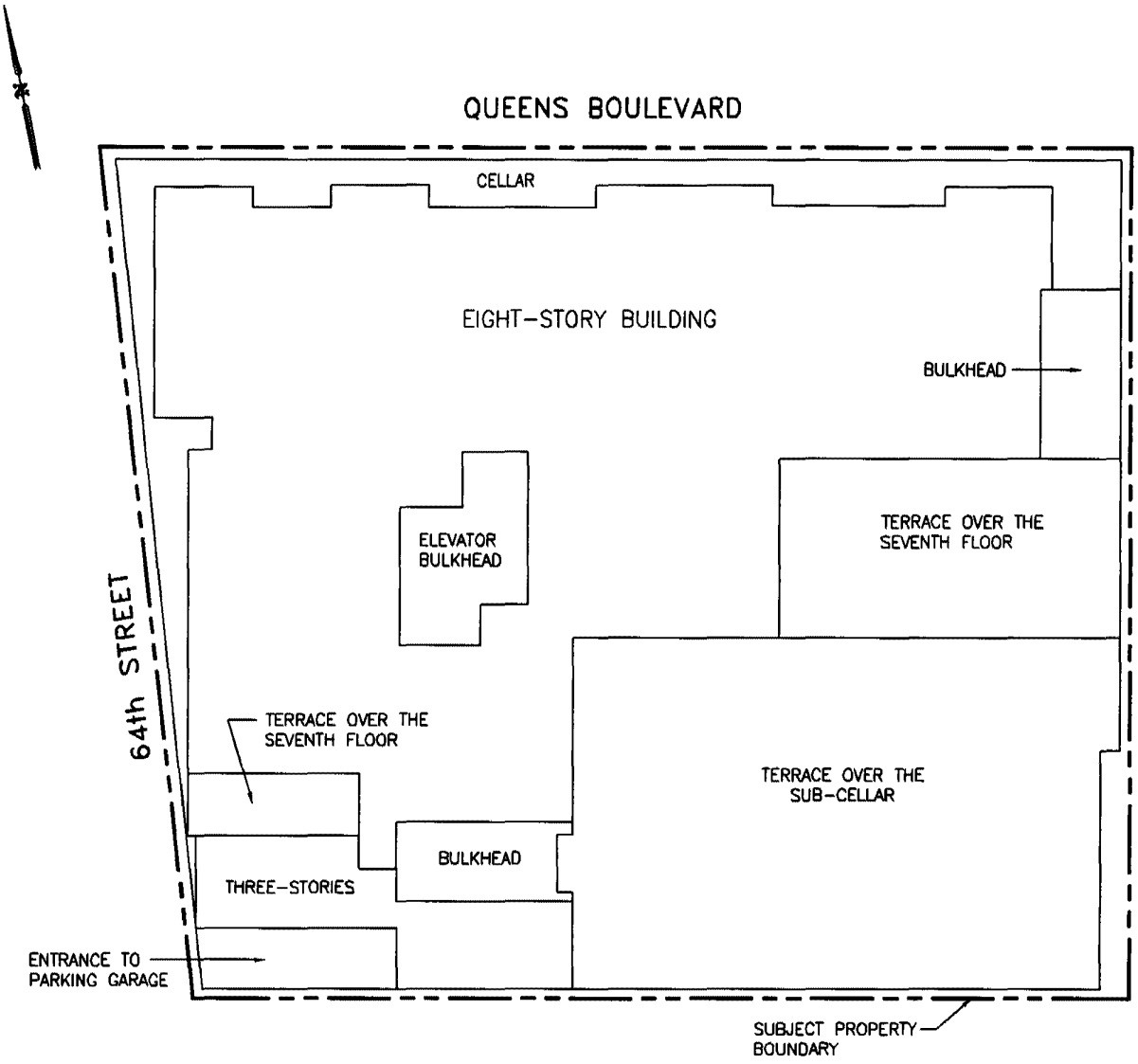
FPM GROUP

FIGURE 1.1.2
SITE PLAN
64-02 & 64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

Drawn By: H.C.	Checked By: G.H.	Date: 4/20/15



APPROXIMATE SCALE
0' 25' 50'

FPM GROUP

FIGURE 1.2.1
FUTURE DEVELOPMENT PLAN
64-02 & 64-06 QUEENS
WOODSIDE, NEW YORK

Drawn By: H.C.	Checked By: G.H.	Date: 6/17/15

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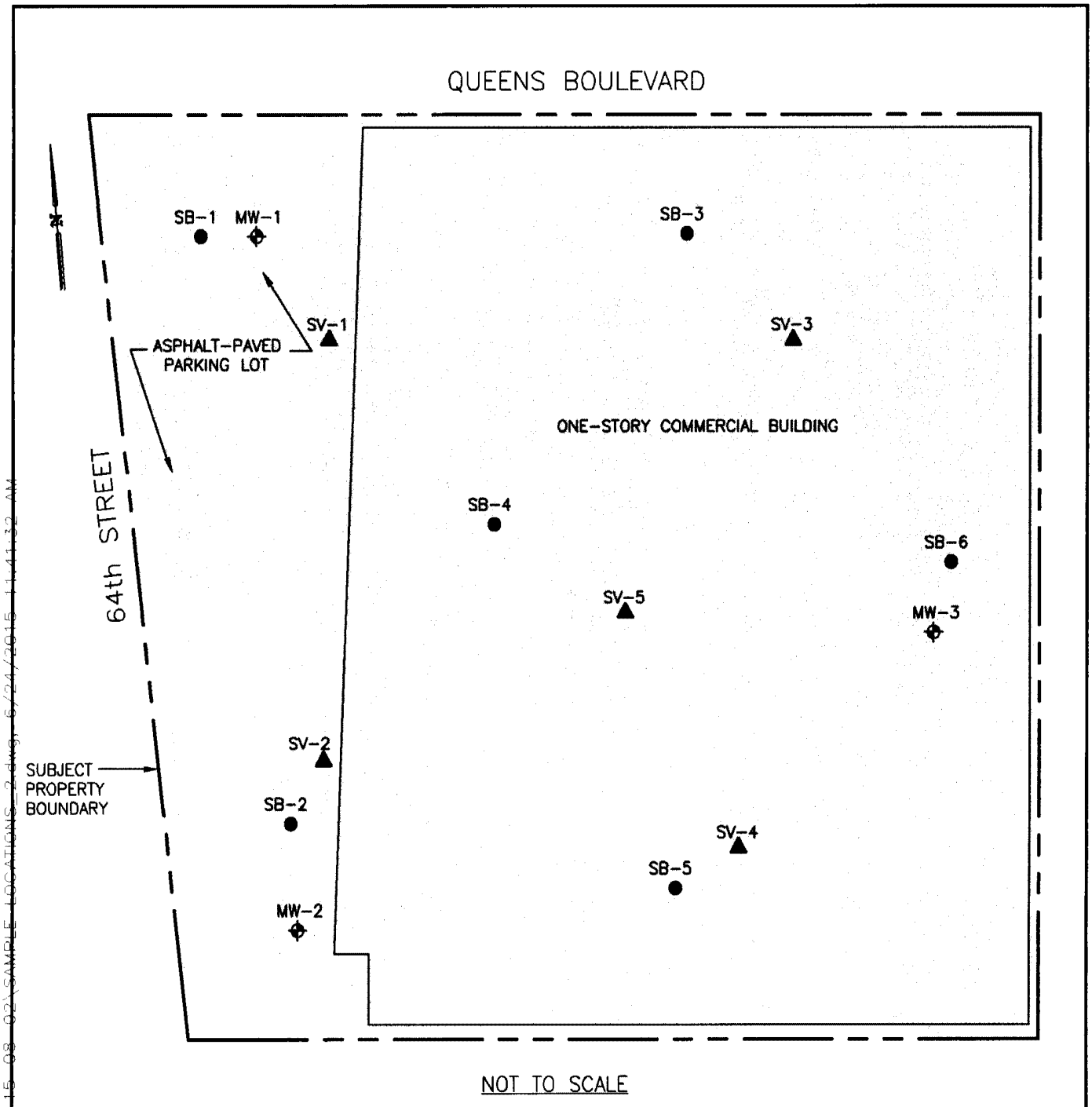

FPM GROUP

FIGURE 3.2.1
SAMPLE LOCATIONS
64-02 & 64-06 QUEENS BOULEVARD
WOODSIDE, NEW YORK

Drawn By: H.C.	Checked By: G.H.	Date: 6/16/15

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REGIONAL CENTER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: QB VENTURES EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 15:

Permits

Please see a full discussion of the permits of the project in the attached Comprehensive Business Plan (**Exhibit 8**).

- **Work Permit Schedule**
- **Work Permit for Demolition**, from New York City Department of Buildings on July 21, 2015
- **Work Permit for Fence**, from New York City Department of Buildings on July 21, 2015
- **Work Permit for Other Mechanical Means**, from New York City Department of Buildings on July 21, 2015

Work Permit Schedules for Holiday Inn	
Permits	Expected date
Demo permit	Jul-15
Plan Approval	May-16
New Build permit	Sep-16
P-R Plan Receipt--New Tree	Nov-16

NYC™ Buildings

Work Permit Department of Buildings

Permit Number: 421073769-01-DM

Issued: 07/21/2015 Expires: 08/27/2015

Issued to: WEN LIANG TAN

Address: QUEENS 64-06 QUEENS BLVD

Business: TAN DEVELOPMENT, LLC

Contractor No: GC-608213

Description of Work:

FULL DEMOLITION - DEMOLITION OF A ONE STORY COMMERCIAL BUILDING, BY MEANS OF HAND DEMOLITION, INCLUDING USE OF HANDHELD MECHANICAL DEVICES.

Review is requested under Building Code: 2014 SITE FILL: ON-SITE

To see a Zoning Diagram (ZD1) or to challenge a zoning approval filed as part of a New Building application or Alteration application filed after 7/13/2009, please use "My Community" on the Buildings Department web site at www.nyc.gov/buildings.

Emergency Telephone Day or Night: 311

Borough Commissioner:

Commissioner of Buildings: Rick Chandler

Tampering with or knowingly making a false entry in or falsely altering this permit is a crime that is punishable by a fine, imprisonment or both.

01 07/23/2015

OP-35A (5/10)

NYC™ Buildings

Work Permit Department of Buildings

Permit Number: 421073769-01-EQ-FN

Issued: 07/21/2015 Expires: 07/20/2016

Issued to: WEN LIANG TAN

Address: QUEENS 64-06 QUEENS BLVD

Business: TAN DEVELOPMENT, LLC

Contractor No: GC-608213

Description of Work:

FULL DEMOLITION - CONSTRUCTION EQUIPMENT - FENCE DEMOLITION OF A ONE STORY COMMERCIAL BUILDING, BY MEANS OF HAND DEMOLITION, INCLUDING USE OF HANDHELD MECHANICAL DEVICES.

Review is requested under Building Code: 2014 SITE FILL: ON-SITE

To see a Zoning Diagram (ZD1) or to challenge a zoning approval filed as part of a New Building application or Alteration application filed after 7/13/2009, please use "My Community" on the Buildings Department web site at www.nyc.gov/buildings.

Emergency Telephone Day or Night: 311

Borough Commissioner: **Commissioner of Buildings:**

Tampering with or knowingly making a false entry in or falsely altering this permit is a crime that is punishable by a fine, imprisonment or both.

01 07/23/2015

OP-35A (5/10)

NYC Buildings

Work Permit Department of Buildings

Permit Number: 421073769-02-EQ-OT

Issued: 07/21/2015 Expires: 07/20/2016

Issued to: WEN LIANG TAN

Address: QUEENS 64-06 QUEENS BLVD

Business: TAN DEVELOPMENT, LLC

Contractor No: GC-608213

Description of Work:

FULL DEMOLITION - CONSTRUCTION EQUIPMENT - OTHER MECHANICAL MEANS SUBMITTED FOR USE OF MECHANICAL EQUIPMENT AT THE TIME OF DEMOLITION

Review is requested under Building Code: 2014

SITE FILL: ON-SITE

To see a Zoning Diagram (ZD1) or to challenge a zoning approval filed as part of a New Building application or Alteration application filed after 7/13/2009, please use "My Community" on the Buildings Department web site at www.nyc.gov/buildings.

Emergency Telephone Day or Night: 311

Borough Commissioner:

Commissioner of Buildings:

Tampering with or knowingly making a false entry in or falsely altering this permit is a crime that is punishable by a fine, imprisonment or both.

01 07/23/2015

OP-35A (5/10)

REGIONAL CENTER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: QB VENTURES EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 16:

Financials

Please see a full discussion of the financial viability of the project in the attached Comprehensive Business Plan **(Exhibit 8)**.

- **Sources and Uses** - budget of construction
- **Ten Year Projections**
- **Verification Letter** from Century Construction Group, LLC verifying their experience in the field and project development costs dated September 15, 2015.

Queens Blvd Ventures LLC
35-06 Leavitt Street, Suite CF-A, Flushing NY 11354
Tel: 718.939.1060 Fax: 718.939.1036
Email: centurygroup88@yahoo.com

Project Location : 64-06 Queens Blvd, Woodside, NY
Project Description : 135 rooms of Holiday Inn Express & Suites

CONSTRUCTION COST: (b)(4)

SCOPE OF WORK:

1. GENERAL

1.01 Mobilization & preparation
1.02 Insurance-general liability 25M & workmen comp
1.03 Sign-offs
1.04 Permit applications
1.05 Provide all necessary SOE inspections
1.06 Provide all necessary TR-2 TR-3
1.07 Provide engineer on site for supervision of all foundation and shoring work
1.08 Provide all necessary surveys
1.09 Provide all necessary shop drawings

2. SITEWORK

2.01 Provide and Install roof protection on adjacent buildings
2.02 Scaffold
  a. Provide and install Sidewalk Bridge
  b. Provide and install scaffold to roof
  c. Provide and install protection net to roof
  d. Scaffold reinforcement
2.03 Shoring, Sheeting & Lagging as per SOE
2.04 Temporary Protection Plywood Fence
2.05 Provide and install exterior material hoist
2.06 Excavation and backfill as necessary
2.07 Provide and install sidewalk, trees, curb and curb as per approved BPP

3. MASONRY

3.01 Concrete block as per drawings
3.02 Stucco in rear of building
3.03 Stone on first floor as per rendering

4. CONCRETE

4.01 Foundation wall, straps beams and pile caps
4.02 Concrete Slabs
4.03 Roof Bulkhead
4.04 Sidewalk, curbs and pavement
4.05 Surveys and stakeout
4.06 All waterproofing of exterior foundation walls

5. METALS

5.01 Concrete filled metal pan stairs
5.02 Metal framing and gates
5.03 Roof, railing and ladder
5.04 Structural metal framing
5.05 Provide and install steel dunnage
5.06 Omagalite exterior aluminum panel front and 2 sides

Queens Blvd Ventures LLC
35-06 Leavitt Street, Suite CF-A, Flushing NY 11354
Tel: 718.939.1060 Fax: 718.939.1036
Email: centurygroup88@yahoo.com

(b)(4)

6. THERMAL & MOISTURE PROTECTION

6.01 Roof waterproofing
- a. Six-ply rubber roofing
- b. 2" rigid insulation
- c. Vent sheet
- d. Fire Stone 12 year labor and material warrenty

6.02 Insulation
- a. Exterior wall insulation close cell sprayed on
- b. Interior wall insulation open cell sprayed on

7. DOORS & WINDOWS

7.01 Doors 1 3/4 " solid core doors, frames and hardware
7.02 Aluminum windows & storefront entrance by crystal or equal
7.03 All window system by crystal or equal per window schedule
7.04 All hollow metal door per schedule
7.05 Thermacore 490 garage door
7.06 Provide and install glass railing as per rendering

8. FINISHES

8.01 Gypsum board ceiling w / paint finished
8.02 Gypsum board wall w / paint finished
8.03 Epoxy paint for areaway, Elec.meter Rm., water meter Rm.
8.04 All apartment interior as per finish schedule
8.05 All hallways as per plan and finish schedule
8.06 All commercial, lobby as per design

9. CONVEYING SYSTEM

9.01 Provide and install Thyssen Krupp MRL 250FPM 2300# elevator
9.02 Standard cab $20,000 allowance

10. EQUIPMENT

10.01 Kitchen cabinets allowance is $5,000 per unit
10.02 All appliances
10.03 Bathroom accessories
10.04 Trash chute and compactor
10.05 Kitchen counter top to be Caesar Stone

11. MECHANICAL

11.01 HVAC system as per drawings
11.02 Provide and install exhaust & fresh air system as per drawings
11.03 Provide and install LG PTAC unit
11.04 Provide and install all kitchen and bath exhaust duct and fans
11.05 Provide and install HVAC system for lobby, trash storage and rec room PTAC

12. FIRE SYSTEM

12.01 Sprinkler system as per drawings
12.02 Stand Pipe system as per drawings
12.03 Provide and install sprinkler alarm system as per DOB and FDNY code

Queens Blvd Ventures LLC
35-06 Leavitt Street, Suite CF-A, Flushing NY 11354
Tel: 718.939.1060 Fax: 718.939.1036
Email: centurygroup88@yahoo.com

(b)(4)

13. ELECTRICAL

13.01 Apply and install all electrical meters
13.02 Provide and install electrical panels
13.03 Provide and install lighting fixtures as per plan
13.04 Provide and install emergency exit lights
13.05 Provide and install receptacles
13.06 Provide and install Aiphone color audio / video intercom system
13.07 Provide and install all Verizon, TimeWarner lines
13.08 Provide and install 100 Amp panels in every Apt. unit
13.09 Provide and install 1600 ConEd SEB
13.10 Provide temporary electrical service

14. PLUMBING WORK

14.01 Provide all utility services and meters
14.02 Install copper water supply & no-hub drainage system and all vent pipes
14.03 Supply & install plumbing fixtures as per owner's schedule
14.04 Install new gas main service with meters
14.05 All supply and return water lines
14.06 All kitchen gas pipes to all equipment in builing
14.07 Provide and install 1 duplex water booster and sewer ejector booster pump
14.08 Provide and install RZP as per design
14.09 Provide and install 3 150 Gal HWH and 1 25 Gal electrical HWH per residential
14.10 Provide and install all incoming water, sewer main as per plans

Total Hard Construction Cost :

FURNITURE, FIXTURES & EQUIPMENT (FF&E)

SOFT COST:
Architect & Engineer
Environmental
Interest Reserve

Total Soft Construction Cost :

Total Construction Cost :

LAND COST :

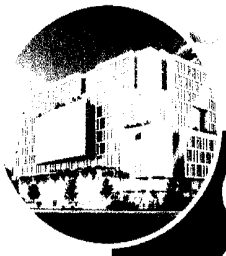
Total Project Cost :

(b)(4)

Ten Year Forecast of Income and Expense - Proposed Holiday Inn Express & Suites Woodside, Queens

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28
Number of Rooms:										
Occupied Rooms:										
Occupancy:										
Average Rate:										
RevPAR:										
OPERATING REVENUE										
Rooms										
Miscellaneous Income										
Total Operating Revenue										
DEPARTMENTAL EXPENSES*										
Rooms										
Total										
DEPARTMENTAL INCOME										
UNDISTRIBUTED OPERATING EXPENSES										
Administrative & General										
Marketing										
Franchise Fee										
Prop. Operations & Maint.										
Utilities										
Total										
GROSS HOUSE PROFIT										
Management Fee										
INCOME BEFORE NON-OPER. INC. & EXP.										
NON-OPERATING INCOME AND EXPENSE										
Property Taxes										
Insurance										
Reserve for Replacement										
Total										
EBITDA LESS RESERVE										

*Departmental expenses are expressed as a percentage of departmental revenues.



CENTURY
Construction

September 15, 2015

Attention: EB-5 Unit
U.S. Citizenship and Immigration Services
California Service Center
Department of Homeland Security
24000, Avila Road, Room 2312
Laguna Niguel, CA 92677

Re: Holiday Inn Express & Suites
64-06 Queens Blvd, Woodside, NY 11377

Dear CSC EB-5 Unit Officer:

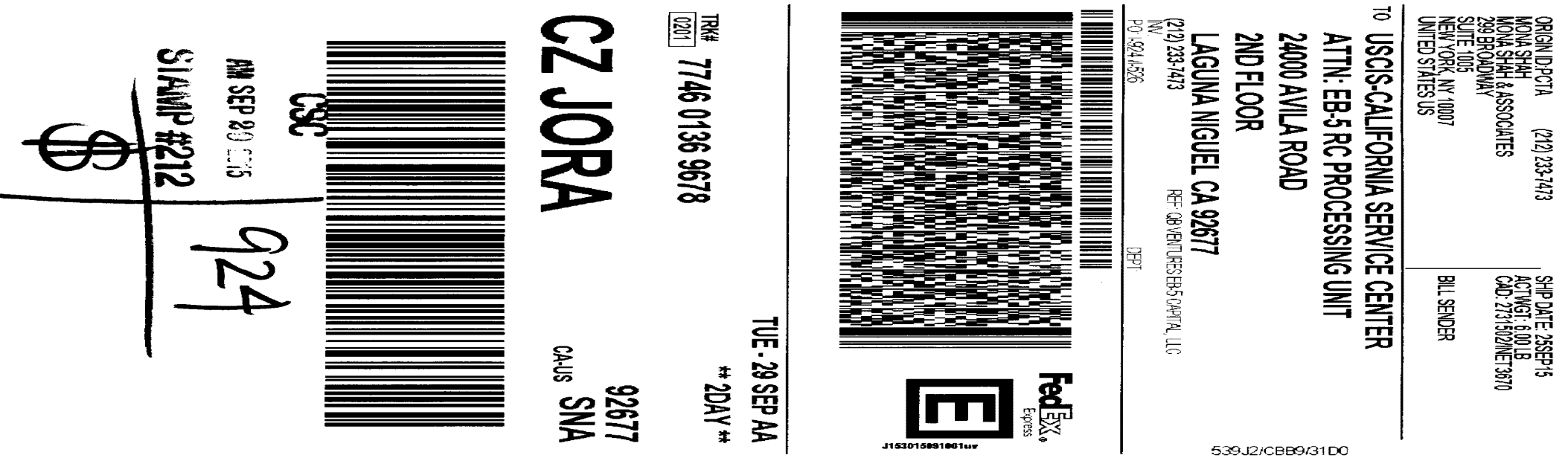
Century Construction Group was hired by Queens Blvd Ventures, LLC as the general contractor on the above-referenced Project. I am the president of Century Construction Group and have worked in the construction industry for twenty years and have supervised, managed and/or constructed. My experience includes hospitality, commercial interior and residential projects. I have constructed similar projects to the proposed Holiday Inn Express & Suites in term of size, budgets and timeline. These projects include the Marriot Fairfield Inn, the Leavitt Manor Condominium and the Farrington Estate, all located in Flushing. I have been asked by Queens Blvd Ventures, LLC to provide you with some information concerning the Project in connection with certain funding obtained by EB-5.

Century Construction Group has advised that hard construction cost estimate would be [redacted] (b)(4) [redacted] The construction timeline is 27 months. This Holiday Inn Express & Suites hotel will include a breakfast room, a fitness room, business center, market pantry, outdoor lounge, and vending areas. This hotel will include 135 rooms and suites. The Demolition is scheduled to begin in early October of 2015. I attest that the construction budgets and timeline are estimated based on established industry standards.

Very Truly Yours,

George Xu
President

35-06 Leavitt St., Suite CF-A Flushing, NY 11354
Tel: (718) 939-1060 Fax: (718) 939-1036
www.centurygroupdevelopment.com



After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Notice of Entry of Appearance as Attorney or Accredited Representative

Department of Homeland Security

DHS Form G-28
OMB No. 1615-0105
Expires 03/31/2018

Part 1. Information About Attorney or Accredited Representative

1. USCIS ELIS Account Number *(if any)*
   ▶

Name and Address of Attorney or Accredited Representative

2.a. Family Name *(Last Name)*: Mehreen
2.b. Given Name *(First Name)*: Shah
2.c. Middle Name:
3.a. Street Number and Name:
3.b. Apt. ☐ Ste. ☒ Flr. ☐ 1005
3.c. City or Town: New York
3.d. State: NY
3.e. ZIP Code: 10007
3.f. Province:
3.g. Postal Code:
3.h. Country: USA
4. Daytime Telephone Number: 2122337473
5. Fax Number: 2122334877
6. E-Mail Address *(if any)*: mona@mshahlaw.com
7. Mobile Telephone Number *(if any)*:

Part 2. Notice of Appearance as Attorney or Accredited Representative

This appearance relates to immigration matters before *(Select **only one** box)*:

1.a. ☒ USCIS
1.b. List the form numbers: I-924
2.a. ☐ ICE
2.b. List the specific matter in which appearance is entered:
3.a. ☐
3.b. List the specific matter in which appearance is entered:

I enter my appearance as attorney or accredited representative at the request of:

4. Select **only one** box:
   ☐ Applicant ☒ Petitioner ☐ Requestor
   ☐ Respondent (ICE, CBP)

Information About Applicant, Petitioner, Requestor, or Respondent

5.a. Family Name *(Last Name)*: XU
5.b. Given Name *(First Name)*: George
5.c. Middle Name:
6. Name of Company or Organization *(if applicable)*: N/A

Part 2. Notice of Appearance as Attorney or Accredited Representative *(continued)*

Information About Applicant, Petitioner, Requestor, or Respondent (continued)

7. USCIS ELIS Account Number *(if any)*

▶

8. Alien Registration Number (A-Number) or Receipt Number

9. Daytime Telephone Number

2122337473

10. Mobile Telephone Number *(if any)*

11. E-Mail Address *(if any)*

mona@mshahlaw.com

Mailing Address of Applicant, Petitioner, Requestor, or Respondent

NOTE: Provide the mailing address of the applicant, petitioner, requestor, or respondent. If the applicant, petitioner, requestor, or respondent has used a safe mailing address on the application, petition, or request being filed with this Form G-28, provide it in these spaces.

12.a. Street Number and Name: 3506 Leavitt St

12.b. Apt. ☐ Ste. ☒ Flr. ☐ CFA

12.c. City or Town: Flushing

12.d. State: NY **12.e.** ZIP Code: 11354

12.f. Province

12.g. Postal Code

12.h. Country

USA

Part 3. Eligibility Information for Attorney or Accredited Representative

Select **all applicable** items.

1.a. ☒ I am an attorney eligible to practice law in, and a member in good standing of, the bar of the highest courts of the following states, possessions, territories, commonwealths, or the District of Columbia. *(If you need additional space, use* ***Part 6.****)*

Licensing Authority

New York Court of Appeals

1.b. Bar Number *(if applicable)*

MS1058

1.c. Name of Law Firm

Mona Shah & Associates

1.d. *I (choose one)* ☒ ***am not*** ☐ ***am***

subject to any order of any court or administrative agency disbarring, suspending, enjoining, restraining, or otherwise restricting me in the practice of law. If you are subject to any orders, explain in the space below. *(If you need additional space, use* ***Part 6.****)*

2.a. ☐ I am an accredited representative of the following qualified nonprofit religious, charitable, social service, or similar organization established in the United States, so recognized by the Department of Justice, Board of Immigration Appeals, in accordance with 8 CFR 292.2. Provide the name of the organization and the expiration date of accreditation.

2.b. Name of Recognized Organization

2.c. Date accreditation expires *(mm/dd/yyyy)* ▶

Part 3. Eligibility Information for Attorney or Accredited Representative *(continued)*

3. ☐ I am associated with

[ ],

the attorney or accredited representative of record who previously filed Form G-28 in this case, and my appearance as an attorney or accredited representative is at his or her request.

NOTE: If you select this item, also complete **Item Numbers 1.a. - 1.b. or Item Numbers 2.a. - 2.c.** in **Part 3.** *(whichever is appropriate).*

4.a. ☐ I am a law student or law graduate working under the direct supervision of the attorney or accredited representative of record on this form in accordance with the requirements in 8 CFR 292.1(a)(2)(iv).

4.b. Name of Law Student or Law Graduate

[ ]

Part 4. Applicant, Petitioner, Requestor, or Respondent Consent to Representation, Contact Information, and Signature

Consent to Representation and Release of Information

1. I have requested the representation of and consented to being represented by the attorney or accredited representative named in **Part 1.** of this form. According to the Privacy Act of 1974 and DHS policy, I also consent to the disclosure to the named attorney or accredited representative of any record pertaining to me that appears in any system of records of USCIS, ICE or CBP.

When you (the applicant, petitioner, requestor, or respondent) are represented, DHS will send notices to both you and your attorney or accredited representative either through mail or electronic delivery.

DHS will also send the Form I-94, Arrival Departure Record, to you **unless** you select **Item Number 2.a.** in **Part 4.** All secure identity documents and Travel Documents will be sent to you (the applicant, petitioner, requestor, or respondent) unless you ask us to send those documents to your attorney of record or accredited representative.

If you do not want to receive original notices or secure identity documents directly, but would rather have such notices and documents sent to your attorney of record or accredited representative, please select **all applicable** boxes below:

2.a ☒ I request DHS send any notice (including Form I-94) on an application, petition, or request to the business address of my attorney of record or accredited representative as listed in this form. I understand that I may change this election at any future date through written notice to DHS.

2.b. ☒ I request that DHS send any secure identity document, such as a Permanent Resident Card, Employment Authorization Document, or Travel Document, that I am approved to receive and authorized to possess, to the business address of my attorney of record or accredited representative as listed in this form. I consent to having my secure identity document sent to my attorney of record or accredited representative and understand that I may request, at any future date and through written notice to DHS, that DHS send any secure identity document to me directly.

3.a. Signature of ~~Applicant, Petitioner,~~ Requestor, or Respondent

[ ]

3.b. Date of Signature *(mm/dd/yyyy)*▶ 09/16/2015

Part 5. Signature of Attorney or Accredited Representative

I have read and understand the regulations and conditions contained in 8 CFR 103.2 and 292 governing appearances and representation before the Department of Homeland Security. I declare under penalty of perjury under the laws of the United States that the information I have provided on this form is true and correct.

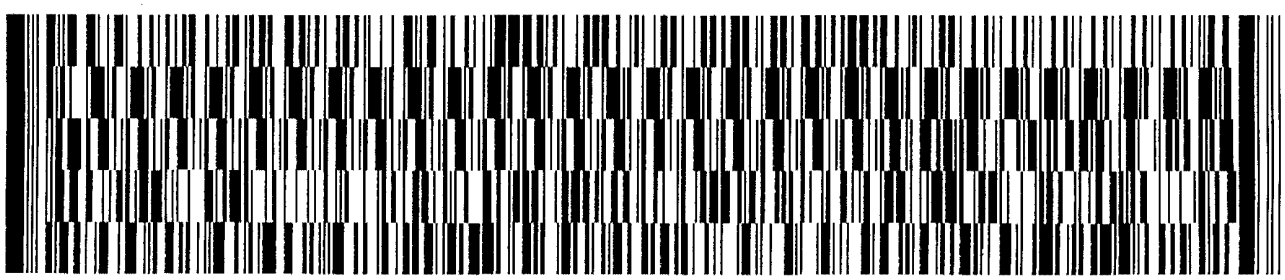
1. Signature of Attorney or Accredited Representative

[ ]

2. Signature of Law Student or Law Graduate

[ ]

3. Date of Signature *(mm/dd/yyyy)*▶ 09/24/2015



Part 6. Additional Information

Use the space below to provide additional information pertaining to **Part 3., Item Numbers 1.a. - 1.d.**

RECD CSC 15SEP28 17:56

OMB No. 1615-0061; Expires 03/31/2016

Department of Homeland Security
U.S. Citizenship and Immigration Services

Form I-924, Application for Regional Center Under the Immigrant Investor Pilot Program

Do Not Write in This Block - for USCIS Use Only (except G-28 block below)	
Action Block	RCW1527153032 egarcia2 1924 09/28/2015
	[X] G-28 attached Attorney's State License No. MS1058

Part 1. Information About Principal of the Regional Center

Name: Last	First	Middle
Xu	George	

C/O: Mona Shah and Associates

Street Address/P.O. Box: 299 Broadway, Suite 1005

City: New York	State: NY	Zip Code: 10007

Date of Birth (mm/dd/yyyy):	Fax Number (include area code): (212) 233-4877	Telephone Number (include area code): (212) 233-7473

Web site address: www.centurygroupdevelopment.com

Part 2. Application Type (Select one)

[ ] **a.** Initial Application for Designation as a Regional Center

[X] **b.** Amendment to an approved Regional Center application. Note the previous application receipt number, if any (also attach the Regional Center's previous approval notice): RCW1420251818

Part 3. Information About the Regional Center

(Use a continuation sheet, if needed, to provide information for additional management companies/agencies, Regional Center principals, agents, individuals or entities who are or will be involved in the management, oversight, and administration of the regional center.)

A. Name of Regional Center: Century New York City Regional Center

Street Address/P.O. Box: 148-44/46 Hillside Ave

City: Jamaica	State: NY	Zip Code: 11435

Web site address:	Fax Number (include area code): (212) 233-4877	Telephone Number (include area code): (212) 233-7473

Part 3. Information About the Regional Center (Continued)

B. Name of Managing Company/Agency: N/A

Street Address/P.O. Box: N/A		
City: N/A	State: NY	Zip Code: N/A
Web site address:	Fax Number (include area code):	Telephone Number (include area code):

C. Name of Other Agent: Mona Shah & Associates

Street Address/P.O. Box: 299 Broadway, Suite 1005		
City: New York	State: NY	Zip Code: 10007
Web site address: www.mshahlaw.com	Fax Number (include area code): (212) 233-4877	Telephone Number (include area code): (212) 233-7473

D. Continuation, if needed, to provide information for additional management companies/agencies, regional center principals, agents, individuals or entities who are or will be involved in the management, oversight, and administration of the regional center.)

Please see attached Counsel's project cover letter.

Part 3. Information About the Regional Center (Continued)

Note: If extra space is needed to complete any item, attach a continuation sheet, indicate the item number, and provide the response.

1a. Describe the structure, ownership and control of the regional center entity.

The Regional Center is owned by Mr. George Xu. Please see the counsel's project cover letter and organizational chart and operating agreement

b. Date the Regional Center was established(mm/dd/yyyy): 03/25/2014

c. Organization Structure for the Regional Center:

- ☐ **1.** Agency of a U.S. State or Territory (identify) _____
- ☐ **2.** Corporation
- ☐ **3.** Partnership (including Limited Partnership)
- ☒ **4.** Limited Liability Company (LLC)
- ☐ **5.** Other (Explain) _____

2. Has this regional center's designation ever been formally terminated by USCIS, or has the regional center ever filed a Form I-924 or regional center proposal or amendment that was denied?

☒ No ☐ Yes - Attach a copy of the adverse decision, with an explanation, the date of decision, and case number, if any.

3. Describe the geographic area of the regional center. **Note:** This area must be contiguous. Provide a map of the geographic area.

Geographic area of the regional center includes the New York counties of Queens County, New York County, Bronx County, Richmond County, Westchester County and Nassau County.

The map of the geographic area is attached in the Business Plan.

4. Describe the regional center's administration, oversight, and management functions that are or will be in place to monitor all EB-5 capital investment activities and the allocation of the resulting jobs created or maintained under the sponsorship of the regional center.

Please see counsel's cover letter and administrative exhibits.

Part 3. Information About the Regional Center (Continued)

5. Describe the past, current, and future promotional activities for the regional center. Include a description of the budget for this activity, along with evidence of the funds committed to the regional center for promotional activities. Submit a plan of operation for the regional center that addresses how EB-5 investors will be recruited, the methods by which the capital investment opportunities will be offered to the investors, and how they will subscribe or commit to the investment interest.

Century New York City Regional Center has a comprehensive marketing plan in operation. Please see attached project cover letter and attachments for details.

6. Describe whether and how the regional center is engaged in supporting a due diligence screening of its alien investor's lawful source of capital and the alien investor's ability to fully invest the requisite amount of capital. Also, describe the regional center's prospective plans in this regard if they differ from past practice.

Century New York City Regional Center will support due diligence screening of its foreign investors' lawful source of capital by requiring all investors to complete the Regional Center's Suitability Evaluation Form and to provide certified and notarized documentary evidence, containing official seal or consular legalization, of any loan or mortgage agreements, promissory notes, security agreements, foreign business registration records, corporate, partnership, and personal tax returns.

7. Identify each industry that has or will be the focus of EB-5 capital investments sponsored through the regional center.

Industry Category Title: Construction NAICS Code for the Industry Category: 2 3 6 2 2 3	Is the Form I-924 application supported by an economic analysis and underlying business plan for the determination of prospective EB-5 job creation through EB-5 investments in this industry category? ☐ No - Attach an explanation ☒ Yes
Industry Category Title: Wholesale Trade NAICS Code for the Industry Category: 4 2 4 2 3 2	Is the Form I-924 application supported by an economic analysis and underlying business plan for the determination of prospective EB-5 job creation through EB-5 investments in this industry category? ☐ No - Attach an explanation ☒ Yes
Industry Category Title: Hotel and Motel NAICS Code for the Industry Category: 7 2 2 5 1	Is the Form I-924 application supported by an economic analysis and underlying business plan for the determination of prospective EB-5 job creation through EB-5 investments in this industry category? ☐ No - Attach an explanation ☒ Yes

Part 3. Information About the Regional Center (Continued)

8a. Describe and document the current and/or prospective structure of ownership and control of the commercial entities in which the EB-5 alien investors have or will make their capital investments.

Please see the Operating Agreement attached in the Exhibits.

b. Date commercial enterprise established, if any (mm/dd/yyyy): 08/07/2015

c. Organization Structure for commercial enterprise:

- ☐ 1. Corporation
- ☐ 2. Partnership (including Limited Partnership)
- ☒ 3. Limited Liability Company (LLC)
- ☐ 4. Other (Explain) _____

d. Has or will the Regional Center or any of its principals or agents have an equity stake in the commercial enterprise?

☒ No ☐ Yes - Attach an explanation and documentation that outlines when and under what circumstances these remittances will be paid.

e. Has or will the Regional Center or any of its principals or agents receive fees, profits, surcharges, or other like remittances through EB-5 capital investment activities from this commercial enterprise, beyond the minimum capital investment threshold required of the EB-5 alien entrepreneurs?

☐ No ☒ Yes - Attach an explanation and documentation that outlines when and under what circumstances these remittances will be paid.

Part 4. Applicant Signature

Read the information on penalties in the instructions before completing this section. If someone helped you prepare this petition, he or she must compete **Part 5**.

I certify, under penalty of perjury under the laws of the United States of America, that this form and the evidence submitted with it are all true and correct. I authorize the release of any information from my records that U.S. Citizenship and Immigration Services needs to determine eligibility for the benefit being sought. I also certify that I have authority to act on behalf of the Regional Center.

Signature of Applicant	**Daytime Phone Number** (Area/Country Codes)	**Date** (mm/dd/yyyy)
	(718) 939-1060	08/14/2015
Printed Name of Applicant	**E-Mail Address**	
George Xu	centurygroup88@yahoo.com	

Relationship to the Regional Center Entity (Managing Member, President, CEO, etc.)

Principal of the Regional Center

Part 5. Signature of Person Preparing This Form, If Other Than Above (Sign Below)

I declare that I prepared this application using information provided by someone with authority to act on behalf of the Regional Center, and the answers and information provided by the Regional Center.

Attorney or Representative: In the event of a Request for Evidence (RFE), may the USCIS contact you by Fax or E-mail? ☐ No ☒ Yes

Signature of Preparer	**Printed Name of Preparer**	**Date** (mm/dd/yyyy)
	Mehreen Shah, Esq.	08/14/2015

Firm Name and Address
Mona Shah & Associates
299 Broadway, Suite 1005
New York, NY 10007

Daytime Phone Number (Area/Country Codes)	**Fax Number** (Area/ Country Codes)	**E-Mail Address**
(212) 233-7473	(212) 233-4877	mona@mshahlaw.com

Century New York City Regional Center, LLC
Continuation Sheet

Part 3. Information About the Regional Center

Question 7. Identify each industry that has or will be the focus of EB-5 capital investments sponsored through the regional center.

Industry Category Title	NAICS Code	Economic Analysis & Business Plan?
Food Services and drinking places	72251	Yes
Real Estate	53112/5313	Yes
Other government enterprises	921	Yes
Architectural, engineering and related services	5413	Yes
Insurance	5241	Yes
Accounting tax preparation, bookkeeping services	5412	Yes
Legal Services	5411	Yes
Monetary authorities and depository credit intermediation	5222	Yes
Other miscellaneous professional and technical services	5419	Yes

Part 3. Information About the Regional Center

Question 8e. Has or will the Regional Center or any of its principals or agents receive fees, profits, surcharges, or other like remittances through EB-5 capital investment activities from this commercial enterprise, beyond the minimum capital investment threshold required of the EB-5 alien entrepreneurs?

The Regional Center will charge each investor a [redacted] (b)(4) administrative fee. Please see the Offering Documents at Exhibit 5 for more details.

MONA SHAH & ASSOCIATE
—ATTORNEYS AT LAW—

299 Broadway, Suite 1005
New York, NY 10007

Tel: 212-233-7473
Fax: 212-233-4877
E Fax: 917-210-3711

Email: info@mshahlaw.com
Web: www.mshahlaw.com

September 23, 2015

VIA Fed-Ex Delivery

USCIS – California Service Center
Attn: EB-5 RC Processing Unit
24000 Avila Road, 2nd Floor
Laguna Niguel, CA 92677

RE: Request for an Amendment to an Approved Regional Center Application, Form I-924, Exemplar Filing for a New Project (88th Avenue EB5 Capital, LLC) and Form I-526 Petition
Petitioner: Century New York City Regional Center, LLC / RCW1420251818
Project: 88th Avenue EB5 Capital, LLC

Dear Adjudicating Officer,

Attached please find request for an amendment to Century New York City Regional Center, LLC's previously approved RC petition, along with an Exemplar Form I-526.

Attached also is our G-28 and supporting documentation, indexed and tabbed.

Should you require any additional document or clarification, please do not hesitate to contact us, we will be delighted to oblige.

Sincerely,

Mona Shah & Associates

Omar Al Hakim, Esq.

OH/hm
Enclosures

MONA SHAH & ASSOCIATES
—ATTORNEYS AT LAW—

299 Broadway, Suite 1005
New York, NY 10007

Tel: 212-233-7473
Fax: 212-233-4877
E Fax: 917-210-3711

Email: info@mshahlaw.com
Web: www.mshahlaw.com

September 24, 2015

U.S. Citizenship & Immigration Services
Attn: I-526
2501 S. State Highway 121 Business
Suite 400
Lewisville, TX 75067

SUBMISSION CONTAINS CONFIDENTIAL COMMERCIAL INFORMATION PER FOIA (5 U.S.C. § 552 (b)(4)), SUBMITTER REQUESTS PREDISCLOSURE NOTIFICATION PER PRESIDENTIAL EXECUTIVE ORDER NO. 12, 600, 52 FED. REG. 23781 (JUNE 23, 1987)

RE: I-526 Immigrant Petition by Alien Entrepreneur: **John Doe**
New Commercial Enterprise: **88th Avenue EB5 Capital, LLC**
Regional Center: **Century New York City Regional Center, LLC**

Dear Adjudicating Officer:

This letter is submitted in support of an exemplar I-526 petition with the Century New York City Regional Center, LLC, under the regulations at 8 CFR §204.6, for Petitioner **John Doe**. Materials specific to the I-526 petitioner's investment and source of funds are organized under separate cover.

The Offering Package provided to investors included all of the offering and organizational documents, project business plan, economic analysis, and voluminous supporting documents necessary for the investors' I-526 petitions. The Offering Package contains a detailed Table of Contents for all of those documents and divides offering materials into 17 numbered sections. Exhibits 1 through 5 consist of documents relating to the Regional Center, New Commercial Enterprise and placement of capital "at risk". Exhibit 6 comprises the economic report, while

exhibits 7 through 17 encompass supporting documents relating to the *Matter of Ho* Roadmap, beginning with the comprehensive Business Plan. For ease of reference, a detailed exhibit list is attached. This is the only valid version of the offering documents, and no other version should be submitted by any investor.

(b)(4)

In summary, each investor in the Project seeks classification as an alien entrepreneur based on his or her $500,000 capital investment in the *Jamaica Project.* The Project will spend a maximum [redacted] contributed from EB-5 funds to finance the construction, development and operations of a mixed-use development, located at 148-44/48 Hillside Avenue / 148-31/43 88th Avenue, Jamaica, NY 11435. The mixed—used development will include two buildings: The first building will be a six-floor commercial space with 17,099 rentable sf. The second building will be an eight-floor residential building with 109 units and 84,709 rentable sf. The total building gross size is 101,808 sf. The buildings will include retail spaces, office spaces, residential spaces, community facilities, and 55 paid parking spaces. The project is estimated to break ground no later than December of 2015, and will open around February of 2018.

In accordance with 8 C.F.R. § 204.6(m)(7), this petition is accompanied by supporting evidence establishing the investor's qualifying investment into a new commercial enterprise within an approved regional center and that such investment will create jobs directly and indirectly through this enterprise. Evidence that the investor's funds for capital investment are derived from a lawful source as required by 8 C.F.R. § 204.6(j)(3) are provided separately from the project materials.

I. NEW COMMERCIAL ENTERPRISE AND CREDIBLE PROJECT

Jamaica Project

The investor has made an at-risk capital investment of [redacted] in cash into the 88th Avenue EB5 Capital, LLC (the "NCE"). $500,000 will be used for the investment, and [redacted] is the Administrative Fee. Century New York City Regional Center, LLC ("RC") is the regional center. Please see documents relevant to the regional center at **Exhibit 1.**

(b)(4)

The Manager of 88th Avenue EB5 Capital, LLC is Century New York City Regional Center, LLC. The New Commercial Enterprise, 88th Avenue EB5 Capital, LLC, is a newly formed entity for the purpose of raising investment capital for the development of the Project. As it is a for-profit

limited partnership that was established after November 29, 1990, 88th Avenue EB5 Capital, LLC is classified as a "new" commercial enterprise as defined in 8 C.F.R. § 204.6(e).

88th Avenue Realty, LLC is the job creating entity ("JCE"). The NCE, 88th Avenue EB5 Capital, LLC, will make a loan to the JCE to provide EB-5 investment capital for the development of the Project and for the job creation. The Project will be developed by a real estate development company, Midtown Properties Group, which is an affiliate company of the JCE.

There are a maximum of 24 Limited Member Units, one of which has been purchased by the investor. Please refer to a copy of the Subscription and Operating Agreements at **Exhibit 5** for additional details. A copy of the Private Placement Memorandum and Escrow Agreement are also included at **Exhibit 5**.

As described in the comprehensive business plan at **Exhibit 7**, the total project cost is estimated (b)(4) to be [redacted] For the capital stack, the EB-5 funds will be [redacted] the bank loan will be [redacted] and the developer's equity contribution will be [redacted] The (b)(4) mixed—used development will include two buildings: The first building will be a six-floor commercial space with 17,099 rentable sf. The second building will be an eight-floor residential building with 109 units and 84,709 rentable sf. The total building gross size is 101,808 sf. The buildings will include retail spaces, office spaces, residential spaces, community facilities, and 55 paid parking spaces.

The construction of the Project will take approximately 27 months to complete, and will break ground no later than December of 2015. Please refer to the submitted construction timeline at **Exhibit 9**. The construction budget was estimated by Century Construction Group, a qualified, unaffiliated, third-party general contractor, which offers the experience of having constructed similar projects in size, nature and scope. The construction budget was based on their previous experience of projects similar in size and nature and scope for the Project. The construction timeline was derived from figures and statistics; the detailed plans and specifications drawn up by the architect; spot checks on the numbers developed, and the comparable analysis method of similar hotel projects in a similar location.

The project has made great efforts to commence the Project. The Developer has entered into formal contract with General Contractor Century Construction Group, Architect and Engineer Raymond Chan Architect. Please refer to **Exhibit 9, Exhibit 10.** It has purchased the land upon which it will construct the hotel. Please see the deed for the land at **Exhibit 12.** It has

researched and explored the necessary permits, zoning and environmental regulations, licensing requirements, and other restrictions concerning the Project. Please refer to the work permit schedule at **Exhibit 14**. The Jamaica project anticipates entering into a management agreement with First Management Group. First Management Group is a full-service Real Estate Management firm.

The NCE will make the Loan to the Borrower at a fixed rate of (b)(4) per annum. The EB-5 funds will fund the construction cost of the Project. EB-5 Investors, as Members, will be entitled to a return of up to (b)(4) per annum if the NCE generates sufficient revenues. There is no guarantee that the EB-5 Investors will receive a return on their investment or that their principal will be repaid. Copies of the loan agreement and promissory note are included at **Exhibit 3**.

***Matter of Ho* Roadmap- All contained in at EXHIBITS 7 THROUGH 19**

- The Comprehensive Business Plan – with the description of the business, its products and/or services, and its objectives (**Exhibit 7**)
- Appraisal Report prepared by Betsy Mak Appraisal Group LLC, dated September 2, 2015. This document lays out the market analysis, the names of competing businesses, their relative strengths and weaknesses, a comparison of the competition's products and pricing structures, and a description of the target market/prospective customers of the new commercial enterprise along the reasonable analysis method used to derive the development cost estimates as well as to show the prospective market value of the project (**Exhibit 8**)
- Documents relating to construction documents, including the construction timeline, certificate of liability insurance (**Exhibit 9**)
- Documents relating to architectural documents, including fully executed document with architect, and architecture and site plans (**Exhibit 10**)
- Deed (**Exhibit 12**)
- Permits to be obtained by the project (**Exhibit 13**)
- Project Financials (**Exhibit 14**)

II. CREATION OF DIRECT AND INDIRECT EMPLOYMENT POSITIONS

(b)(4)

The new commercial enterprise is affiliated with an approved regional center in this project.

Based on the EB-5 Economic Impact Report by Evans, Carroll & Associates, Inc., Jamaica Project will create [redacted] permanent new jobs, including [redacted] jobs from construction activity and [redacted] jobs from the building's operation.

Table A. Summary of Employment and Revenue Estimates

Activity	Exp/Rev mil cur $	Exp/Rev mil 2010 $	RIMS II Mult	Total Jobs	Direct Jobs
Hard construction costs	[redacted]		13.2149	[redacted]	
Architect & Engineering Svcs			11.9014		
Rental Income			13.0752		
Total					

All figures based on unrounded numbers

The [redacted] jobs will support a maximum EB-5 capital raise of [redacted] The project intends to raise [redacted] from 24 EB-5 investors. The full Economic and Job Creation Impacts Report is included at **Exhibit 6.**

(b)(4)

Jobs will be allocated to each investor in the order in which the investment funds were received into the project.

III. MANAGEMENT OF THE NEW COMMERCIAL ENTERPRISE

Each investor is a limited member in 88th Avenue EB5 Capital, LLC, a New York Limited Liability Company. Pursuant to 8 C.F.R. § 204.6(j)(5), a limited member is considered sufficiently engaged in the management of the new commercial enterprise through policy formulation.

Investors in this project are sufficiently engaged in the management of the new commercial enterprise through policy formulation. Please see the ***Management and Voting Rights Section*** of Private Placement Memorandum and other Offering Documents at **Exhibit 5**. Therefore, the investors satisfy immigrant investor requirements.

IV. CAPITAL INVESTMENT

The Property is located at 148-44/48 Hillside Avenue / 148-31/43 88th Avenue, Jamaica, NY 11435. The project is located at Census tract 238 in Queens County and qualifies as a "targeted employment area". Attached at **Exhibit 4** is the most updated TEA confirmation letter dated August 20, 2015, issued by New York State Department of Economic Development. The location of the Project therefore falls squarely within the definition of "TEA" provided in 8 C.F.R. §204.6(e).

The investor made an at-risk capital investment of $500,000 into 88th Avenue EB5 Capital, LLC. Evidence that the funds were deposited into specific escrow account designated for 88th Avenue EB5 Capital, LLC's bank account is provided under separate cover with the investor-specific source of funds exhibits.

In compliance with the regulations and governing precedent decisions, the full amount of the capital contribution has been invested solely in 88th Avenue EB5 Capital, LLC. $500,000 of the funds will be released for purposes of financing the construction, development and operation of the property as described in the comprehensive business plan at **Exhibit 7**. No portion of an investor's contribution has been or will be applied towards legal service fees or administrative fee, marketing costs or interest payment of 88th Avenue EB5 Capital, LLC or Century New York City Regional Center, LLC, which are paid from the separate $50,000 administrative fee. In addition, legal fees for pursuit of immigration benefits are paid by each investor outside of the $500,000 investment.

The investor's investment is placed in an active commercial enterprise in the form of cash. There are no loans, promissory notes, mortgage agreements or other forms of borrowing relating to any of his or her capital contribution. The investor is thus subject to the inherent risks associated with operating a new commercial enterprise. Should the business not perform well, the investor risks losing part or all of the petitioner's investment.

V. CONCLUSION

For these reasons and based on the supporting documentation, the investor meets all the requirements to qualify as an EB-5 alien entrepreneur under the Immigrant Investor Pilot Program, pursuant to INA § 203(b)(5) and 8 C.F.R. §204.6. Furthermore, this investment in the United States will result in job creation that will benefit the regional and/or national economies.

We respectfully request your prompt approval of the enclosed I-526 Petition.

Sincerely,
Mona Shah & Associates

Mona Shah, Esq.
New York, NY

Submitted by:
Mona Shah & Associates
Attorneys for the Petitioner,
Century New York City Regional Center, LLC
299 Broadway, Suite 1005
New York, NY 10007
Tel: (212)233-7473

September 14, 2015

UNITED STATES DEPARTMENT OF STATE
US CITIZENSHIP AND IMMIGRATION SERVICE

In the Matter of:

I-924 EXEMPLAR FILING }
Pursuant to 8 CFR ss.204.6 }
Petitioner: Century New York City Regional Center }
Project: 88th Avenue EB5 Capital, LLC }

REQUEST FOR AN AMENDMENT TO AN APPROVED REGIONAL CENTER APPLICATION, FORM I-924, EXEMPLAR FILING FOR A NEW PROJECT (88th Avenue EB5 Capital, LLC) AND FORM I-526 PETITION

ATTORNEY MEMORANDUM

This Instant Request for an Amendment is filed to seek:

(1) A preliminary determination of an exemplar Form I-526 – *88th Avenue EB5 Capital, LLC*

This letter and the annexed supporting documentation constitute a request for the approval of an exemplar Form I-526, filed in accordance with 8 CFR 204.6., in order for USCIS to determine if the documentation is EB-5 compliant and thus facilitate adjudication of an actual but identical Form I-526 petition, if the evidence of record otherwise establishes EB-5 eligibility.

Attached is a detailed exhibit list covering all the supporting documents; the exhibits have been tabbed for your reference.

I. Preliminary:

The petitioning regional center is named *Century New York City Regional Center*. The company was incorporated on March 25, 2014. Please see company formation documents, exhibited at **Exhibit 2.**

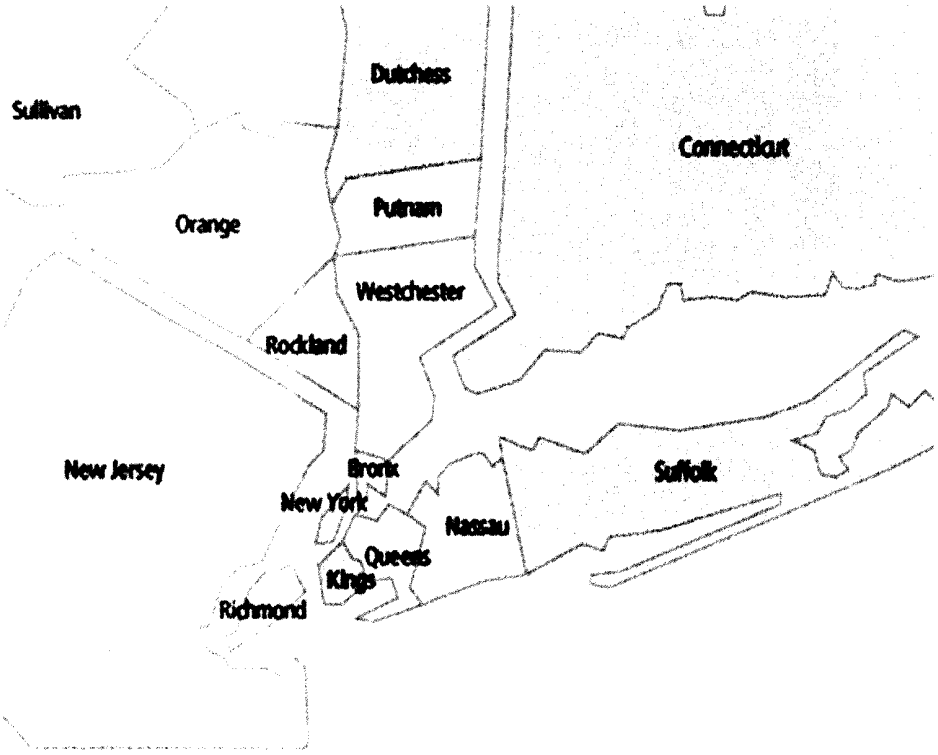
The Century New York City Regional Center, LLC (hereafter "CNYC") seeks approval of an exemplar Form I-526, filed in accordance with 8 CFR 204.6., in order for USCIS to determine if the documentation is EB-5 compliant and thus facilitate adjudication of an actual but identical Form I-526 petition, if the evidence of record otherwise establishes EB-5 eligibility.

II. Prior Approval

CNYC was approved on March 14, 2015. Please see approval letter **at Exhibit 1.**

III. Regional Center Geographical Region and TEA Designation

The geographical area for CNYC has not changed. It continues to comprise the New York counties of Queens County, New York County, Bronx County, Richmond County, Westchester County and Nassau County. Below is a map of the geographical area.



The Project is located at 148-31/43 88th Avenue, Jamaica, NY 11435. This is a designated targeted employment area (TEA), as per 8CFR 204.6 and thus qualified to accept an investment of $500,000.00. Please see attached **Exhibit 7**, TEA confirmation letter issued by the Empire State Development.

III. Industry Sectors Requested

The industry sectors have not changed. Please see the North American Industry Classification System (NAICS) code listed below:

88th Avenue Realty, LLC developments continue to encompass the following industries:

North American Industry Classification System (NAICS) codes are listed as follows:

Construction Hard Costs

- Construction (Building & Site) – 2362/23622
- Wholesale Trade (FF&E) – 42/4232
- Real Estate – 53112/5313

Financing & Soft Costs

- Other government enterprises – 921
- Architectural, engineering and related services – 5413
- Insurance - 5241
- Accounting tax preparation, bookkeeping services – 5412
- Legal Services – 5411
- Monetary authorities and depository credit intermediation – 5222
- Other miscellaneous professional and technical services – 5419

IV. Brief Project Description

The Project will provide funding to construct and operate a mixed-use building which consists of retail spaces, office spaces, residential spaces, community facilities, and 55 paid parking spaces. The Project is looking to raise US[ ] from[ ] investors through EB5 investment. (b)(4)

Attached at **Exhibit 3** is a comprehensive business plan, compliant with *Matter of Ho.* CNYC is seeking approval of an exemplar Form I-526, filed in accordance with 8 CFR 204.6., in order for USCIS to determine if the documentation is EB-5 compliant and thus facilitate adjudication of an actual but identical Form I-526 petition, if the evidence of record otherwise establishes EB-5 eligibility. The business plan clearly describes how the project will promote economic growth through improved regional productivity, job creation, and increased domestic capital investment.

V. Promotion of Economic Growth

The New Commercial Enterprise (NCE) 88th Avenue EB5 Capital, LLC is seeking to raise US[ ] in investors' capital from[ ] investors through the EB-5 Immigrant Investor Program for the expansion plan into the seven counties in the state of New York. (b)(4)

Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment is not required if investment opportunities arise outside the geographic area referenced.

The JCE will review each project under the RC that is seeking funding focusing on job creation, development potential, financial stability and exit plan. The Jamaica Project meets the JCE's assessment standards after conducting full due diligence studies.

VII. Investment Terms

Each EB-5 investor must execute the Private Placement Memorandum, the Operating Agreement, and the Subscription Agreement, all attached at **Exhibit 6.**

If the I-526 petition is denied or if the I-526 petition is approved but the EB-5 investor is denied at the consulate interview, Century New York City Regional Center will return the investor's capital contribution $500,000 and [redacted] administrative fee without interest. In addition, EB-5 Investors must pay an administrative fee of [redacted] which will be used to pay for a thorough review of the investor's personal questionnaire, background documents, commissions, finder's fees, to offset advertising costs and other administrative expenses. (b)(4)

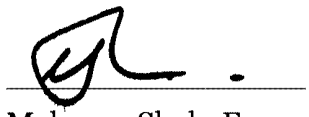
The Subscription Agreement requires the investor to affirm that he or she is an accredited investor pursuant to Rule 506 of Regulation D under the Securities Act of 1933. By signing the Subscription Agreement, the EB-5 investor agrees to become a member pursuant to the particular LLC Operating Agreement and Subscription Agreement **Exhibit 6.** Immigrant investors may not file their I-526 petition until their cash investments are fully invested in the particular project. The investor deposits his investment capital directly to the account of the Project managing the particular project. EB-5 regulations and USCIS rulings require that the investment be at risk for at least five (5) years. However, the Project may, at its sole discretion, make distributions of profits and income during this time period.

In Conclusion:

The documentary evidence submitted complies with the regulatory requirements for approval of an exemplar Form I-526. Thank you for your consideration in this matter.

Respectfully Submitted:

Dated: September 14, 2015
New York, NY

By: 

Mehreen Shah, Esq.
Mona Shah & Associates
Attorneys for *Century New York City Regional Center, LLC*

Submitted By:

Mona Shah & Associates

Attorneys for:
Century New York City Regional Center
299 Broadway, Suite 1005
New York, NY 10007
Tel: (212) 233 7473

Century New York City Regional Center, LLC
Receipt No: RCW14202518l8/ Regional Center ID: 14202518l8

Century New York City Regional Center, LLC

REQUEST FOR AN AMENDMENT TO AN APPROVED REGIONAL CENTER APPLICATION, FORM I-924, EXEMPLAR FILING FOR A NEW PROJECT (88th Avenue EB5 Capital, LLC) AND FORM I-526 PETITION

OMB No. 1615-0026; Exp. 09/30/2016

Department of Homeland Security
U.S. Citizenship and Immigration Services

Form I-526, Immigrant Petition by Alien Entrepreneur

Do Not Write in This Block - For USCIS Use Only (Except G-28 Block Below)		
Classification _____	**Action Block**	Fee Receipt
Priority Date _____		**To be completed by Attorney or Representative, if any** ☒ G-28 is attached Attorney's State License No. MS1058
Remarks:		

START HERE - Type or print in black ink.

Part 1. Information About You

Family Name	Given Name	Middle Name
Doe	John	

Address - In Care of Name, if applicable

Street Number and Name			Apt. Number
City	State or Province	Country	Zip/Postal Code
Date of Birth *(mm/dd/yyyy)*	Country of Birth	Social Security Number (if any)	A-Number (if any)

If you are in the United States, provide the following information:

Date of Arrival *(mm/dd/yyyy)*	I-94 Number	Passport Number
Travel Document Number	Expiration Date for Passport or Travel Document	Country of Issuance for Passport or Travel Document
Current Nonimmigrant Status	Date Current Status Expires *(mm/dd/yyyy)*	Daytime Telephone Number (with Area Code)

Part 2. Application Type *(Check one)*

a. ☒ This petition is based on an investment in a commercial enterprise in a targeted employment area for which the required amount of capital invested has been adjusted downward.

b. ☐ This petition is based on an investment in a commercial enterprise in an area for which the required amount of capital invested has been adjusted upward.

c. ☐ This petition is based on an investment in a commercial enterprise that is not in either a targeted area or in an upward adjustment area.

Part 3. Information About Your Investment

Name of commercial enterprise in which funds are invested ***(Required Field - Do Not Leave Blank)***

88th Ave EB5 Capital, LLC

Street Address

35-06 Leavitt St, Suite CF-A Flushing, NY 11354

Phone Number with Area Code	Business organized as (corporation, partnership, etc.)
+1 (718) 939-1060	Limited Liability Company

RECEIVED: _____ RESUBMITTED: _____ RELOCATED: SENT _____ REC'D _____

Part 3. Information About Your Investment *(Continued)*

Kind of business (e.g. furniture manufacturer): Investment Fund

Date established (mm/dd/yyyy): 08/07/2015

IRS Tax #: (b)(3)

Date of your initial investment (mm/dd/yyyy):

Amount of your initial investment: $ 000,000,500,000.00

Your total capital investment in the enterprise to date: $ 000,000,500,000.00

Percentage of the enterprise you own:

If you are not the sole investor in the new commercial enterprise, list on separate paper the names of all other parties (natural and non-natural) who hold a percentage share of ownership of the new enterprise and indicate whether any of these parties is seeking classification as an alien entrepreneur. Include the name, percentage of ownership, and whether or not the person is seeking classification under section 203(b)(5). **NOTE:** A "natural" party would be an individual person, and a "non-natural" party would be an entity such as a corporation, consortium, investment group, partnership, etc.

If you indicated in **Part 2** that the enterprise is in a targeted employment area or in an upward adjustment area, name the county and State: County: Queens State: NY

Part 4. Additional Information About the Enterprise

Type of Enterprise (check one):

- [X] New commercial enterprise resulting from the creation of a new business.
- [ ] New commercial enterprise resulting from the purchase of an existing business.
- [ ] New commercial enterprise resulting from a capital investment in an existing business.

Composition of the Petitioner's Investment:

Total amount in U.S. bank account	$ 000,000,000.00
Total value of all assets purchased for use in the enterprise	$ 000,000,000.00
Total value of all property transferred from abroad to the new enterprise	$ 000,000,000.00
Total of all debt financing	$ 000,000,000.00
Total stock purchases	$ 000,000,000.00
Other (explain on separate paper)	$ 000,500,000.00
Total	$ 000,000,500,000.00

Income:

When you made the investment	Gross	$ 000,000,000.00	Net	$ 000,000,000.00
Now	Gross	$ 000,000,000.00	Net	$ 000,000,000.00

Net worth:

When you made investment	Gross	$ 000,000,000.00	Now	$ 000,000,000.00

Part 5. Employment Creation Information

Number of full-time employees in the enterprise in U.S. (excluding you, your spouse, sons, and daughters)

When you made your initial investment? 0 Now 0 Difference 0

How many of these new jobs were created by your investment? 0

How many additional new jobs will be created by your additional investment? 10+

What is your position, office, or title with the new commercial enterprise?

Members

Briefly describe your duties, activities, and responsibilities.

Vote & participate in company matters based on the company's Limited Liability Agreement

What is your salary? $ What is the cost of your benefits? $

Part 6. Processing Information

Check One:

☐ The person named in **Part 1** is now in the United States, and an application to adjust status to permanent resident will be filed if this petition is approved.

☒ If the petition is approved and the person named in **Part 1** wishes to apply for an immigrant visa abroad, complete the following for that person:

Country of nationality: U.S.

Country of current residence or, if now in the United States, last permanent residence abroad:

U.S.

If you provided a United States address in **Part 1**, print the person's foreign address:

If the person's native alphabet is other than Roman letters, write the foreign address in the native alphabet:

Are you in deportation or removal proceedings? ☐ Yes (Explain on separate paper) ☒ No

Have you ever worked in the United States without permission? ☐ Yes (Explain on separate paper) ☒ No

Part 7. Signature *Read the information on penalties in the instructions before completing this section.*

I certify, under penalty of perjury under the laws of the United States of America, that this petition and the evidence submitted with it is all true and correct. I authorize the release of any information from my records that U.S. Citizenship and Immigration Services needs to determine eligibility for the benefit I am seeking.

Signature Date

Mobile Phone Number (212) 233 - 7473 E-Mail Address mona@mshahlaw.com

NOTE: *If you do not completely fill out this form or fail to the submit the required documents listed in the instructions, you may not be found eligible for the immigration benefit you are seeking and this petition may be denied.*

Part 8. Signature of Person Preparing Form, If Other Than Above (Sign below)

I declare that I prepared this application at the request of the above person, and it is based on all information of which I have knowledge.

Signature Print Your Name Mehreen Shah, Esq. Date 09/24/2015

Firm Name Mona Shah & Associates Daytime phone # with area code 212-233-7473

Address 299 Broadway, Suite 1005, New York, NY 10007

U.S. Department of Homeland Security
U.S. Citizenship and Immigration Services
Immigrant Investor Program
Washington, DC 20529

U.S. Citizenship and Immigration Services

May 14, 2015
George Xu
Century New York City Regional Center
35-06 Leavitt Street, Unit CFA
Flushing, New York 11354

Application:	Form I-924, Application for Regional Center under the Immigrant Investor Pilot Program
Applicant(s):	Century New York City Regional Center
Re:	Initial Regional Center Designation Century New York City Regional Center RCW1420251818/ID1420251818

This notice is in reference to the Form I-924, Application for Regional Center Under the Immigrant Investor Pilot Program that was filed by the applicant with the U.S. Citizenship and Immigration Services ("USCIS") on July 21, 2014. The Form I-924 application was filed to request approval of initial regional center designation under the Immigrant Investor Program. The Immigrant Investor Program was established under § 610 of the Department of Commerce, Justice and State, the Judiciary, and Related Agencies Appropriations Act of 1993 (Pub. L. 102-395, Oct. 6, 1992, 106 Stat. 1874).

I. Executive Summary of Adjudication

Effective the date of this notice, USCIS approves the Form I-924 request to designate Century New York City Regional Center as a qualifying participant in the Immigrant Investor Program.

II. Regional Center Designation

USCIS approves the applicant's request to focus, promote economic growth, and offer capital investment opportunities in the following geographic area and industry categories:

A. Geographic Area

State	Counties/Cities
New York	Queens, New York, Bronx County, Richmond County, Westchester County, and Nassau County

Note: Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment request is not required if investment opportunities arise outside the geographic area referenced above. USCIS will evaluate eligibility upon the filing of an initial Form I-526 related to that new investment opportunity.

B. Industry Categories

Industry Category	NAICS code
Nonresidential Building Construction	2362
Furniture and Home Furnishing Merchant Wholesalers	4232
Hotel and Motel (including Casino)	72251
Restaurants and Other Eating Places	72251
Lessors of Nonresidential Buildings (Except Miniwarehouses)	53112
Architectural, Engineering and Related Services	5413
Insurance Carriers	5241
Accounting Tax Preparation, Bookkeeping Services	5412
Legal Services	5411
Monetary Authorities and Depository Credit Intermediation	5222
Other miscellaneous professional and technical services	5419

Note: Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment request is not required if investment opportunities arise outside the industry categories referenced above. USCIS will evaluate eligibility upon the filing of an initial Form I-526 related to that new investment opportunity.

III. Job Creation

USCIS approves the geographic area and industry categories noted above based on the economic impact analysis presented and reviewed in conjunction with the adjudication of this regional center proposal.

This hypothetical project does not have the factual details necessary to be in compliance with the requirements described in Matter of Ho, 22 I&N Dec. 206 (Assoc. Comm'r 1998), and therefore, USCIS's approval of the hypothetical job creation estimates presented in the Form I-924 will not be accorded deference and may not be relied upon by an individual investor when filing the Form I-526. The business plan and job creation estimates will receive a de novo review by USCIS when an individual investor files Form I-526. Once an actual project is adjudicated upon the filing of the initial Form I-526, USCIS will give deference to subsequent Forms I-526 when the critical assumptions remain materially unchanged from the initially-approved Form I-526.

When filing Form I-526, it will be the responsibility of the individual investor to submit a comprehensive, detailed and credible business plan, showing by a preponderance of the evidence that his or her investment in the new commercial enterprise will create not fewer than 10 full-time positions. If prior to filing a form I-829, the job creation estimated in the business plan submitted by the individual investor materially changes or will not be realized, then it will be the responsibility of the EB-5 investor to notify USCIS of an agreed upon methodology to allocate job creation among eligible investors.

IV. Guidelines for Filing Form I-526 Petitions

Each individual petition, in order to demonstrate that it is affiliated with the Century New York City Regional Center in conjunction with addressing all the requirements for an individual immigrant investor petition, shall also contain the following:

1. A copy of this regional center approval notice and designation letter including all subsequent amendment approval letters (if applicable).

2. An economic impact analysis which reflects a job creation methodology required at 8 CFR § 204.6 (j)(4)(iii) and shows how the capital investment by an individual immigrant investor will create not fewer than ten (10) indirect jobs for each immigrant investor.

3. A comprehensive, detailed and credible business plan for an actual project that contains the factual details necessary to be in compliance with the requirements described in Matter of Ho, 22 I&N Dec. 206 (Assoc. Comm'r 1998).

4. Legally executed organizational documents of the commercial enterprise.

Note: The project reviewed with this Form I-924 application is a hypothetical project. Organizational and transactional documents associated with the new commercial enterprise (NCE) submitted with this Form I-924 have not been reviewed to determine compliance with program requirements since these documents will receive de novo review in subsequent filings (e.g., an amended Form I-924 application with a Form I-526 exemplar or the first Form I-526 petition filed by an investor under the regional center project).

V. Designee's Responsibilities in the Operations of the Regional Center

As provided in 8 CFR § 204.6 (m)(6), to ensure that the regional center continues to meet the requirements of section 610(a) of the Appropriations Act, a regional center must provide USCIS with updated information to demonstrate the regional center is continuing to promote economic growth, improved regional productivity, job creation, and increased domestic capital investment in the approved geographic area. Such information must be submitted to USCIS on an annual basis or as otherwise requested by USCIS. The applicant must monitor all investment activities under the sponsorship of the regional center and to maintain records in order to provide the information required on the Form I-924A Supplement to Form I-924. Form I-924A, Supplement to Form I-924 Application is available in the "Forms" section on the USCIS website at www.uscis.gov.

Regional centers that remain designated for participation in the Immigrant Investor Program as of September 30th of a calendar year are required to file Form I-924A Supplement in that year. The Form I-924A Supplement with the required supporting documentation must be filed on or before December 29th of the same calendar year.

The failure to timely file a Form I-924A Supplement for each fiscal year in which the regional center has been designated for participation in the Immigrant Investor Program will result in the issuance of an intent to terminate the participation of the regional center in the Immigrant Investor Program, which may ultimately result in the termination of the designation of the regional center.

The regional center designation is non-transferable.

VI. Legal Notice

This approval and designation of a Regional Center under the Immigrant Investor Program does not constitute or imply an endorsement or recommendation by USCIS, the United States Government or any instrumentality thereof, of the investment opportunities, projects or other business activities related to or undertaken by such Regional Center. Except as expressly set forth in this approval and designation, USCIS has not reviewed any information provided in connection with or otherwise related to the Regional Center for compliance with relevant securities laws or any other laws unrelated to eligibility for designation as a Regional Center. Accordingly USCIS makes no determination or representation whatsoever regarding the compliance of either the Regional Center or associated New Commercial Enterprises with such laws.

Each Regional Center designated by USCIS must monitor and oversee all investment offerings and activities associated with, through or under the sponsorship of the Regional Center. The failure of an associated New Commercial Enterprise to comply with all laws and regulations related to such investment offerings and activities may result in the issuance by USCIS of a notice of intent to terminate the Regional Center designation.

If the applicant has any questions concerning the regional center designation under the Immigrant Investor Program, please contact the USCIS by email at USCIS.ImmigrantInvestorProgram@uscis.dhs.gov.

Sincerely,

Nicholas Colucci
Chief, Immigrant Investor Program

cc: Mehreen Shah, Esq.
299 Broadway, Suite 1005
New York, NY 10007

REGIONAL CENTER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: 88TH AVENUE EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

PROJECT'S SUPPORTING DOCUMENTS

Exhibit Description

1. **Regional Center Documentation**
   - **Century New York City Regional Center, LLC ("CNYC")**: Designation letter dated March 14, 2015
   - **Executed Agreement** entered into September 15, 2015 among Century New York City Regional Center and 88th Avenue EB5 Capital, LLC, affiliating the NCE with the Regional Center

2. **Establishment of the New Commercial Enterprise (NCE)**
   - **Articles of Organization** of 88th Avenue EB5 Capital, LLC, filed on August 7, 2015, issued by the State of New York
   - **EIN** for 88th Avenue EB5 Capital, LLC, Dated August 7, 2015

   Job Creating Entity (JCE):
   - **Articles of Organization** of 88th Avenue Realty, LLC, filed on January 10, 2014, issued by the State of New York
   - **EIN** of 88th Avenue Realty, LLC, dated January 14, 2014

   Manager of NCE:
   - **Articles of Organization** of Century New York City Regional Center, LLC, filed on March 25, 2014, issued by the State of New York
   - **EIN** of Century New York City Regional Center, LLC, dated May 2, 2014

3. **Placement of Capital "at risk"**
   - **Loan / Promissory note between JCE and NCE**

4. **Documentation that Project is Located in Targeted Economic Area (TEA)**
   - **TEA Confirmation Letter** from the New York State Department of Economic Development, dated August 20, 2015

5. **Formal Business Arrangements Between the NCE and JCE**
   The purpose of these documents is to show that the required amount of capital is invested or actively in the process of being invested; further that the capital is at risk for the purpose of generating a return on the capital placed at risk.
   - **Offering Memorandum**
   - **Executed Operating Agreement**
   - **Executed Subscription Agreement**
   - **Executed Escrow Agreement**

6. **Economic Analysis Showing the Job Creation of the Project**
   - **The Economic Impact of Construction and Operation of a Hotel,** located in Woodside, Queens, NY, prepared by Michael K. Evans, dated September 8, 2015

MATTER OF HO ROADMAP[1]

7. **Comprehensive I-526 Business Plan**
   - **Comprehensive I-526 Business Plan** in accordance with the Matter of Ho

8. **Feasibility Study**
   The purpose of these documents is to show the viability of the project.
   - **Appraisal Report** prepared by Betsy Mak Appraisal Group LLC, dated September 2, 2015

9. **Construction**
   - **Construction Timeline**, prepared by Century Construction Group
   - **Certificate of Liability Insurance**

[1] The purpose of these documents is to show that the project is credible and the information contained therein verifiable.

10. **Architectural Documents**

- **Fully Executed AIA Document with Architect**– this document is the standard form of agreement between developer (George Xu) and architect (Raymond Chan Architect, PC)
- **Proposed Zoning Analysis**– this document shows the proposed floor plan of the mixed used buildings

11. **Engineering and Interior Design Documents**

- **Fully Executed Engineering Contract** between Owner (Century Construction Group Corp.) and Engineer (Times Building Engineering Services PC) dated April 17, 2014 where Times Building Engineering Services PC to provide professional engineering, surveying, planning and environmental services for the project
- **Fully Executed Agreement for Interior Design Services** between Owner (Century Construction Group Corp.) and Engineer (EJC Engineering, PLLC) dated January 21, 2015
- **Approved Proposal for Field Exploration, Special Inspections, and Geotechnical Report,** from Geotechnical Investigation Proposal on August 26, 2014

12. **Real Estate Purchase Agreements**

The purpose of these documents is to show that the business is credible – executed purchase agreements and deed for the land to construct the hotel and condominium evidencing commitment to the project.

- **Executed Purchase Agreement** – purchase price for [redacted] (b)(4) from Isaac Kubersky. This agreement is executed by Isaac Kubersky and by 88th Avenue Realty, LLC on January 8, 2014
- **Sale of Real Property** dated May 8, 2014
- **Special Warranty Deed** dated May 12, 2014
- **Owner's Policy of Title Insurance**

13. **Permits**

Please see a full discussion of the permits of the project in the attached Comprehensive Business Plan (**Exhibit 7**).

- **Work Permit Schedule**

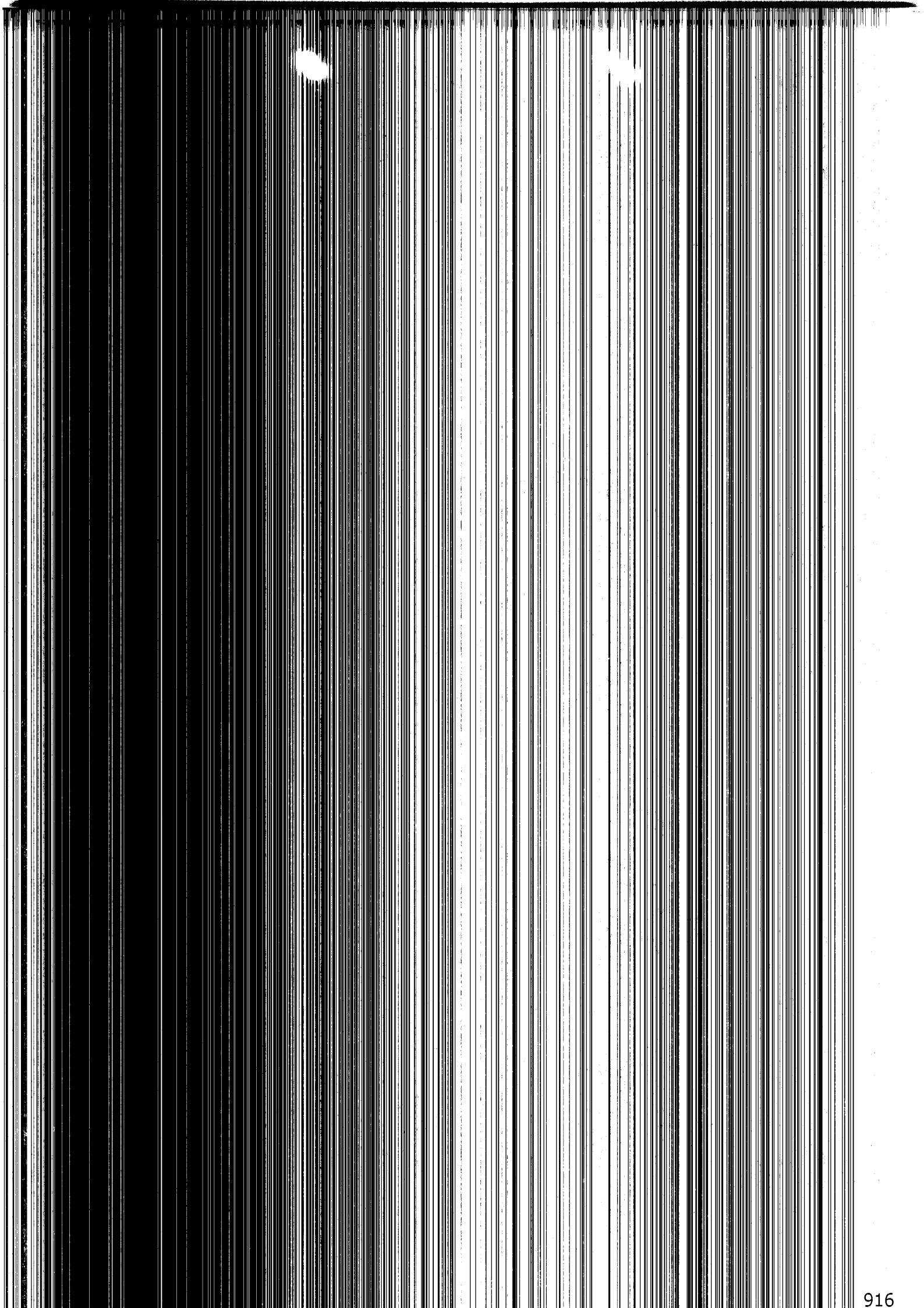
100% Recycled
30% PCW

REGIONAL CEN R: CENTURY NEW YORK CITY REGIONAL CENTER
RECEIPT NO: RCVD
PROJECT:
PETITIONER:

Exhibit 1

Regional Center Designation

- **Century New York City Regional Center ("CNYC")**: Designation letter dated
- **Executed Agreement** entered into on among Century New York City Regional Center, Avenue EB5 Capital LLC and the Regional Center



U.S. Department of Homeland Security
U.S. Citizenship and Immigration Services
Immigrant Investor Program
Washington, DC 20529

U.S. Citizenship and Immigration Services

May 14, 2015
George Xu
Century New York City Regional Center
35-06 Leavitt Street, Unit CFA
Flushing, New York 11354

Application:	Form I-924, Application for Regional Center under the Immigrant Investor Pilot Program
Applicant(s):	Century New York City Regional Center
Re:	Initial Regional Center Designation Century New York City Regional Center RCW1420251818/ID1420251818

This notice is in reference to the Form I-924, Application for Regional Center Under the Immigrant Investor Pilot Program that was filed by the applicant with the U.S. Citizenship and Immigration Services ("USCIS") on July 21, 2014. The Form I-924 application was filed to request approval of initial regional center designation under the Immigrant Investor Program. The Immigrant Investor Program was established under § 610 of the Department of Commerce, Justice and State, the Judiciary, and Related Agencies Appropriations Act of 1993 (Pub. L. 102-395, Oct. 6, 1992, 106 Stat. 1874).

I. Executive Summary of Adjudication

Effective the date of this notice, USCIS approves the Form I-924 request to designate Century New York City Regional Center as a qualifying participant in the Immigrant Investor Program.

II. Regional Center Designation

USCIS approves the applicant's request to focus, promote economic growth, and offer capital investment opportunities in the following geographic area and industry categories:

A. Geographic Area

State	Counties/Cities
New York	Queens, New York, Bronx County, Richmond County, Westchester County, and Nassau County

Note: Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment request is not required if investment opportunities arise outside the geographic area referenced above. USCIS will evaluate eligibility upon the filing of an initial Form I-526 related to that new investment opportunity.

B. Industry Categories

Industry Category	NAICS code
Nonresidential Building Construction	2362
Furniture and Home Furnishing Merchant Wholesalers	4232
Hotel and Motel (including Casino)	72251
Restaurants and Other Eating Places	72251
Lessors of Nonresidential Buildings (Except Miniwarehouses)	53112
Architectural, Engineering and Related Services	5413
Insurance Carriers	5241
Accounting Tax Preparation, Bookkeeping Services	5412
Legal Services	5411
Monetary Authorities and Depository Credit Intermediation	5222
Other miscellaneous professional and technical services	5419

Note: Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment request is not required if investment opportunities arise outside the industry categories referenced above. USCIS will evaluate eligibility upon the filing of an initial Form I-526 related to that new investment opportunity.

III. Job Creation

USCIS approves the geographic area and industry categories noted above based on the economic impact analysis presented and reviewed in conjunction with the adjudication of this regional center proposal.

This hypothetical project does not have the factual details necessary to be in compliance with the requirements described in Matter of Ho, 22 I&N Dec. 206 (Assoc. Comm'r 1998), and therefore, USCIS's approval of the hypothetical job creation estimates presented in the Form I-924 will not be accorded deference and may not be relied upon by an individual investor when filing the Form I-526. The business plan and job creation estimates will receive a de novo review by USCIS when an individual investor files Form I-526. Once an actual project is adjudicated upon the filing of the initial Form I-526, USCIS will give deference to subsequent Forms I-526 when the critical assumptions remain materially unchanged from the initially-approved Form I-526.

When filing Form I-526, it will be the responsibility of the individual investor to submit a comprehensive, detailed and credible business plan, showing by a preponderance of the evidence that his or her investment in the new commercial enterprise will create not fewer than 10 full-time positions. If prior to filing a form I-829, the job creation estimated in the business plan submitted by the individual investor materially changes or will not be realized, then it will be the responsibility of the EB-5 investor to notify USCIS of an agreed upon methodology to allocate job creation among eligible investors.

IV. Guidelines for Filing Form I-526 Petitions

Each individual petition, in order to demonstrate that it is affiliated with the Century New York City Regional Center in conjunction with addressing all the requirements for an individual immigrant investor petition, shall also contain the following:

1. A copy of this regional center approval notice and designation letter including all subsequent amendment approval letters (if applicable).

2. An economic impact analysis which reflects a job creation methodology required at 8 CFR § 204.6 (j)(4)(iii) and shows how the capital investment by an individual immigrant investor will create not fewer than ten (10) indirect jobs for each immigrant investor.

3. A comprehensive, detailed and credible business plan for an actual project that contains the factual details necessary to be in compliance with the requirements described in Matter of Ho, 22 I&N Dec. 206 (Assoc. Comm'r 1998).

4. Legally executed organizational documents of the commercial enterprise.

Note: The project reviewed with this Form I-924 application is a hypothetical project. Organizational and transactional documents associated with the new commercial enterprise (NCE) submitted with this Form I-924 have not been reviewed to determine compliance with program requirements since these documents will receive de novo review in subsequent filings (e.g., an amended Form I-924 application with a Form I-526 exemplar or the first Form I-526 petition filed by an investor under the regional center project).

V. Designee's Responsibilities in the Operations of the Regional Center

As provided in 8 CFR § 204.6 (m)(6), to ensure that the regional center continues to meet the requirements of section 610(a) of the Appropriations Act, a regional center must provide USCIS with updated information to demonstrate the regional center is continuing to promote economic growth, improved regional productivity, job creation, and increased domestic capital investment in the approved geographic area. Such information must be submitted to USCIS on an annual basis or as otherwise requested by USCIS. The applicant must monitor all investment activities under the sponsorship of the regional center and to maintain records in order to provide the information required on the Form I-924A Supplement to Form I-924. Form I-924A, Supplement to Form I-924 Application is available in the "Forms" section on the USCIS website at www.uscis.gov.

Regional centers that remain designated for participation in the Immigrant Investor Program as of September 30th of a calendar year are required to file Form I-924A Supplement in that year. The Form I-924A Supplement with the required supporting documentation must be filed on or before December 29th of the same calendar year.

The failure to timely file a Form I-924A Supplement for each fiscal year in which the regional center has been designated for participation in the Immigrant Investor Program will result in the issuance of an intent to terminate the participation of the regional center in the Immigrant Investor Program, which may ultimately result in the termination of the designation of the regional center.

The regional center designation is non-transferable.

VI. Legal Notice

This approval and designation of a Regional Center under the Immigrant Investor Program does not constitute or imply an endorsement or recommendation by USCIS, the United States Government or any instrumentality thereof, of the investment opportunities, projects or other business activities related to or undertaken by such Regional Center. Except as expressly set forth in this approval and designation, USCIS has not reviewed any information provided in connection with or otherwise related to the Regional Center for compliance with relevant securities laws or any other laws unrelated to eligibility for designation as a Regional Center. Accordingly USCIS makes no determination or representation whatsoever regarding the compliance of either the Regional Center or associated New Commercial Enterprises with such laws.

Each Regional Center designated by USCIS must monitor and oversee all investment offerings and activities associated with, through or under the sponsorship of the Regional Center. The failure of an associated New Commercial Enterprise to comply with all laws and regulations related to such investment offerings and activities may result in the issuance by USCIS of a notice of intent to terminate the Regional Center designation.

If the applicant has any questions concerning the regional center designation under the Immigrant Investor Program, please contact the USCIS by email at USCIS.ImmigrantInvestorProgram@uscis.dhs.gov.

Sincerely,

Nicholas Colucci
Chief, Immigrant Investor Program

cc: Mehreen Shah, Esq.
299 Broadway, Suite 1005
New York, NY 10007

REGIONAL CENTER SPONSORSHIP AGREEMENT

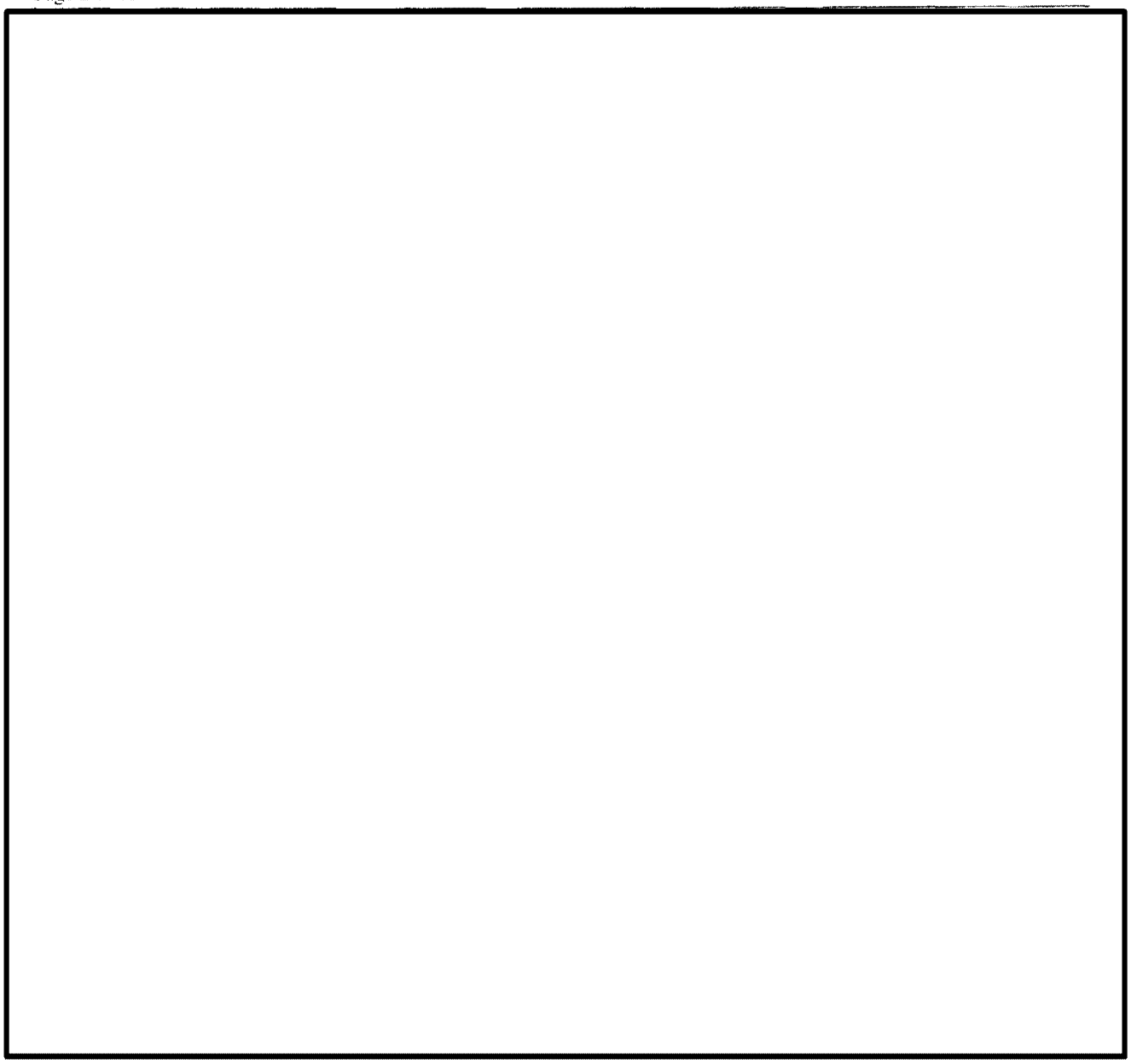
(b)(4)

among

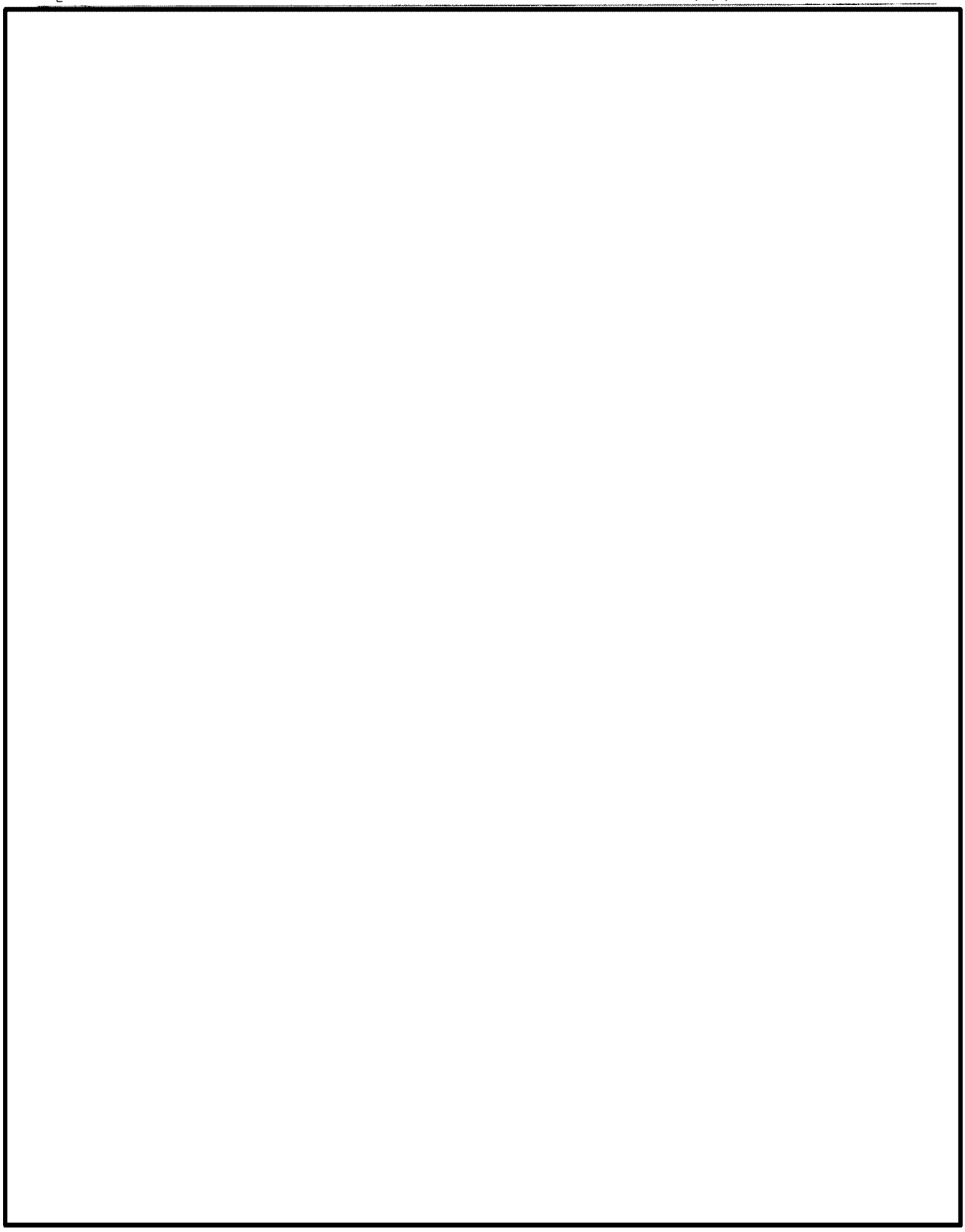
Century New York City Regional Center LLC and 88th Avenue EB5 Capital, LLC

September 15, 2015

(b)(4)



(b)(4)



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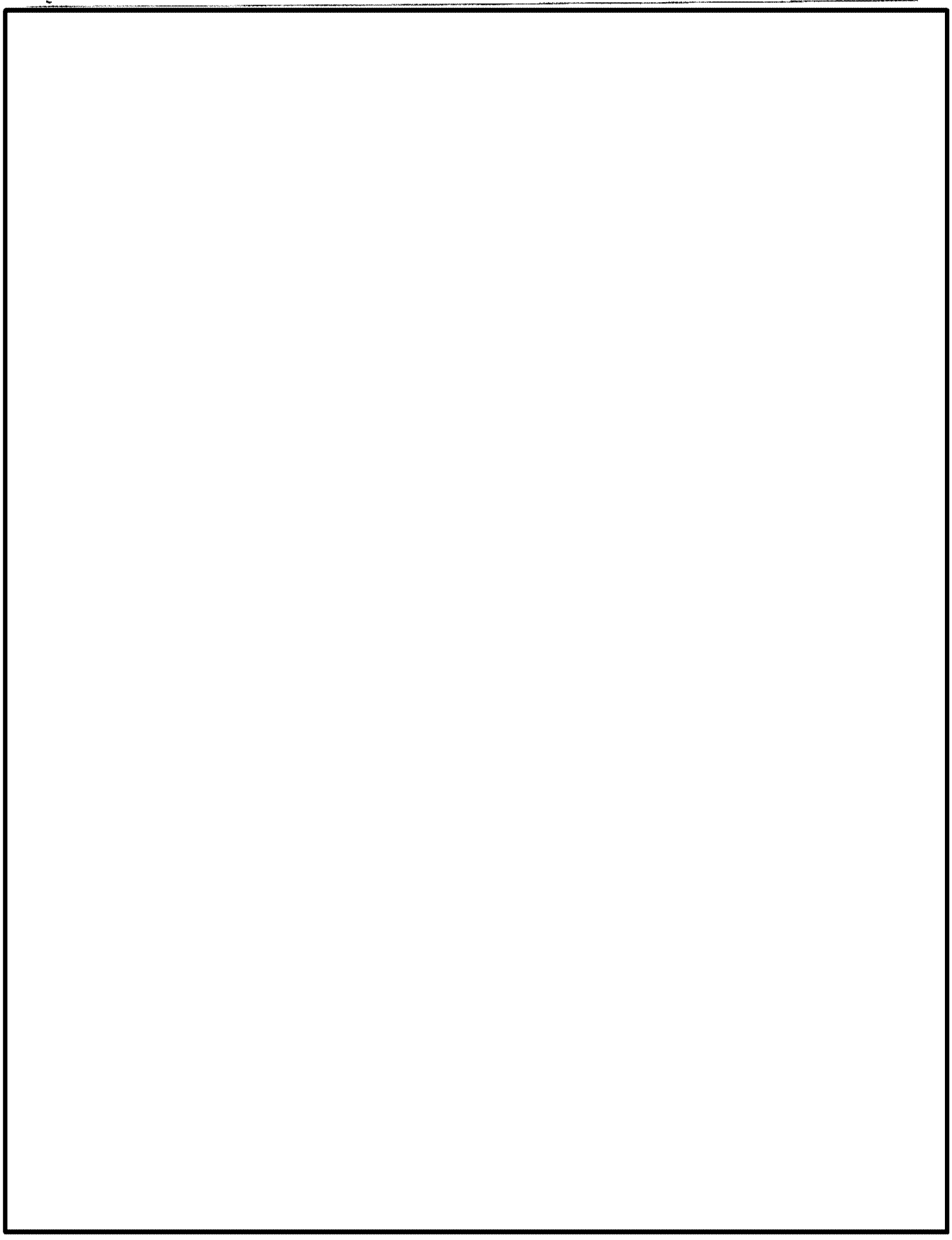

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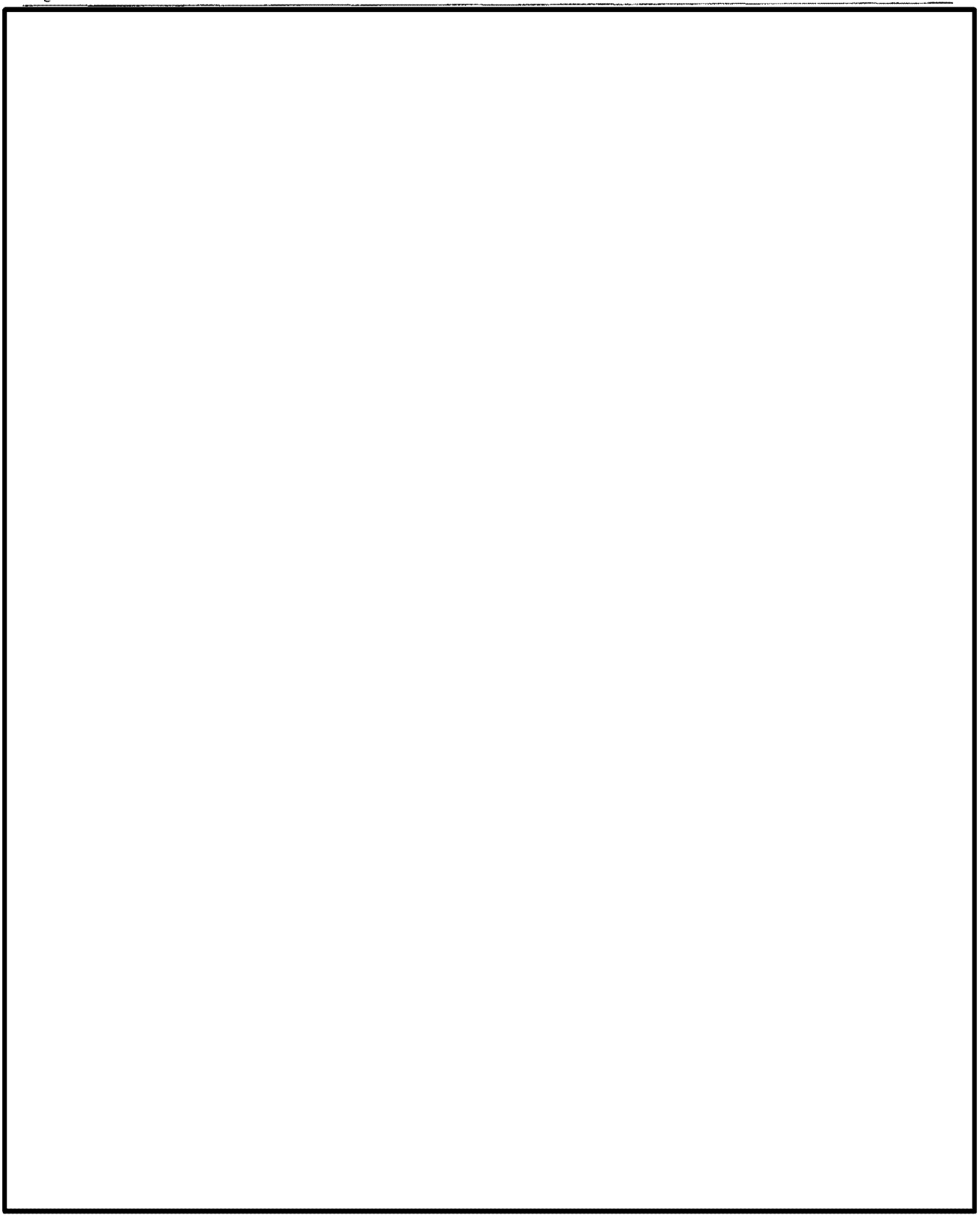

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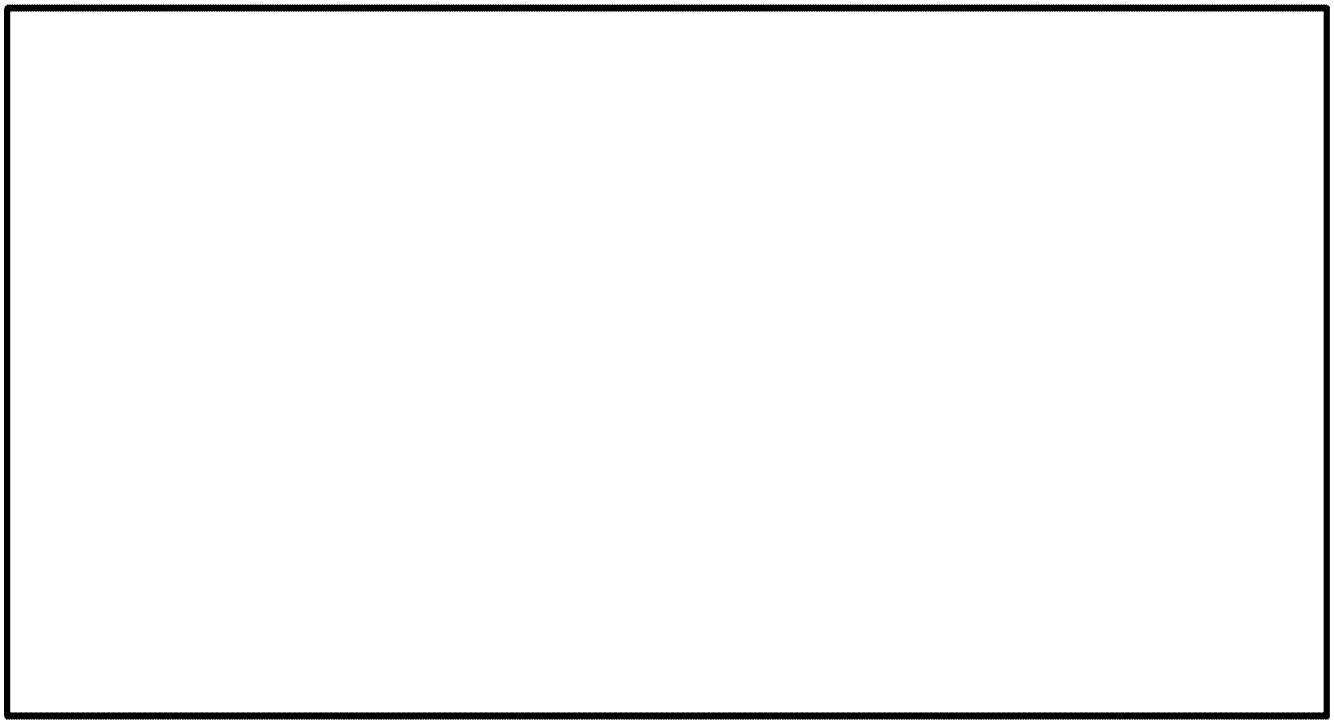
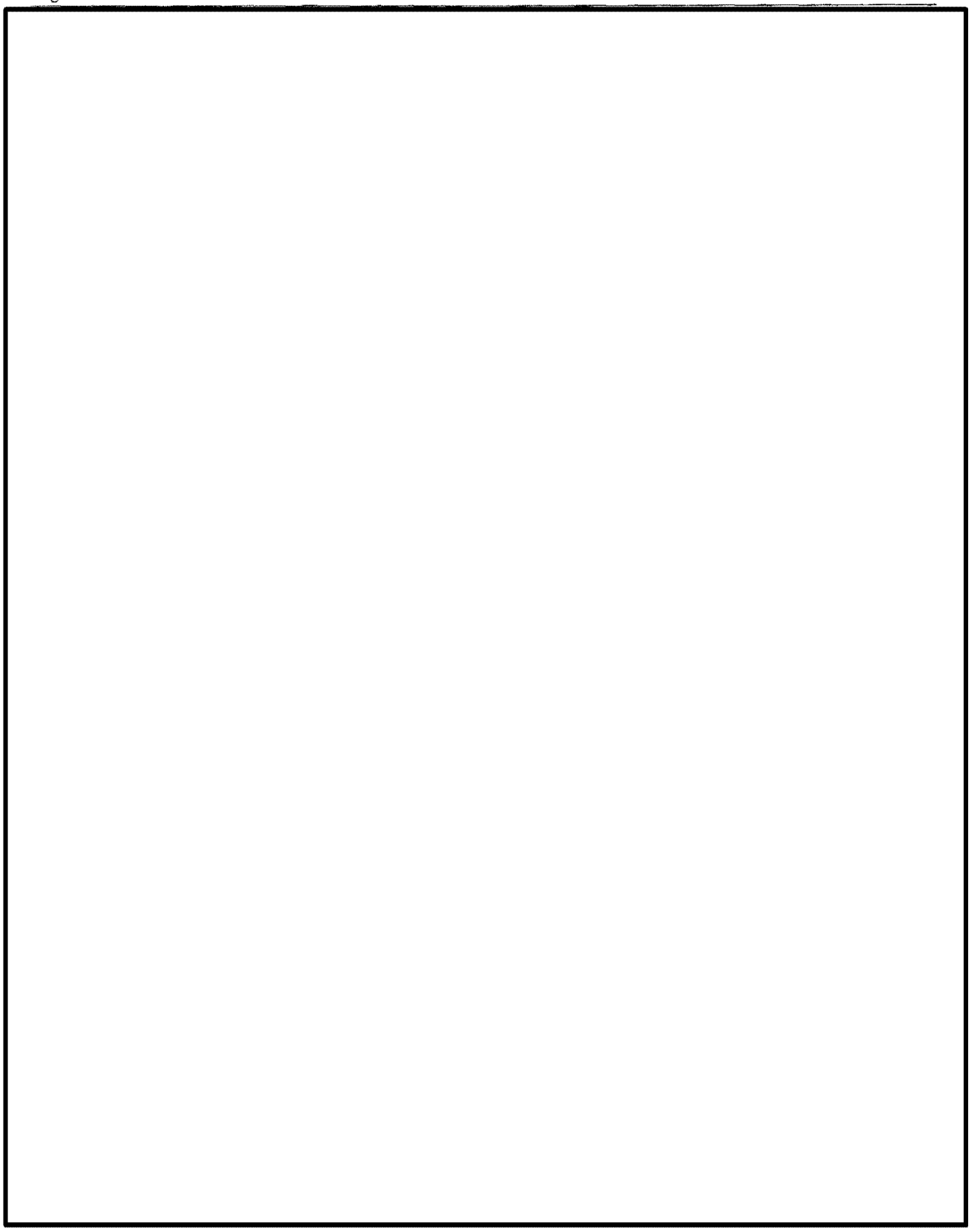
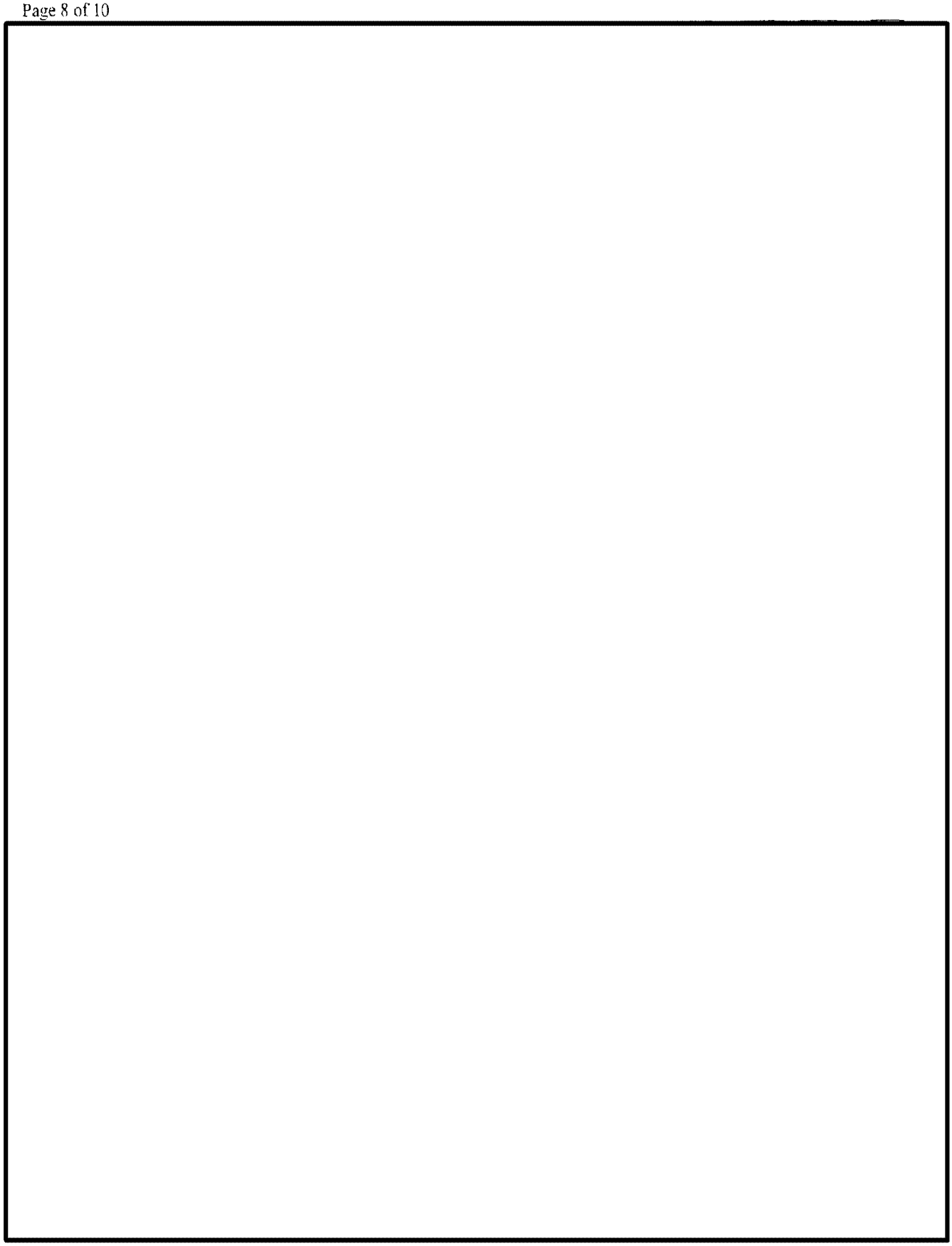




(b)(4)



(b)(4)

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IN WITNESS WHEREOF, the Parties have caused this Regional Center Sponsorship Agreement to be executed by their duly authorized representatives as of the signature dates set forth below.

"Company"
Century New York City Regional Center, LLC

By: _____
George Xu, Principal

"88th Avenue"
88th Avenue EB5 Capital, LLC

By: _____
George Xu, Principal

100% Recycled 30% PCW

REGIONAL CE. ER: CENTURY NEW YORK CITY R. ONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: 88TH AVE EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 2

Establishment of the New Commercial Enterprise (NCE)

- **Articles of Organization** of 88th Avenue EB5 Capital, LLC, filed on August 7, 2015, issued by the State of New York
- **EIN** for 88th Avenue EB5 Capital, LLC, Dated August 7, 2015

Job Creating Entity (JCE):

- **Articles of Organization** of 88th Avenue Realty, LLC, filed on January 10, 2014, issued by the State of New York
- **EIN** of 88th Avenue Realty, LLC, dated January 14, 2014

Manager of NCE:

- **Articles of Organization** of Century New York City Regional Center, LLC, filed on March 25, 2014, issued by the State of New York
- **EIN** of Century New York City Regional Center, LLC, dated May 2, 2014

N.Y.S. DEPARTMENT OF S[illegible]E
DIVISION OF CORPORATIONS AND STATE RECORDS ALBANY, NY 12231-0001

ONLINE FILING RECEIPT

ENTITY NAME: 88TH AVE EB5 CAPITAL, LLC

DOCUMENT TYPE: ARTICLES OF ORGANIZATION (DOM. LLC) COUNTY: QUEE

FILED:08/07/2015 DURATION:********** CASH#:150807010025 FILE#:150807010025
DOS ID:4801370

FILER: EXIST DATE

SERVICO, INC. 08/07/2015
283 WASHINGTON AVE.
ALBANY, NY 12206

ADDRESS FOR PROCESS:

THE LIMITED LIABILITY COMPANY
35-06 LEAVITT ST SUITE CF-A
FLUSHING, NY 11354

REGISTERED AGENT:

The limited liability company is required to file a Biennial Statement with the Department of State every two years pursuant to Limited Liability Company Law Section 301. Notification that the Biennial Statement is due will only be made via email. Please go to www.email.ebiennial.dos.ny.gov to provide an email address to receive an email notification when the Biennial Statement is due.

SERVICE COMPANY: SERVICO, INC.-35
SERVICE CODE: 35

FEE:	200.00	PAYMENTS	200.00
FILING:	200.00	CHARGE	0.00
TAX:	0.00	DRAWDOWN	200.00
PLAIN COPY:	0.00		
CERT COPY:	0.00		
CERT OF EXIST:	0.00		

59233 DOS-1025 (04/2007)

Authentication Number: 1508070027 To verify the authenticity of this document you may access the Division of Corporation's Document Authentication Website at http://ecorp.dos.ny.gov

ACKNOWLEDGEMENT COPY

ARTICLES OF ORGANIZATION
OF
88TH AVE EB5 CAPITAL, LLC

Under Section 203 of the Limited Liability Company Law

THE UNDERSIGNED, being a natural person of at least eighteen (18) years of age, and acting as the organizer of the limited liability company hereby being formed under Section 203 of the Limited Liability Company Law of the State of New York certifies that:

FIRST: The name of the limited liability company is:

88TH AVE EB5 CAPITAL, LLC

SECOND: To engage in any lawful act or activity within the purposes for which limited liability companies may be organized pursuant to Limited Liability Company Law provided that the limited liability company is not formed to engage in any act or activity requiring the consent or approval of any state official, department, board, agency, or other body without such consent or approval first being obtained.

THIRD: The county, within this state, in which the office of the limited liability company is to be located is QUEENS.

FOURTH: The Secretary of State is designated as agent of the limited liability company upon whom process against it may be served. The address within or without this state to which the Secretary of State shall mail a copy of any process against the limited liability company served upon him or her is:

THE LIMITED LIABILITY COMPANY
35-06 LEAVITT ST SUITE CF-A
FLUSHING, NY 11354

FIFTH: The limited liability company is to be managed by: ONE OR MORE MEMBERS.

SIXTH: The limited liability company shall have a perpetual existence.

SEVENTH: The limited liability company shall defend, indemnify and hold harmless all members, managers, and former members and managers of the limited liability company against expenses (including attorney's fees, judgments, fines, and amounts paid in settlement) incurred in connection with any claims, causes of action, demands, damages, liabilities of the limited liability company, and any pending or threatened action, suit, or proceeding. Such indemnification shall be made to the fullest extent permitted by the laws of the State of New York, provided that such acts or omissions which gives rise to the cause of action or proceedings occurred while the Member or Manager was in performance of his or her duties for the limited liability company and was not as a result of his or her fraud, gross negligence, willful misconduct or a wrongful taking. The indemnification provided herein shall inure to the benefit of successors, assigns, heirs, executors, and the administrators of any such person.

I certify that I have read the above statements, I am authorized to sign these Articles of Organization, that the above statements are true and correct to the best of my knowledge and belief and that my signature typed below constitutes my signature.

SCOTT J. SCHUSTER, ORGANIZER (signature)

SCOTT J. SCHUSTER , ORGANIZER
283 WASHINGTON AVE.
ALBANY, NY 12206

Filed by:
SERVICO, INC.
283 WASHINGTON AVE.
ALBANY, NY 12206

SERVICO, INC. (35)
DRAWDOWN
CUSTOMER REF# 59233

ACKNOWLEDGEMENT COPY

WAIVER OF NOTICE OF ORGANIZATION MEETING

OF

88TH AVE EB5 CAPITAL, LLC

I, The undersigned, being the Sole Organizer named in the Articles of Organization of the above limited liability company hereby agree and consent that the organization meeting thereof be held on the date and at the time and place stated below and hereby waive all notice of such meeting and of any adjournment thereof.

Place of Meeting

Date of Meeting

Time of Meeting

Sole Organizer
Scott J. Schuster

Legal Documents

SERVICO®
SINCE 1924

PO Box 871
Albany, NY 12201
www.servico.com

IRS DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

Date of this notice: 08-07-2015

Employer Identification Number:
[redacted] (b)(3)

Form: SS-4

Number of this notice: CP 575 B

88TH AVE EB5 CAPITAL LLC
GEORGE XU MBR
3506 LEAVITT ST STE CFA
FLUSHING, NY 11354

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB AT THE END OF THIS NOTICE.

WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

(b)(3) Thank you for applying for an Employer Identification Number (EIN). We assigned you EIN [redacted] This EIN will identify you, your business accounts, tax returns, and documents, even if you have no employees. Please keep this notice in your permanent records.

When filing tax documents, payments, and related correspondence, it is very important that you use your EIN and complete name and address exactly as shown above. Any variation may cause a delay in processing, result in incorrect information in your account, or even cause you to be assigned more than one EIN. If the information is not correct as shown above, please make the correction using the attached tear off stub and return it to us.

Based on the information received from you or your representative, you must file the following form(s) by the date(s) shown.

Form 1065 04/15/2016

If you have questions about the form(s) or the due date(s) shown, you can call us at the phone number or write to us at the address shown at the top of this notice. If you need help in determining your annual accounting period (tax year), see Publication 538, *Accounting Periods and Methods*.

We assigned you a tax classification based on information obtained from you or your representative. It is not a legal determination of your tax classification, and is not binding on the IRS. If you want a legal determination of your tax classification, you may request a private letter ruling from the IRS under the guidelines in Revenue Procedure 2004-1, 2004-1 I.R.B. 1 (or superseding Revenue Procedure for the year at issue). Note: Certain tax classification elections can be requested by filing Form 8832, *Entity Classification Election*. See Form 8832 and its instructions for additional information.

A limited liability company (LLC) may file Form 8832, *Entity Classification Election*, and elect to be classified as an association taxable as a corporation. If the LLC is eligible to be treated as a corporation that meets certain tests and it will be electing S corporation status, it must timely file Form 2553, *Election by a Small Business Corporation*. The LLC will be treated as a corporation as of the effective date of the S corporation election and does not need to file Form 8832.

To obtain tax forms and publications, including those referenced in this notice, visit our Web site at www.irs.gov. If you do not have access to the Internet, call 1-800-829-3676 (TTY/TDD 1-800-829-4059) or visit your local IRS office.

(IRS USE ONLY) 575B 08-07-2015 88TH B 9999999999 SS-4

IMPORTANT REMINDERS:

* Keep a copy of this notice in your permanent records. **This notice is issued only one time and the IRS will not be able to generate a duplicate copy for you.** You may give a copy of this document to anyone asking for proof of your EIN.

* Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.

* Refer to this EIN on your tax-related correspondence and documents.

If you have questions about your EIN, you can call us at the phone number or write to us at the address shown at the top of this notice. If you write, please tear off the stub at the bottom of this notice and send it along with your letter. If you do not need to write us, do not complete and return the stub.

Your name control associated with this EIN is 88TH. You will need to provide this information, along with your EIN, if you file your returns electronically.

Thank you for your cooperation.

Keep this part for your records. CP 575 B (Rev. 7-2007)

Return this part with any correspondence so we may identify your account. Please correct any errors in your name or address.

CP 575 B

9999999999

(b)(3)

Your Telephone Number
( ) -

Best Time to Call

DATE OF THIS NOTICE: 08-07-2015
EMPLOYER IDENTIFICATION NUMBER: [redacted]
FORM: SS-4 NOBOD

INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

88TH AVE EB5 CAPITAL LLC
GEORGE XU MBR
3506 LEAVITT ST STE CFA
FLUSHING, NY 11354

STATE OF NEW YORK

DEPARTMENT OF STATE

I hereby certify that the annexed copy has been compared with the original document in the custody of the Secretary of State and that the same is a true copy of said original.

WITNESS my hand and official seal of the Department of State, at the City of Albany, on January 13, 2014.

Anthony Giardina

Anthony Giardina
Executive Deputy Secretary of State

Rev. 06/13

140110000 372

New York State Department of State
Division of Corporations, State Records
and Uniform Commercial Code
One Commerce Plaza, 99 Washington Avenue
Albany, NY 12231
www.dos.ny.gov

(This form must be printed or typed in black ink)

ARTICLES OF ORGANIZATION OF

88 Ave Realty, LLC

(Insert name of Limited Liability Company)

Under Section 203 of the Limited Liability Company Law

FIRST: The name of the limited liability company is: 88 Ave Realty, LLC

SECOND: The county within this state in which the office of the limited liability company is to be located is: Queens

THIRD: The Secretary of State is designated as agent of the limited liability company upon whom process against it may be served. The address within or without this state to which the Secretary of State shall mail a copy of any process against the limited liability company served upon him or her is:

George Xu
35-06 Leavitt Street, Suite#CF-A
Flushing, NY 11354

(signature of organizer)

George Xu
(print or type name of organizer)

DOS-1336 (Rev. 2/12)

140110000372

372

ARTICLES OF ORGANIZATION OF

88 Ave Realty, LLC

(Insert name of Limited Liability Company)

Under Section 203 of the Limited Liability Company Law

LLC

Filed by: George Xu
(Name)
35-06 Leavitt Street, Suite#CF-A
(Mailing address)
Flushing, NY 11354
(City, State and ZIP code)

STATE OF NEW YORK
DEPARTMENT OF STATE
FILED
JAN 10 2014
TAX $
BY:

NOTE: This form was prepared by the New York State Department of State for filing articles of organization for a domestic limited liability company. It does not contain all optional provisions under the law. You are not required to use this form. You may draft your own form or use forms available at legal stationery stores. The Department of State recommends that legal documents be prepared under the guidance of an attorney. The certificate must be submitted with a $200 filing fee made payable to the Department of State.

FILED
2014 JAN 10 AM 11:31

RECEIVED
2014 JAN 10 AM 11:03

DOS-1336 (Rev. 2/12)

398

IRS DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

Date of this notice: 01-14-2014

Employer Identification Number:
[redacted] (b)(3)
Form: SS-4

Number of this notice: CP 575 B

88 AVE REALTY LLC
GEORGE XU MBR
3506 LEAVITT ST STE CFA
FLUSHING, NY 11354

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB AT THE END OF THIS NOTICE.

(b)(3) WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

Thank you for applying for an Employer Identification Number (EIN). We assigned you EIN [redacted] This EIN will identify you, your business accounts, tax returns, and documents, even if you have no employees. Please keep this notice in your permanent records.

When filing tax documents, payments, and related correspondence, it is very important that you use your EIN and complete name and address exactly as shown above. Any variation may cause a delay in processing, result in incorrect information in your account, or even cause you to be assigned more than one EIN. If the information is not correct as shown above, please make the correction using the attached tear off stub and return it to us.

Based on the information received from you or your representative, you must file the following form(s) by the date(s) shown.

Form 1065 04/15/2015

If you have questions about the form(s) or the due date(s) shown, you can call us at the phone number or write to us at the address shown at the top of this notice. If you need help in determining your annual accounting period (tax year), see Publication 538, *Accounting Periods and Methods*.

We assigned you a tax classification based on information obtained from you or your representative. It is not a legal determination of your tax classification, and is not binding on the IRS. If you want a legal determination of your tax classification, you may request a private letter ruling from the IRS under the guidelines in Revenue Procedure 2004-1, 2004-1 I.R.B. 1 (or superseding Revenue Procedure for the year at issue). Note: Certain tax classification elections can be requested by filing Form 8832, *Entity Classification Election*. See Form 8832 and its instructions for additional information.

A limited liability company (LLC) may file Form 8832, *Entity Classification Election*, and elect to be classified as an association taxable as a corporation. If the LLC is eligible to be treated as a corporation that meets certain tests and it will be electing S corporation status, it must timely file Form 2553, *Election by a Small Business Corporation*. The LLC will be treated as a corporation as of the effective date of the S corporation election and does not need to file Form 8832.

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(IRS USE ONLY) 575B 01-14-2014 88AV B 9999999999 SS-4

IMPORTANT REMINDERS:

* Keep a copy of this notice in your permanent records. **This notice is issued only one time and the IRS will not be able to generate a duplicate copy for you.** You may give a copy of this document to anyone asking for proof of your EIN.

* Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.

* Refer to this EIN on your tax-related correspondence and documents.

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Your name control associated with this EIN is 88AV. You will need to provide this information, along with your EIN, if you file your returns electronically.

Thank you for your cooperation.

Keep this part for your records. CP 575 B (Rev. 7-2007)

Return this part with any correspondence so we may identify your account. Please correct any errors in your name or address.

CP 575 B

9999999999

(b)(3)

Your Telephone Number
( ) -
_____

Best Time to Call
_____

DATE OF THIS NOTICE: 01-14-2014
EMPLOYER IDENTIFICATION NUMBER: [redacted]
FORM: SS-4 NOBOD

INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

88 AVE REALTY LLC
GEORGE XU MBR
3506 LEAVITT ST STE CFA
FLUSHING, NY 11354

IRS DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

Date of this notice: 05-02-2014

Employer Identification Number:
[redacted] (b)(3)

Form: SS-4

Number of this notice: CP 575 B

CENTURY NEW YORK CITY REGIONAL
CENTER
GEORGE XU GEN PTR
3506 LEAVITT ST
FLUSHING, NY 11354

For assistance you may call us at:
1-800-829-4933

IF YOU WRITE, ATTACH THE
STUB AT THE END OF THIS NOTICE.

WE ASSIGNED YOU AN EMPLOYER IDENTIFICATION NUMBER

(b)(3)

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We assigned you a tax classification based on information obtained from you or your representative. It is not a legal determination of your tax classification, and is not binding on the IRS. If you want a legal determination of your tax classification, you may request a private letter ruling from the IRS under the guidelines in Revenue Procedure 2004-1, 2004-1 I.R.B. 1 (or superseding Revenue Procedure for the year at issue). Note: Certain tax classification elections can be requested by filing Form 8832, *Entity Classification Election*. See Form 8832 and its instructions for additional information.

A limited liability company (LLC) may file Form 8832, *Entity Classification Election*, and elect to be classified as an association taxable as a corporation. If the LLC is eligible to be treated as a corporation that meets certain tests and it will be electing S corporation status, it must timely file Form 2553, *Election by a Small Business Corporation*. The LLC will be treated as a corporation as of the effective date of the S corporation election and does not need to file Form 8832.

To obtain tax forms and publications, including those referenced in this notice, visit our Web site at www.irs.gov. If you do not have access to the Internet, call 1-800-829-3676 (TTY/TDD 1-800-829-4059) or visit your local IRS office.

(IRS USE ONLY) 575B 05-02-2014 CENT B 9999999999 SS-4

IMPORTANT REMINDERS:

* Keep a copy of this notice in your permanent records. **This notice is issued only one time and the IRS will not be able to generate a duplicate copy for you.** You may give a copy of this document to anyone asking for proof of your EIN.

* Use this EIN and your name exactly as they appear at the top of this notice on all your federal tax forms.

* Refer to this EIN on your tax-related correspondence and documents.

If you have questions about your EIN, you can call us at the phone number or write to us at the address shown at the top of this notice. If you write, please tear off the stub at the bottom of this notice and send it along with your letter. If you do not need to write us, do not complete and return the stub.

Your name control associated with this EIN is CENT. You will need to provide this information, along with your EIN, if you file your returns electronically.

Thank you for your cooperation.

Keep this part for your records. CP 575 B (Rev. 7-2007)

Return this part with any correspondence so we may identify your account. Please correct any errors in your name or address.

CP 575 B

9999999999 (b)(3)

Your Telephone Number ( ) -

Best Time to Call

DATE OF THIS NOTICE: 05-02-2014
EMPLOYER IDENTIFICATION NUMBER:
FORM: SS-4 NOBOD

INTERNAL REVENUE SERVICE
CINCINNATI OH 45999-0023

CENTURY NEW YORK CITY REGIONAL CENTER
GEORGE XU GEN PTR
3506 LEAVITT ST
FLUSHING, NY 11354

N.Y.S. DEPARTMENT OF STATE
DIVISION OF CORPORATIONS AND STATE RECORDS ALBANY, NY 12231-0001

ONLINE FILING RECEIPT

ENTITY NAME: CENTURY NEW YORK CITY REGIONAL CENTER, LLC

DOCUMENT TYPE: ARTICLES OF ORGANIZATION (DOM. LLC) COUNTY: QUEE

FILED:03/25/2014 DURATION:********** CASH#:140325010322 FILE#:140325010322
DOS ID:4550615

FILER:
SERVICO INC.
283 WASHINGTON AVE.
ALBANY, NY 12206

EXIST DATE
03/25/2014

ADDRESS FOR PROCESS:
THE LIMITED LIABILITY COMPANY
35-06 LEAVITT STREET
SUITE CF-A
FLUSHING, NY 11354

REGISTERED AGENT:

The limited liability company is required to file a Biennial Statement with the Department of State every two years pursuant to Limited Liability Company Law Section 301. Notification that the Biennial Statement is due will only be made via email. Please go to www.email.ebiennial.dos.ny.gov to provide an email address to receive an email notification when the Biennial Statement is due.

SERVICE COMPANY: SERVICO, INC.-35
SERVICE CODE: 35

FEE:	200.00	PAYMENTS	200.00
FILING:	200.00	CHARGE	0.00
TAX:	0.00	DRAWDOWN	200.00
PLAIN COPY:	0.00		
CERT COPY:	0.00		
CERT OF EXIST:	0.00		

53195

DOS-1025 (04/2007)

Authentication Number: 1403250336 To verify the authenticity of this document you may access the Division of Corporation's Document Authentication Website at

ACKNOWLEDGEMENT COPY

ARTICLES OF ORGANIZATION
OF
CENTURY NEW YORK CITY REGIONAL CENTER, LLC

Under Section 203 of the Limited Liability Company Law

THE UNDERSIGNED, being a natural person of at least eighteen (18) years of age, and acting as the organizer of the limited liability company hereby being formed under Section 203 of the Limited Liability Company Law of the State of New York certifies that:

FIRST: The name of the limited liability company is:

CENTURY NEW YORK CITY REGIONAL CENTER, LLC

SECOND: To engage in any lawful act or activity within the purposes for which limited liability companies may be organized pursuant to Limited Liability Company Law provided that the limited liability company is not formed to engage in any act or activity requiring the consent or approval of any state official, department, board, agency, or other body without such consent or approval first being obtained.

THIRD: The county, within this state, in which the office of the limited liability company is to be located is QUEENS.

FOURTH: The Secretary of State is designated as agent of the limited liability company upon whom process against it may be served. The address within or without this state to which the Secretary of State shall mail a copy of any process against the limited liability company served upon him or her is:

THE LIMITED LIABILITY COMPANY
35-06 LEAVITT STREET
SUITE CF-A
FLUSHING, NY 11354

FIFTH: The limited liability company is to be managed by: ONE OR MORE MEMBERS.

SIXTH: The limited liability company shall defend, indemnify and hold harmless all members, managers, and former members and managers of the limited liability company against expenses (including attorney's fees, judgments, fines, and amounts paid in settlement) incurred in connection with any claims, causes of action, demands, damages, liabilities of the limited liability company, and any pending or threatened action, suit, or proceeding. Such indemnification shall be made to the fullest extent permitted by the laws of the State of New York, provided that such acts or omissions which gives rise to the cause of action or proceedings occurred while the Member or Manager was in performance of his or her duties for the limited liability company and was not as a result of his or her fraud, gross negligence, willful misconduct or a wrongful taking. The indemnification provided herein shall inure to the benefit of successors, assigns, heirs, executors, and the administrators of any such person.

I certify that I have read the above statements, I am authorized to sign these Articles of Organization, that the above statements are true and correct to the best of my knowledge and belief and that my signature typed below constitutes my signature.

SCOTT J SCHUSTER, ORGANIZER (signature)

SCOTT J SCHUSTER , ORGANIZER
283 WASHINGTON AVE.
ALBANY, NY 12206

Filed by:
SERVICO INC.
283 WASHINGTON AVE.
ALBANY, NY 12206

SERVICO, INC. (35)
DRAWDOWN
CUSTOMER REF# 53195

ACKNOWLEDGEMENT COPY

WAIVER OF NOTICE OF ORGANIZATION MEETING

OF

CENTURY NEW YORK CITY REGIONAL CENTER, LLC

I, The undersigned, being the Sole Organizer named in the Articles of Organization of the above limited liability company hereby agree and consent that the organization meeting thereof be held on the date and at the time and place stated below and hereby waive all notice of such meeting and of any adjournment thereof.

Place of Meeting

Date of Meeting

Time of Meeting

Sole Organizer
Scott J. Schuster

100% Recycled
30% PCW

REGIONAL CEN[illegible]R: C[illegible]

RECEIPT N[illegible]

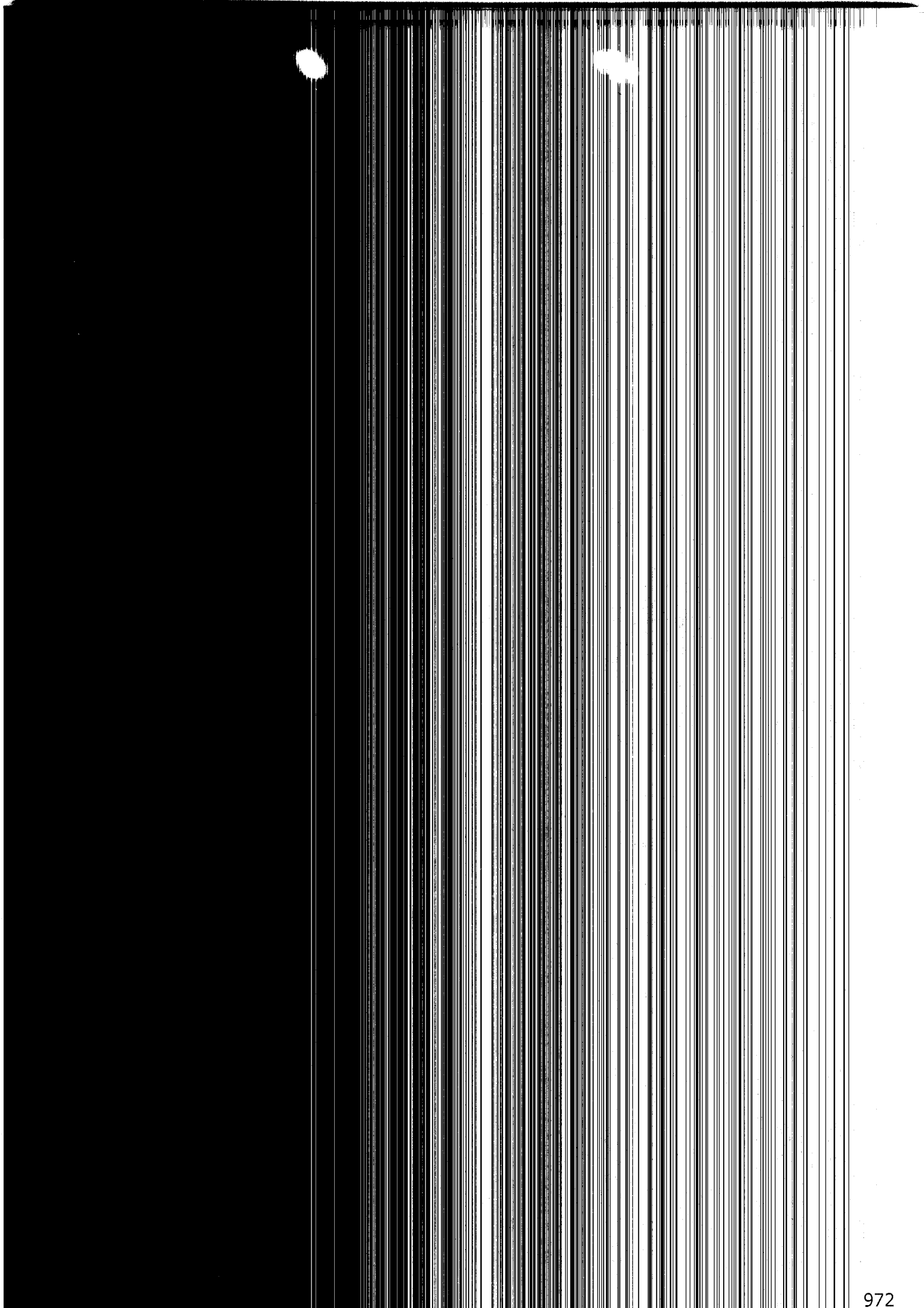
PROJECT: [illegible]

PETITIONER [illegible]

Exhibit

Placement of [illegible]

• Loan / Promissory [illegible]



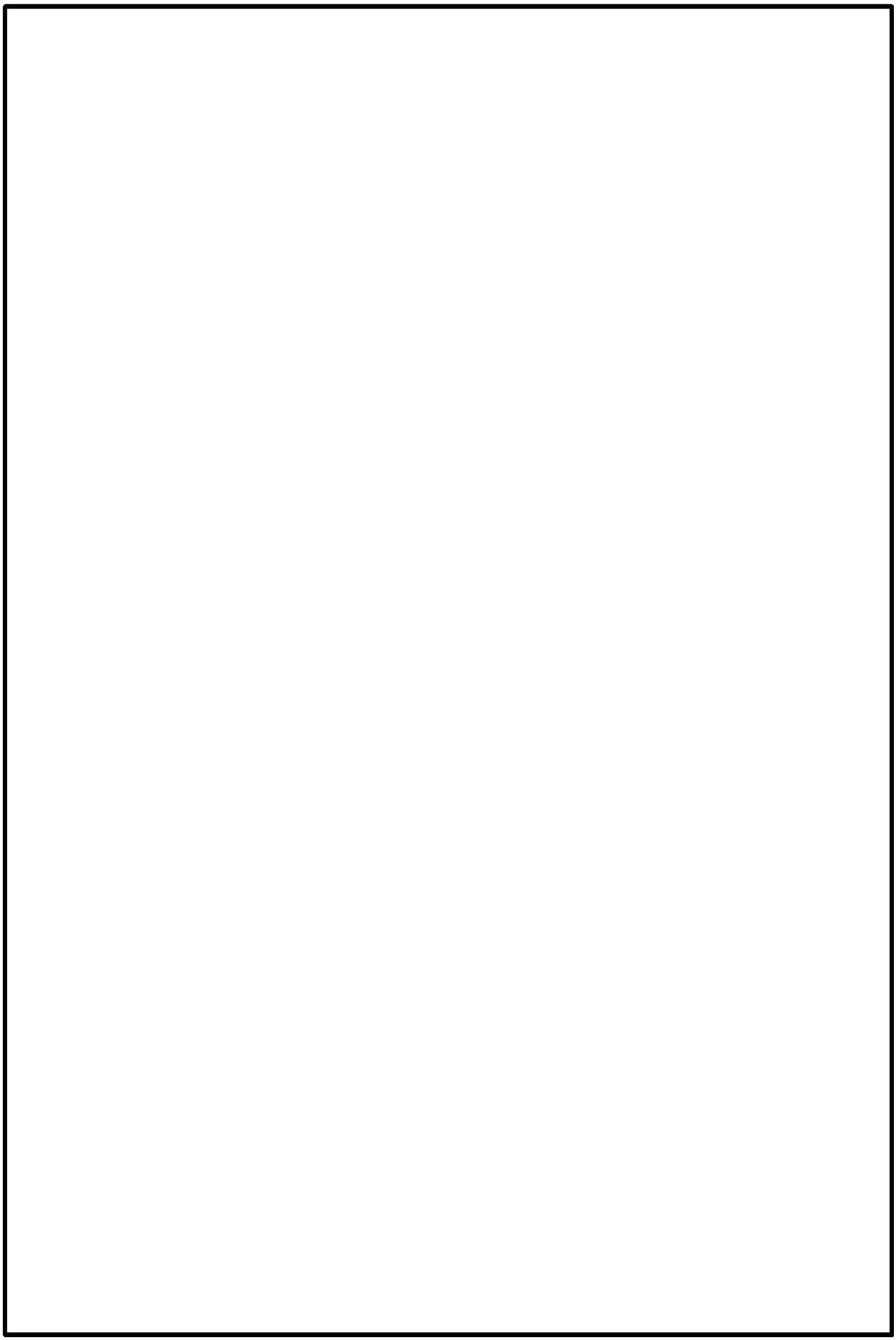
88th Avenue EB5 Capital, LLC
A New York Limited Liability Company

And

88th Ave Realty LLC
A New York Limited Liability Company

Loan Agreement

88th Avenue EB5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
Attn: George Xu
centurygroup88@yahoo.com
718.939.1060



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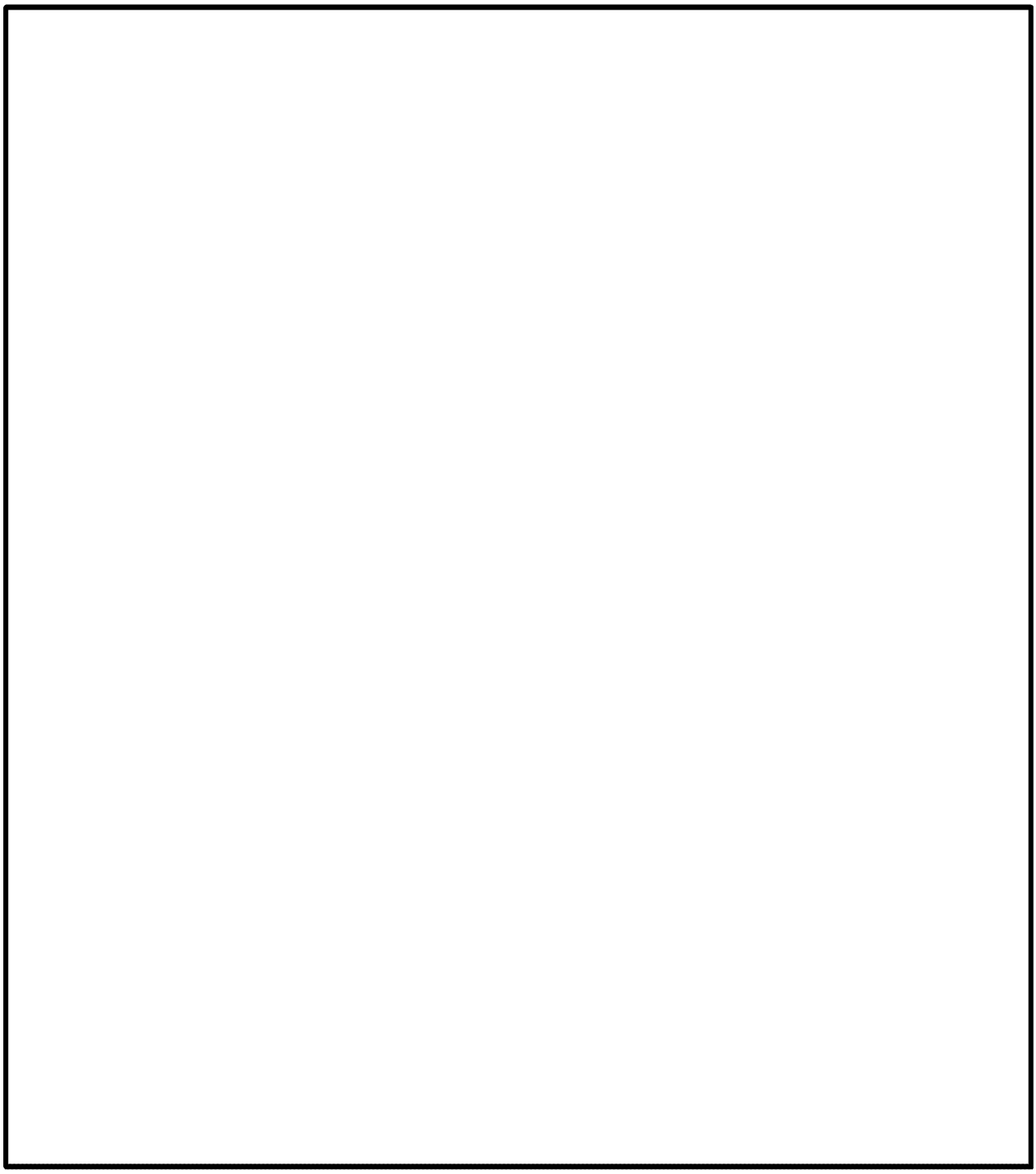


Sincerely yours,

88th Avenue EB5 Capital, LLC.
By George Xu
Its Managing Member

Dated: 7/15/2016

By: _____
Managing Member

ACCEPTED
88th Ave Realty LLC

By: _____
Managing Member

Dated: 7/15/2016

STATE OF NEW YORK:
: SS.
COUNTY OF : Queens

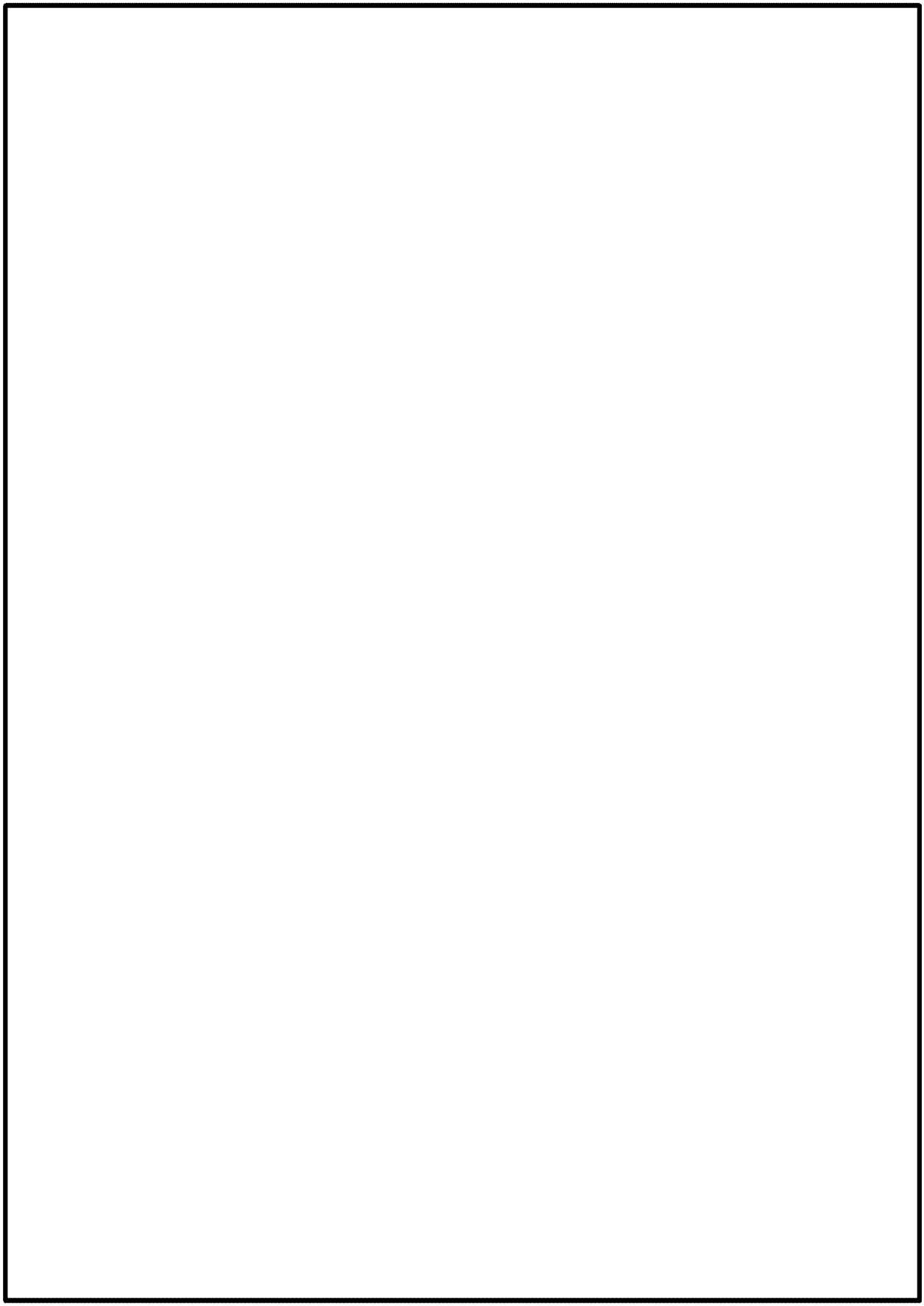
On this, the 6 day of September, 2015 before me, the undersigned officer, personally appeared George Xu who acknowledged himself to be the Managing Member in **88th Avenue EB5 Capital, LLC** a New York limited liability company of 64-06 Queens Blvd., Woodside, NY 11377 and being authorized to do so, executed the foregoing instrument, freely and voluntarily, for the purposes therein contained by signing the name of the company in the capacity of Partner. IN WITNESS WHEREOF, I have hereunto set my hand and notarial seal.

Notary Public _____
My Commission Expires: April 15, 2017

TRACY LAW
NOTARY PUBLIC-STATE OF NEW YORK
No. 01LA6279977
Qualified in Queens County
My Commission Expires April 15, 2017

(b)(4)

LOAN AND SECURITY AGREEMENT



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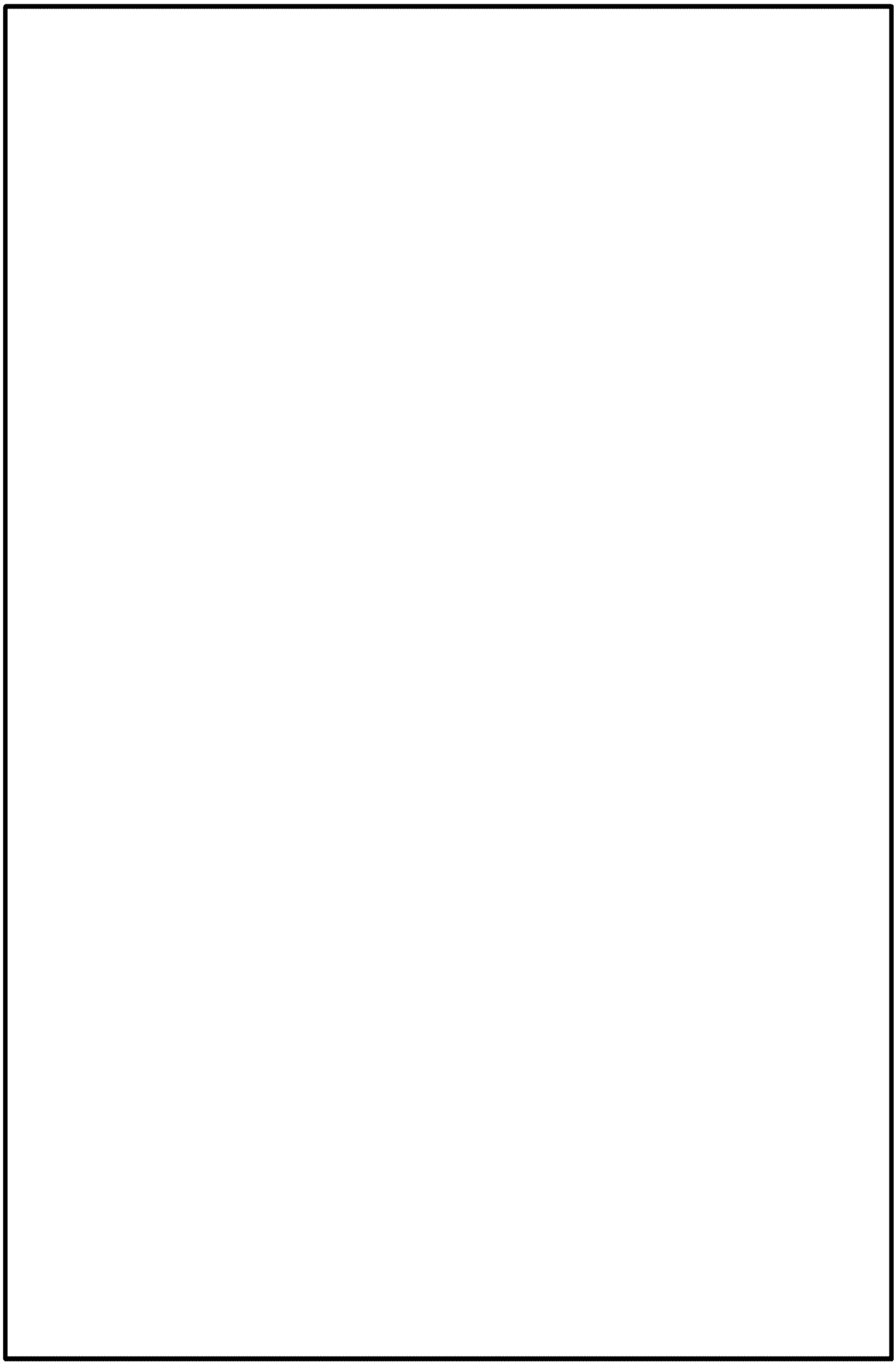

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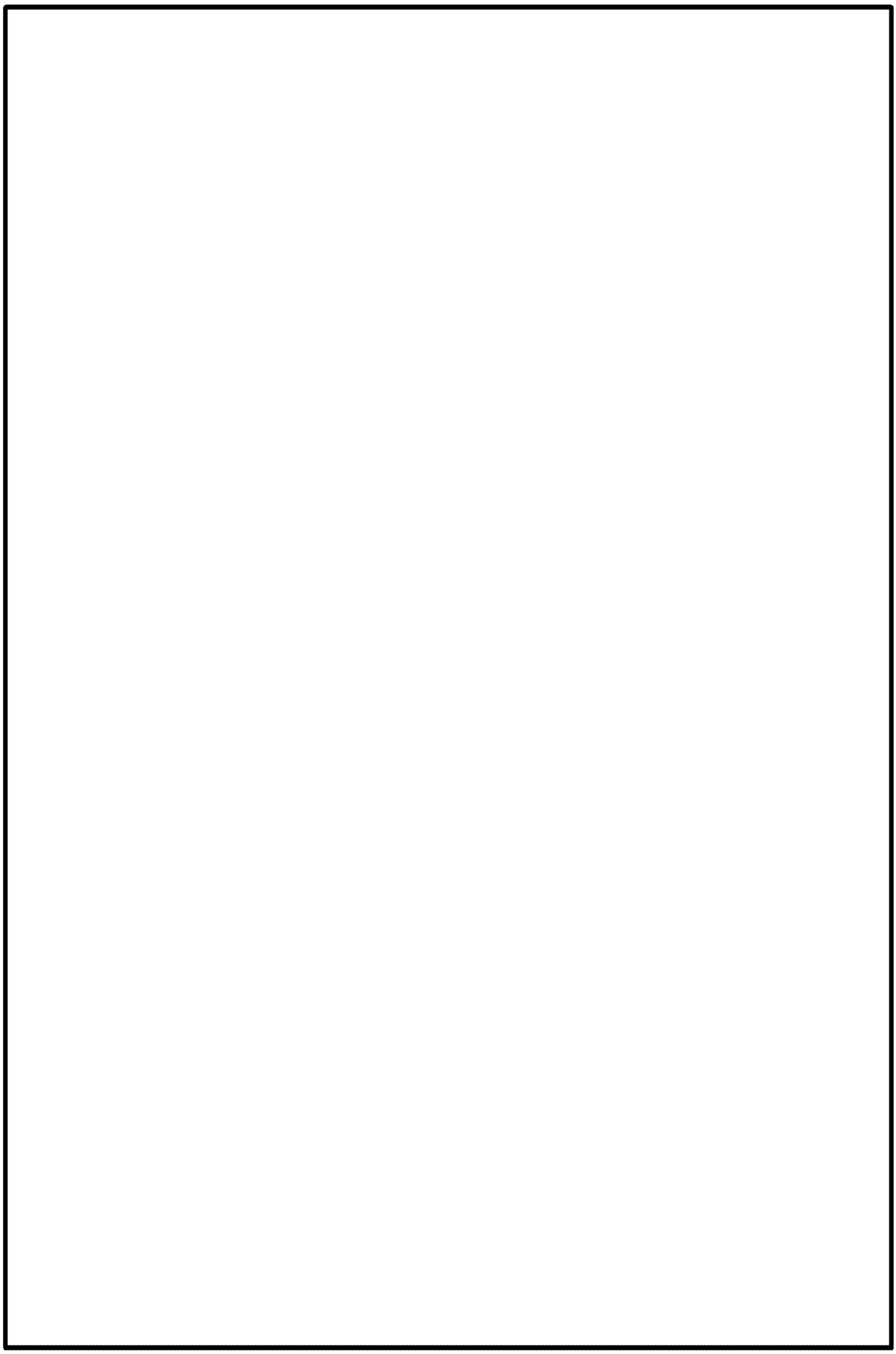

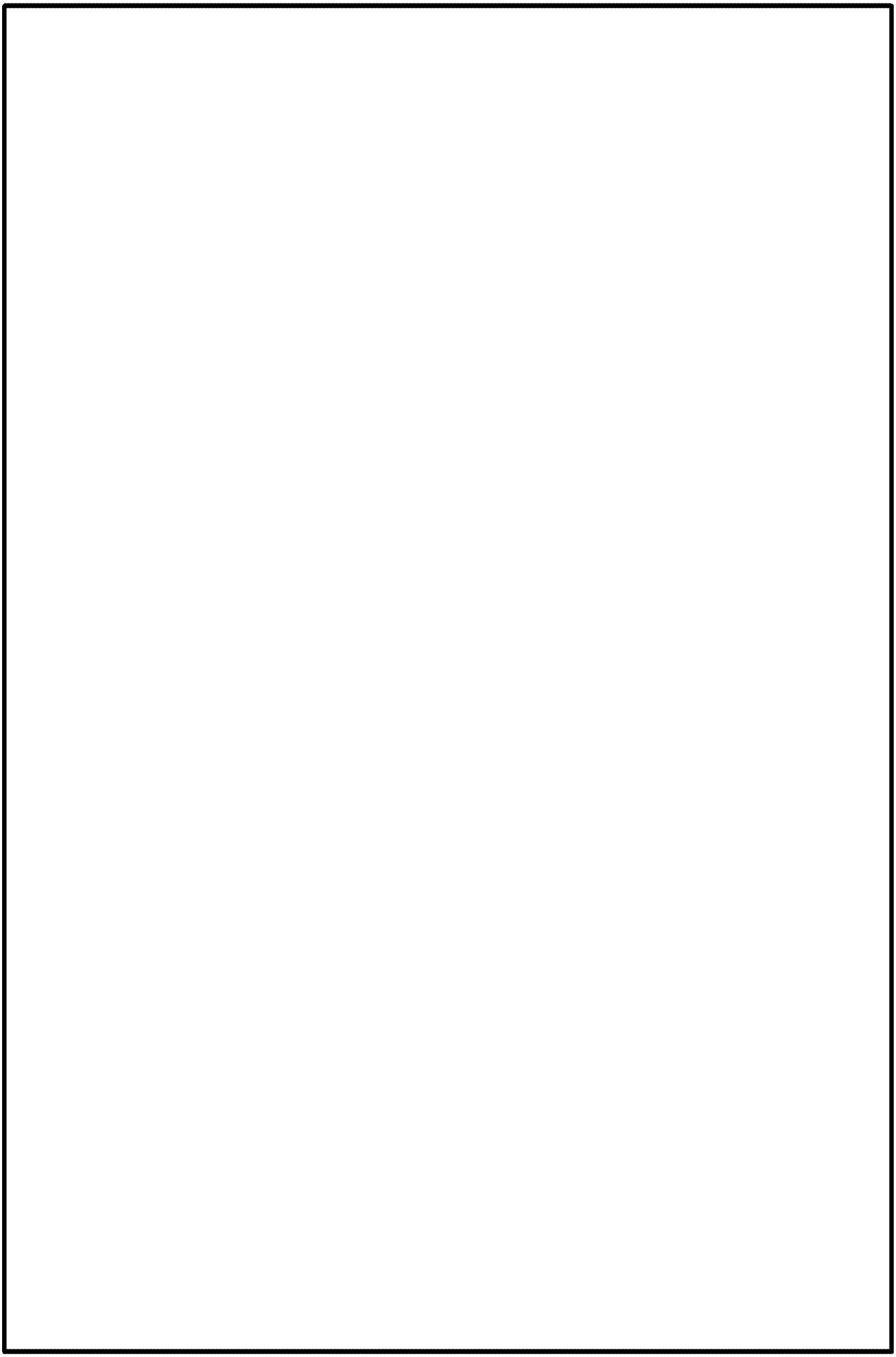

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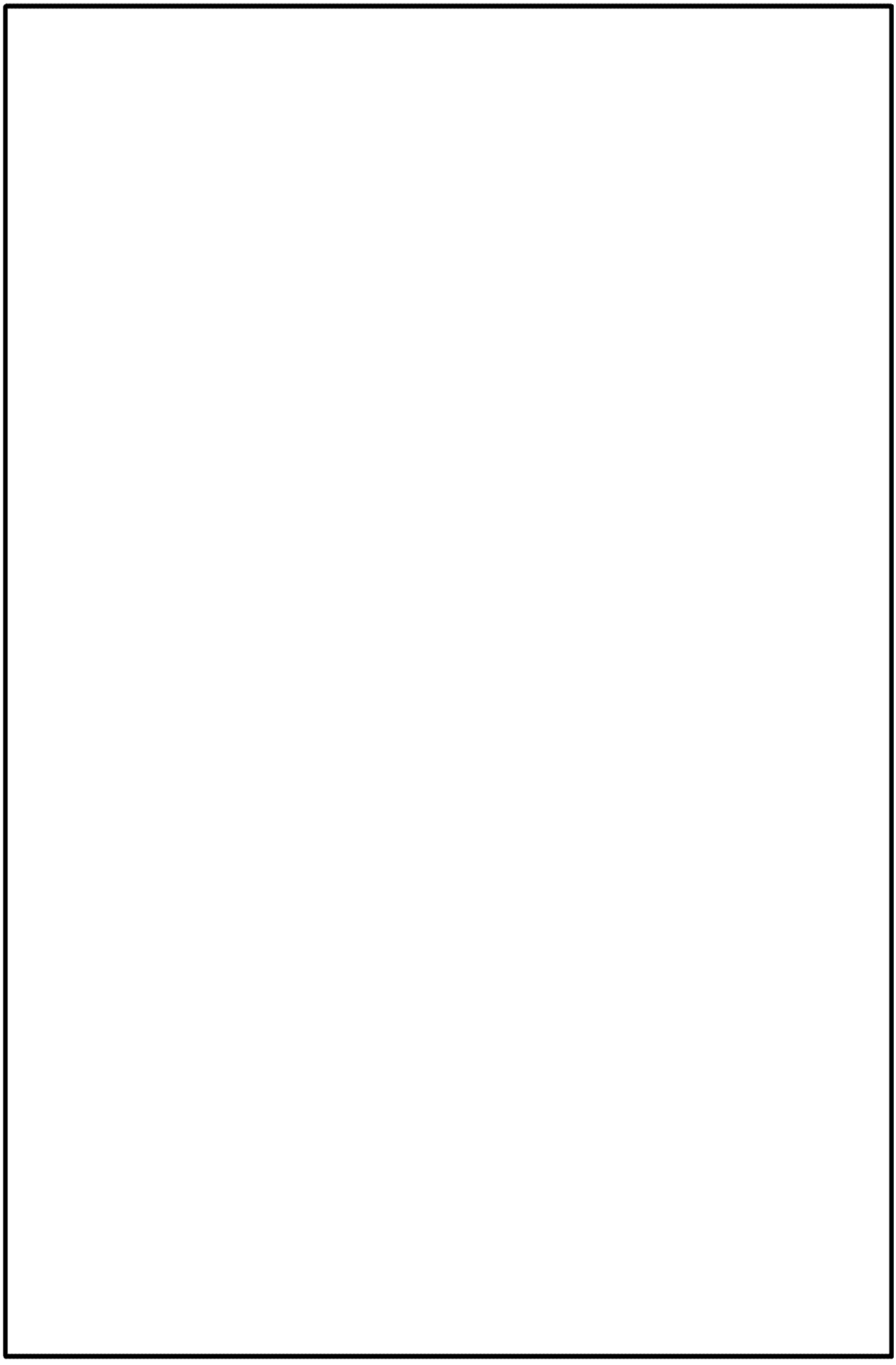

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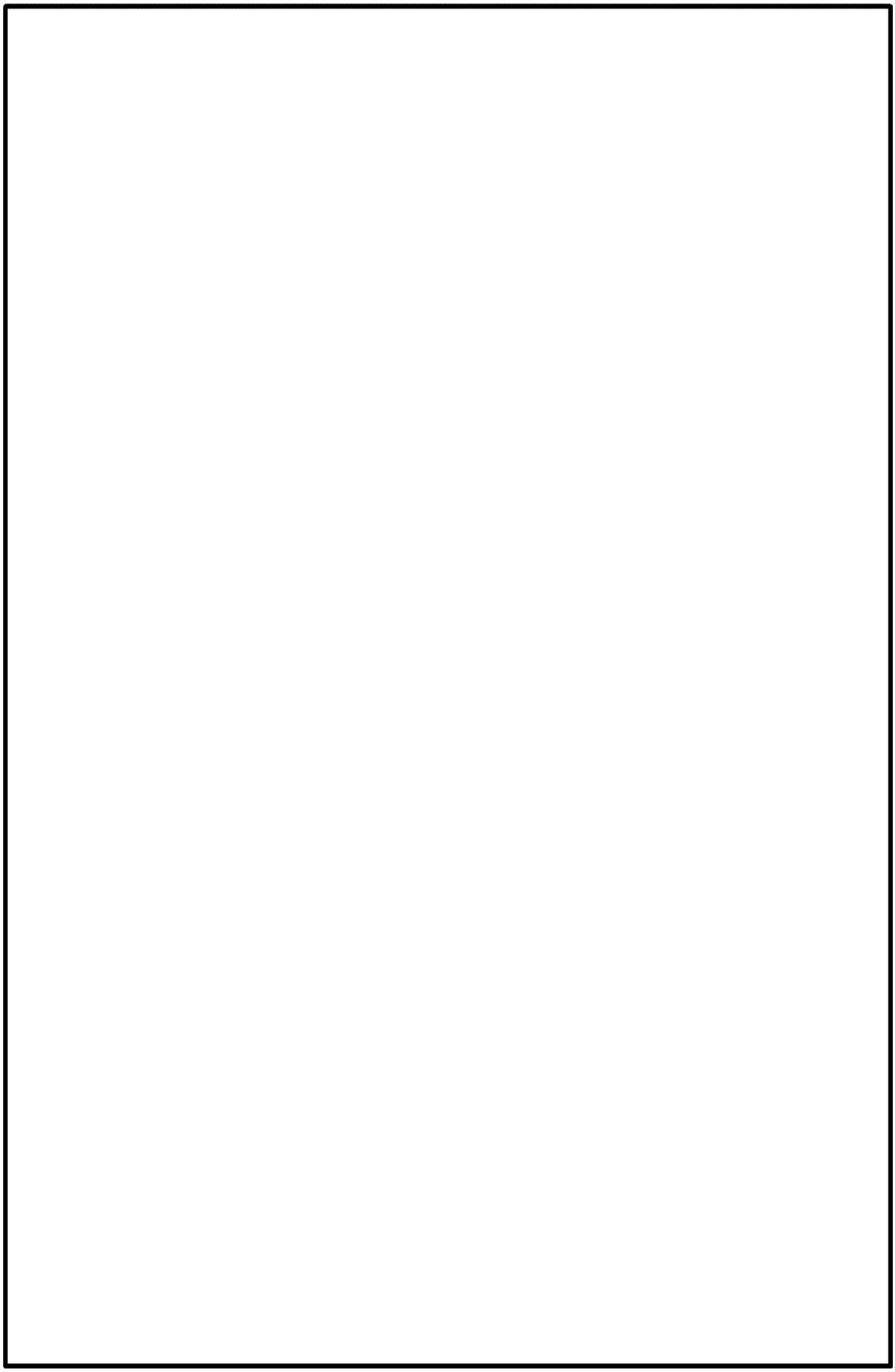

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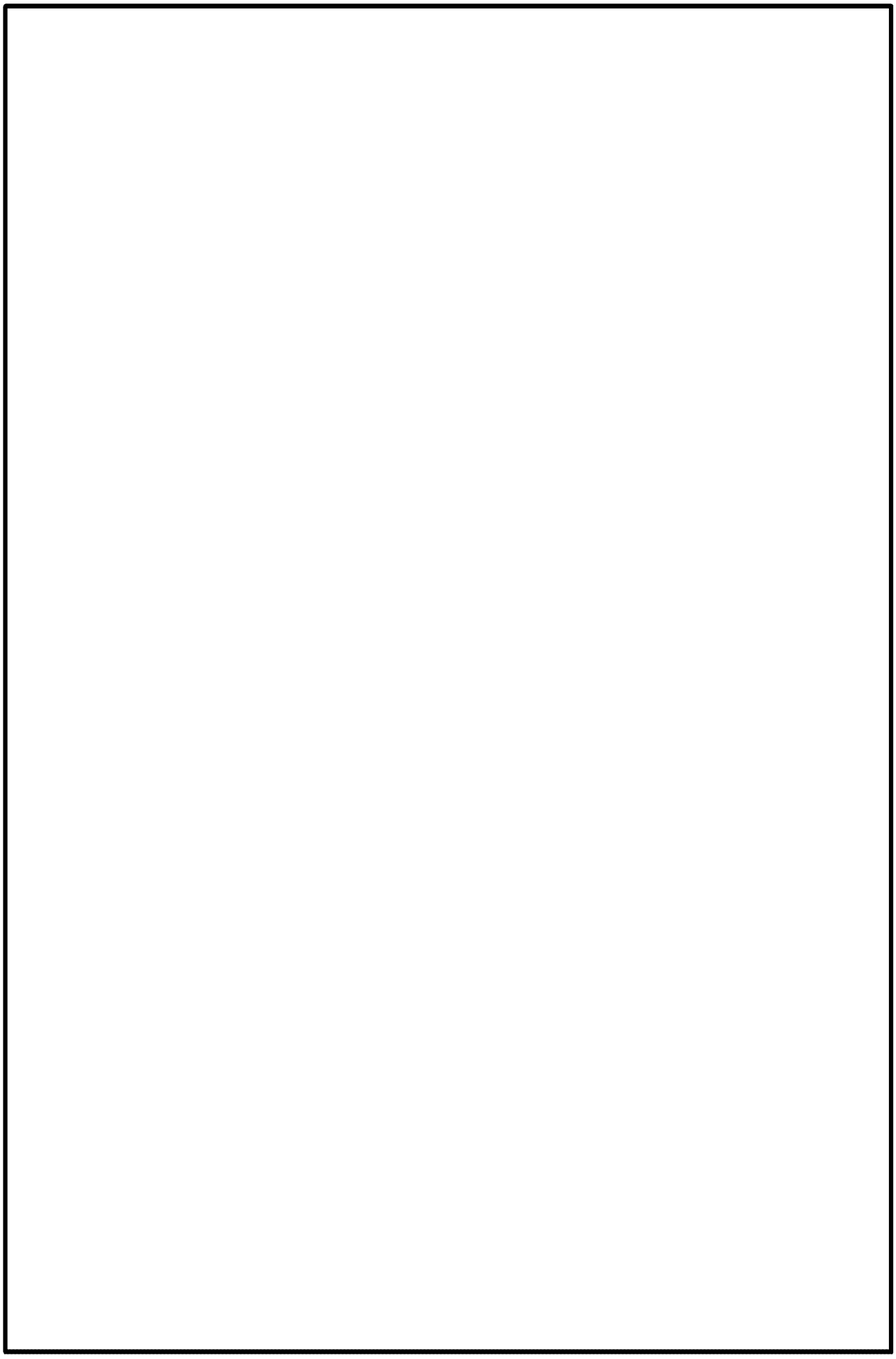

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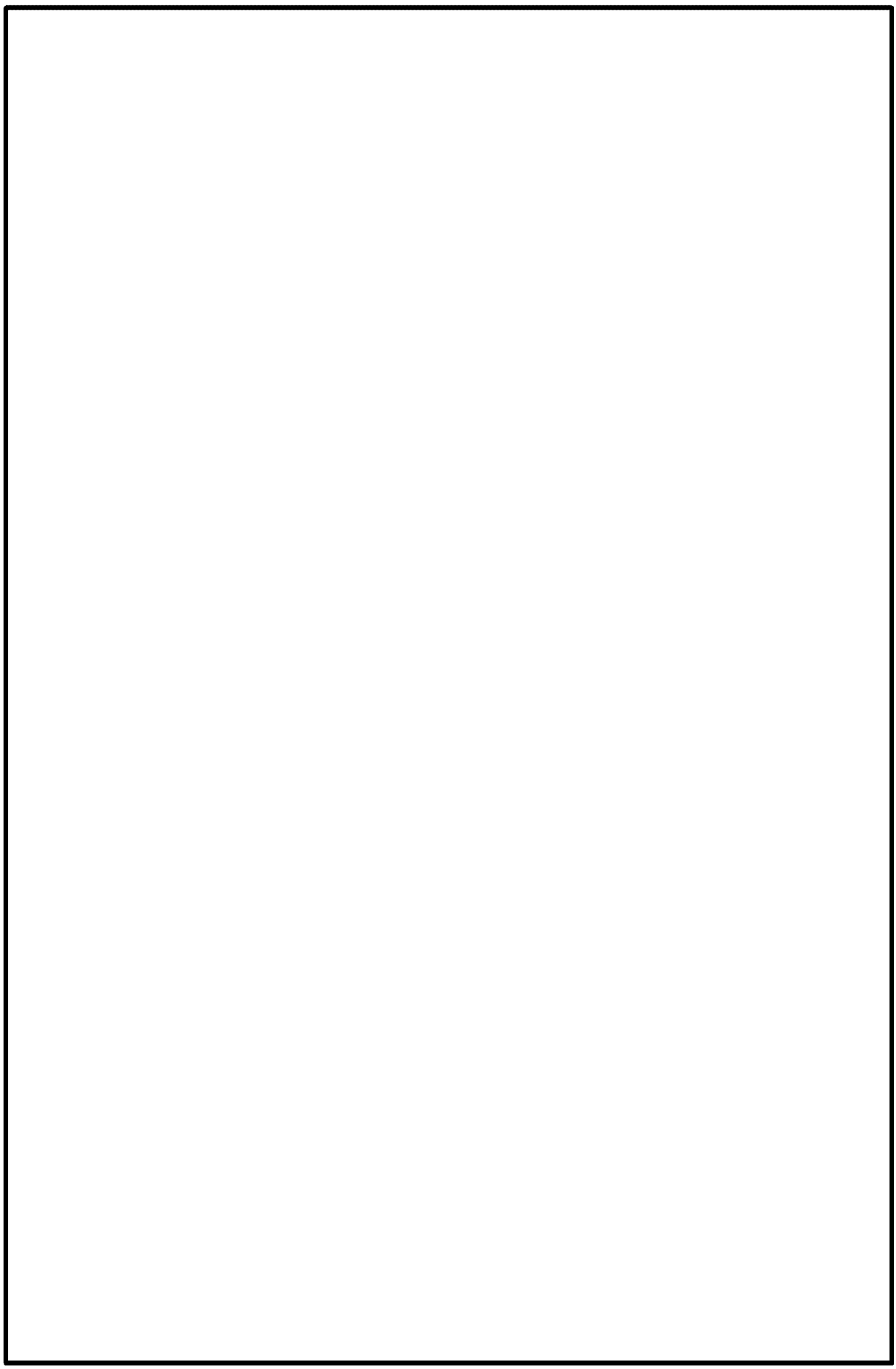

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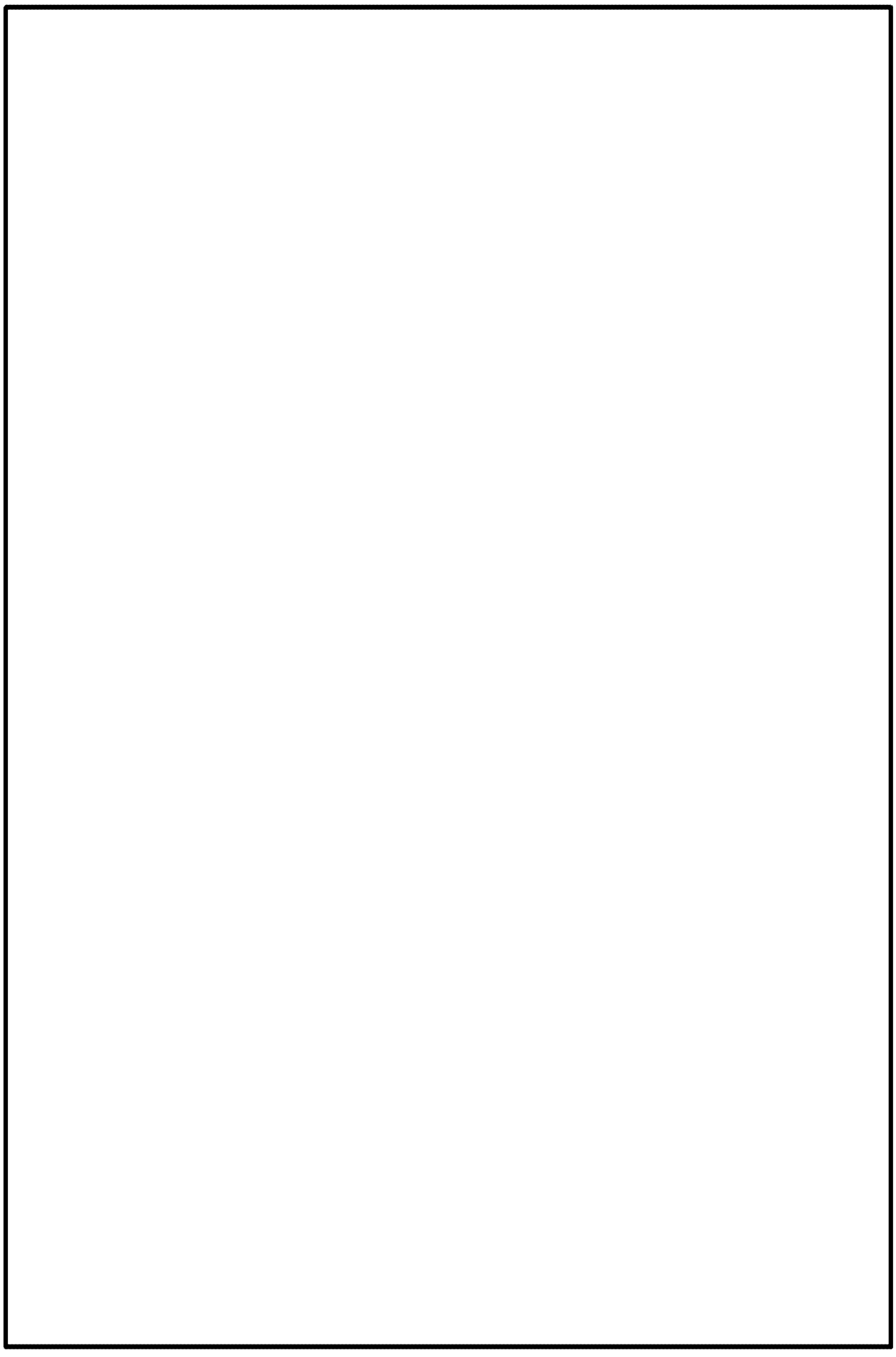

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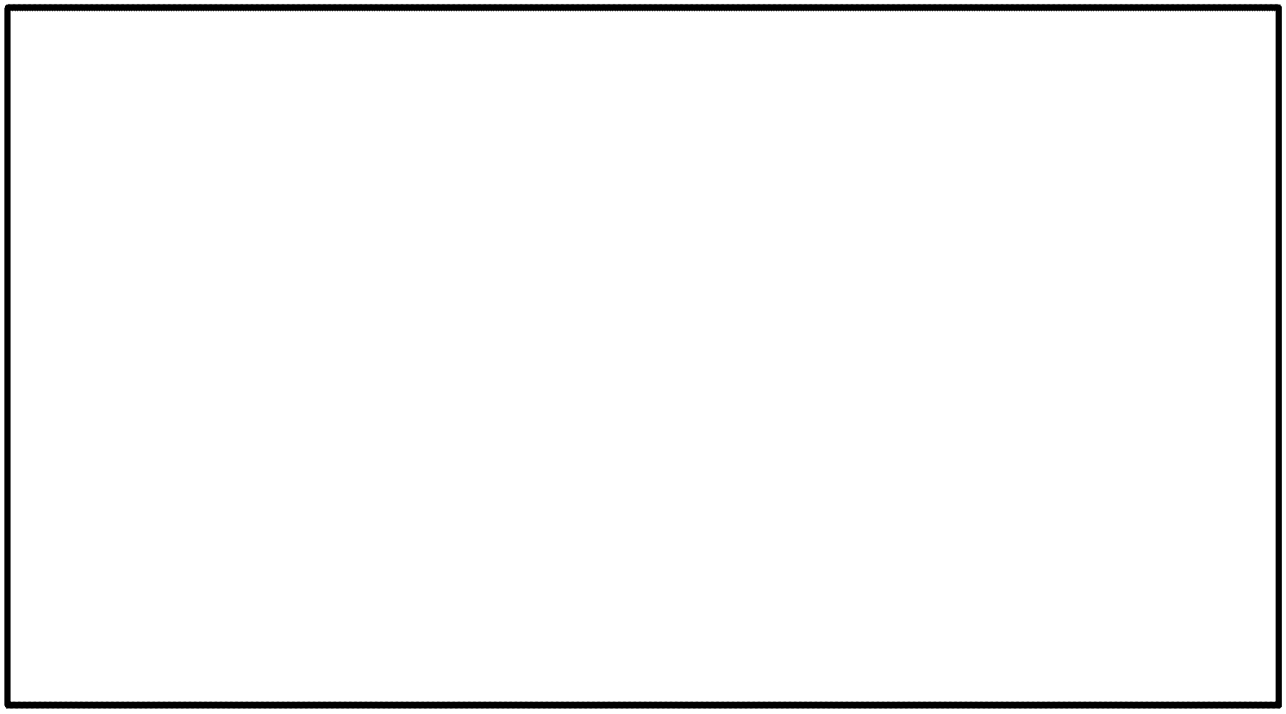


[SIGNATURE PAGE FOLLOWS]

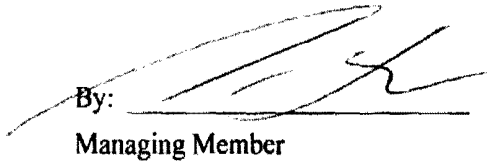
IN WITNESS WHEREOF, the undersigned executes this Agreement as an instrument under seal as of the date first set forth above.

Borrower: **88TH AVE REALTY LLC**

By: _____

Managing Member

Lender: **88TH AVENUE EB5 CAPITAL, LLC**



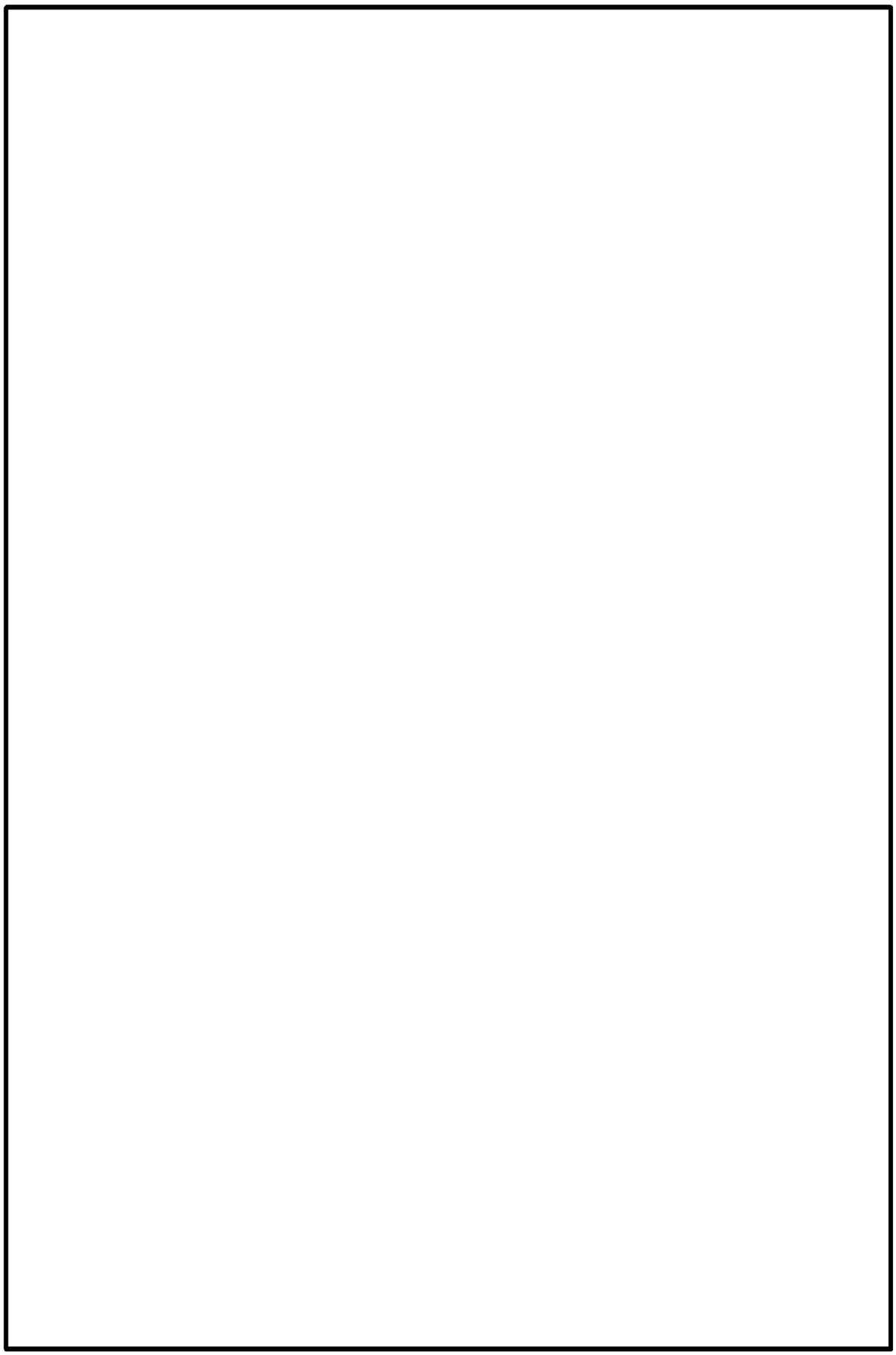
By: _____

Managing Member

(b)(4)

PROMISSORY NOTE

(b)(4)



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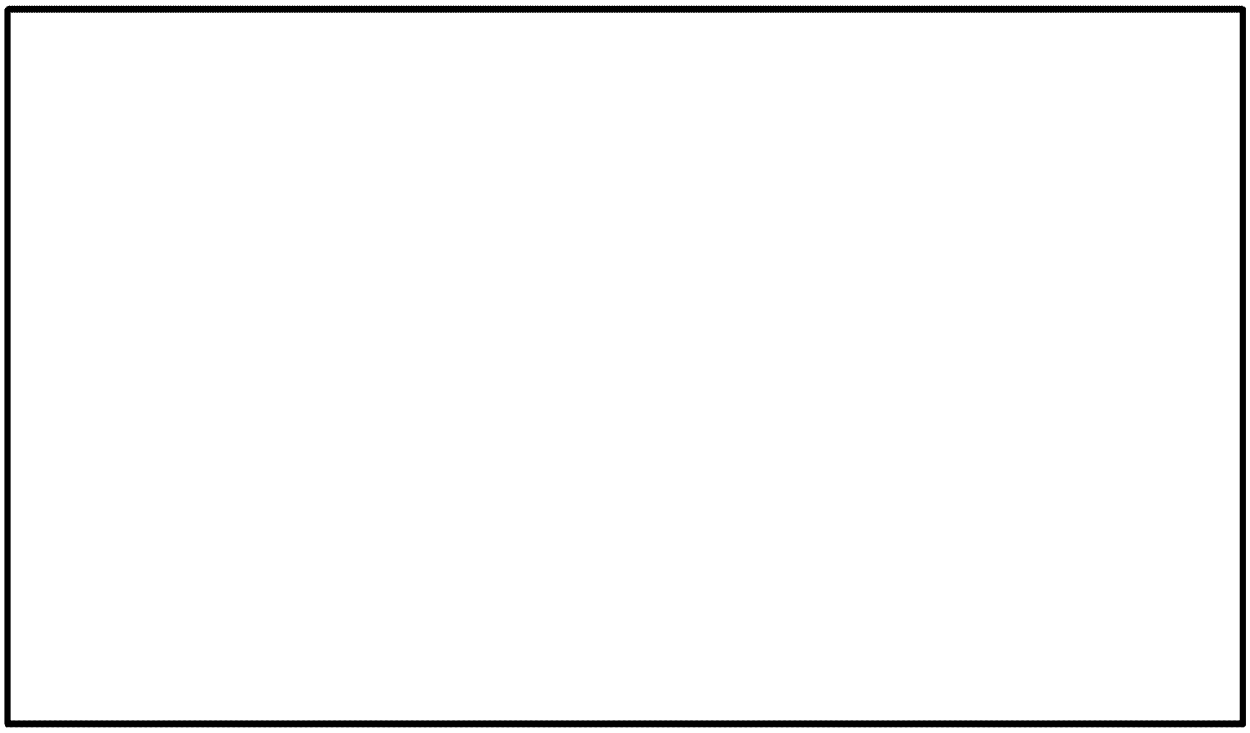


[SIGNATURE PAGE FOLLOWS]

88TH AVENUE EB5 CAPITAL, LLC
By George Xu

By: _____ Dated: Sep 16th, 2015
Manager

Borrower:

88TH AVE ~~REALTY~~ LLC

By: _____ Dated: Sep 16th, 2015

STATE OF NEW YORK:

COUNTY OF: Queens
On this, the 16 day of September, 2015 before me, the undersigned officer, personally appeared George Xu who acknowledged himself to be the Managing Member of **88TH AVENUE EB5 CAPITAL, LLC,** a New York limited liability company of 35-06 Leavitt St, Suite CF-A Flushing, NY 11354, and as Managing Member, being authorized to do so, executed the foregoing instrument freely and voluntarily for the purposes therein contained by signing the name of the company in the capacity of Partner. IN WITNESS WHEREOF, I have hereunto set my hand and notarial seal.

Notary Public _____
My Commission Expires: April 15, 2017

TRACY LAW
NOTARY PUBLIC-STATE OF NEW YORK
No. 01LA6279977
Qualified in Queens County
My Commission Expires April 15, 2017

100% Recycled 30% PCW

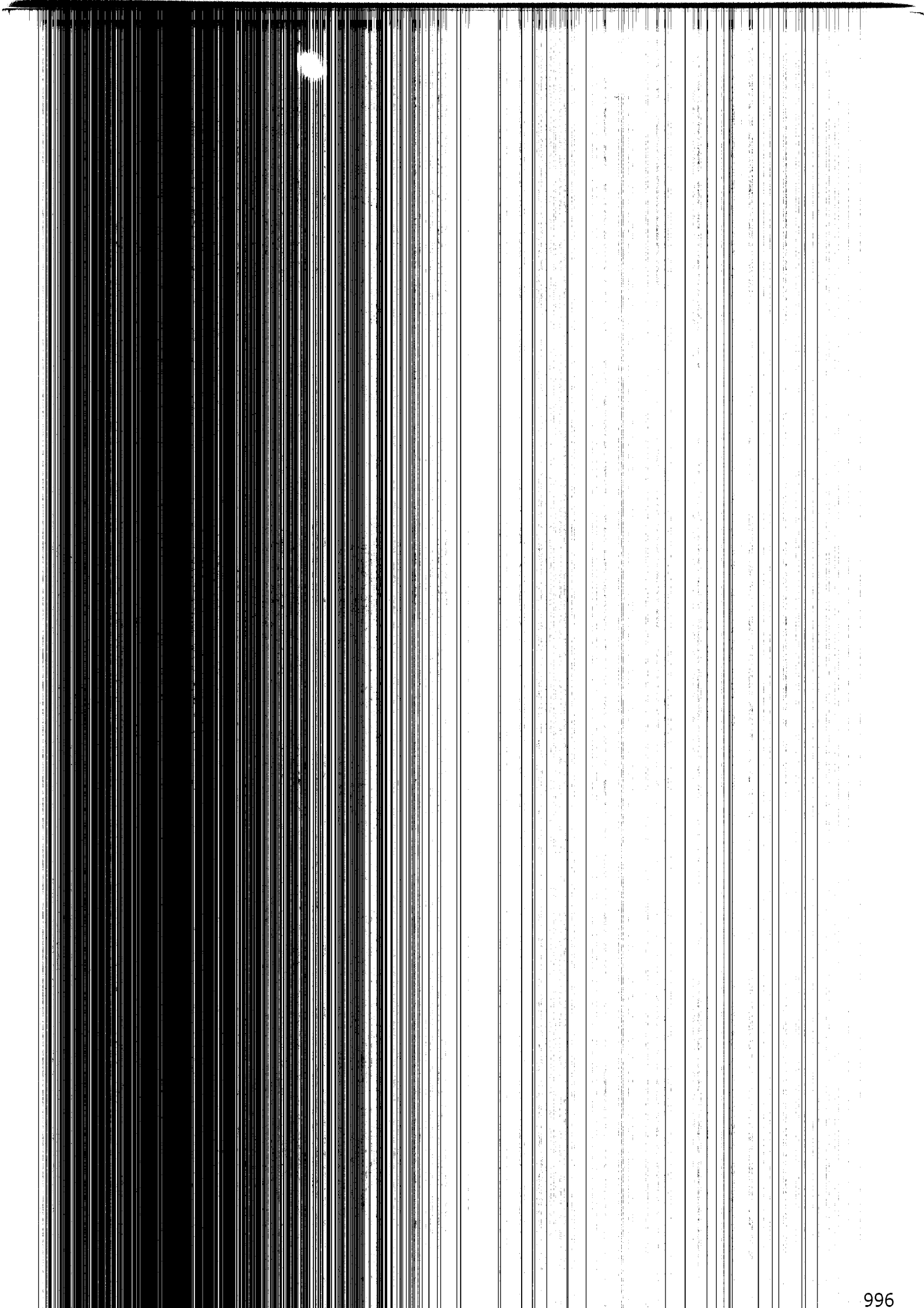
REGIONAL CEN[illegible]R: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: EOY[illegible]
PROJECT: 88TH AVE BBS CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 4

Documentation that Project is Located in a Targeted Economic Area (TEA)

- **TEA Confirmation Letter** from the New York State Department of Economic Development, dated August 20, 2025



NEW YORK STATE OF OPPORTUNITY. | New York State Department of Economic Development

August 20, 2015

Mr. Hassan Mokaddam
Paralegal
Mona Shah & Associates, PLLC
299 Broadway, Suite 1005
New York, New York 10007

Dear Mr. Mokaddam:

Attached is a letter from Mr. Joseph Nardone, of the New York State Department of Labor, identifying an area including census tract 238 in Queens County. Based on 2014 annual average labor force data, the Department of Labor has determined that this area meets the minimum threshold of unemployment to qualify as a Targeted Employment Area.

Based on the Labor Department's determination, I am able to certify that the area described in the attached letter qualifies as a Targeted Employment Area.

Census tract 238, in Queens County, contains the address, 148-31 88th Avenue, Jamaica, New York 11435.

Please feel free to contact me if you have any questions.

Sincerely,

Ms. Kay Alisen Wilkie
Economic Development Program Administrator

cc: Joseph Nardone, DOL

Joseph Nardone
Associate Economist

Department of Labor
W. Averell Harriman State Office Campus
Building 12, Room 490, Albany, NY 12240
www.labor.ny.gov

August 19, 2015

Kay Alison Wilkie
Director for International Policy
Division of Business Advocacy and Research
Empire State Development | NYS Department of Economic Development
625 Broadway
Albany, NY 12245

Dear Ms. Wilkie:

The 2014 average unemployment rate for census tract 238 in Queens County that contains the address, 148-31 88th Ave., Jamaica, NY 11435, as you requested is 7.6 percent. The current minimum threshold to qualify as a Targeted Employment Area is 9.3 percent.

For your consideration, we developed an alternative area composed of census tracts 212, 238, and 240 in Queens County with an annual average unemployment rate of 9.7 percent.

2010 census tract boundaries, 2013 American Community Survey five-year estimate labor force data, and 2014 annual average Local Area Unemployment Statistics (LAUS) data were used in this estimate. These data were ACS-shared as described by the U.S. Bureau of Labor Statistics in LAUS Technical Memorandum No. S-13-17.

Please feel free to contact me if you have any questions.

Sincerely,

Joseph Nardone

NEW YORK STATE OF OPPORTUNITY. | Department of Labor

100% Recycled 30% PCW

REGIONAL CEN[illegible]R: CENTURY NEW YORK CITY HE[illegible]NAL CENTER, LLC
RECEIPT NO: RCTV1420251818
PROJECT: 88TH AVE EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 5

Formal Business Arrangements Between the NCE & JCE

The purpose of these documents is to show that the required amount of capital is invested or actively in the process of being invested, further that the capital is at risk for the purpose of generating a return on the capital placed at risk.

- **Offering Memorandum**
- **Executed Operating Agreement**
- **Executed Subscription Agreement**
- **Executed Escrow Agreement**

CONFIDENTIAL PRIVATE OFFERING MEMORANDUM

(b)(4) LIMITED LIABILITY COMPANY INTERESTS

OF

88TH AVENUE EB5 CAPITAL, LLC
A New York Limited Company LLC

Up to [redacted] (b)(4)
of
Member Interests
$500,000.00 per Interest

Minimum Investment of 1 Interest ($500,000.00)

88th Avenue EB5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
718.939.1060
Attn: George Xu
centurygroup88@yahoo.com

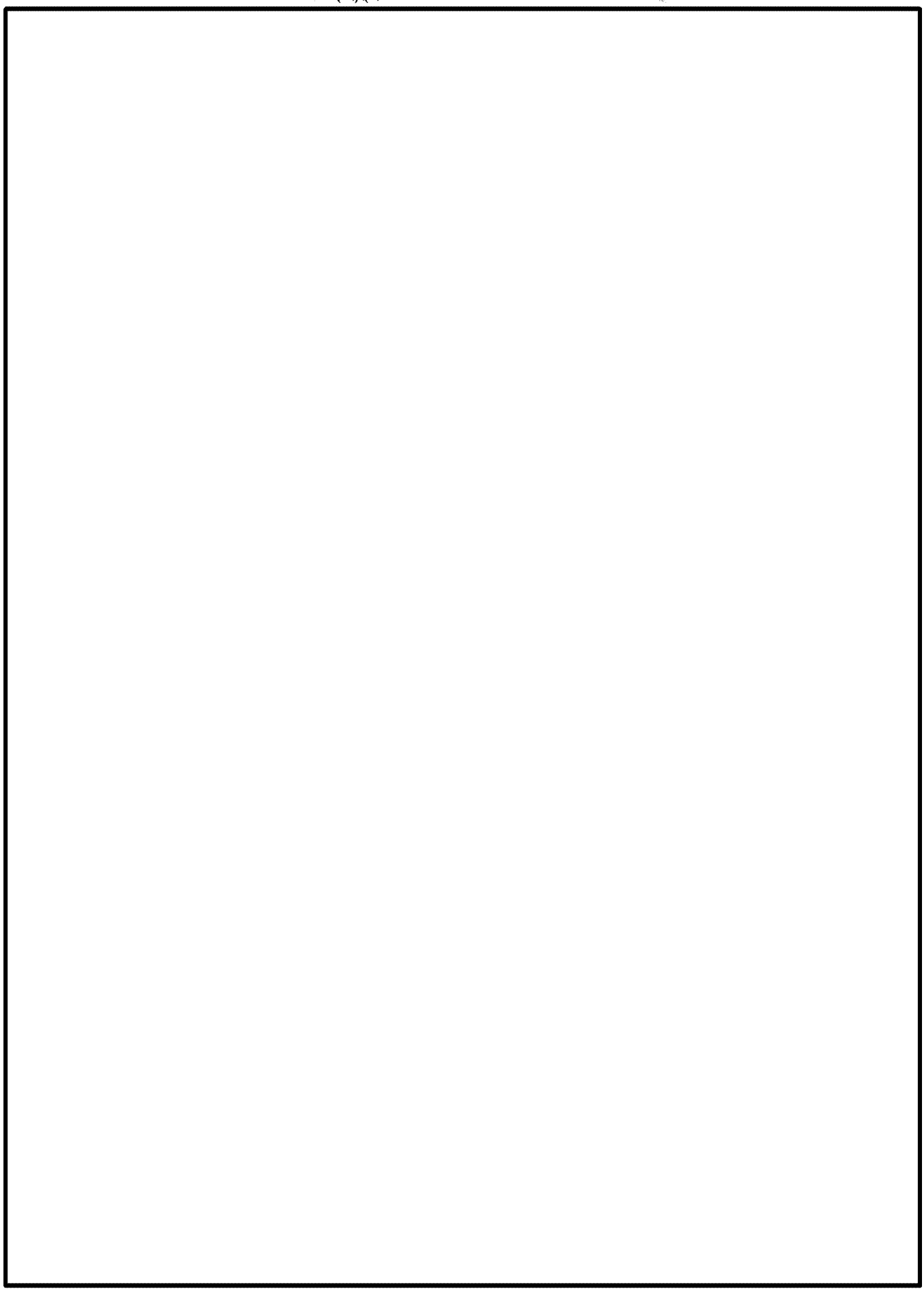
CONFIDENTIAL PRIVATE OFFERING MEMORANDUM

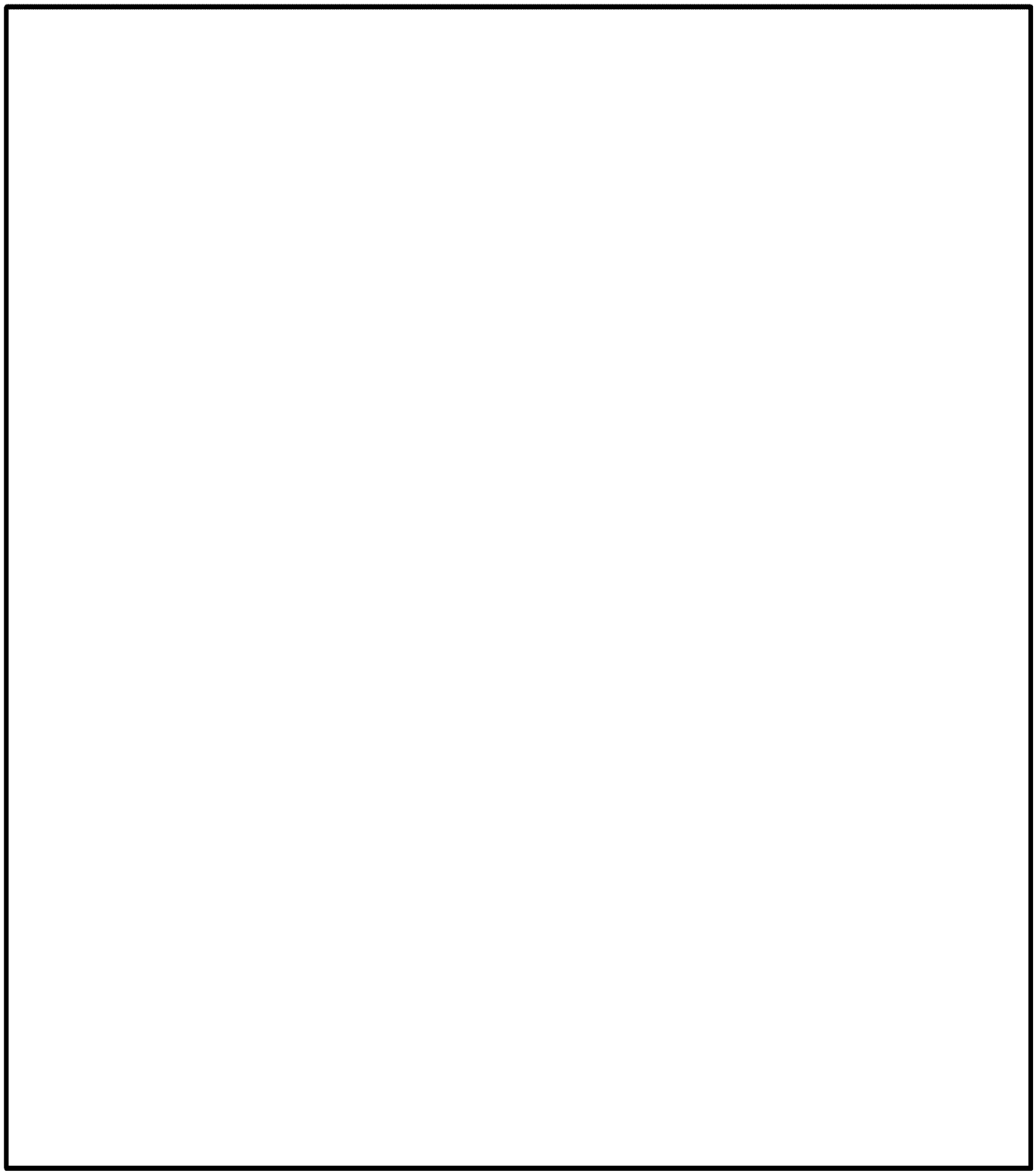
[redacted]LIMITED LIABILITY COMPANY INTERESTS

OF

88th Avenue EB5 Capital, LLC

(b)(4) A New York Limited Liability Company





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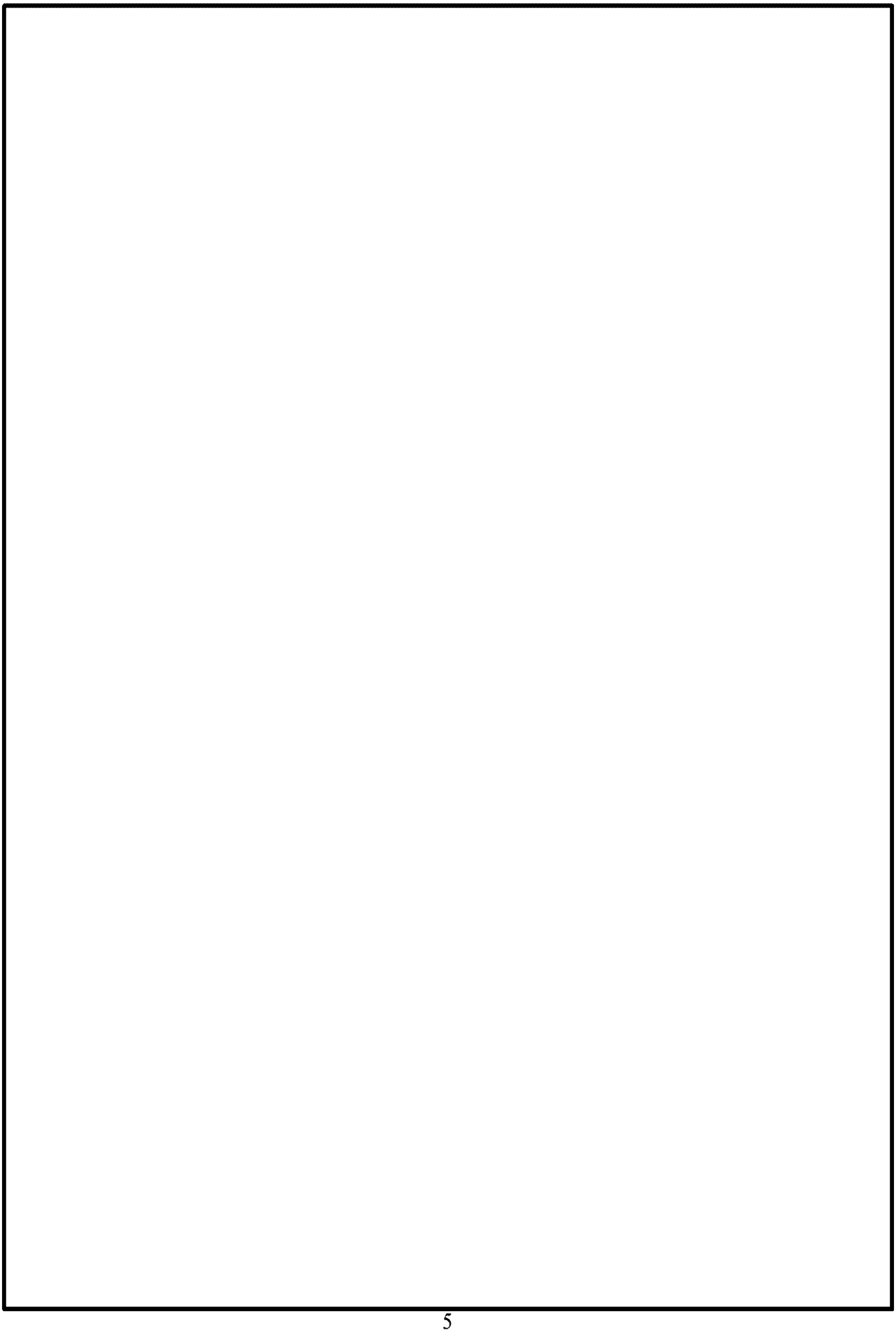

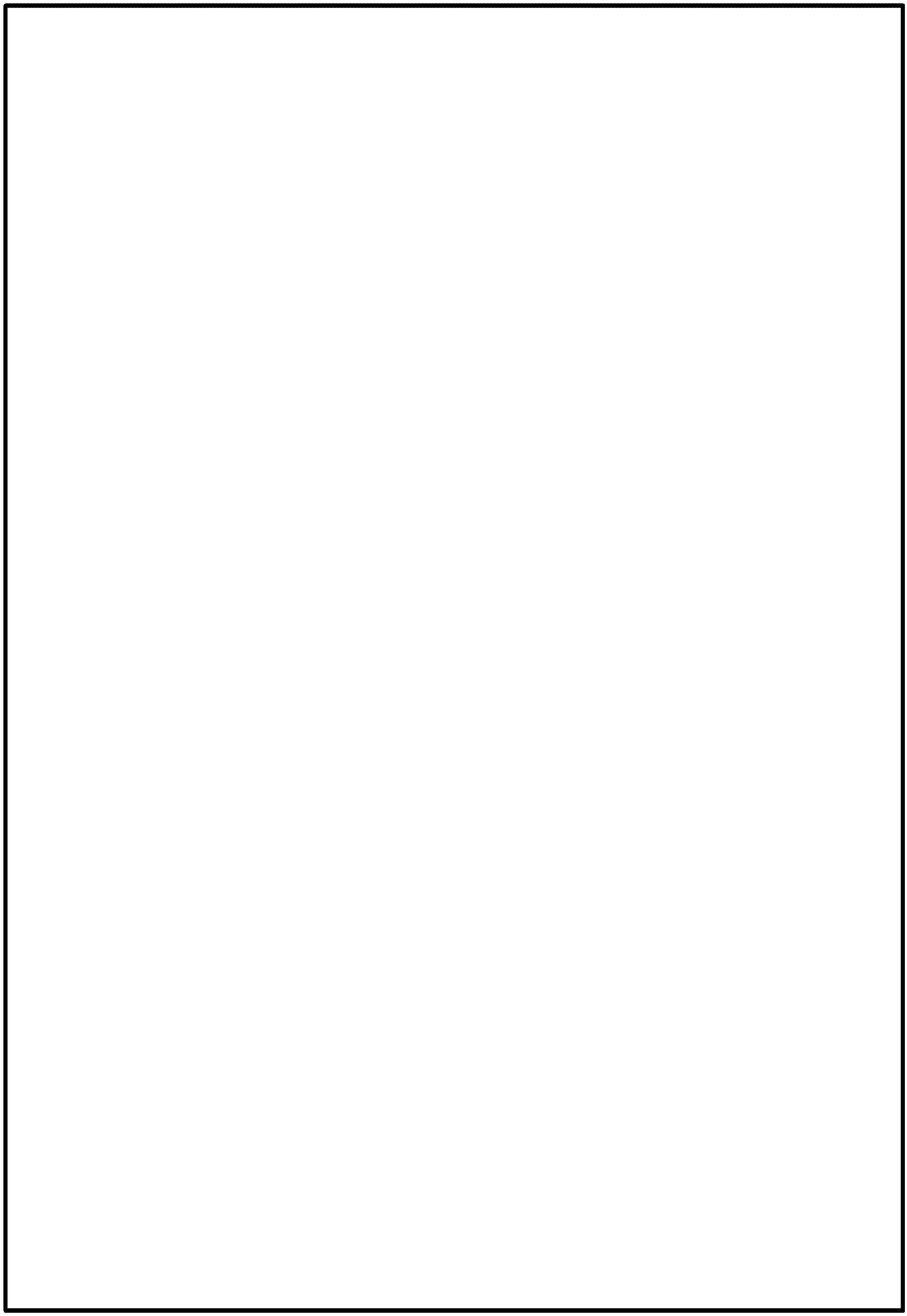

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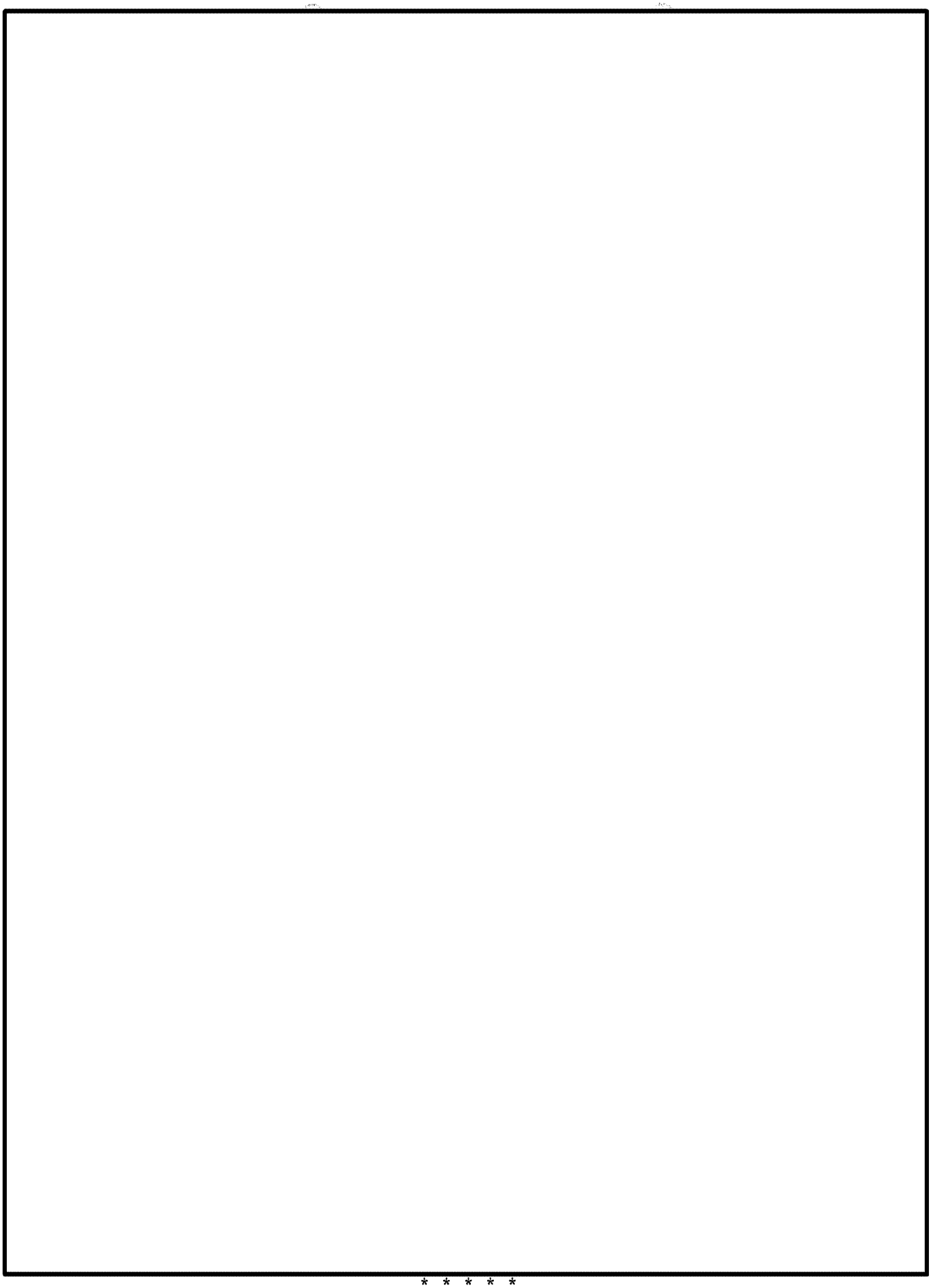

* * * * *

Circular 230 Disclosure

Pursuant to U.S. Internal Revenue Service Circular 230, the statements set forth herein with respect to Federal Tax Issues, as defined below, were not intended nor written to be used, and such statements cannot be used by any taxpayer for the purpose of avoiding any penalties that may be imposed on the taxpayer under the U.S. Internal Revenue Code. Such statements were written to support the marketing of the LLC or matters addressed herein. It is possible that additional issues may exist that would affect the federal tax treatment of an investment in the LLC and the statements contained herein do not consider or provide any conclusions with respect to such additional issues. Each taxpayer should seek advice based on the taxpayer's particular circumstances from an independent tax advisor. A "Federal Tax Issue" is a question concerning the federal tax treatment of any item of income, gain, loss, deduction or credit, the existence or absence of a taxable transfer of property, or the value of property for purposes of any tax imposed by or pursuant to the U.S. Internal Revenue Code.

* * * * *

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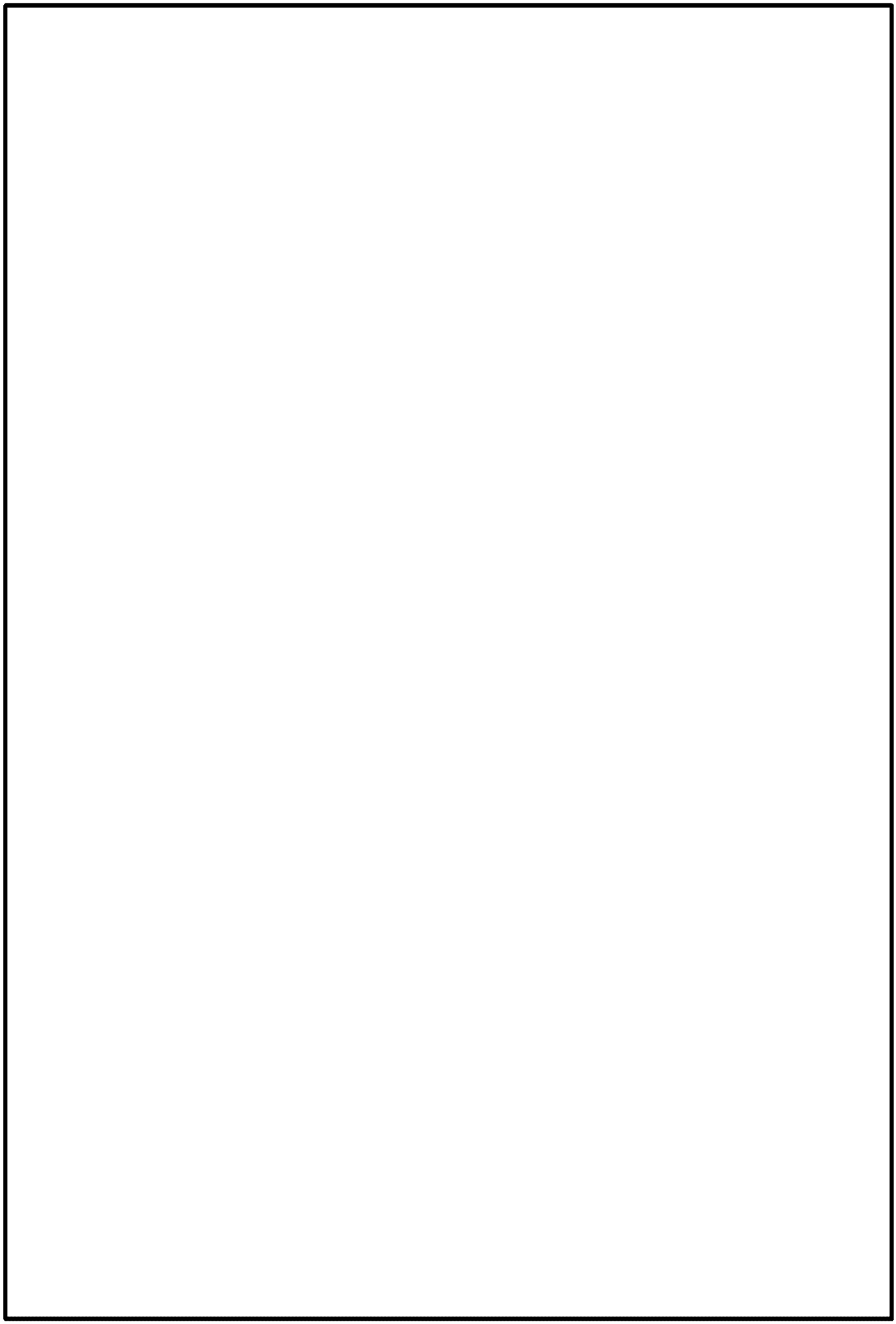
Exhibit A – Operating Agreement
Exhibit B – Subscription Agreement
Exhibit C – Investor Eligibility Questionnaire
Exhibit D – Escrow Agreement
Exhibit E – Comprehensive EB-5 Business Plan
Exhibit F – Targeted Employment Area Designation Letter

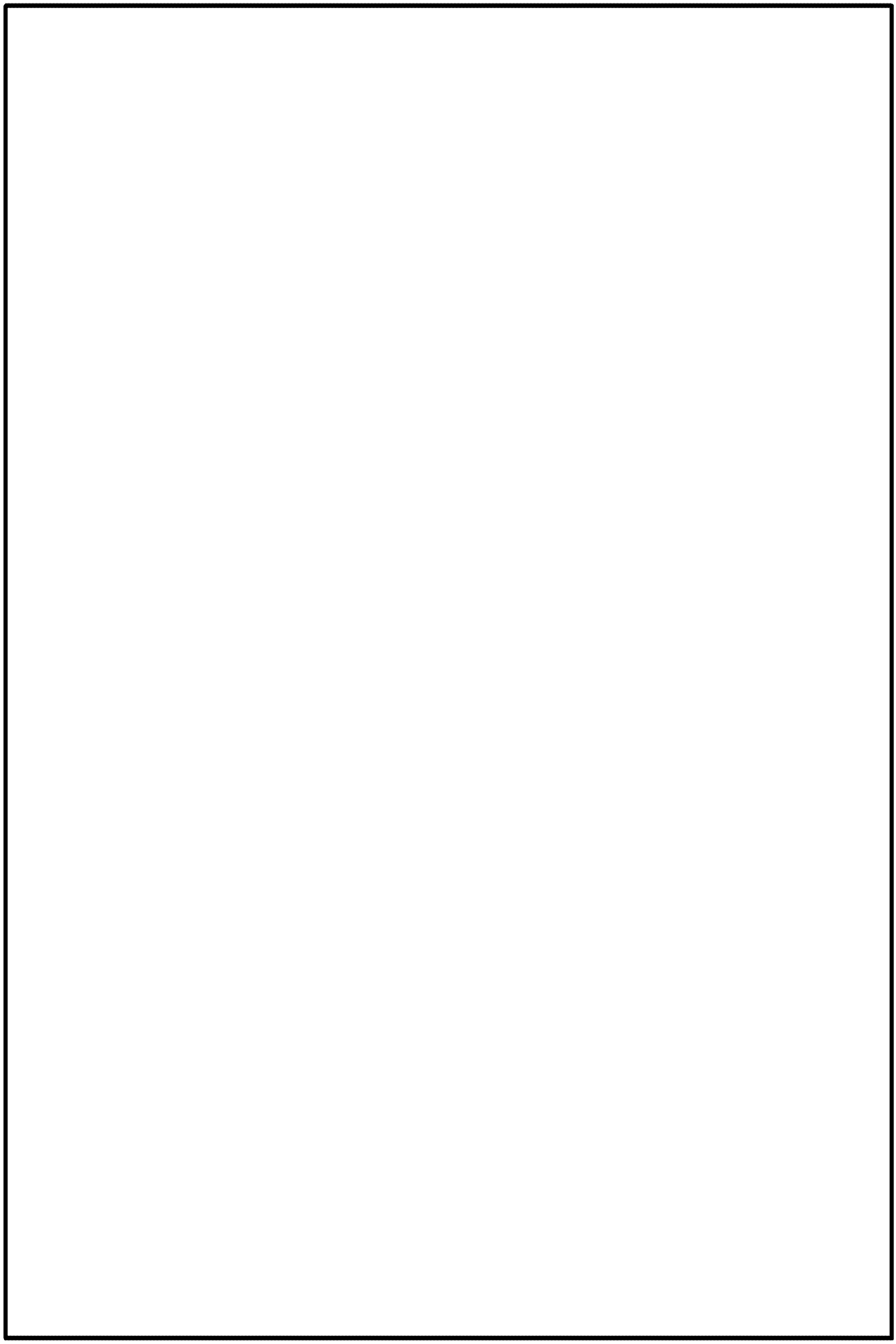
SUMMARY OF OFFERING TERMS

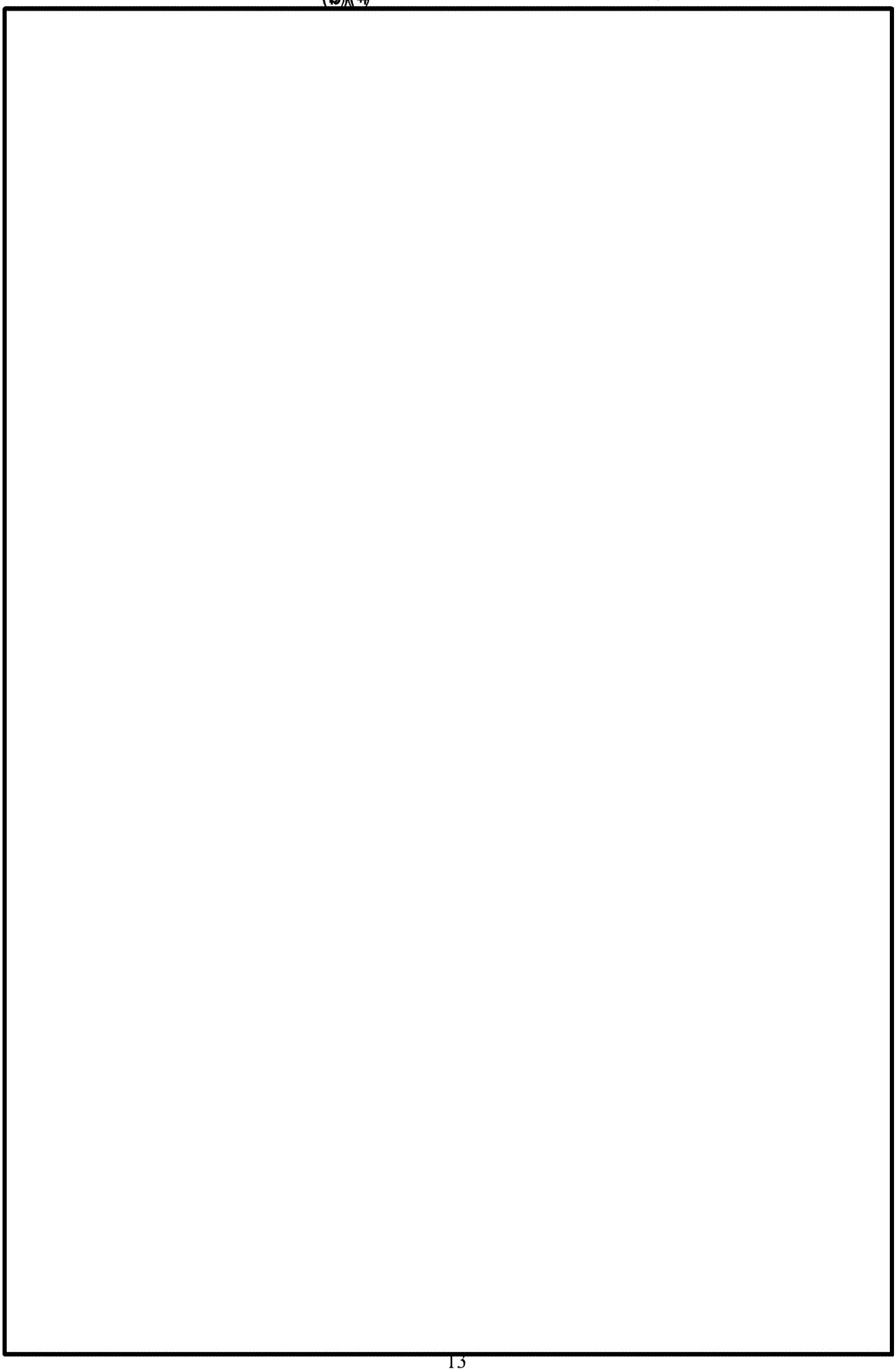
The following is only a summary of certain of the information contained in this Memorandum, and is qualified in its entirety by reference to the more detailed discussions contained in this Memorandum below, as well as to the Exhibits hereto (all of which are incorporated fully herein by this reference). In the case of any conflict between the summary, below, and the more detailed discussion in the body of the Memorandum, the latter shall control. Similarly, this Memorandum, its exhibits, and certain other documents related thereto have been initially written in the English language; in the event of any conflict between the original English versions and any translations into other languages, the former shall control.

(b)(4)

The plan is to construct and develop a Holiday Inn Express & Suites (the "Project") in New York City.







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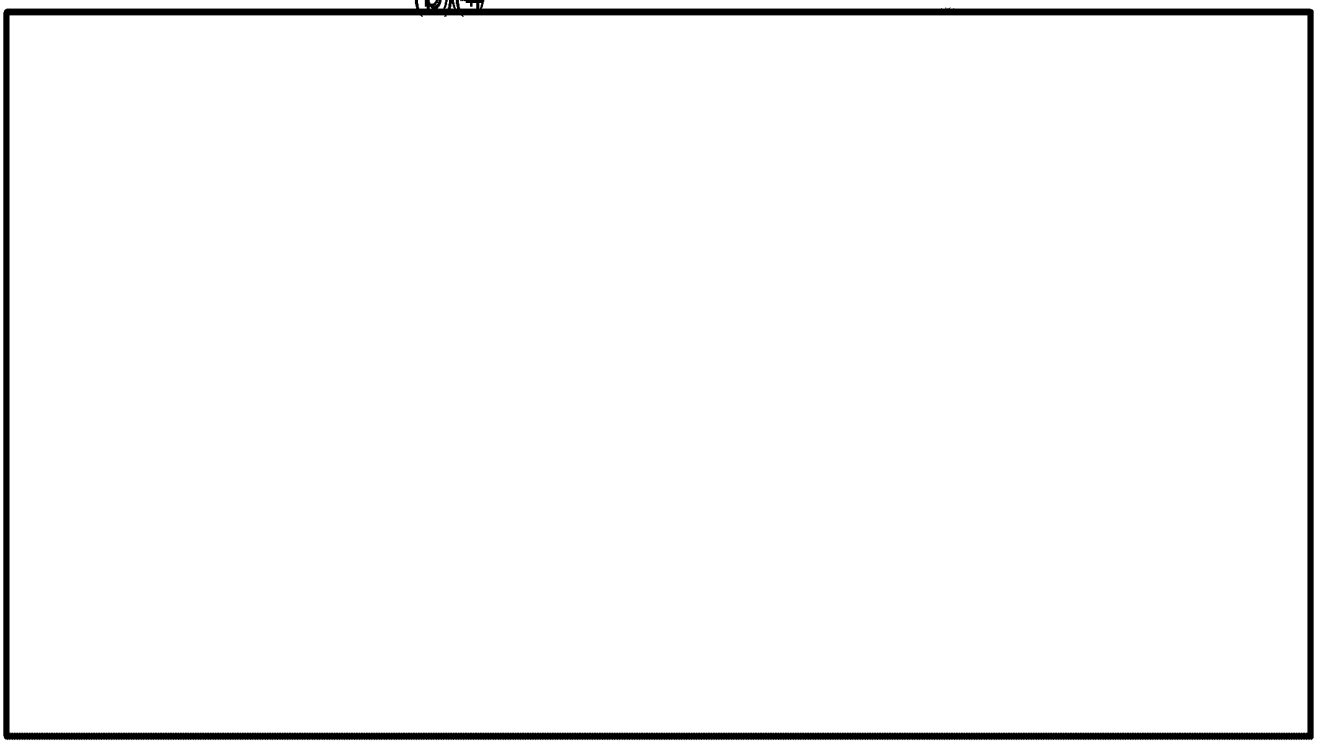

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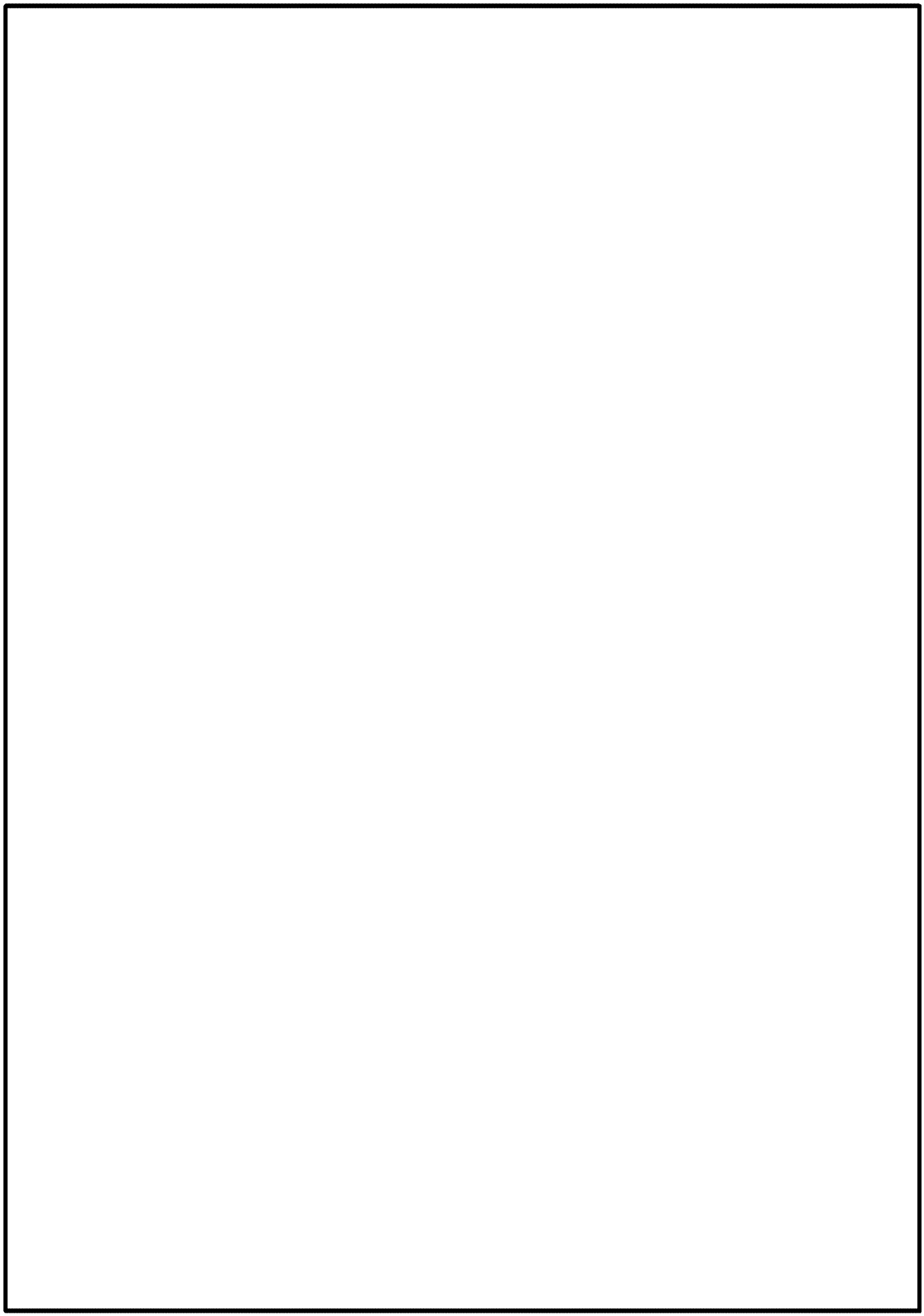

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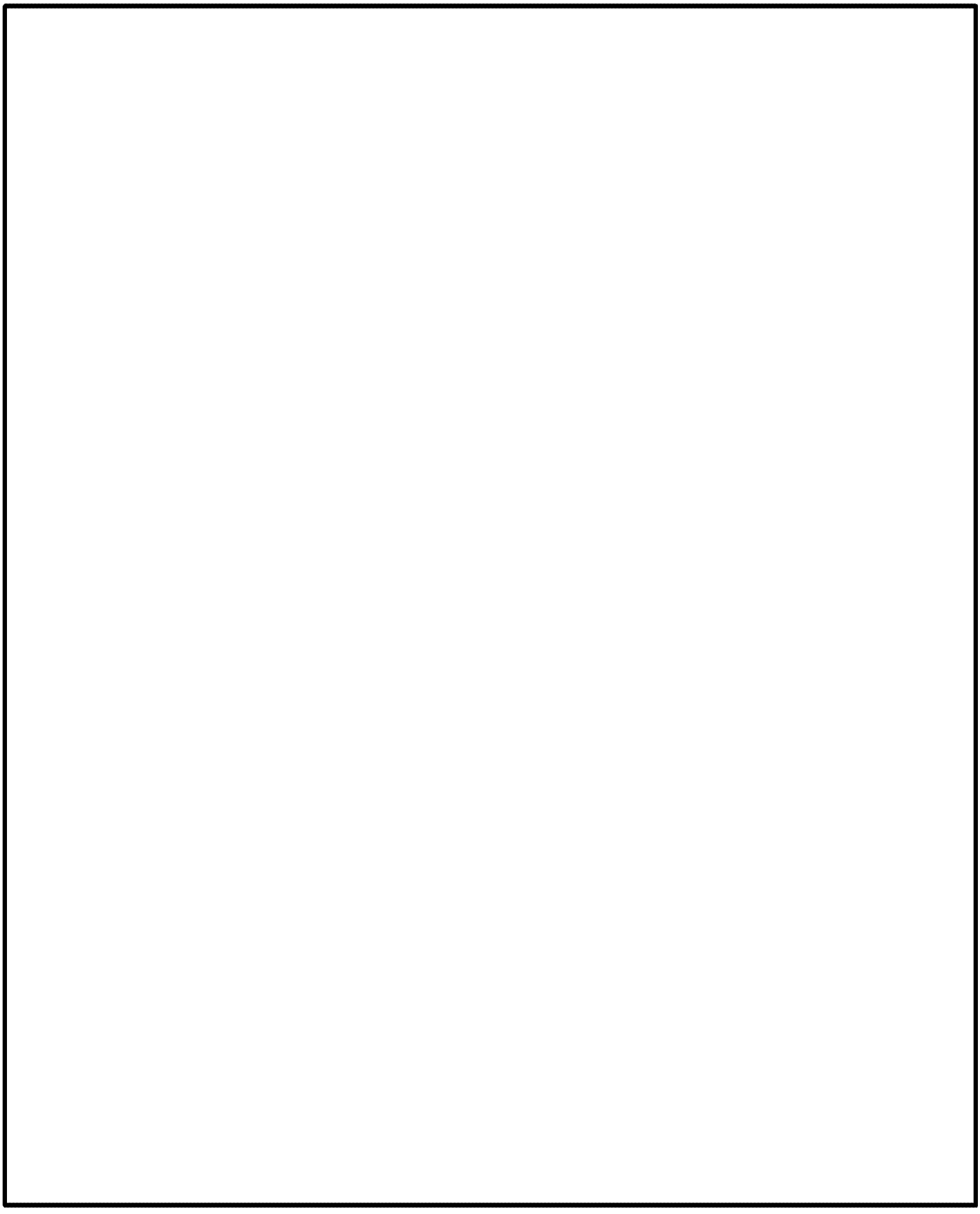

12/01/2015 - 4/16/2016	Excavation
04/01/2016 - 06/30/2016	Foundation Concrete
07/01/2016 - 01/30/2017	Concrete Superstructure
12/15/2016 - 05/31/2017	Exterior Wall
12/15/2016 - 05/31/2017	Windows & Storefront
08/01/2016 - 09/30/2016	
11/01/2016 - 05/15/2017	Plumbling Rough - In
12/15/2016 - 06/15/2017	Interior Framing
01/01/2017 - 07/31/2017	Electrical BX & Boxes
12/15/2016 - 08/15/2017	SheetRock
12/15/2016 - 09/15/2017	Tape & Spackle
09/01/2016 - 02/28/2017	Kadex Ceilings
11/15/2016 - 08/15/2017	Ceramic Tile & Marble
01/15/2017 - 01/01/2018	Specialities
01/15/2017 - 01/01/2018	Plumbling Fixtures
02/01/2017 - 01/01/2018	Electrical Devices / Fixtures
03/01/2017 - 04/15/2018	Room Millwork, Hardware & Doors
05/15/2017 - 06/01/2018	Final Paint
05/01/2017 - 06/01/2018	Punchlist
06/01/2017 - 06/01/2018	Final Cleaning
03/15/2017 - 08/31/2017	Lobby and Amenities
05/01/2017 - 03/15/2018	Restaurants / Restaurant Equipment
05/15/2017 - 06/15/2017	Elevator Machine Room w/Temp Power - High Rise
06/15/2017 - 09/30/2017	High Rise Elevator
07/15/2017 - 09/15/2017	1st TCO: Floors SC, C & Amenities
08/01/2017 - 02/15/2018	2nd TCO: Floors 1 thru 4
08/15/2017 - 04/30/2018	3rd TCO: Floors 5 thru 8
11/15/2017 - 01/31/2018	Retail / Commerical
01/01/2018 - 02/15/2018	Remove Hoist / Fin. Units

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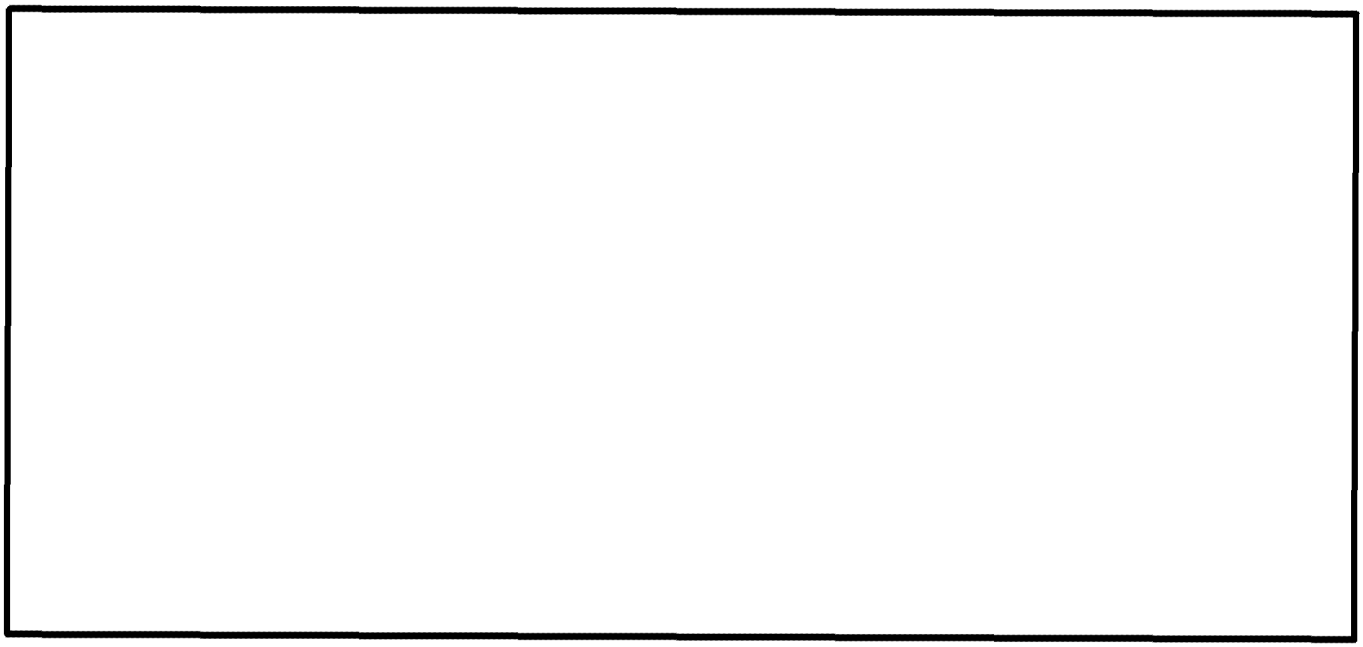

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MANAGEMENT BIOGRAPHIES AND INTERRELATIONS

The following paragraphs set forth the Officers of the Issuer and its Manager.

The amounts and percentage of Units beneficially owned are reported on the basis of regulations of the SEC governing the determination of beneficial ownership of securities. Under the rules of the SEC, a person is deemed to be a "beneficial owner" of a security if that person has or shares "voting power," which includes the power to vote or to direct the voting of such security, or "investment power," which includes the power to dispose of or to direct the disposition of such security. A person is also deemed to be a beneficial owner of any securities of which that person has a right to acquire beneficial ownership within 60 days. Under these rules, more than one person may be deemed a beneficial owner of the same securities and a person may be deemed a beneficial owner of securities as to which he has no economic interest.

MANAGEMENT BIOGRAPHIES

Mr. George Xu, CEO/Regional Center Principal

George Xu is the founder and a principal of the Century New York City Regional Center ("CNYCRC"). Mr. Xu is also the founder and the President of Century Development Group, a real estate development company based in New York City. With nearly 20 years of real estate holding and development experience, he has worked on over a million square feet of real estate developments; mixed-use developments including residential, hospitality, office, and retail. He has also worked in all phases of assembly, acquisition, finance, design, construction, marketing, and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters, and he provides marketing oversight and policy guidance for the Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and Computer Science and a Master of Science degree in Computer Science from Polytechnic University, New York.

Qili Li, MD, Regional Center Principal

Qili Li, MD, FACOG, is a principal of CNYCRC. Dr. Li has been in private practice for more than 15 years specializing in the field of Obstetrics and Gynecology in downtown Flushing, Queens County, New York City. Dr. Li attended the Sophie Davis School of Biomedical Education. She graduated Magna Cum Laude. After receiving her Medical Doctor degree from New York Medical College, Dr.Li completed her internship and residency training in Obstetrics/Gynecology at North Shore University Hospital at Manhasset, New York. Dr.Li is board certified in the specialty of Obstetrics/Gynecology. She is also a fellow of the American College of Obstetrics/Gyneoclogy (ACOG). In recent years, Dr. Li has expanded her interest/investment into real estate. She is currently involved in several real estate development projects ranging from high end condominiums to hotel construction.

David Pan, Vice President

David Pan is a vice president of CNYCRC. He has over 15 years of experience in fixed-income securities trading and risk management. Mr. Pan has worked in various roles at Credit Suisse, Citigroup, Deutsche Bank and the hedge fund industry. Formerly a Director at Credit Suisse in the Strategic Risk Management division covering Residential Mortgage Backed Security (RMBS) business, he was instrumental in developing models and methodologies in assessing the firm's risk exposure to the mortgage security market. Prior to his Wall Street career, Mr. Pan spent 10 years as a senior software engineer responsible for the development of the state-of-the-art fixed-income security trading and analytics software systems. He graduated with a Bachelor's degree in Computer Science from Queens College, City University of New York.

James Ho, Vice President

James Ho is a vice president of CNYCRC. Mr. Ho's role in the CNYCRC is to provide oversight of operations, maintain cohesion between the project's developer, general contractor, law and accounting firms, and to ensure overall compliance. Mr. Ho has extensive experience in computer programming, securities trading, and security related business. Currently, he is involved in real estate development of several projects in the New York City area. Mr. Ho graduated from Polytechnic University with a major in Electrical Engineering and Computer Science.

Robert Chen Vice President

Robert Chen is a vice president of CNYCRC, and oversees the overall operations of the Regional Center. He's also in charge of due diligence and evaluating potential projects and determining business feasibilities. Prior to joining CNYCRC, Mr. Chen had over 10 years' experience in a senior management position with FedEx. He has owned, managed, and operated companies in computer wholesale and repair business. Mr. Chen received his Bachelor of Science degree in Environmental Health Science from City University of New York.

Anthea Quan, Accounting Controller

Anthea Quan serves as the director of accounting controller for CNYCRC. She is responsible for the accounting, financial reporting, and audit functions. Ms. Quan also performs management of operating cash flow and financial analysis for development projects and investor distribution. She is passionate about accounting and has experience working with a variety of small businesses. Ms. Quan graduated from Yanbian University in China with a bachelor of mathematics. She is fluent in Chinese, English and Korean. She currently resides in New York City with her husband.

Tracy Law, Director of Project Management

Tracy Law is the director of project management of CNYCRC. Ms. Law is responsible for a full spectrum of the operation to ensure projects are done on time and within budget. Her constant communication with contractors and architects provides a strong network of relationships in the field. She is responsible for supervising and coordinating OS&E and FF&E. She is integral in bringing new hotels to full operation. Ms. Law graduated with a Bachelor of Science degree in Accounting from Queens College, City University of New York.

Lynn Wei, Director of Marketing and Business Development

Lynn Wei is CNYCRC's director of marketing and business development. Ms. Wei is responsible for a full spectrum of business development initiatives including creating and overseeing international marketing strategies for all CNYCRC project offerings. She is also involved in managing client relations. Ms. Wei is also a senior business development associate at the Century Development Group. In this capacity, she focuses on creating Request for Proposals and general marketing materials, as well as developing a customer analytical database, and implementing strategic marketing and communication initiatives. Ms. Wei graduated with a Master of Science degree in Economics from Brooklyn College, City University of New York and a Bachelor of Administrative Degree in Marketing from Shanghai Finance University.

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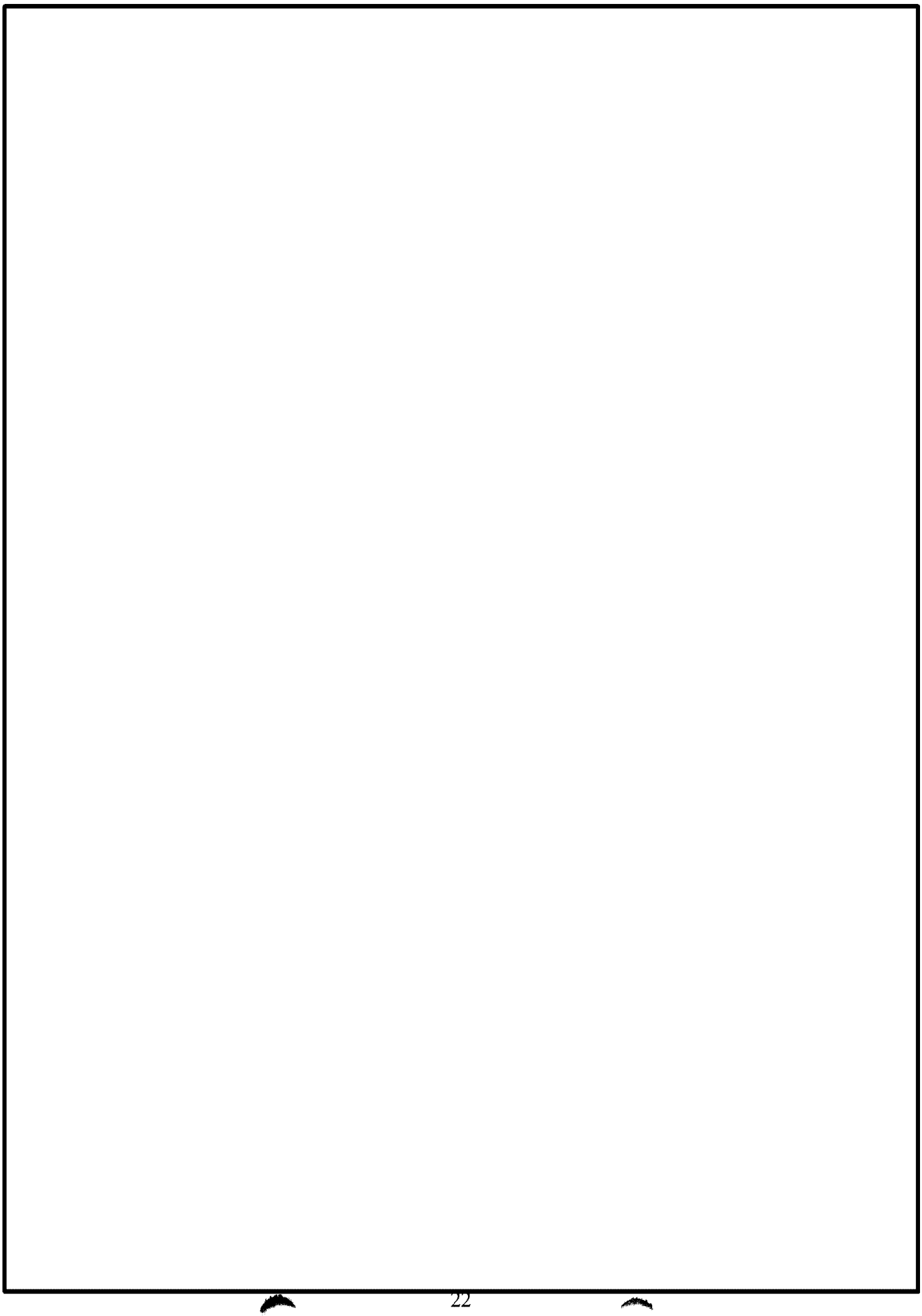
CONFLICTS OF INTEREST



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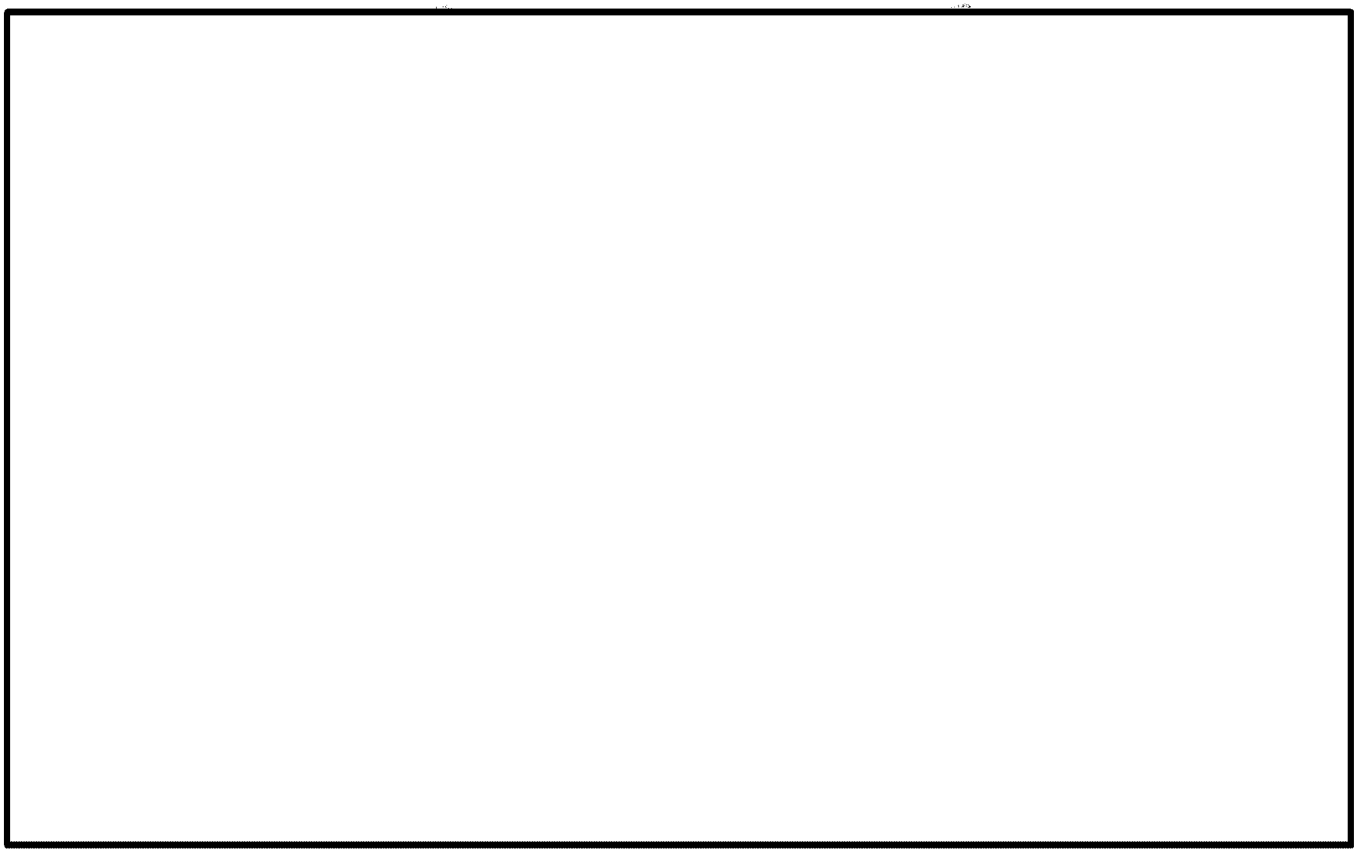

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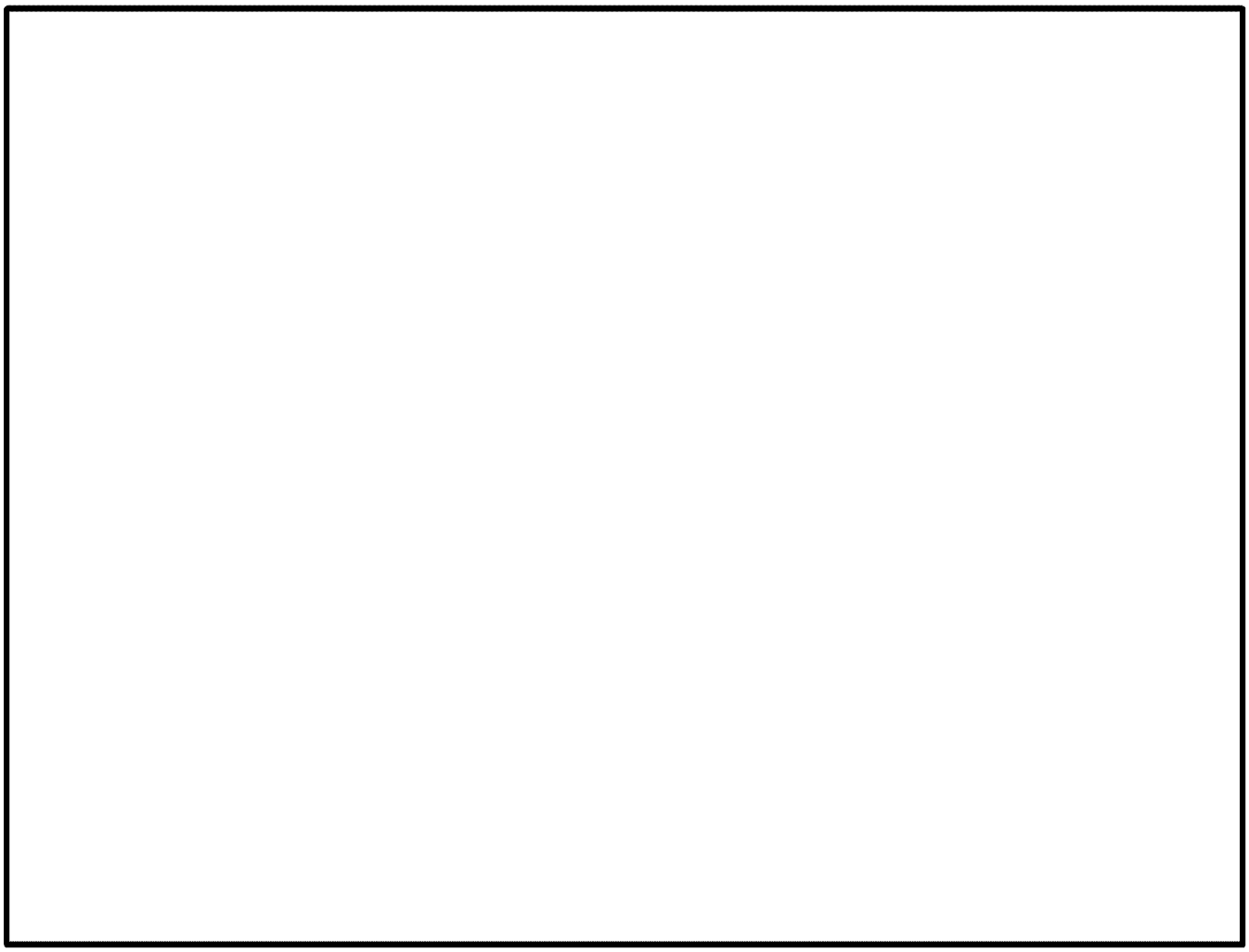

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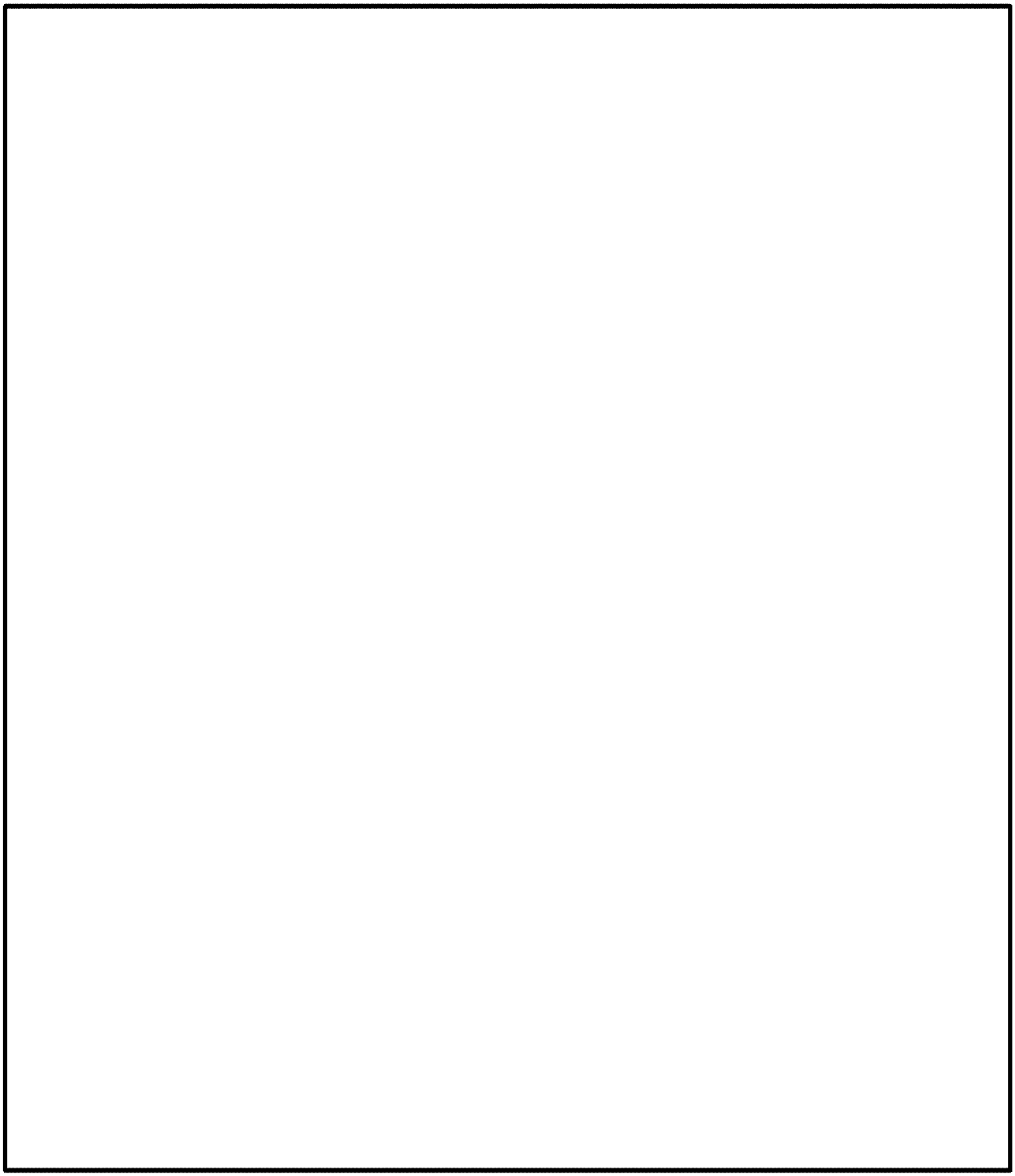
THE OFFERING



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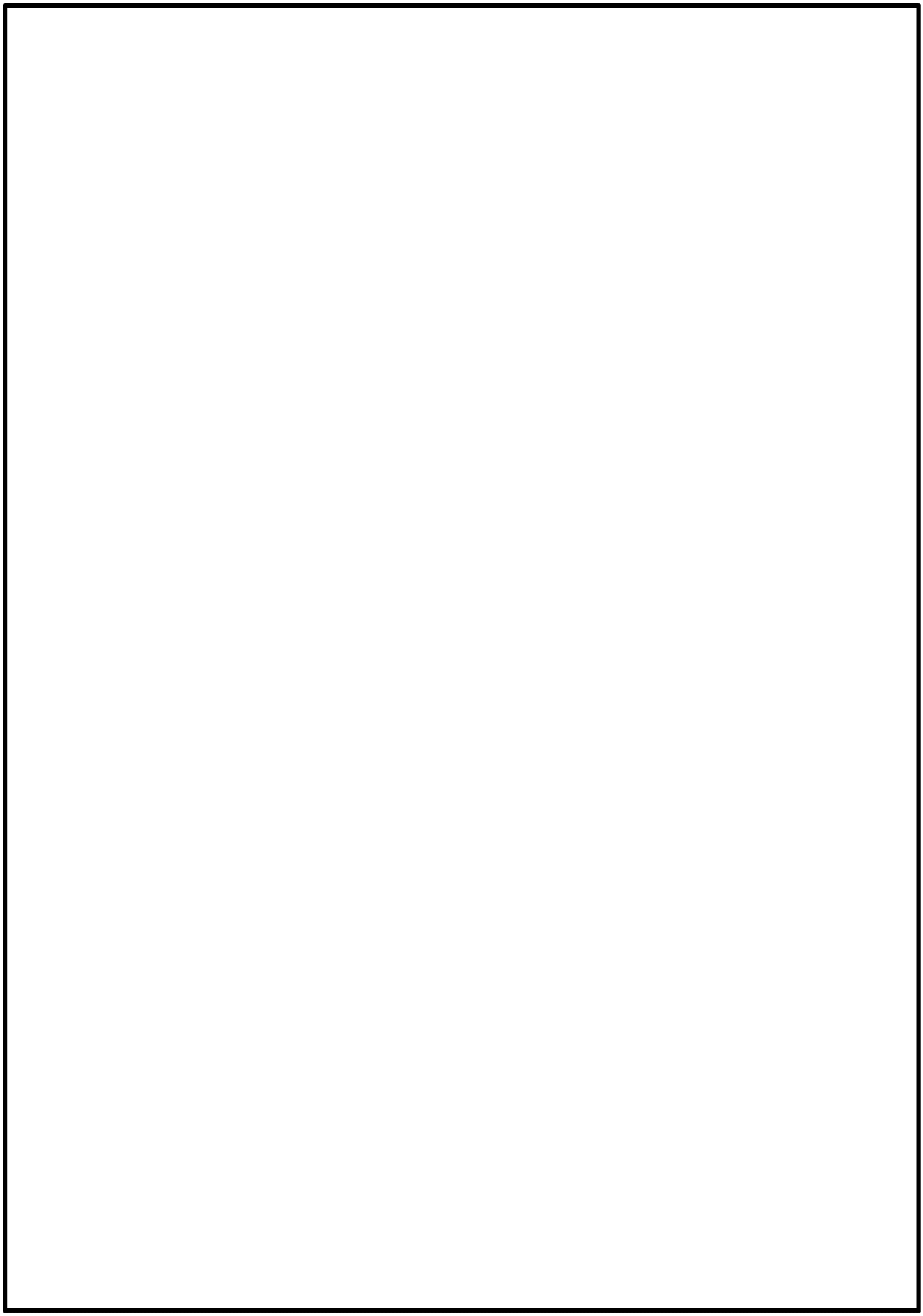

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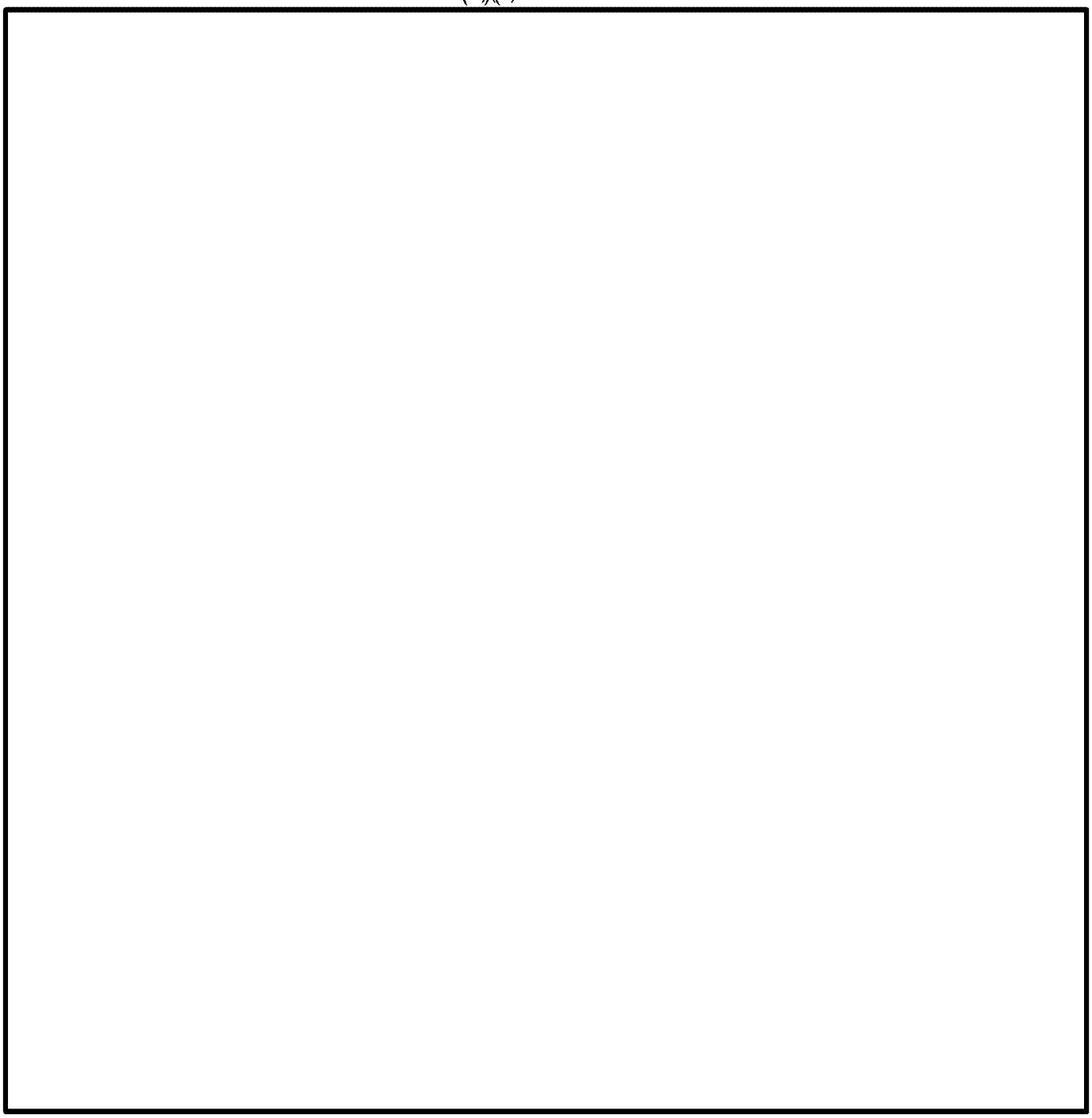

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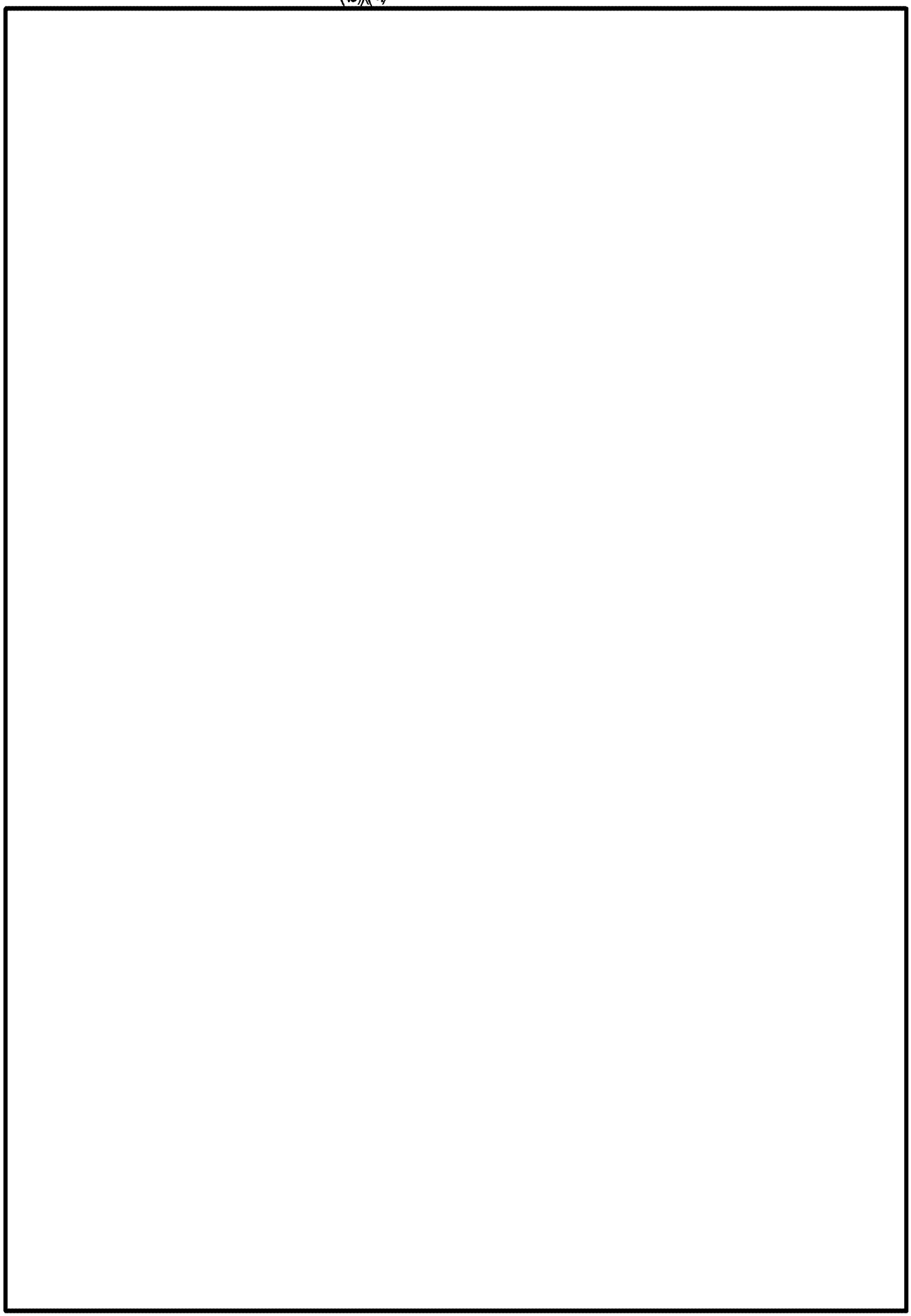
TAX CONSIDERATIONS



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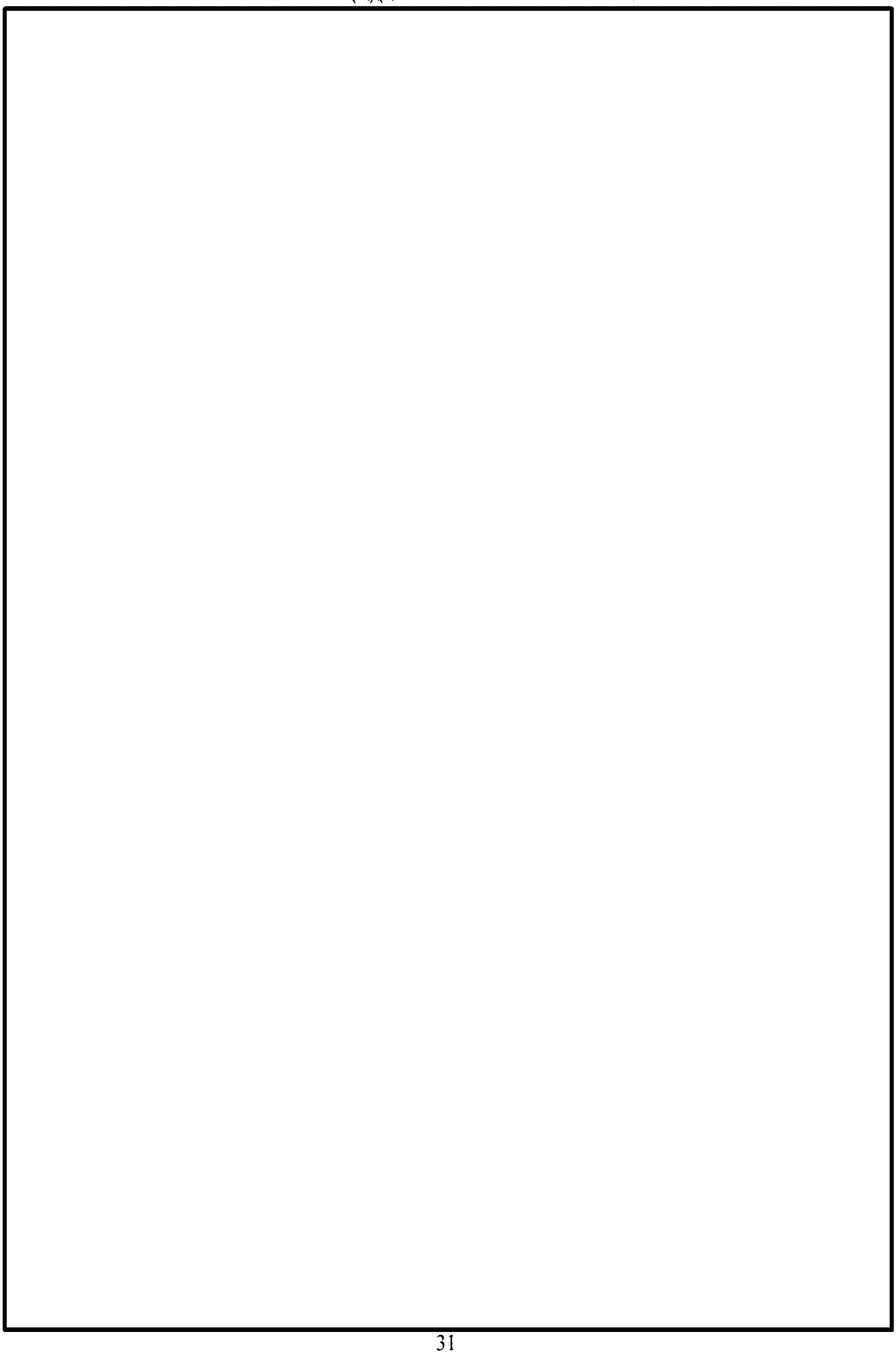

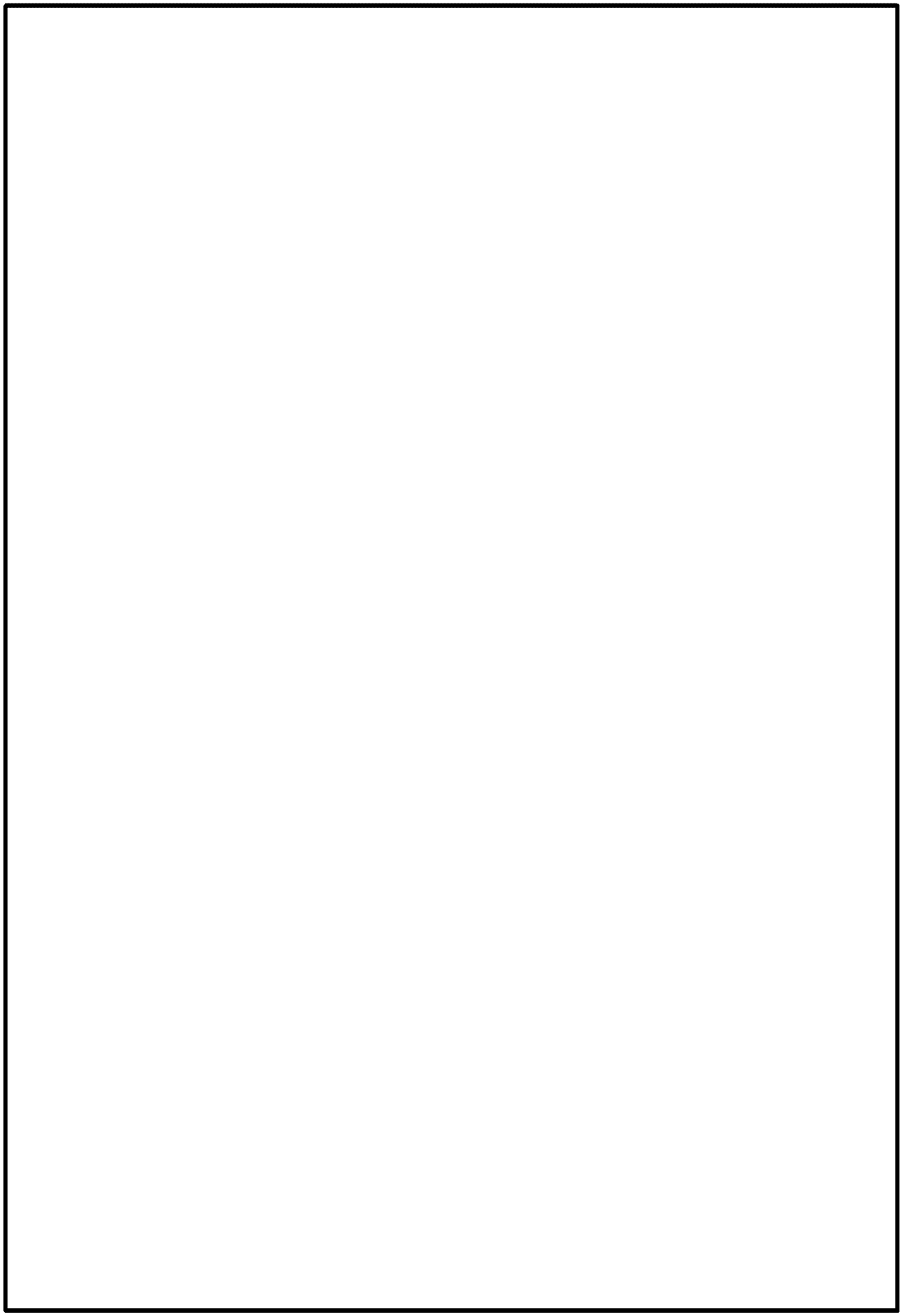

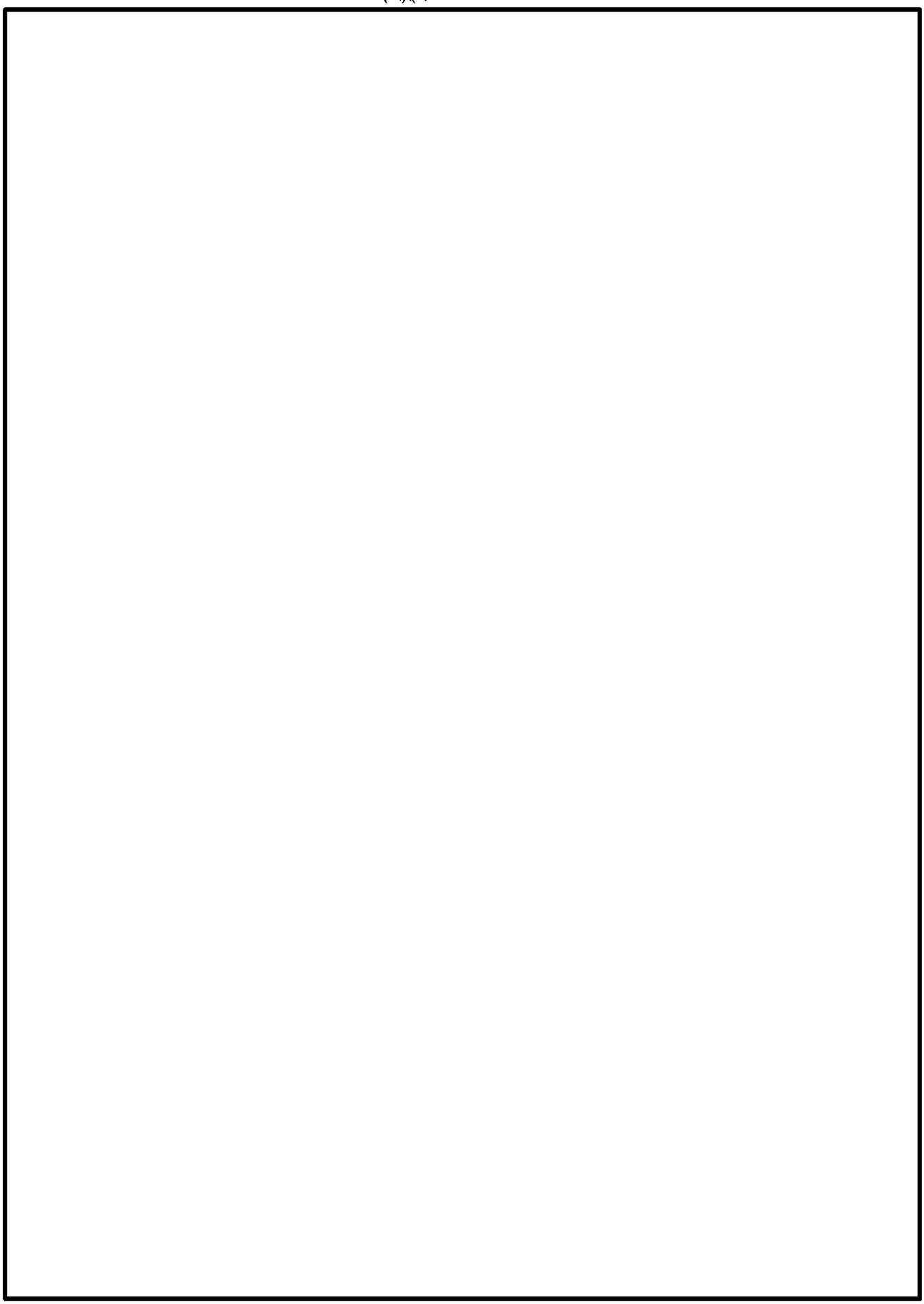

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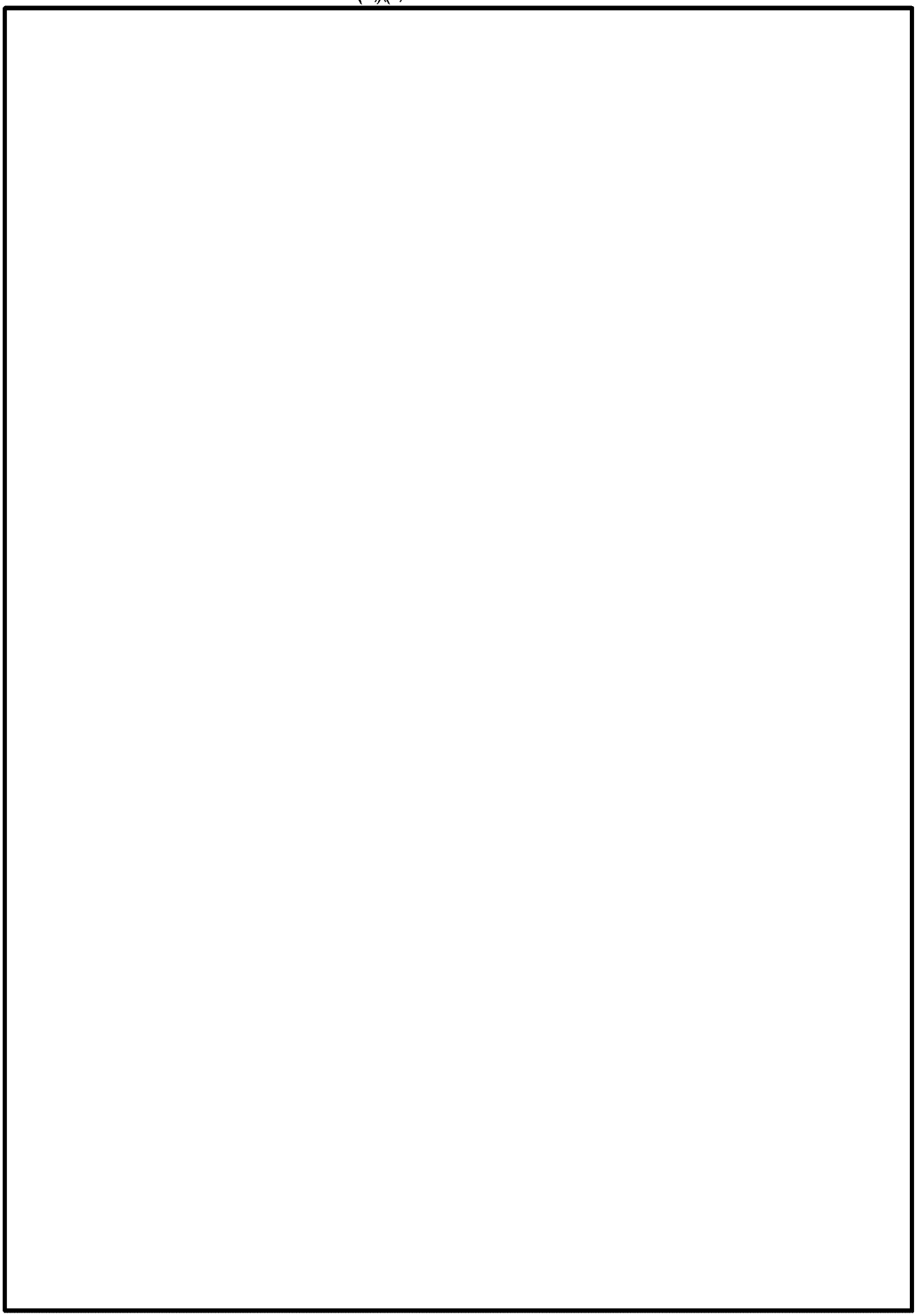

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EB-5 IMMIGRATION DISCLOSURES AND RISK FACTORS

While the Company intends that this Offering and the provisions of the Company Agreement will enable the Members to satisfy the EB-5 requirements related to investment and job creation under USCIS law and regulations, there are no assurances that a Member's I-526 petition will be granted by USCIS or that a Member will be able to obtain an immigrant visa or unconditional lawful permanent resident status.

TEA Designation

USCIS regulations and interpretations hold that the targeted employment area (the "TEA") is not decided until the time that an investor's I-526 Petition is filed with USCIS. The unemployment statistics used to determine the TEA could change based on new data with respect to unemployment rates and, at the time of the investor's filing of his or her I-526 Petition, the area may no longer qualify as a TEA (*i.e.* an area that has experienced unemployment at a rate that is at least 150% of the national average). The New York State Department of Labor has designated the area where the Project is located as a TEA as of August 20, 2015. See TEA Designation Letter in Exhibit B.

TEA Deference

USCIS may not give deference in the future to state designation letters with respect to geographical areas or census tracts that were aggregated to form a TEA. As such, the Company cannot assure you that USCIS will continue to accept the designation of the area encompassing the Project as located as within a TEA.

Bridge Financing

The Project Company, may use some, if not all, of the Loan Amount to repay debt obtained from the Senior Lender and/or debt and equity obtained or contributed by the Sponsor to bridge construction and development expenses in anticipation of the proceeds of Loan, which is currently permitted by USCIS' May 30, 2013 Policy Memorandum. USCIS may change its position on the use of bridge financing and determine that the use of these proceeds to repay a portion of such bridge financing does not satisfy the job creation requirements of the EB-5 Program and/or USCIS may determine that there is no nexus between the proceeds and the creation of jobs, resulting in no credit given to investors for job creation necessary to support approval of the I-526 Petition(s) or the I-829 Petition(s) of all or a portion of the investors in the EB-5 Program.

Highly Regulated Program

The EB-5 Program was created in 1990 by the U.S. Congress, which has accorded broad regulatory powers to the Department of Homeland Security and, in particular, to USCIS in administering the EB-5 Program. While the Company will strive to coordinate with USCIS to achieve the investors' immigration goals, there can be no assurance that USCIS examiners will take a consistent position as to many of the issues arising under the EB-5 Program, and there can be no assurance that USCIS regulations, precedent case law and policies will remain the same in the future. Since the laws, regulations and USCIS interpretations of the EB-5 Program are subject to change at any time, there can be no assurance that the Loan to the Project will meet USCIS criteria.

Visa Unavailability; Retrogression.

The current law applies a country quota if the 10,000 visa cap is reached on an annual fiscal basis. The U.S. State Department's Visa Office in its July 2015 Visa Bulletin established a cut-off date for Chinese nationals of September 1, 2013. This means effective July 1, 2015, visa numbers will be unavailable for Chinese nationals having a priority date (I-526 Petition filing date) of September 1, 2013 or later. These investors will be required to wait until their priority date becomes "current" or is reached under the Visa Bulletin after I-526 petition approval to proceed to immigrant visa processing or adjustment of status. Members who are also Chinese nationals will be affected by visa unavailability as the July 2015 Visa Bulletin currently predicts that the EB-5 category will be subject to cut-off dates or visa unavailability "indefinitely." This may have a serious and adverse effect on EB-5 Program marketing in China, thereby potentially preventing the Company from raising the maximum amount of capital needed to complete the Project and from creating the necessary number of jobs estimated by the economic study. Visa unavailability could also result in Chinese nationals having to wait an extended period of time before they can complete the Visa Process and gain lawful permanent resident status. Visa unavailability may also limit the visa availability for the child of a Member if the child is under the age of 21 years at the time of the Member's filing of the I-526 Petition but over the age of 21 when a visa becomes available. Additionally, because a Member's investment in the Company must be "sustained" during the two years of their

conditional residence, the time before which a Member can have his or her investment capital returned may be extended by the length of the visa unavailability subject to USCIS's adjudication standards to emerge during visa unavailability. This may require Member capital investment to be maintained in the Company or the Project for an extended period of time until the approval by USCIS to remove the Member's conditions on his or her permanent residence, thereby delaying the Member's "exit strategy". In addition, to the extent the repayment of the Loan predates the expiration of the conditional residence period, as extended by the length of the visa unavailability period, the Member may not be able to demonstrate that his or her investment in the Company was "sustained" during the entirety of the conditional residence period, subject to USCIS's adjudication standards to emerge during visa unavailability. USCIS has not issued any guidance regarding the impact of visa unavailability or retrogression on I-829 Petition adjudication. While legislation has previously been proposed to eliminate the per country quota to expand the number of visas available to Chinese nationals, there are no assurances that such legislation may ultimately become law.

Delay in Obtaining Conditional Lawful Permanent Resident Status

USCIS processing times are fluid; the processing times found on USCIS website are not always accurate. USCIS may issue a Request for Evidence ("RFE") or a Notice of Intent to Deny ("NOID") during the adjudication of the investor's I-526 Petition. The RFE or NOID can result in extensive delays in the adjudication of an individual's I-526 Petition. Likewise, USCIS may delay adjudications associated with a securities offering, such as this Offering, to consider policy issues related to the offering which may result in extensive delays in adjudication. USCIS delays could also result in long lapses of time between admitting investors into the Company as members which, in turn, could delay job creation, impacting an investor's ability to have his or her I-829 Petition approved.

USCIS Action to Terminate the Regional Center's Designation

USCIS may *sua sponte* terminate the Regional Center's designation as a regional center under the EB-5 Program at any time and for any reason, including concerns regarding job creating activities, economic development activities for which it was designated, or concerns over the immigration, securities or corporate formation documents submitted to USCIS at the time of the Regional Center's initial application to be designated as a regional center or at the time of any subsequent amendment filings.

General Immigration Risks

The process of obtaining conditional resident status and permanent resident status involves many factors and circumstances that are not within the Company's control. These include, among others, the investor's past history, history of alcohol and drug use, criminal history, past membership or association with certain political, social or religious groups, immigration visa backlogs, potential changes in immigration laws and regulations (including laws and regulations specific to the EB-5 Program), and quotas established by the U.S. government limiting the number of immigrant visas available to qualified individuals seeking permanent resident status under the EB-5 Program. Although the Company has been structured with the objective of providing the Members with eligibility for conditional and permanent resident status under the EB-5 Program, no assurance can be given that a Member will obtain approval of his or her particular immigrant application. Purchase of Interests does not guarantee temporary, conditional or permanent residence status in the U.S. Furthermore, no assurances or advice can be given that conditional resident status, if granted, will be converted to permanent resident status.

Job Creation and Retention Requirements

Under the EB-5 Program, the Company, by virtue of its Loan to the Borrower, must create 10 direct, indirect or induced full-time U.S. jobs per immigrant investor during a specified two year period in order for each such immigrant investor to have the conditions removed from that investor's conditional permanent resident status. For example, if the Company raises the anticipated offering amount of $12 million from 24 Investors seeking immigration benefits, the Company will be required to create at least 240 direct, indirect and/or induced jobs. The Company will rely on the Project, which may or may not hire or create the required number of jobs even if all of the Interests are sold. Additionally, job creation from the Project is estimated using the Regional Input/Output Model ("RIMS II"). Job creation based on RIMS II is evaluated based on economic activity of the Project such as construction expenditures and operating revenues. If the Project generates less initial economic activity than estimated for use in the RIMS II model, USCIS may conclude that the Project creates fewer jobs than initially anticipated. If an investor receives conditional lawful permanent resident status, but later does not receive lawful permanent resident status, the Company has no obligation to refund any of the investor's Capital Contribution to the Company or otherwise redeem the investor's Interests.

Allocation of Jobs

Jobs will be allocated to the Members for EB-5 purposes on a first-in, first-out basis tied to the date of the commencement of each Member's period of conditional residence in the U.S. (either the date of admission from outside the U.S. using the immigrant visa, or else the date of approval of adjustment of status for Member's located within the U.S.). This allocation process will continue until all jobs have been allocated to the Members and there is no guaranty that one or more Members will receive legal permanent residency in the United States as a result of his or her investment in the Company.

Background Check

According to USCIS policy, no application for lawful permanent residence will be approved until a definitive FBI fingerprint check and Interagency Border Inspection Services (IBIS) check are completed and resolved favorably. An EB-5 immigrant investor's background (or that of an immediate family member) may not meet USCIS or Department of State criteria for conditional or permanent residency in the U.S. For example, among other criteria, the following may be grounds for denial of immigration benefits for the immigrant, and/or other members of the immigrant's family: having a communicable disease or other dangerous contagious disease; having been at any time involved with, trafficking in, or taking, illegal drugs; having been convicted of certain crimes; having committed fraud or misrepresentation to a U.S. Government official; or having violated U.S. immigration laws in the past. If an investor receives I-526 Petition approval but later does not receive conditional or unconditional lawful permanent resident status, the Company has no obligation to refund any of the investor's Capital Contribution or Administrative Fee or otherwise redeem the investor's Interests. Other security checks could be required by USCIS, Department of State or other governmental agencies which could delay adjudication of the I-526 Petition or the subsequent application for conditional lawful permanent resident status.

Source of Funds

Immigrant investors must demonstrate to USCIS that the funds they intend to invest (or have invested) in the Company were obtained through lawful means. Further, each immigrant investor must document, to the satisfaction of USCIS, the source of these funds (e.g., whether the funds were income from a salary, sale of real estate, sale of stock, gifted, a loan, divorce settlement, etc.). The investor also must, to the best of his or her ability, trace the funds from the time they were obtained through the time they were invested in the Company. USCIS will retain ultimate authority in deciding whether the investor has met his or her burden of proof with respect to such tracing of funds and demonstrating the lawful source of such funds. Prior to subscribing for Interests, the investor must be prepared to present all documents relevant to lawful source of funds and tracing of these funds to the Manager. If the investor is unable or unwilling to provide timely to the Manager and/or USCIS evidence, satisfactory to the Manager, regarding the source and lawful nature of that Member's Capital Contribution, then, according to the terms of the Company Agreement, the Manager may expel the investor as a Member of the Company.

U.S. Immigration Residency Requirements

Immigrant investors who obtain conditional or lawful permanent resident status under the EB-5 Program must intend to make the U.S. their primary residence. Lawful permanent residents who maintain their primary residence outside the U.S. risk revocation of their U.S. residence status. Each prospective immigrant investor should consult a competent immigration attorney to review the likelihood that the investor's immigration objectives will be achieved. The Company must satisfy the job creation and retention requirements of the EB-5 Program at the time when the investors file for the removal of the condition of their permanent residency. If an investor fails to obtain or later loses his or her lawful permanent resident status because of a failure to comply with the residency requirements of the EB-5 Program, the Company has no obligation to refund any portion of that investor's investment in the Interests or otherwise redeem the investor's Interests regardless of whether the investor requests a refund of his or her investment.

Material Change in Business Plan

The Company's or the Project Company's business operations may not proceed according to the business plan submitted with the investor's original I-526 Petition because of economic conditions, weather conditions, labor conditions, competitive conditions or other factors. A material change from the Project Company's original business plan after I-526 submission and prior to obtaining conditional permanent residence could result in denial or even revocation of the initial I-526 petition and the need to file a new I-526 Petition, resulting in a delay in the immigration process as well as the possibility of qualifying children reaching the age of 21 to become disqualified from obtaining immigration benefits along with the principal petitioner. A material change from the Project Company's original business plan between the time of I-526 Petition approval and I-829 Petition approval may lead to the denial of an investor's I-829 Petition. USCIS' May 30, 2013 Policy Memorandum states that USCIS will review I-829 Petitions for compliance with the regulations even if there is

a material change in the busines[illegible]. However, it is not known whether USCIS w[illegible]llow this new policy or how it will apply this policy, and USCIS ha[illegible]t defined a "material change." If the I-829 Pet[illegible]is denied on this basis, USCIS can place the investor into removal proceedings where the investor's conditional lawful permanent resident status may be terminated, making the investor deportable.

Incorrect Job Creation Analysis

The estimated number of jobs to be created by the Project is based on the findings of an economic impact analysis (the "Analysis") prepared by Evans, Carroll & Associates, Inc. The estimates are based on assumptions and projections that may be rejected by USCIS as incorrect or insufficient. If the projected number of jobs to be created is incorrect, the fulfillment of the conditions of the EB-5 Program could be placed in jeopardy. Further, this could result in the denial of the removal of conditions on your residency in the U.S. (*i.e.*, I-829 petition denial). The Company will provide a copy of the Analysis to all investors on request, and in connection with the filing of their I-526 petitions with USCIS.

Visa Eligibility

Even after approval of the I-526 Petition, there is no guarantee that the Member, his or her spouse or any of their minor, unmarried children will be granted lawful permanent residence. The grant of such immigration status is dependent, among other things, upon the personal and financial history of each applicant. Any one of several government agencies may determine in its discretion, sometimes without the possibility of appeal, that an applicant for lawful permanent residence is excludable from the United States. In limited instances, a waiver of a ground of exclusion may be available under the law, but adjudications of waiver applications are themselves made in the unreviewable discretion of the United States.

Statutory Presumption of Inadmissibility

Persons applying for lawful permanent residence must overcome the statutory presumption of inadmissibility. Applicants must demonstrate, affirmatively, that they are admissible to the United States. There are many grounds of inadmissibility that the government may cite as a basis to deny admission for lawful permanent residence. Various statutes, including for example Sections 212, 237 & 241 of the Immigration Act, the Antiterrorism & Effective Death Penalty Act of 1996 and the Illegal Immigration Reform & Immigrant Responsibility Act of 1996 set forth grounds of inadmissibility, which may prevent an otherwise eligible applicant from receiving an immigrant visa, entering the United States or adjusting to lawful permanent residence.

Examples of aliens precluded from entering the United States include:

(a) persons who are determined to have a communicable disease of public health significance;

(b) persons who are found to have, or have had, a physical or mental disorder and behavior associated with the disorder which poses or may pose, a threat to the property, safety, or welfare of the alien or of others, or have had a physical or mental disorder and a history of behavior associated with the disorder, which behavior has posed a threat to the property, safety, or welfare of the immigrant alien or others, and which behavior is likely to recur or to lead to other harmful behavior;

(c) persons who have been convicted of a crime involving moral turpitude (other than a purely political offense), or persons who admit having committed the essential elements of such a crime;

(d) persons who have been convicted of any law or regulation relating to a controlled substance, admitted to having committed or admits committing acts which constitute the essential elements of same;

(e) persons who are convicted of multiple crimes (other than purely political offenses) regardless of whether the conviction was in a single trial or whether the offenses arose from a single scheme of misconduct and regardless of whether such offenses involved moral turpitude;

(f) persons who are known, or for whom there is reason to believe, are, or have been, traffickers in controlled substances;

(g) persons engaged in prostitution or commercialized vice;

(h) persons who have committed in the United States certain serious criminal offenses, regardless of whether such offense was not prosecuted as a result of diplomatic immunity;

(i) persons excludable on grounds related to national security, related grounds, or terrorist activities;

(j) persons determined to be excludable by the secretary of state of the United States on grounds related to foreign policy;

(k) persons who are or have been a member of a totalitarian party, or persons who have participated in Nazi persecutions or genocide;

(l) persons who are likely to become a public charge at any time after entry;

(m) persons who were previously deported or excluded and deported from the United States;

(n) persons who by fraud or willfully misrepresenting a material fact, seek to procure (or have procured) a visa, other documentation or entry into the United States or other benefit under the Act;

(o) persons who have at any time assisted or aided any other alien to enter or try to enter the United States in violation of law;

(p) certain aliens who have departed the United States to avoid or evade U.S. Military service or training;

(q) persons who are practicing polygamists; and

(r) persons who were unlawfully present in the United States for continuous or cumulative periods in excess of 180 days.

Conditional Residency

Lawful permanent residence status granted initially to the Member, his or her spouse and their qualifying children is "conditional." The Member, his or her spouse and their qualifying children must seek removal of conditions before the second anniversary of lawful permanent admission to the United States. There is no assurance that USCIS will grant the removal of conditions as to the Member, his or her spouse and their qualifying children. If the Member fails to have conditions removed, the Member, his or her spouse and their qualifying children will be required to leave the United States and may be placed in removal proceedings. Even if the Member succeeds in having conditions removed, the Member, his or her spouse and each of their qualifying children, separately, must have conditions removed. Failure to have conditions removed as to any of these members of the Member's family may require some members to depart from the United States and such family members may be placed in removal proceedings. Examples of possible reasons for denial of the Member's petition to remove conditions from permanent residence include:

- failure to sustain the investment for the required two years, such as through return of the Member's capital before the time for removal of conditions on the Member's residence, even if 10 jobs were created;
- failure to maintain investment according to USCIS due to a repayment of the Loan to the Company even though such a repayment may not result in any return of the Member's capital;
- failure of the Project to use all of the Member's Capital Contribution in job creating activity, according to technical requirements of USCIS (some of which are not clearly articulated and which could change over time), even if 10 jobs were created;
- failure to show that the Member's investment has created 10 new jobs for U.S. workers that can be allocated to such Member (which may result from failure to meet the Project's economic milestones that were used as assumptions in projection of the direct, indirect and induced jobs that would be created by the Member's investment); and

- even if the required 10 /ere created, the Project's material departu .n the business plan presented to USCIS in obtaining appr .al of the Member's I-526 Petition.

Removal of Conditions

USCIS regulations governing lawful permanent residence for foreign investors do not state specifically the criteria which USCIS must apply to determine eligibility for the removal of conditions to lawful permanent resident status. U.S. courts have determined some standards to be followed by USCIS in some, but not all, circumstances. The Company may make certain management decisions in the absence of these specific eligibility criteria. The Company will seek as much information as possible from USCIS in an effort to assist Members in their attempts to qualify for the removal of conditions, where good business practices permit. Notwithstanding the foregoing, Members should become educated about the standards that will determine eligibility to achieve unconditional lawful permanent residence in the United States pursuant to this program which currently is in a state of evolution.

EB-5 Regional Center Pilot Program

In 1992, the U.S. Congress enacted the EB-5 Regional Center Program to stimulate interest in the EB-5 program. As a "pilot," the Regional Center Pilot Program is not yet permanent, and consequently requires periodic renewal by Congress. The Regional Center Pilot Program has been renewed several times by Congress and is currently due to expire or "sunset" on September 30, 2015. Congress is expected to renew this program prior to its expiration, or make the program permanent by removing its "pilot" designation. However, there is a risk that Congress may not renew, or not renew before the current expiration date. If the Regional Center Pilot Program is not renewed before expiration, the effect of the gap on pending immigration petitions is unknown. In the past, USCIS indicated that it would hold pending I-526 Petitions "in abeyance" for an indeterminate period of time until USCIS renewed the Regional Center Pilot Program. USCIS may or may not follow the same procedure. With respect to Immigrant Visa issuance, in the past the U.S. State Department announced that it would issue regional center-based EB-5 immigrant visas until close of business on the sunset date. The U.S. State Department may or may not follow the same procedure. Finally, with respect to admission to the U.S., in the past U.S Customs and Border Protection announced that it would admit EB-5 immigrant visa holders after the sunset date during the full validity period of the immigrant visa. U.S. Customs and Border Protection may or may not follow the same procedure.

It connection with any renewal of the Regional Center Pilot Program, Congress may impose new requirements or modify existing requirements. For example, Congress may change the TEA definition or raise the minimum capital investment amount. It is uncertain at this time whether Congress will impose any of these or any other new or changed requirement and when such new or changed requirement will be made effective. Any such requirement imposed in connection with the renewal of the Regional Center Pilot Program could adversely affect a Member's immigration process or benefit.

Change in Legislation or Policy

There may be change in U.S. laws or policy after the date of this Memorandum. The immigration laws and the corresponding rules, regulations and USCIS interpretations related to the EB-5 Program and the corresponding applications are in a constant state of flux, and there are no assurances that new laws and/or interpretations will result that will otherwise modify the disclosures and information set forth in this Memorandum.

IMMIGRATION AND NATIONALITY ACT § 212.

Admissible to the U.S.: Foreign persons applying for a U.S. Green Card must demonstrate that they are admissible to the U.S. Section 212 of the Immigration and Nationality Act sets forth various grounds of inadmissibility, which may prevent an otherwise eligible applicant from receiving a green card or entering the U.S. Foreign individuals who are ineligible to receive a Green Card or to be admitted to the U.S. include, but are not limited to, an individual who (1) is determined to have a communicable disease of public health significance, which shall include infection with the etiologic agent for acquired immune deficiency syndrome; (2) is determined to have a physical or mental disorder and behavior associated with the disorder that may pose, or has posed, a threat to the property, safety, or welfare of the individual or others; (3) is determined to have had a physical or mental disorder and a history of behavior associated with the disorder, which behavior has posed a threat to the property, safety, or welfare of the individual or others, and which behavior is likely to recur or to lead to other harmful behavior; (4) is determined to be a drug abuser or addict; (5) has been convicted of committing, or who admits having committed, acts which constitute the essential elements of a crime involving moral turpitude (other than a purely political offense), or a violation of (or a conspiracy or attempt to violate) any law or regulation of a State, the United States, or a foreign country relating to a controlled substance; (6) has been convicted of 2 or more offenses (other than purely political offenses), regardless of whether the conviction was in a single trial or whether the offenses arose from a single scheme of misconduct and regardless of whether the offenses involved moral turpitude, for which the aggregate sentences to confinement were 5 years or more; (7) is or has been an illicit trafficker in any controlled substance or in any listed chemical (as defined in section 102 of the Controlled Substances Act (21 U.S.C. § 802), or is or has been a knowing aider, abettor, assister, conspirator, or colluder with others in the illicit trafficking in any such controlled or listed substance or chemical, or endeavored to do so; (8) is the spouse, son, or daughter of an alien inadmissible under clause (7) and has, within the previous 5 years, obtained any financial or other benefit from the illicit activity of that alien, and knew or reasonably should have known that the financial or other benefit was the product of such illicit activity; (9) is coming to the U.S. solely, principally, or incidentally to engage in prostitution, or has engaged in prostitution within 10 years of the date of application for a visa, admission, or adjustment of status; (10) directly or indirectly procures or attempts to procure, or (within 10 years of the date of application for a visa, admission, or adjustment of status) procured or attempted to procure or to import, prostitutes or persons for the purpose of prostitution, or receives or (within such 10 year period) received, in whole or in part, the proceeds of prostitution; (11) is coming to the United States to engage in any other unlawful commercialized vice, whether or not related to prostitution; (12) has committed in the U.S. a serious criminal offense, regardless of whether such offense was prosecuted as a result of diplomatic immunity; (13) is excludable from the U.S. on grounds relating to national security, related grounds, or terrorist activities; (14) is excludable from the U.S. on grounds relating to foreign policy; (15) is or has been a member of or affiliated with the Communist or any other totalitarian party or who has participated in Nazi prosecutions or genocide; (16) is likely to become a public charge at any time after entry; (17) by fraud or willfully misrepresenting a material fact, seeks to procure (or has sought to procure or has procured) a visa, other documentation, or admission into the U.S.; (18) illegally entered into the U.S.; or (19) has at any time knowingly encouraged, induced, assisted, abetted, or aided any other alien to enter or to try to enter the U.S. in violation of law.

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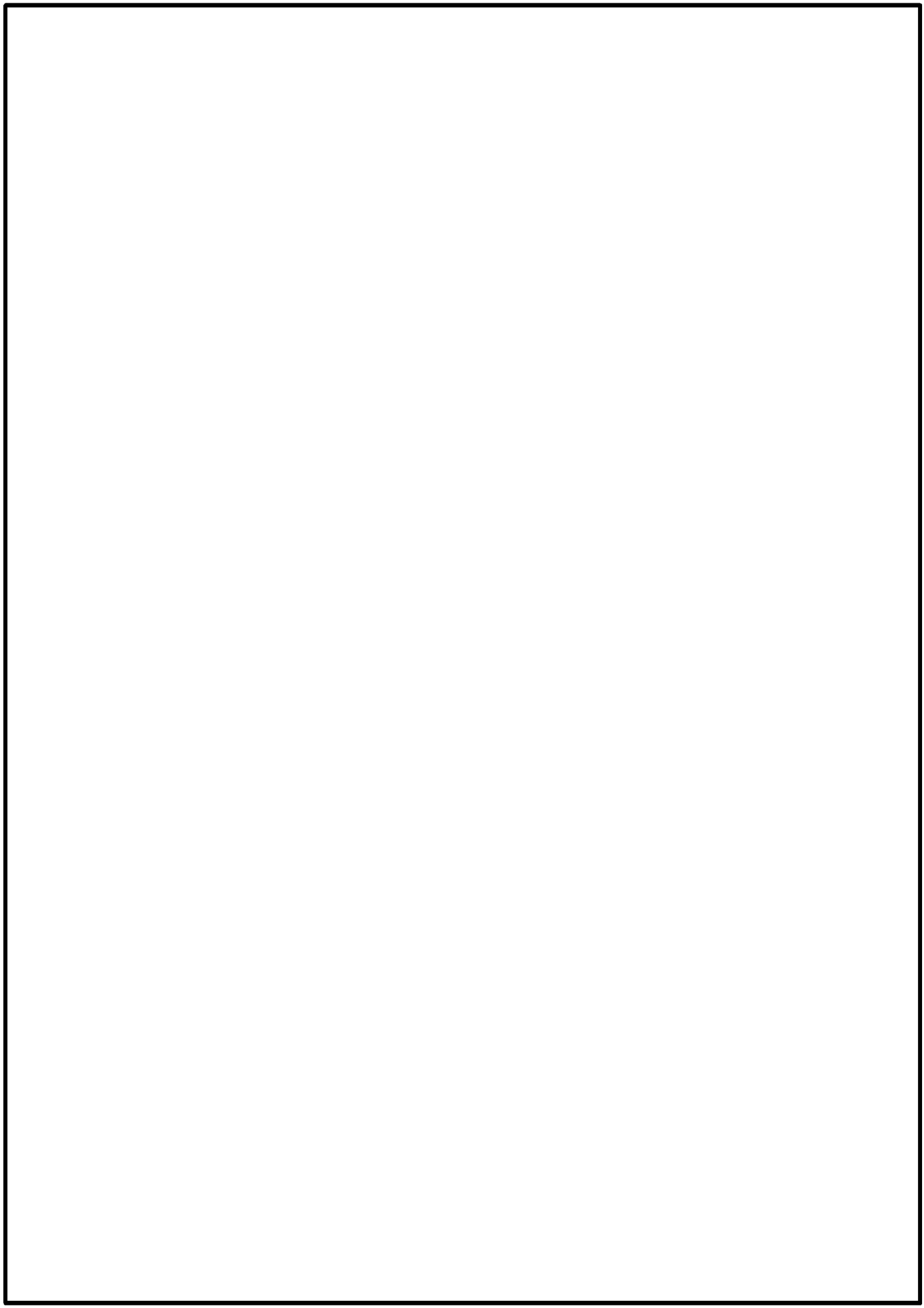

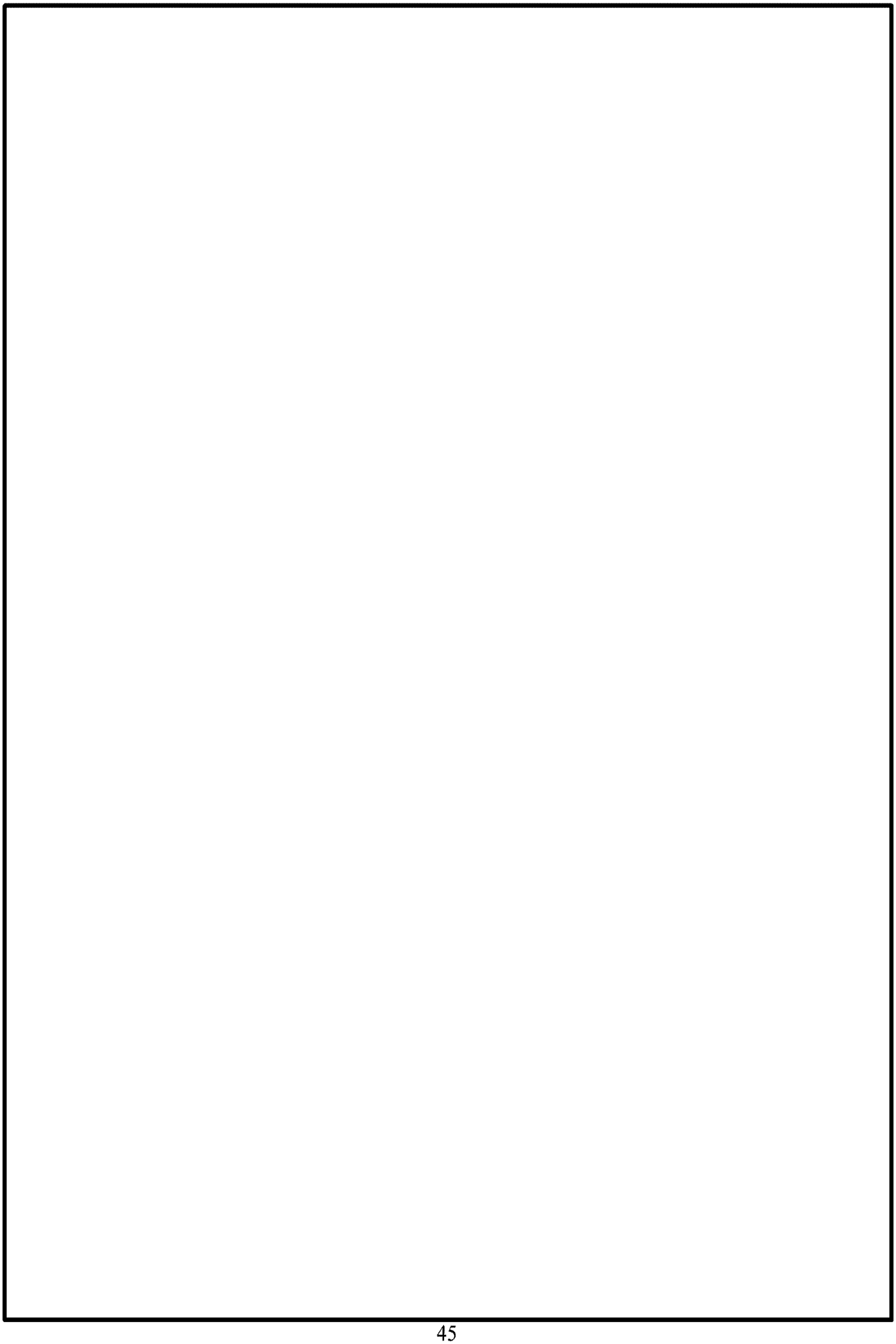

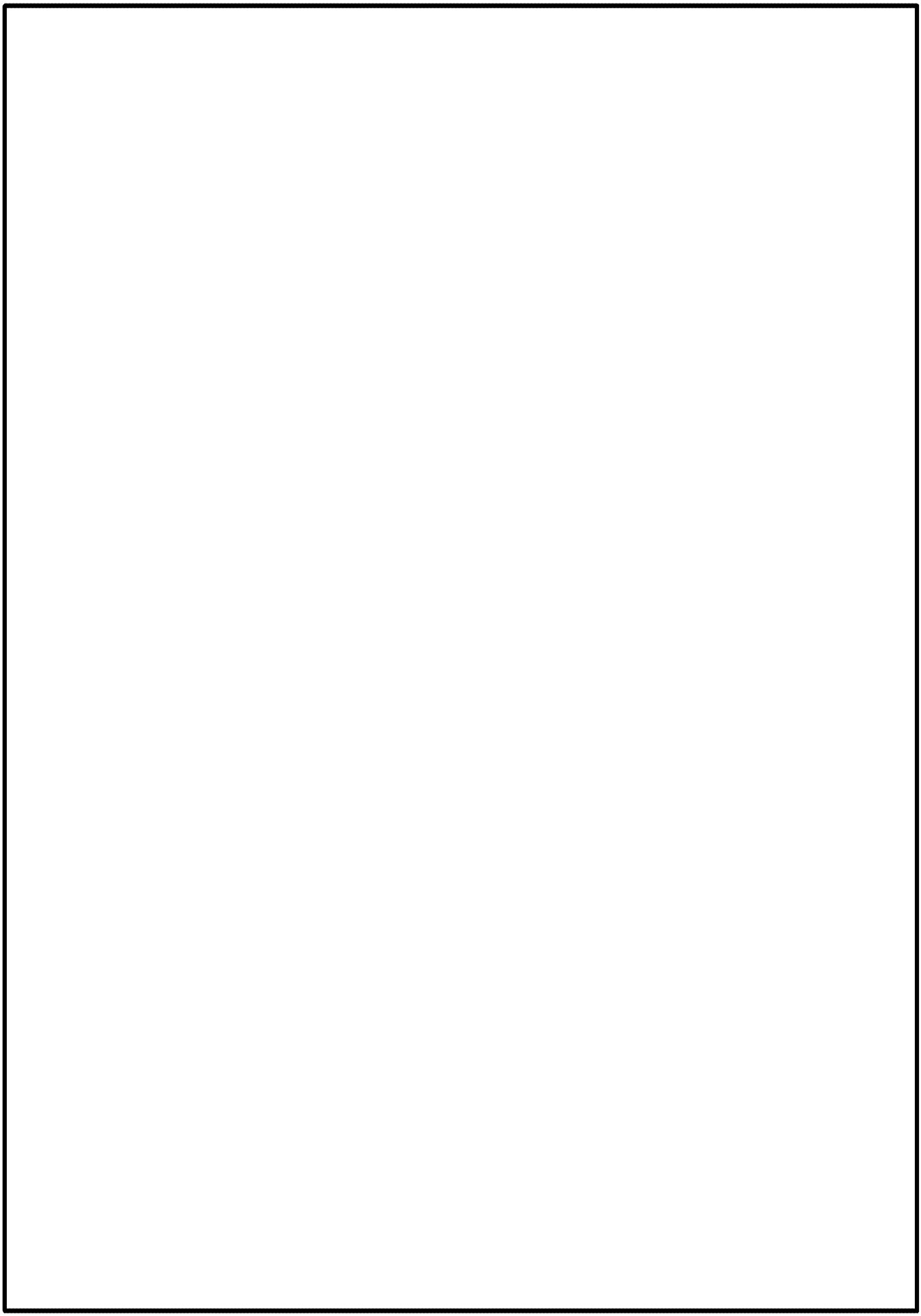

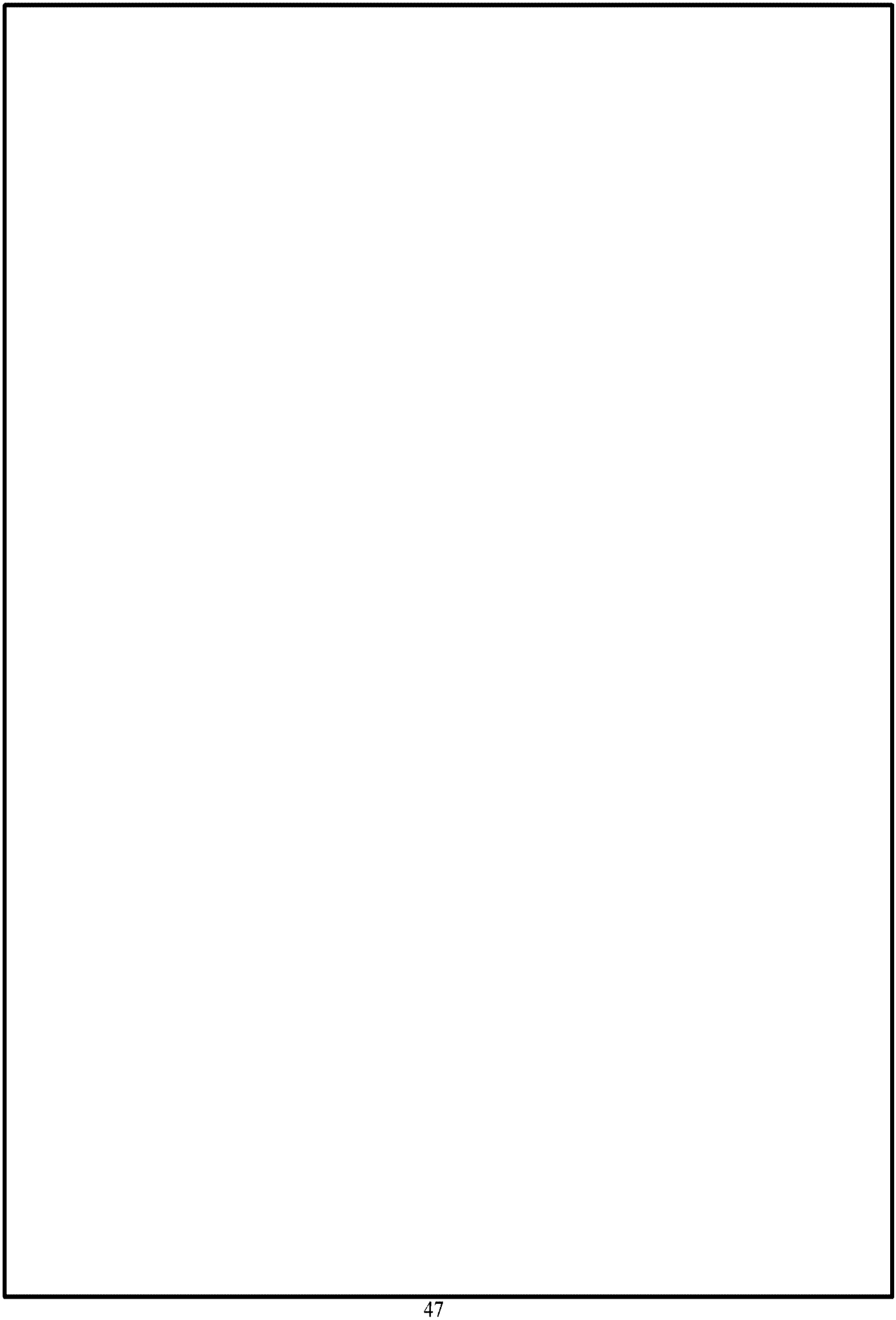

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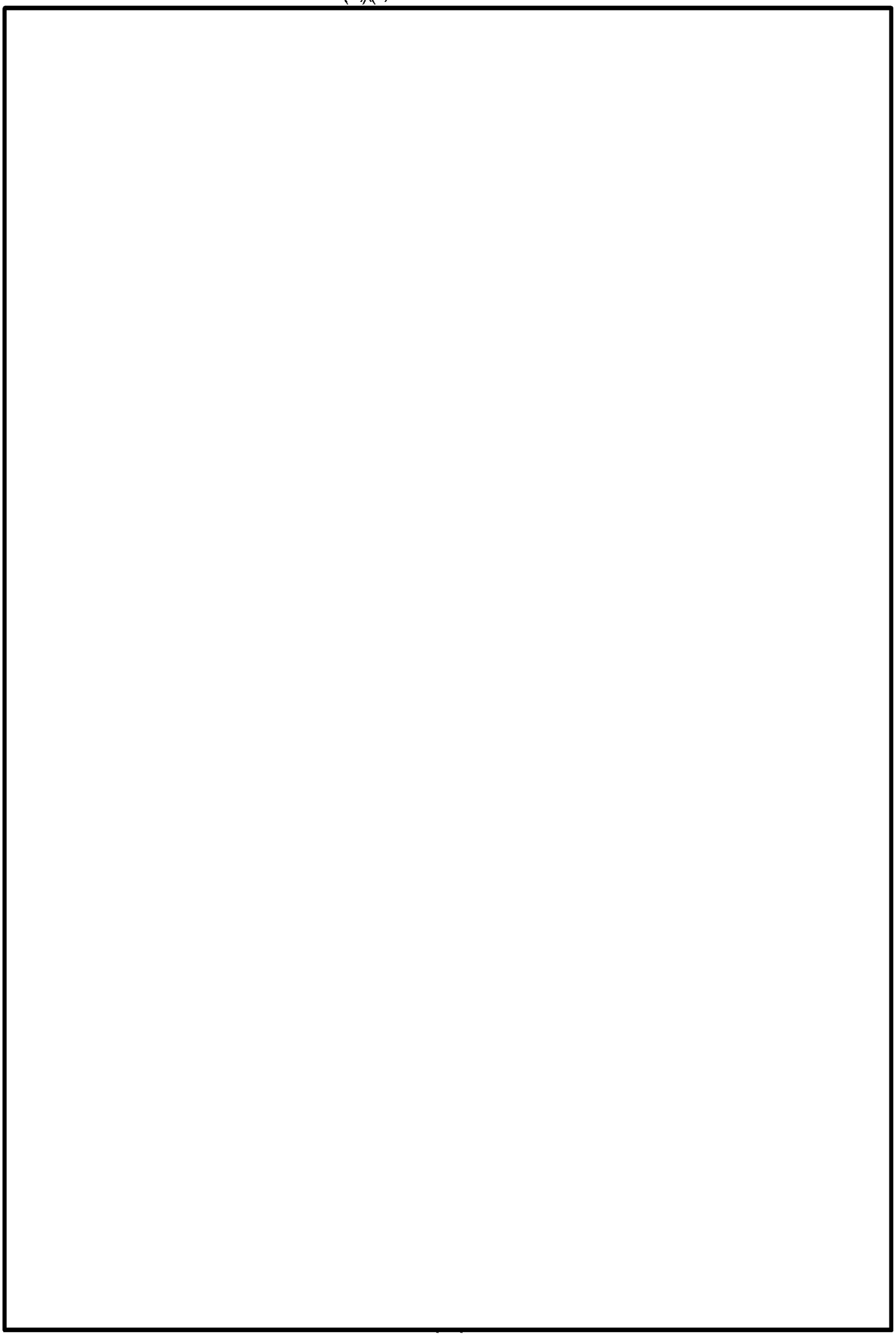

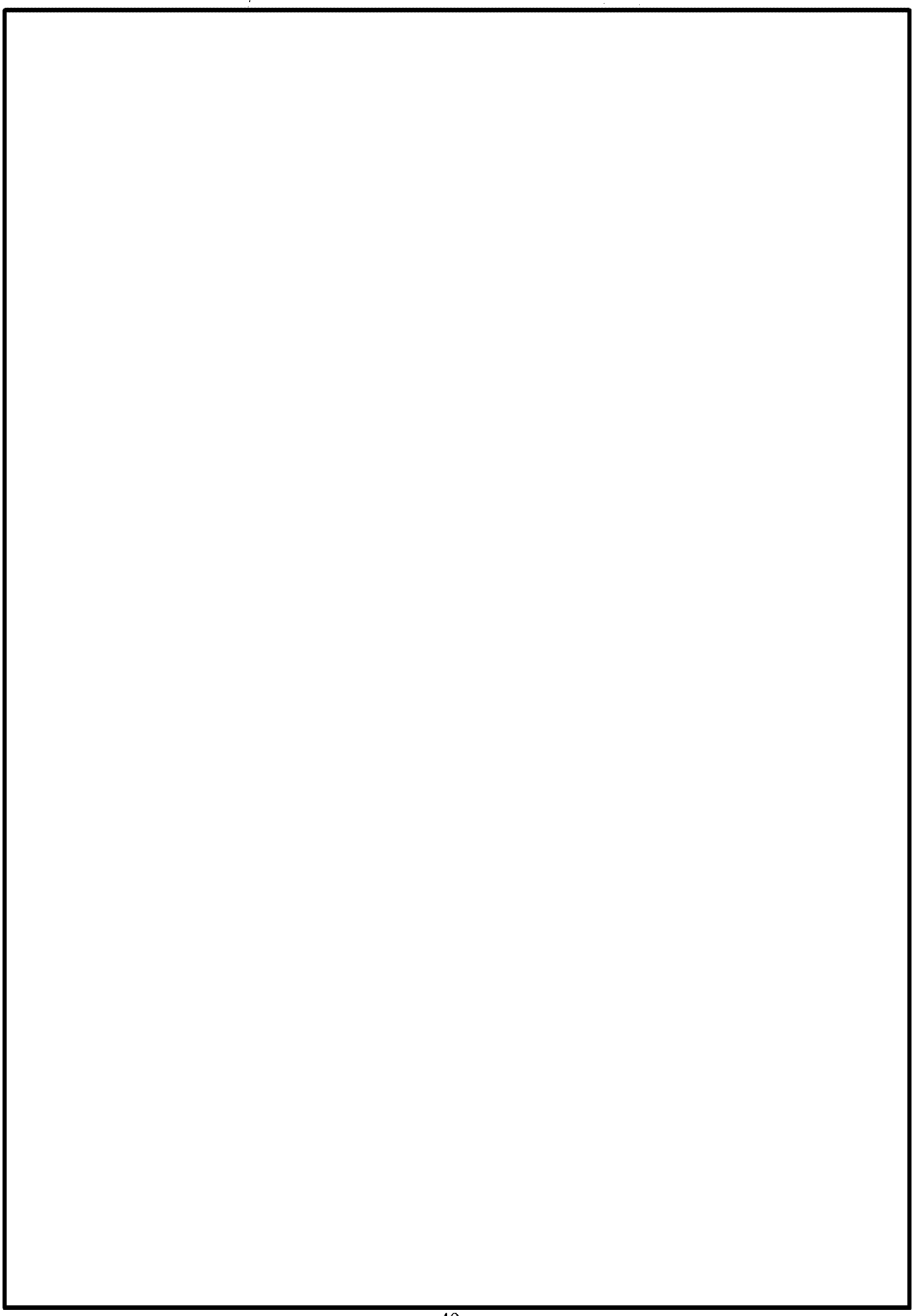

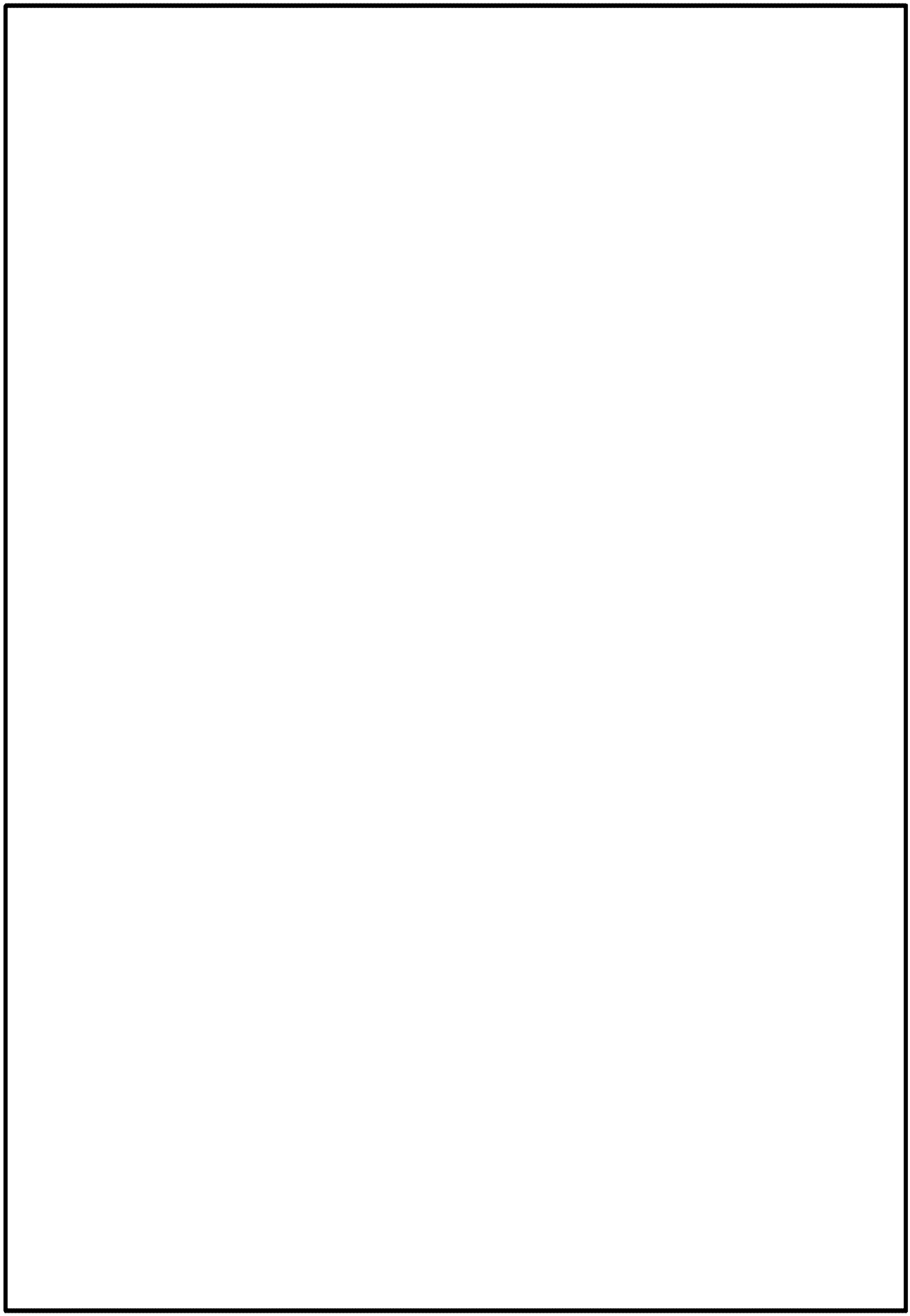

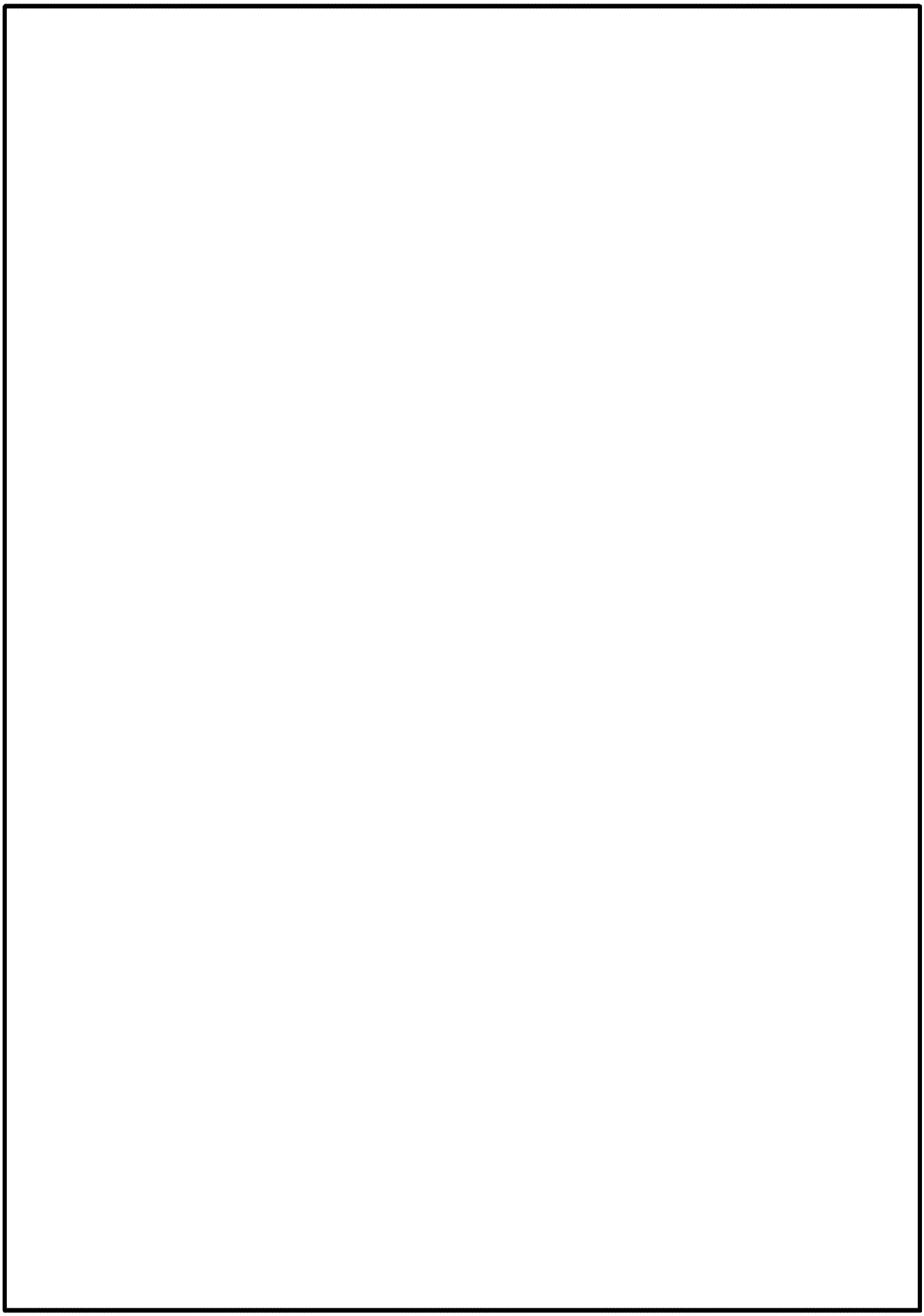

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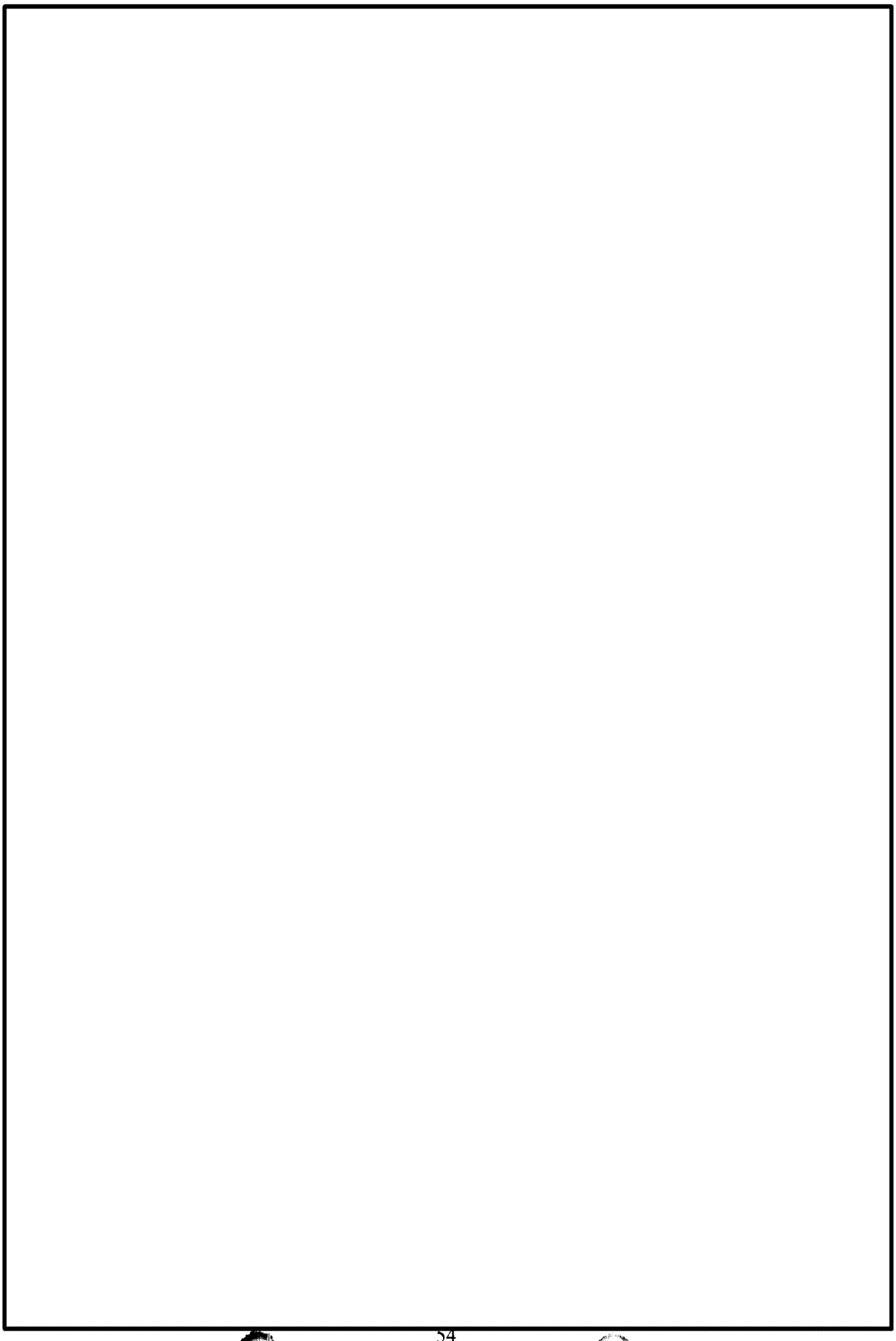

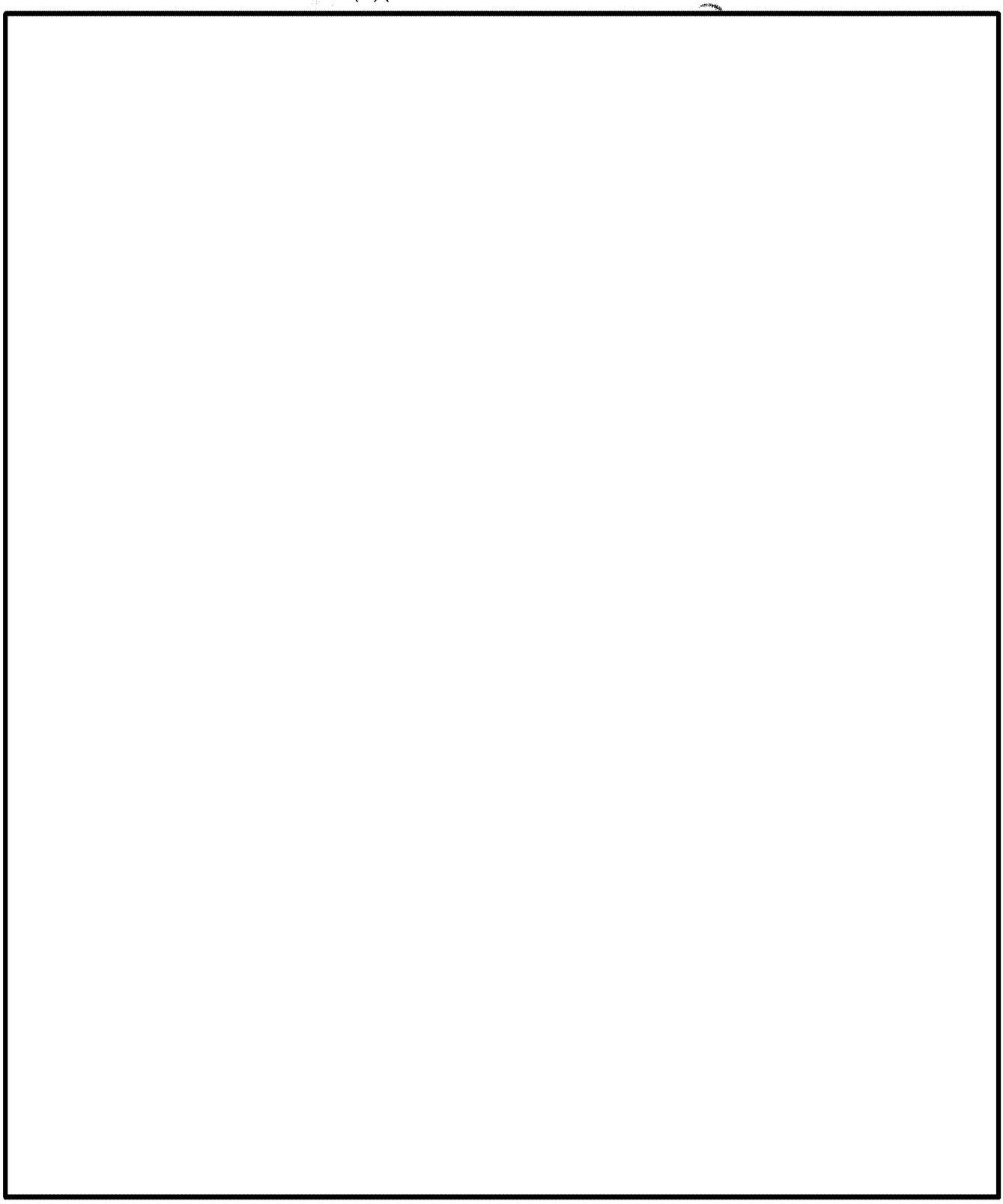

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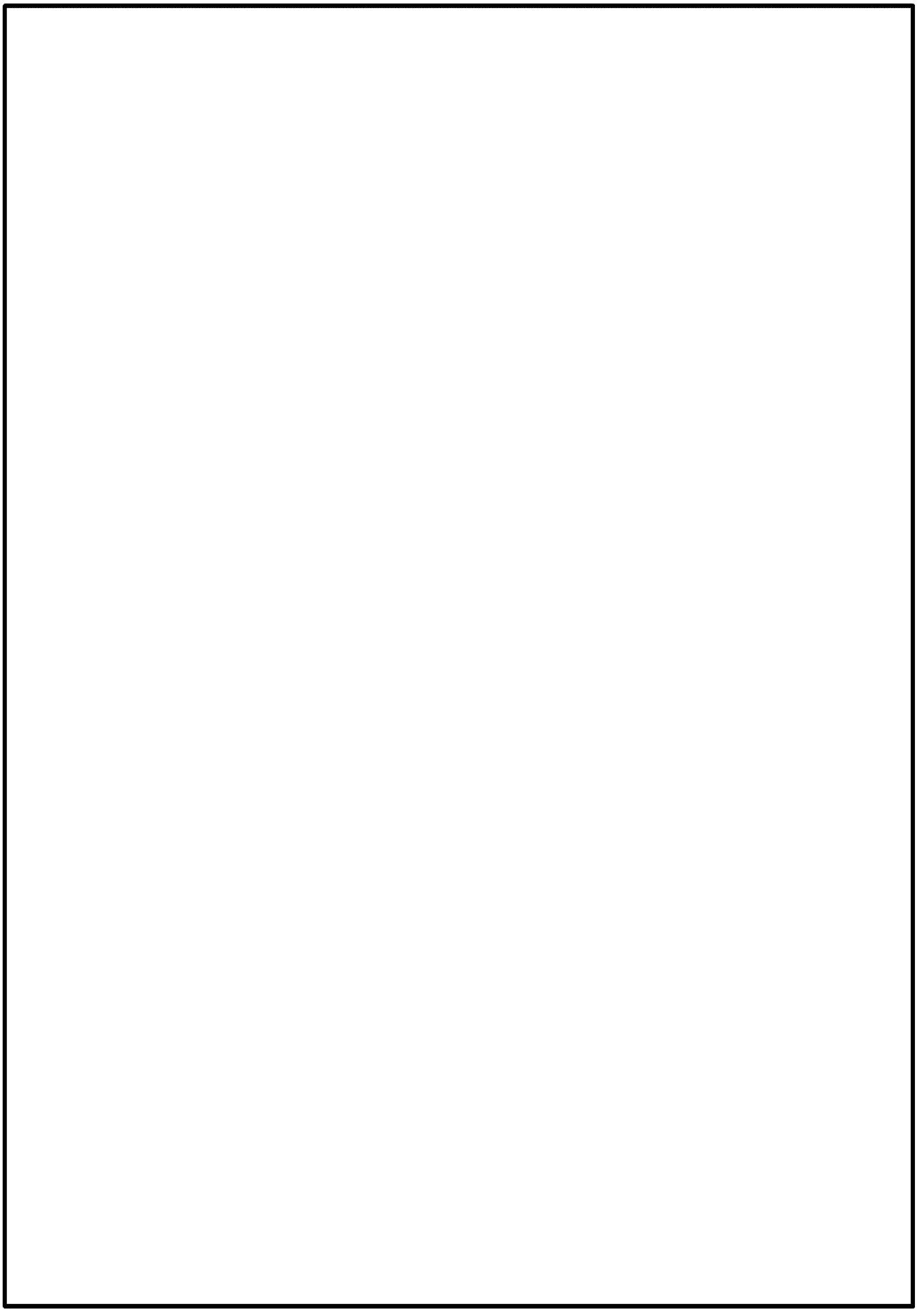

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INDEX OF EXHIBITS

EXHIBIT A
OPERATING AGREEMENT

EXHIBIT B
SUBSCRIPTION AGREEMENT

EXHIBIT C
INVESTOR ELIGIBILITY QUESTIONNAIRE

EXHIBIT D
ESCROW AGREEMENT

EXHIBIT E
COMPREHENSIVE EB-5 BUSINESS PLAN

EXHIBIT F
TARGETED EMPLOYMENT AREA DESIGNATION LETTER

All Exhibits are available for review upon request. Requests should be directed to our Manager, Attn: George Xu, Century New York Regional Center LLC, 35-06 Leavitt St, Suite CF-A, Flushing, NY 11354. Our Manager's telephone number is 718.939.1060. Copies of all exhibits will be delivered before execution of the subscription agreement.

OPERATING AGREEMENT OF

88TH AVENUE EB5 CAPITAL, LLC

A New York Limited Liability Company

Dated August 8, 2015

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OPERATING AGREEMENT OF

88TH AVENUE EB5 CAPITAL, LLC

a New York Limited Liability Company

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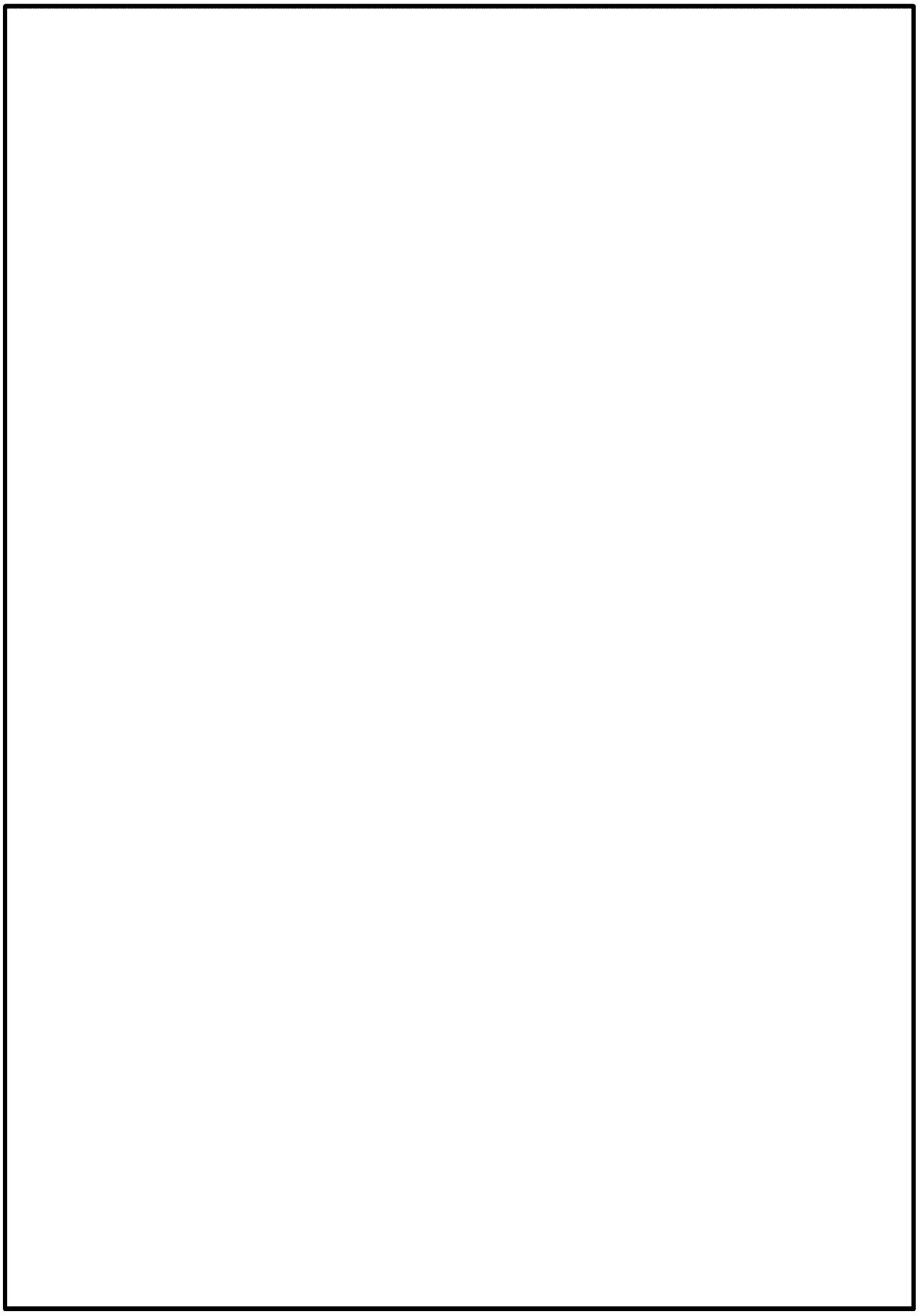

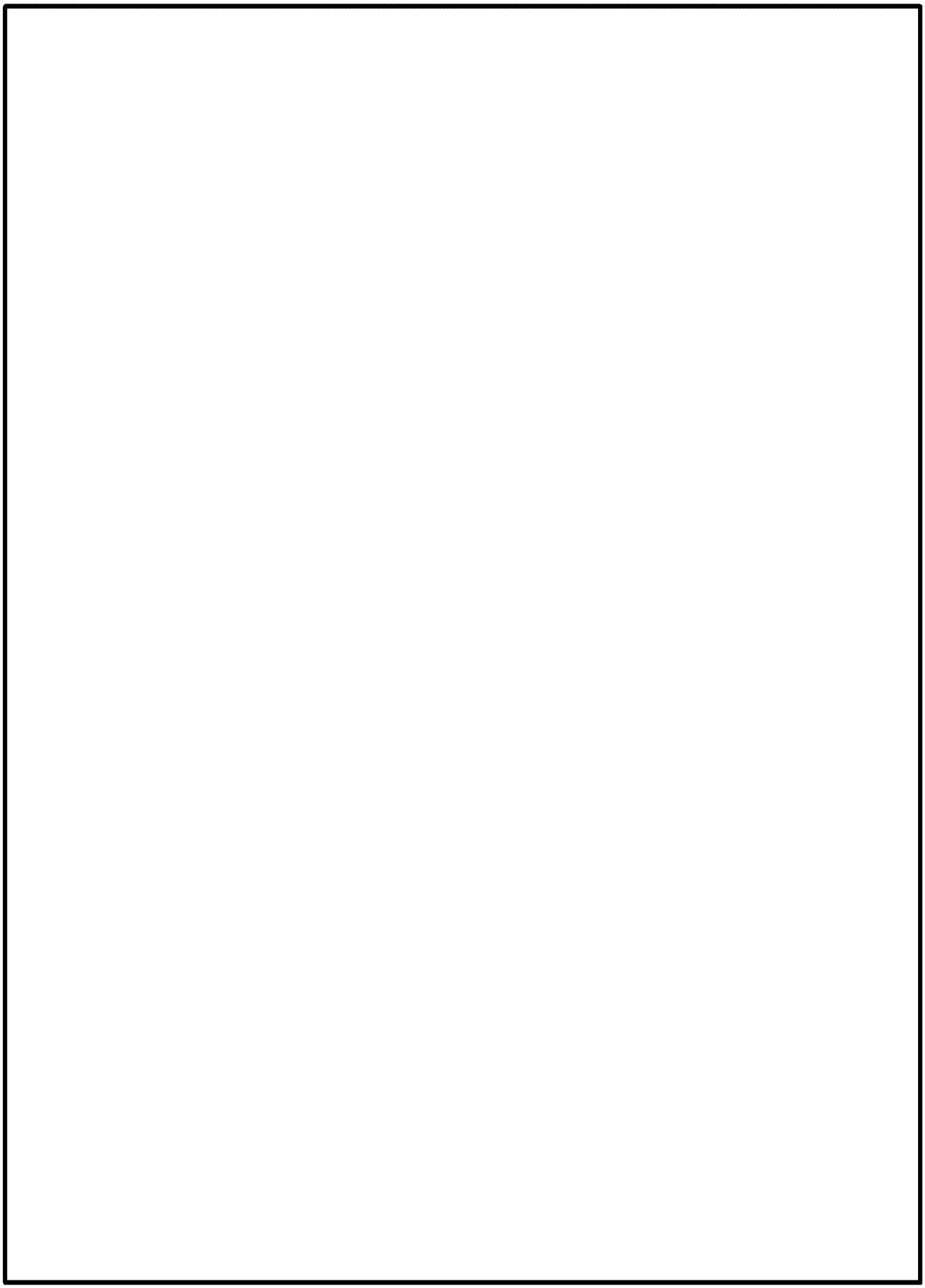

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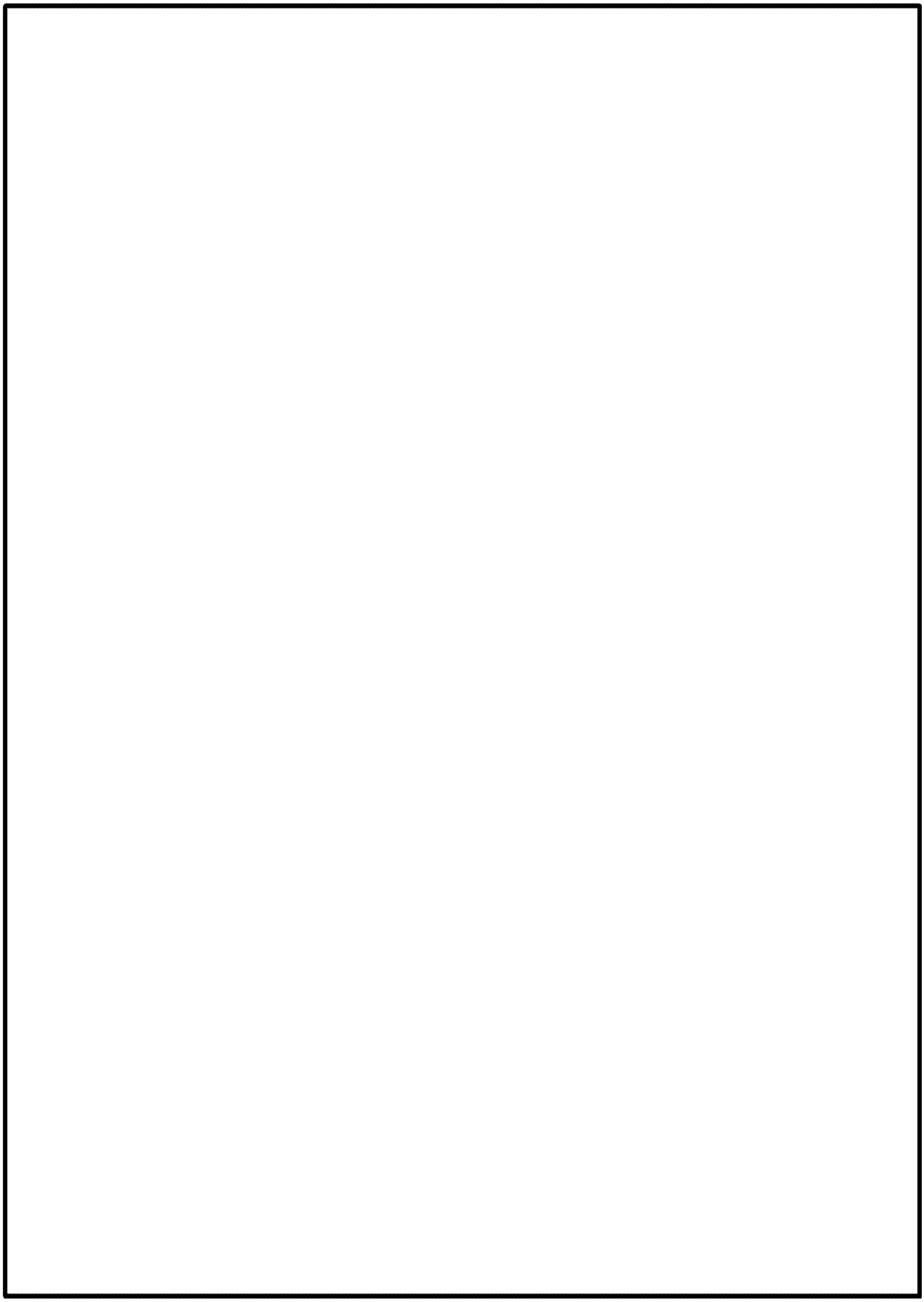

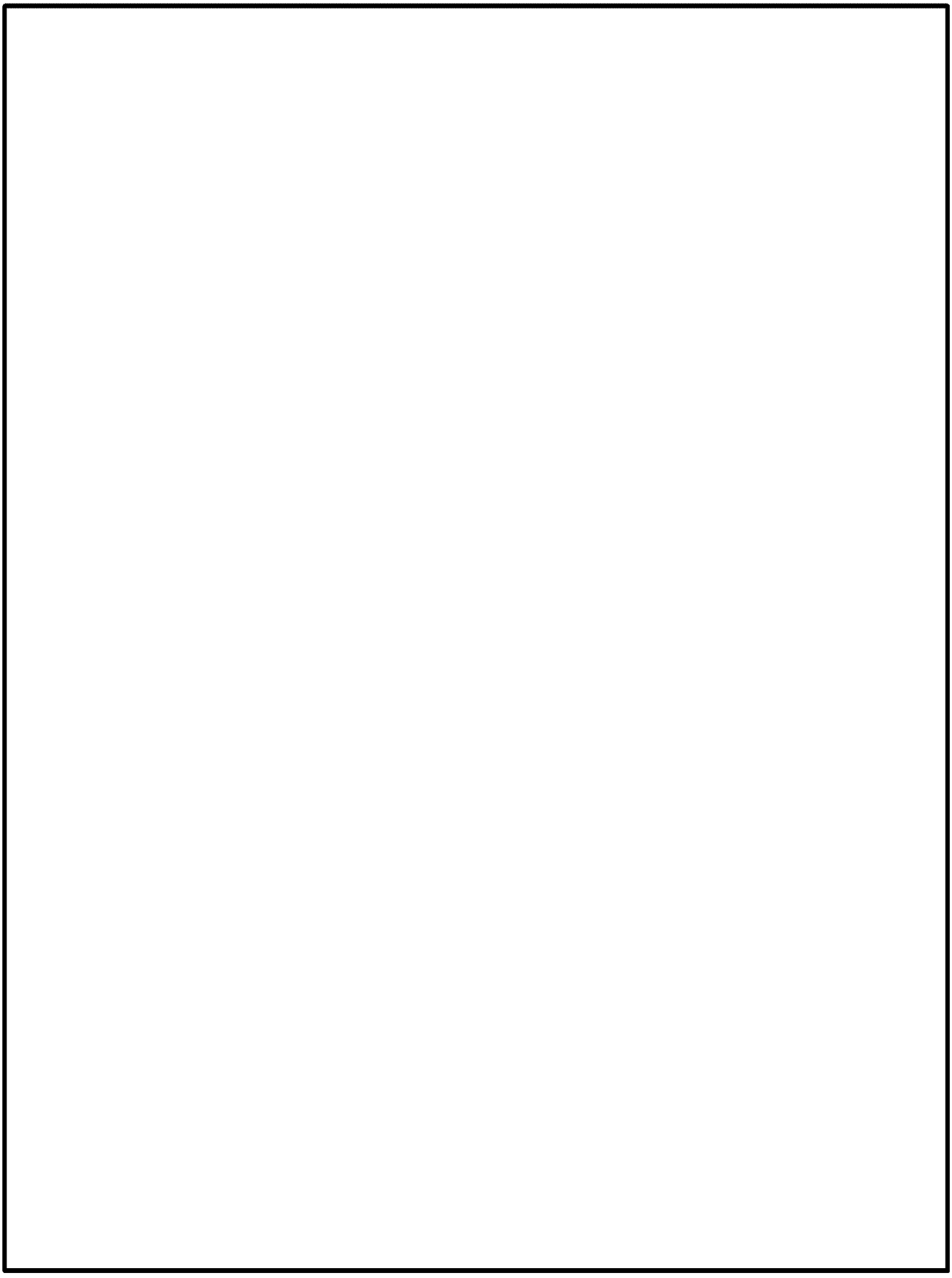

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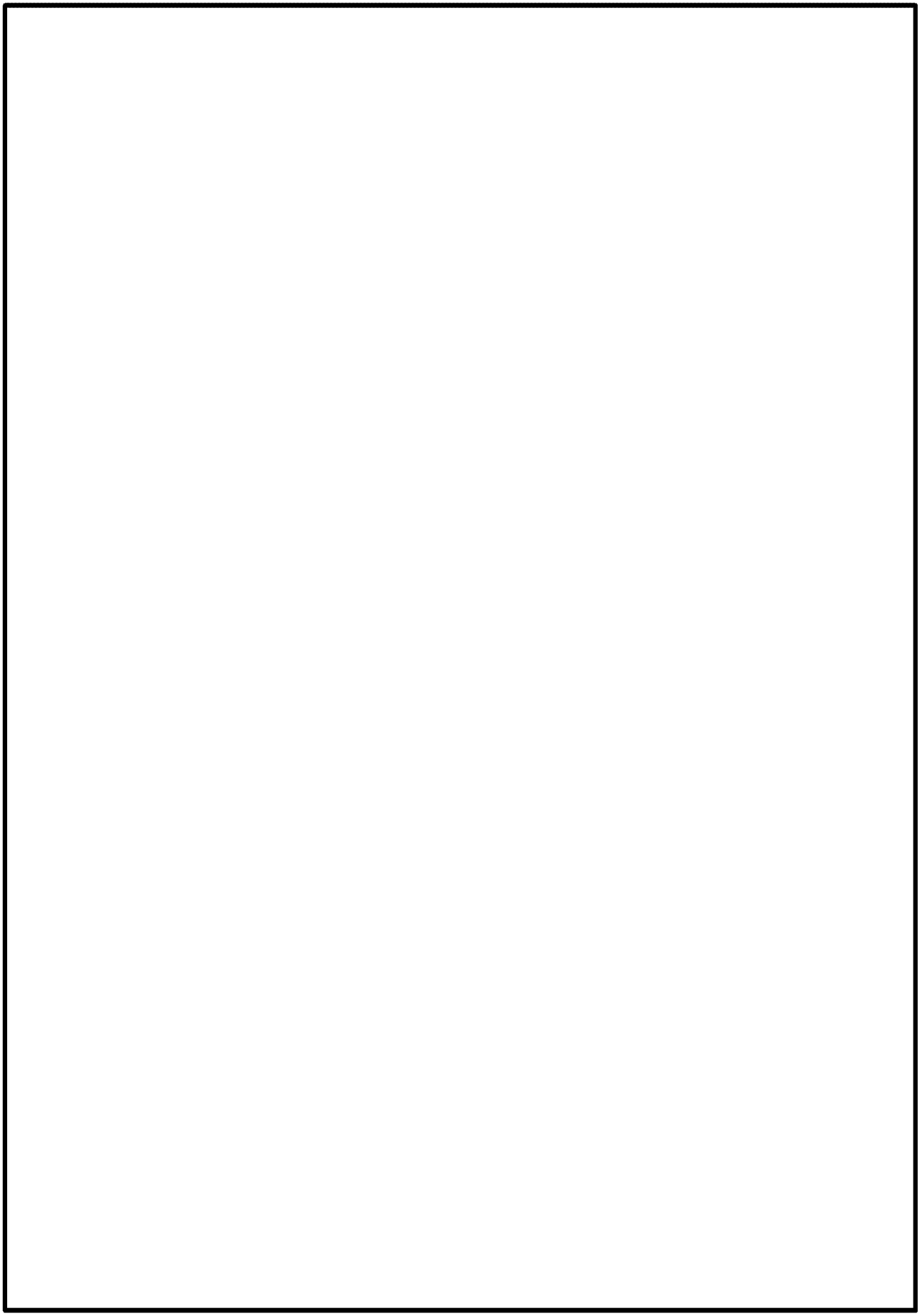

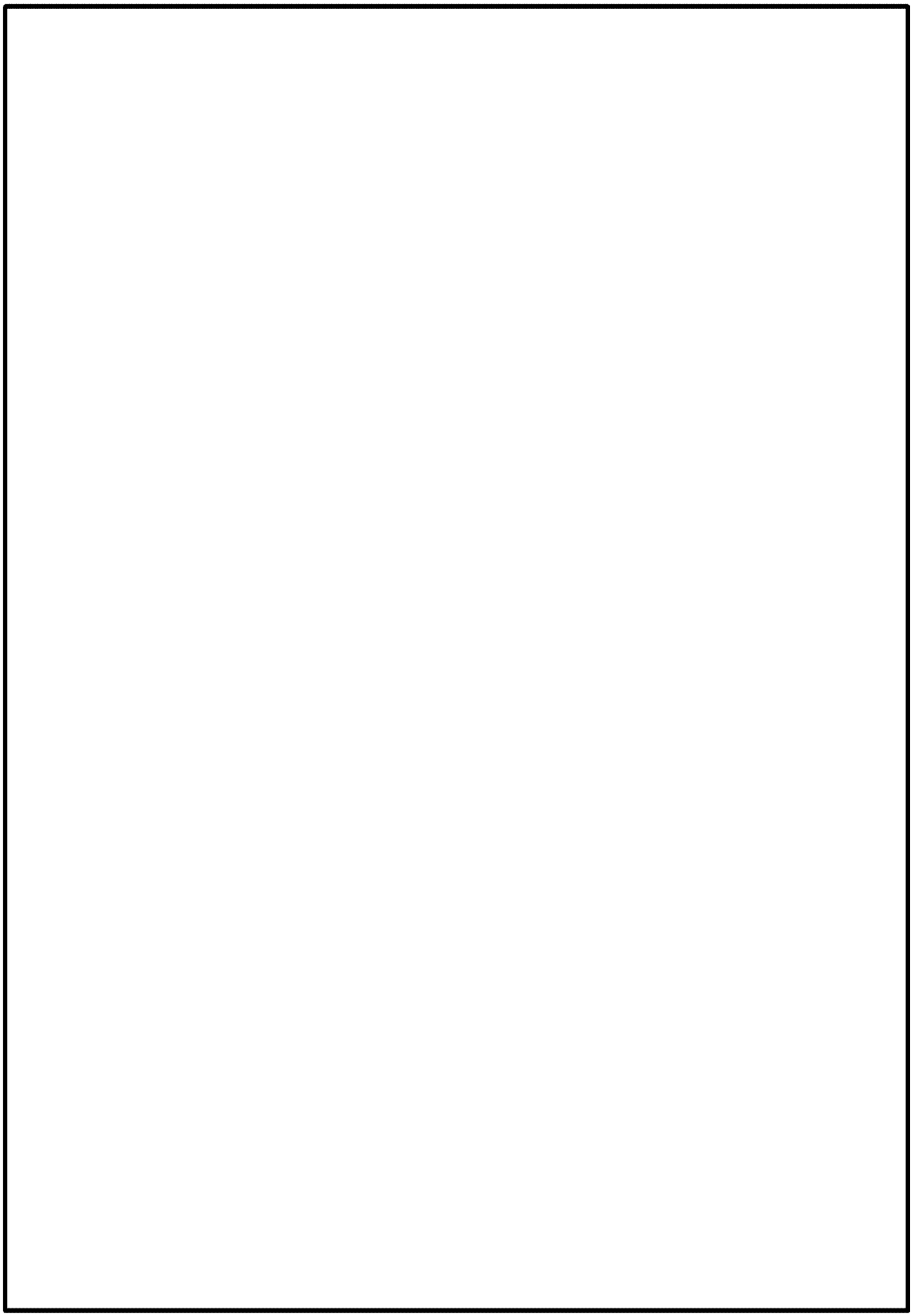

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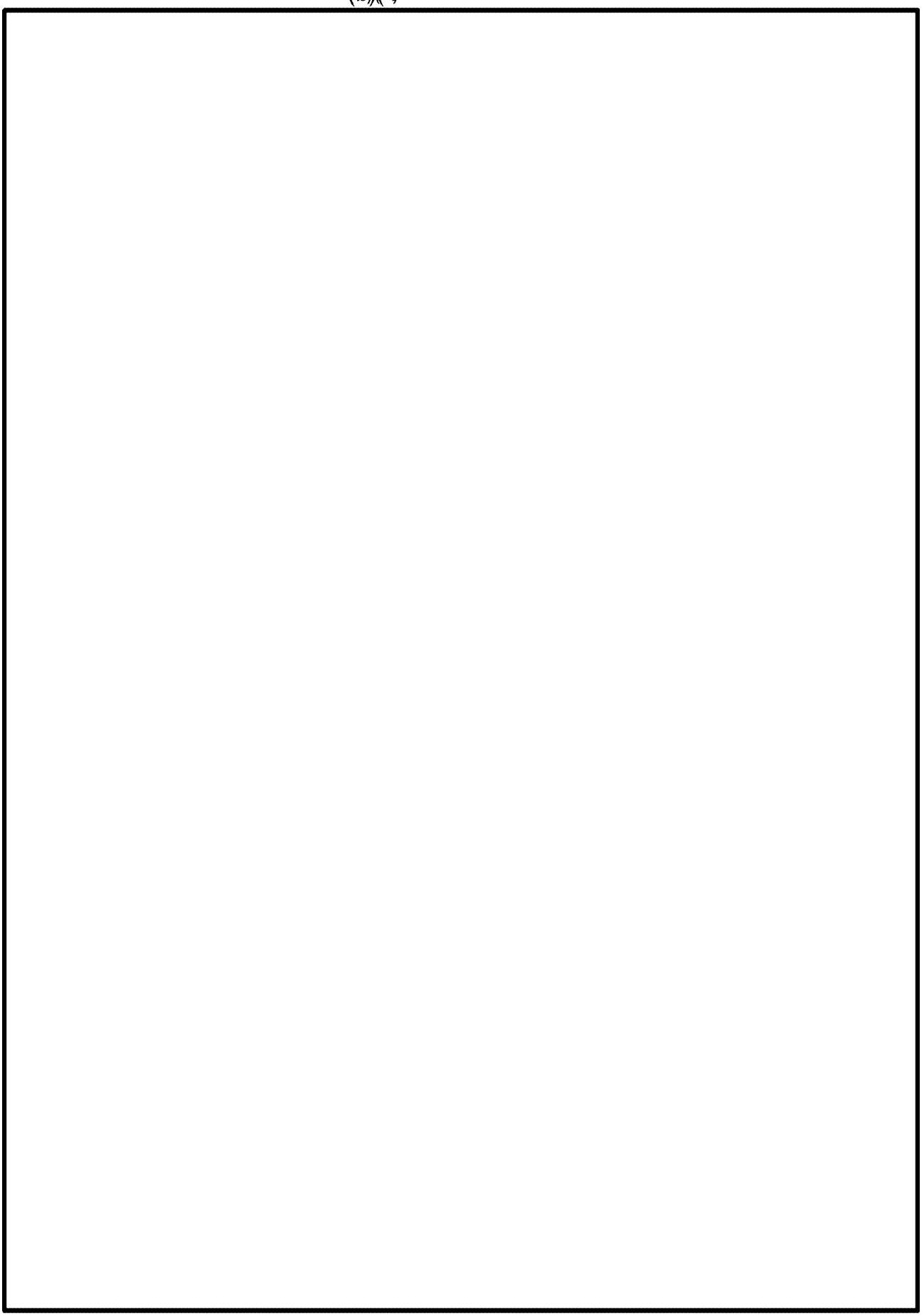

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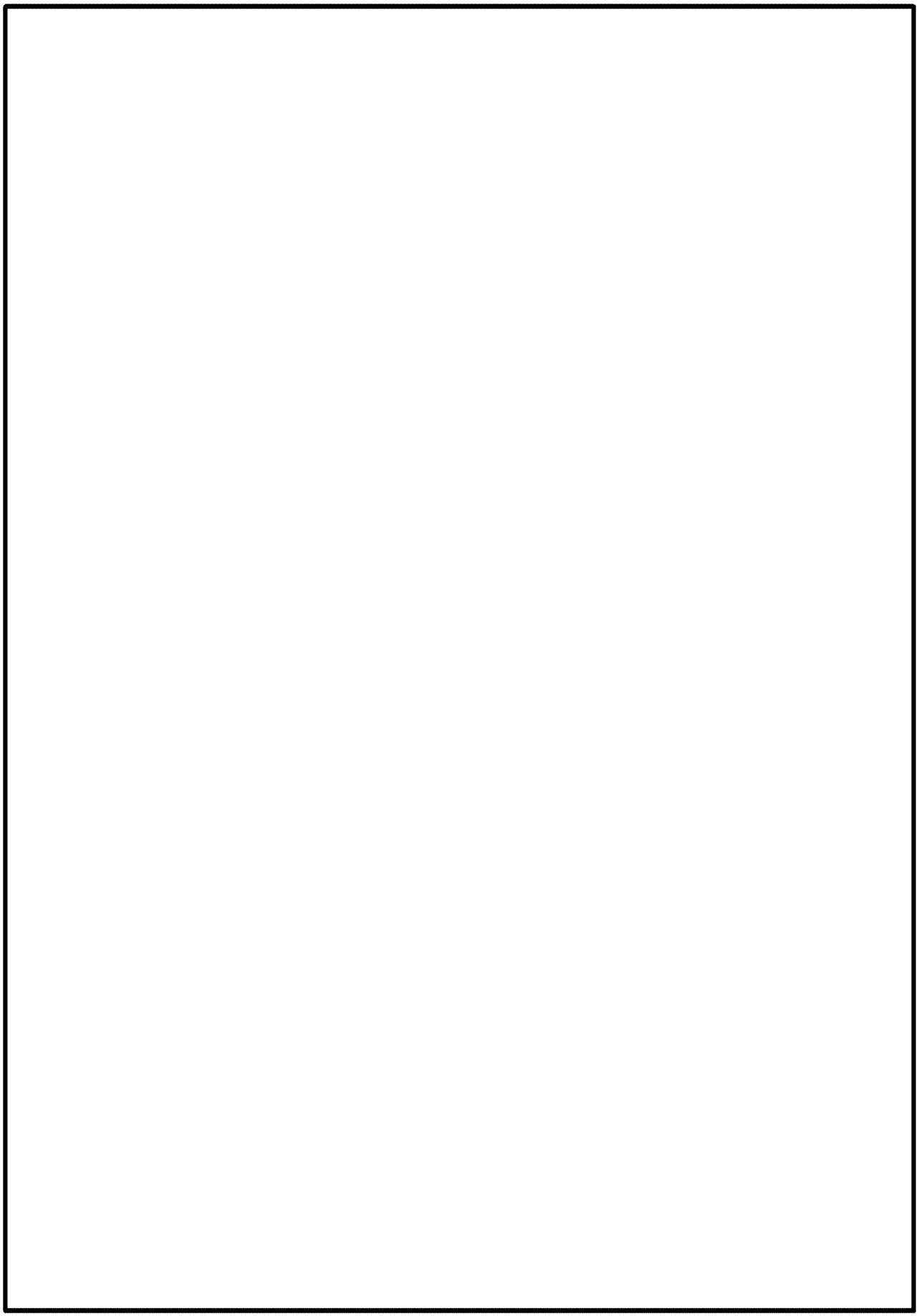

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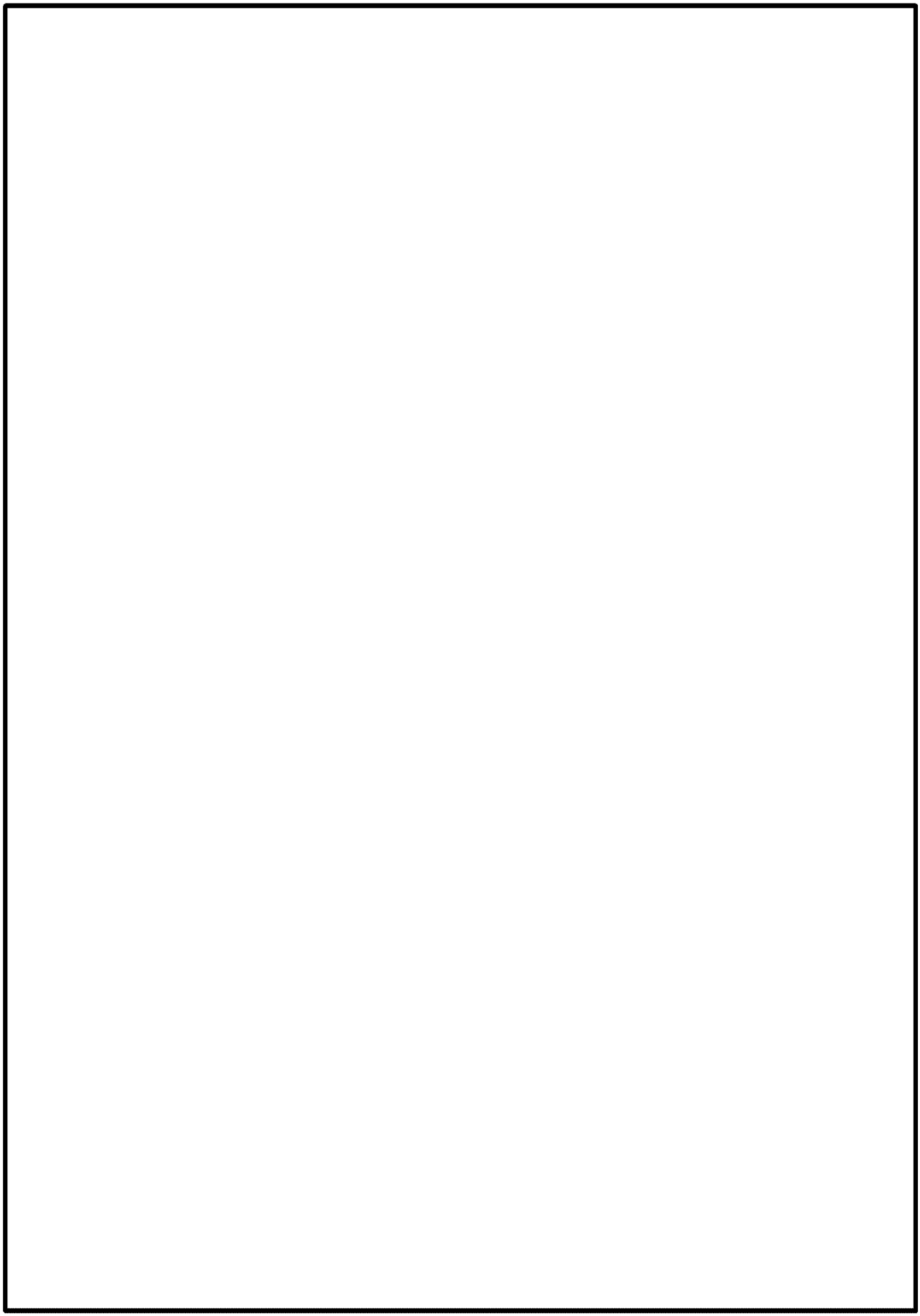

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ARTICLE 4
MANAGEMENT

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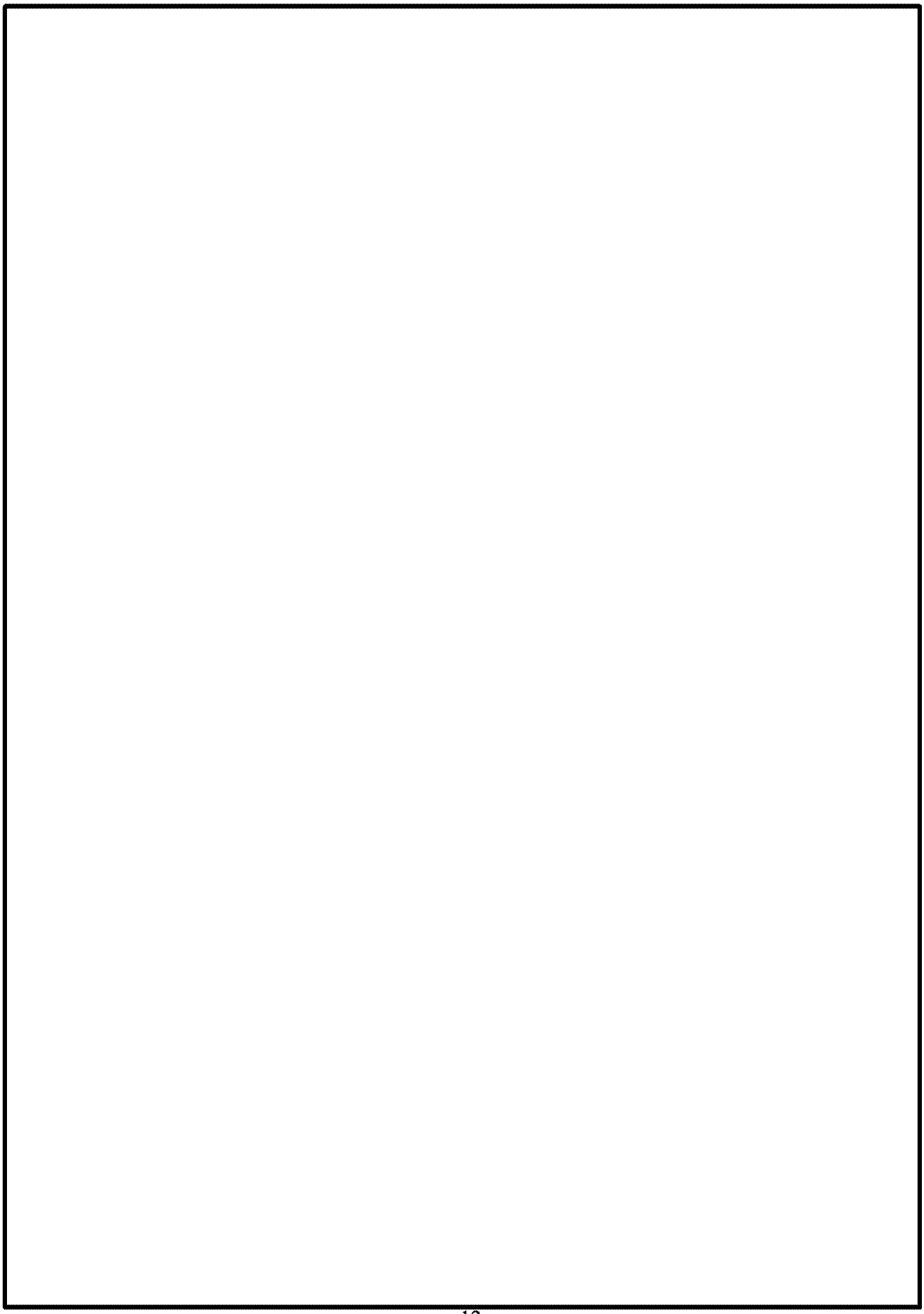

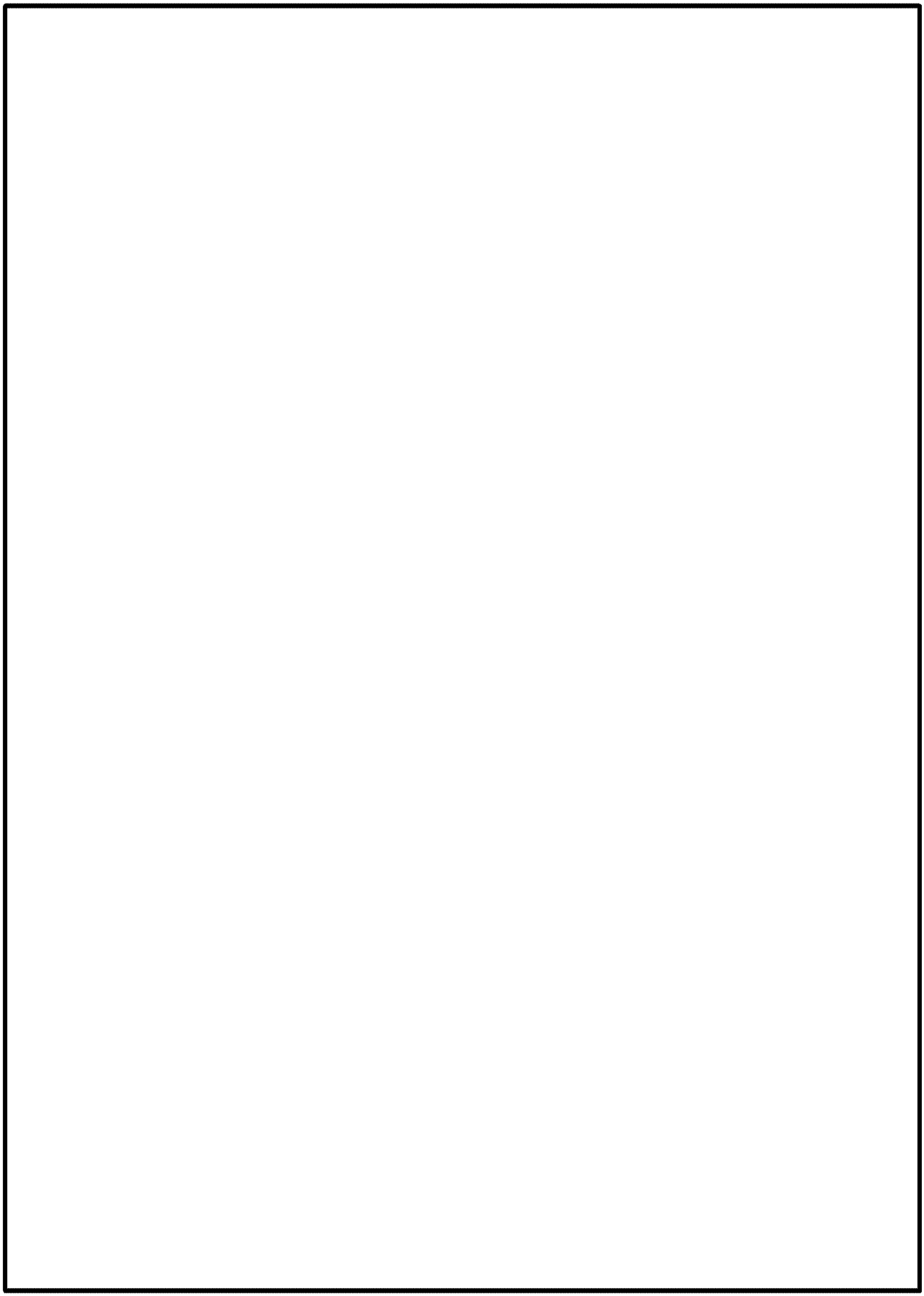

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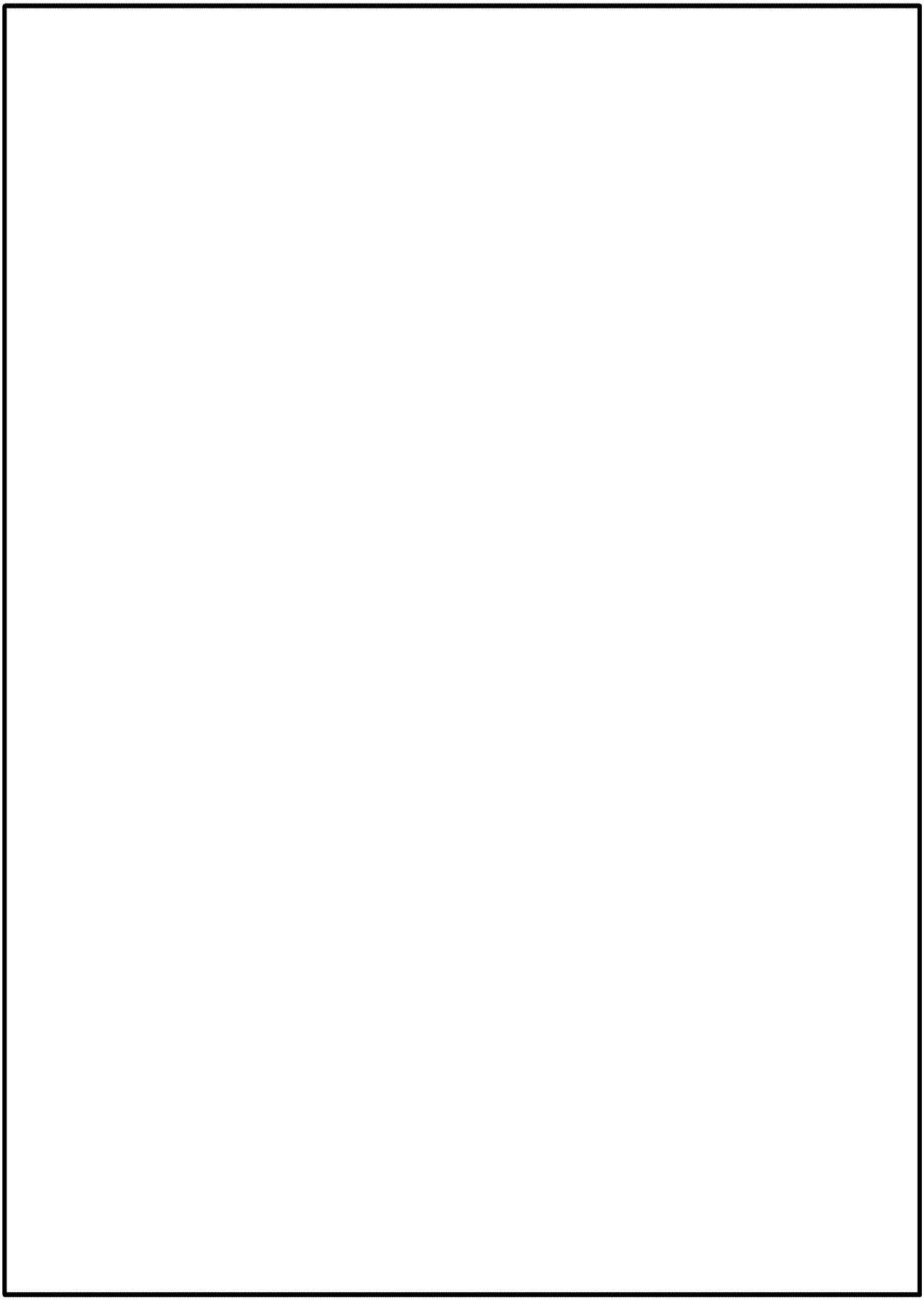

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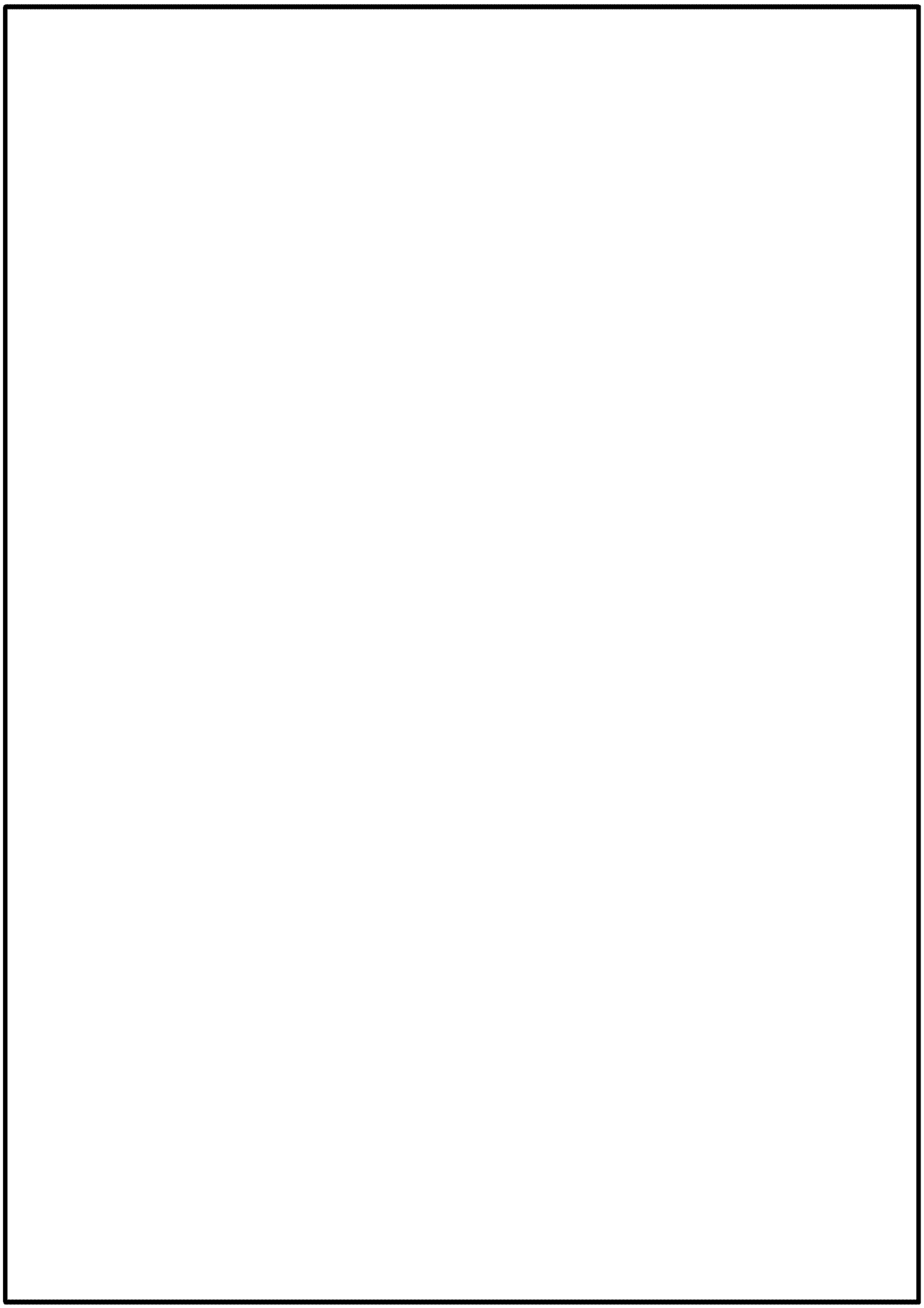

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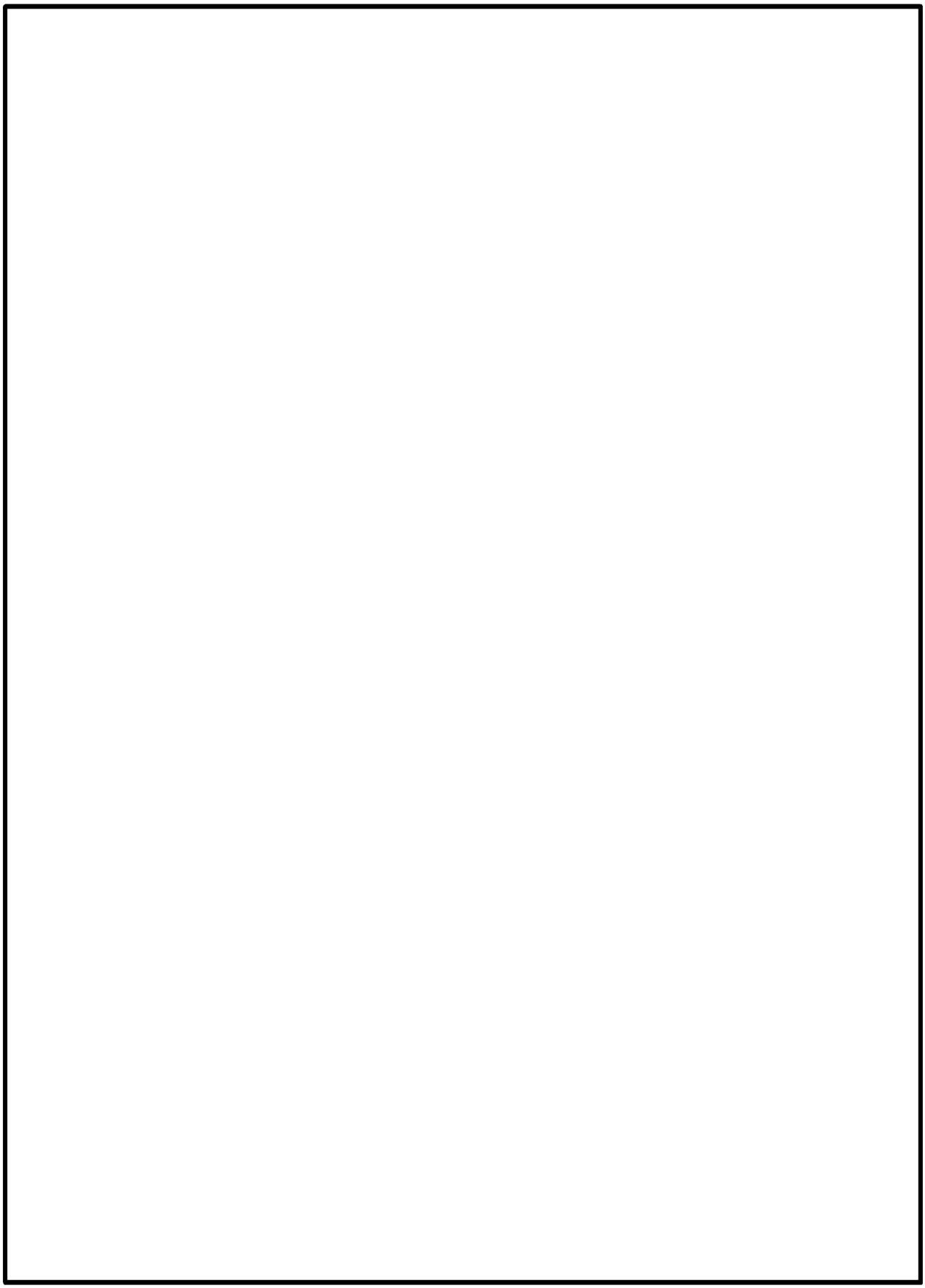

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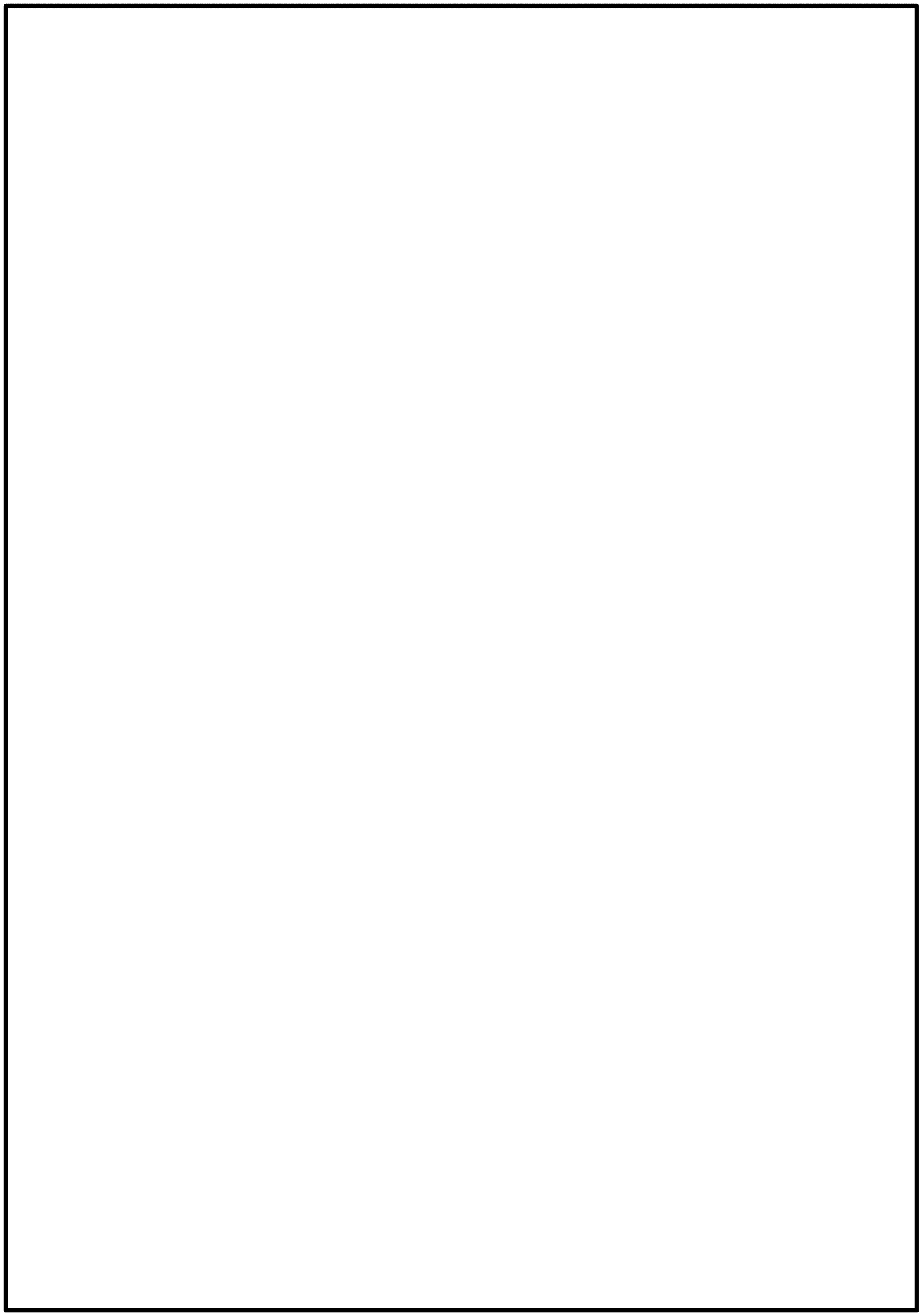

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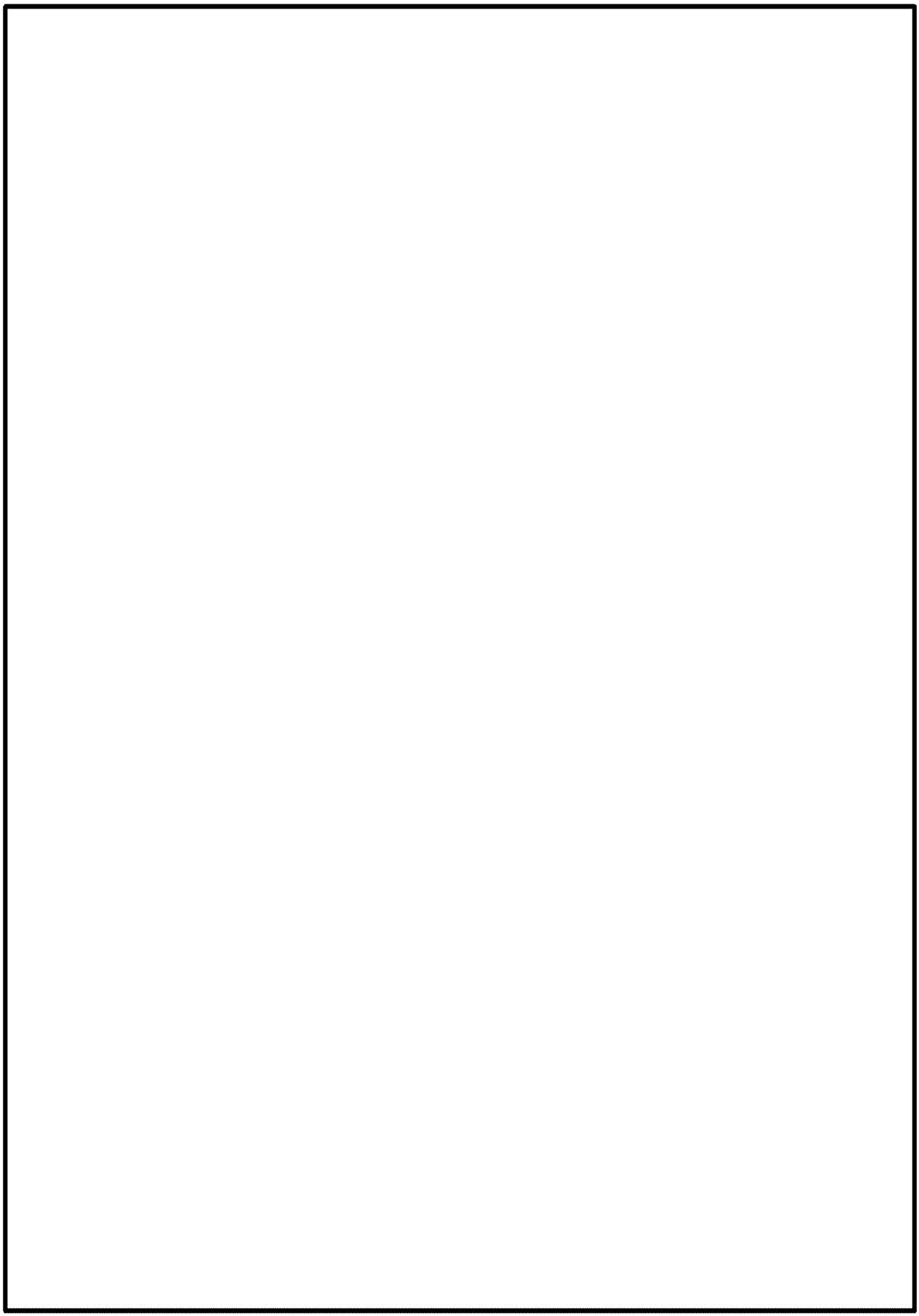

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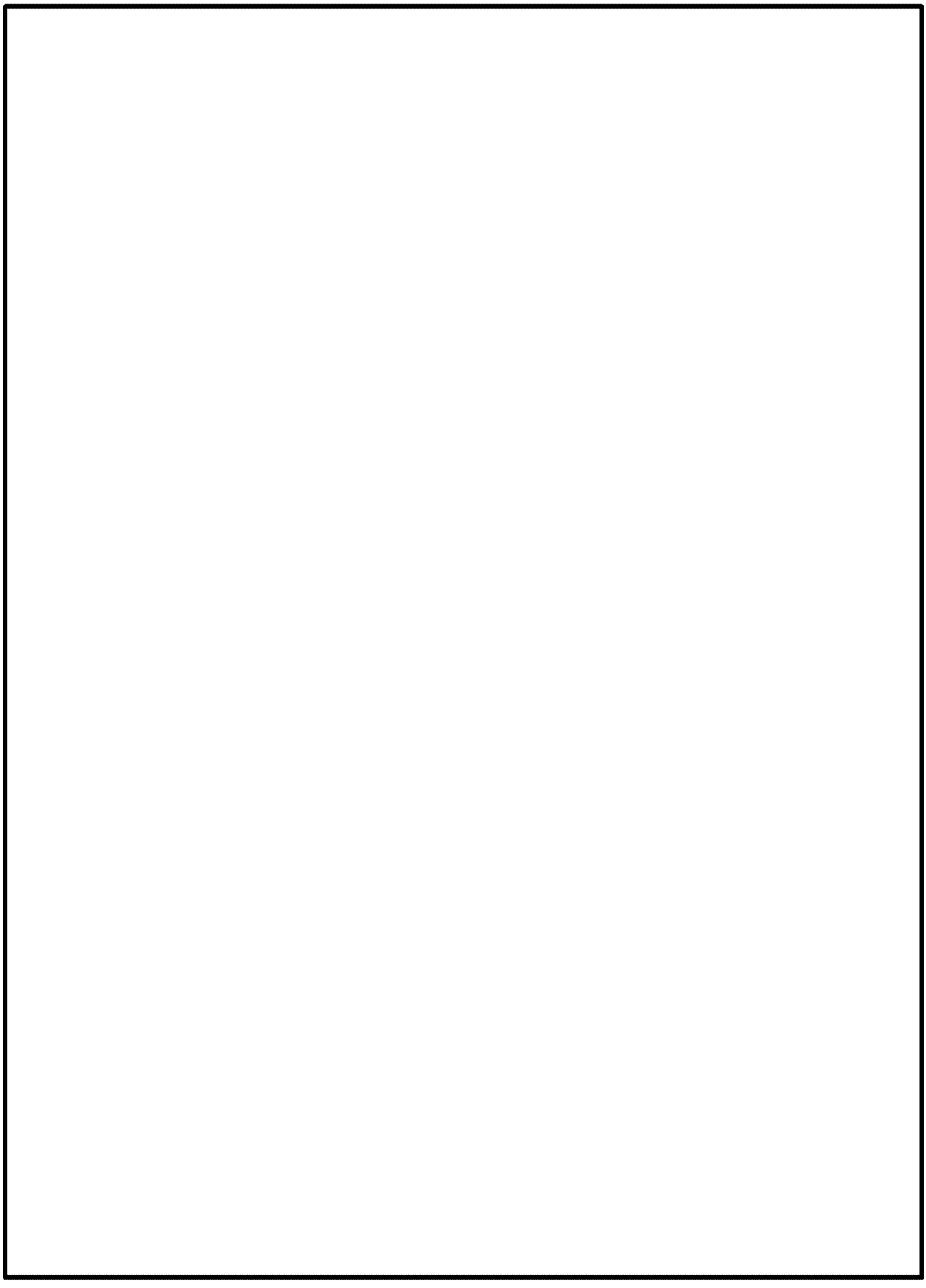


(b)(4)

ARTICLE 9
MEMBER WITHDRAWALS

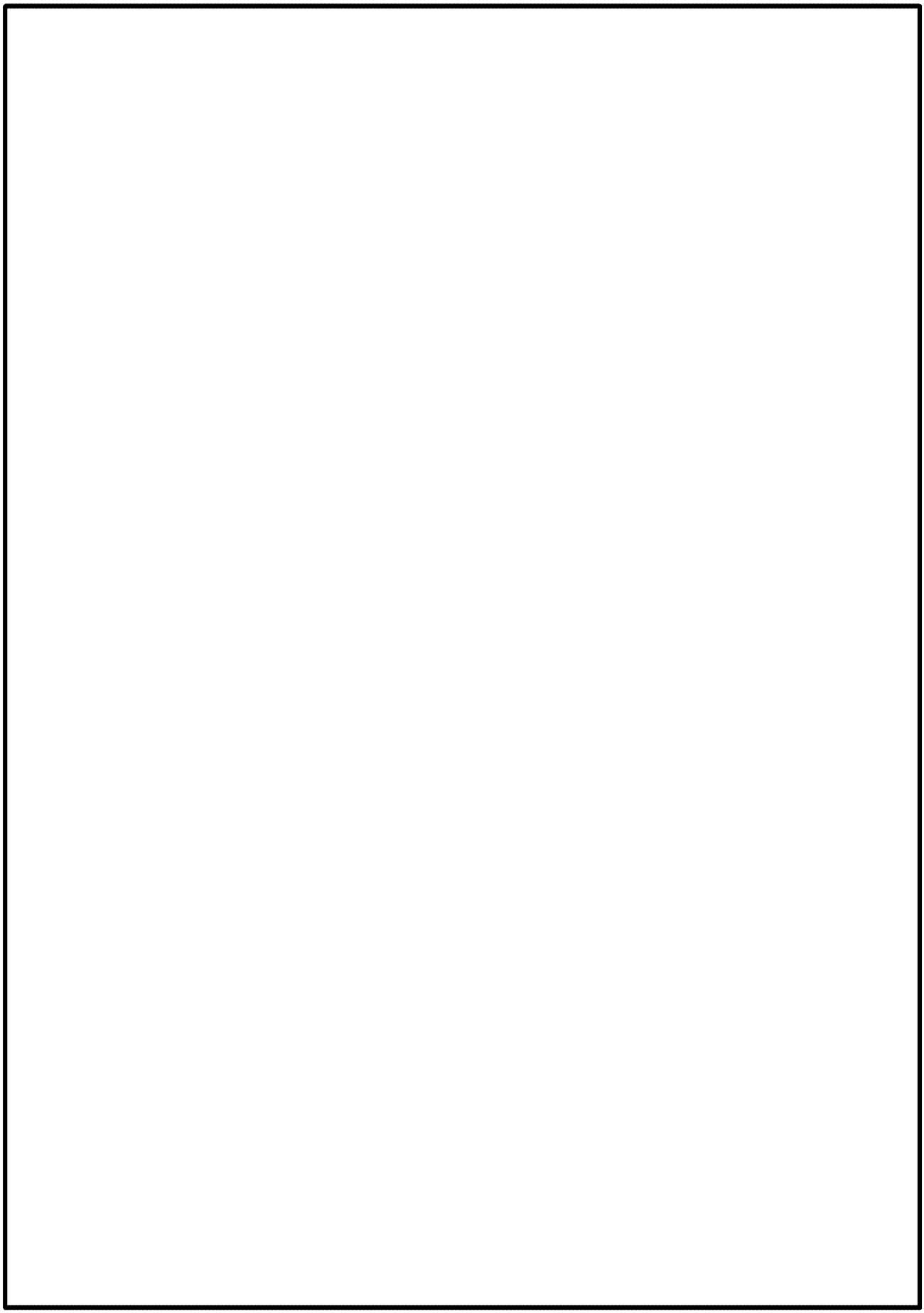
[redacted]

(b)(4)

ARTICLE 10
DISSOLUTION AND WINDING UP

[redacted]

(b)(4)



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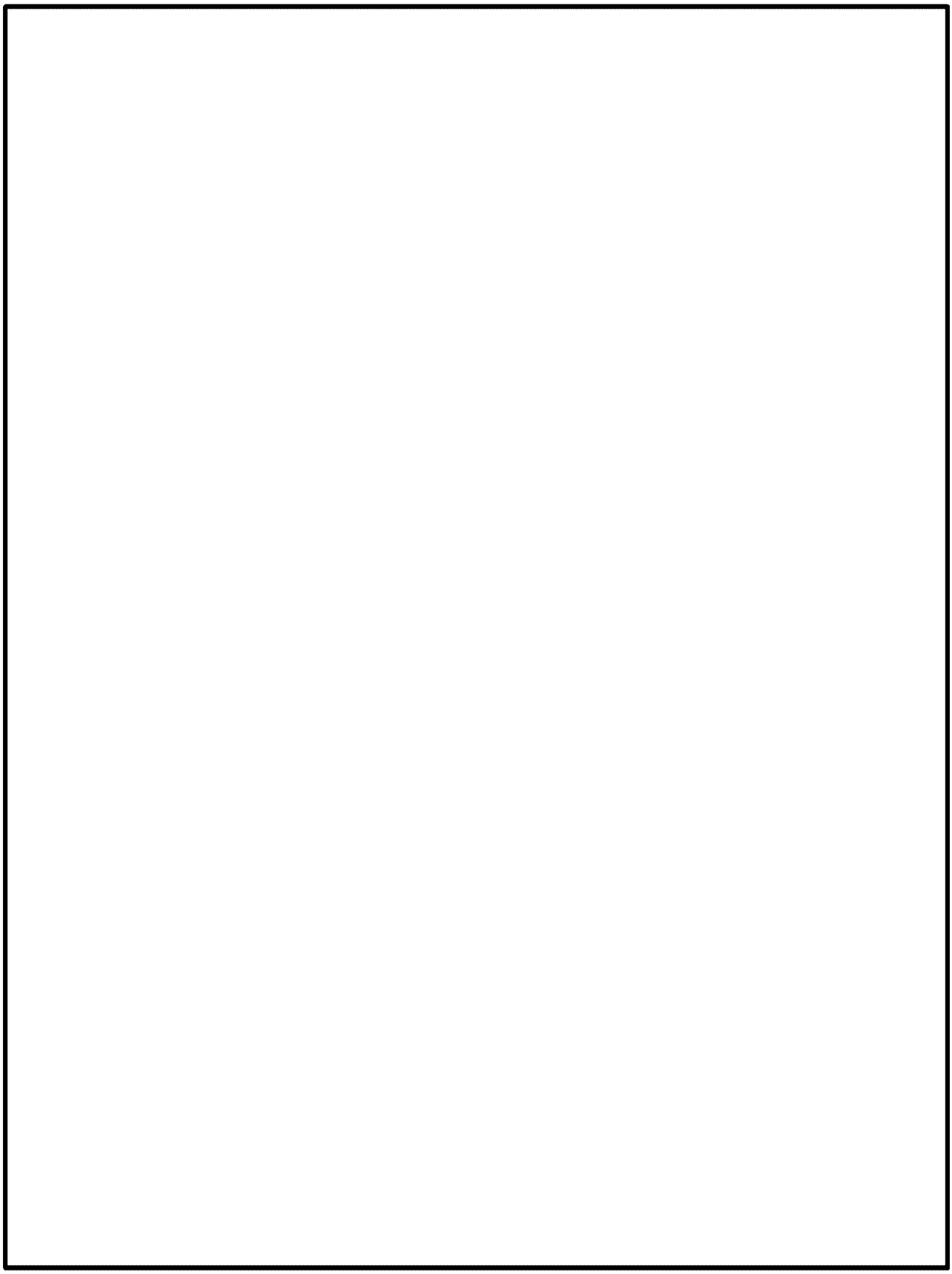

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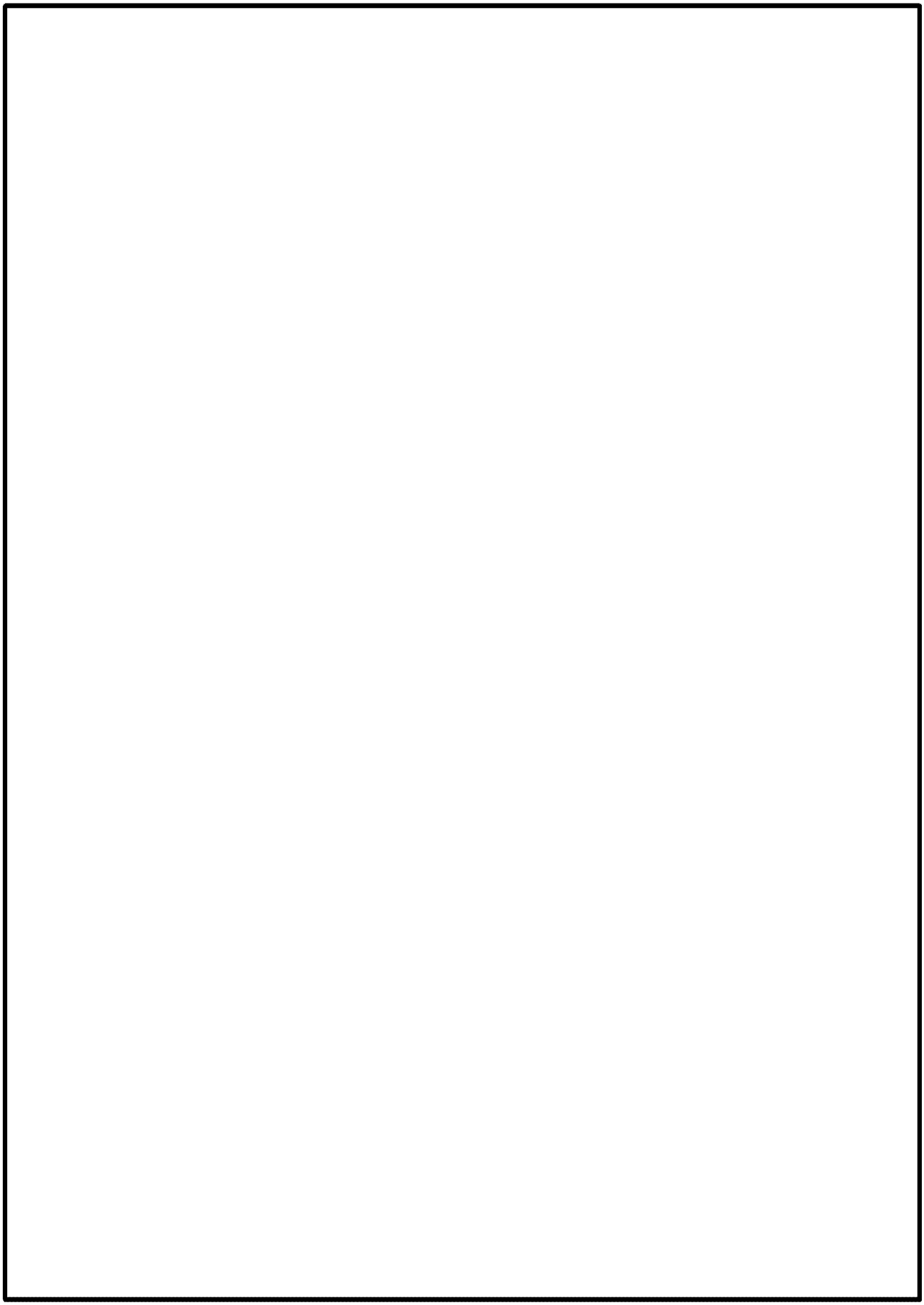


IN WITNESS WHEREOF, the Manager has executed this Operating Agreement on the day and year first written above and each Member has executed a Signature Page indicating such Member's agreement to be bound by the terms of this Agreement, effective as of the date that the Member's Subscription Agreement is accepted by the Manager.

Century New York City Regional Center, LLC
a New York limited liability company, Manager

By:_____
George Xu, Principal

88TH AVENUE EB5 CAPITAL, LLC
OPERATING AGREEMENT
(b)(4) MEMBER SIGNATURE PAGE

IN WITNESS WHEREOF, the undersigned has executed this Member Signature Page to the Operating Agreement as of the date written below, which shall become effective as of the date the undersigned is accepted as a Member of the Company, as indicated by the Manager's signature below.

_____
Signature of Member

_____
Print Name of Member

INVESTOR ACCEPTED AND ADMITTED AS A MEMBER:

Century New York City Regional Center, LLC
a New York limited liability company, Manager

By:_____
George Xu, Principal

Date:_____

88th Avenue EB5 Capital, LLC
A New York Limited Liability Company

Limited Liability Company Interests

Subscription Agreement

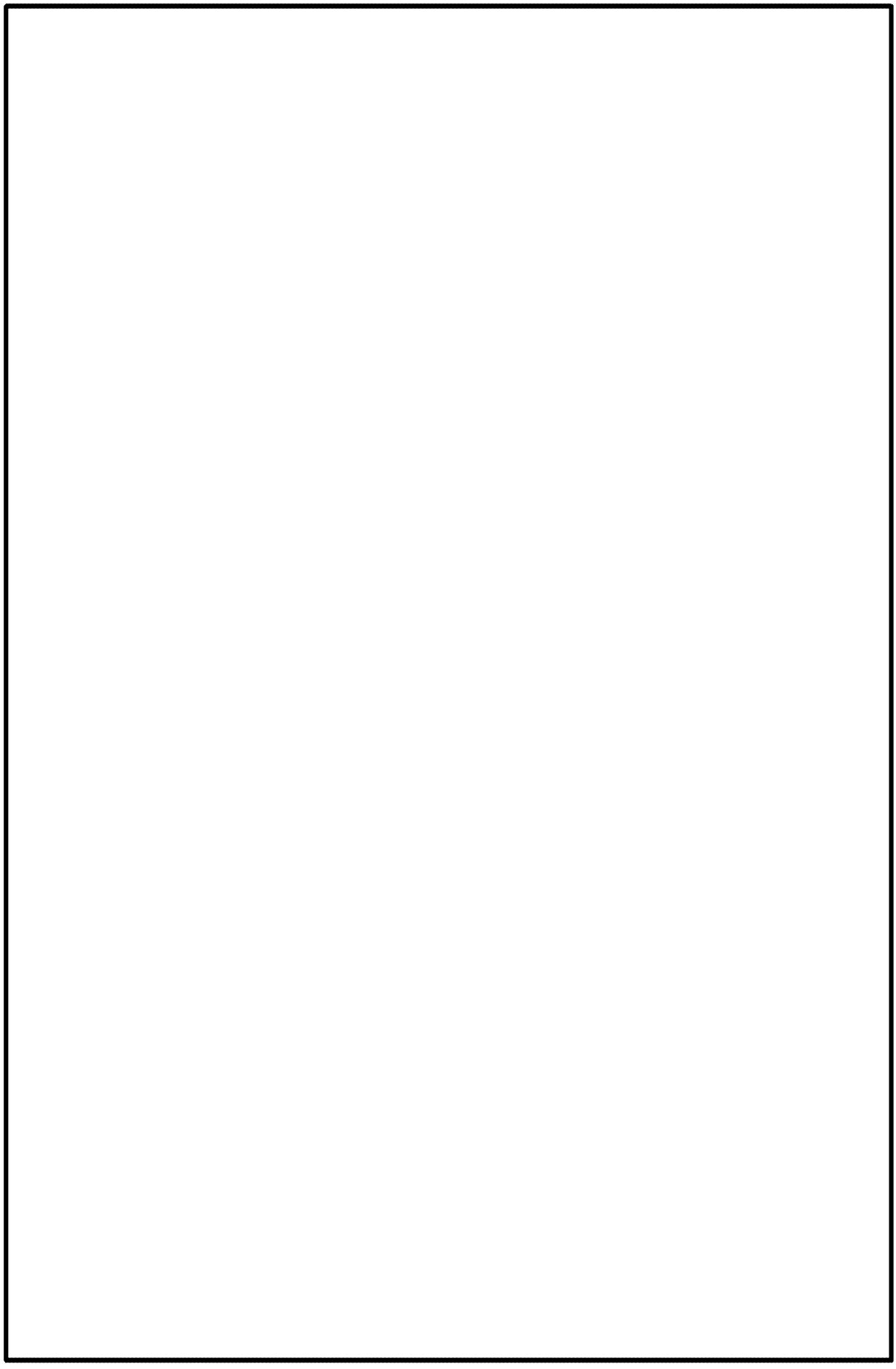
If you decide not to participate in this offering, please return the Confidential Private Offering Memorandum (together with all amendments, appendices, and supplements thereto), this Subscription Agreement, and any copies of the aforementioned documentation (and any portions thereof) to:

88th Avenue EB5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
718.939.1060

Copy No. _____

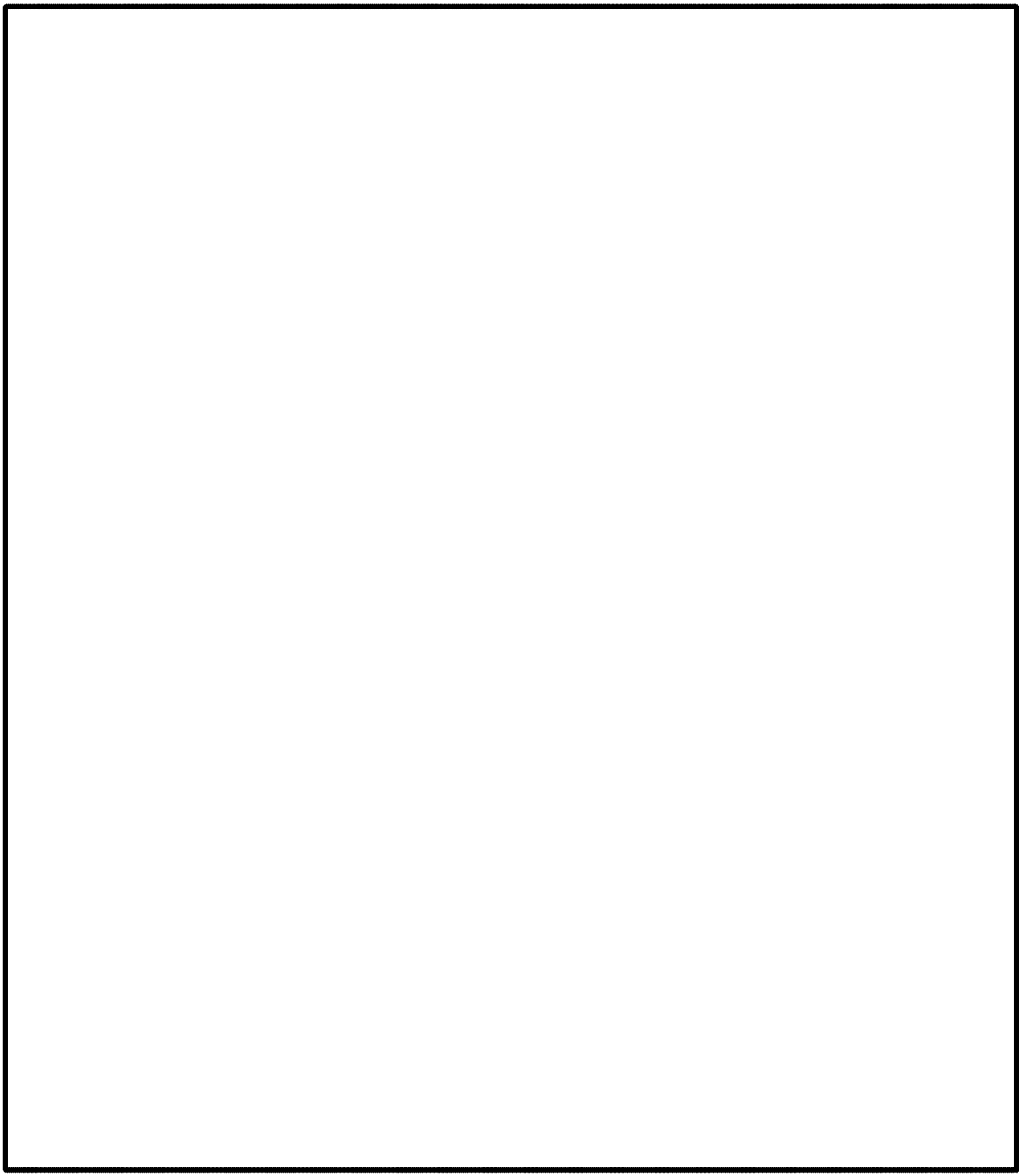
(b)(4)

88th Avenue EB5 Capital, LLC
Subscription Instructions



88th Avenue EB5 Capital, LLC
35-06 Leavitt St, Suite CF-A
Flushing, NY 11354
718.939.1060
Attn: George Xu
Email: centurygroup88@yahoo.com

Re: 88th Avenue EB5 Capital, LLC – Subscription for Interests (b)(4)



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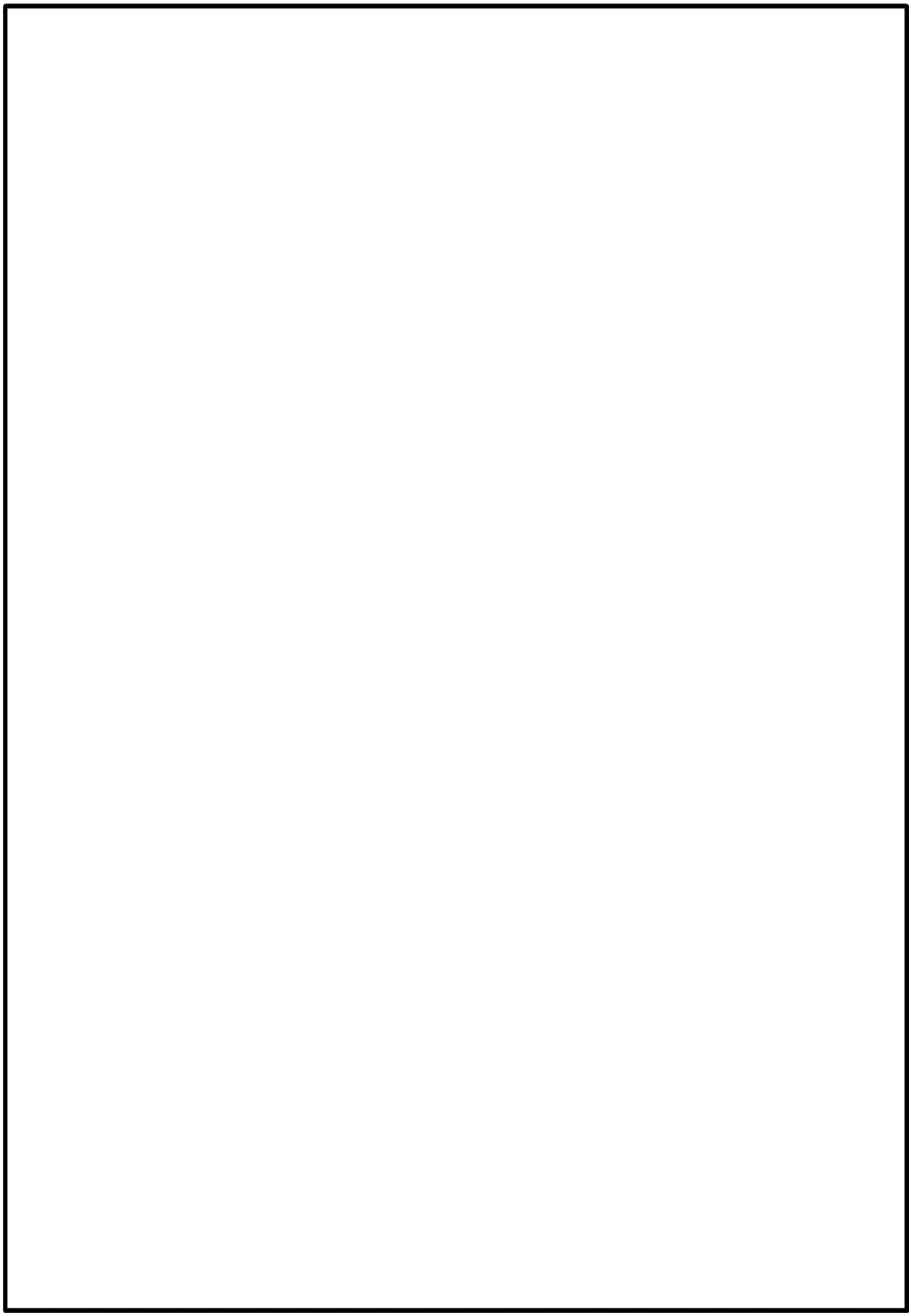

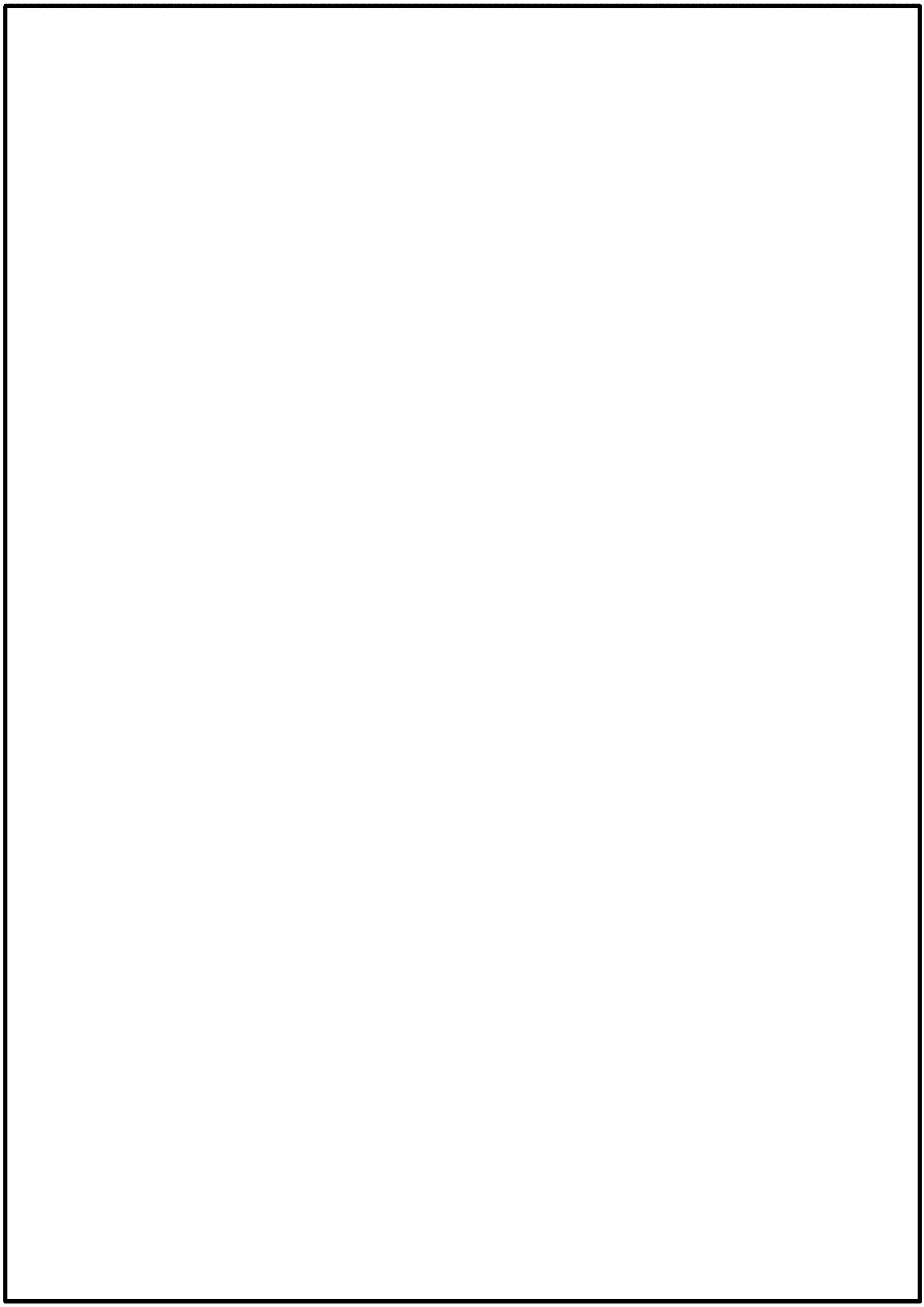

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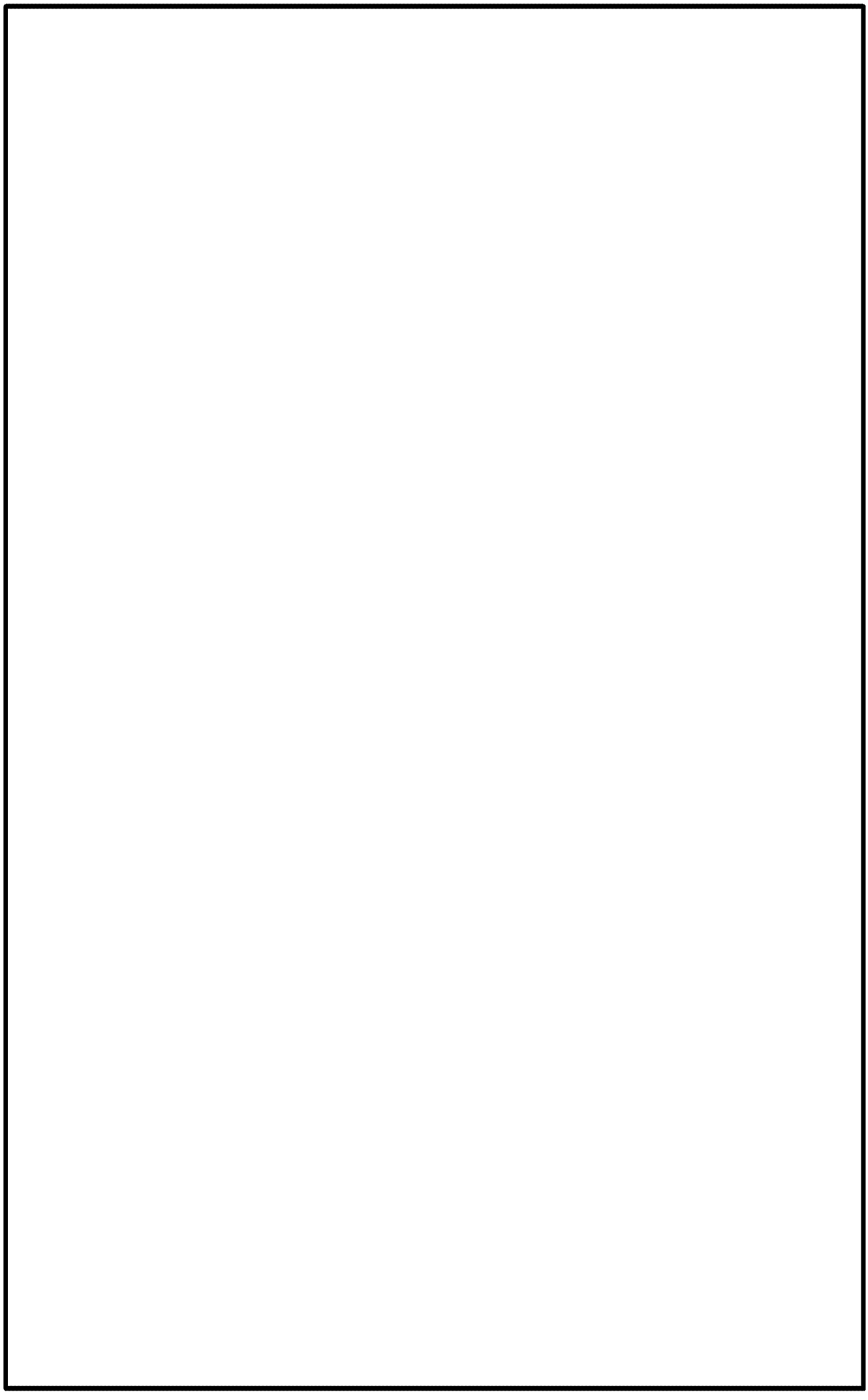

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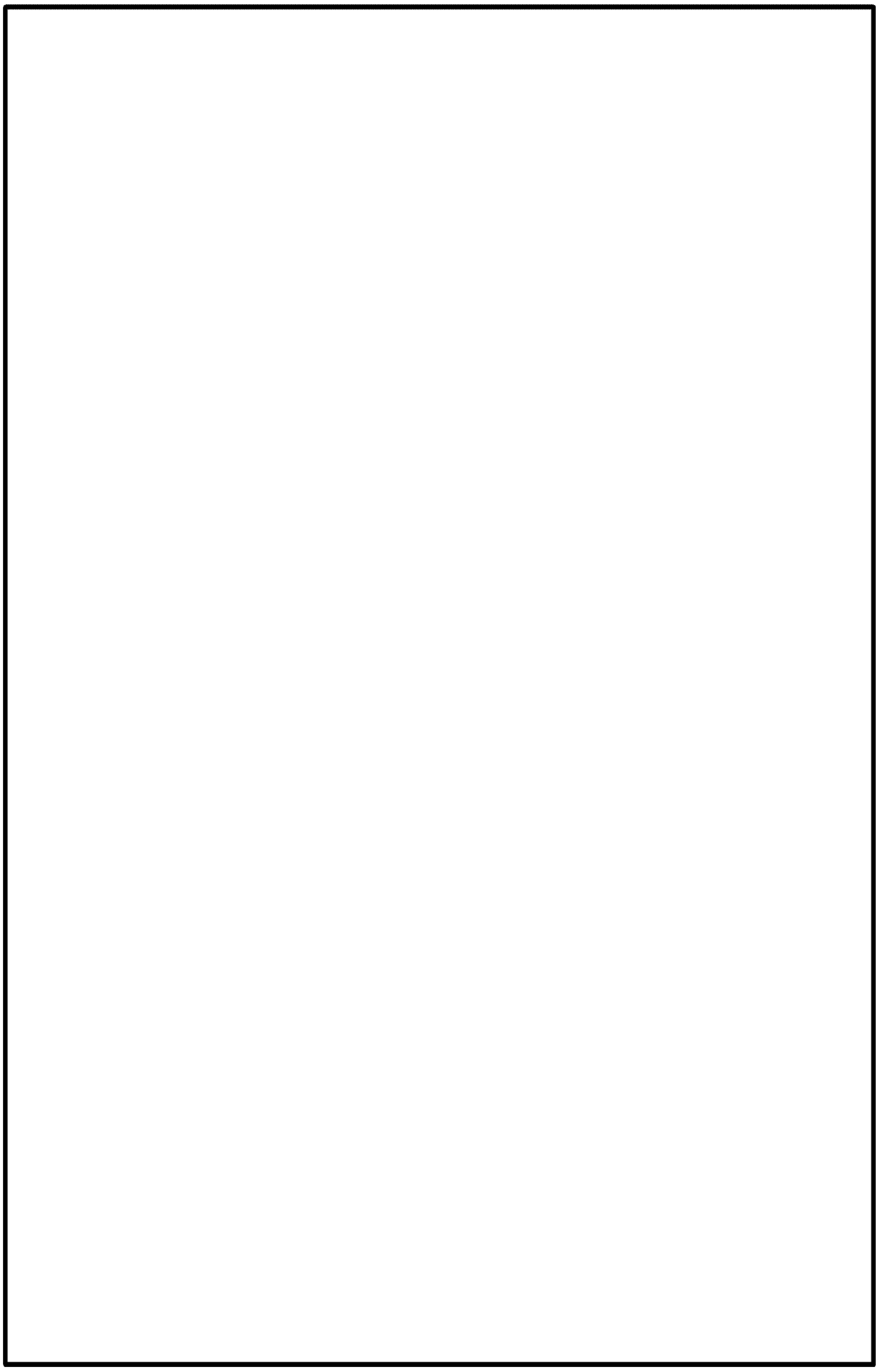

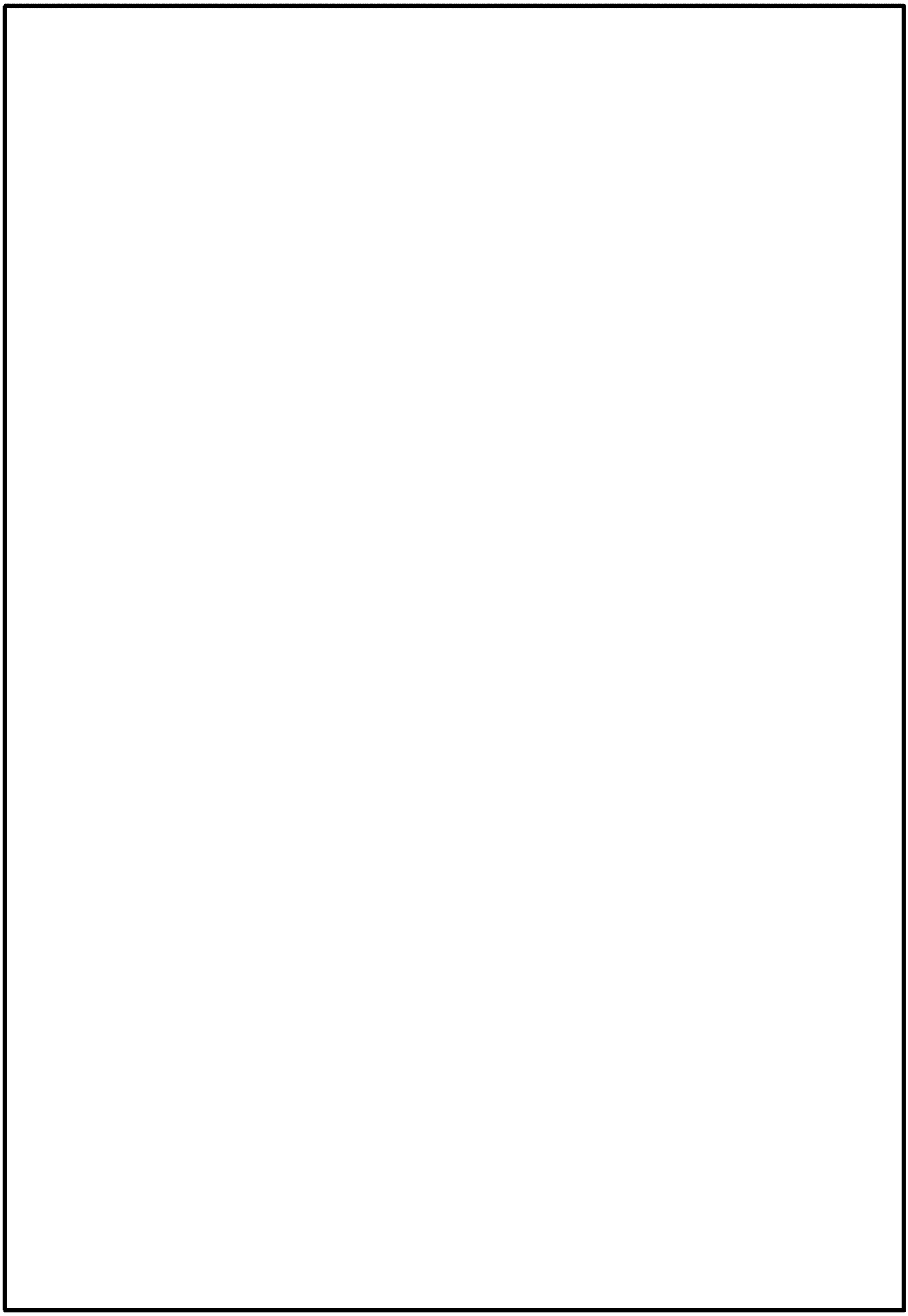

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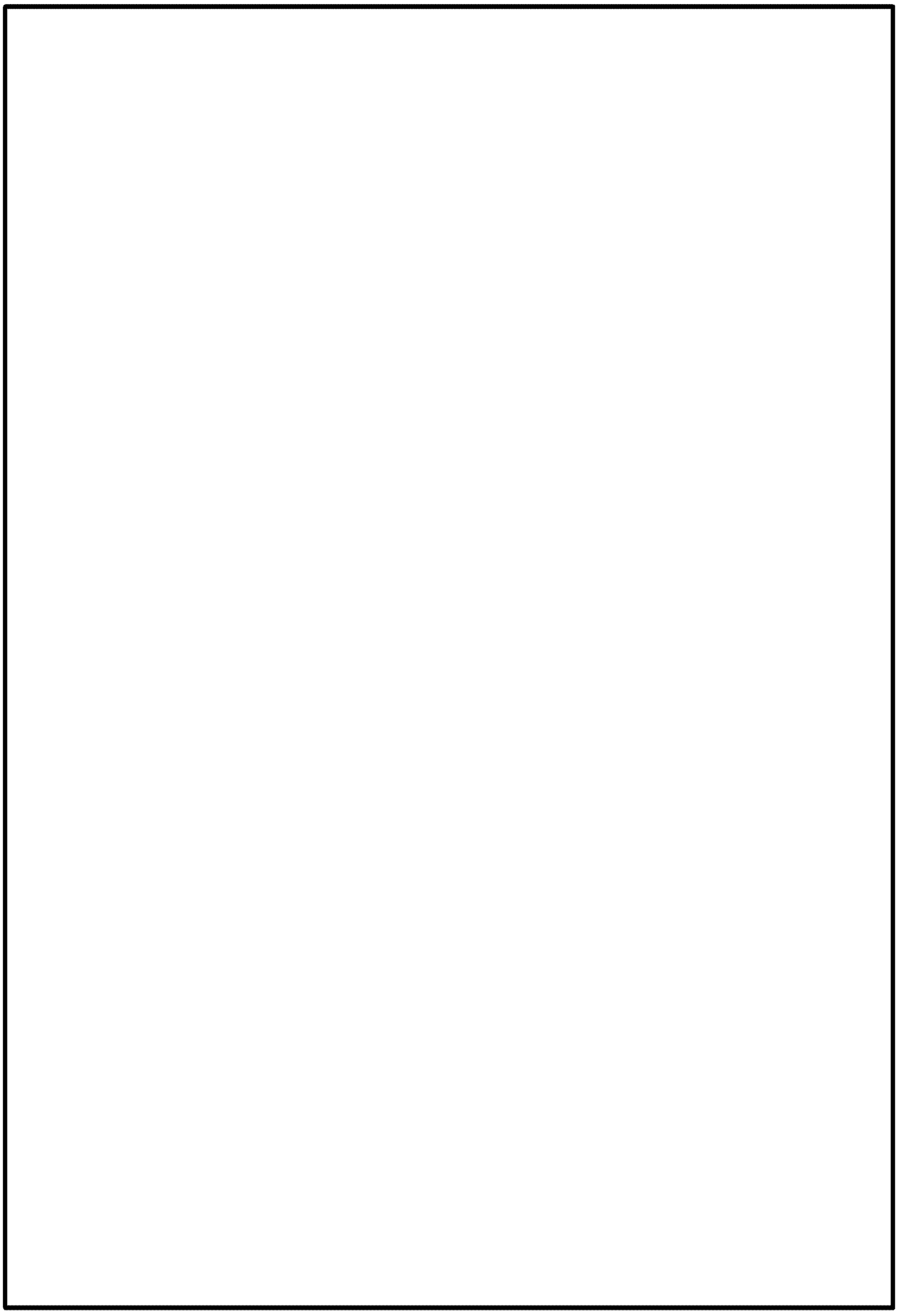


[Balance of page intentionally left blank; signature page follows.]

IN WITNESS WHEREOF, the undersigned has executed this Subscription Agreement as of _____ __, 2015.

SIGNATURE FOR INVESTOR

_____
(Signature)

_____
(Print Name)

ACCEPTANCE

Century New York City Regional Center, LLC, as Manager of the 88th Avenue EB5 Capital, LLC, hereby accepts the above subscription to acquire Interests.

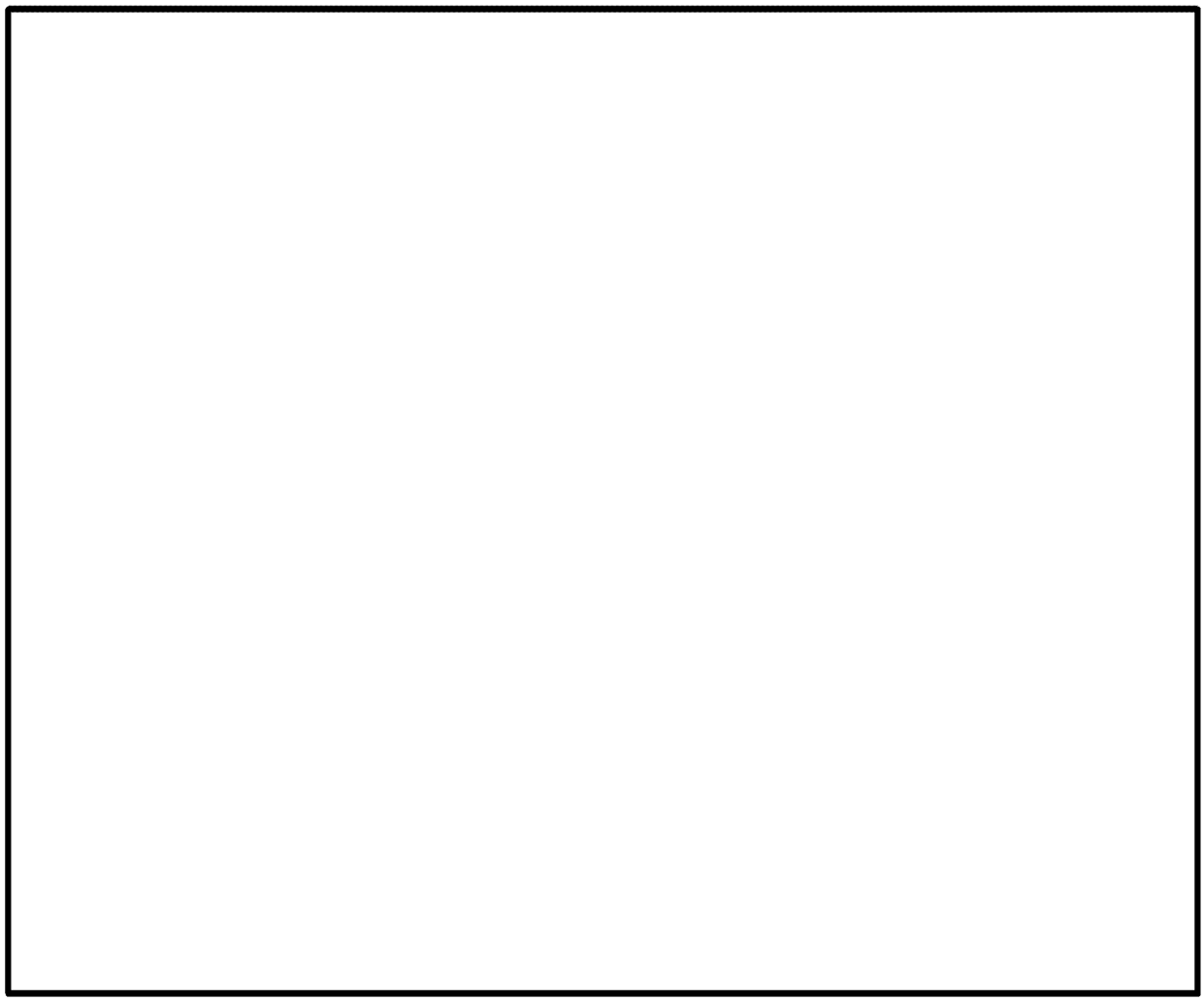
Dated: _____ __, 2015

88th Avenue EB5 Capital, LLC

By:_____
Name: George Xu
Title: Manager

ACKNOWLEDGMENT OF RECEIPT OF

(b)(4) SUBSCRIPTION ESCROW AGREEMENT

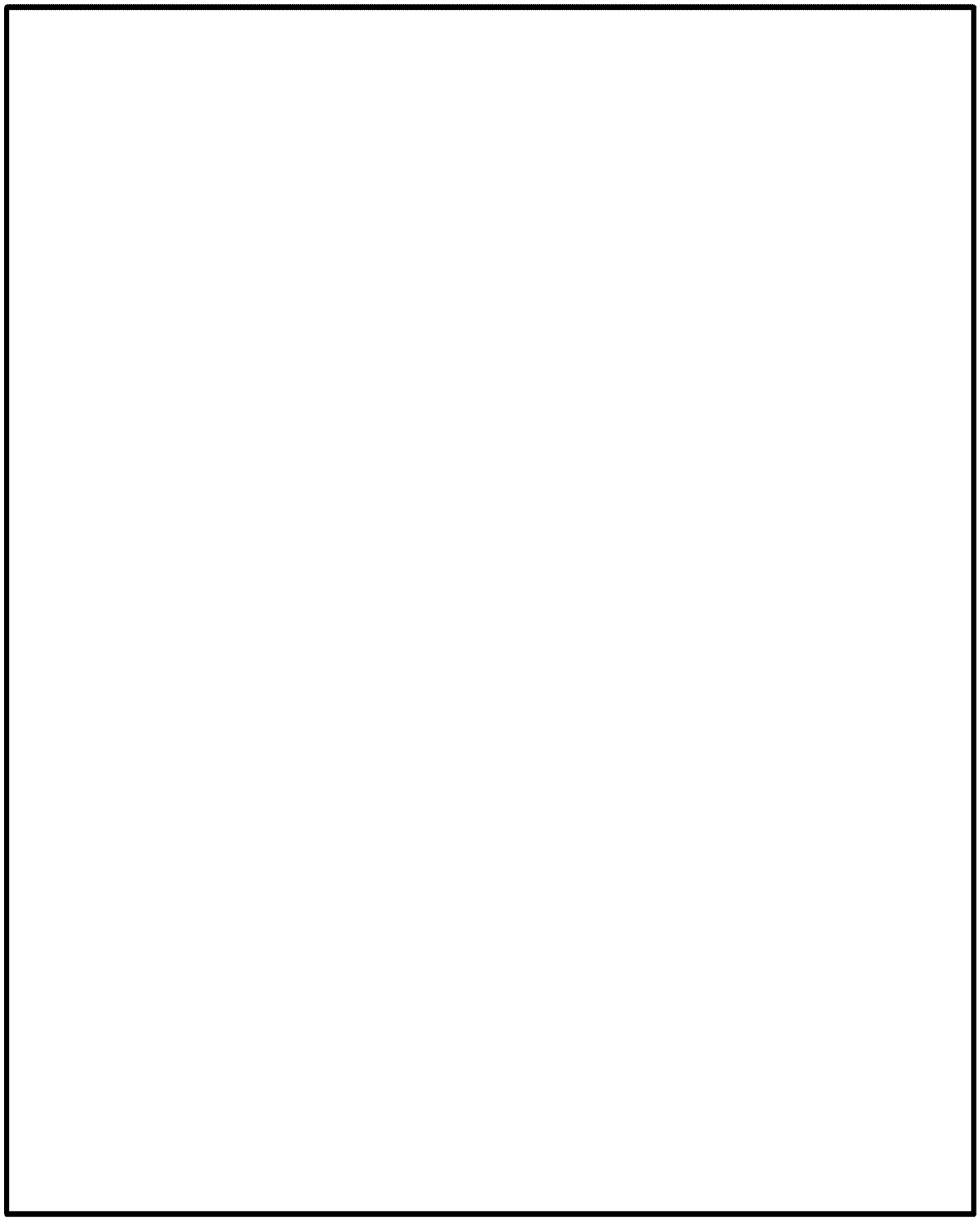


Subscriber Signature: _____

Subscriber Name: _____

(b)(4)

SUBSCRIPTION ESCROW AGREEMENT



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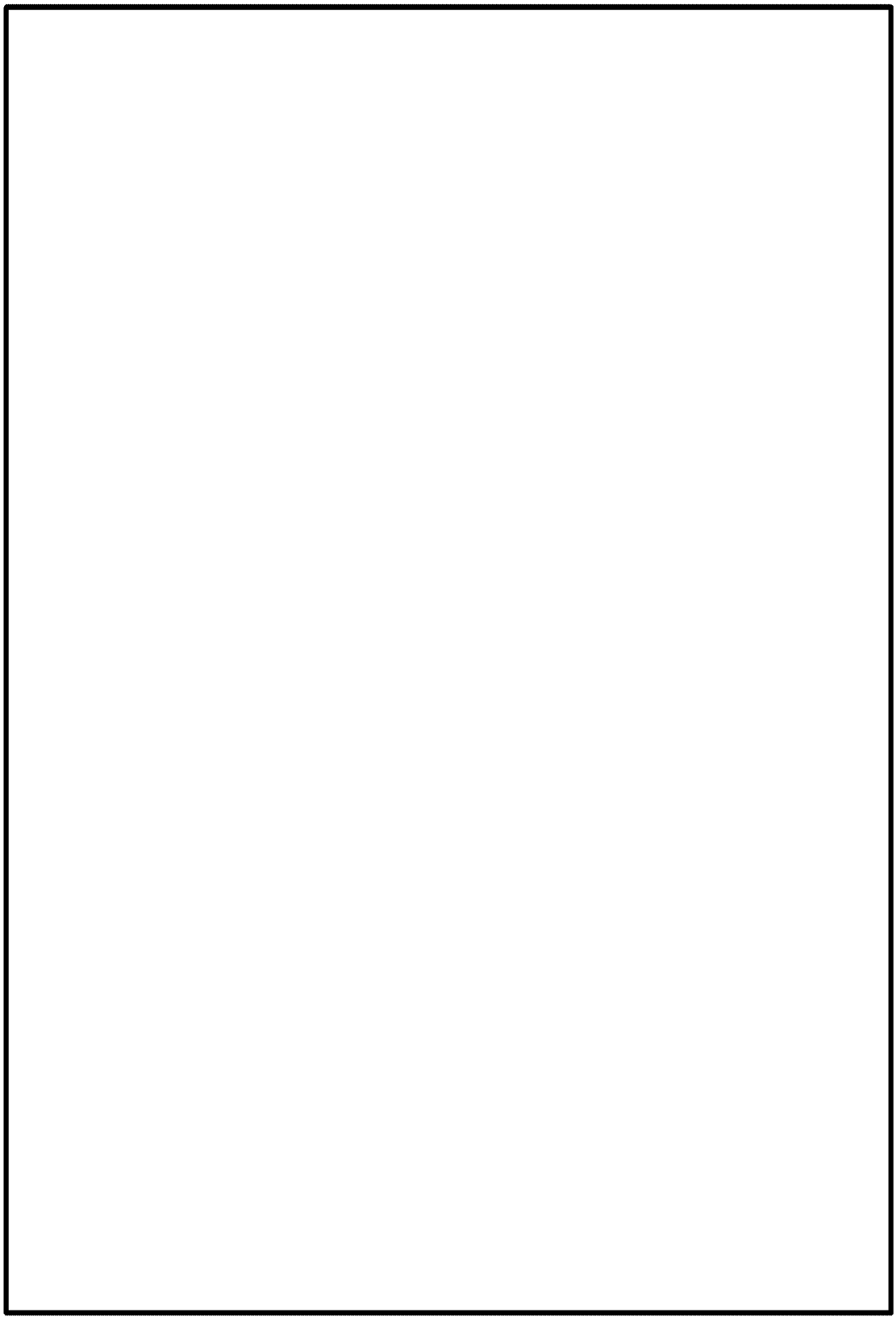

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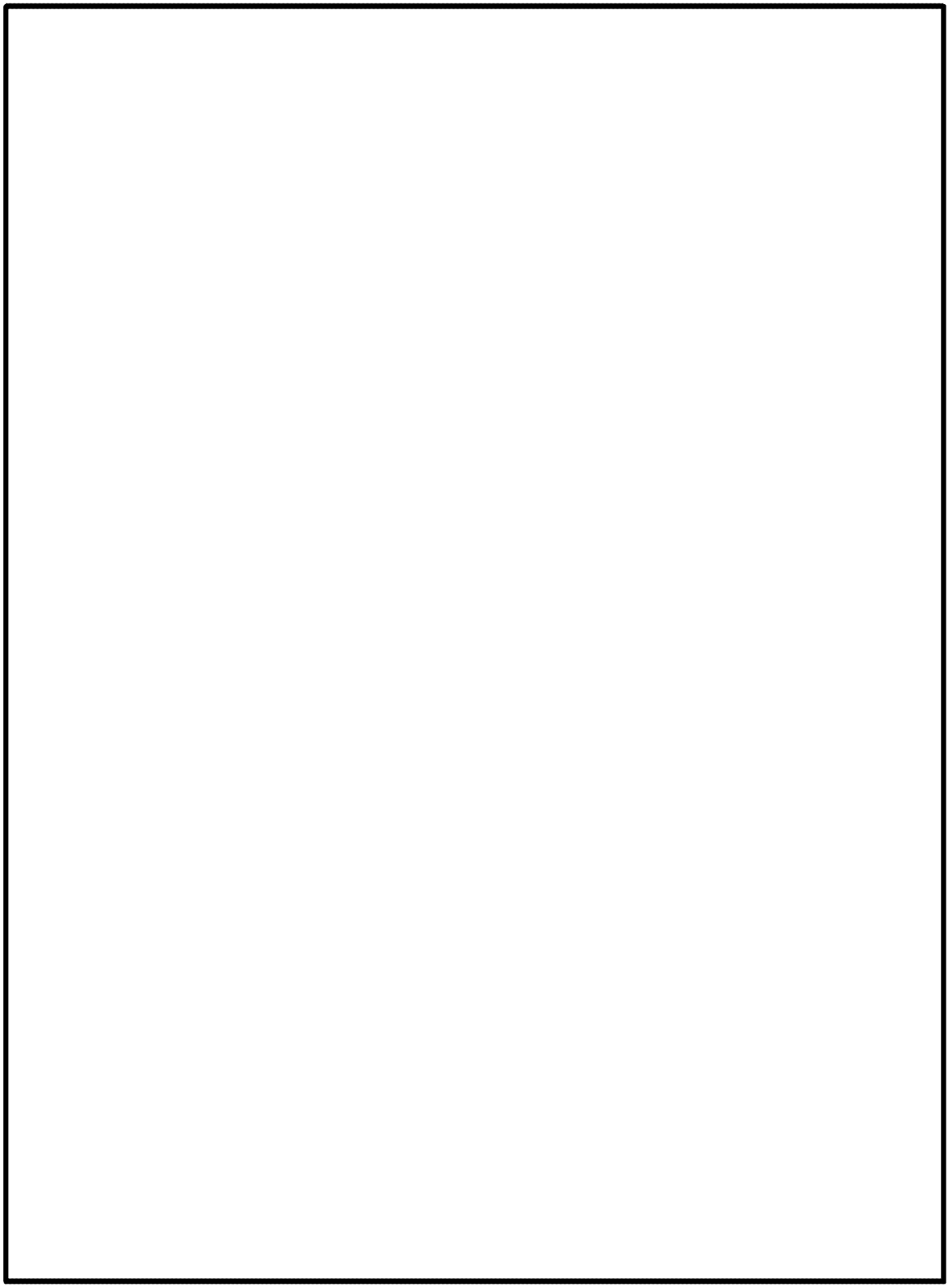

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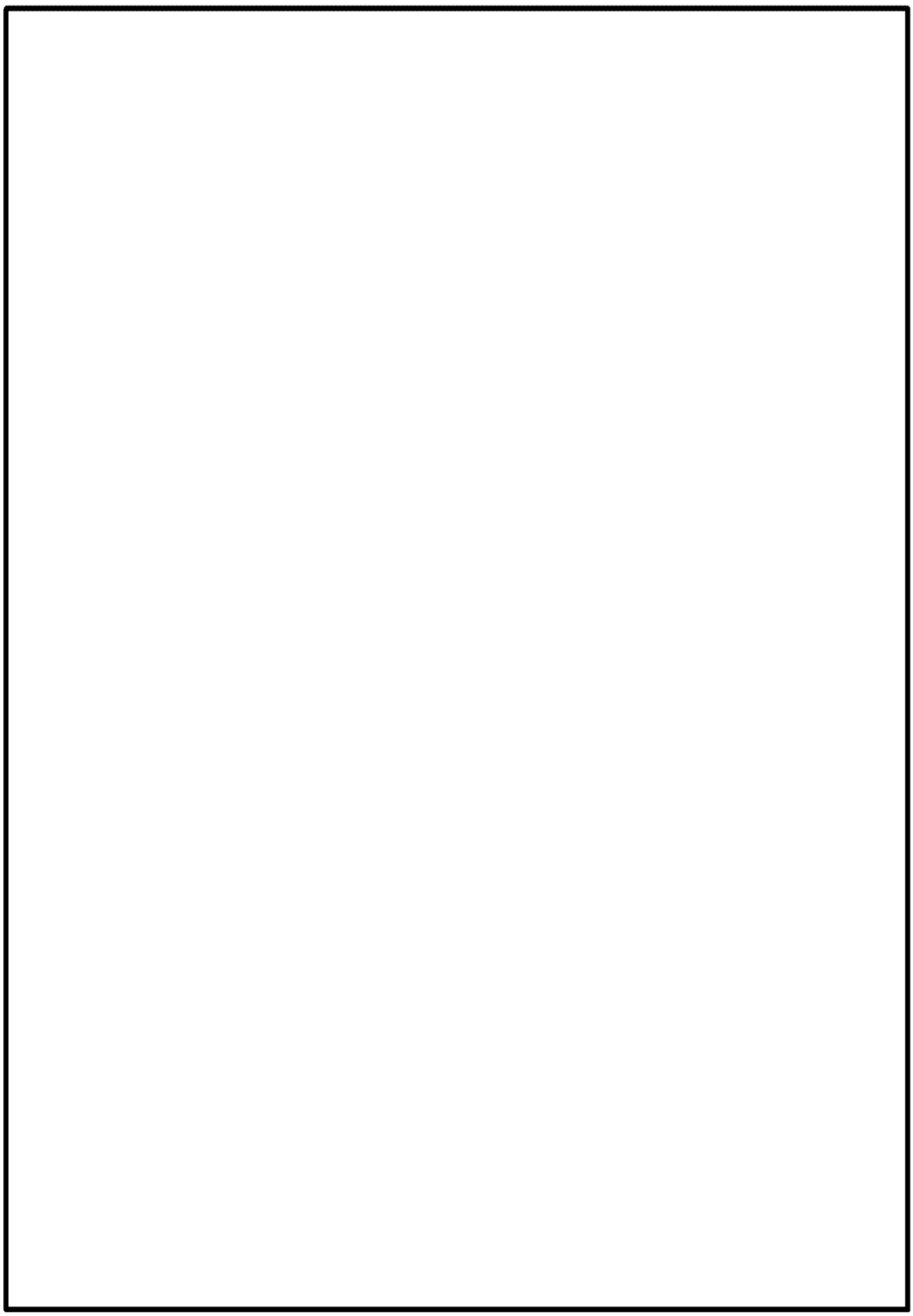

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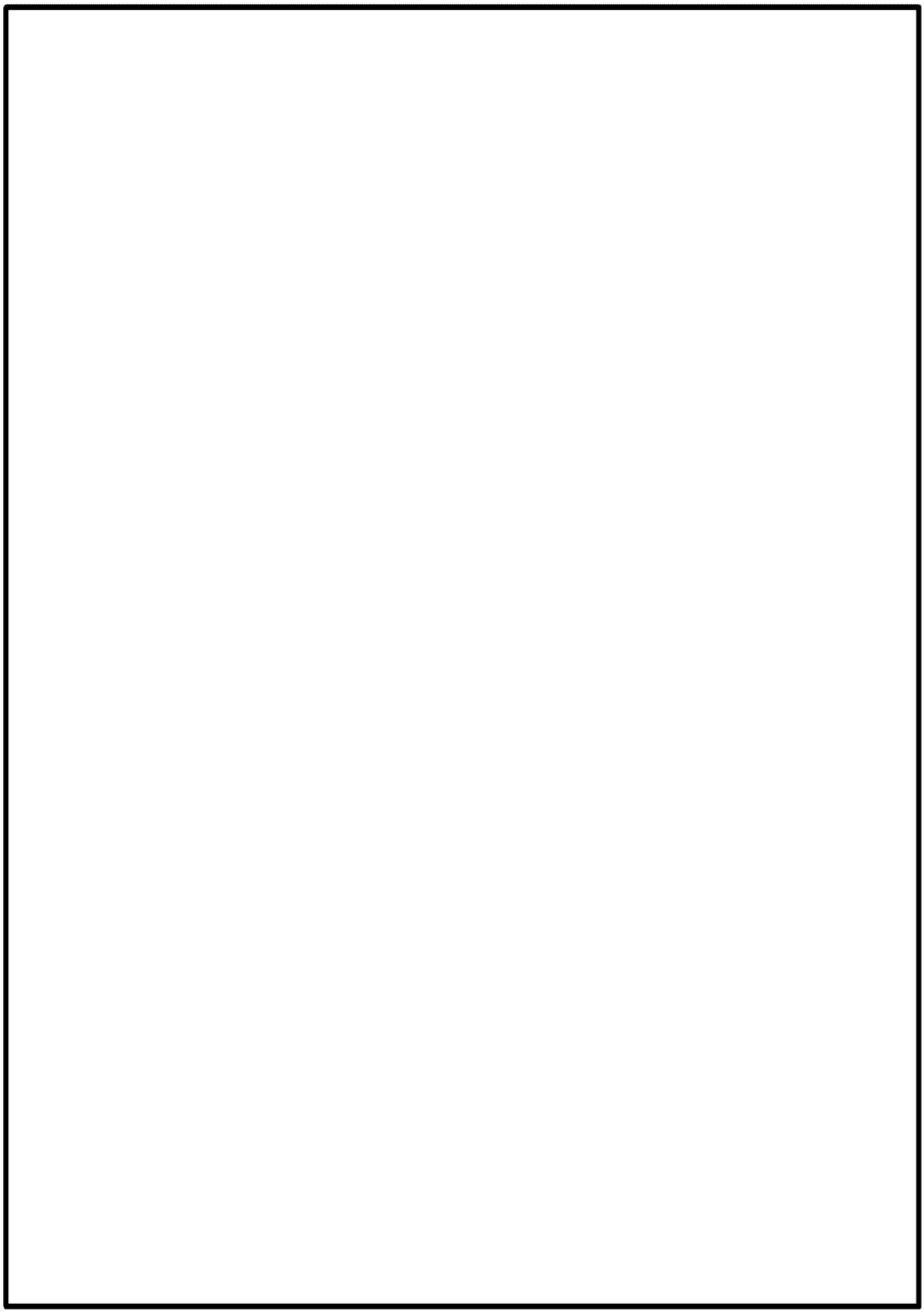

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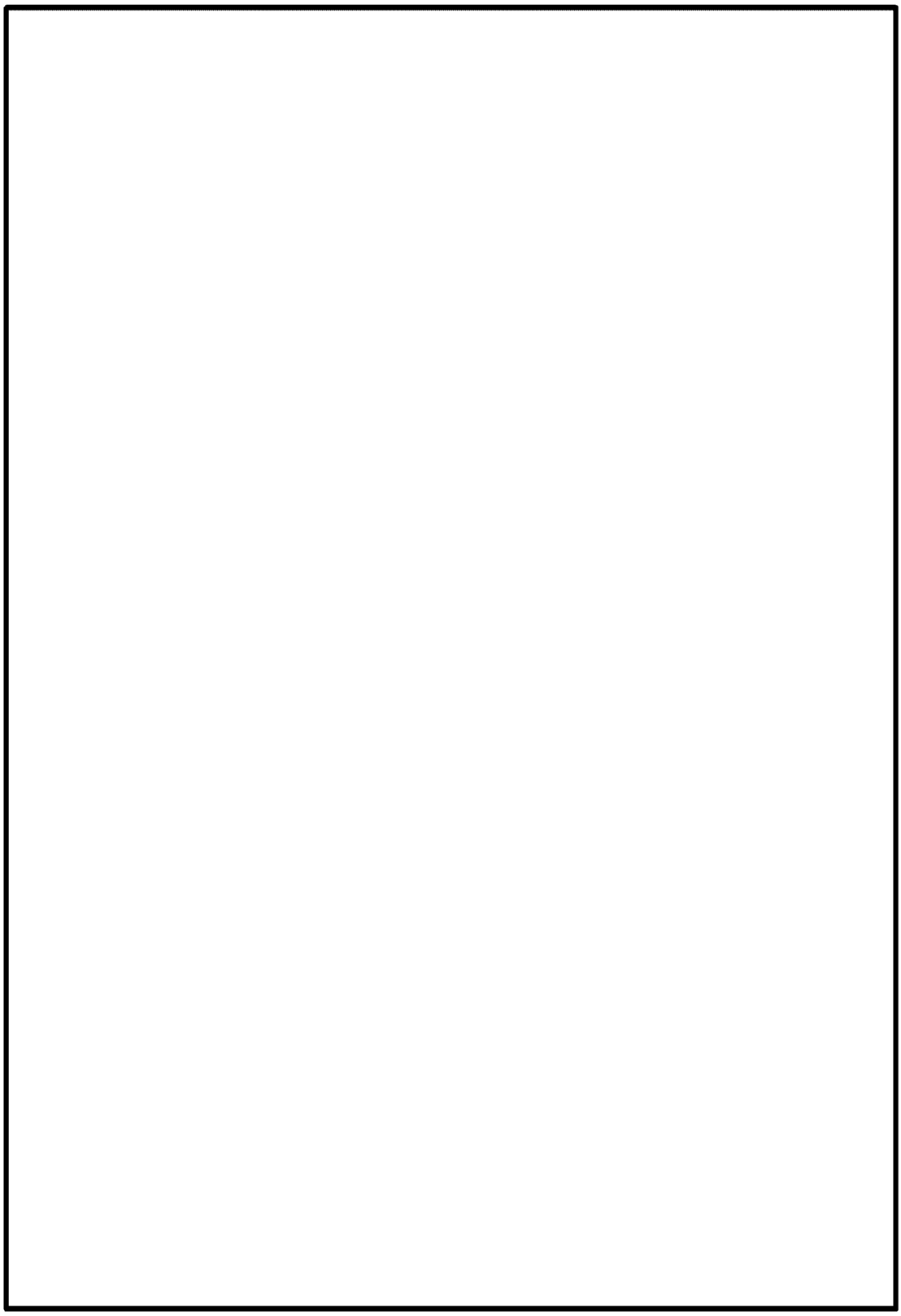

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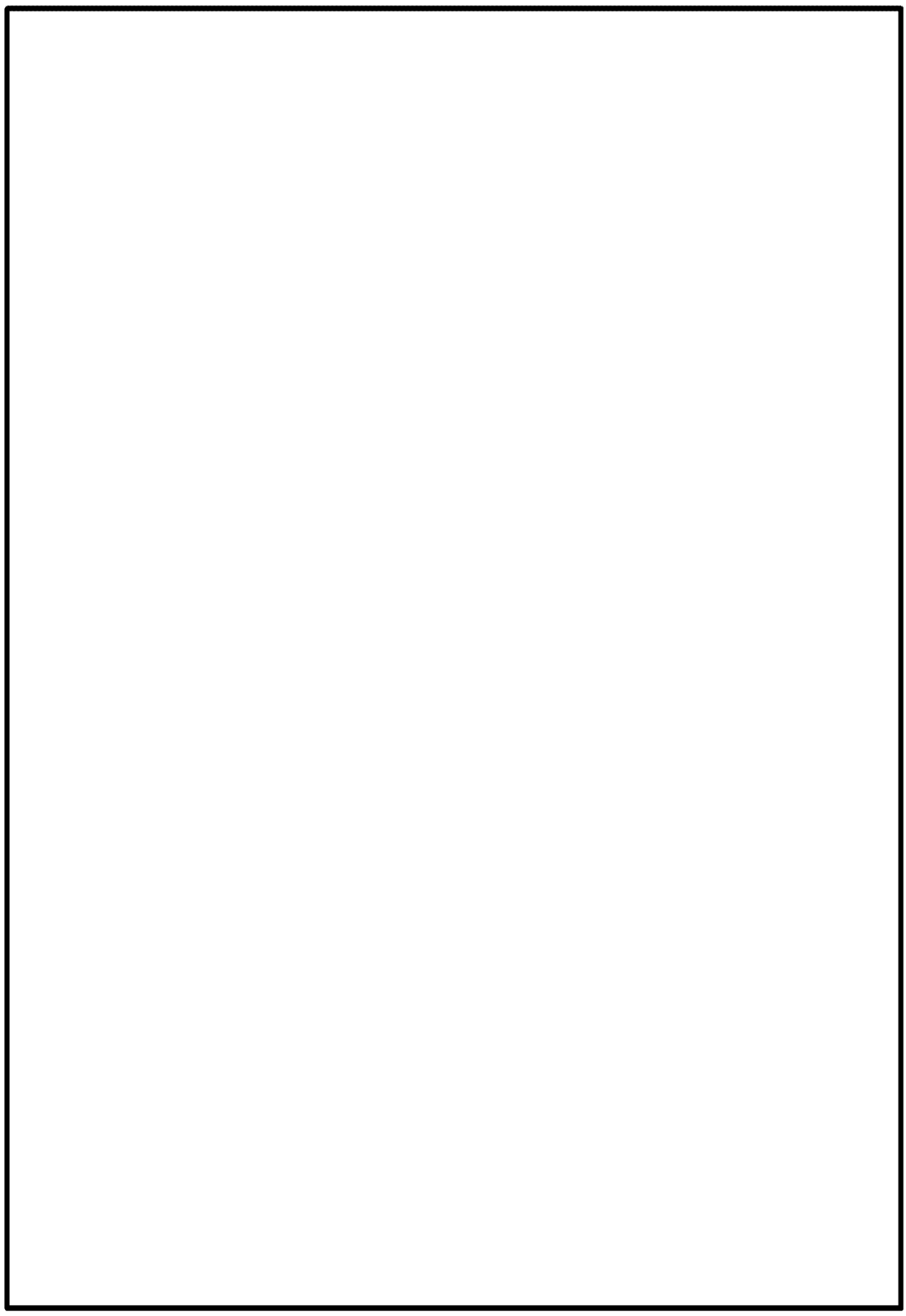

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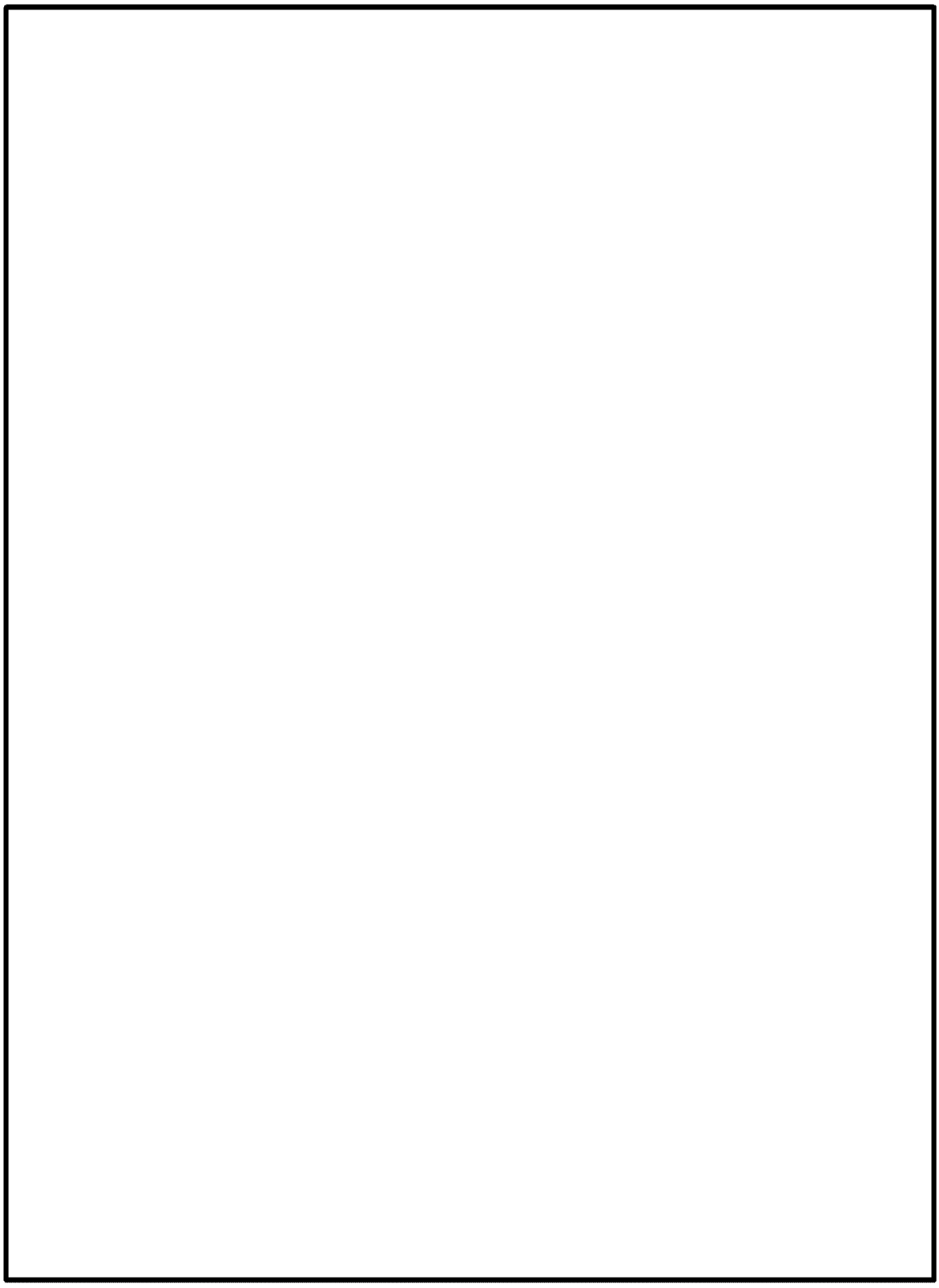

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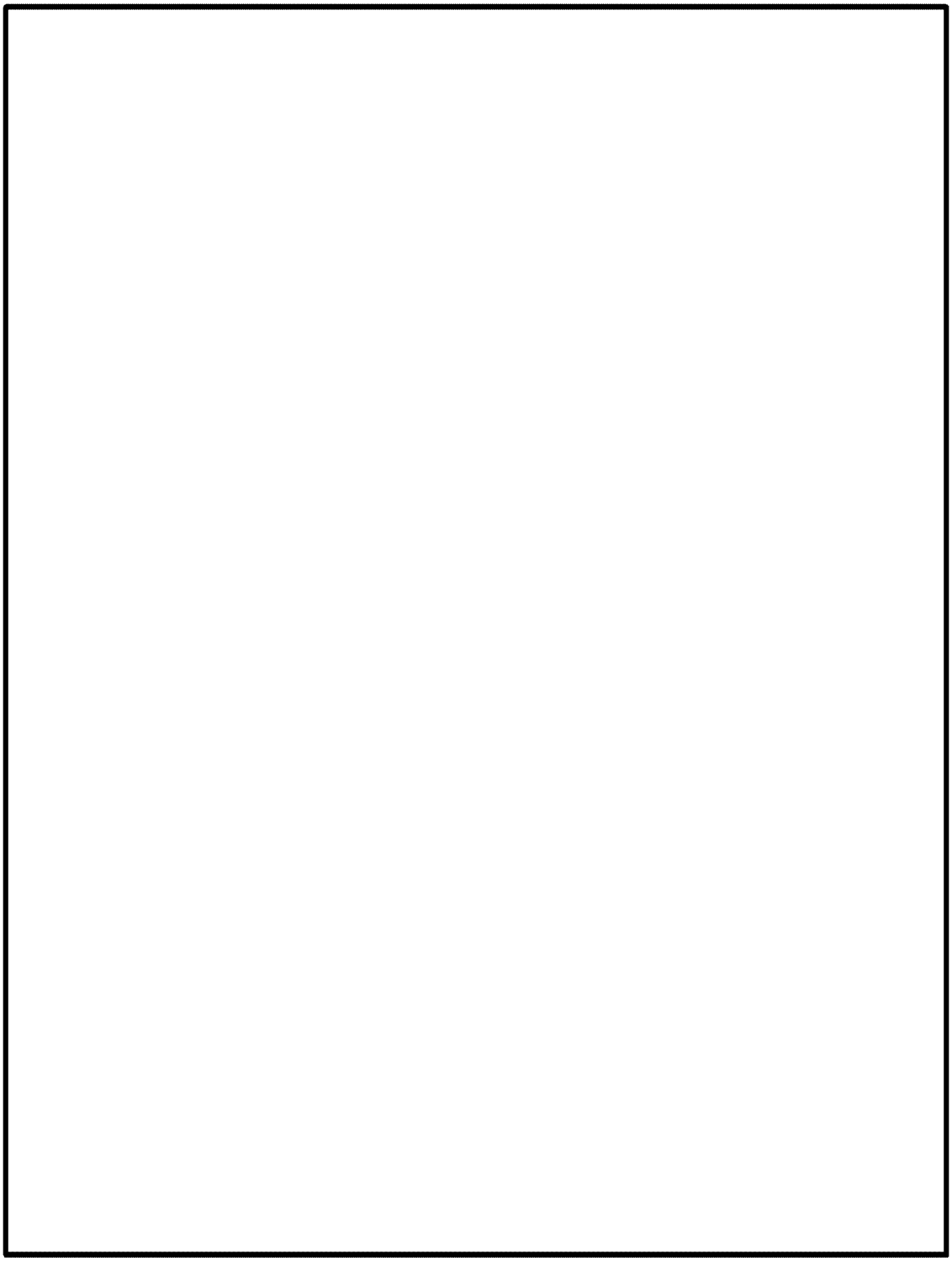
(b)(4)



[Remainder of page intentionally left blank.]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

"LLC"

88th Avenue EB5 Capital, LLC

By:
Name: George Xu
Title: Managing Member

"SUBSCRIBER REPRESENTATIVE"

Century New York Regional Center LLC

By:
Name: George Xu
Title: President

"ADMINISTRATIVE AGENT"

NESF Escrow Services Corp.

By:
Name: Dan Yoder
Title: President

"ESCROW AGENT"

Peapack-Gladstone Bank

By:
Name: SEAN MURRAY
Title: SENIOR MANAGING DIRECTOR

EXHIBIT A-2

Certificate of Incumbency
(List of Authorized Representatives)

Client Name: Century New York Regional Center LLC

As an Authorized Officer of the above referenced entity, I hereby certify that each person listed below is an authorized signor for such entity, and that the title and signature appearing beside each name is true and correct.

Name	Title	Signature	Contact Number
George Xu	President		718-939-1060
Qili Li	President		718-939-1060

IN WITNESS WHEREOF, this certificate has been executed by a duly authorized officer by:

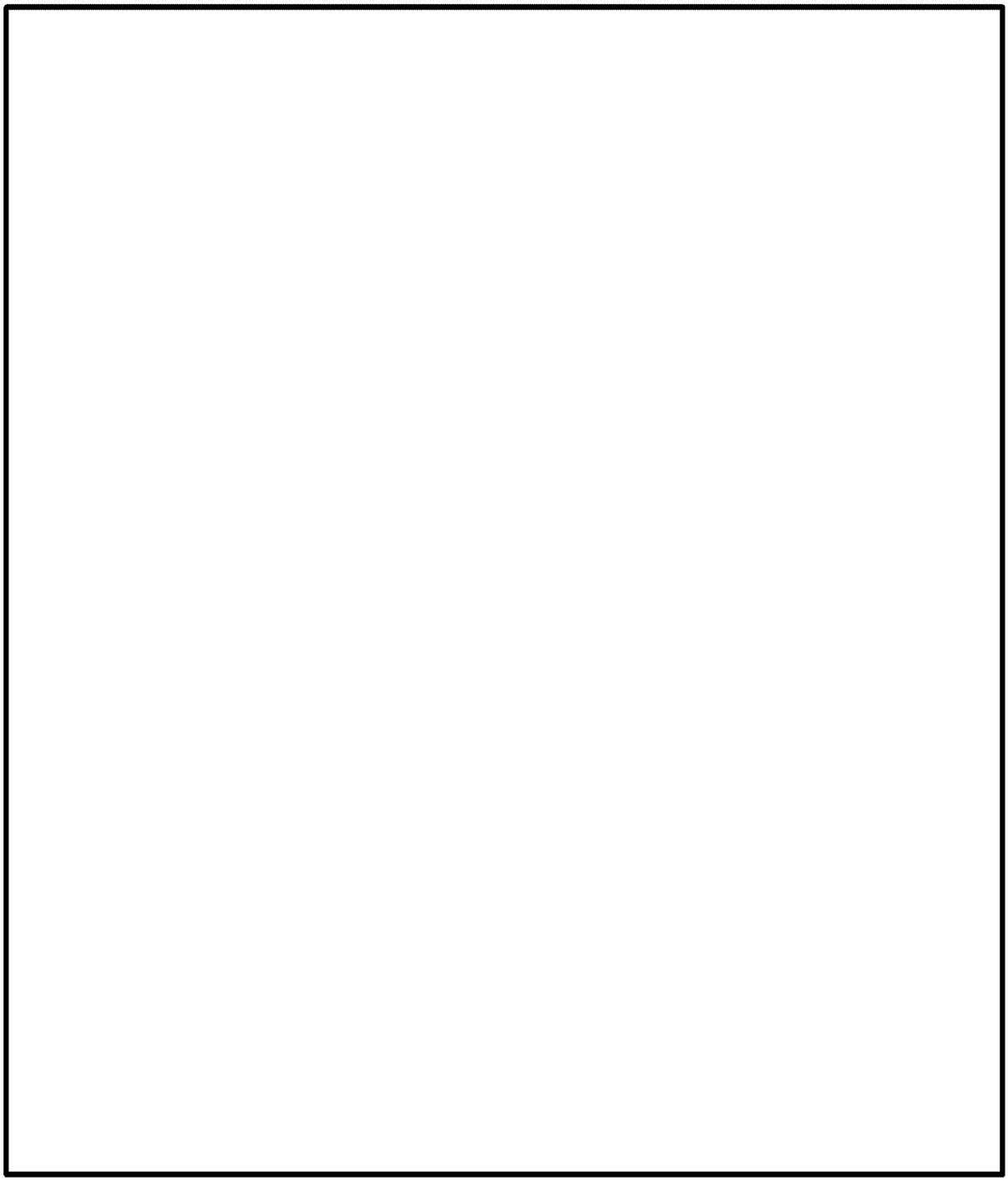
By: Tracy Law Date: 9/18/2015
Title: Project Manager

TRACY LAW
NOTARY PUBLIC-STATE OF NEW YORK
No. 01LA6279977
Qualified in Queens County
My Commission Expires April 15, 2019

EXHIBIT C

(b)(4) WRITTEN IINSTRUCTIONS TO RELEASE ESCROW FUNDS

[Project Name]



REGIONAL CEN[illegible]R: CENTURY NEW YORK CITY RE[illegible]NAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: 88TH AVE EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 6

Economic Analysis Showing the Job Creation of the Project

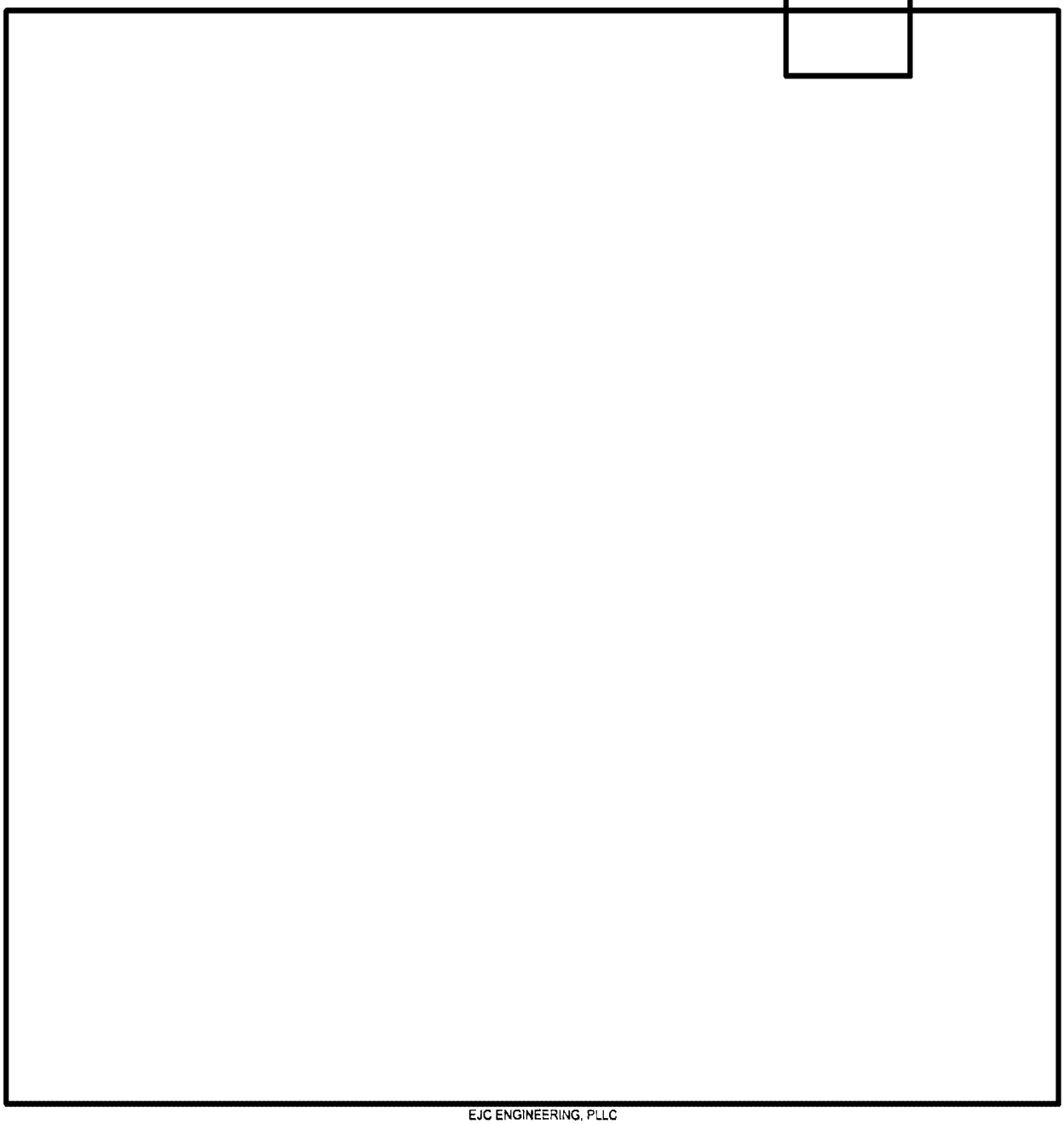
- **The Economic Impact of Construction and Operation of a Hotel,** located in Woodside, Queens, NY, prepared by Michael K. Evans, dated September 8, 2015

January 21, 2015

(b)(4)

Re: Engineering Design Services
148-31/43 88th Avenue, Jamaica, NY

b. Preliminary design completion
c. Engineering design being approved and construction starting:
d. Construction completion and T.C.O.



REGIONAL CEN . R: CENTURY NEW YORK CITY REC .AL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: 88TH AVE EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

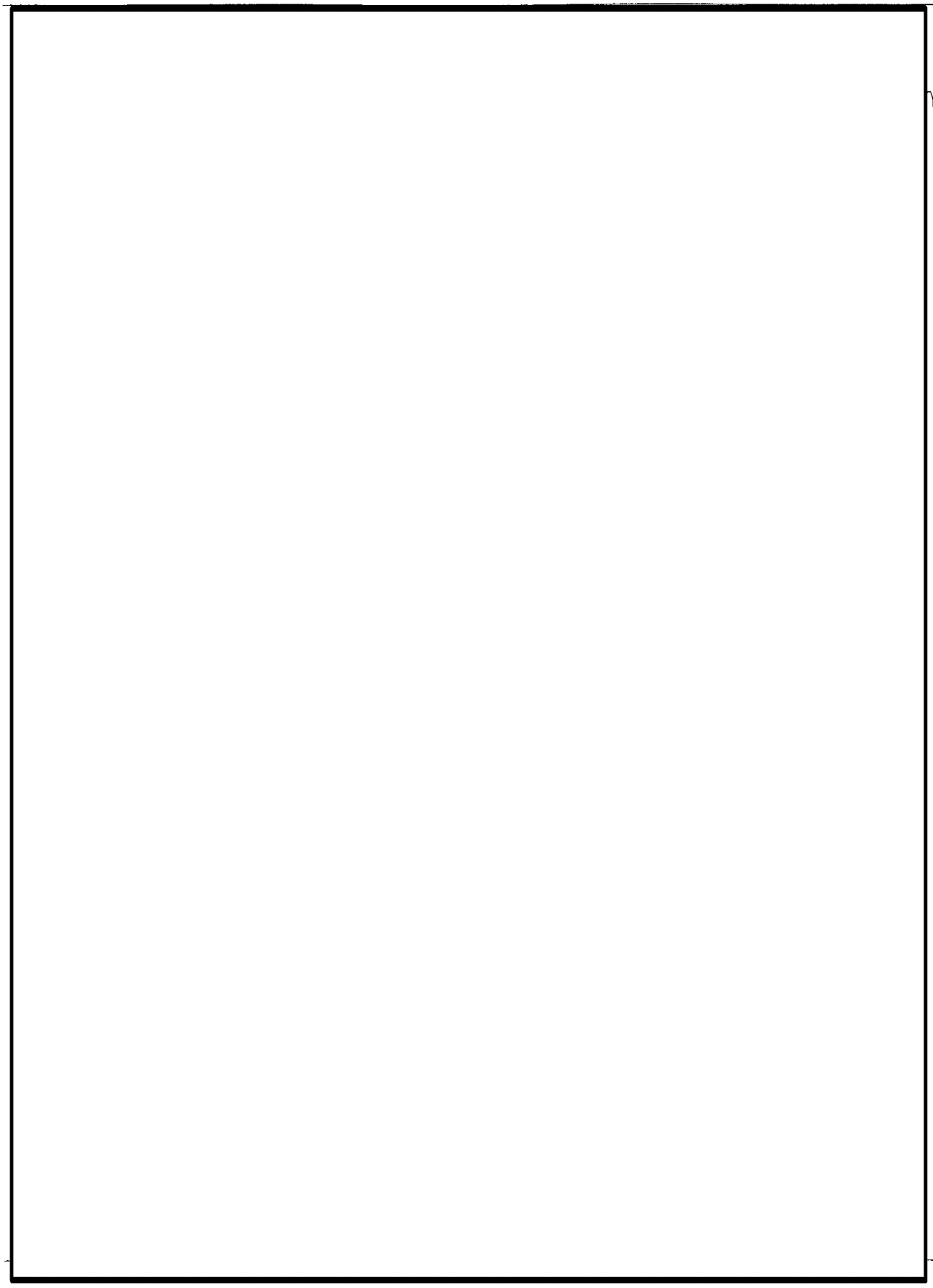
Exhibit 11

Engineering and Interior Design Documents

- **Fully Executed Engineering Contract** between Owner (Century Construction Group Corp.) and Engineer (Times Building Engineering Services PC) dated April 17, 2014 where Times Building Engineering Services PC to provide professional engineering, surveying, planning and environmental services for the project
- **Fully Executed Agreement for Interior Design Services** between Owner (Century Construction Group Corp.) and Engineer (EJC Engineering, PLLC) dated January 21, 2015
- **Approved Proposal for Field Exploration, Special Inspections, and Geotechnical Report,** from Geotechnical Investigation Proposal on August 26, 2014

100% Recycled
30% PCW

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

148-44/46 HILLSIDE AVE.

148-44/46 HILLSIDE AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:

BUILDING SECTION

SCALE: 3/16" - 1'-0"

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:

TIMES BUILDINGS PC
8535 GRAND AVE. 2ND FL. ELMHURST, NY 11373
WEB: WWW.TBES.US EMAIL: INFO@TBES.US
TEL: (718) 502-0631 FAX: (718) 228-7348

SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 10/25/2011 DWG. No.:
PROJECT No.: 21411-B
PROJECT MANAGER: RC
DRAWN BY: E.L
CADD FILE NO.: HILLSIDE AVENUE (21411-B)

A-601.00

13-OF-15

N.Y.C. D.O.B. NO. :

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

148-44/46 HILLSIDE AVE.

148-44/46 HILLSIDE AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:

5TH FLOOR PLAN

SCALE: 3/16" = 1'-0"

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:

TIMES BUILDINGS PC
8535 GRAND AVE. 2ND FL. ELMHURST, NY 11373
WEB: WWW.TBES.US EMAIL: INFO@TBES.US
Tel: (718) 502-9631 Fax: (718) 226-7348

SEAL & SIGNATURE

ARCHITECTS + PLANNERS
135-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8898
Email: Info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 02/23/2015 DWG. No.:
PROJECT No.: 21411-9
PROJECT MANAGER: RC
DRAWN BY: E.L.
CADD FILE NO.: HILLSIDE AVENUE (21411-9)

A-105.00

10-OF-15

N.Y.C. D.O.B. NO. :

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

148-44/46 HILLSIDE AVE.

148-44/46 HILLSIDE AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:

3RD & 4TH FL PLAN

SCALE: 3/16" = 1'-0"

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:

TIMES BUILDINGS PC
8505 GRAND AVE. 2ND FL. ELMHURST, NY
WEB: WWW.TBES.US EMAIL: INFO@TBES.US
TEL: (718) 302-6631 Fax: (718) 228-7348

SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2343 Fax: (718) 359-6809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 09/15/2015 DWG. No.:

PROJECT No.: 2141-3

PROJECT MANAGER: RC

A-104.00

DRAWN BY: E.L.

CADD FILE NO.:
HILLSIDE AVENUE (2141-3)

09-OF-15

N.Y.C. D.O.B. NO. :

No.	DATE	DESCRIPTION

148-44/46 HILLSIDE AVENUE, JAMAICA, NEW YORK 11435

ZONING INFORMATION

Address : 148-44/46 HILLSIDE AVENUE
JAMAICA, N.Y. 11435
Block : 9694
Lot : 26
Zone : C2-3 IN R7A
(SPECIAL DISTRICT- DOWNTOWN JAMAICA)
Map No. : 14d
Construction Class : 1-B

ZONING CALCULATION

FLOOR	BUILDING GROSS FLOOR AREA (SQ. FT.)	COMMUNITY FACILITY (SQ. FT.)		COMMERCIAL (SQ. FT.)			TOTAL ZONING FLOOR AREA (S.F.)	ACCESSORY PARKING	BICYCLE SPACE
		AMBU. HEALTHCARE FACILITY	COMMUNITY CENTER	RETAIL	OFFICE			REQUIRED	REQUIRED
USE GROUP		4		6					
CELLAR	4274				3764	4274	0	3420/ 400 = 8.55 **	13679/ 10000 = 1.37 ***
1ST FL	4274	422	422	3420		10	4264		
2ND FL	2773		2702			71	2702		
3RD FL	2773		2702			71	2702	4156/400= 10.39 ** 9523/2000= 4.76 **	7184/ 10000 = 0.72 ***
4TH FL	2773		2702			71	2702		
5TH FL	2773	1707	995			71	2702		
6TH FL	2077	2027				50	2027		
TOTAL	21717	4156	9523	3420	0	4618	17099	23.7 ** < 25 WAIVED	2.09 ***
MAX. FA ALLOWED		13679 <14,748.1 SF		3420 < 8,549.6 SF					
MAX. FA OF BUILDING		17099.0 ≤ 17,099 SF							
TOTAL FAR OF BUILDING		3.20 < 4.00		0.80 < 2.00					
		4.00 ≤ 4.00 (LOT AREA: 4,274.84 SF)							

* (ZR 12-10) CELLAR FLOOR, CHASE & MECH. SPACE NOT COUNT AS ZONING FLOOR AREA.
** (ZR 36-231) WAIVER OF REQUIREMENTS FOR PARKING SPACE BELOW MINIMUM NUMBER OF 25 IN COMMERCIAL & COMMUNITY FACILITY.

ZONING ANALYSIS

TAX LOT SIZE= 4,274.84 SF

ZR 115-23 <HEIGHT AND SETBACK REGULATIONS>
ALL HEIGHTS SHALL BE MEASURED FROM THE BASE PLANE.
PROPOSED BASE PLANE = 64.76' (SEE DWG.A601)

ZR 33-121
<MAX. F.A.R. FOR BUILDING USED FOR BOTH COMMERCIAL AND COMMUNITY FACILITY USES = 4.00>
4,274.84 x 4.00 = 17,099 SF ALLOWED
= 17,099 SF PROPOSED
PROPOSED FAR = 4.00 < 4.00 -(COMPLIES)

<MAX. F.A.R. FOR COMMERCIAL= 2.00>
4,274.84 x 2.00 = 8,549.6 SF ALLOWED
= 3,420.0 SF PROPOSED
PROPOSED FAR = 0.80 < 2.00 -(COMPLIES)

<MAX. F.A.R. FOR COMMUNITY FACILITY= 4.00>
4,274.84 x 4.00 = 17,099 SF ALLOWED
= 13,679 SF PROPOSED
PROPOSED FAR = 3.20 < 4.00 -(COMPLIES)

ZR 24-11 <MAX. LOT COVERAGE FOR INTERIOR LOT = 65%>
4,274.84 x 65% = 2,778.6 SF ALLOWED
= 2,773/ 4,274.84
= 0.649 x 100% = 64.9% PROPOSED

PROPOSED LOT COVERAGE= 2,773 SF = 64.9% < 65% -(COMPLIES)

YARD REGULATION

ZR 35-52
NO SIDE YARD REQUIRED, IF PROVIDED, 8' MIN. -(COMPLIES)

33-261 <BEYOND 100' OF A STREET LINE>
(a) 20' REAR YARD FOR COMMERCIAL
REQUIRED WHEN REAR LOT LINE COINCIDES WITH A REAR LOT LINE OF AN ADJOINING ZONING LOT.
(c) NO REAR YARD REQUIRED WHEN REAR LOT LINE COINCIDES WITH A SIDE LOT LINE OF AN ADJOINING ZONING LOT.

ZR 23-541 & ZR 33-301 <WITHIN 100' OF CORNERS>
NO REAR YARD REQUIRED

ZR 35-51
NO FRONT YARD IS REQUIRED. -(COMPLIES)

ZR 23-633(a1)(b1) & ZR 35-24(c) <SETBACK REGULATION>
REQUIRED: 10' SETBACK ALONG A WIDE STREET;
40' MIN. BASE HEIGHT; 65' MAX. BASE HEIGHT;
80' MAX. BUILDING HEIGHT

PROPOSED: 67'-4" BUILDING HEIGHT. -(COMPLIES)
(SEE BUILDING SECTION, DWG A.601)

PARKING REQUIREMENT

ZR 36-21 <REQ. PARKINGS FOR COMM.>
RETAIL: 1 PER 400 SF
/400 = 8.55 PARKING SPACE REQUIRED

AMBULATORY HEALTH CARE FACILITY: 1 PER 400 SF
/400 = 10.39 PARKING SPACE REQUIRED

COMMUNITY CENTER: 1 PER 20 PERSONS
/2,000 = 4.76 PARKING SPACE REQUIRED

ZR 36-231 <WAIVER OF REQUIREMENTS FOR SPACES BELOW MINIMUM NUMBER IS 25 IN C2-3 DISTRICT>
TOTAL PARKING SPACE REQUIRED IN COMMERCIAL & COMMUNITY FACILITY:
8.55+10.39+4.76 = 23.7 < 25 -(COMPLIES)

TOTAL PARKING REQUIRED = 0
TOTAL PARKING PROPOSED = 0 -(COMPLIES)
(SEE PARKING REQUIREMENT TABLE)

ZR 36-62 <REQUIRED LOADING BERTH>
COMMERCIAL USES: FIRST 25,000 SF = NONE REQUIRE;

TOTAL LOADING BERTH REQUIRED = 0
TOTAL LOADING BERTH PROPOSED = 0 -(COMPLIES)

ZR 36-70 <BICYCLE PARKING>
ALL OTHER USE GROUP 3 & 4: 1 PER 10,000 SF
/ 10,000 = 1.37 PARKING SPACE REQUIRED

GENERAL RETAIL OR SERVICE USUS:
USE GROUP 6: 1 PER 10,000 SF
/ 10,000 = 0.72 PARKING SPACE REQUIRED

ZR 36-711(d) <WAIVER FOR BICYCLE PARKING SPACES>
1.37+0.72 = 2.09 < 3 -(COMPLIES)

TOTAL BICYCLE SPACE REQUIRED = 0
TOTAL BICYCLE SPACE PROPOSED = 0 -(COMPLIES)
(SEE PARKING REQUIREMENT TABLE)

STREET TREE PLANTING
ZR 33-03, ZR 26-41
REQUIRED ONE STREET TREE FOR EVERY 25' OF STREET FRONTAGE OF THE ZONING LOT.

AT HILLSIDE AVENUE, 45/25 = 1.8 TREES REQUIRED
PROPOSED 0 TREES ON-SITE, & 2 TREES OFF-SITE

SEPARATE APPLICATIONS

SPRINKLER & STANDPIPE
FIRE PROTECTION PLAN
BUILDERS PAVEMENT PLAN
SITE CONNECTION
SITE SAFETY PLAN
MECHANICAL & BOILER

SPECIAL INSPECTION ITEMS

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
148-44/46 HILLSIDE AVE.
148-44/46 HILLSIDE AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:
ZONING/
PLOT PLAN

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:
TIMES BUILDINGS PC
8535 GRAND AVE. 2ND FL. ELMHURST, NY 11373
WEB: WWW.TBES.US EMAIL: INFO@TBES.US
Tel: (718) 523-9631 Fax: (718) 226-7346

SEAL & SIGNATURE

RAYMOND CHAN ARCHITECT
ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 02/25/2015 DWG. No.:
PROJECT No.: 1141-13
PROJECT MANAGER: RC
DRAWN BY: E.L.
CADD FILE NO.: HILLSIDE AVENUE (2014-13)

A-001.00
01-OF-15

N.Y.C. D.O.B. NO. :

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

148-31/43 88TH AVE.

148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:

BUILDING SECTION

SCALE: 1/8" - 1'-0"

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:

TIMES BUILDINGS PC
8535 GRAND AVE. 2ND FL. ELMHURST, NY 11...
WEB: WWW.TBES.US EMAIL: INFO@TBES.US
Tel: (718) 302-4631 Fax: (718) 226-1348

SEAL & SIGNATURE

RAYMOND CHAN & ARCHITECT

ARCHITECTS + PLANNERS

136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-3345 Fax: (718) 359-8809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 04/26/2011 DWG. No.:
PROJECT No.: 21411-A
PROJECT MANAGER: RC
DRAWN BY: E.L
CADD FILE NO.: 88TH AVENUE 21411-A

A-601.00

16-OF-19

N.Y.C. D.O.B. NO. :

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

148-31/43 88TH AVE.

148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:

ROOF PLAN

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:

TIMES BUILDINGS PC
8535 GRAND AVE. 2ND FL. ELMHURST, NY 11373
WEB: WWW.TBES.US EMAIL: INFO@TBES.US
Tel:(718) 502-9631 Fax:(718) 226-7348

SEAL & SIGNATURE

RAYMOND CHAN ARCHITECT

ARCHITECTS + PLANNERS

138-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 04/29/2015 DWG. No:
PROJECT No.: 2014-9
PROJECT MANAGER: RC
DRAWN BY: S.L.
CADD FILE NO.: 88TH AVENUE (2014)

A-107.00

15-OF-19

N.Y.C. D.O.B. NO. :

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

148-31/43 88TH AVE.

148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:

8TH FLOOR PLAN

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:

TIMES BUILDINGS PC
8535 GRAND AVE. 2ND FL. ELMHURST, NY 1
WEB: WWW.TBES.US EMAIL: INFO@TBES.US
Tel: (718) 502-4831 Fax: (718) 226-7348

SEAL & SIGNATURE

ARCHITECTS + PLANNERS
136-43 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 04/06/2015 DWG. No.:
PROJECT No.: 21411-A
PROJECT MANAGER: RCA A-106.00
DRAWN BY: E.L.
CADD FILE NO.: 88TH AVENUE (21411-A) 14-OF-19

N.Y.C. D.O.B. NO. :

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

148-31/43 88TH AVE.

148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:

7TH FLOOR PLAN

SCALE: 3/32" = 1-0"

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:

TIMES BUILDINGS PC
8535 GRAND AVE. 2ND FL, ELMHURST, NY 11373
WEB: WWW.TBES.US EMAIL: INFO@TBES.US
Tel: (718) 502-9631 Fax: (718) 226-7348

SEAL & SIGNATURE

RAYMOND CHAN ARCHITECT
ARCHITECTS + PLANNERS

138-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

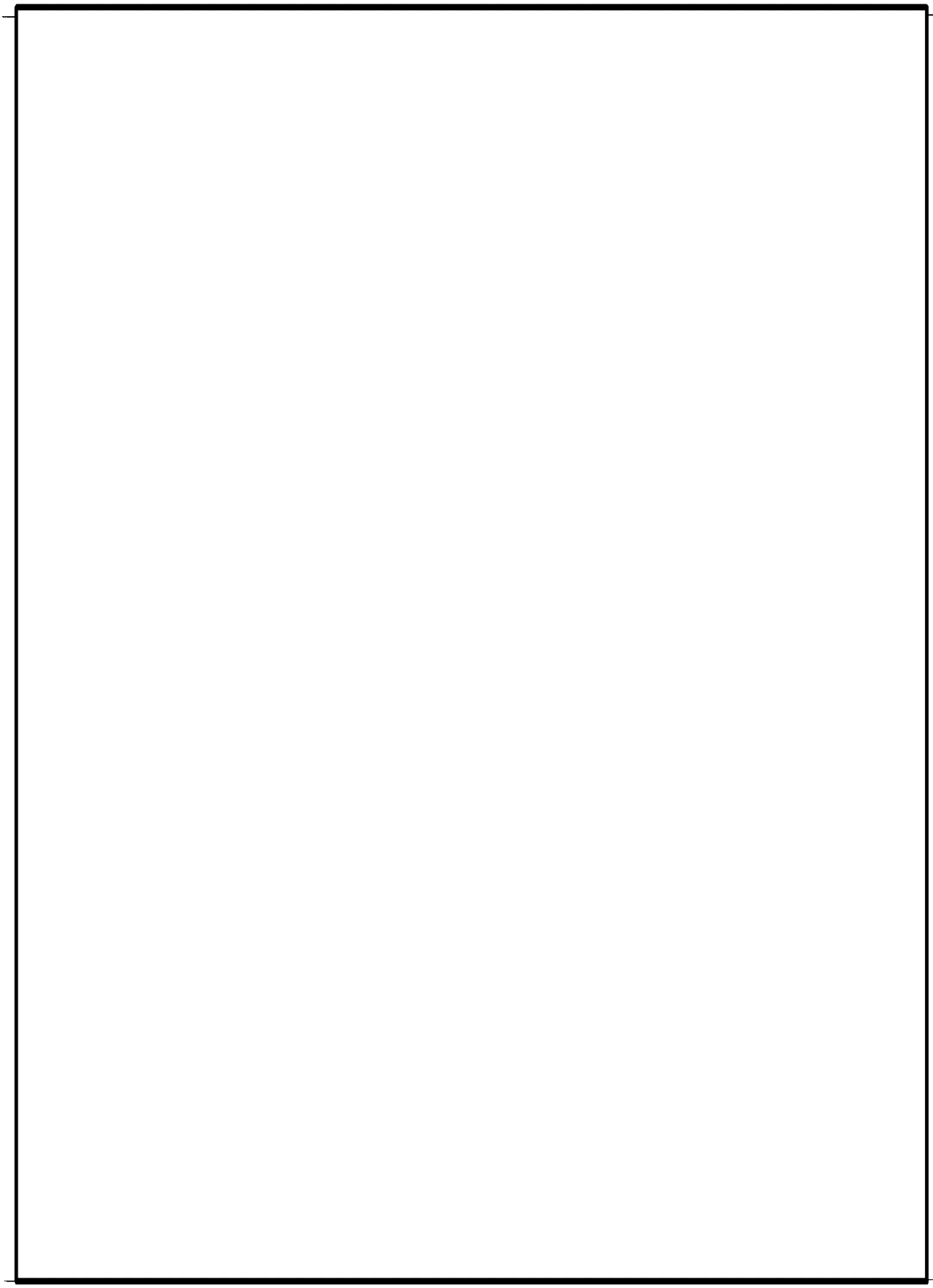
DATE: 04/29/2015 DWG. No.:
PROJECT No.: 21411-A
PROJECT MANAGER: RC
DRAWN BY: B.L.
CADD FILE NO.: 88TH AVENUE 21411-A

A-105.00

13-OF-19

N.Y.C. D.O.B. NO. :

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

148-31/43 88TH AVE.

148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:

3RD~6TH FL PLAN

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:

TIMES BUILDINGS PC
8535 GRAND AVE. 2ND FL. ELMHURST, NY 11...
WEB. WWW.TBES.US EMAIL:INFO@TBES.US
TEL: (718) 5024631 Fax: (718) 228-7348

SEAL & SIGNATURE

RAYMOND CHAN ARCHITECT
ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel. (718) 445-2345 Fax: (718) 359-8809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 04/29/2014 DWG. No.:
PROJECT No.: 21411-A
PROJECT MANAGER: RC
DRAWN BY: E.L
CADD FILE NO.: 88TH AVENUE (21411-A)

A-104.00

12-OF-19

N.Y.C. D.O.B. NO. :

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

148-31/43 88TH AVE.

148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:

2ND FLOOR PLAN

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:

TIMES BUILDINGS PC
8535 GRAND AVE, 2ND FL. ELMHURST, NY 11373
WEB: WWW.TBES.US EMAIL: INFO@TBES.US
Tel: (718) 502-9631 Fax: (718) 226-7349

SEAL & SIGNATURE

RAYMOND CHAN ARCHITECT

ARCHITECTS + PLANNERS

136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

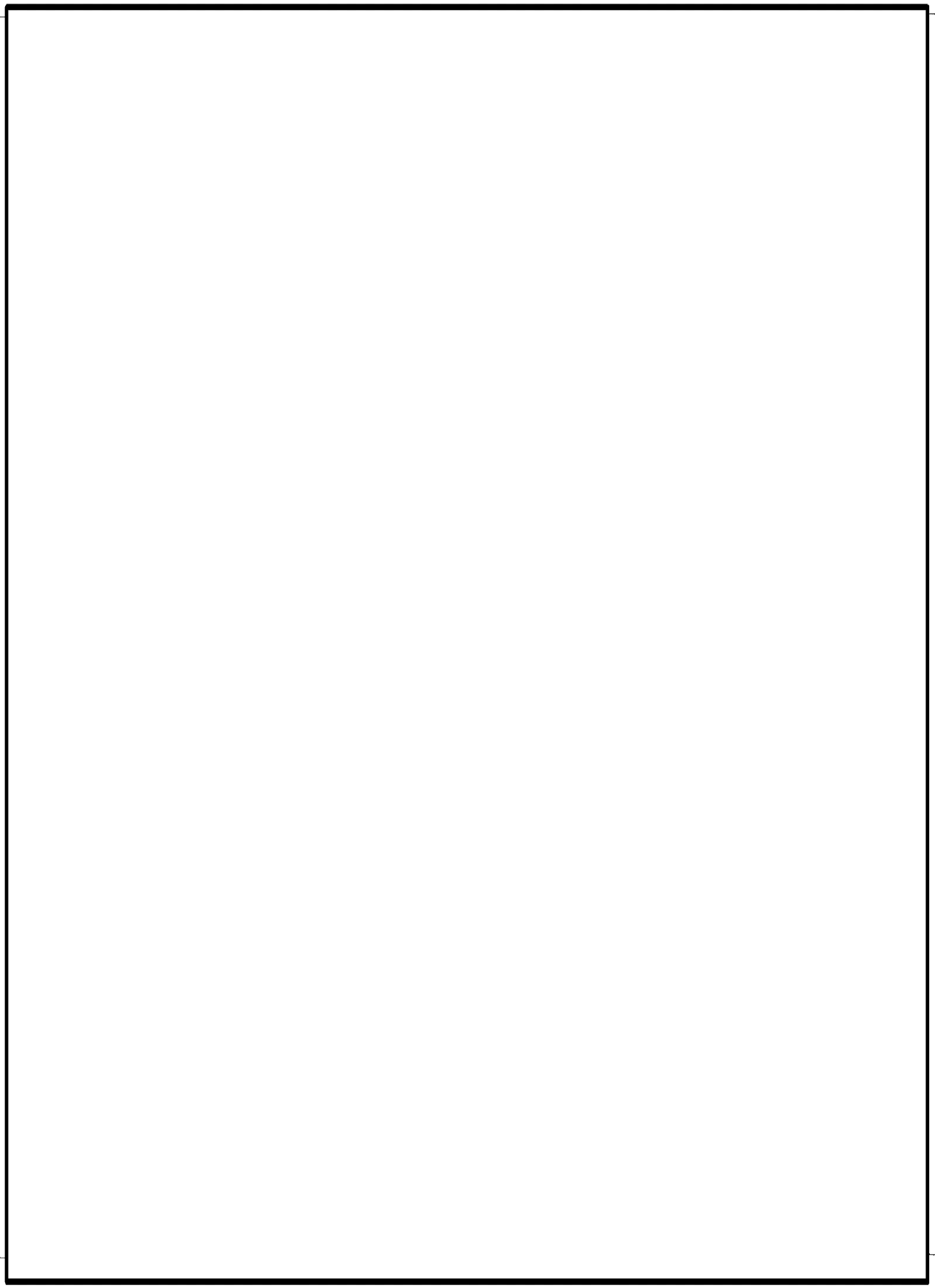
DATE: 04/29/2015 DWG. No.:
PROJECT No.: 7141-A
PROJECT MANAGER: RC
DRAWN BY: E.L.
CADD FILE NO.: 88TH AVENUE (7141-A)

A-103.00

11-OF-19

N.Y.C. D.O.B. NO. :

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

148-31/43 88TH AVE.

148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:

1ST FLOOR PLAN

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:

TIMES BUILDINGS PC
8635 GRAND AVE. 2ND FL. ELMHURST, NY
WEB: WWW.TBES.US EMAIL: INFO@TBES.US
Tel: (718) 502-8631 Fax: (718) 228-7348

SEAL & SIGNATURE

RAYMOND CHAN ARCHITECT

ARCHITECTS + PLANNERS
136-40 38TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 04/05/2019 DWG. No.:
PROJECT No.: 21411-A
PROJECT MANAGER: RCA A-102.00
DRAWN BY: E.L
CADD FILE NO.: 10-OF-19
88TH AVENUE (21411-A)

N.Y.C. D.O.B. NO. :

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

148-31/43 88TH AVE.

148-31/43 88TH AVE.
JAMAICA, NEW YORK 11435

DRAWING TITLE:

CELLAR FL PLAN

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:

TIMES BUILDINGS PC
8535 GRAND AVE. 2ND FL. ELMHURST, NY 11373
WEB: WWW.TBES.US EMAIL: INFO@TBES.US
Tel: (718) 502-9831 Fax: (718) 228-7348

SEAL & SIGNATURE

RAYMOND CHAN ARCHITECT

ARCHITECTS + PLANNERS

136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 04/29/2015 DWG. No.:
PROJECT No.: 3141A
PROJECT MANAGER: RC
DRAWN BY: E.L. A-101.00
CADD FILE NO.: 09-OF-19
88TH AVENUE (3141-A)

N.Y.C. D.O.B. NO. :

(b)(4)

No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

148-31/43 88TH AVE.

148-31/43 88TH AVE.
JAMAICA, NEW YORK 11435

DRAWING TITLE:

SITE PLAN

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:

TIMES BUILDINGS PC
85-35 GRAND AVE. 2ND FL. ELMHURST, NY 11373
WEB: WWW.TIMESLLIS EMAIL: INFO@TIMESLLIS
Tel: (718) 302-9831 Fax: (718) 226-7248

SEAL & SIGNATURE

ARCHITECTS + PLANNERS
138-40 38TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 353-8809
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 04/25/2013 DWG. No.:
PROJECT No.: 21413-A
PROJECT MANAGER: RC
DRAWN BY: E.L.
CADD FILE NO.: 88TH AVENUE_21413-A

A-002.00

02-OF-19

N.Y.C. D.O.B. NO. :

148-31/43 88TH AVENUE, JAMAICA, NEW YORK 11435

No.	DATE	DESCRIPTION

ZONING INFORMATION

Address : 148-31/43 88TH AVENUE
JAMAICA, N.Y. 11435
Block : 9694
Lot : 49
Zone : C2-3 IN R7A
(SPECIAL DISTRICT - DOWNTOWN JAMAICA)
Map No. : 14d
Construction Class : 1-B

ZONING CALCULATION

FLOOR	BUILDING GROSS FLOOR AREA (SQ. FT.)	RESIDENTIAL APARTMENT (SQ. FT.)	PARKING GARAGE (SQ. FT.)	FAR EXEMPT CHASE/ MECH. & OPEN SPACE* (SQ.FT.)	TOTAL ZONING FLOOR AREA (S.F.)	NO. OF DWELLING UNIT	ACCESSORY PARKING		BICYCLE SPACE	
							REQUIRED	PROPOSED	REQUIRED	PROPOSED
USE GROUP		2 (LOT 49)	2B							
CELLAR	23611	0	19743	3868	0			55		51
1ST FL	13324	8358	1395	3571	8358	11	109 x 50% = 54.5		109/ 2 = 54.5	4
2ND FL	13324	12174		1150	12174	16				
3RD FL	13324	12174		1150	12174	16				
4TH FL	13324	12174		1150	12174	16				
5TH FL	13324	12174		1150	12174	16				
6TH FL	13324	12174		1150	12174	16				
7TH FL	10107	8528		1579	8528	11				
8TH FL	7816	6635		1181	6635	7				
ROOF	785	318		467	318					
TOTAL	122263	84709	21138	16416	84709	109 < 124	55	55	55	55
MAX. FA ALLOWED		84709 < 84,709.6 SF								
MAX. FA OF BUILDING		84709 < 84,709.6 SF								
TOTAL FAR OF BUILDING		3.45 < 3.45 (LOT AREA: 24,553.53 SF)								

* (ZR 12-10) CELLAR FLOOR, CHASE & MECH. SPACE NOT COUNT AS ZONING FLOOR AREA.

ZONING ANALYSIS

LOT SIZE = 24,553.53 SF

ZR 115-23 <HEIGHT AND SETBACK REGULATIONS>
ALL HEIGHTS SHALL BE MEASURED FROM THE BASE PLANE.
PROPOSED BASE PLANE = 61.24' (SEE DWG. A601)

ZR 115-211(b) <MAX. F.A.R. FOR ENTIRE BUILDING= 3.45>
24,553.53 x 3.45 = 84,709.6 SF ALLOWED
= 84,709.0 SF PROPOSED
PROPOSED FAR = 3.45 < 3.45 -(COMPLIES)

ZR 115-211(b) <FOR RESIDENTIAL IN R7A= 3.45>
MAX. ALLOWED BASE F.A.R. IN R7A
24,553.53 x 3.45 = 84,709.6 SF ALLOWED
= 84,709.0 SF PROPOSED
PROPOSED FAR = 3.45 < 3.45 -(COMPLIES)

ZR 23-145 <MAX. LOT COVERAGE FOR INTERIOR LOT = 65%>
24,553.53 SF x 65% = 15,959.7 SF
= 13,324/ 24,553.53
= 0.543 x 100% = 54.3% PROPOSED
PROPOSED LOT COVERAGE = 13,324 SF = 54.3% < 65.0% -(COMPLIES)

ZR 35-40 <MAX. NUMBER OF DWELLING UNITS>
FACTOR = 680, ZR 23-22,
(LOT AREA)/(MAX. FAR - ACT. OF FAR - ACT. COMM. FAR/ FACTOR
24,553.53 x 3.45 /680 = 124 UNITS ALLOWED
= 109 UNITS PROPOSED -(COMPLIES)

YARD REGULATION
ZR 23-462(c) & ZR 35-52
NO SIDE YARD REQUIRED, IF PROVIDED. 8' MIN. -(COMPLIES)

23-471 & 33-261 <BEYOND 100' OF A STREET LINE>
A 30' REAR YARD FOR RESIDENTIAL & 20' REAR YARD FOR COMM.
IS REQUIRED WHEN REAR LOT LINE COINCIDES WITH A REAR
LOT LINE OF AN ADJOINING ZONING LOT.
NO REAR YARD REQUIRED WHEN REAR LOT LINE COINCIDES
WITH A SIDE LOT LINE OF AN ADJOINING ZONING LOT.

ZR 23-541 & ZR 33-301 <WITHIN 100' OF CORNERS>
NO REAR YARD REQUIRED

ZR 23-632 & ZR 35-51
NO FRONT YARD IS REQUIRED. -(COMPLIES)

ZR 23-633(a1)(b1) & ZR 35-24(c) <SETBACK REGULATION>
REQUIRED: 10' SETBACK ALONG A WIDE STREET;
15' SETBACK ALONG A NARROW STREET;
40' MIN. BASE HEIGHT; 65' MAX. BASE HEIGHT;
80' MAX. BUILDING HEIGHT

PROPOSED: AT 88TH AVENUE, 26'-6" SETBACK @ 60'-0" BASE HEIGHT;
AND 80'-0" BUILDING HEIGHT. -(COMPLIES)
(SEE BUILDING SECTION, DWG A.601)

PARKING REQUIREMENT

ZR 25-23 <REQ. PARKINGS FOR RESIDENTIAL>
TOTAL NUMBER OF DWELLING UNITS = 50%
109 x 50% = 54.5 PARKING SPACE REQUIRED

TOTAL PARKING REQUIRED = 55
TOTAL PARKING PROPOSED = 55 -(COMPLIES)
(REQUIRED 10% OF RESERVOIR SPACE)
55 x 10% = 5.5 REQUIRED, 6 PROVIDED -(COMPLIES)
(SEE PARKING REQUIREMENT TABLE)

ZR 25-81 & ZR 36-70 <BICYCLE PARKING>
FOR RESIDENTIAL USES
USE GROUP 2: 1 PER 2 DWELLING UNITS
109/ 2 = 54.5 PARKING SPACE REQUIRED -(COMPLIES)

TOTAL BICYCLE SPACE REQUIRED = 55
TOTAL BICYCLE SPACE PROPOSED = 55 -(COMPLIES)
(SEE PARKING REQUIREMENT TABLE)

ZR 36-73
15 SF OF AREA SHALL BE PROVIDED FOR EACH BICYCLE SPACE.
55 SPACE x 15 SQ. FT. = 825 SQ. FT. REQUIRED

STREET TREE PLANTING
ZR 33-03, ZR 26-41
REQUIRED ONE STREET TREE FOR EVERY 25' OF STREET
FRONTAGE OF THE ZONING LOT.

AT 88TH AVENUE, 140'/25 = 5.6 TREES REQUIRED
PROPOSED 4 TREES ON-SITE, & 2 TREES OFF-SITE

AT 150TH STREET, 10'/25 = 0.4 TREES REQUIRED
PROPOSED 0 TREES ON-SITE, & 0 TREES OFF-SITE

SEPARATE APPLICATIONS

SPRINKLER & STANDPIPE
FIRE PROTECTION PLAN
BUILDERS PAVEMENT PLAN
SITE CONNECTION
SITE SAFETY PLAN
MECHANICAL & BOILER

SPECIAL INSPECTION ITEMS

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
148-31/43 88TH AVE.
148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:
ZONING/
PLOT PLAN

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:
TIMES BUILDINGS PC
63-51 GRAND AVE, 2ND FL, ELMHURST, NY 11373
WEB: WWW.TBES.US EMAIL: INFO@TBES.US
Tel: (718) 502-9831 Fax: (718) 226-7348

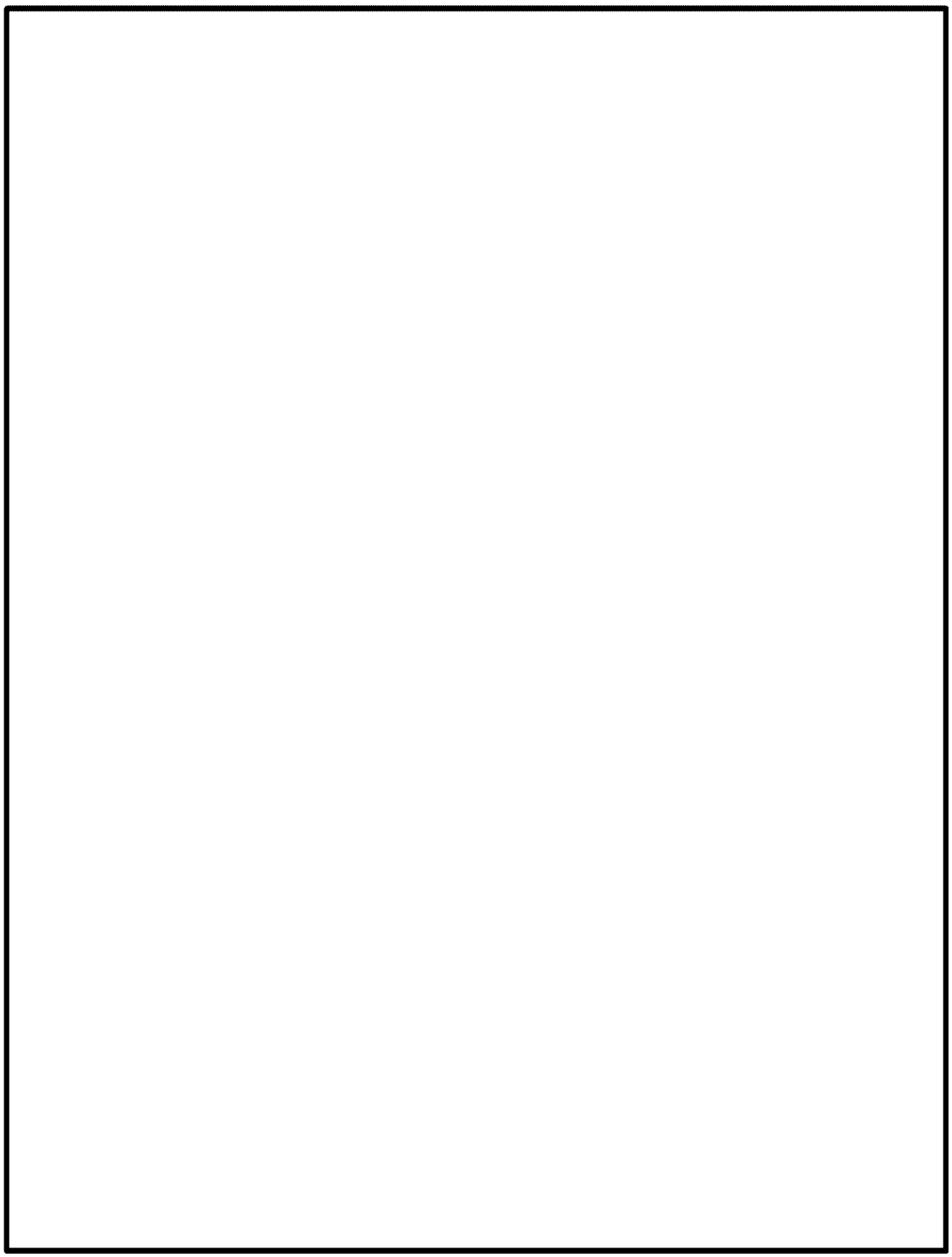
SEAL & SIGNATURE:

RAYMOND CHAN ARCHITECT
ARCHITECTS + PLANNERS
136-40 39TH AVENUE FLUSHING, NEW YORK 11354
Tel: (718) 445-2345 Fax: (718) 359-8609
Email: info@raymondchanarchitect.com
Web: www.raymondchanarchitect.com

DATE: 04/05/2013 DWG. No:
PROJECT No.: 7141-A
PROJECT MANAGER: RC
DRAWN BY: S.L.
CADD FILE NO.: 88TH AVENUE (7141-A)
A-001.00
01-OF-19

N.Y.C. D.O.B. NO. :

(b)(4)



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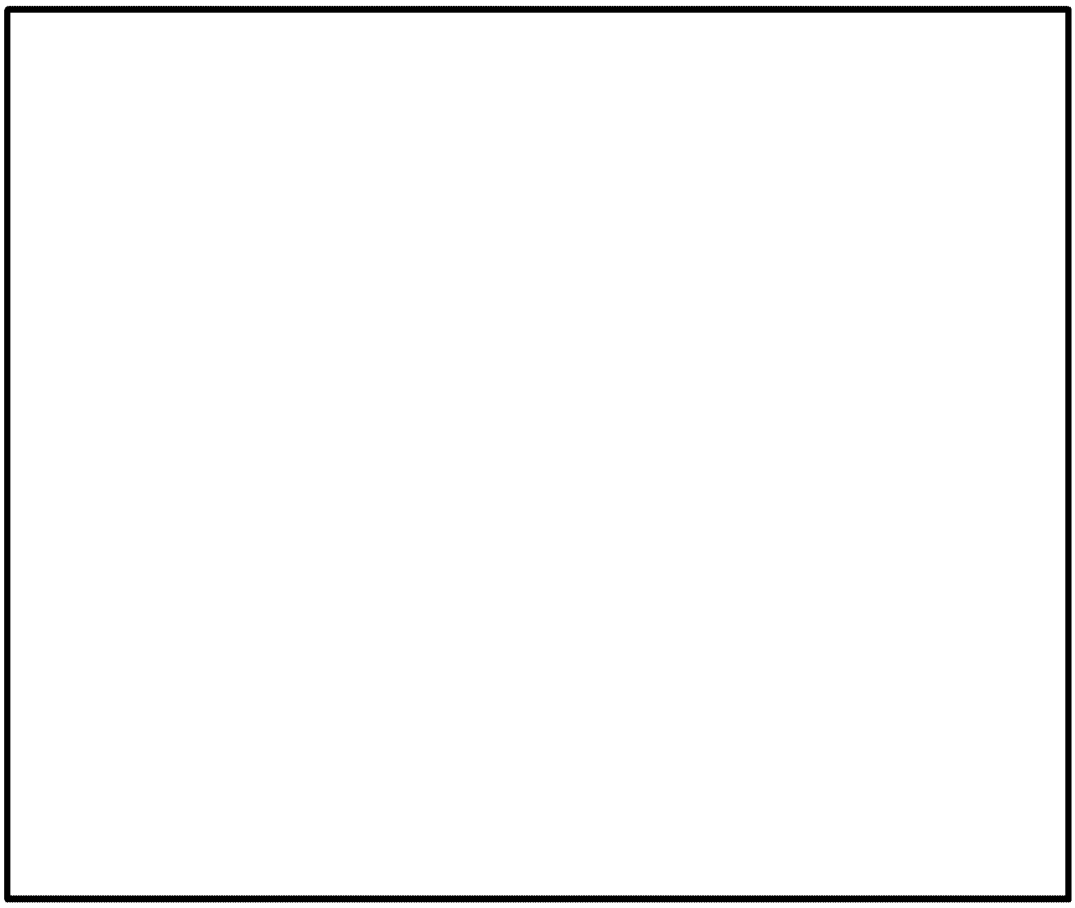


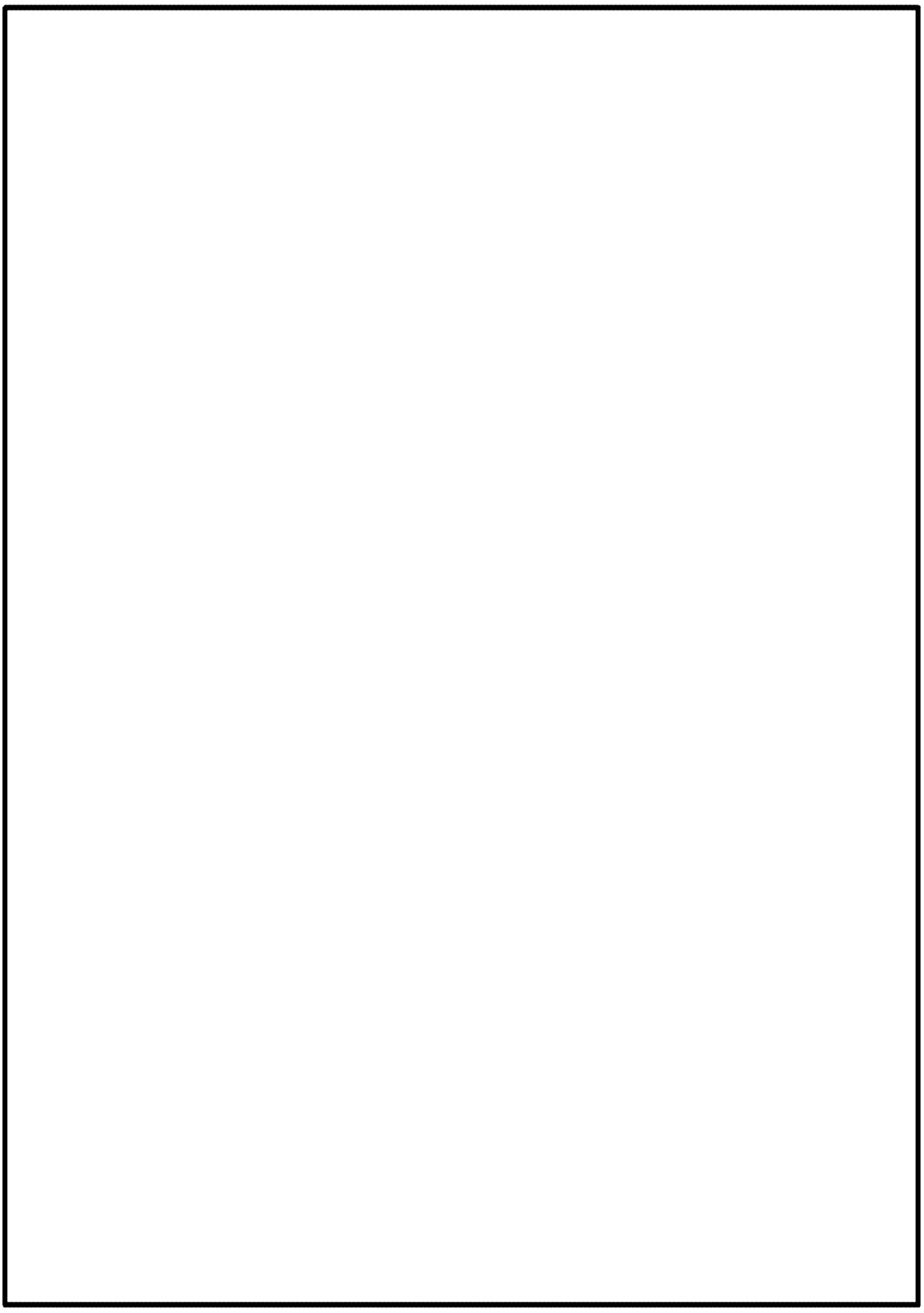
Very truly yours,

Raymond Chan, RA
for
Raymond Chan Architect, PC

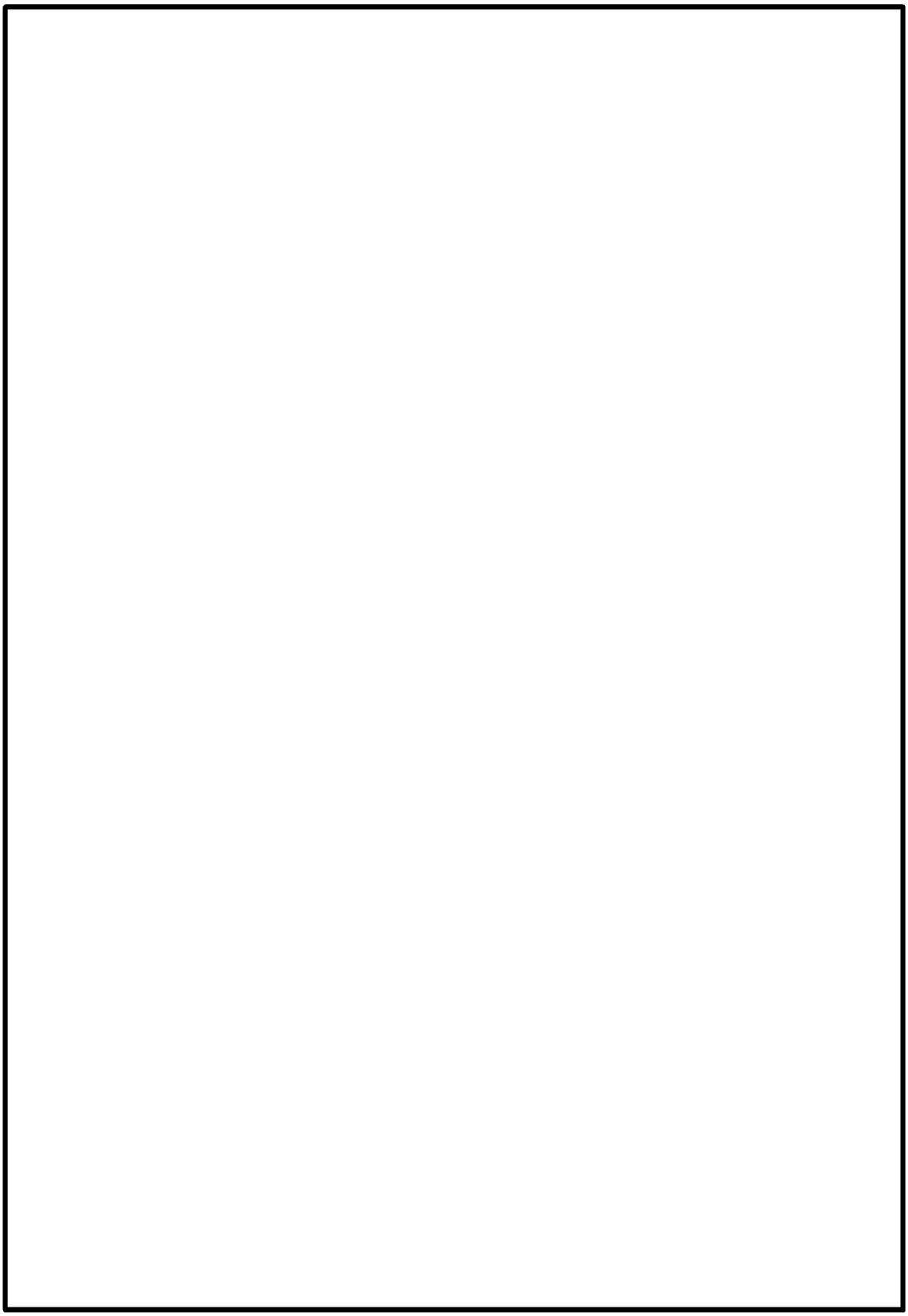
Accepted by,

Mr. George Xu

(b)(4)



(b)(4)



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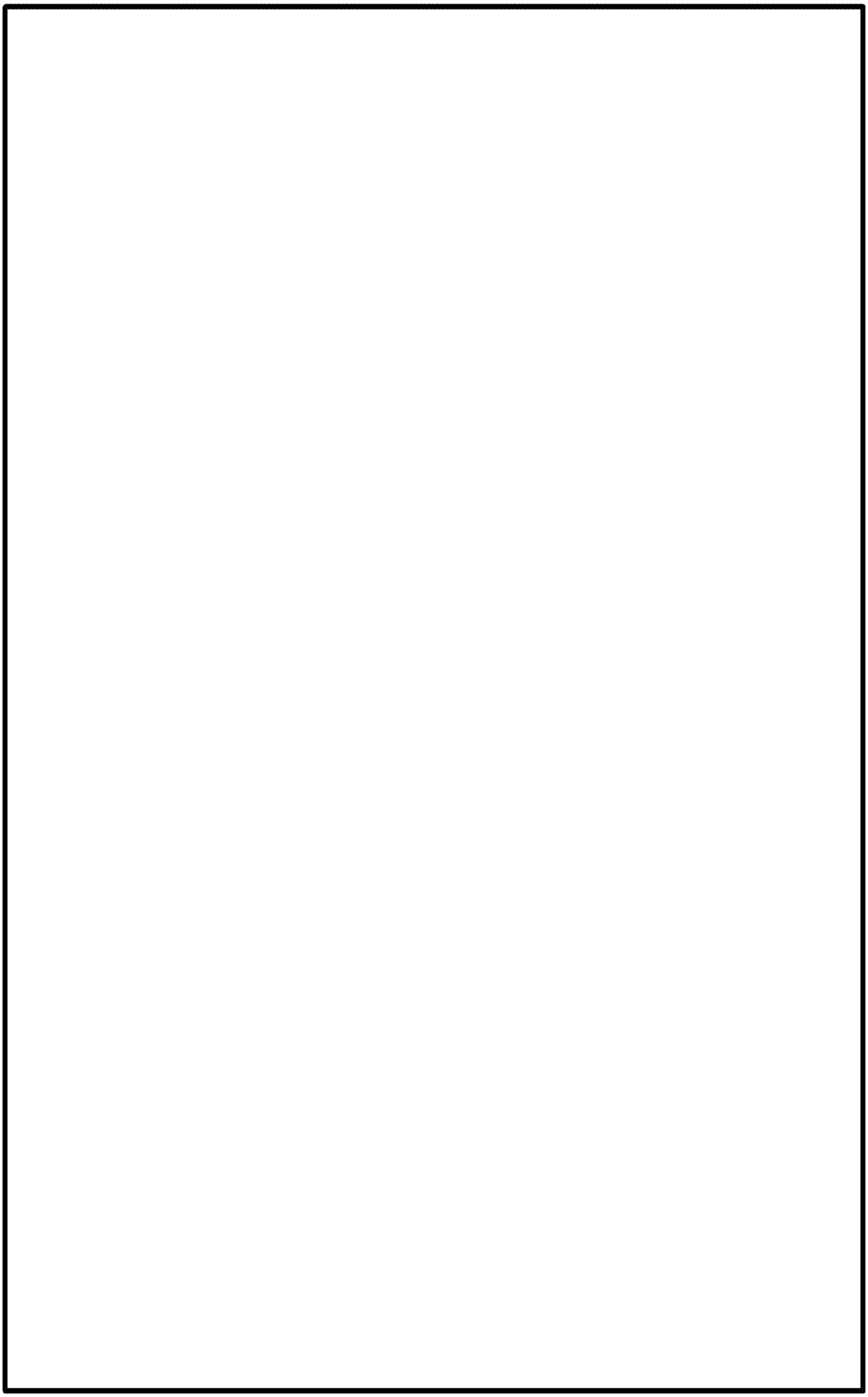


RAYMOND CHAN ARCHITECT
ARCHITECTS · PL
136-20 38th Avenue · Suite 11F · Flushing, New York 11354 · Tel: 718.445.2345 · Fax: 718.358.8696

January 29, 2014 (Revised)

January 24, 2014 (Revised)
January 20, 2014

Mr. George Xu
35-06 Leavit St., Unit #CF-A
Flushing, NY 11354

E-Mail: georgexu88@yahoo.com

Re: Residential / Commercial Development
148-44/46 Hillside Ave.
AKA 148-31/43 88th Ave.
Jamaica, NY
P. 21408

(b)(4)

Dear George:

web://www.raymondchanarchitect.com · email:info@raymondchanarchitect.com

REGIONAL CEN . .R: CENTURY NEW YORK CITY RE. .NAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: 88TH AVE EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 10

Architectural Documents

- **Fully Executed AIA Document with Architect–** this document is the standard form of agreement between developer (George Xu) and architect (Raymond Chan Architect, PC)
- **Proposed Zoning Analysis**– this document shows the proposed floor plan of the mixed used buildings

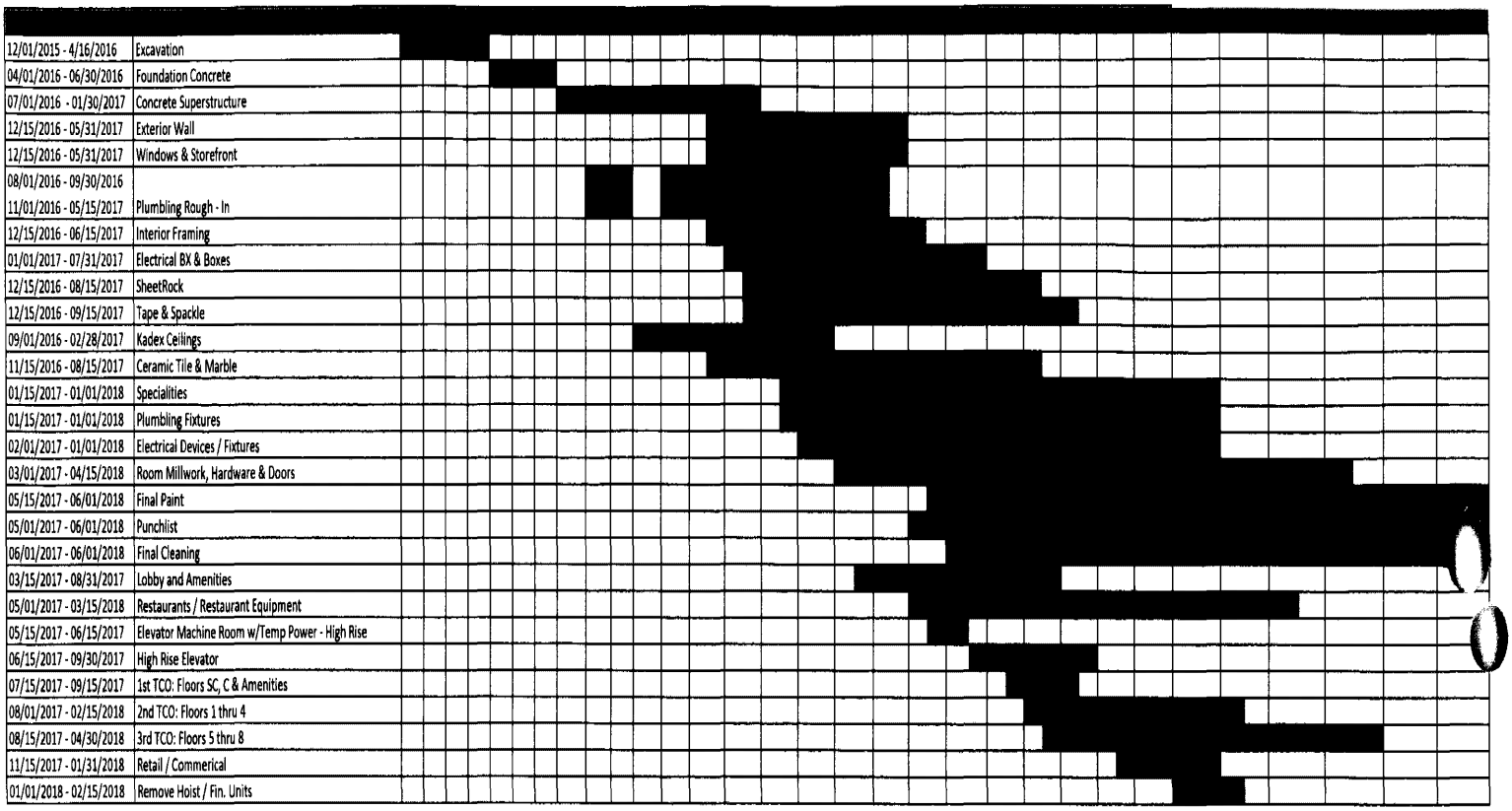
100% Recycled
30% PCW

PAGE WITHHELD PURSUANT

(b)(4)

148-31 88th Avenue and 148-44 Hillside Ave, Jamaica NY

Preliminary Monthly Construction Schedule



12/01/2015 - 4/16/2016	Excavation
04/01/2016 - 06/30/2016	Foundation Concrete
07/01/2016 - 01/30/2017	Concrete Superstructure
12/15/2016 - 05/31/2017	Exterior Wall
12/15/2016 - 05/31/2017	Windows & Storefront
08/01/2016 - 09/30/2016	
11/01/2016 - 05/15/2017	Plumbling Rough - In
12/15/2016 - 06/15/2017	Interior Framing
01/01/2017 - 07/31/2017	Electrical BX & Boxes
12/15/2016 - 08/15/2017	SheetRock
12/15/2016 - 09/15/2017	Tape & Spackle
09/01/2016 - 02/28/2017	Kadex Ceilings
11/15/2016 - 08/15/2017	Ceramic Tile & Marble
01/15/2017 - 01/01/2018	Specialities
01/15/2017 - 01/01/2018	Plumbling Fixtures
02/01/2017 - 01/01/2018	Electrical Devices / Fixtures
03/01/2017 - 04/15/2018	Room Millwork, Hardware & Doors
05/15/2017 - 06/01/2018	Final Paint
05/01/2017 - 06/01/2018	Punchlist
06/01/2017 - 06/01/2018	Final Cleaning
03/15/2017 - 08/31/2017	Lobby and Amenities
05/01/2017 - 03/15/2018	Restaurants / Restaurant Equipment
05/15/2017 - 06/15/2017	Elevator Machine Room w/Temp Power - High Rise
06/15/2017 - 09/30/2017	High Rise Elevator
07/15/2017 - 09/15/2017	1st TCO: Floors SC, C & Amenities
08/01/2017 - 02/15/2018	2nd TCO: Floors 1 thru 4
08/15/2017 - 04/30/2018	3rd TCO: Floors 5 thru 8
11/15/2017 - 01/31/2018	Retail / Commerical
01/01/2018 - 02/15/2018	Remove Hoist / Fin. Units

REGIONAL CEN[illegible]R: CENTURY NEW YORK CITY REG[illegible]NAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: 88TH AVE EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 9

Construction

- **Construction Timeline**, prepared by Century Construction Group
- **Certificate of Liability Insurance**

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30% PCW

NYC Buildings

NYC

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NYC Department of Buildings

DOB Violation Display for 032394C12J01

Premises: 148-37 88 AVENUE QUEENS **BIN: 4635894 Block: 9894 Lot: 49**

Issue Date:	03/23/1984	**Violation Category:**	VP - VIOLATION UNSERVED ECB-ACTIVE
Violation Type:	C - CONSTRUCTION		
Violation Number:	12J01	**Device No.:**	
ECB No.:	34106961N (refer to for further details)		
Description:			

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

NYC Buildings

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NYC Department of Buildings

DOB Violation Display for 040997C12BA01

Premises: 148-37 86 AVENUE QUEENS BIN: 4636224 Block: 9894 Lot: 49

Issue Date:	04/09/1997	**Violation Category:**	V - DOB VIOLATION - ACTIVE
Violation Type:	C - CONSTRUCTION		
Violation Number:	12BA01	**Device No.:**	
ECB No.:	34152797K (refer to for further details)		
Description:			

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

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NYC Department of Buildings

ECB Violation Details

Premises: 148-37 88 AVENUE QUEENS **Filed At: 148-33 88 AVENUE , QUEENS , NY 11435**

BIN: 4085994 Block: 9694 Lot: 49 **Community Board: 412**

ECB Violation Summary

VIOLATION OPEN

ECB Violation Number: 34098303R

Severity: NON-HAZARDOUS **Certification Status: NO COMPLIANCE RECORDED**

Penalty Balance Due: $0.00 **Hearing Status: IN VIOLATION**

Respondent Information

Name: SHAPIRO % ALAN WORBY E

Mailing Address: 585 STEWART AVE , GARDEN CITY , NY 11530

Violation Details

Violation Date: 08/20/1993 **Violation Type:** CONSTRUCTION

Served Date: 09/04/1993 **Inspection Unit:**

Infraction Codes	Section of Law	Standard Description
B03	27-217	OCCUPANCY CONTRARY TO THAT ALLOWED BY THE C OF O BLDG DEPT RECORDS

Specific Violation Condition(s) and Remedy:

OCCUPANCY CONTRARY TO THAT ALLOWED BY DEPARTMENT OF BUILDING RECORDS FROM VACANT LOT TO STORAGE OF APPROXIMATELY EIGHTY CARS AND FOUR TRUCKS. REMEDY: OBTAIN CERTIFICATE OF OCCUPANCY OR DISCONTINUE USE

Issuing Inspector ID: 0516 **DOB Violation Number:** 062093C12R2

Issued as Aggravated Level: NO

Dept. of Buildings Compliance History and Events

Certification Status: NO COMPLIANCE RECORDED **Compliance On:**

A Certificate of Correction must be submitted to the Administrative Enforcement Unit (AEU) for all violations. A violation that is not dismissed by ECB will continue to remain ACTIVE or "open" on DOB records until acceptable proof is submitted to the AEU, even if you have paid the penalty imposed by ECB.

ECB Hearing Information

Scheduled Hearing Date/Time: 03/22/1994 10:00 **Hearing Status:** IN VIOLATION

ECB Penalty Information

Penalty Imposed:	$350.00		
Adjustments:	$0.00	**Amount Paid:**	$350.00
Penalty Balance Due:	$0.00		

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service

NYC Buildings

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NYC Department of Buildings

ECB Violation Details

Premises: 148-37 88 AVENUE QUEENS **Filed At: 148-33 88 AVENUE , QUEENS , NY 11435**

BIN: 4525894 Block: 9694 Lot: 49 **Community Board: 412**

ECB Violation Summary

VIOLATION OPEN

ECB Violation Number: 34541079P

Severity: NON-HAZARDOUS **Certification Status: NO COMPLIANCE RECORDED**

Penalty Balance Due: $0.00 **Hearing Status: IN VIOLATION**

Respondent Information

Name: IKI ASSOCIATES LLC

Mailing Address: 148-33 88 AVENUE , QNS , NY 11435

Violation Details

Violation Date: 10/12/2006 **Violation Type:** CONSTRUCTION

Served Date: 10/12/2006 **Inspection Unit:** QUEENS CONSTRUCTION

Infraction Codes	Section of Law	Standard Description
B03	27-217	OCCUPANCY CONTRARY TO THAT ALLOWED BY THE C OF O BLDG DEPT RECORDS

Specific Violation Condition(s) and Remedy:

OCCUPANCY CONTRARY TO THAT ALLOWED BY THE BLDG DEPT. RECORDS:FROM:GARAGE TO:PARKING LOT-MORE THAN 30 CARS PARKED AT PREMISES.REMEDY: DISCONTINUE ILLEGAL USE FORTHWITH OR OBTAIN VALID C/O.

Issuing Inspector ID: **DOB Violation Number: 101206C12SA02**

Issued as Aggravated Level: NO

Dept. of Buildings Compliance History and Events

Certification Status: NO COMPLIANCE RECORDED **Compliance On:**

A Certificate of Correction must be submitted to the Administrative Enforcement Unit (AEU) for all violations. A violation that is not dismissed by ECB will continue to remain ACTIVE or "open" on DOB records until acceptable proof is submitted to the AEU, even if you have paid the penalty imposed by ECB.

ECB Hearing Information

Scheduled Hearing Date/Time: 01/22/2008 8:30 **Hearing Status:** IN VIOLATION

ECB Penalty Information

Penalty Imposed:	$600.00		
Adjustments:	$0.00	**Amount Paid:**	$600.00
Penalty Balance Due:	$0.00		

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service

NYC Buildings

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NYC Department of Buildings

ECB Violation Details

Premises: 148-37 88 AVENUE QUEENS **Filed At: 148-33 88 AVENUE , QUEENS , NY 11435**

BIN: 4085894 Block: 9694 Lot: 49 **Community Board: 412**

ECB Violation Summary

VIOLATION OPEN

ECB Violation Number: 34541077L

Severity: NON-HAZARDOUS **Certification Status: NO COMPLIANCE RECORDED**

Penalty Balance Due: $0.00 **Hearing Status: IN VIOLATION**

Respondent Information

Name: IKI ASSOCIATES LLC

Mailing Address: 148-33 88 AVENUE , QNS , NY 11435

Violation Details

Violation Date: 10/12/2006 **Violation Type:** CONSTRUCTION

Served Date: 10/12/2006 **Inspection Unit:** QUEENS CONSTRUCTION

Infraction Codes	Section of Law	Standard Description
B6A	27-127	FAILURE TO MAINTAIN EXTERIOR BUILDING WALL (HAZARDOUS)

Specific Violation Condition(s) and Remedy:

FAILURE TO MAINTAIN PREMISES.DEFECTS NOTED:@ FRONT-10'HIGH CHAIN LINKFENCE IS TWISTED & OUT OF PLUMB.@ WEST SIDE-10'HIGH CHAIN LINK FENCE IS LEANING TOWARD 148-25 88 AVE.ADJOINING PROPERTY.HORIZONTAL PIPE

Issuing Inspector ID: **DOB Violation Number: 101206C12SA01**

Issued as Aggravated Level: NO

Dept. of Buildings Compliance History and Events

Certification Status: NO COMPLIANCE RECORDED **Compliance On:**

A Certificate of Correction must be submitted to the Administrative Enforcement Unit (AEU) for all violations. A violation that is not dismissed by ECB will continue to remain ACTIVE or "open" on DOB records until acceptable proof is submitted to the AEU, even if you have paid the penalty imposed by ECB.

ECB Hearing Information

Scheduled Hearing Date/Time: 11/28/2006 10:30 **Hearing Status:** IN VIOLATION

ECB Penalty Information

Penalty Imposed:	$800.00		
Adjustments:	$0.00	**Amount Paid:**	$800.00
Penalty Balance Due:	$0.00		

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service

NYC Buildings

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NYC Department of Buildings

Property Profile Overview

148-37 88 AVENUE QUEENS 11435 BIN# 4585894

88 AVENUE 148-37 - 148-37 Tax Block : 9694

Tax Lot : 49

Community Board : 412

View DCP Addresses... Browse Block

View Zoning Documents | View Challenge Results | Pre - BIS PA | View Certificates of Occupancy

DOB Special Place Name:			
DOB Building Remarks:	BLOCK 9694/LOT 49 (08.14).LTS 36,44,47,49 MERGED INTO LT 49		
Landmark Status:		Special Status:	N/A
Local Law:	NO	Loft Law:	NO
SRO Restricted:	NO	TA Restricted:	NO
UB Restricted:	NO		
Environmental Restrictions:	NOISE	Grandfathered Sign:	NO
Legal Adult Use:	NO	City Owned:	NO
Additional BINs for Building:	NONE		

Special District: DJ - DOWNTOWN JAMAICA

This property is not located in an area that may be affected by Tidal Wetlands, Freshwater Wetlands, Coastal Erosion Hazard Area, or Special Flood Hazard Area. Click here for more information

Department of Finance Building Classification: G6-GARAGE/GAS STATN

Please Note: The Department of Finance's building classification information shows a building's tax status, which may not be the same as the legal use of the structure. To determine the legal use of a structure, research the records of the Department of Buildings.

	Total	Open
Complaints	5	0
Violations-DOB	3	2
Violations-ECB (DOB)	4	3
Jobs/Filings	2	
ARA / LAA Jobs	0	
Total Jobs	2	
Actions	2	

OR Enter Action Type:

OR Select from List: Select...

AND Show Actions

Elevator Records
Electrical Applications
Permits In-Process / Issued
Illuminated Signs Annual Permits
Plumbing Inspections
Open Plumbing Jobs / Work Types
Facades
Marquee Annual Permits
Boiler Records
DEP Boiler Information
Crane Information
After Hours Variance Permits

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

NYC Buildings

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NYC Department of Buildings

Property Profile Overview

148-46 HILLSIDE AVENUE		QUEENS 11435		BIN# 4447021	
HILLSIDE AVENUE	148-46 - 148-46	Health Area	:2720	Tax Block	:9894
		Census Tract	:238	Tax Lot	:26
		Community Board	:412	Condo	:NO
		Buildings on Lot	: 2	Vacant	:NO

View DCP Addresses... Browse Block

View Zoning Documents | View Challenge Results | Pre - BIS PA | View Certificates of Occupancy

Cross Street(s):	149 STREET, 150 STREET		
DOB Special Place Name:			
DOB Building Remarks:	BLOCK N9894/ LOTS 26, 27 MERGED INTO LT 26 (06.14)		
Landmark Status:		Special Status:	N/A
Local Law:	NO	Loft Law:	NO
SRO Restricted:	NO	TA Restricted:	NO
UB Restricted:	NO		
Environmental Restrictions:	NOISE	Grandfathered Sign:	NO
Legal Adult Use:	NO	City Owned:	NO
Additional BINs for Building:	NONE		

Special District: DJ - DOWNTOWN JAMAICA

This property is not located in an area that may be affected by Tidal Wetlands, Freshwater Wetlands, Coastal Erosion Hazard Area, or Special Flood Hazard Area. Click here for more information

Department of Finance Building Classification: G7-GARAGE/GAS STATN

Please Note: The Department of Finance's building classification information shows a building's tax status, which may not be the same as the legal use of the structure. To determine the legal use of a structure, research the records of the Department of Buildings.

	Total	Open
Complaints	0	0
Violations-DOB	0	0
Violations-ECB (DOB)	0	0
Jobs/Filings	1	
ARA / LAA Jobs	0	
Total Jobs	1	
Actions	7	

OR Enter Action Type:

OR Select from List: Select...

AND Show Actions

Elevator Records
Electrical Applications
Permits In-Process / Issued
Illuminated Sign Annual Permits
Plumbing Inspections
Open Plumbing Jobs / Work Types
Facades
Marquee Annual Permits
Boiler Records
DEP Boiler Information
Crane Information
After Hours Variance Permits

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

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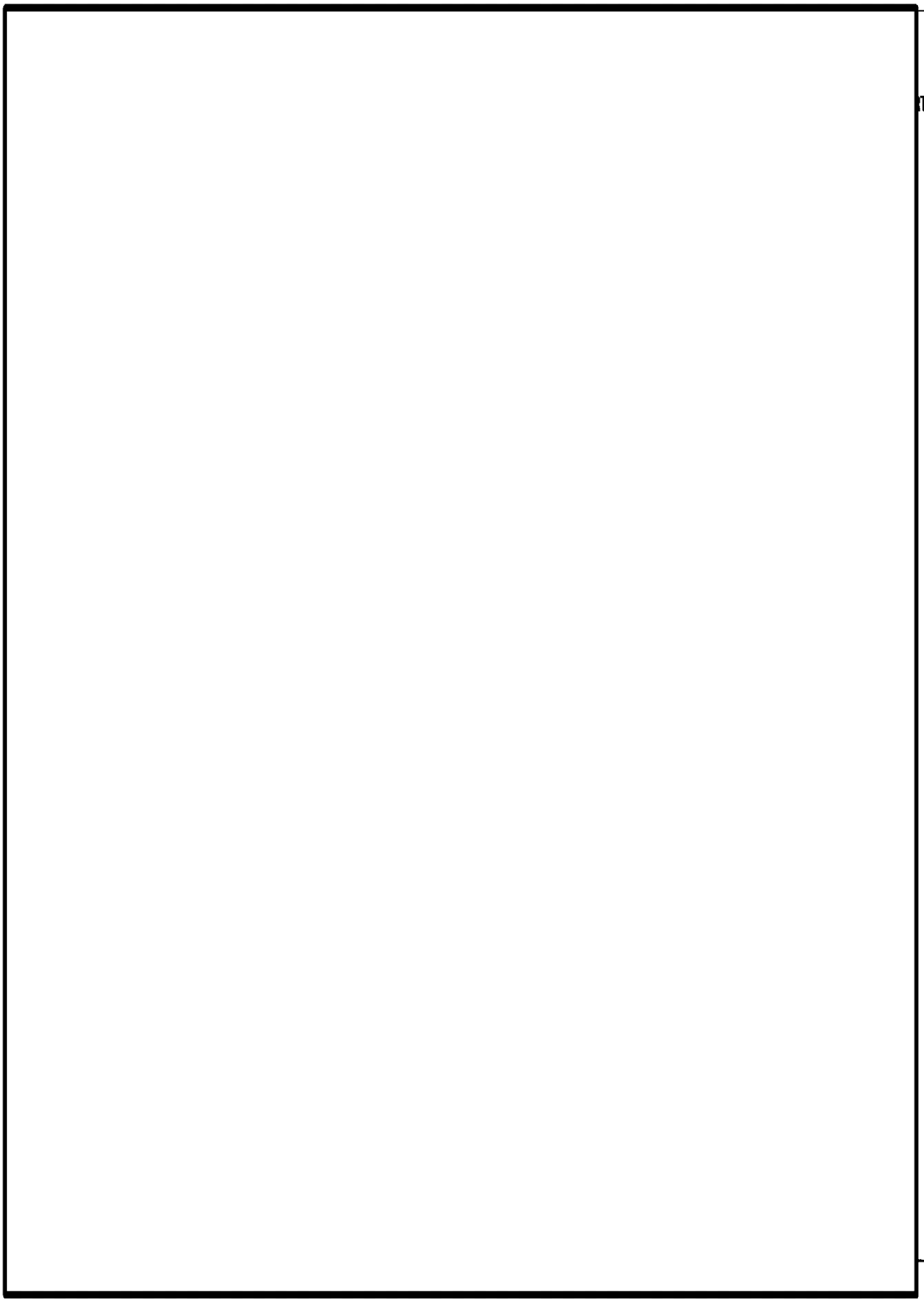


No.	DATE	DESCRIPTION

TY

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL BE SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT
148-44/46 HILLSIDE AVE.
148-44/46 HILLSIDE AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE
BUILDING SECTION
SCALE 3/16" = 1'-0"

STRUCTURAL ENGINEER
TIMBS BUILDINGS PC
[illegible]

ARCHITECT'S SEAL

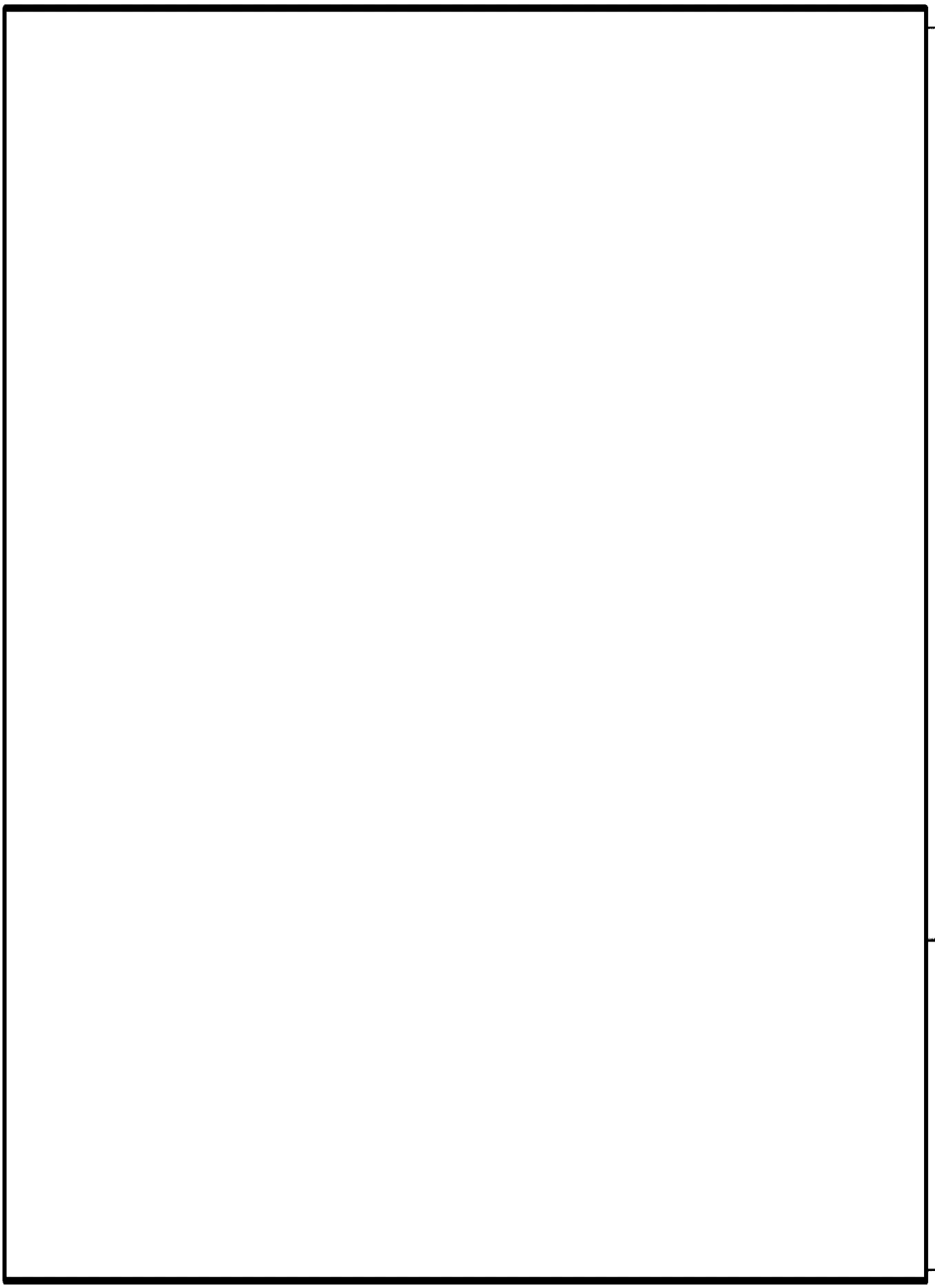
ARCHITECTS & PLANNERS
[illegible]

DATE: SHEET NO.:
PROJECT No.: 2021-4
PROJECT ENGINEER: KA
DRAWN BY: EL
CADD FILE NO.:
A-601.00
13-OF-15

N.Y.C. D.O.B. NO. :

120

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A DO-IT-WITH DESIGN & SHALL BE SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES

PROJECT:
140-44/46 HILLSIDE AVE.
140-44/46 HILLSIDE AVE.
JAMAICA, NEW YORK 11435

DRAWING TITLE:
ROOF PLAN
SCALE: 3/16" = 1'-0"

G.C.P. ENGINEER

STRUCTURAL ENGINEER
TIMBIS BUILDINGS PC
[redacted]

ARCHITECTS + PLANNERS

DATE:
PROJECT No.:
PROJECT MANAGER:
DRAWN BY:
CADD FILE No.:

A-107.00

12 OF 15

N.Y.C. D.O.B. NO. :

119

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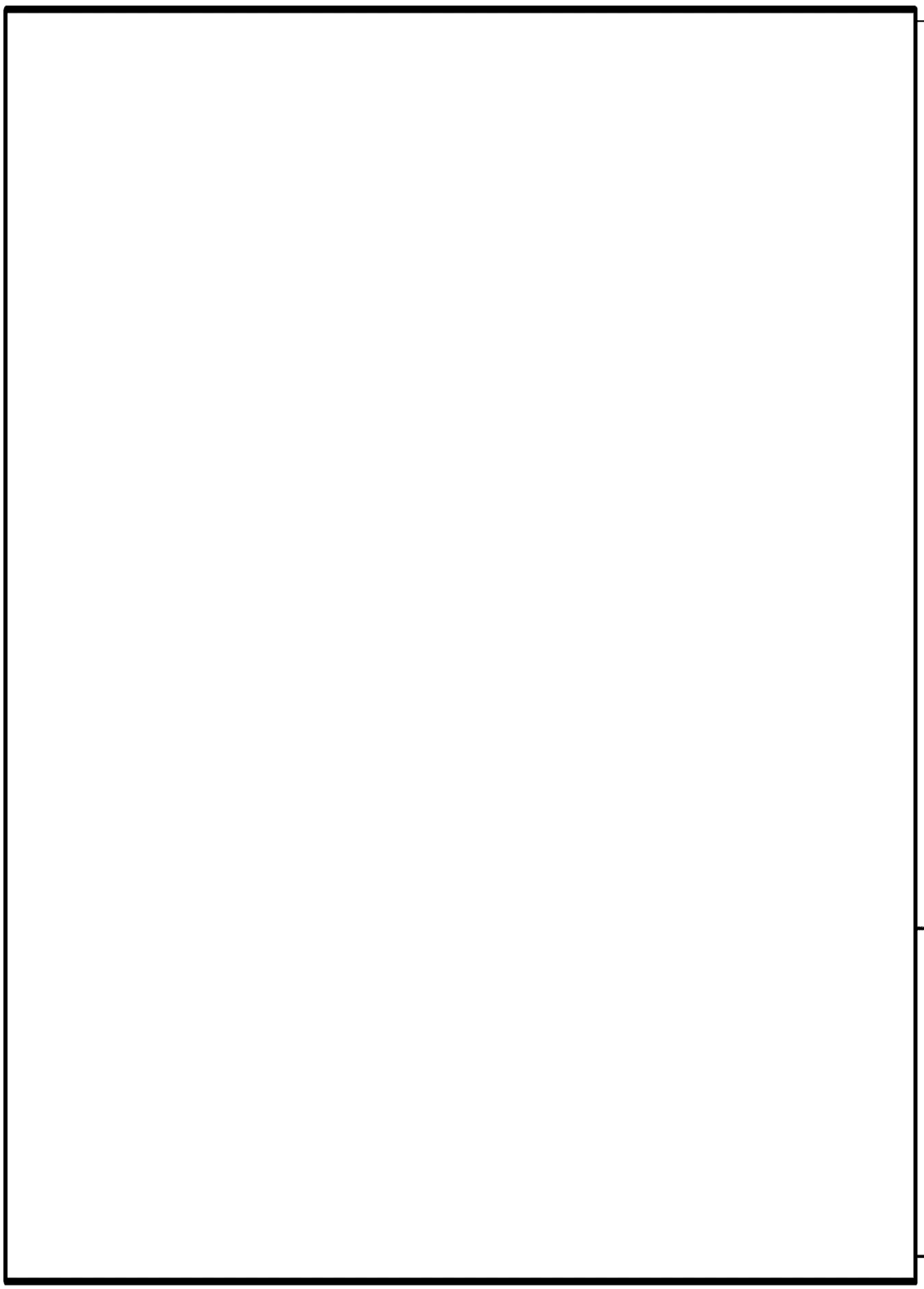


No.	DATE	DESCRIPTION

NOTE: THIS IS A DIAGRAMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT
148-44/46 HILLSIDE AVE.
148-44/46 HILLSIDE AVE.
JAMAICA, NEW YORK 11435

DRAWING TITLE
6TH FLOOR PLAN
SCALE: 3/16" = 1'-0"

ARCHITECT OF RECORD

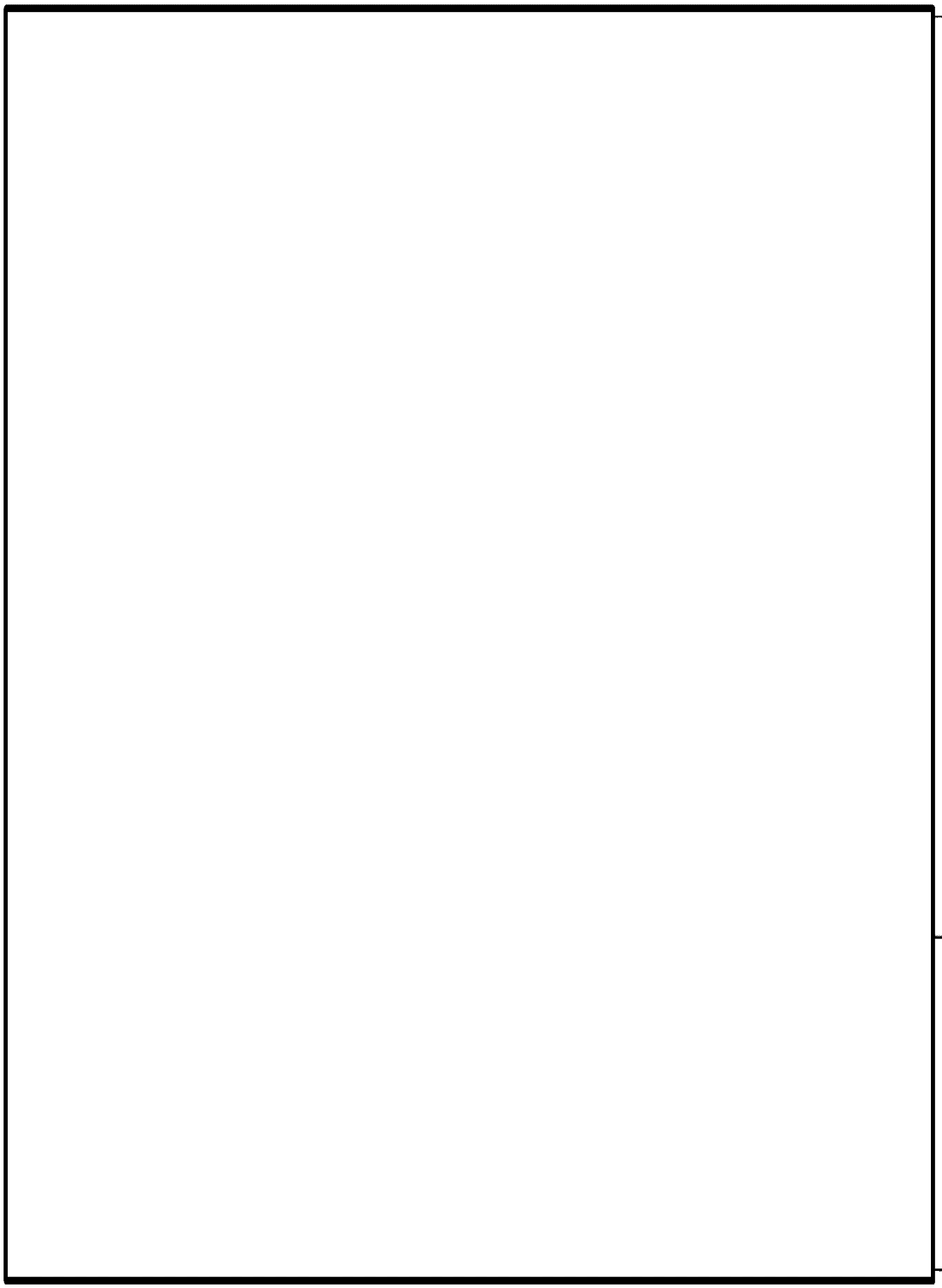
ARCHITECTS + PLANNERS

DRAWING NO.
A-106.00
SHEET NO.
11 OF 15

N.Y.C. D.O.B. NO. :

118

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT

148-44/46 HILLSIDE AVE.

148-44/46 HILLSIDE AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:

5TH FLOOR PLAN

SCALE: 3/16" = 1'-0"

A.R.E. ENGINEER

STRUCTURAL ENGINEER

TIMUR BUILDINGS PC

ARCHITECT'S IMPRINT:

ARCHITECTS + PLANNERS

DATE: SHEET SIZE:

PROJECT No. 2021-1

PROJECT MANAGER: MA

DRAWN BY: EA

CHECKED BY: EA

CAD FILE NO.

BLOCK, PAGE, SHEET NO.

A-105.00

10 OF 15

N.Y.C. D.O.B. NO. :

117

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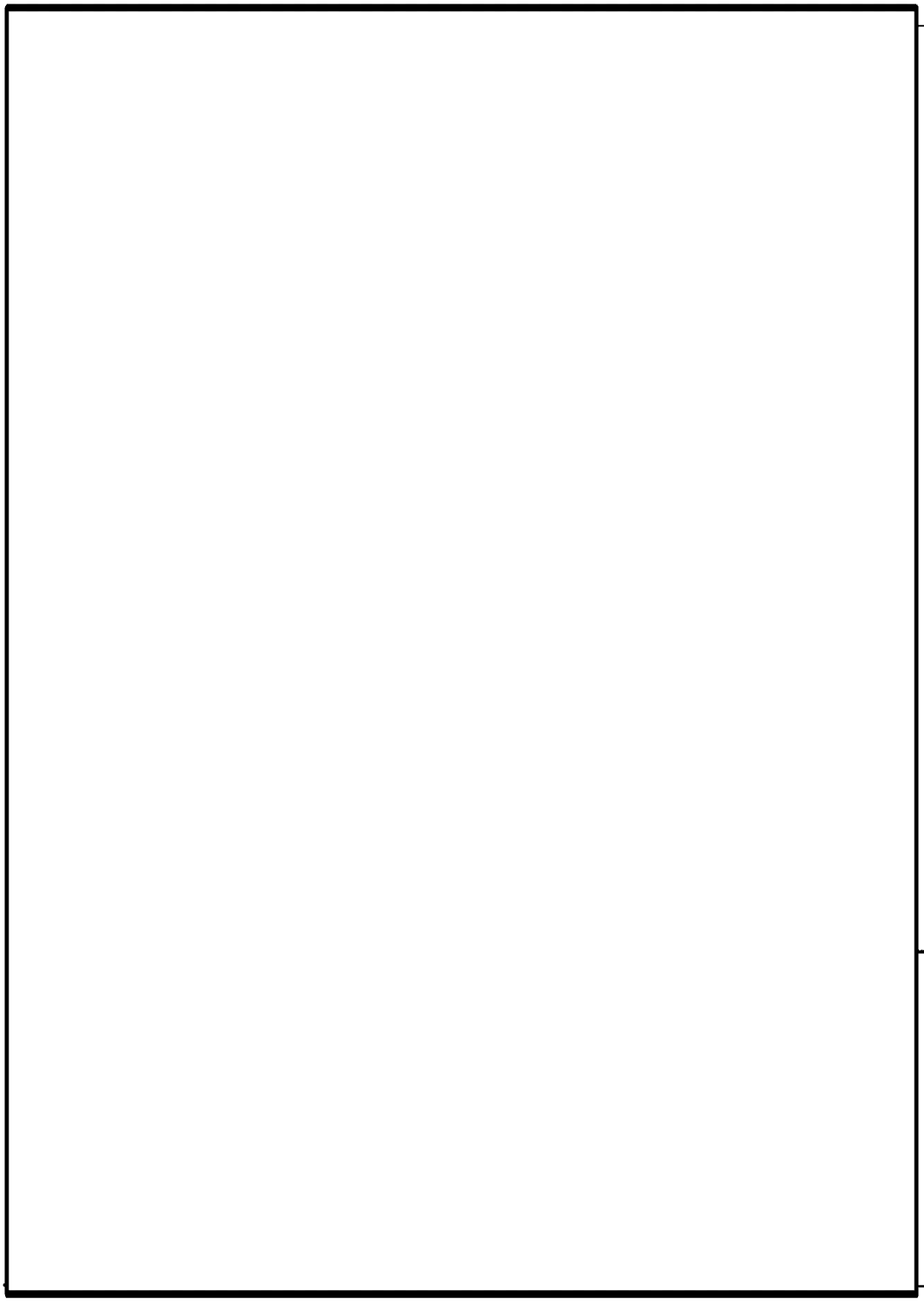


No.	DATE	DESCRIPTION

NOTE: THIS IS A DIAGRAMATIC DESIGN
& SHALL SUBJECT TO REVIEW
& INTERPRETATION BY
NYC DEPT. OF BLDGS ON
ZONING AND BUILDING CODES.

PROJECT
148-44/46 HILLSIDE AVE.
148-44/46 HILLSIDE AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE
3RD & 4TH FL PLAN
SCALE: 3/16" = 1'-0"

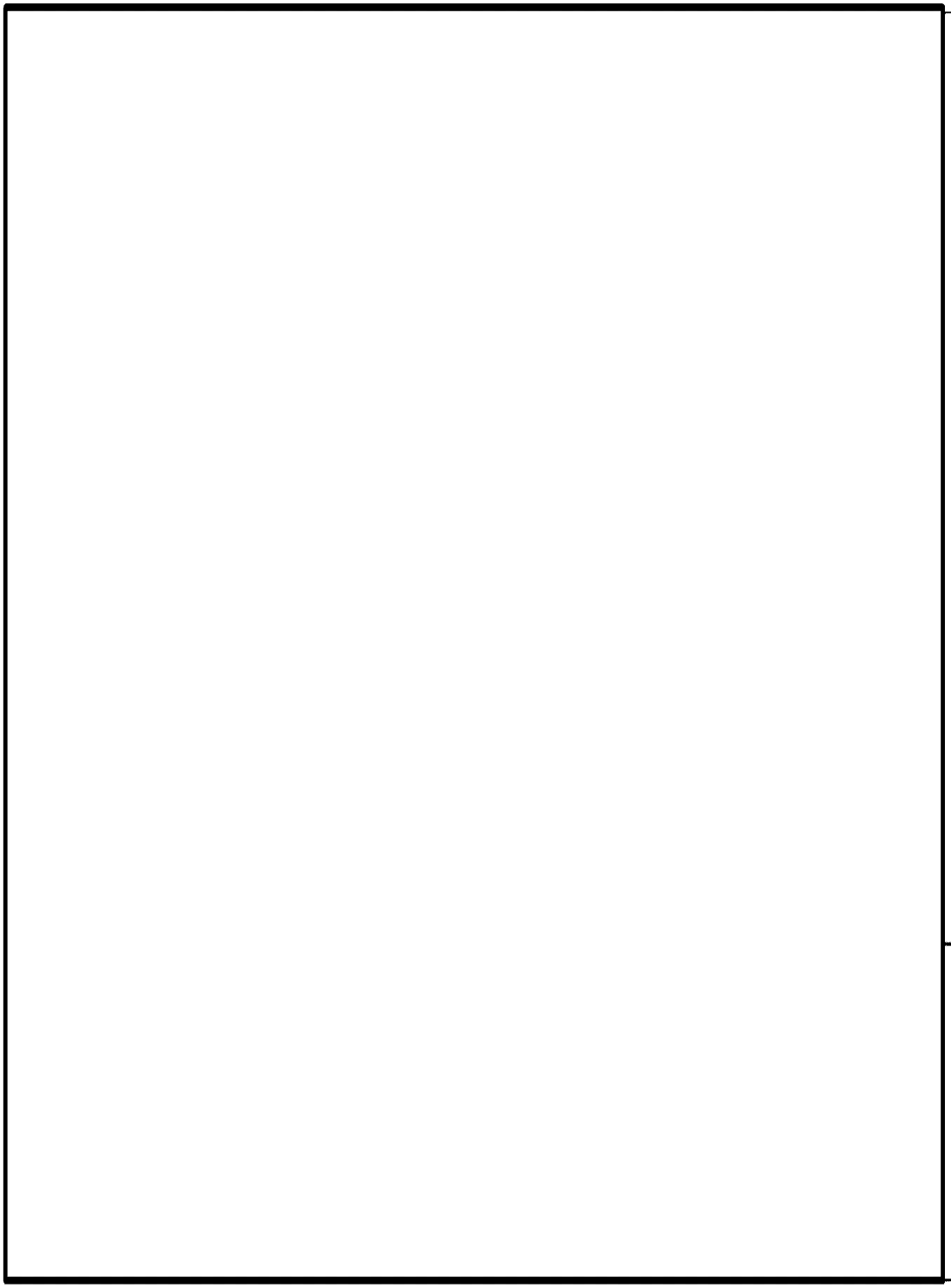
A-104.00

09-OF-15

N.Y.C. D.O.B. NO. :

116

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A DIAGRAMATIC DESIGN & SHALL BE SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT

146-44/46 HILLSIDE AVE.

146-44/46 HILLSIDE AVE.
JAMAICA, NEW YORK 11435

DRAWING TITLE:

2ND FLOOR PLAN

SCALE: 3/16" = 1'-0"

M.E.P. ENGINEER:

STRUCTURAL ENGINEER:

TARAS BUILDINGS PC

ARCHITECT'S + PLANNER

DATE: ISSUED / ISSUE No.:

PROJECT No.: 20110

PROJECT MANAGER: KS

DRAWN BY: SA

DWG FILE No.: ex&NC-NEW-20110

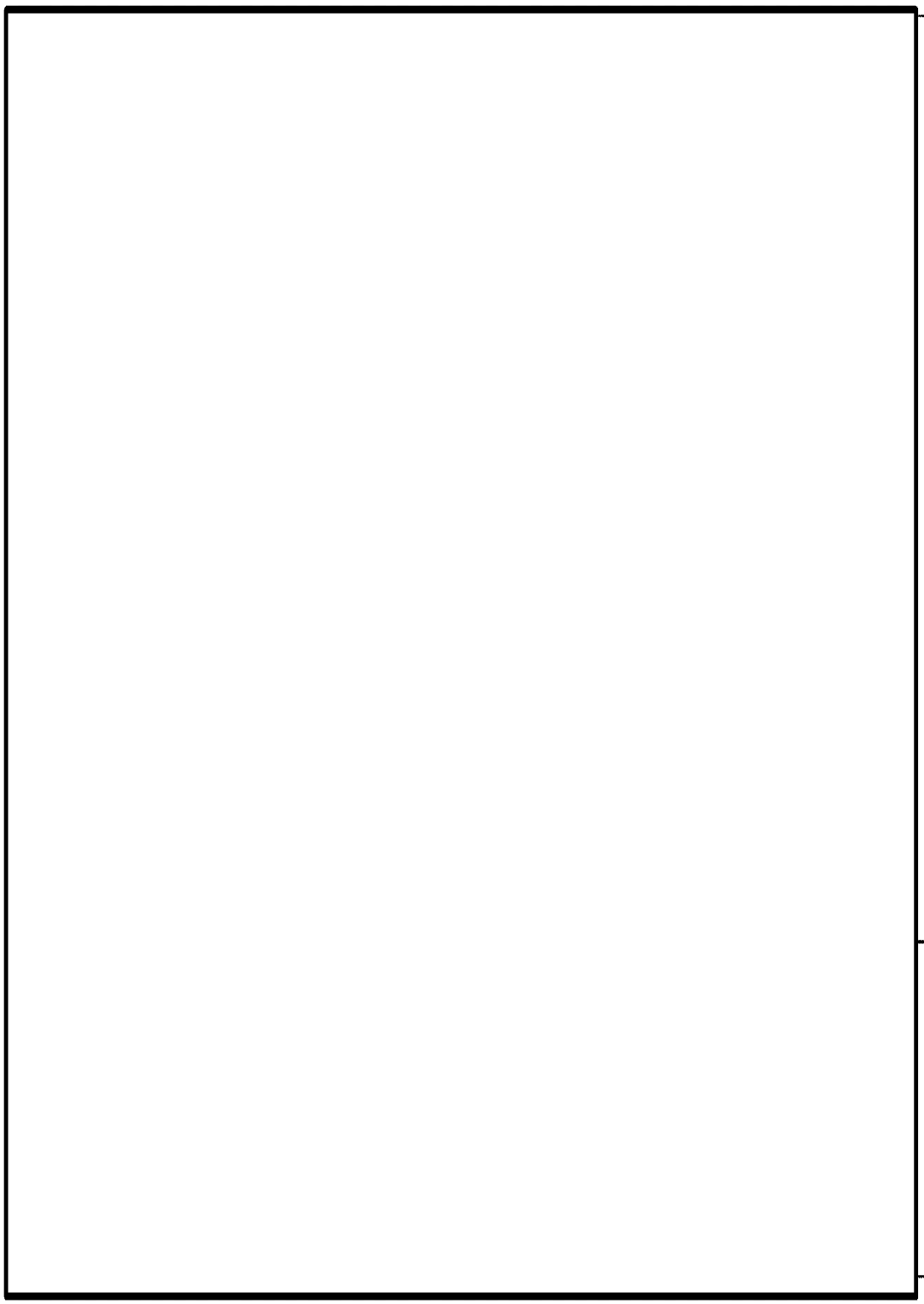
A-103.00

08-OF-15

N.Y.C. D.O.B. NO. :

115

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A BIDDER'S DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT
148-44/46 HILLSIDE AVE.
148-44/46 HILLSIDE AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE
1ST FLOOR PLAN
SCALE: 3/16" = 1'-0"

STRUCTURAL ENGINEER
TYBUS BUILDERS PC
[illegible]

SEAL & SIGNATURE

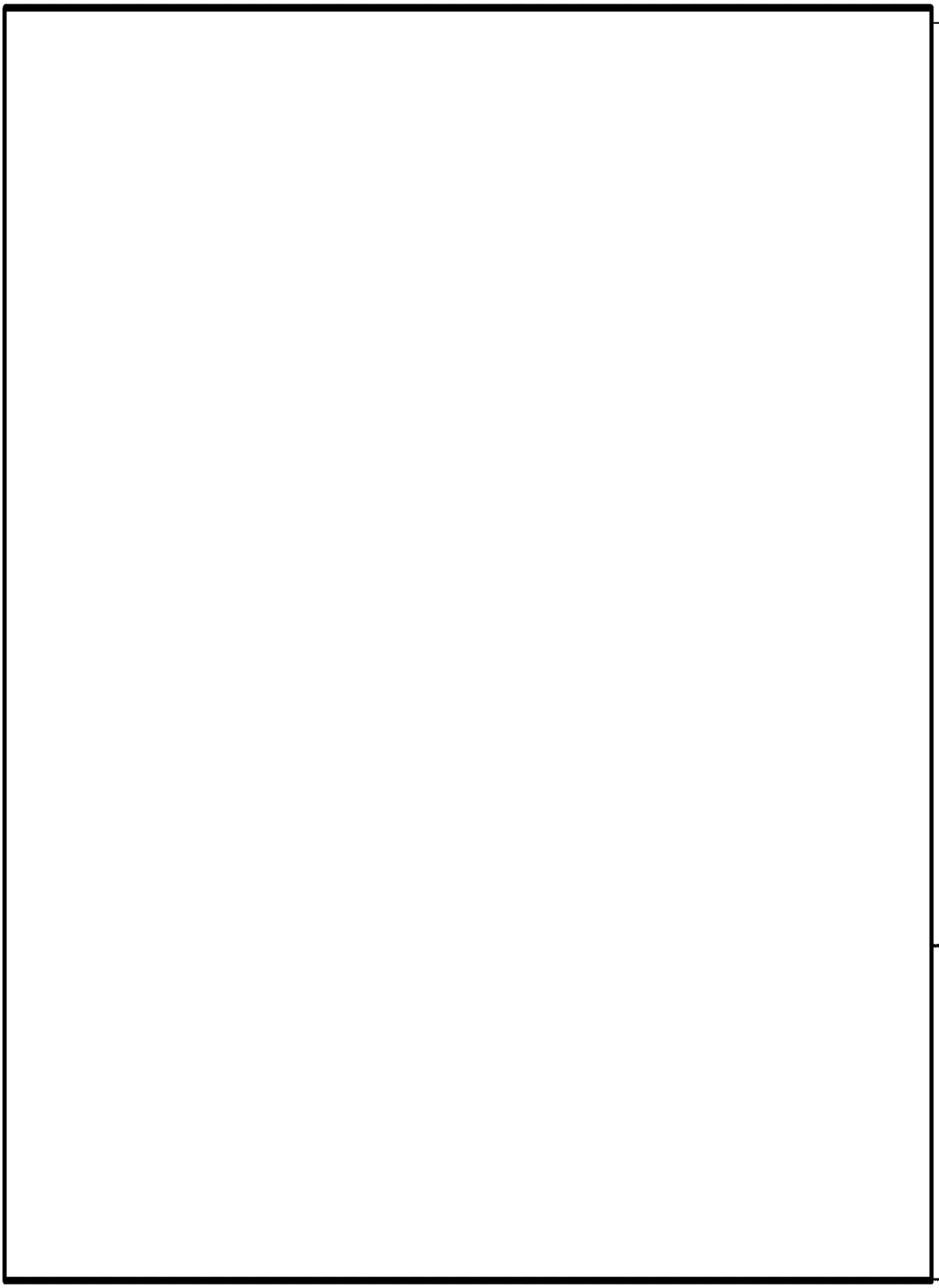
[illegible]

DATE: [illegible] SHT. NO.
PROJECT No. 2011-4
PROJECT ENGINEER: KH
DRAWN BY: KL
CHECKED BY:
CADD FILE NO.:
A-102.00
07-OF-15

N.Y.C. D.O.B. NO. :

114

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL BE SUBJECT TO REVISION & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT
148-44/46 HILLSIDE AVE.
148-44/46 HILLSIDE AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE
CELLAR FL PLAN
SCALE: 3/16" = 1'-0"

M.E.P. ENGINEER

STRUCTURAL ENGINEER
TYREE BUILDINGS PC
[redacted]

ARCHITECTS + PLANNERS
[redacted]

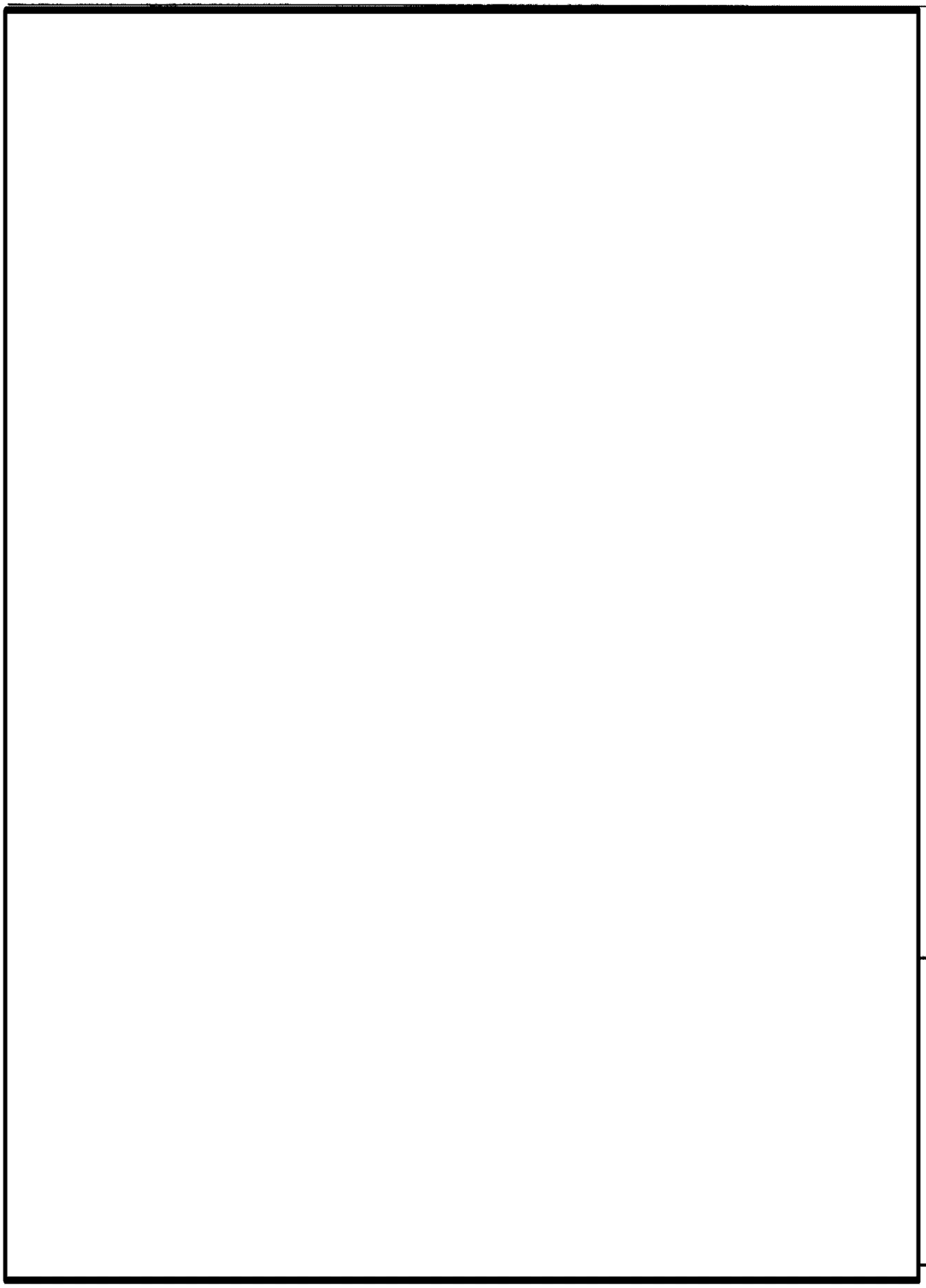
DATE: ISSUED / REVISED:
PROJECT No.: 20114
PROJECT MANAGER: YG
DRAWN BY: BA
CHECKED BY:
DOB FILE No.: [redacted]

A-101.00
06 OF 15

N.Y.C. D.O.B. NO. :

113

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT
148-44/46 HILLSIDE AVE.
148-44/46 HILLSIDE AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE
SITE PLAN
SCALE 3/16" = 1'-0"

STRUCTURAL ENGINEER
TRIAD BUILDERS PC
[illegible]

ARCHITECT'S SEAL & SIGNATURE

[illegible]

DATE ISSUED FOR:

PROJECT No. 2021-6
PROJECT MANAGER: YA
DRAWN BY: EK
CHKD BY:
DOB FILE No.
SCALE: AS/16 (1/16")

A-002.00
02-OF-15

N.Y.C. D.O.B. NO. :

112

148-44/46 HILLSIDE AVENUE, JAMAICA, NEW YORK 11435

No.	DATE	DESCRIPTION

ZONING INFORMATION

Address : 148-44/46 HILLSIDE AVENUE
JAMAICA, N.Y. 11435
Block : 9694
Lot : 26
Zone : C2-3 IN R7A
(SPECIAL DISTRICT- DOWNTOWN JAMAICA)
Map No. : 14d
Construction Class : 1-B

ZONING ANALYSIS

TAX LOT SIZE= 4,274.84 SF

ZR 115-23 <HEIGHT AND SETBACK REGULATIONS>
ALL HEIGHTS SHALL BE MEASURED FROM THE BASE PLANE.
PROPOSED BASE PLANE = 84.76' (SEE DWG A601)

ZR 33-121
<MAX. F.A.R. FOR BUILDING USED FOR BOTH COMMERCIAL AND COMMUNITY FACILITY USES = 4.00>
4,274.84 x 4.00 = 17,099 SF ALLOWED
= 17,099 SF PROPOSED
PROPOSED FAR = 4.00 < 4.00 -(COMPLIES)

<MAX. F.A.R. FOR COMMERCIAL = 2.00>
4,274.84 x 2.00 = 8,549.6 SF ALLOWED
= 3,420.0 SF PROPOSED
PROPOSED FAR = 0.80 < 2.00 -(COMPLIES)

<MAX. F.A.R. FOR COMMUNITY FACILITY = 4.00>
4,274.84 x 4.00 = 17,099 SF ALLOWED
= 13,679 SF PROPOSED
PROPOSED FAR = 3.20 < 4.00 -(COMPLIES)

ZR 24-11 <MAX. LOT COVERAGE FOR INTERIOR LOT = 65%>
4,274.84 x 65% = 2,778.6 SF ALLOWED
= 2,773/ 4,274.84
= 0.649 x 100% = 64.9% PROPOSED

PROPOSED LOT COVERAGE = 2,773 SF = 64.9% < 65% -(COMPLIES)

YARD REGULATION
ZR 35-52
NO SIDE YARD REQUIRED, IF PROVIDED, 8' MIN -(COMPLIES)

33-261 <BEYOND 100' OF A STREET LINE>
(a) 20' REAR YARD FOR COMMERCIAL
REQUIRED WHEN REAR LOT LINE COINCIDES WITH A REAR LOT LINE OF AN ADJOINING ZONING LOT.
(c) NO REAR YARD REQUIRED WHEN REAR LOT LINE COINCIDES WITH A SIDE LOT LINE OF AN ADJOINING ZONING LOT

ZR 23-541 & ZR 33-301 <WITHIN 100' OF CORNERS>
NO REAR YARD REQUIRED

ZR 26-51
NO FRONT YARD IS REQUIRED -(COMPLIES)

ZONING CALCULATION

FLOOR	BUILDING GROSS FLOOR AREA (SQ. FT.)	COMMUNITY FACILITY (SQ. FT.)		COMMERCIAL (SQ. FT.)			TOTAL ZONING FLOOR AREA (S.F.)	ACCESSORY PARKING	BICYCLE SPACE
		AMBU HEALTHCARE FACILITY	COMMUNITY CENTER	RETAIL	OFFICE			REQUIRED	REQUIRED
USE GROUP		4		6					
CELLAR	4274				3764	4274	0		
1ST FL	4274	422	422	3420		10	4264	3420/ 400 = 8.55 **	13679/ 10000 x 1.37 ***
2ND FL	2773		2702			71	2702		
3RD FL	2773		2702			71	2702	4156/400= 10.39 ** 9523/2000= 4.76 **	7184/ 10000 = 0.72 ***
4TH FL	2773		2702			71	2702		
5TH FL	2773	1707	995			71	2702		
6TH FL	2077	2027				50	2027		
TOTAL	21117	4156	9523	3420	0	4618	17099	22.7 ** < 25 WAIVED	2.09 ***
MAX. FA ALLOWED		13679 <14,748.1 SF		3420 < 8,549.6 SF					
MAX. FA OF BUILDING		17099.0 ≤ 17,099 SF							
TOTAL FAR OF BUILDING		3.20 < 4.00		0.80 < 2.00					
		4.00 ≤ 4.00 (LOT AREA: 4,274.84 SF)							

* (ZR 12-10) CELLAR FLOOR CRAWL & MECH. SPACE NOT COUNT AS ZONING FLOOR AREA
** (ZR 36-231) WAIVER OF REQUIREMENTS FOR PARKING SPACE BELOW MINIMUM NUMBER OF 25 IN COMMERCIAL & COMMUNITY FACILITY

ZR 23-633(a1)(b1) & ZR 35-24(c) <SETBACK REGULATION>
REQUIRED: 10' SETBACK ALONG A WIDE STREET;
40' MIN. BASE HEIGHT; 65' MAX. BASE HEIGHT;
80' MAX. BUILDING HEIGHT

PROPOSED: 87'-4" BUILDING HEIGHT. -(COMPLIES)
(SEE BUILDING SECTION, DWG A 601)

PARKING REQUIREMENT

ZR 36-21 <REQ. PARKINGS FOR COMM.>
RETAIL: 1 PER 400 SF
/400 = 8.55 PARKING SPACE REQUIRED

AMBULATORY HEALTH CARE FACILITY: 1 PER 400 SF
/400 = 10.39 PARKING SPACE REQUIRED

COMMUNITY CENTER: 1 PER 20 PERSONS
/2,000 = 4.76 PARKING SPACE REQUIRED

ZR 36-231 <WAIVER OF REQUIREMENTS FOR SPACES BELOW MINIMUM NUMBER IS 25 IN C2-3 DISTRICT>
TOTAL PARKING SPACE REQUIRED IN COMMERCIAL & COMMUNITY FACILITY:
8.55+10.39+4.76 = 23.7 < 25 -(COMPLIES)

TOTAL PARKING REQUIRED = 0
TOTAL PARKING PROPOSED = 0 -(COMPLIES)
(SEE PARKING REQUIREMENT TABLE)

ZR 36-62 <REQUIRED LOADING BERTH>
COMMERCIAL USES: FIRST 25,000 SF = NONE REQUIRE.

TOTAL LOADING BERTH REQUIRED = 0
TOTAL LOADING BERTH PROPOSED = 0 -(COMPLIES)

ZR 36-70 <BICYCLE PARKING>
ALL OTHER USE GROUP 3 & 4: 1 PER 10,000 SF
/ 10,000 = 1.37 PARKING SPACE REQUIRED

GENERAL RETAIL OR SERVICE USUS:
USE GROUP 6: 1 PER 10,000 SF
/ 10,000 = 0.72 PARKING SPACE REQUIRED

ZR 36-711(d) <WAIVER FOR BICYCLE PARKING SPACES>
1.37+0.72 = 2.09 < 3 -(COMPLIES)

TOTAL BICYCLE SPACE REQUIRED = 0
TOTAL BICYCLE SPACE PROPOSED = 0 -(COMPLIES)
(SEE PARKING REQUIREMENT TABLE)

STREET TREE PLANTING
ZR 33-03, ZR 26-41
REQUIRED ONE STREET TREE FOR EVERY 25' OF STREET FRONTAGE OF THE ZONING LOT.

AT HILLSIDE AVENUE, 45/25 = 1.8 TREES REQUIRED
PROPOSED 0 TREES ON-SITE, & 2 TREES OFF-SITE

SEPARATE APPLICATIONS

SPRINKLER & STANDPIPE
FIRE PROTECTION PLAN
BUILDERS PAVEMENT PLAN
SITE CONNECTION
SITE SAFETY PLAN
MECHANICAL & BOILER

SPECIAL INSPECTION ITEMS

NOTE: THIS IS A DIAGRAMATIC DESIGN & SHALL BE SUBJECT TO REVISION & INTERPRETATION BY NYC DEPT. OF BUILDINGS ZONING AND BUILDING CODES

PROJECT
148-44/46 HILLSIDE AVE.
148-44/46 HILLSIDE AVE.
JAMAICA, NEW YORK 11435

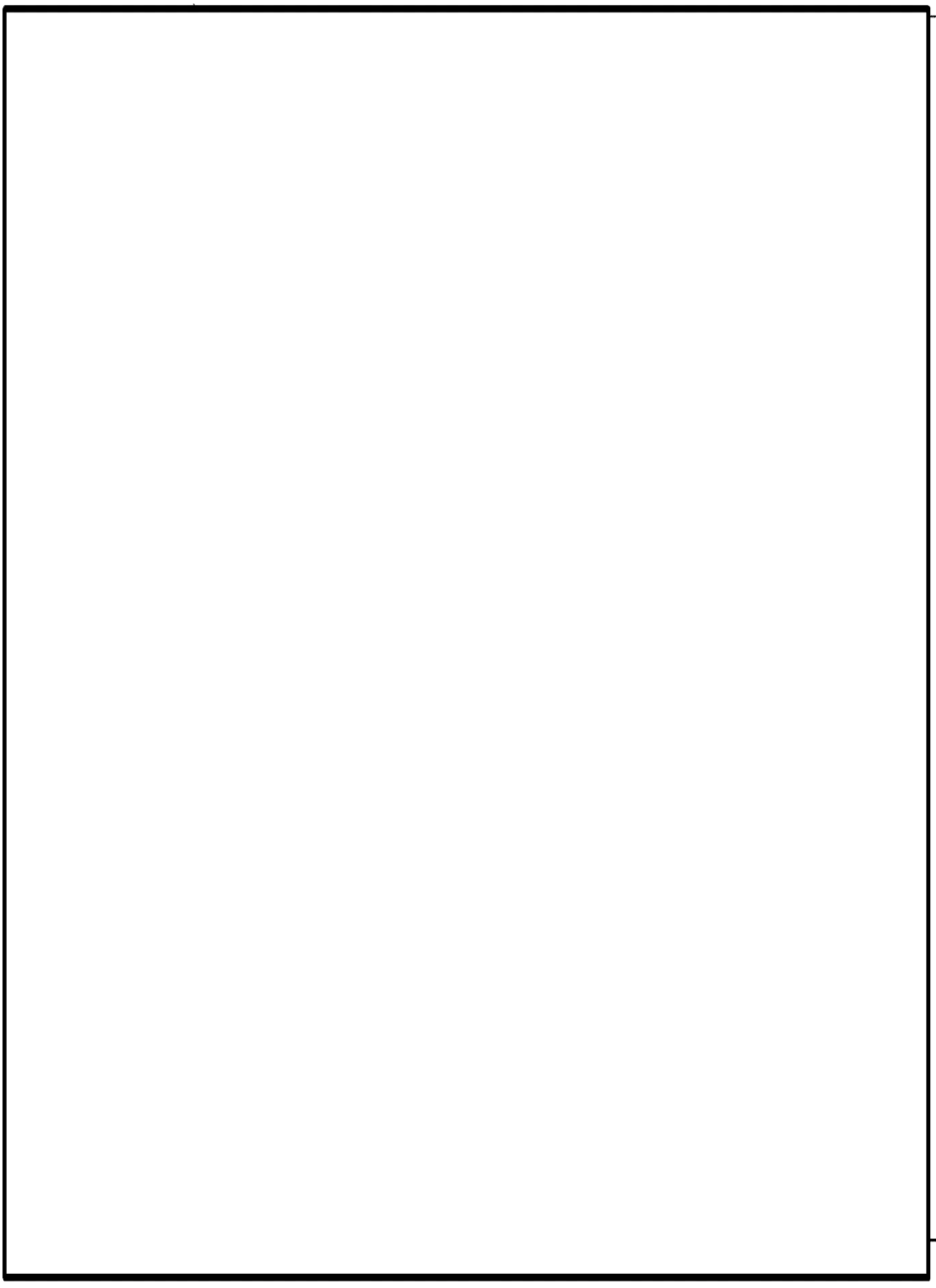
DRAWING TITLE
ZONING/ PLOT PLAN

DRAWING NO.
A-001.00
SHEET NO.
01 OF 15

N.Y.C. D.O.B. NO.

111

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL BE SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT

148-31/43 88TH AVE.

148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:

BUILDING SECTION

SCALE: 1/8" - 1'-0"

STRUCTURAL ENGINEER

TRIBLE BUILDINGS PC
6804 GRAND AVE. 2ND FL., GLENDALE, NY 11385
WEB: WWW.TRIBLE.US EMAIL: INFO@TRIBLE.US
TEL: (718) 639-6541 FAX: (718) 326-7342

ARCHITECT

ADDITIONS + ALTERATIONS

DATE: SHEET NO.:

PROJECT No.: 20214

PROJECT MANAGER: KG A-601.00

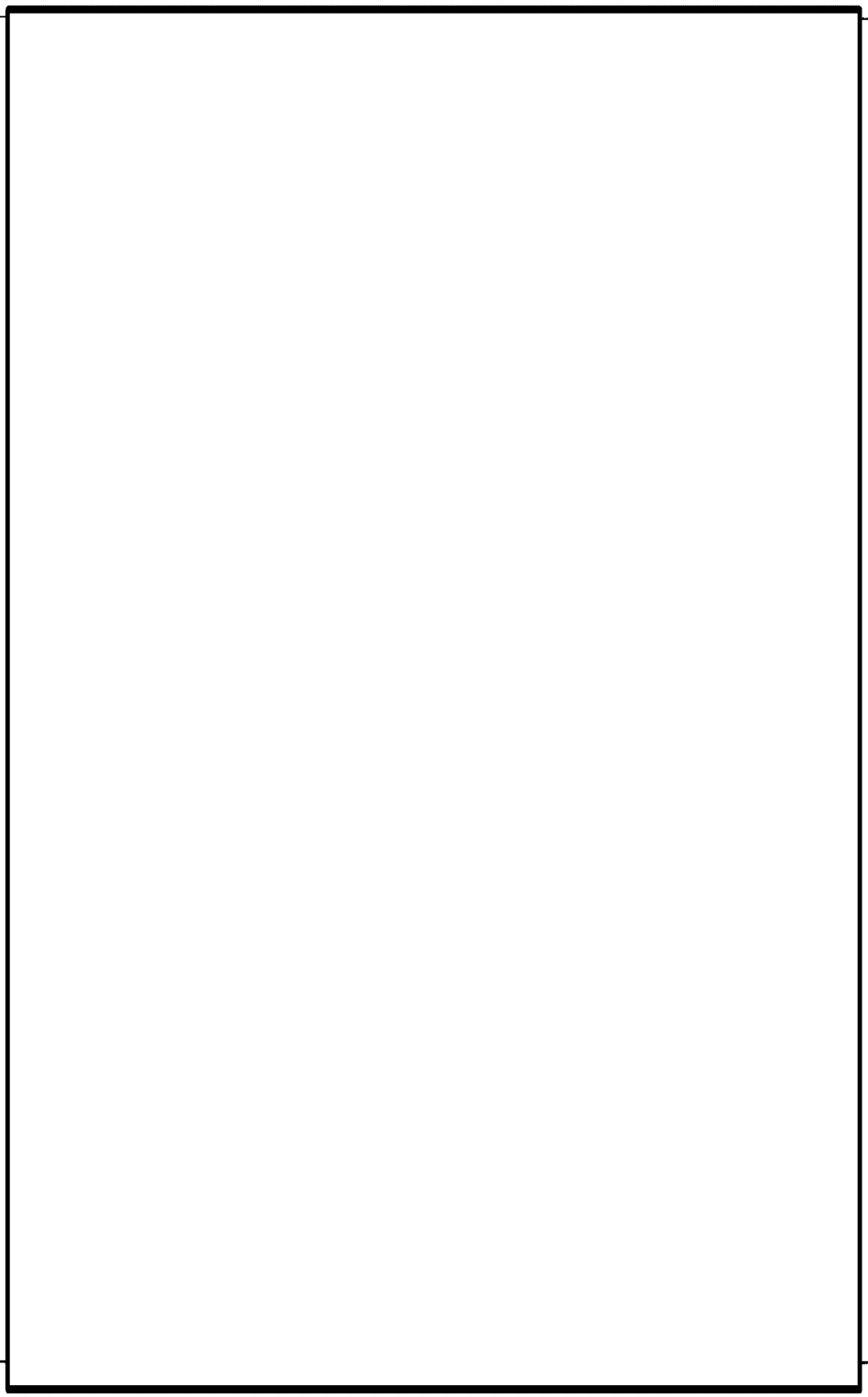
DRAWN BY: SS

DWG FILE No.: 16-OF-19

N.Y.C. D.O.B. NO. :

110

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A DIAGRAMATIC DESIGN & SHALL BE SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:

148-31/43 88TH AVE.

148-31/43 88TH AVE,
JAMAICA, NEW YORK 11435

DRAWING TITLE:

ROOF PLAN

SCALE: 3/32" = 1'-0"

STRUCTURAL ENGINEER

THEIS BUILDINGS PC

ARCHITECT + PLANNER

DATE: DRAWN: DWG. No.

PROJECT No.:

PROJECT MANAGER:

DRAWN BY:

CADD FILE NO.:

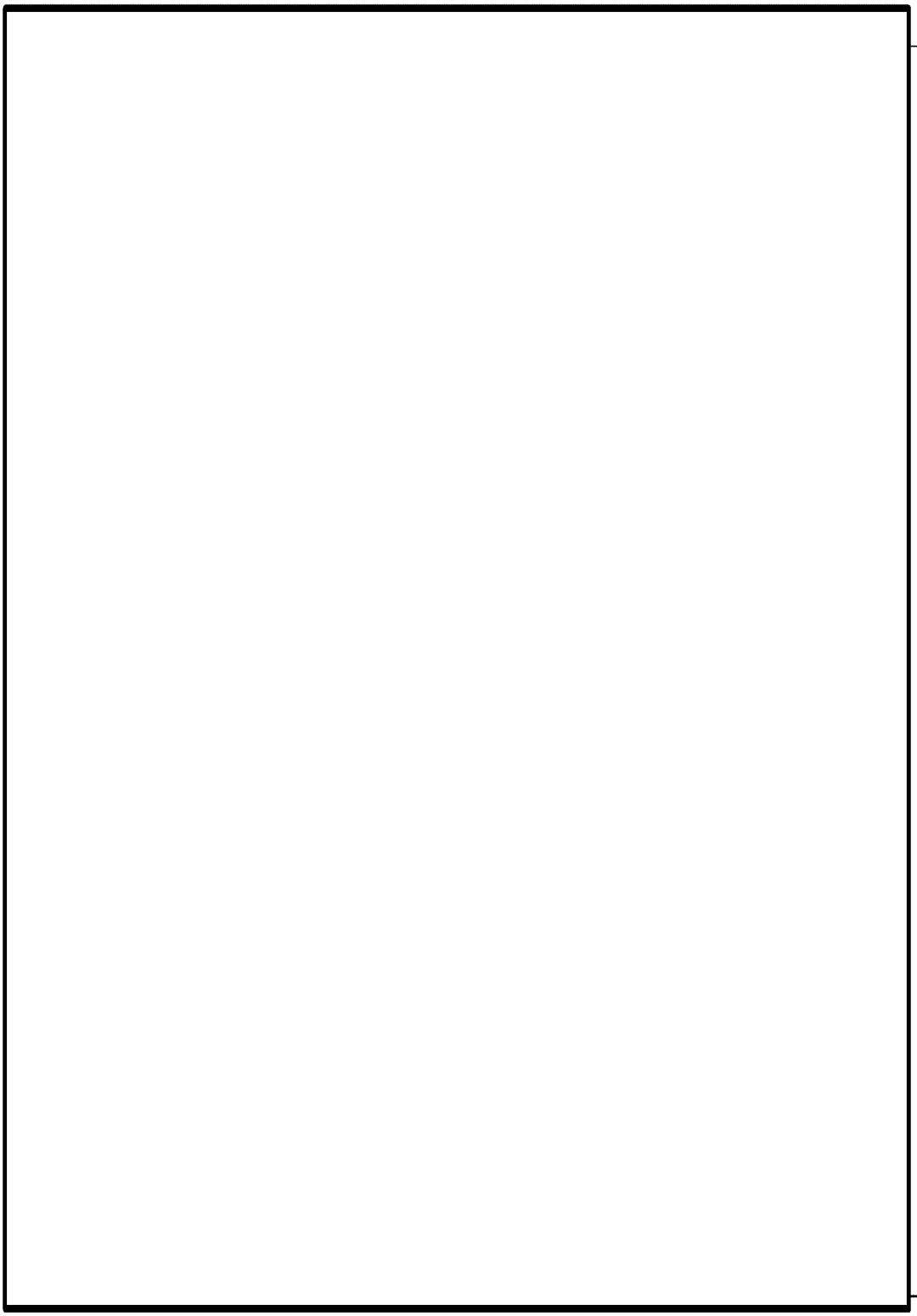
A-107.00

15 OF 19

N.Y.C. D.O.B. NO. :

109

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN
& SHALL SUBMIT TO REVIEW
& INTERPRETATION BY
NYC DEPT. OF BLDGS ON
ZONING AND BUILDING CODES.

PROJECT:
148-31/43 88TH AVE.
148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:
8TH FLOOR PLAN
SCALE: 3/32" = 1'-0"

STRUCTURAL ENGINEER:
TYNDA BUILDINGS PC
MEN ISLAND AVE. 2ND FL. ELMHURST, NY 1173
WEB: WWW.TYNDA.US EMAIL: INFO@TYNDA.US
TEL: (718) 205-0004 FAX: (718) 205-3700

SEAL & SIGNATURE:

ARCHITECTS + PLANNERS
120-40 84TH AVENUE KEW GARDENS, NEW YORK 11415
TEL: (718) 441-5000 FAX: (718) 805-0009
EMAIL: info@gregorioarchitects.com
WEB: www.gregorioarchitects.com

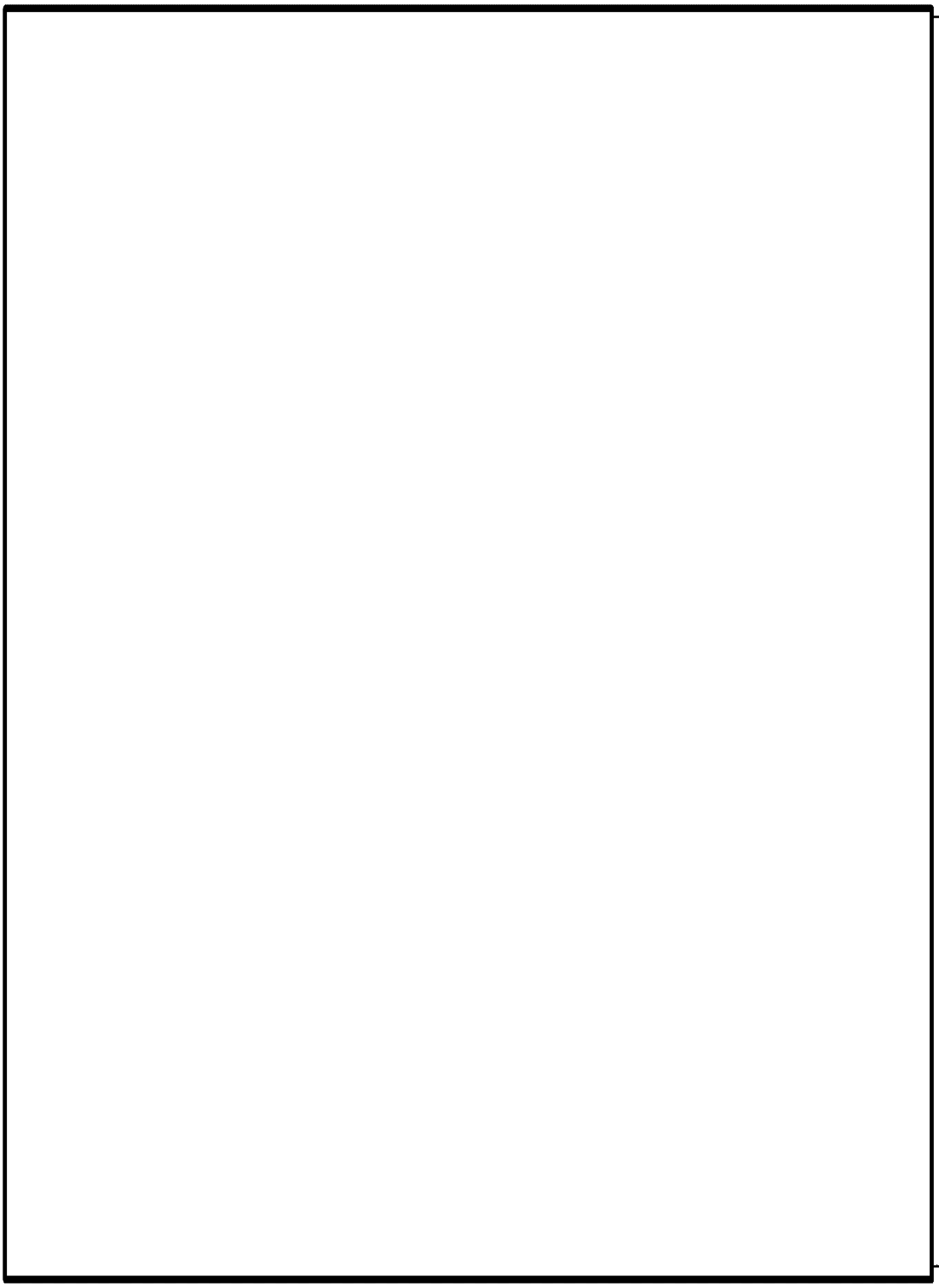
DATE: SHEET NO. / TOTAL NO.:
PROJECT No.: 2013-14
PROJECT MANAGER: KG
DRAWN BY: EA
CHECKED BY: EA
CAD/D FILE No.:
SCALE: 3/32"=1'-0"

A-106.00
14-OF-19

N.Y.C. D.O.B. NO. :

108

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT

148-31/43 88TH AVE.

148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE

7TH FLOOR PLAN

SCALE: 3/32" = 1'-0"

M.E.P. ENGINEER

STRUCTURAL ENGINEER

TRIBS BUILDINGS PC
[illegible]

ARCHITECT

[illegible]

DATE: [illegible] SHEET No.

PROJECT No. 21014

PROJECT MANAGER: [illegible]

DRAWN BY: [illegible]

CAD FILE No.: A-105.00

13-OF-19

N.Y.C. D.O.B. NO. :

107

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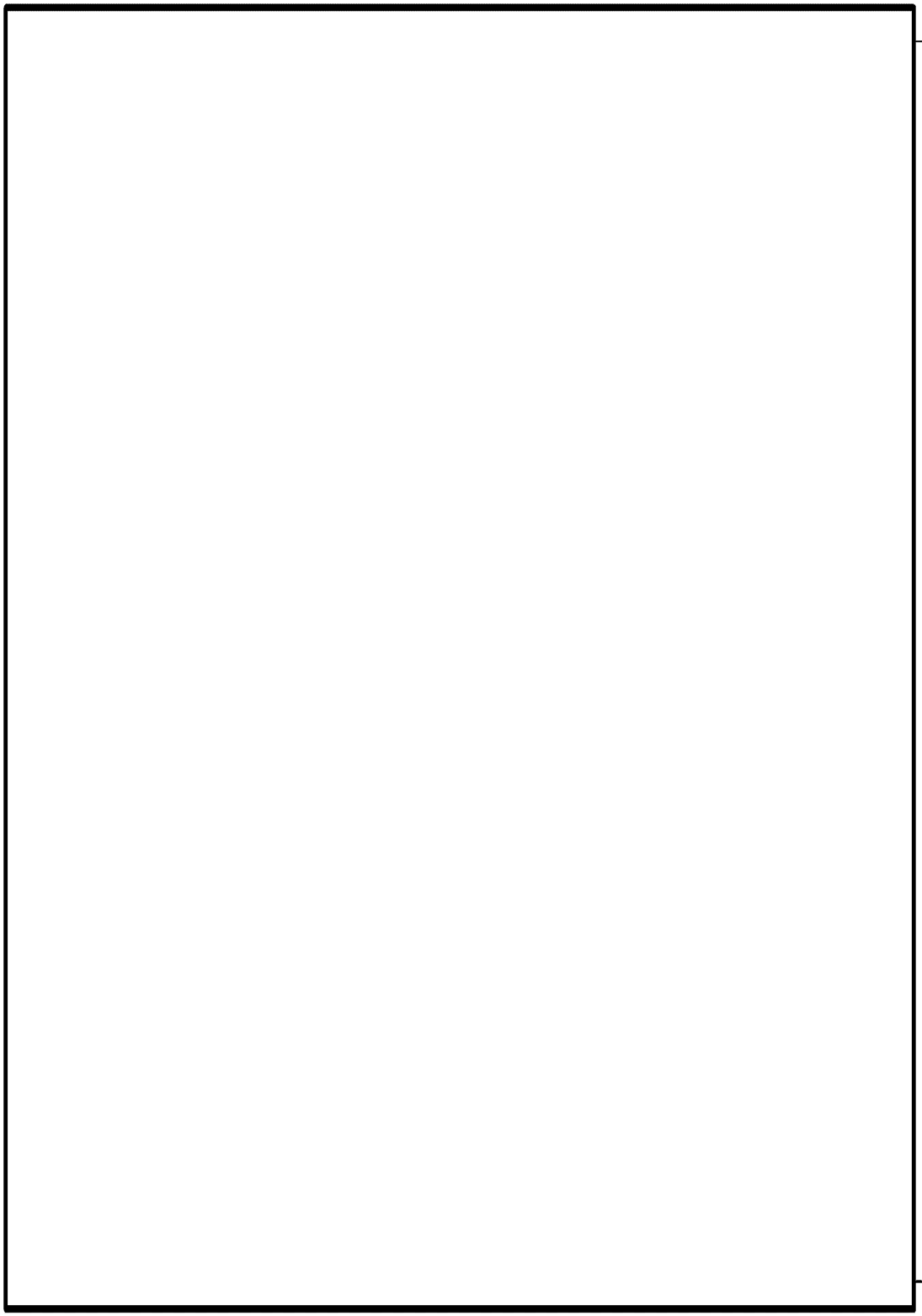

No.	DATE	DESCRIPTION

NOTE: THIS IS A DIAGRAMATIC DESIGN & SHALL BE SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT
148-31/43 88TH AVE.
148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE
3RD~6TH FL PLAN
SCALE: 3/32" = 1'-0"

STRUCTURAL ENGINEER
TITNUD BUILDINGS PC
688 GRAND AVE. 2ND FL. ENGLEWOOD, NJ 07631
WEB: WWW.TITNUD.COM EMAIL: ENGINEERS@TITNUD.COM
TEL: (718) 302-4001 FAX: (718) 302-7240

ARCHITECT'S SEAL & SIGNATURE

ARCHITECT'S & PLANNER'S
138-46 80TH AVENUE FLUSHING, NEW YORK 11354
TEL: (718) 445-5566 FAX: (718) 445-5567
EMAIL: info@gmarchitectsandplanners.com
WEB: www.gmarchitectsandplanners.com

DATE: ISSUED / DWG. No.:
PROJECT No.: 2011-4
PROJECT MANAGER: M.G.
DRAWN BY: S.L.
CADD FILE NO.:
SITE SCALE (5x11): 1" = 20'-0"

A-104.00
12-OF-19

N.Y.C. B.D.B. NO. :

901

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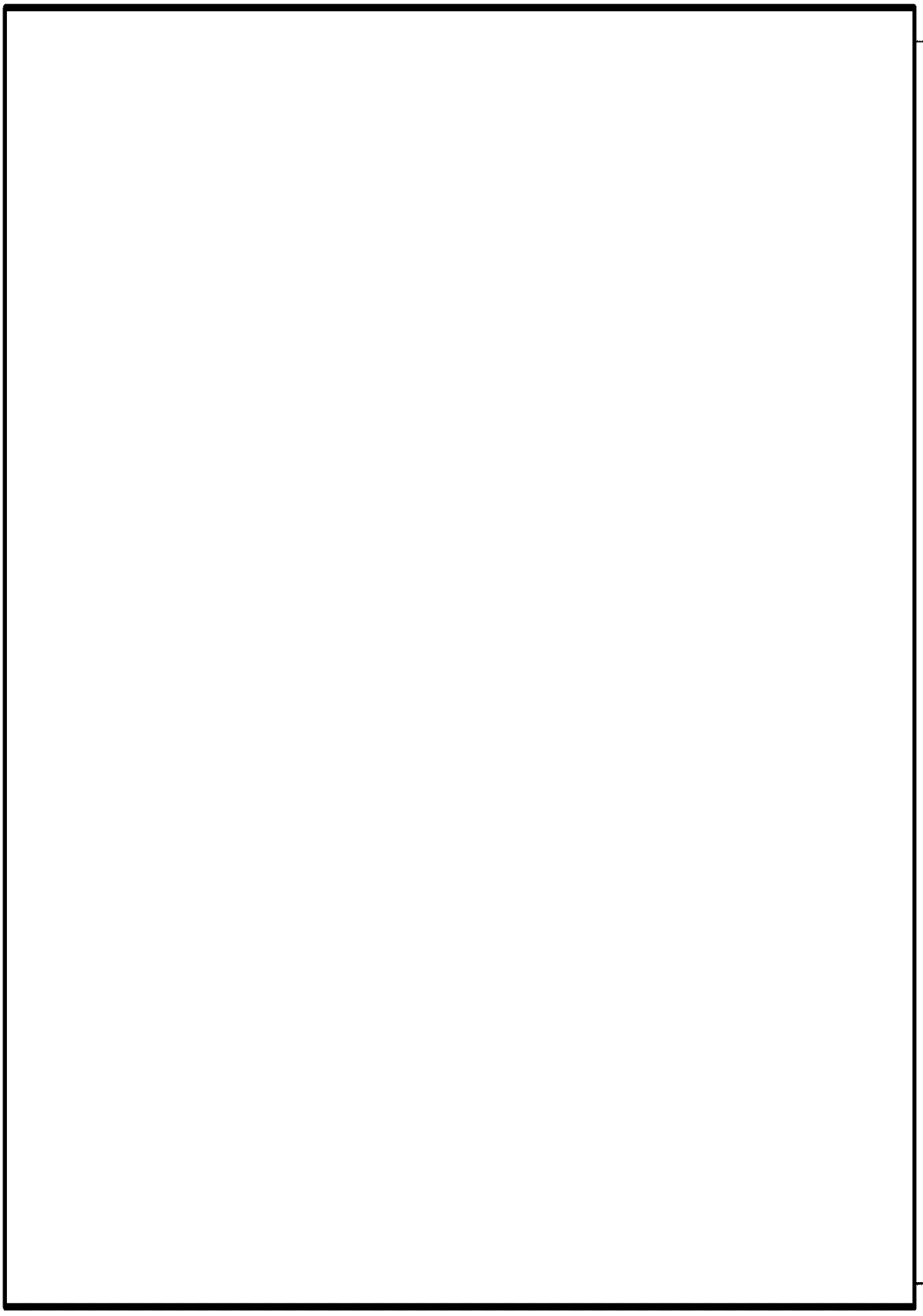


No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL BE SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT

146-31/43 88TH AVE.

146-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE

2ND FLOOR PLAN

SCALE 3/32" = 1'-0"

STRUCTURAL ENGINEER

TRIBUS BUILDINGS PC

ARCHITECT + PLANNER

DATE: ISSUED FOR:

PROJECT No. 2401.4

PROJECT DRAWING NO. A-103.00

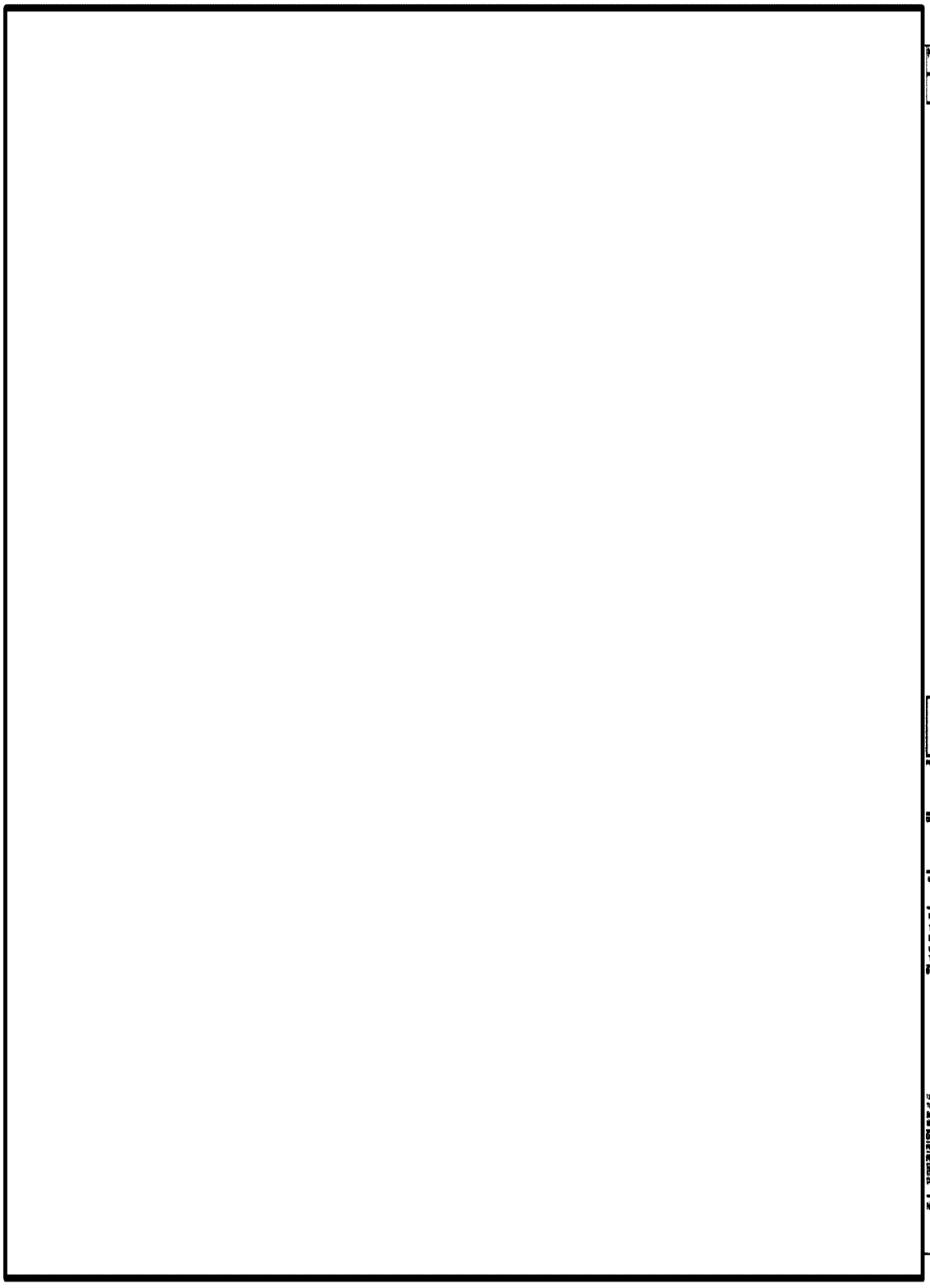
SHEET NO. 11 OF 19

CADD FILE NO.

N.Y.C. D.O.B. NO. :

105

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT:
148-31/43 88TH AVE.
148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:
1ST FLOOR PLAN
SCALE: 3/32" = 1'-0"

STRUCTURAL ENGINEER
TIWARI BUILDERS PC
[illegible]

KEY PLAN

ARCHITECT
[illegible]

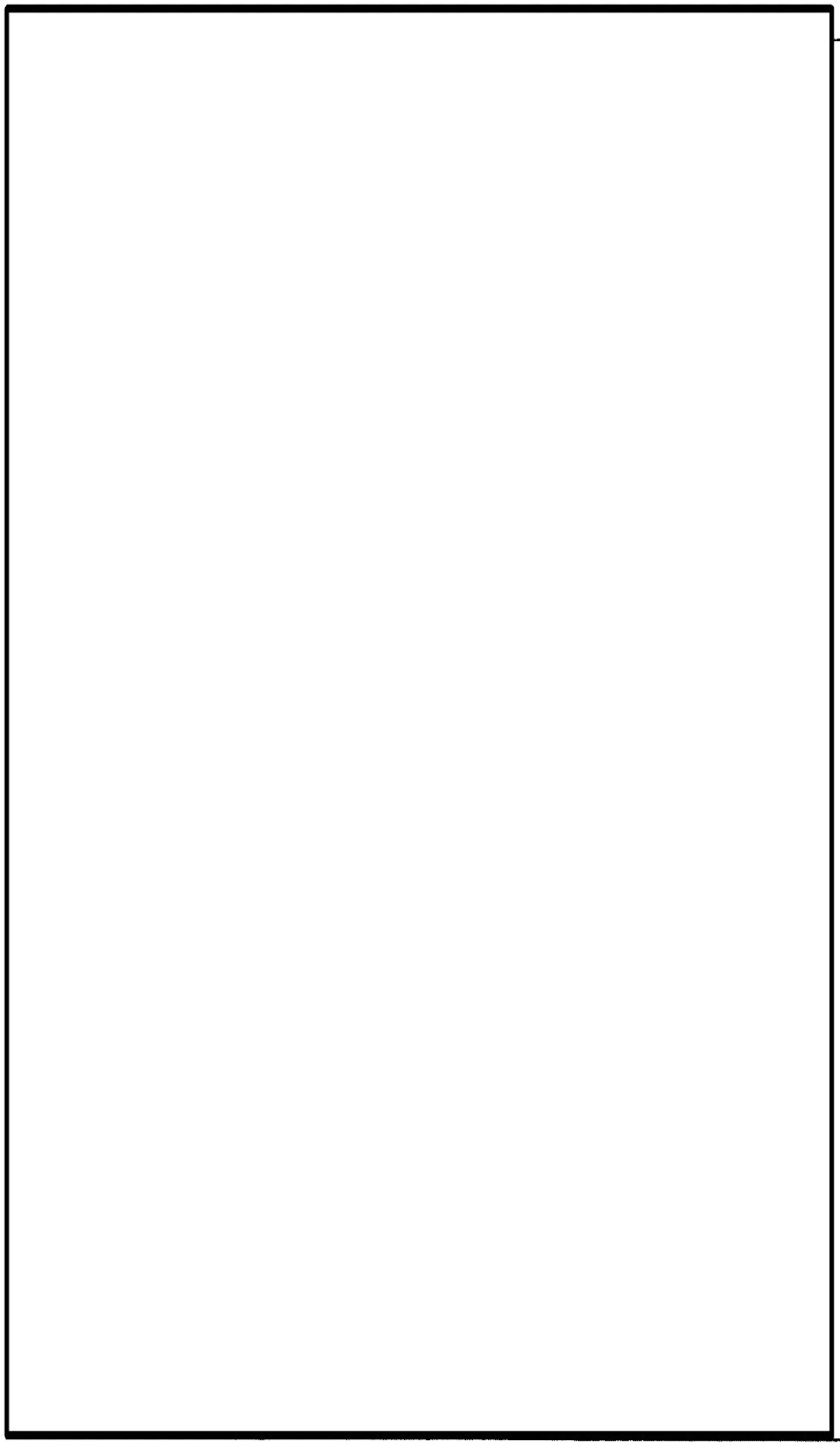
DATE: [illegible] SHEET No.:
PROJECT No.: [illegible]
PROJECT MANAGER: [illegible]
DRAWN BY: [illegible]
CHKD BY: [illegible]
CAD FILE NO.: [illegible]
SCHEDULE (PHASE): [illegible]

A-102.00
10 OF 19

N.Y.C. B.I.S. NO. :

104

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A SCHEMATIC DESIGN & SHALL BE SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT

146-31/43 88TH AVE.
146-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE:

CELLAR FL PLAN

SCALE: 3/32" = 1'-0"

STRUCTURAL ENGINEER

TIMUR BUILDERS PC
[redacted]

[redacted]

ARCHITECTS + PLANNERS

[redacted]

DRAWN: [redacted]

PROJECT No. 2014

PROJECT MANAGER: KG

DRAWN BY: EA

CHECKED BY: [redacted]

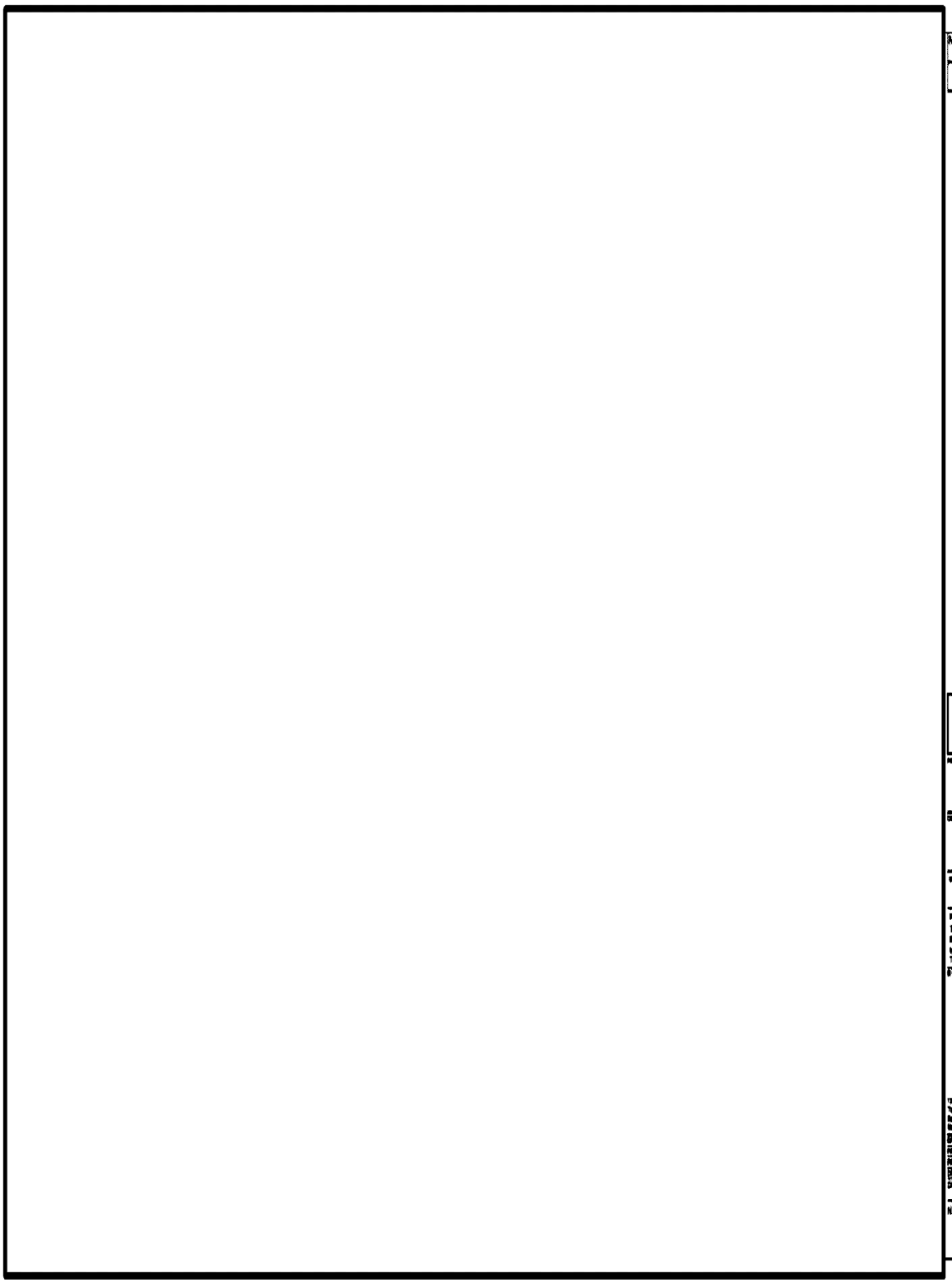
DATE: 09-06-19

N.Y.C. D.O.B. NO. :

A-101.00

103

(b)(4)



No.	DATE	DESCRIPTION

NOTE: THIS IS A DIAGRAMATIC DESIGN & SHALL BE SUBJECT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

PROJECT
148-31/43 88TH AVE.
148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

DRAWING TITLE
SITE PLAN
SCALE: 3/32" = 1'-0"

STRUCTURAL ENGINEER
THALE BUILDINGS PC
ARCHITECT & PLANNER

DATE: SHEET SIZE:
PROJECT No.:
PROJECT MANAGER: AA
DRAWN BY:
CHECKED BY:
DWG FILE NO.:
A-002.00
02-OF-19

N.Y.C. D.O.B. NO. :

102

148-31/43 88TH AVENUE, JAMAICA, NEW YORK 11435

No.	DATE	DESCRIPTION

ZONING INFORMATION

Address : 148-31/43 88TH AVENUE
JAMAICA, N.Y. 11435
Block : 9694
Lot : 49
Zone : C2-3 IN R7A
(SPECIAL DISTRICT- DOWNTOWN JAMAICA)
Map No. : 14d
Construction Class : 1-B

ZONING ANALYSIS

TAX LOT SIZE = 24,563.53 SF

ZR 115-23 <HEIGHT AND SETBACK REGULATIONS>
ALL HEIGHTS SHALL BE MEASURED FROM THE BASE PLANE.
PROPOSED BASE PLANE = 81.24' (SEE DWG. A001)

ZR 115-211(b) <MAX. F.A.R. FOR ENTIRE BUILDING= 3.45>
24,563.53 x 3.45 = 84,709.6 SF ALLOWED
= 84,709.0 SF PROPOSED
PROPOSED FAR = 3.45 < 3.45 -(COMPLIES)

ZR 115-211(b) <FOR RESIDENTIAL IN R7A= 3.45>
MAX. ALLOWED BASE F.A.R. IN R7A
24,563.53 x 3.45 = 84,709.6 SF ALLOWED
= 84,709.0 SF PROPOSED
PROPOSED FAR = 3.45 < 3.45 -(COMPLIES)

ZR 23-145 <MAX. LOT COVERAGE FOR INTERIOR LOT = 65%>
24,563.53 SF x 65% = 15,966.7 SF
- 13,324/ 24,563.53
= 0.543 x 100% = 54.3% PROPOSED
PROPOSED LOT COVERAGE = 13,324 SF = 54.3% < 65.0% -(COMPLIES)

ZR 35-40 <MAX. NUMBER OF DWELLING UNITS>
FACTOR = 680, ZR 23-22.
(LOT AREA/MAX. FAR - ACT. OF FAR - ACT. COMM. FAR) FACTOR
24,563.53 x 3.45 /680 = 124 UNITS ALLOWED
= 109 UNITS PROPOSED -(COMPLIES)

YARD REGULATION
ZR 23-466(b) & ZR 35-52
NO SIDE YARD REQUIRED. IF PROVIDED, 8' MIN. -(COMPLIES)

23-471 & 33-261 <BEYOND 100' OF A STREET LINE>
(a) 30' REAR YARD FOR RESIDENTIAL & 20' REAR YARD FOR COMM. REQUIRED WHEN REAR LOT LINE COINCIDES WITH A REAR LOT LINE OF AN ADJOINING ZONING LOT
(c) NO REAR YARD REQUIRED WHEN REAR LOT LINE COINCIDES WITH A SIDE LOT LINE OF AN ADJOINING ZONING LOT.

ZR 23-541 & ZR 33-301 <WITHIN 100' OF CORNERS>
NO REAR YARD REQUIRED

ZR 23-532 & ZR 35-51
NO FRONT YARD IS REQUIRED. -(COMPLIES)

ZR 23-633(a1)(b1) & ZR 35-24(c) <SETBACK REGULATION>
REQUIRED: 10' SETBACK ALONG A WIDE STREET;
15' SETBACK ALONG A NARROW STREET;
40' MIN. BASE HEIGHT; 65' MAX. BASE HEIGHT;
85' MAX. BUILDING HEIGHT

PROPOSED: AT 88TH AVENUE, 28'-9" SETBACK @ 60'-0" BASE HEIGHT, AND 80'-0" BUILDING HEIGHT. -(COMPLIES)
(SEE BUILDING SECTION, DWG A-601)

ZONING CALCULATION

FLOOR	BUILDING GROSS FLOOR AREA (SQ. FT.)	RESIDENTIAL APARTMENT (SQ. FT.)	PARKING GARAGE (SQ. FT.)	FAR EXEMPT CHASE/ MECH. & OPEN SPACE* (SQ.FT.)	TOTAL ZONING FLOOR AREA (S.F.)	NO. OF DWELLING UNIT	ACCESSORY PARKING		BICYCLE SPACE	
							REQUIRED	PROPOSED	REQUIRED	PROPOSED
USE GROUP		2 (LOT 49)	2S							
CELLAR	23611	0	19743	3868	0			55		51
1ST FL	13324	8358	1395	3571	8358	11	109 x 50% = 54.5		109/ 2 = 54.5	4
2ND FL	13324	12174		1150	12174	16				
3RD FL	13324	12174		1150	12174	16				
4TH FL	13324	12174		1150	12174	16				
5TH FL	13324	12174		1150	12174	16				
6TH FL	13324	12174		1150	12174	16				
7TH FL	10107	8528		1579	8528	11				
8TH FL	7816	6635		1181	6636	7				
ROOF	785	318		467	318					
TOTAL	122253	84709	21138	16416	84709	109 < 124	55	55	55	55
MAX. FA ALLOWED		84709 < 84,709.6 SF								
MAX. FA OF BUILDING		84709 < 84,709.6 SF								
TOTAL FAR OF BUILDING		3.45 < 3.45 (LOT AREA: 24,563.53 SF)								

* (ZR 12-10) CELLAR FLOOR, CHASE & MECH. SPACE NOT COUNT AS ZONING FLOOR AREA

PARKING REQUIREMENT

ZR 25-23 <REQ. PARKING FOR RESIDENTIAL>
TOTAL NUMBER OF DWELLING UNITS = 109
109 x 50% = 54.5 PARKING SPACE REQUIRED

TOTAL PARKING REQUIRED = 55
TOTAL PARKING PROVIDED = 55 -(COMPLIES)
(REQUIRED 10% OF RESERVOIR SPACE)
55 x 10% = 5.5 REQUIRED, 8 PROVIDED -(COMPLIES)
(SEE PARKING REQUIREMENT TABLE)

ZR 25-81 & ZR 36-70 <BICYCLE PARKING>
FOR RESIDENTIAL USES
USE GROUP 2: 1 PER 2 DWELLING UNITS
109/ 2 = 54.5 PARKING SPACE REQUIRED -(COMPLIES)

TOTAL BICYCLE SPACE REQUIRED = 55
TOTAL BICYCLE SPACE PROPOSED = 55 -(COMPLIES)
(SEE PARKING REQUIREMENT TABLE)

ZR 36-73
15 SF OF AREA SHALL BE PROVIDED FOR EACH BICYCLE SPACE.
55 SPACE x 15 SQ. FT. = 825 SQ. FT. REQUIRED

STREET TREE PLANTING
ZR 33-03, ZR 26-41
REQUIRED ONE STREET TREE FOR EVERY 25' OF STREET FRONTAGE OF THE ZONING LOT.

AT 88TH AVENUE, 140'05 = 5.6 TREES REQUIRED
PROPOSED 4 TREES ON-SITE, & 2 TREES OFF-SITE

AT 150TH STREET, 100'28 = 0.4 TREES REQUIRED
PROPOSED 0 TREES ON-SITE, & 0 TREES OFF-SITE

SEPARATE APPLICATIONS

SPRINKLER & STANDPIPE
FIRE PROTECTION PLAN
BUILDERS PAVEMENT PLAN
SITE CONNECTION
SITE SAFETY PLAN
MECHANICAL & BOILER

SPECIAL INSPECTION ITEMS

NOTE: THIS IS A NON-STATUTORY DESIGN & SHALL SUBMIT TO REVIEW & INTERPRETATION BY NYC DEPT. OF BLDGS ON ZONING AND BUILDING CODES.

148-31/43 88TH AVE.
148-31/43 88TH AVE.,
JAMAICA, NEW YORK 11435

ZONING/ PLOT PLAN

TRIAD BUILDERS PC

A-001.00

01-OF-19

N.Y.C. B.I.S. NO.

101

PAGE WITHHELD PURSUANT

(b)(6)

CERTIFICATE OF APPRAISAL

Premises: 148-44/48 Hillside Avenue
& 148-31/43 88th Avenue
Jamaica, NY 11435

We certify to the best of our knowledge and belief:

THAT, the statements of fact contained in this report are true and correct;

THAT, the reported analyses, opinions and conclusions are limited only the reported assumptions and limiting conditions, and are our personal, unbiased professional analyses, opinions and conclusions;

THAT, the appraisal assignment was not based on a requested minimum valuation, a specific valuation, or the approval of a loan;

THAT, we have no present or prospective interest in the property that is the subject of this report, and we have no personal interest or bias with respect to the parties involved;

THAT, the compensation is not contingent on an action or event resulting from the analyses, opinions or conclusions in, or the use of, this report;

THAT, no other person(s) provided significant professional assistance to the person signing this report;

THAT, the analyses, opinions and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Codes of Professional Ethics and the Standards of Professional Practice of the organizations of which the appraisers are affiliated.

THAT, the use of this report is subject to the requirements of the Appraisal Institute relating to its review by its duly authorized representatives;

THAT, we have made a personal inspection of the property on August 31, 2015.

THAT, we have performed no (or the specified) services as an appraiser or in any other capacity regarding the property that is the subject of this report within the three year period immediately preceding acceptance of this assignment. In other words, update the certification; See Standards Rule 2-3, page U-29 of the USPAP 2013/14 Edition.

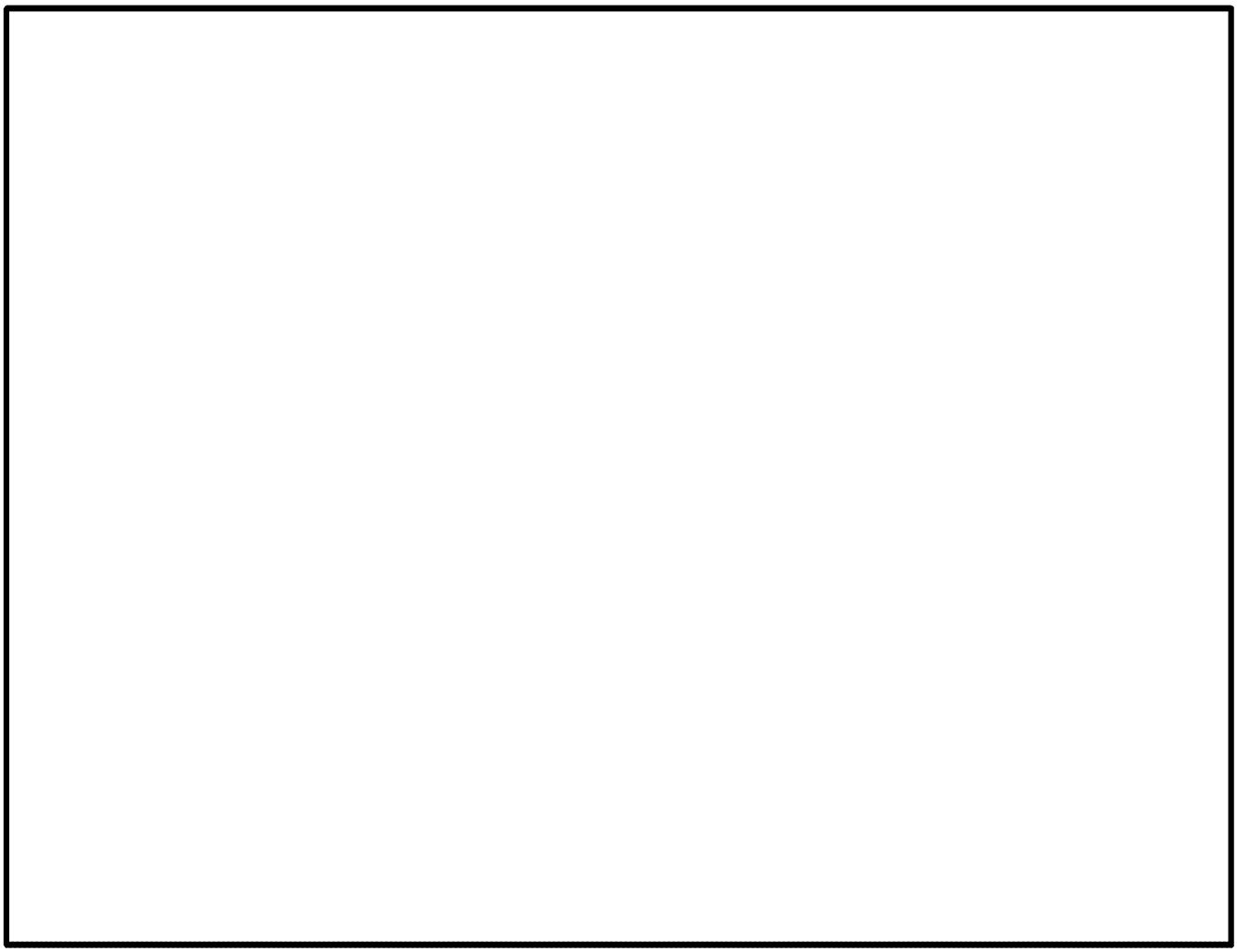
As of the date of this report, we have completed the requirements of the continuing education program of the State of New York for the professional license associated with her credentials.

DATE: September 2, 2015

Betsy Mak, MAI, AI-GRS, AI-RRS
Certified General Real Estate Appraiser
New York Certification #46-43206

(b)(4)

RECONCILIATION & CONCLUSIONS



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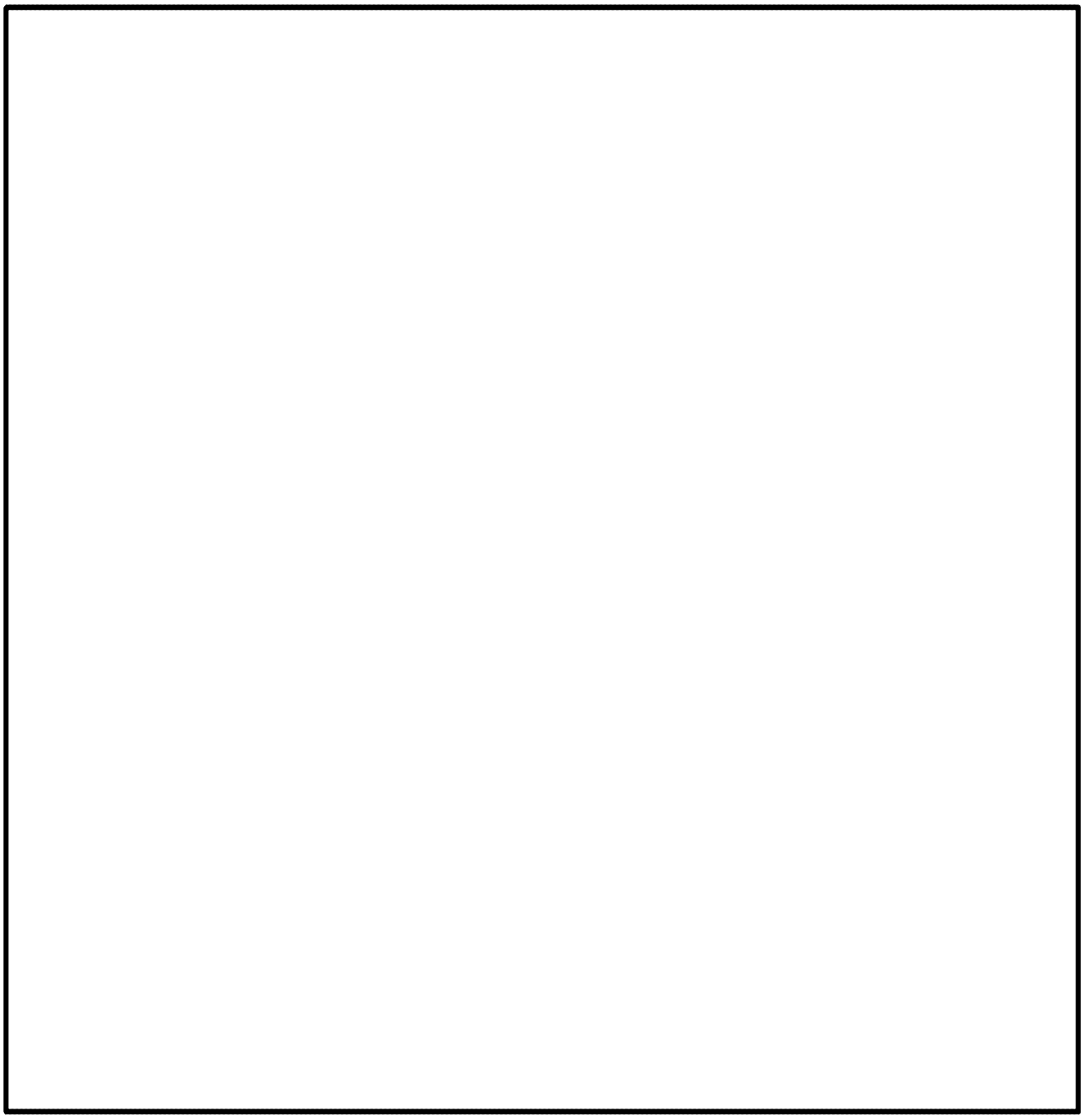

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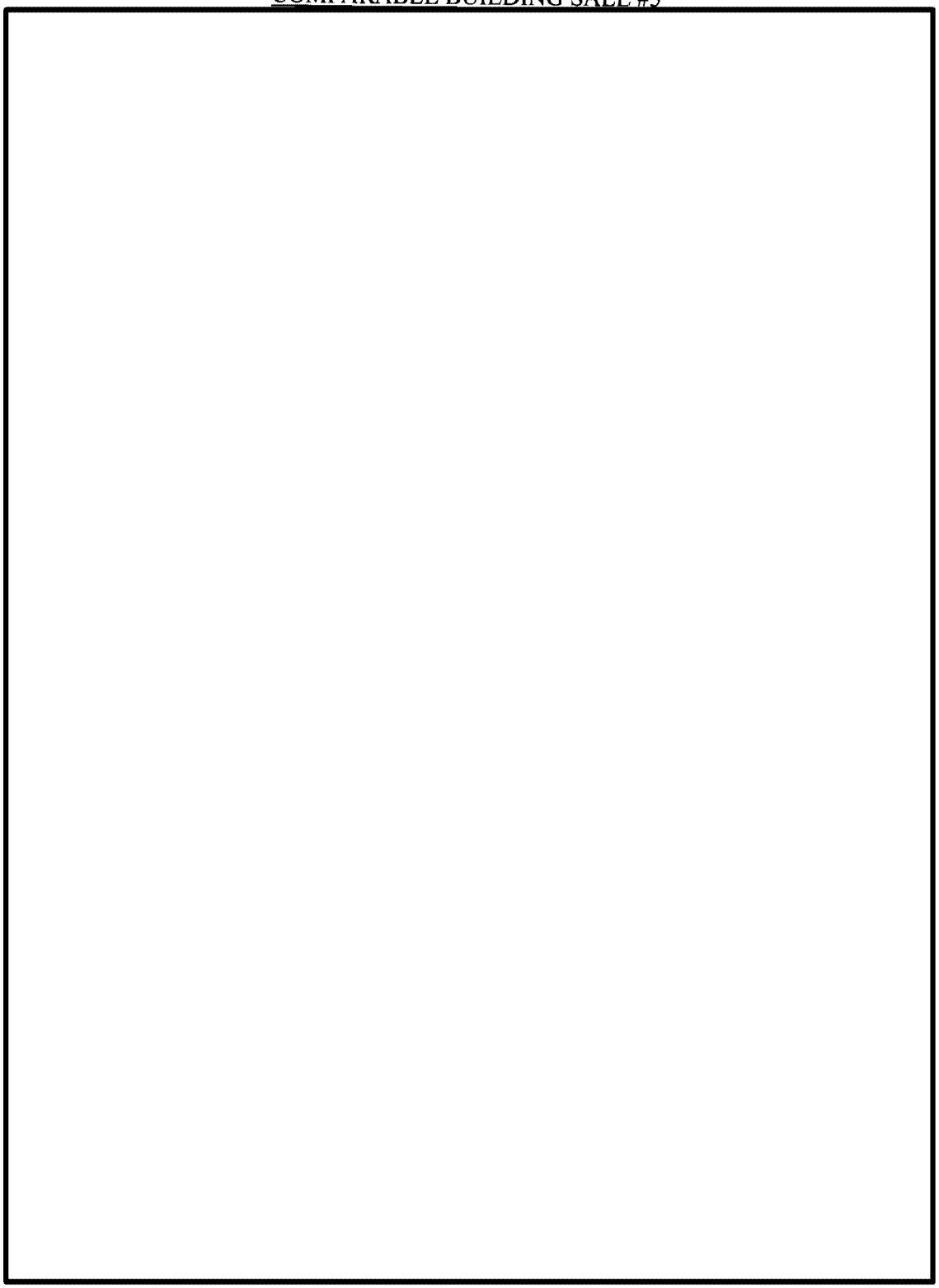
COMPARABLE BUILDING SALE #5



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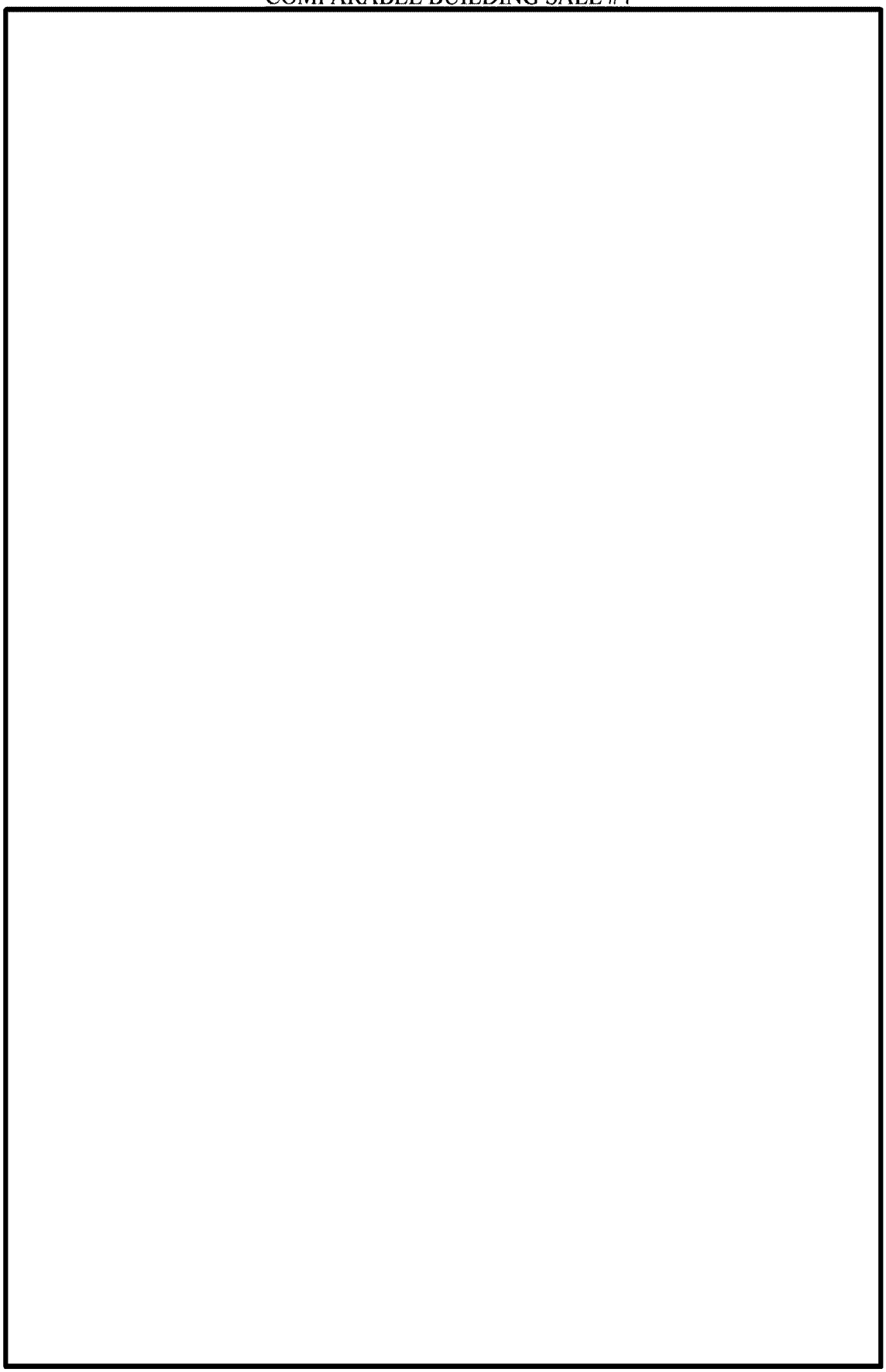

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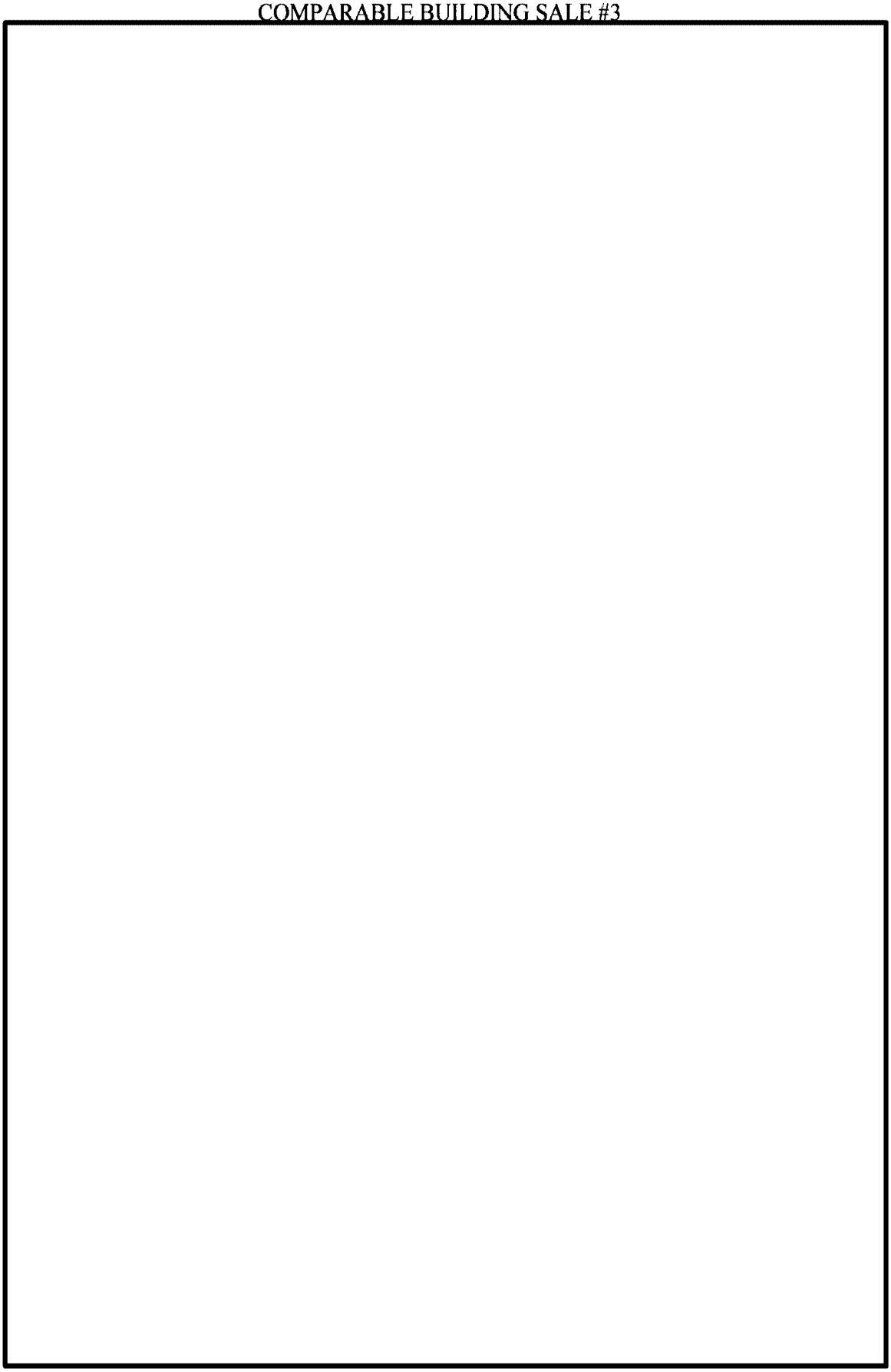
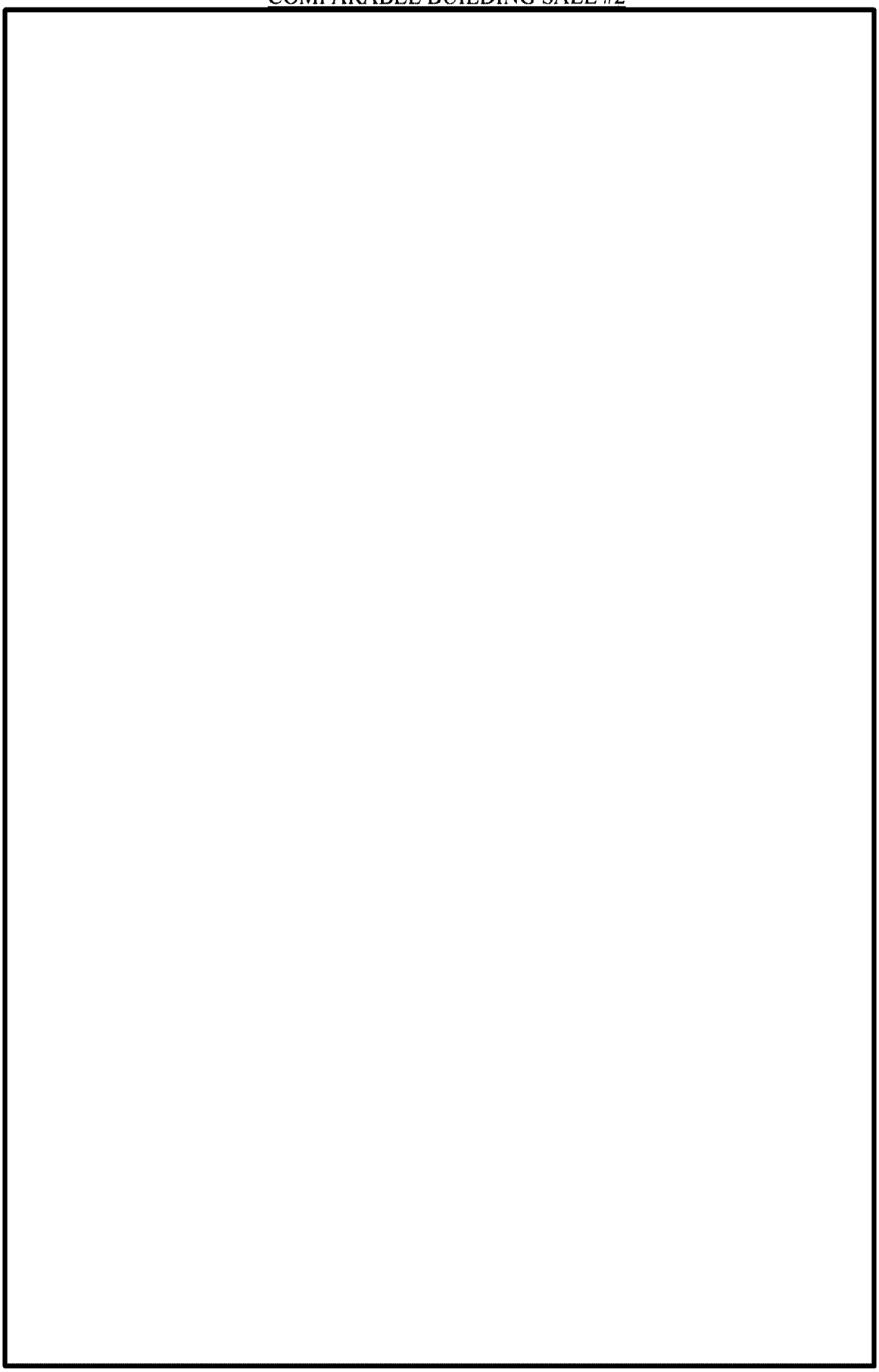


COMPARABLE BUILDING SALE #2



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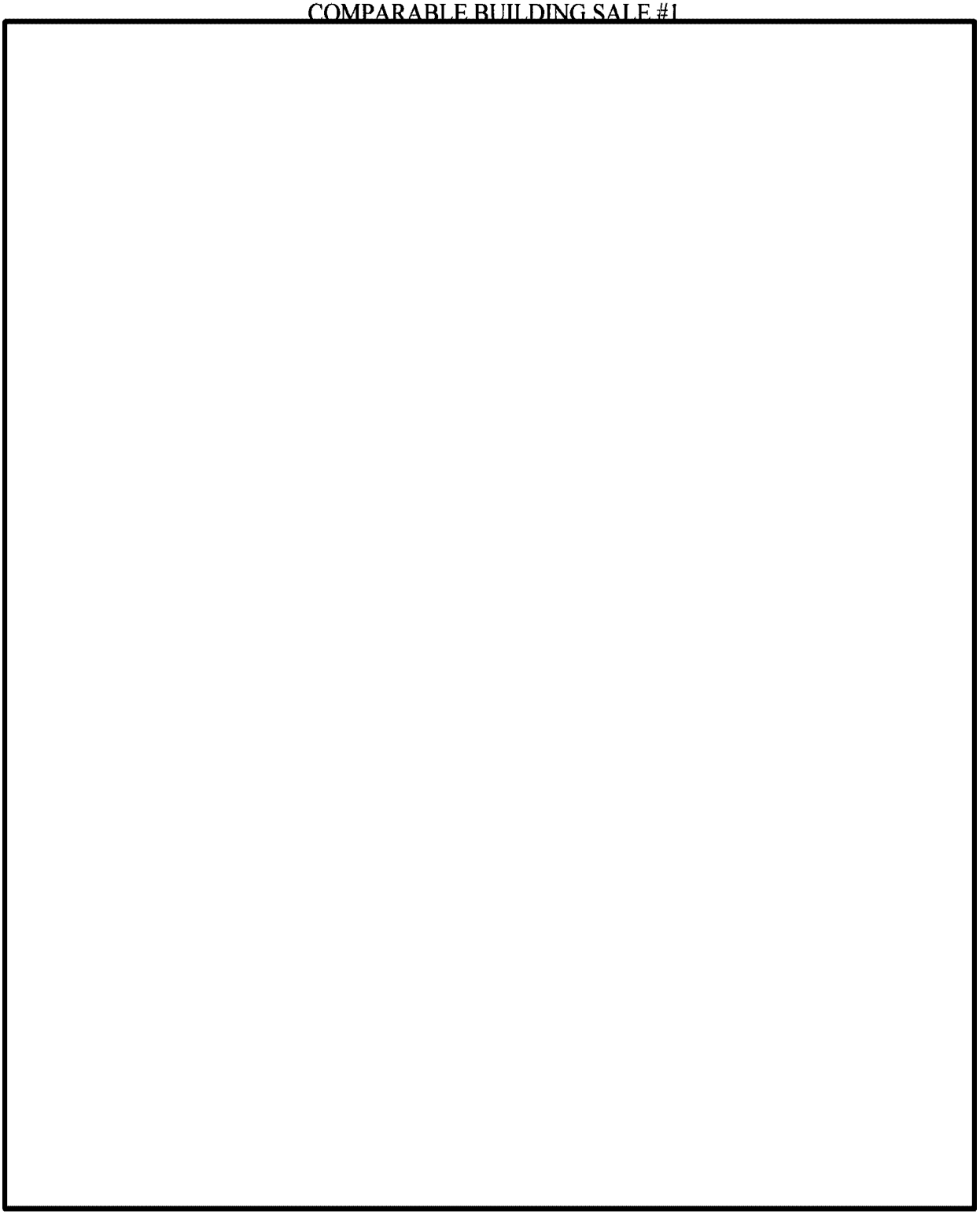


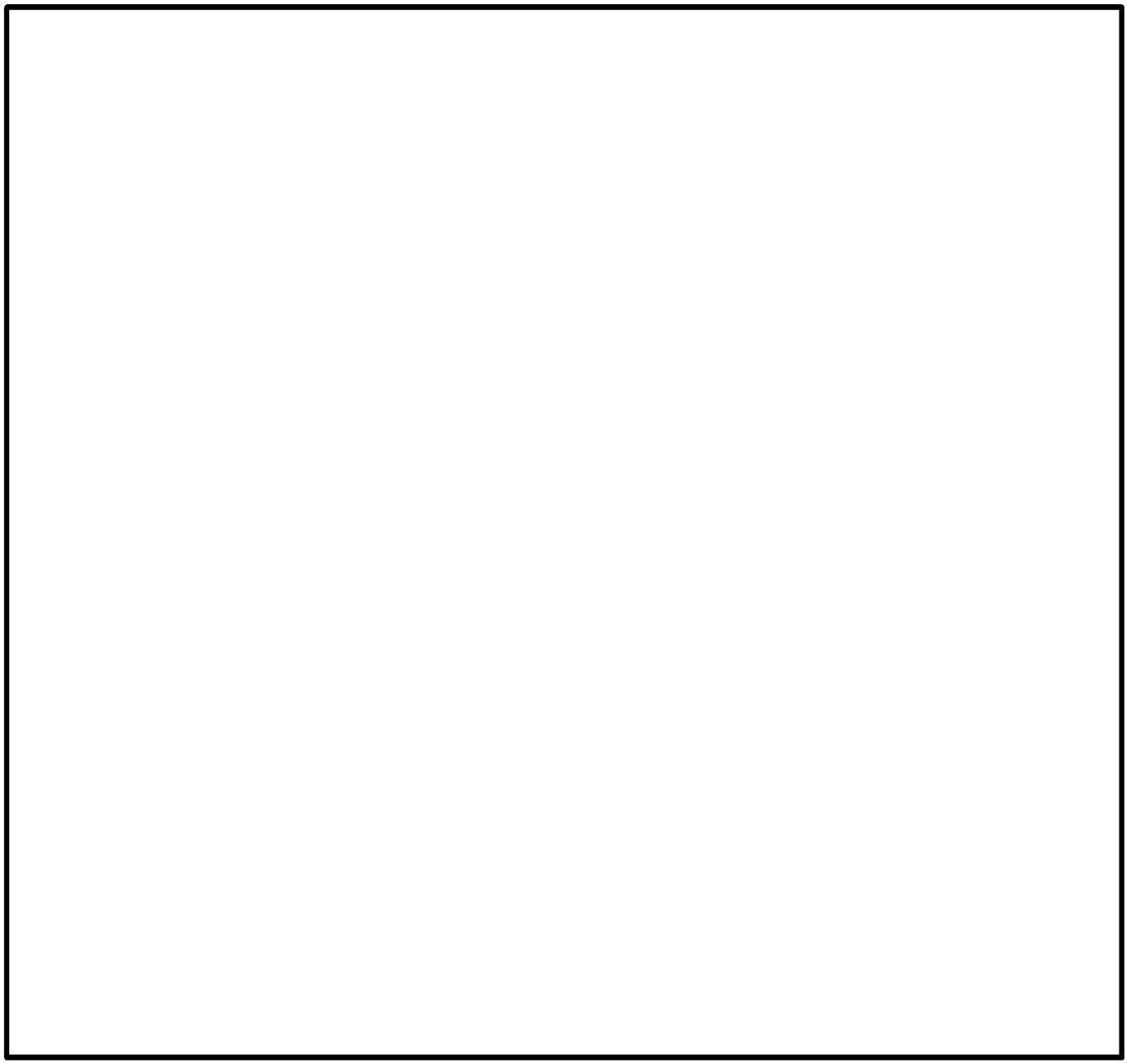
Summary of Sales

(b)(4)

Sale	Subject	1	2	3	4	5
Address						
Date						
Sales Price						
GBA (Sq. Ft.)						
Price Per Sq. Ft.						
Adjustments						
Property Rights						
Financing						
Conditions of Sale						
Market Condition						
Location						
Condition						
Parking						
Tax Abatement						
Size						
Total						
Adjusted Price Per Sq. Ft.						

(b)(4)

COMPARABLE IMPROVED SALES LOCATION MAP



148-31/43 88th AVENUE RESIDENTIAL SALES COMPARISON APPROACH

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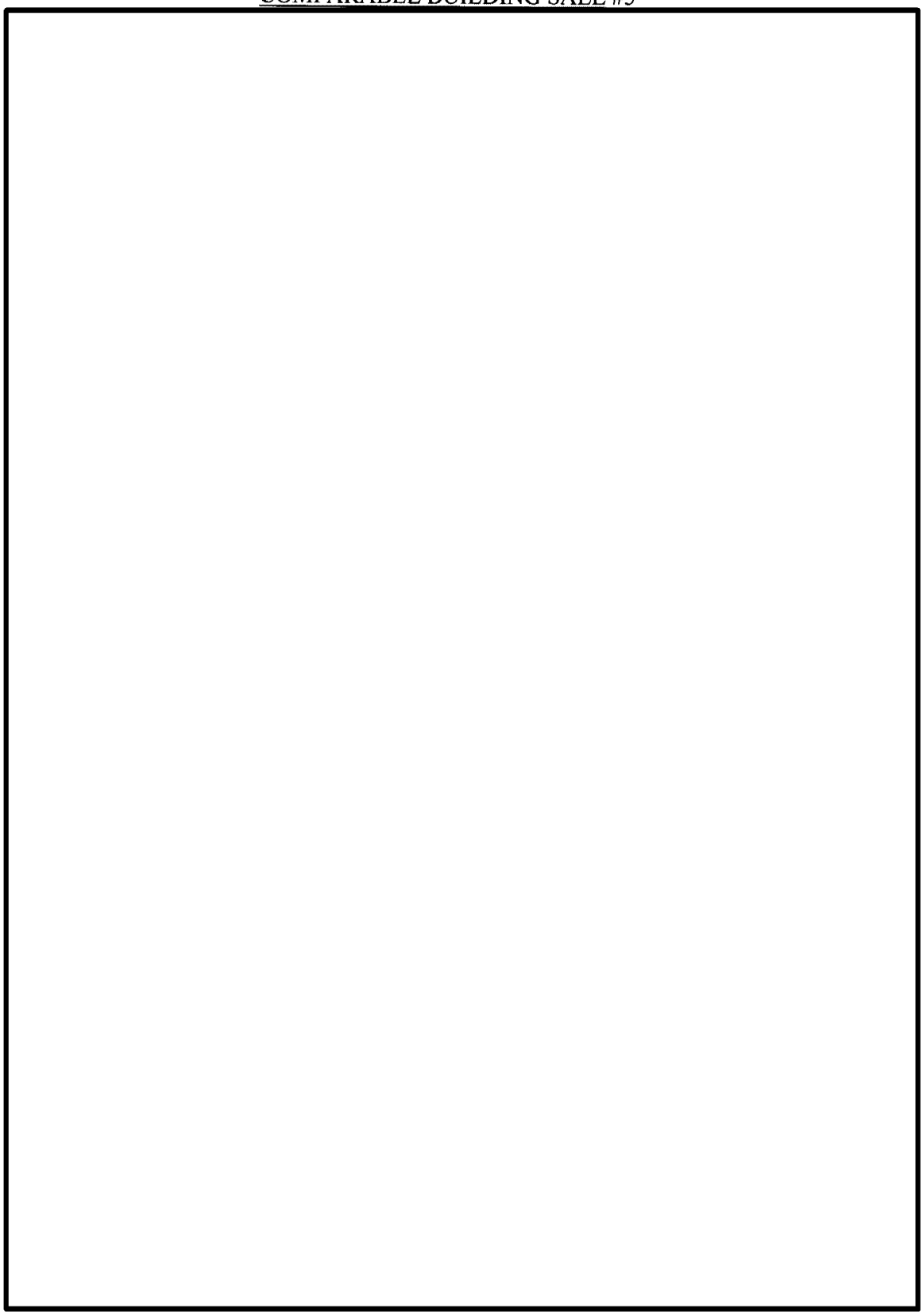
COMPARABLE BUILDING SALE #5



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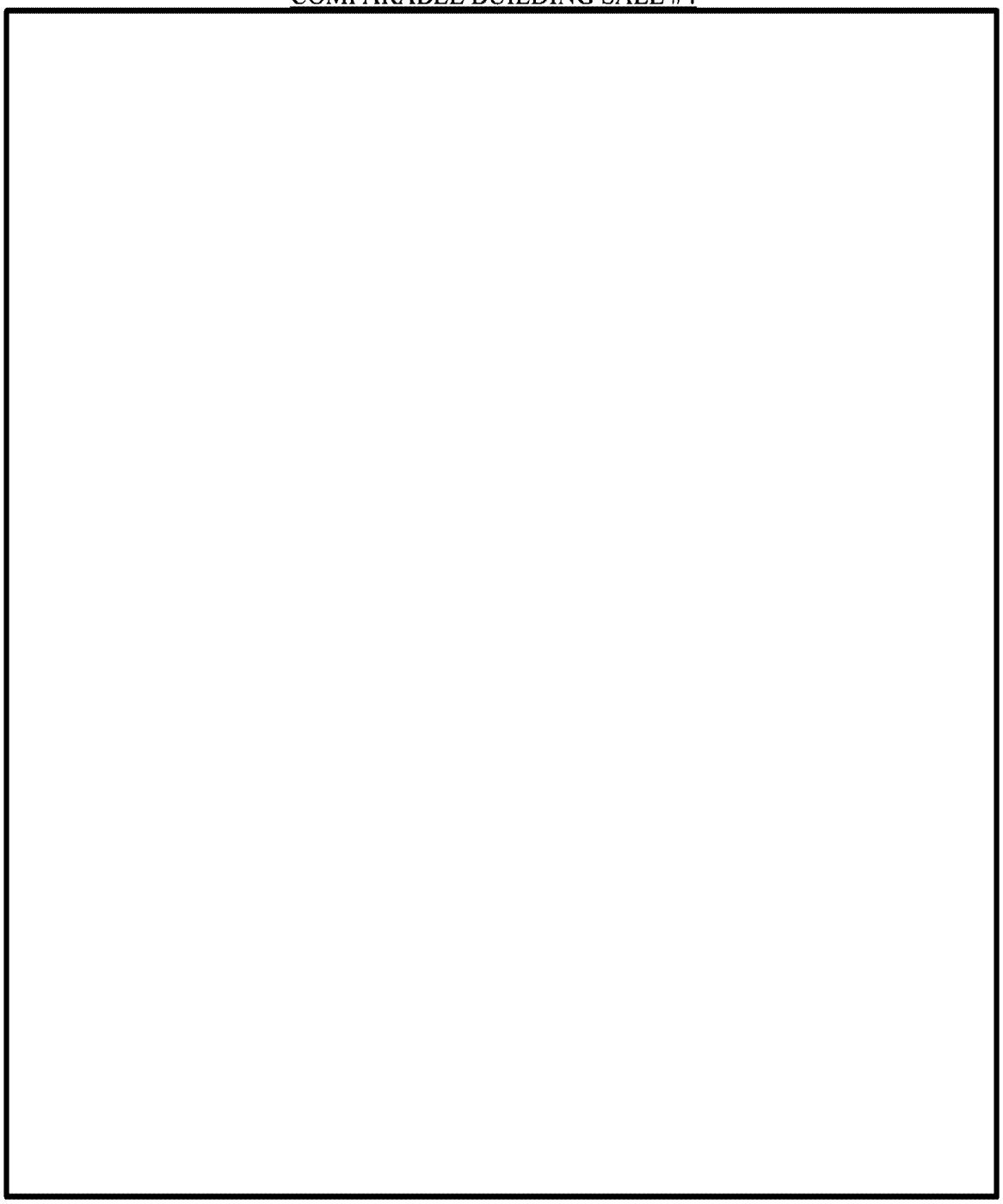
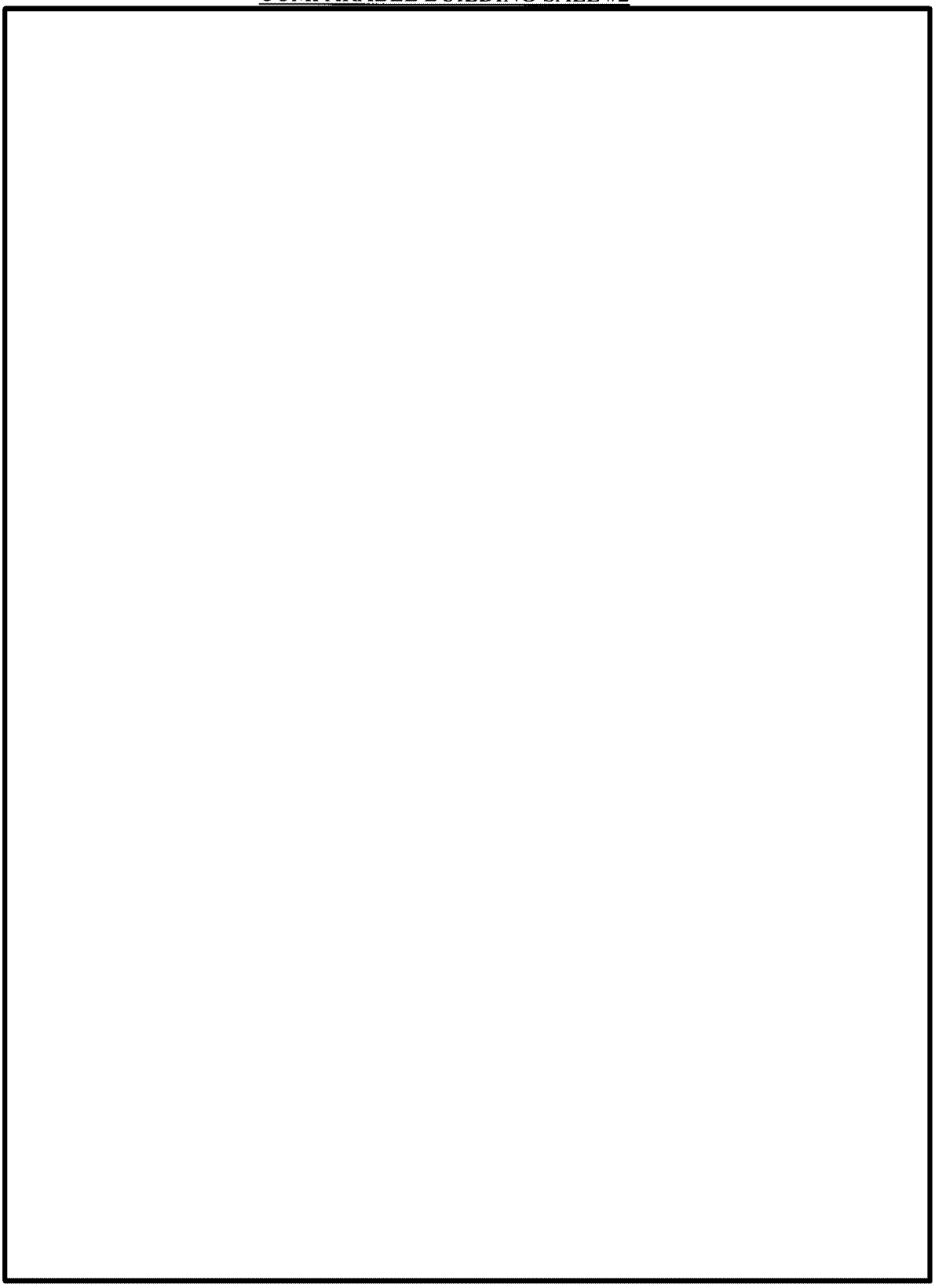
COMPARABLE BUILDING SALE #4



COMPARABLE BUILDING SALE #3

COMPARABLE BUILDING SALE #2



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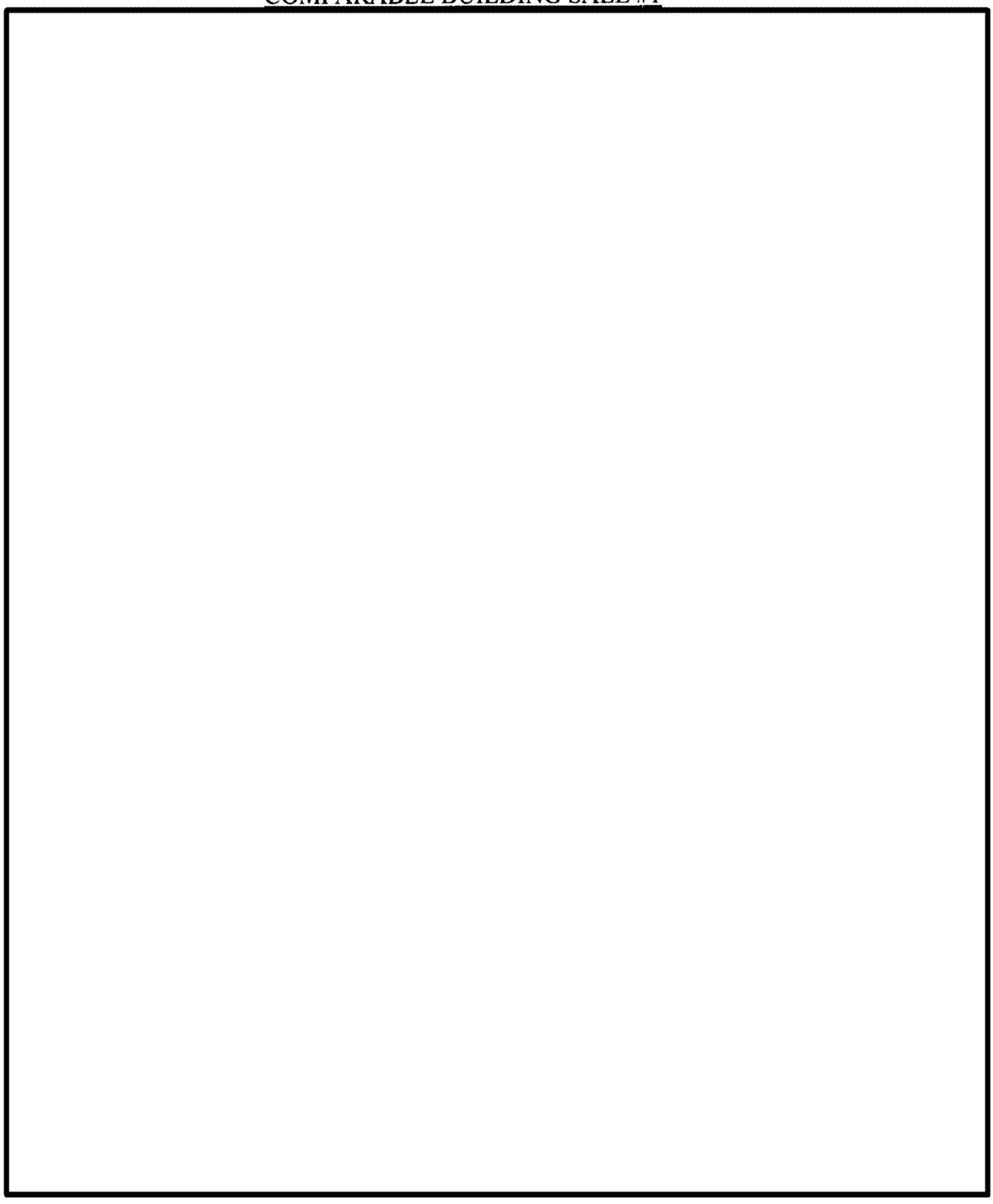
COMPARABLE BUILDING SALE #1



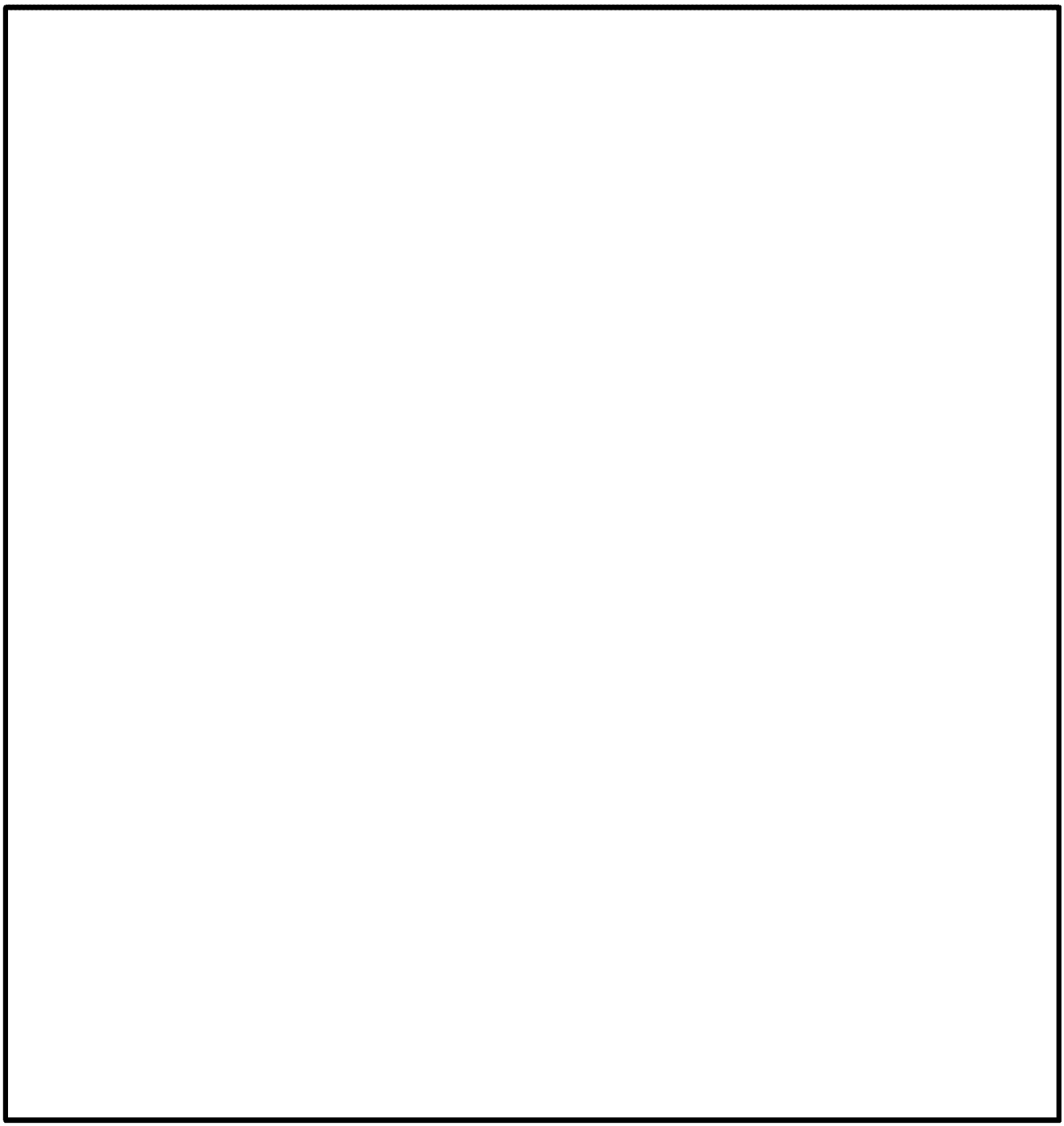
(b)(4)

Summary of Sales

Sale	Subject	1	2	3	4	5
Address						
Date						
Sales Price						
GBA (Sq. Ft.)						
Price Per Sq. Ft.						
Adjustments						
Property Rights						
Financing						
Conditions of Sale						
Market Condition						
Location						
Condition						
Parking						
Legal Cellar						
Tax abatement						
Size						
Total						
Adjusted Price Per Sq. Ft.						

(b)(4)

COMPARABLE IMPROVED SALES LOCATION MAP



SALES APPROACH TO VALUE FOR THE COMMERICAL BUILDNG

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(b)(4)

148-44/48 HILLSIDE AVENUE COMMERCIAL SALES COMPARISON APPROACH

(b)(4)

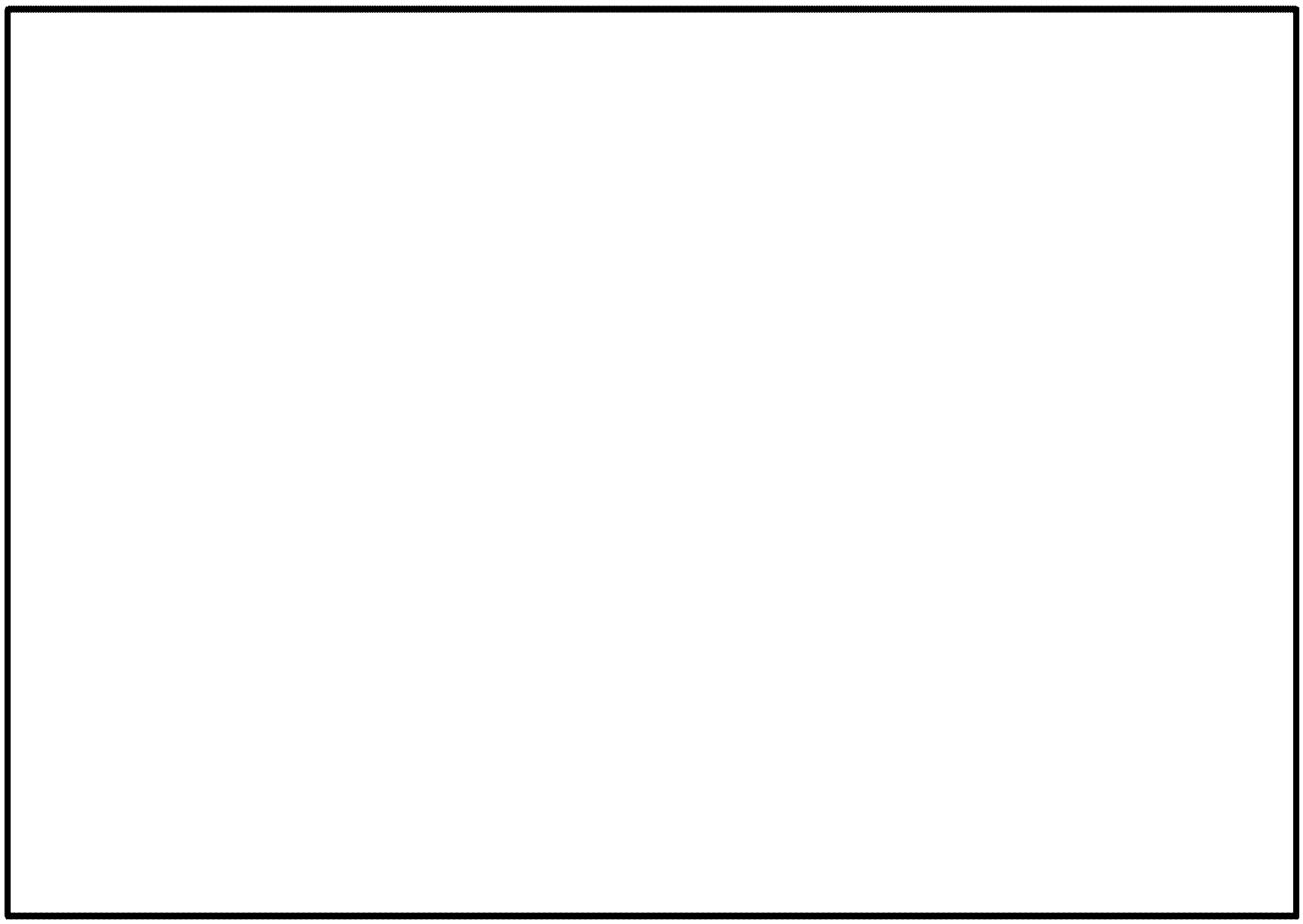
SALES COMPARISON APPROACH INTRODUCTION

Five Year Proforma					
	2018	2019	2020	2021	2022
Revenues					
Residential Condominium					
Commercial Retail					
Community Facility/Medical Office					
Parking Garage					
Total Revenues					
Expenses					
Utilities:					
Gas and eletric					
Water and sewer					
Repairs and maintenance:					
Building					
Sprinkler					
Elevator					
Equipment					
Exterminating					
Supplies					
Management fees					
Insurance					
Taxes					
Telephone					
Payroll Expenses					
Office and administrative					
Total Expenses					
Net Operating Income					

(b)(4)

(b)(4)

PARKING SPACE RENTAL ANALYSIS



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ANALYSIS OF RESIDENTIAL COMPARABLE RENTALS

(b)(4)

RESIDENTIAL COMPARABLE RENTALS

RESIDENTIAL COMPARABLE RENTALS									
#	Address	Room	Bed/ Bath	Gross SF	Monthly Rent	Annual Rent	Rent/ Room	Rent / Gross SF	Comments

(b)(4)

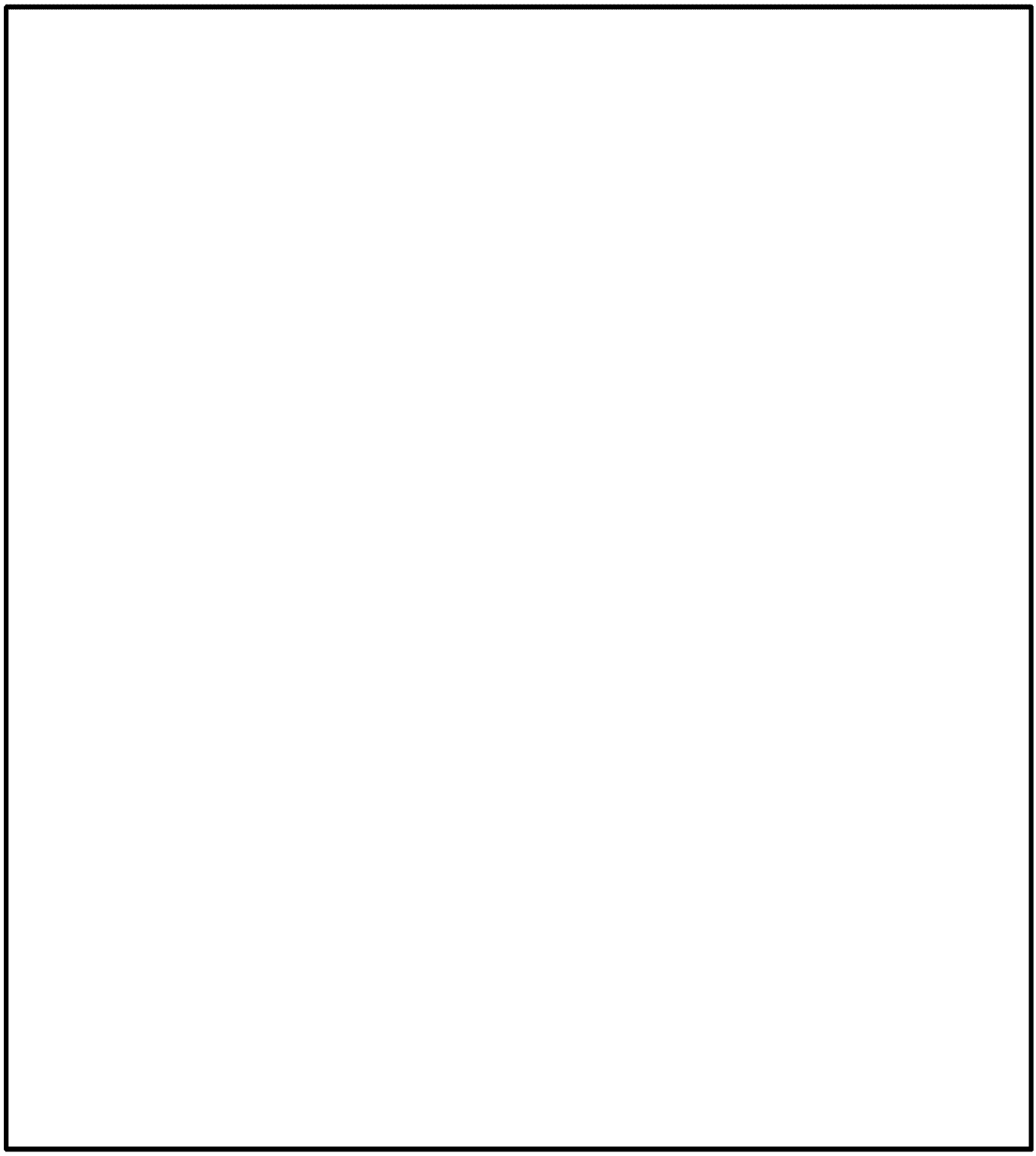
ANALYSIS OF OFFICE/COMMUNITY FACILITY COMPARABLE RENTALS

(b)(4) **OFFICE/COMMUNITY FACILITY COMPARABLE RENTAL**

Office/CF Rental Comps	Subject	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5

(b)(4)

ANALYSIS OF RETAIL COMPARABLE RENTALS



(b)(4) **RETAIL COMPARABLE RENTAL**

Retail Rental Comps	Subject	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Comp 6

(b)(4)

COMMERCIAL RENT ROLL - SUMMARY

Unit	Lease Term	Market Rent	Square Feet	Annual Rent/S.F.
Retail Store				
2nd Floor CF				
3rd Floor CF				
4th Floor CF				
5th Floor CF				
6th Floor CF				
Cellar Office				
55-Car Parking				

RESIDENTIAL RENT ROLL

Type of Unit	# of Units	Monthly Rent	Annually Rent	Total Rent
Studio				
1-Bedroom				
2-Bedroom				
3-Bedroom				
Total				

The total projected annual rental income will be approximately

(b)(4)

INCOME CAPITALIZATION INTRODUCTION

The income approach is based on the underlying assumption that the value of a property tends to be set by the amount of anticipated benefits to be derived from its ownership. This approach, therefore, is a procedure in the appraisal process whereby anticipated economic benefits to be derived from property ownership are converted into a present value estimate through a capitalization process. The process of estimating future or anticipated economic benefits from a real property investment requires the estimation of potential gross income, less vacancy and collection loss to which a deduction for all operating and fixed expenditures are allocated. This results in a net income estimate as applied to the particular property under valuation. A selection process for the most appropriate capitalization method is then employed.

A capitalization rate can be developed by a variety of methods and is dependent primarily on market derived findings with considerable emphasis placed on the type and class of property under review. Since this overall rate consists of a mortgage and equity position, these individual elements are carefully analyzed. In considering the rate of return necessary to attract debt proceeds or equity capital to invest in an income producing parcel of real estate, the following factors are analyzed:

. The return that is available on competing forms of investments, taking into consideration the comparative risks and time element of money.

. The character of the property with particular regard to the neighborhood, the type of tenancy, and the problems of management and liquidity.

. Typical financing terms that are available for similar property types based on competitive yields commensurate with various alternative investment vehicles.

. Potential property appreciation (residual value), equity buildup (debt reduction), and the accumulation of cash flows over a specified holding period.

In the instance of the subject, a market survey was performed to corroborate the reported rents and to establish market rent for the vacant and owner occupied units.

However, the highest and best use of these types of properties is to convert into individual condo units and sell for maximum value. Therefore, Income Approach is not considered an appropriate measure of value.

VALUATION PROBLEM AND METHOD OF VALUATION

The Income Approach and Sales Comparison Approach techniques have been considered in this analysis in order to reach a Market Value estimate for the subject property.

The Income Approach derives a value for the subject as an investment property. A survey of comparable rents in the area is conducted to establish market rents. After deducting the vacancy allowance and estimated operating expenses of the building from the estimated gross income, the net operating income is then reduced to an indication of value by a process known as capitalization. Properties with income potential such as the subject are sometimes bought or sold on the basis of their income. However, the highest and best use of these types of properties is to convert into individual condo units and sell for maximum value. Therefore, Income Approach is not considered an appropriate measure of value.

The Sales Comparison Approach involves researching sales of similar properties within the subject's influencing area and then analyzing these sales on a per-square-foot basis. Primarily caused by differences in economic profiles and location, building sales often display a wide range of square-foot values. Information on recent sales is gathered here and compared to the subject. Commercial buildings such as the subject are typically bought by owner-users after conversion to condo units. Therefore, this method is considered an appropriate measure of value.

Maximally Productive
Among the financially feasible uses, the use that produces the highest residual land value consistent with the warranted rate of return is considered maximally productive.

The above definitions apply specifically to the highest and best use of land. It is to be recognized that in cases where a site has existing improvements on it, the highest and best use may very well be determined to be different from the existing use. The existing use will continue, however, unless and until land value in its highest and best use exceeds the total value of the property in its existing use. In consideration of the four criteria that affect Highest and Best Use our conclusions are as follows.

Highest and Best Use of Land as Vacant:
The subject consists of a total of 28,829 square foot site, which appears physically well-suited for development. The property is located within a C2-3/R7A/DJ Commercial Overlap Residential Density District, which permits commercial and residential use. There is currently a nominal amount of retail and residential vacancies in the subject neighborhood.

Based upon this analysis, the highest and best use of the site, as if vacant, would be to erect a new commercial building and a new apartment building, which is in compliance with the existing zoning regulations.

Highest and Best Use as Improved
The second type of highest and best use, highest and best use of a property as improved, pertains to the existing use and alternative uses suitable for the subject property, under its present condition and occupancy. It attempts to answer four vital questions:

1. How should the property, as improved, be utilized?
2. Should the existing improvement be continued in use?
3. Should conversion to an alternative use be implemented?
4. Should demolition occur and an entirely new improvement be built?

When a site contains improvements, the highest and best use determination may vary from the existing use. The land may be suitable for a much higher and more intensive use than the prevailing use. The existing use will continue until land value, in its highest and best use, exceeds the value of the improvements in its existing use and the demolition cost associated with its removal. Both lots are parking lots without any improvement. The highest and best use of the site is to erect a new commercial building and a new apartment building while use as parking lots as interim use.

Conclusion:

The highest and best use of the site, as if **vacant**, would be **to erect a new commercial building and a new apartment building**, which is in compliance with the existing zoning regulations.

The highest and best use, **as improved,** will not applicable because the subject is a vacant parking lot as interim use.

HIGHEST AND BEST USE

The appraisers have analyzed the subject property for the purpose of determining the property's Highest and Best Use. Highest and Best Use is defined as:

"The reasonably probable and legal use of vacant land or an improved property, that is physically possible, appropriately supported, and financially feasible and that results in the highest value."[4]

"Appraisal theory holds that as long as the value of a property as improved is greater than the value of the site as unimproved, the highest and best use is use of the property as improved. Once the value of the vacant land exceeds the value of the improved property, the highest and best use becomes use of the land as though vacant."

Highest and Best Use of Land as though Vacant

"Among all reasonable, alternative uses, the use that yields the highest present land value, after payments are made for labor, capital, and coordination. The use of a property based on the assumption that the parcel of land is vacant or can be made vacant by demolishing any improvements."

Highest and Best Use of Property as Improved

"The use that should be made of a property as it exists. An existing property should be renovated or retained as is so long as it continues to contribute to the total market value of the property, or until the return from a new improvement would more than offset the cost of demolishing the existing building and constructing a new one."

Criteria in Highest and Best Use Analysis

The highest and best use of both land as though vacant and property as improved must meet four criteria. The highest and best use must be legally permissible, physically possible, financially feasible, and maximally productive.

Legally Permissible
Factors such as private restrictions, zoning, building codes, deed restrictions and environmental regulations need to be considered in both cases.

Physically Possible
The size, shape, terrain of the parcel of land, among other factors affects the uses for which the land can be developed.

Financially Feasible
After determining what is legally permissible and physically possible, a use that produces a net profit is considered feasible.

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[4] Appraisal Institute, "The Appraisal of Real Estate" 13th ed. (Chicago: Appraisal Institute, 2008, pp. 277-296.)

The GBA is calculated as follows:

	Gross GLA	Net GLA	Use
Cellar	23,611	0	55 Parking Spaces
First Floor	13,324	8,358	9 1-Bedroom Apartments & 2 2-Bedroom Apartments
Second Floor	13,324	12,174	9 1-Bedroom Apartments, 6 2-Bedroom Apartments & 1 Studio Apartment
Third Floor	13,324	12,174	9 1-Bedroom Apartments, 6 2-Bedroom Apartments & 1 Studio Apartment
Fourth Floor	13,324	12,174	9 1-Bedroom Apartments, 6 2-Bedroom Apartments & 1 Studio Apartment
Fifth Floor	13,324	12,174	9 1-Bedroom Apartments, 6 2-Bedroom Apartments & 1 Studio Apartment
Sixth Floor	13,324	12,174	9 1-Bedroom Apartments, 6 2-Bedroom Apartments & 1 Studio Apartment
Seventh Floor	10,107	8,528	7 1-Bedroom Apartments & 4 2-Bedroom Apartments
Eighth Floor	7,816	6,635	3 1-Bedroom Apartments, 3 2-Bedroom Apartments & 1 3-Bedroom Apartment
Roof	785	318	Mechanic Room
Total	98,652	84,709	109 Apartments & 55 Parking Spaces

General:
The subject currently is a development site with architectural plans. Many elements are unknown and estimated based on an average condition. The anticipated completion date is on or about September 1, 2017.

148-31/43 88th Avenue Site Description:

Location - The subject site is an irregular parcel located on the north side of 88th Avenue between 148th Street and 150th Street, 60± feet east of 150th Street, in the Jamaica neighborhood of Queens, City and State of New York. The site is identified on the Queens County Tax Maps as Block 9694, Lot 49. According the NYC Buildings Department, there are two open DOB violations and three open ECB violations existing at the time of inspection. The subject is located within census tract 0238.00. 88th Avenue is an east bound street with one lane and moderate traffic. 150th Street is a south bound street with one lane and moderate traffic. The street is improved with a macadam surface and concrete sidewalks with steel reinforced concrete curbs.

Size and Dimensions - The parcel comprises of one tax lot for a total area of 24,554± square feet. The site has a frontage of 140± feet on 88th Avenue, a frontage of 10± feet on 150th Street and depth of 190± feet.

Flood Hazard Information - According to the National Flood Insurance program's flood insurance rate index map, the subject property is not located in a special flood hazard area (panel not printed).

Community Panel No.	3604970233F
Index Map Last Revised	September 5, 2007
Zone	Zone X

148-44/48 Hillside Avenue Building Description:

According to architectural plans, the property will be improved with an 8-story apartment building with a gross building area (GBA) of 98,652± square feet above grade. We used the above grade GBA as the basis for all calculations throughout this report. The subject currently is a development site with architectural plans.

DESCRIPTION OF THE PROPERTY

148-44/48 Hillside Avenue Site Description:

Location - The subject site is a mostly rectangular parcel located on the south side of Hillside Avenue between 148th Street and 150th Street, 180± feet west of 150th Street, in the Jamaica neighborhood of Queens, City and State of New York. The site is identified on the Queens County Tax Maps as Block 9694, Lot 26. According the NYC Buildings Department, there is no open ECB or DOB violation existed at the time of inspection. The subject is located within census tract 0238.00. Hillside Avenue is a two-way street with two lanes in each direction and moderate traffic. The street is improved with a macadam surface and concrete sidewalks with steel reinforced concrete curbs.

Size and Dimensions - The parcel comprises of one tax lot for a total area of 4,275± square feet. The site has a frontage of 45± feet on Hillside Avenue and depth of 95± feet.

Flood Hazard Information - According to the National Flood Insurance program's flood insurance rate index map, the subject property is not located in a special flood hazard area (panel not printed).

Community Panel No.	3604970233F
Index Map Last Revised	September 5, 2007
Zone	Zone X

148-44/48 Hillside Avenue Building Description:

According to the architectural plan, the property will be improved with a 6-story commercial building with a gross building area (GBA) of 17,373± square feet above grade. We used the above grade GBA as the basis for all calculations throughout this report. The subject currently is a development site with architectural plans.

The GBA is calculated as follows:

	Gross GLA	Net GLA	Use
Cellar	4,274	2,610	3 Offices
First Floor	4,274	3,420	1 Retail Store
Second Floor	2,773	1,960	2 Community Facilities & a Terrace
Third Floor	2,773	1,960	2 Community Facilities
Fourth Floor	2,773	1,960	2 Community Facilities
Fifth Floor	2,773	1,960	2 Community Facilities
Sixth Floor	2,007	1,325	1 Community Facility
Total	17,373	12,585	1 Retail Store, 3 Offices & 9 Community Faciliti

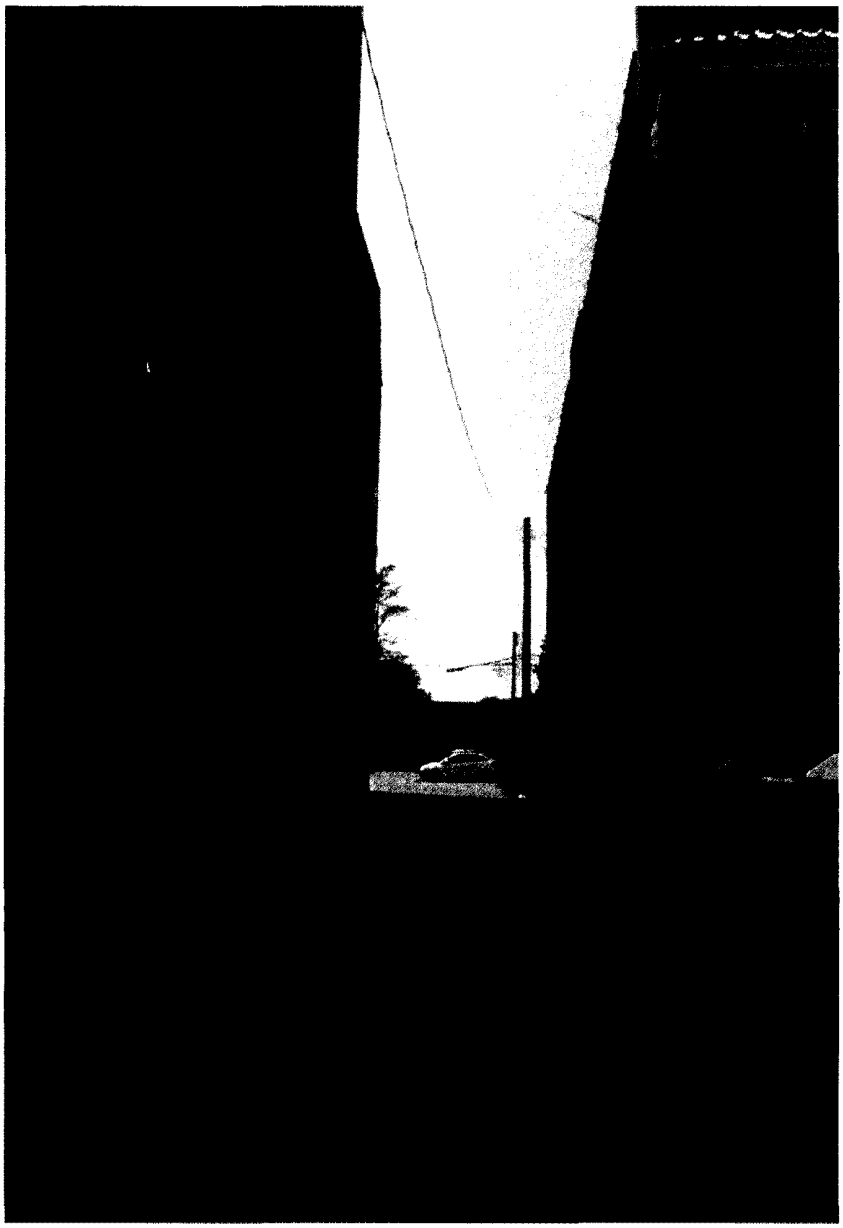
General:

The subject currently is a development site with architectural plans. Many elements are unknown and estimated based on an average condition. The anticipated completion date is on or about September 1, 2017.

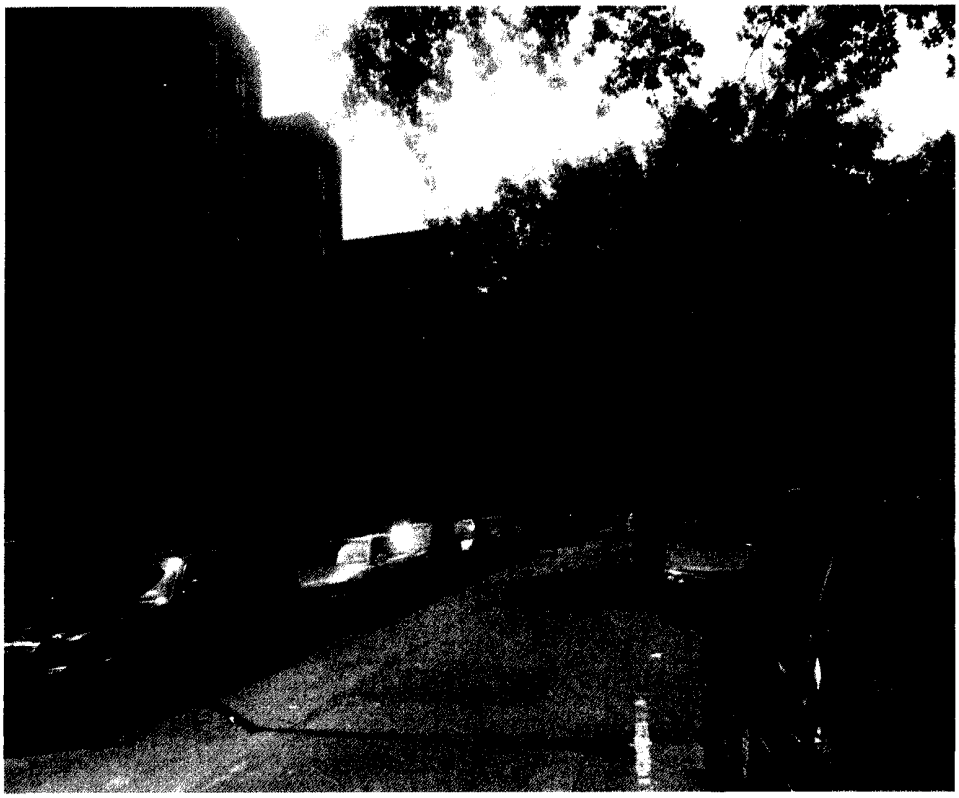
148-31/43 88th AVENUE PROPOSED RENDERING VIEW

VIEW ALONG 150th STREET

148-31/43 88th AVENUE FRONT VIEW ON 150th STREET



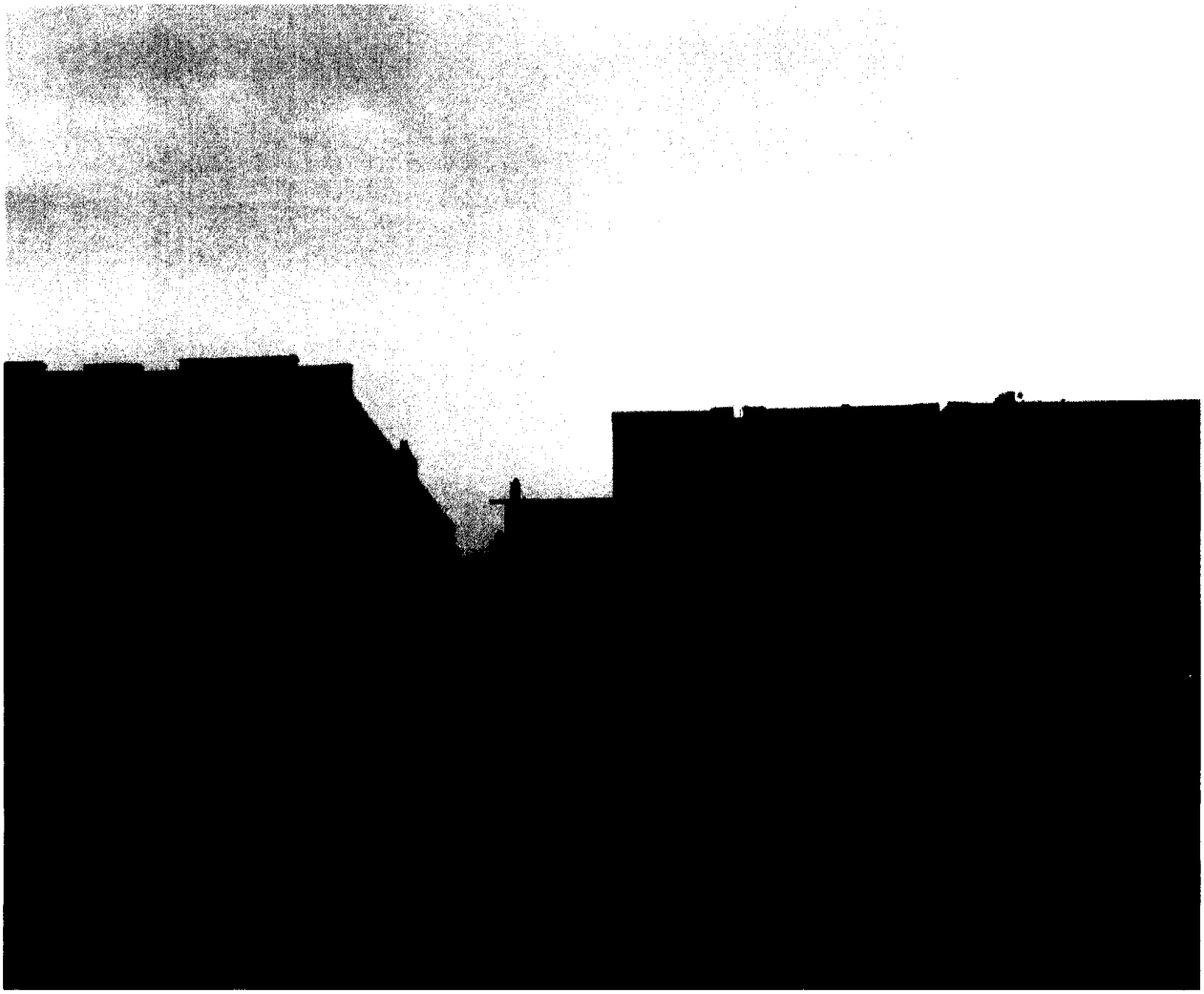
VIEW ALONG 88th AVENUE



148-31/43 88th AVENUE FRONT VIEW ON 88th AVENUE

VIEW ALONG HILLSIDE AVENUE

148-44/48 HILLSIDE AVENUE FRONT VIEW ON HILLSIDE AVENUE



148-31/43 88th Avenue Apartment Building Property Tax Comparable:

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[redacted]

(b)(4)

According to the Real Estate Board of New York / 2015/2016 tax rates are as follows:

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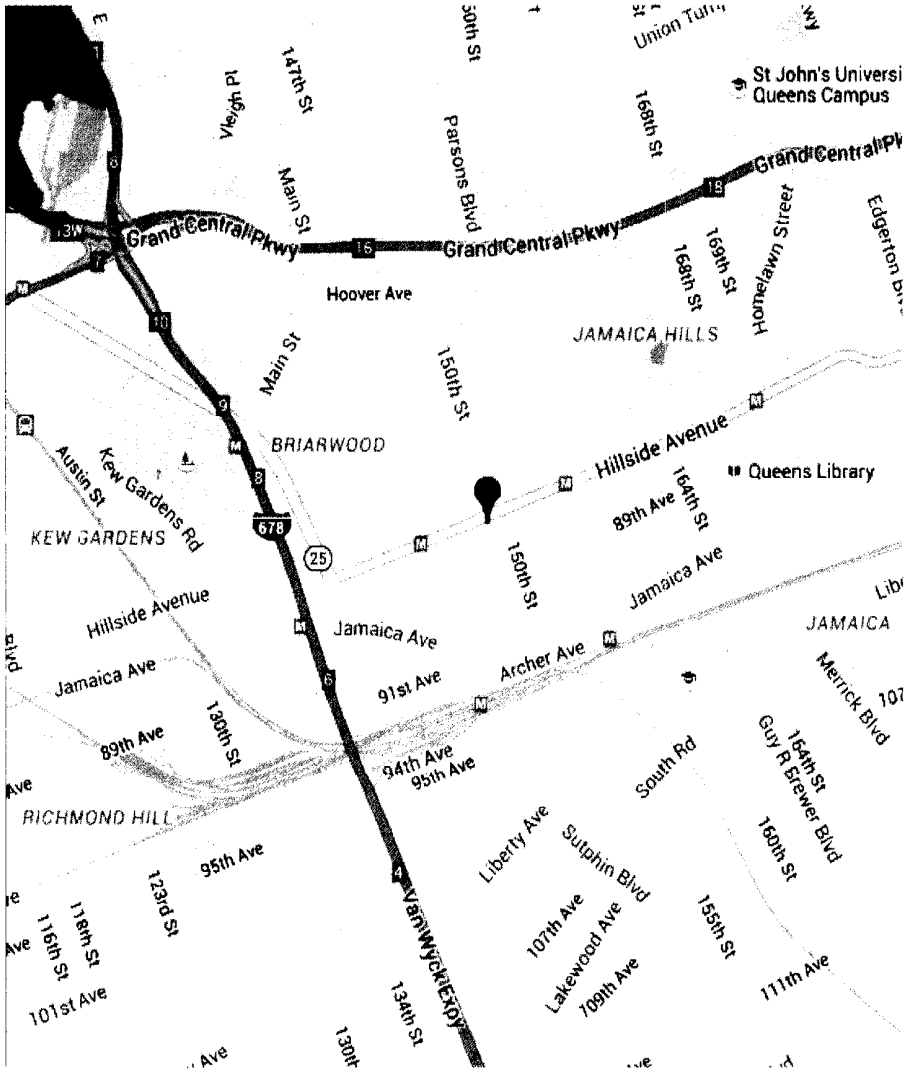
TAXES

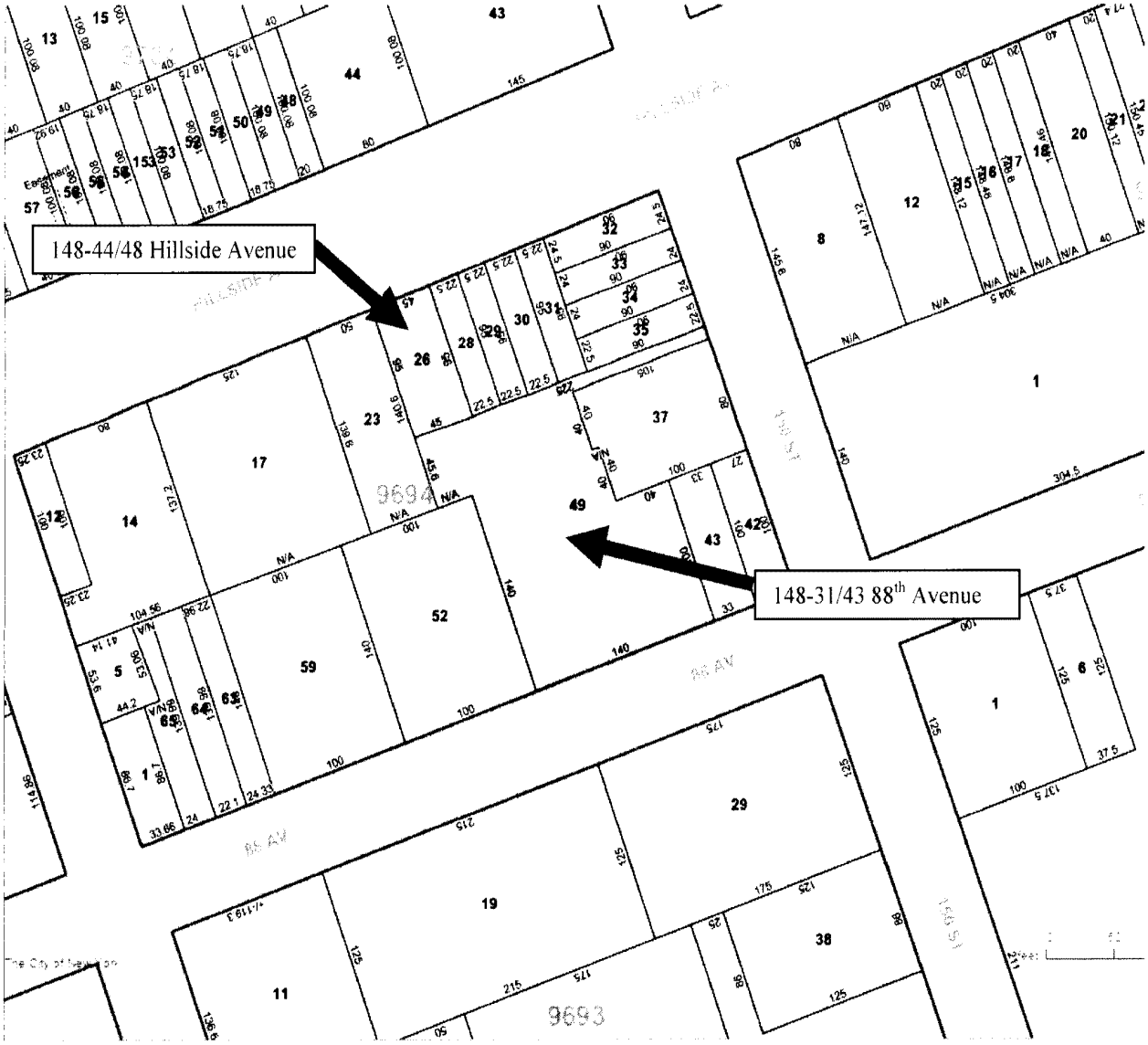
FLOOD MAP



FLOOD ZONE

In accordance with Flood Insurance Map #360497 0223F, effective date September 5, 2007, the subject property is located in a flood hazard zone X (unshaded), this is an area of minimal flood hazard.

TAX MAP



ZONING DATA TABLE 5

Commercial Overlay Floor Area Ratios			
Residential District	Commercial Overlay FAR	Residential FAR	Community Facility FAR[1]
R1	1.0	0.5	0.5
R2	1.0	0.5	0.5
R2A	1.0	0.5	0.5
R2X	1.0	0.85[2]	0.5
R3-1	1.0	0.5[2]	1.0
R3-2	1.0	0.5[2]	1.6
R3A	1.0	0.5[2]	1.0
R3X	1.0	0.5[2]	1.0
R4	1.0	0.75[2]	2.0
R4 Infill	1.0	1.35	2.0
R4-1	1.0	0.75[2]	2.0
R4A	1.0	0.75[2]	2.0
R4B	1.0	0.9	2.0
R5	1.0	1.25	2.0
R5 Infill	1.0	1.65	2.0
R5A	1.0	1.1	2.0
R5B	1.0	1.35	2.0
R5D	2.0	2.0	2.0
R6	2.0	0.78–2.43 (range)	4.8
R6A	2.0	3.0	3.0
R6B	2.0	2.0	2.0
R7-1	2.0	0.87–3.44 (range)	4.8
R7-2	2.0	0.87–3.44 (range)	6.5
R7A	2.0	4.0	4.0
R7B	2.0	3.0	3.0
R7X	2.0	5.0	5.0
R8	2.0	0.94–6.02 (range)	6.5
R8A	2.0	6.02	6.5
R8B	2.0	4.0	4.0[3]
R8X	2.0	6.02	6.0
R9	2.0	0.99–7.52 (range)	10.0
R9A	2.0	7.52	7.5
R9X	2.0	9.0	9.0
R10	2.0	10.0[4]	10.0
R10A	2.0	10.0[4]	10.0
R10X	2.0	10.0[4]	10.0[4]

[1] *FAR is the same for community facility buildings and for buildings with both commercial and community facility uses; in R1 districts, however, the FAR is 1.0 for buildings with commercial and community facility uses*

[2] *Up to 20% increase for attic allowance*

[3] *5.1 in Manhattan Community District 8*

[4] *Up to 12.0 FAR with bonus*

C1-1 through C1-5 and C2-1 through C2-5 are commercial districts which are mapped as overlays within residential districts. When a commercial overlay is mapped within an R1 through R5 district, except an R5D district, the commercial FAR is 1.0; within an R5D district or an R6 through R10 district, the commercial FAR is 2.0. The residential FAR for a commercial overlay district is determined by the residential district regulations.

ZONING DATA TABLE 3

R6–R7 Medium-Density Residence Districts												
		R6HF	R6QH	R6A	R6B	R7HF	R7QH	R7-3[1]	R7A	R7B	R7D	R7X
Residential FAR (max)	Wide street	0.78–2.43 (range)	3.0[1] 2.43[2]	3.0	2.0	0.87–3.44 (range)	4.0[1] 3.44[2]	5.0[3]	4.0	3.0	4.2[3]	5.0
	Narrow street		2.2				3.44					
Community facility FAR		4.8	4.8	3.0	2.0	R7-1: 4.8 R7-2: 6.5	R7-1: 4.8 R7-2: 6.5	5.0	4.0	3.0	4.2	5.0
Open space ratio		27.5–37.5 (range)	–	–	–	15.5–25.5 (range)	–	–	–	–	–	–
Lot coverage (max)	Corner lot	–	80%	80%	80%	–	80%	70%	80%	80%	80%	80%
	Interior lot		65%[1] 60%[2]	65%	60%		65%		65%	65%	65%	70%
Base height (min/max)	Wide street	–	40–60 ft[1] 40–55 ft[2]	40–60 ft	30–40 ft	–	40–65 ft[1] 40–60 ft[2]	65 ft	40–65 ft	40–60 ft	60–85 ft	60–85 ft
	Narrow street		30–45 ft				40–60 ft					
Building height (max)	Wide street	Sky exposure plane	70 ft[1] 65 ft[2]	70 ft	50 ft	Sky exposure plane	80 ft[1] 75 ft[2]	185 ft	80 ft	75 ft	100 ft	125 ft
	Narrow street		55 ft				75 ft					
Rear yard depth (min)		30 ft	30 ft	30 ft	30 ft	30 ft	30 ft	30 ft	30 ft	30 ft	30 ft	30 ft
Off-street parking (min)		70%	50%	50%	50%	R7-1: 60% R7-2: 50%	50%	50%	50%	50%	50%	50%

[1] *Wide street outside Manhattan Core* [2] *Wide street within Manhattan Core* [3] *Up to 5.6 FAR with Inclusionary Housing bonus*

ZONING DATA TABLE 4

R8–R10 Higher-Density Residence Districts													
		R8HF	R8QH	R8A	R8B	R8X	R9HF	R9QH R9A	R9-1[1]	R9X	R10[2]	R10QH R10A	R10X
Residential FAR (max)	Wide Street	0.94–6.02 (range)	7.2[1] 6.02[2]	6.02	4.0	6.02	0.99–7.52 (range)	7.52	9.0	9.0	10.0[3]	10.0[3]	10.0[3]
	Narrow Street		6.02										
Community facility FAR (max)		6.5	6.5	6.5	4.0[4]	6.0	10.0	R9QH: 10.0 R9A: 7.5	9.0	9.0	10.0	10.0	10.0
Open space ratio		5.9–11.9 (range)	–	–	–	–	1.0–9.0 (range)	–	–	–	–	–	–
Lot coverage (max)	Corner lot	–	80%	80%	80%	80%	–	80%	70%	80%	–	100%	100%
	Interior lot		70%	70%	70%	70%		70%		70%		70%	70%
Base height (min/max)	Wide street	–	60–85 ft	60–85 ft	55–60 ft	60–85 ft	60–85 ft (wide st)	60–102 ft	90 ft	105–120 ft	60–85 ft (wide st)	125–150 ft	60–85 ft
	Narrow street		60–80 ft					60–95 ft		60–120 ft		60–125 ft	
Building height (max)	Wide street	Sky exposure plane	120 ft	120 ft	75 ft	150 ft	Sky exposure plane or tower rules	145 ft	280 ft	170 ft	Tower rules	210 ft	Tower rules
	Narrow street		105 ft					135 ft		160 ft		185 ft	
Rear yard depth (min)		30 ft	30 ft	30 ft	30 ft	30 ft	30 ft	30 ft	30 ft	30 ft	30 ft	30 ft	30 ft
Off-street parking[5] (min)		40%	40%	40%	50%[6]	40%	40%	40%	40%	40%	40%	40%	40%

[1] *Wide street outside Manhattan Core*
[2] *Wide street within Manhattan Core*
[3] *Up to 12 FAR with Inclusionary Housing bonus*
[4] *5.10 permitted in Manhattan Community District 8*
[5] *Waived within Manhattan Core, except within Special Hudson Yards District*
[6] *40% in Brooklyn*
[7] *May be mapped within waterfront areas and Special Mixed Use Districts only, R7-3 may also be mapped in the Special Long Island City Mixed Use District*
[8] *In CD1, Brooklyn, 3.75 FAR and up to 5 FAR with Inclusionary Housing bonus*

ZONING INFORMATION

Address : 148-44/46 HILLSIDE AVENUE
JAMAICA, N.Y. 11435

Block : 9694

Lot : 26

Zone : C2-3 IN R7A
(SPECIAL DISTRICT- DOWNTOWN JAMAICA)

Map No. : 14d

Construction Class : 1-B

ZONING ANALYSIS

TAX LOT SIZE= 4,274.84 SF

ZR 115-23 <HEIGHT AND SETBACK REGULATIONS>
ALL HEIGHTS SHALL BE MEASURED FROM THE BASE PLANE.
PROPOSED BASE PLANE = 64.76' (SEE DWG.A601)

ZR 33-121
<MAX. F.A.R. FOR BUILDING USED FOR BOTH COMMERCIAL AND COMMUNITY FACILITY USES = 4.00>

4,274.84 x 4.00 = 17,099 SF ALLOWED
= 17,099 SF PROPOSED
PROPOSED FAR = 4.00 ≤ 4.00 -(COMPLIES)

<MAX. F.A.R. FOR COMMERCIAL= 2.00>

4,274.84 x 2.00 = 8,549.6 SF ALLOWED
= 3,420.0 SF PROPOSED
PROPOSED FAR = 0.80 < 2.00 -(COMPLIES)

<MAX. F.A.R. FOR COMMUNITY FACILITY= 4.00>

4,274.84 x 4.00 = 17,099 SF ALLOWED
= 13,679 SF PROPOSED
PROPOSED FAR = 3.20 < 4.00 -(COMPLIES)

ZR 24-11 <MAX. LOT COVERAGE FOR INTERIOR LOT = 65%>

4,274.84 x 65% = 2,778.6 SF ALLOWED
= 2,773/ 4,274.84
= 0.649 x 100% = 64.9% PROPOSED

PROPOSED LOT COVERAGE= 2,773 SF = 64.9% < 65% -(COMPLIES)

ZONING INFORMATION

Address : 148-31/43 88TH AVENUE
JAMAICA, N.Y. 11435

Block : 9694

Lot : 49

Zone : C2-3 IN R7A
(SPECIAL DISTRICT- DOWNTOWN JAMAICA)

Map No. : 14d

Construction Class : 1-B

ZONING ANALYSIS

TAX LOT SIZE= 24,553.53 SF

ZR 115-23 <HEIGHT AND SETBACK REGULATIONS>
ALL HEIGHTS SHALL BE MEASURED FROM THE BASE PLANE.
PROPOSED BASE PLANE = 61.24' (SEE DWG. A601)

ZR 115-211(b) <MAX. F.A.R. FOR ENTIRE BUILDING= 3.45>
24,553.53 x 3.45 = 84,709.6 SF ALLOWED
= 84,709.0 SF PROPOSED
PROPOSED FAR = 3.45 ≤ 3.45 -(COMPLIES)

ZR 115-211(b) <FOR RESIDENTIAL IN R7A= 3.45>
MAX. ALLOWED BASE F.A.R. IN R7A
24,553.53 x 3.45 = 84,709.6 SF ALLOWED
= 84,709.0 SF PROPOSED
PROPOSED FAR = 3.45 ≤ 3.45 -(COMPLIES)

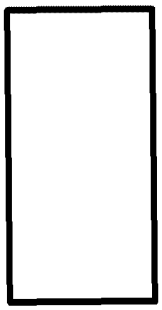
ZR 23-145 <MAX. LOT COVERAGE FOR INTERIOR LOT = 65%>
24,553.53 SF x 65% = 15,959.7 SF
= 13,324/ 24,553.53
= 0.543 x 100% = 54.3% PROPOSED
PROPOSED LOT COVERAGE = 13,324 SF = 54.3% < 65.0% -(COMPLIES)

ZR 35-40 <MAX. NUMBER OF DWELLING UNITS>
FACTOR = 680, ZR 23-22,
(LOT AREA)(MAX. FAR - ACT. CF FAR - ACT. COMM. FAR/ FACTOR
24,553.53 x 3.45 /680 = 124 UNITS ALLOWED
= 109 UNITS PROPOSED -(COMPLIES)

The 148-31/43 88th Avenue is only partially located in C2-3 and fully in R7A/DJ zoning. Zoning regulations are listed as follows for:

Land Size/Square Feet:
X Community Facility FAR
Allowable Bulk/Square Feet:

Land Size/Square Feet:
X Residential FAR
Allowable Bulk/Square Feet:



(b)(4)

According to the architectural drawing, 148-31/43 88th Avenue will contain a gross building area of 98,652± square feet above ground and including mechanic & chase area of 7,954 square feet. Mechanic and chase area doesn't count as zoning floor area. The maximum community facility building area, based on the as-of-right maximum FAR, is estimated at 98,210 square feet. The maximum residential building area, based on the as-of-right maximum FAR, is estimated at 98,216 square feet.

zoning districts. The district's controls pertaining to glazing, street walls, retail continuity, sidewalk widening, sidewalk cafes and other streetscape elements support an attractive and viable downtown area. The Inclusionary Housing designated areas Program provides incentives for affordable housing in 70 blocks in Downtown Jamaica and along nearby portions of Hillside Avenue.

The maximum floor area ratio for any zoning lot containing a residential use shall not exceed the base floor area ratio set forth in the table in this Section, except that such base floor area ratio may be increased to the maximum floor area ratio, set forth in Section 23-952, through the provision of affordable housing, pursuant to the provisions relating to Inclusionary Housing designated areas# in Section 23-90, inclusive.

District	Base #Floor Area Ratio#
R7A C4-4A	3.45
R7X C4-5X	3.75
R8 C6-2	5.4
R9 C6-3	6.0
R10 C6-4	9.0

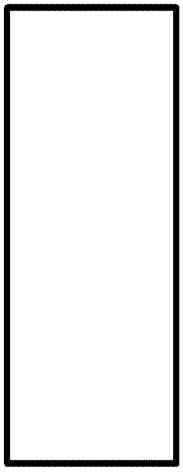
The maximum commercial FAR for C2-3 districts is 2.00. The maximum community facility FAR for C2-3/R7A districts is 4.00. The maximum residential FAR for C2-3/R7A districts is also 4.00.

The C2-3/R7A/DJ zoning regulations are listed as follows for 148-44/48 Hillside Avenue:

Land Size/Square Feet:
X Commercial FAR
Allowable Bulk/Square Feet:

Land Size/Square Feet:
X Community Facility FAR
Allowable Bulk/Square Feet:

Land Size/Square Feet:
X Residential FAR
Allowable Bulk/Square Feet:



(b)(4)

According to the architectural drawing, 148-44/48 Hillside Avenue will contain a gross building area of 17,373± square feet above ground and including mechanic & chase area of 344 square feet. Mechanic and chase area doesn't count as zoning floor area. The maximum commercial building area permitted is 8,550 square feet. The maximum community facility building area, based on the as-of-right maximum FAR, is estimated at 17,100 square feet. The maximum residential building area, based on the as-of-right maximum FAR, is estimated at 17,100 square feet.

ZONING

The subject property is in C2-3/R7A/DJ Commercial Overlap Residential District.

C1-1 through C1-5 and C2-1 through C2-5 districts are commercial overlays mapped within residence districts. Mapped along streets that serve local retail needs, they are found extensively throughout the city's lower- and medium-density areas and occasionally in higher-density districts.

Typical retail uses include neighborhood grocery stores, restaurants and beauty parlors. C2 districts permit a slightly wider range of uses, such as funeral homes and repair services. In mixed buildings, commercial uses are limited to one or two floors and must always be located below the residential use.

When commercial overlays are mapped in R1 through R5 districts, the maximum commercial floor area ratio (FAR) is 1.0; when mapped in R6 through R10 districts, the maximum commercial FAR is 2.0. Commercial buildings are subject to commercial bulk rules.

Overlay districts differ from other commercial districts in that residential bulk is governed by the residence district within which the overlay is mapped. All other commercial districts that permit residential use are assigned a specific residential district equivalent. Unless otherwise indicated on the zoning maps, the depth of overlay districts ranges from 100 to 200 feet.

Generally, the lower the numerical suffix, the more off-street parking is required. For example, in C1-1 districts, typically mapped in outlying areas of the city, a large food store would require one parking space for every 100 square feet of floor area, whereas no parking is required in C1-5 districts, which are well served by mass transit.

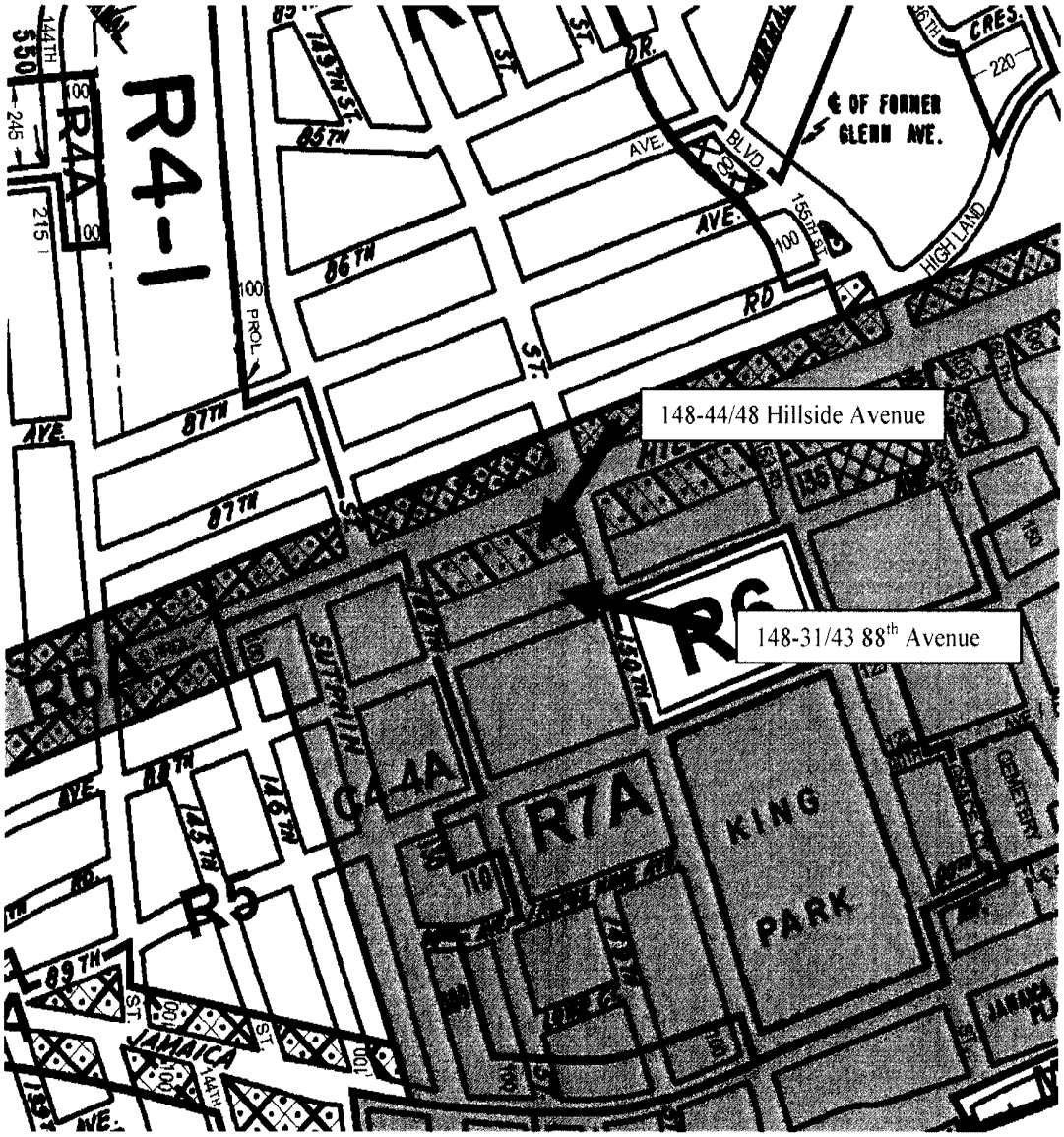
The contextual Quality Housing regulations, which are mandatory in R7A districts, typically produce high lot coverage, seven- and eight-story apartment buildings, blending with existing buildings in many established neighborhoods. R7A districts are mapped along Prospect Park South and Ocean Parkway in Brooklyn, Jackson Heights in Queens, and in Harlem and along the avenues in the East Village in Manhattan.

The floor area ratio (FAR) in R7A districts is 4.0. Above a base height of 40 to 65 feet, the building must set back to a depth of 10 feet on a wide street and 15 feet on a narrow street before rising to a maximum height of 80 feet. In order to preserve the traditional streetscape, the street wall of a new building can be no closer to the street line, than any building within 150 feet on the same block, but need not be farther than 15 feet. Buildings must have interior amenities for the residents pursuant to the Quality Housing Program. Off-street parking is not allowed in front of a building. Parking is required for 50% of all dwelling units.

The Special Downtown Jamaica District (DJ) builds upon Jamaica's strengths as a multimodal transportation hub to support the downtown business district, expand housing and economic opportunities along the area's major streets and transportation corridors, protect adjacent low-density neighborhoods and create affordable housing. The district's use regulations encourage mixed use development in denser transit-oriented locations convenient to shoppers and its bulk provisions allow taller buildings with higher floor area ratios at the transit hubs.

The transition rule regulates the change in building massing from taller building portions allowed along wide streets to a reduced scale for building portions that abut smaller homes in lower density residential

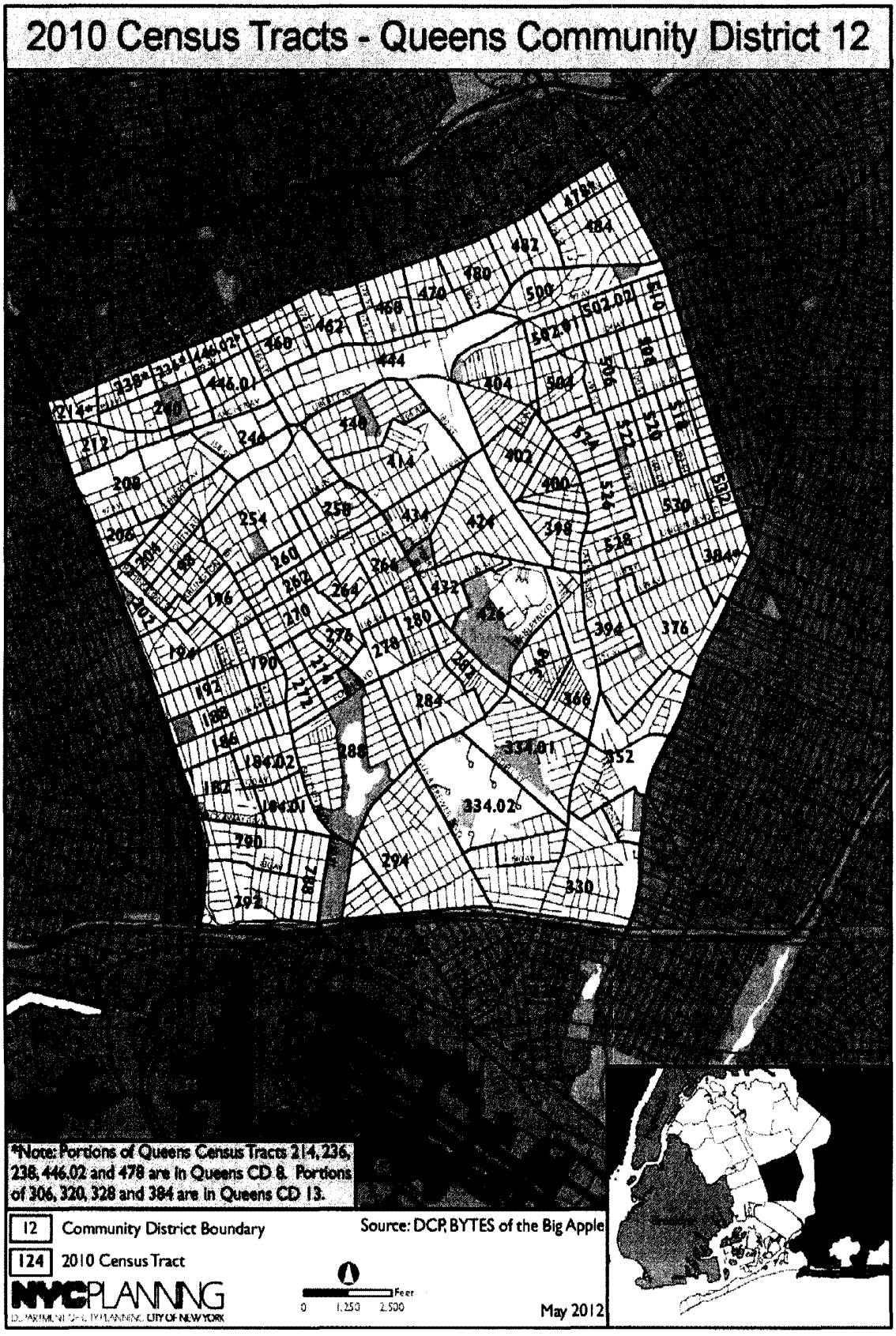
ZONING MAP


148-44/48 Hillside Avenue
148-31/43 88th Avenue
R4-1
R4A
R6A
R6
R5
G4-4A
R7A
KING PARK
JAMAICA
HIGHLAND
℄ OF FORMER GLENN AVE.

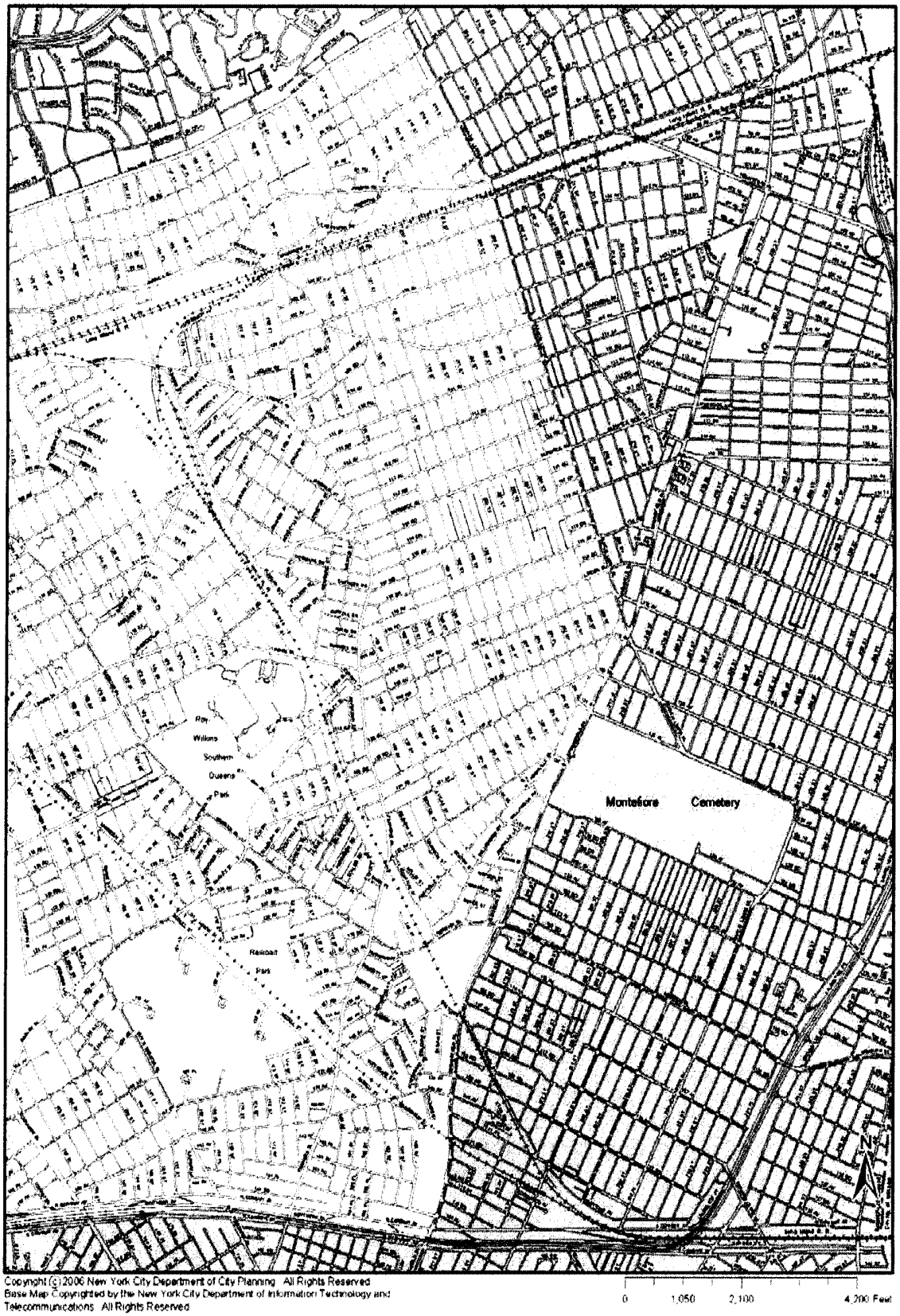
Conclusion

Jamaica is a well-established, mixed-use area in Queens. Overall, the economy is currently considered stable. The current trends of commercial and residential uses are in the rise. The recent tightening of the credit market has little affected the financing aspects of real estate in the subject local area. As of the effective date of the appraisal, real estate brokers and principals interviewed have indicated stronger demand. The effects of this situation as well as substantial number of job creation predicted to occur in the financial industry might strengthen demand in the immediate future. We are confident that the negative trends subsided and positive trends have resumed and the outlook for this neighborhood is very optimistic.

Queens Community District 12 - Land Use
NYCPLANNING
One & Two Family
MultiFamily Walkup
MultiFamily Elevator
Mixed Commercial/Residential
Commercial/Office
Industrial/Manufacturing
Transportation/Utility
Public Facilities & Institutions
Open Space
Parking Facilities
Vacant Land
All Others or No Data
Community District
Foot
0
2,000
4,000
CD8
CD9
CD10
CD13
Baisley Pond Park
Rochdale Village
JAMAICA AVE
LIBERTY AVE
LINDEN BLVD
ROCKAWAY BLVD
ROCKAWAY
BELT PKWY


2010 Census Tracts - Queens Community District 12
*Note: Portions of Queens Census Tracts 214, 236, 238, 446.02 and 478 are in Queens CD 8. Portions of 306, 320, 328 and 384 are in Queens CD 13.
12 Community District Boundary
124 2010 Census Tract
Source: DCP, BYTES of the Big Apple
NYCPLANNING
DEPARTMENT OF CITY PLANNING, CITY OF NEW YORK
Feet
0 1,250 2,500
May 2012

Queens Community District 12 (Part 2)



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Queens Community District 12 (Part 1)

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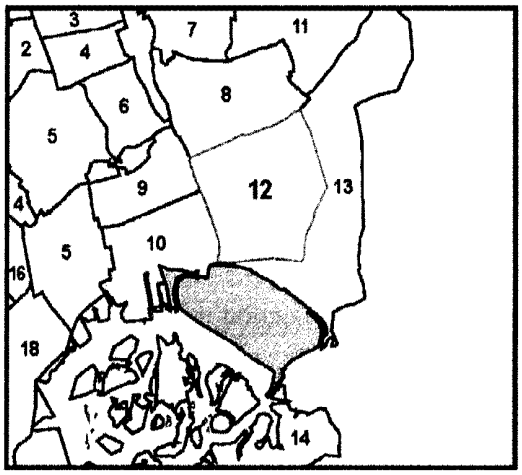
QUEENS COMMUNITY DISTRICT 12

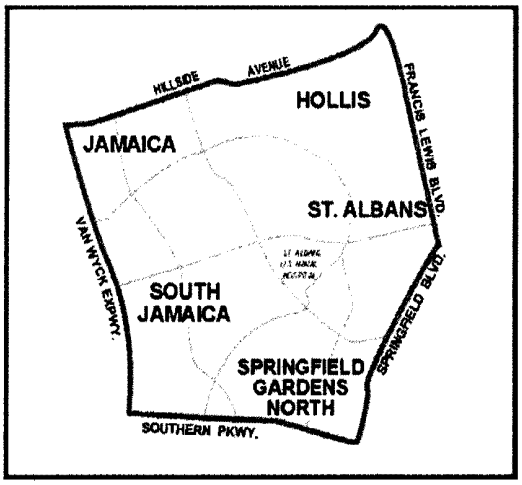
TOTAL POPULATION	1990	2000	2010
Number	201,293	223,602	225,919
% Change	—	11.1	1.0

VITAL STATISTICS	2005	2012
Births: Number	2,969	2,941
Rate per 1000	13.3	13.0
Deaths: Number	1,414	1,381
Rate per 1000	6.3	6.1
Infant Mortality: Number	30	—
Rate per 1000	10.1	8.7

INCOME SUPPORT	2005	2014
Cash Assistance (TANF)	10,091	9,283
Supplemental Security Income	8,330	9,259
Medicaid Only	56,590	61,555
Total Persons Assisted	**75,011**	**80,097**
Percent of Population	**33.5**	**35.5**

TOTAL LAND AREA	
Acres:	**6,136.9**
Square Miles:	**9.6**





LAND USE, 2014		Lot Area	
	Lots	Sq. Ft.(000)	%
1- 2 Family Residential	34,973	111,720.3	60.8
Multi-Family Residential	1,320	13,851.4	7.5
Mixed Resid. / Commercial	1,243	3,092.5	1.7
Commercial / Office	780	7,399.4	4.0
Industrial	320	6,669.1	3.6
Transportation / Utility	348	6,473.8	3.5
Institutions	517	13,503.7	7.4
Open Space / Recreation	56	11,897.2	6.5
Parking Facilities	481	3,825.6	2.1
Vacant Land	1,266	4,333.1	2.4
Miscellaneous	144	1,046.7	0.4
Total	**41,448**	**183,812.8**	**100.0**

New York City Department of City Planning

Employment Opportunities:
Employment opportunities are good in the area. There are many commercial establishments located along Archer Avenue, Hillside Avenue, Jamaica Avenue, Liberty Avenue, Merrick Boulevard, Parsons Boulevard, Guy R. Brewer Boulevard, Sutphin Boulevard, and Union Turnpike.

The employment of the population in Jamaica is represented below. The highest percentage of the population (25.53%) is in Sales, office, administrative Support Occupations.

POPULATION BY OCCUPATION	
Management, business, finance	11.51%
Engineering, computers, science	3.68%
Community, social services	1.98%
Legal	1.15%
Education, library	5.10%
Arts, design, media, sports, entertainment	1.85%
Healthcare practitioners and technology	4.61%
Healthcare support	4.91%
Firefighters, law enforcement	3.47%
Food preparation, serving	5.29%
Building maintenance	6.81%
Personal care	5.24%
Sales, office, administrative support	23.53%
Farming, fishing, forestry	0.03%
Construction, extraction, maintenance/repair	8.93%
Production, transportation, material moving	11.92%

The district's population had a 1.0% increase from 223,602 in 2000 to 225,919 in 2010. In addition, the number of housing units had also increase 1.8% from 75,111 in 2000 to 76,426 in 2010.

The subject is situated in Census Tract 0238.00, as of 2010 this tract had a population of 5,101 persons, residing in 1,408 households.

Land Use:
Community District 12 is 4.0 square miles. According to the most recent (2014) Land Use figures, 60.8% of the total number of lots in the district were comprised of one and two-family residential use. Multi-family residential and mixed residential/commercial use comprised 9.2%. Commercial/office, industrial, transportation/utility, institutions, open space/recreation and parking facilities comprised 27.1%. Vacant land comprised 2.4% of the total number of lots.

Hospitals:
The nearby hospitals are Jamaica Hospital Medical Center is located within a mile from the subject property.

Schools / Parks / Religious Facilities:
Located within the district and adjacent districts are numerous public, private, and parochial schools. The Queens College and St. John's University are all located within a few miles from the subject property. School is considered adequate in the subject area. Several smaller parks and playgrounds are situated throughout the neighborhood. There are several churches and houses of worship for most denomination located throughout the area.

Police Precinct and Fire Engine Company:
The subject's area is served by the 103rd Precinct of the New York City Police Department, located at 168-02 P.O Edward Byrne Ave. The area is also served by a unit of the New York City Fire Department, located at 153-11 Hillside Avenue.

Housing:
The area surrounding the subject is comprised of some one and two family residences and interspersed by small to medium rise apartment building. One and two family homes range from $400,000 to over $1,000,000.

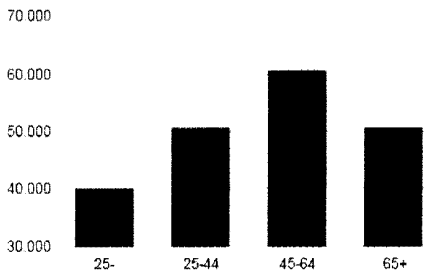
Zoning:
Zoning in the area comes under the New York Zoning Resolution: City of New York Department of City Planning. Zoning ordinances are strictly regulated –new construction; although new construction of both commercial and residential properties can be grand with certain beneficial tax exemption and abatements.

Medium Income:

Household Income and Average Income in Jamaica

top ▲

Median Income Under 25	$40,139
Median Income 25-44	$50,710
Median Income 45-64	$60,739
Median Income Over 65	$50,727



Average Household Income	$64,983
Median Household Income	$53,606
Percent Increase/Decrease in Income Since 2000	34%
Percent Increase/Decrease in Income Since 2010	3%
Average Household Net Worth	$553,294
Median Home Sale Price	$325,125
Sales Tax Rate	8.875%
Average Household Total Expenditure	$51,677

The most prominent piece of development has been the creation of the Jamaica Station, which was fully completed in 2003. It includes Sutphin Boulevard – Archer Avenue – JFK Airport subway station (E J Z trains), the LIRR, and the Airtrain JFK to John F. Kennedy International Airport; the latter remains the central figure for ongoing economic progress. With the growing number of riders each day passing through this station, the city is providing some major changes to the surrounding blocks of this massive hub of transport.

Efforts have been made to follow the examples of major redevelopment occurring in Long Island City, Flushing, and Downtown Brooklyn. In 2005, the New York City Department of City Planning drafted a plan that would rezone 368 blocks of Jamaica in order to stimulate new development, relieve traffic congestion, and shift upscale amenities away from low-density residential neighborhoods. The plan includes up-zoning the immediate areas around Jamaica Station to accommodate passengers traveling through the area. To improve infrastructure the New York City Department of Parks & Recreation has agreed to create more greenery and open spaces to allow pedestrians to enjoy the scenery. At the same time, the city has reserved the right to protect the suburban/residential charm of neighboring areas. Several blocks will be down-zoned to keep up with the existing neighborhood character. On September 10, 2007 the City Council overwhelmingly approved the plan. Structures of up to 28 stories can be built around the main transit hub as well as residential buildings of up to 7 stories can be built on Hillside Avenue.

Several projects are in progress. The New York City Economic Development Corporation has issued an RFP for redevelopment of a 45,000 sq ft (4,200 m2) abandoned garage located at 168th St. and 93rd Ave. Plans are underway to convert this space into retail and parking spots. "TechnoMart Queens" was the first approved project. Located at Sutphin Blvd. and 94th Ave., Korean-based Prime Construction Corp., Greater Jamaica Development Corporation, and several other partners have signed a deal to create a 13-story mega-mall. 9 floors will be dedicated towards wholesale electronics, 3 floors to retail space for shopping, and it is estimated to contain parking for up to 800 cars. Groundbreaking on this site will initiate in late 2008 and is slated for completion by mid-2011. The GJDC has announced in their newsletter that another site adjacent to the mall will be converted into a hotel for Airtrain passengers. Official groundbreaking information has not been released nor declared yet its completion is set for 2010.

Accessibility

Public transportation in the area is adequate. The "E" & "F" subway line is available at Parsons Blvd Station, corner of Hillside Avenue and Parsons Blvd, two blocks away from subject. Local bus service is found along most major roadways including Hillside Avenue.

Major thoroughfares include Long Island Expressway, Van Wyck Expressway, Clearview Expressway & Grand Central Pkwy. Long Island Expressway, which leads eastward to Long Island and westward to Brooklyn & Manhattan. Grand Central Pkwy, which leads eastward to Long Island and westward to Jackie Robinson Pkwy & Triboro Bridge. Van Wyck Expressway, which leads northward to Whitestone Bridge and southward to John F. Kennedy Airport. Clearview Expressway, which leads northward to Throgs Neck Bridge and southward to Hillside Avenue.

Commercial Use:

The prime commercial thoroughfares in the community are Archer Avenue, Hillside Avenue, Jamaica Avenue, Liberty Avenue, Merrick Boulevard, Parsons Boulevard, Guy R. Brewer Boulevard, Sutphin Boulevard, and Union Turnpike lined with predominantly one- to three-story commercial and mixed-use buildings, with retail space on the ground level. The majority of the shops and services in the area cater to the needs of the local community, including usages such as grocery stores, dry cleaners, bakeries, pharmacies, restaurants, etc.

American Revolutionary War. In 1790, in William Warner's tavern. Rufus King, a signer of the United States Constitution, relocated here in 1805. He added to a modest 18th-century farmhouse, creating the manor which stands on the site today. King Manor was restored at the turn of the 21st century to its former glory, and houses King Manor Museum.

By 1776, Jamaica had become a trading post for farmers and their produce. For more than a century, their horse-drawn carts plodded along Jamaica Avenue, then called King's Highway. The Jamaica Post Office opened September 25, 1794, and was the only post office in the present-day Boroughs of Queens or Brooklyn before 1803. Union Hall Academy for boys, and Union Hall Seminary for girls, were chartered in 1787. The Academy eventually attracted students from all over the United States and the West Indies. The public school system was started in 1813 with funds of $125. Jamaica Village, the first village on Long Island, was incorporated in 1814 with its boundaries being from the present-day Van Wyck Expressway (on the west) and Jamaica Avenue (on the north, later Hillside Avenue) to Farmers Boulevard (on the east) and Linden Boulevard (on the south) in what is now St. Albans. By 1834, the Brooklyn and Jamaica Railroad company had completed a line to Jamaica. Jamaica railroad stations in 1873 In 1850, the former Kings Highway (now Jamaica Avenue) became the Brooklyn and Jamaica Plank Road, complete with toll gate. In 1866, tracks were laid for a horsecar line, and 20 years later it was electrified, the first in the state. On January 1, 1898, Queens became part of the City of New York, and Jamaica became the county seat.

The present Jamaica station of the Long Island Rail Road was completed in 1913, and the BMT Jamaica Line arrived in 1918, followed by the IND Queens Boulevard Line in 1936 and the IND/BMT Archer Avenue Lines in 1988, the latter of which replaced the eastern portion of the Jamaica Line that was torn down in 1977–85. The 1920s and 1930s saw the building of the Valencia Theatre (now restored by the Tabernacle of Prayer), the "futuristic" Kurtz furniture store and the Roxanne Building. In the 1970s, it became the headquarters for the Islamic Society of North America. The many foreclosures and the high level of unemployment of the 2000s and early 2010s induced many black people to move from Jamaica to the South, as part of the New Great Migration.

Economic development:
Economic development was long neglected. In the 1960s and 1970s, many big box retailers moved to suburban areas where business was more profitable. Departing retailers included brand name stores and movie theaters that once thrived in Jamaica's busiest areas. Macy's and the Valencia theater were the last companies to move out in 1969. The 1980s crack epidemic created even more hardship and crime. Prime real estate spaces were filled by hair salons and 99 cent stores. Furthermore, existing zoning patterns and inadequate infrastructure did not anticipate future development.

Since then, the decrease of the crime rate has encouraged entrepreneurs who plan to invest in the area. The Greater Jamaica Development Corporation (GJDC), the local business improvement district, acquired valuable real estate for sale to national chains in order to expand neighborhood commerce. As well they have completed underway proposals by allocating funds and providing loans to potential investors who have already established something in the area. One Jamaica Center is a mixed-use commercial complex that was built in 2002 by The Mattone Group housing Old Navy, Bally Total Fitness, Walgreens, Subway, Dunkin' Donuts, a 15-screen multiplex theater and for a while a Gap. Banking has also made a strong revival as Bank of America, Sterling National Bank, Chase Bank, and Carver Federal Savings Bank have each created at least one branch along various major streets: Jamaica Avenue, Parsons Boulevard, Merrick Boulevard, and Sutphin Boulevard. A $75 million deal between the developers, the Mattone Group and Ceruzzi Enterprises, and Home Depot cleared the way for a new location at 168th St. and Archer Ave. All approvals were obtained within three months of the application dates.

NEIGHBORHOOD ANALYSIS

Location:
Jamaica is a middle-class neighborhood in the New York City borough of Queens. The neighborhood is part of Queens Community Board 12, which also includes Hollis, St. Albans, Springfield Gardens, Baisley Pond Park, Rochdale Village, and South Jamaica.

It was settled under Dutch rule in 1656 in New Netherland as Rustdorp. Under British rule, Jamaica became the center of the "Town of Jamaica". Jamaica was the county seat of Queens County from the formation of the county in 1683 until March 7, 1788, when the town was reorganized by the state government and the county seat was moved to Mineola (now part of Nassau County). In 1814, Jamaica became the first incorporated village on Long Island. When Queens was incorporated into the City of Greater New York in 1898, both the Town of Jamaica and the Village of Jamaica were dissolved, but the neighborhood of Jamaica regained its role as county seat. Today, some locals group Jamaica's surrounding neighborhoods into an unofficial Greater Jamaica, roughly corresponding to the former Town of Jamaica, including Richmond Hill, Woodhaven, St. Albans, Rosedale, Springfield Gardens, Hollis, Laurelton, Cambria Heights, Queens Village, Howard Beach and Ozone Park.

Jamaica is the location of several government buildings including Queens Civil Court, the civil branch of the Queens County Supreme Court, the Queens County Family Court and the Joseph P. Addabbo Federal Building, home to the Social Security Administration's Northeastern Program Service Center. The U.S. Food and Drug Administration's Northeast Regional Laboratory as well as the New York District Office are also located in Jamaica. Jamaica Center, the area around Jamaica Avenue and 165th Street, is a major commercial center, as well as the home of the Central Library of the Queens Borough Public Library. The New York Racing Association, based at Aqueduct Racetrack in South Ozone Park, lists its official address as Jamaica (Central Jamaica once housed NYRA's Jamaica Racetrack, now the massive Rochdale Village housing development). John F. Kennedy International Airport and the hotels nearby also use Jamaica as their address.

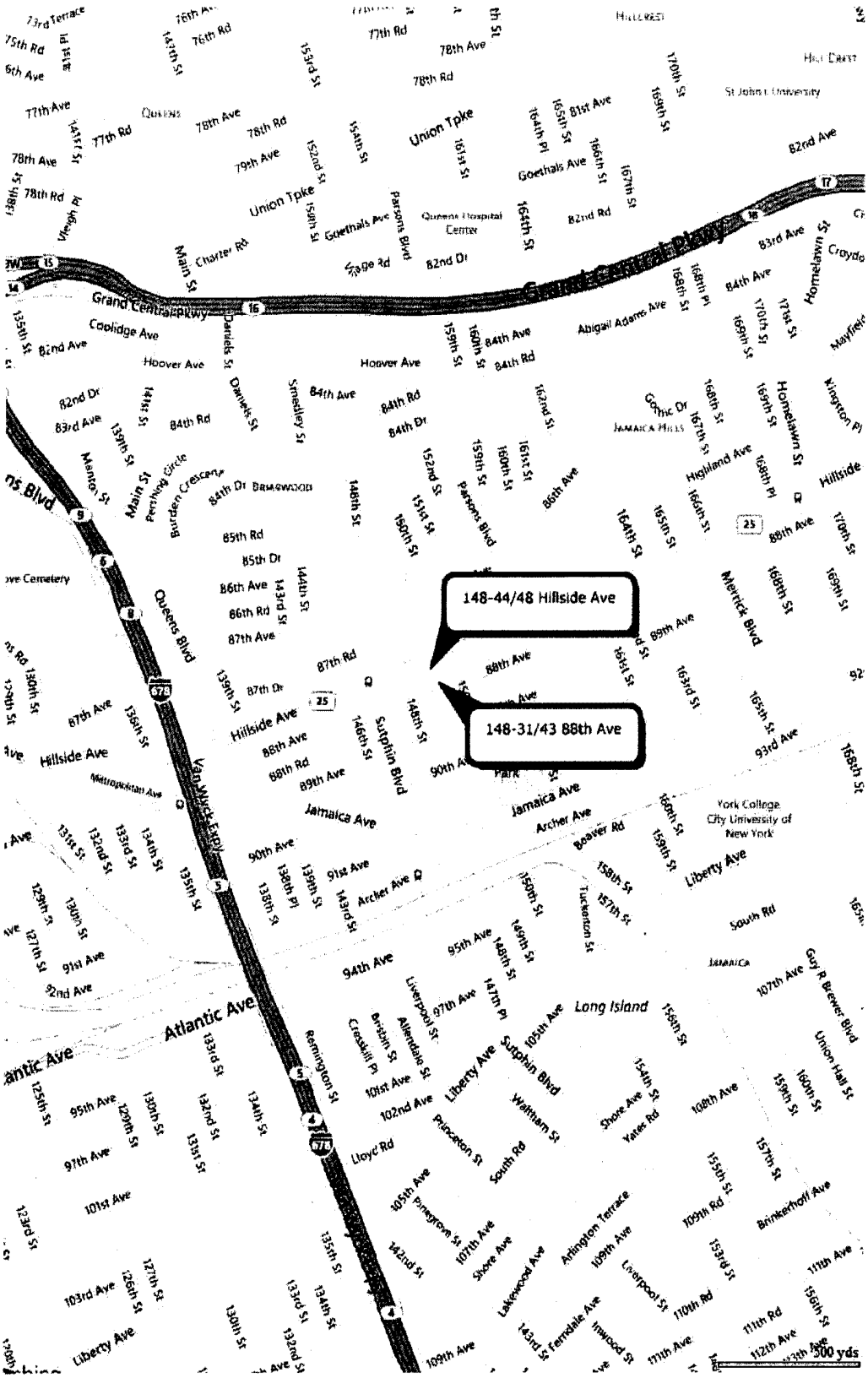
History:
Although many current residents of the neighborhood are immigrants from the Caribbean nation of Jamaica, the two names have different derivations. The name of Jamaica in New York City derives from Yameco, a corruption of a word for "beaver" in the Lenape language spoken by the Native Americans who lived in the area at the time of first European contact. The "y" sound in English is spelled with a "j" in Dutch, the first Europeans to write about the area. This resulted in the eventual English pronunciation of "Jamaica" when read and repeated orally. In the Caribbean, the Arawaks, people of the nation of Jamaica, named their land Xaymaca, which meant "land of wood and water".

Jamaica Avenue was an ancient trail for tribes from as far away as the Ohio River and the Great Lakes, coming to trade skins and furs for wampum. It was in 1655 that the first settlers paid the Native Americans with two guns, a coat, and some powder and lead, for the land lying between the old trail and "Beaver Pond" (later Baisley Pond). Dutch Director-General Peter Stuyvesant dubbed the area Rustdorp ("rest-town") in granting the 1656 land patent.

The English took over in 1664 and made it part of the county of Yorkshire. In 1683, when the British divided the Province of New York into counties, Jamaica became the county seat of Queens County, one of the original counties of New York.

Colonial Jamaica had a band of 56 minutemen who played an active part in the Battle of Long Island, the outcome of which led to the occupation of the New York City area by British troops during most of the

LOCATION MAP



The luxury retailer Hermès signed a 10-year extension on its 30,000-square-foot lease at 691 Madison Avenue at a cost of more than $1,700 per square foot, making its rent the highest on the street. Seven of the 25 largest business improvement districts in the city will see a windfall in next year's budget, with a 21% year-over-year median gain in budgets across all BIDs. The annual assessment for the Alliance for Downtown New York, for example, grew 21% to $15.8 million this year, due to an influx of local businesses. About 400 new stores are slated for the neighborhood by 2016, many of them at Brookfield Place and Pier 17.

U.S. Corporations and foreign investors continue to acquire prime commercial real estate assets in New York City. In 1/2015, Ivanhoé Cambridge and Callahan Capital Properties purchased the building located at 1095 Sixth Ave. for $2.2 billion. The building has 1.2 million square-foot tower is 100% leased to MetLife, Verizon and Dechert LLP. The Waldorf Astoria in New York is being sold to a Chinese insurance company, Anbang Insurance Group for $1.95 billion. In 4/2015, General Growth Properties has announced the acquisition of The Crown Building in New York City for $1.78 billion.

Conclusion

New York City will continue to be a destination for tourism and business, supporting the local economy. Additionally, it will remain a desirable place to reside for young families and the growing mature population. The services and activities that can only be experienced in New York City will continually support and maintain the residential market. Improving economic conditions worldwide are expected to boost the volume of foreign visitors to New York City.

With its central location to the global marketplace, New York City provides a good location for a company's office space. With the development of new office space in Manhattan, the market will see greater stability as the space is absorbed.

Overall, we remain fundamentally optimistic that 2015 will remain stable despite looming concerns regarding the impact of a rising interest rate environment. As a result of low-cost mortgage capital and noted stability in underlying fundamentals – such as absorption and vacancy rates, as well as sales and rental pricing on various property types throughout the city – the outlook for New York City is positive.

Industrial Market

The New York Outer Boroughs Industrial market ended the first quarter 2014 with a vacancy rate of 5.3% according to CoStar Group 1st Quarter 2014 Market Report. The vacancy rate was up over the previous quarter, with net absorption totaling negative 99,860 square feet in the first quarter. That compares to positive 103,487 square feet in the fourth quarter 2013. Vacant sublease space increased in the quarter, ending the quarter at 125,700 square feet. Tenants moving into large blocks of space in 2014 include: All City Metal moving into 45,000 square feet at 5435 46th St in Maspeth, Four Seasons Packaging Corp moving into 25,000 square feet at Onderdonk Ave in Ridgewood, and Venture Stationary moving into 23,000 square feet at 520 Coster St in the Bronx. Rental rates ended the first quarter at $15.27, an increase over the previous quarter. There was 135,349 square feet still under construction at the end of the quarter.

This trend is compared to the U.S. National Industrial vacancy rate, which decreased to 7.8% from the previous quarter, with net absorption positive 46.96 million square feet in the first quarter. Average rental rates increased to $5.39, and 279 buildings delivered to the market totaling almost 27.8 million square feet.

New Developments and Future Growth

The city has a few large projects that are part of a larger growth initiative; World Trade Center Site, Hudson Yards, and Atlantic Yards. Hudson Yards is 360 acres, including the 26-acre site over the MTA's rail yards with an undetermined mix of residential and office space proposed. It will be larger than the World Trade Center redevelopment and the Atlantic Yards project. It comprises the underutilized area bounded by West 42nd and West 30th Streets, Eighth Avenue to the Hudson River.[10] The extension of the No. 7 subway line is an integral part of the area's redevelopment and involves extending the train to Eleventh Avenue and down to West 34th Street and Eleventh Avenue; the subway extension is expected to be operational by early 2015. The redevelopment also includes more open space, expansion of Javits Center, and development of the MTA's Eastern Rail Yard. Although approved in January 2005 as part of New York City's long range plan, the Hudson Yards Development project had been stalled during the economic downturn. Construction on the Hudson Yards began in fall 2012.

There are numerous smaller projects contributing to the New York City's residential and business vitality including the High Line Park on the abandoned rail line running from Gansevoort Street to 30th Street in Chelsea. In addition, projects are being launched to revitalize 125th Street in Harlem and to improve the East River Park for public access in the Lower Manhattan from the Battery Maritime Building in the south to Montgomery Street in the north. Several high-end residential projects are in various stages of development. Some of the more notable projects are Extell Development's 90-story One57, located at 157 West 57th Street. Recently completed One57 will offer condominium apartments, a hotel and rental apartments. Some closings have already begun; prices range from $3,500+ per square foot to over $6,000 per square foot.

Macy's flagship store on 34th Street is under a $400 million makeover. The four-year renovation project will be completed in 2015 and will add 100,000 square feet of retail space to the store, bringing the total retail space in the store to 1.2 million square feet. Macy's is rumored to be going uptown to a 400,000-square-foot complex on 125th Street being built by the Empire State Development Corp. The retail mega giant, though, has not announced plans for a store in Harlem and others contend the location has been tapped as the headquarters of the Urban League.

Hotel

New York City's dynamic hotel industry is ever changing. New properties are still being added to the City's inventory of hotel across all five boroughs and property types. Repurposed landmark buildings are undergoing architectural and green renovations to become destination hotels in destination neighborhoods from Harlem and the Bronx to Lower Manhattan and Brooklyn. Boutiques and select service brands are making more and more neighborhoods attractive for visitors seeking a hotel to match their lifestyle, type of travel and budget.

All five boroughs are represented in this list with expansions, new ideas, and new opportunities. Twenty four hotels have opened since the beginning of this year, adding over 4,000 rooms to the city's hotel inventory. 2015 looks to kick off another period of dynamic hotel activity, with 61 properties listed here accounting for an addition of at least 11,600 rooms by year end. Then from 2016 looking forward we are adding another 24 properties and over 6,600 rooms.

Nevertheless, new building still predominates in the recent openings and looking out to the future. Luxury, boutique and lifestyle hotel brands, some new and some quite well known are planning to take their place among NYC's hotels. All five boroughs are represented in this list with expansions, new ideas, and new opportunities especially in The Bronx and Staten Island.

At year-end 2014, the city's active hotel inventory stood at approximately 102 thousand, and room night demand was over 32.5 million. By all accounts it was another year of extraordinary growth in new hotel rooms at all price points and in dozens of neighborhoods around the five boroughs. Looking forward to 2015 and beyond, the pipeline of new developments is still wide open. There are more than 105 properties planned and in construction adding an additional by the end of this year, the city will have over 102,000 rooms serving our visitors. At the same time the pipeline is still wide open and more than 18,000 new and newly renovated rooms could be open by the middle of 2017. New York City remains the most dynamic hotel development location in the US.

Active Room Inventory NYC Hotels	2006	2007	2008	2009	2010	2011	2012	2013	2014 *forecast*	2017 *forecasts*
Thousands of Rooms	72.6	73.3	76.4	80.9	86.6	89.7	92.0	95.6	*102*	*118+*

Borough Hotel Development	Total	Manhattan	Brooklyn	Bronx	Queens	Staten Island
Hotels open: 2014	24	17	1	-	5	1
Hotels in 2015 Pipeline	61	42	10	1	6	2
Hotels in pipeline to 2017	24	19	2	-	3	-
(totals)	107	78	12	1	13	3

Source: New York City & Company, which is the City's official tourism and marketing organization.

The New York lodging sector is among the highest performing markets in the world. Hotel occupancy among upper-tier hotels wen nearly uninterrupted during the economic downturn, and as a result Rev/PAR increases have been drive mostly by rate growth. The robust performance of this gateway market result in continued investment by both domestic and off-shore buyers. While the market faces supply pipeline of 15,000 new rooms through 2016, resulting in annual increase above the long-term average, investor remain condiment in the strength of the market as they continue to the positions in the New York's hotel market.

Madison Ave: 57 - 72 St	$1,709	$1,643	$1,380	4%	24%
Third Ave: 60 - 72 St	$266	$261	$249	2%	7%
East 86 St: Lexington Ave - 2nd Ave	$423	$384	$442	10%	-4%
Broadway: 72 - 86 St	$377	$284	$434	33%	-13%
Columbus Ave: 66 - 79 St	$347	$360	$319	-4%	9%
East 57 St: 5 Ave - Park Ave	$1,250	$1,000	$885	25%	41%
Fifth Ave: 42 - 49 St	$1,095	$1,029	$1,072	6%	2%
Fifth Ave: 49 - 59 St	$3,420	$3,550	$3,170	-4%	8%
Broadway & 7 Ave: 42 - 47 St	$2,317	$2,407	$2,175	-4%	7%
Flatiron					
Fifth Ave: 14 - 23 St	$403	$388	$329	4%	23%
Broadway: 14 - 23 St	$359	$392	$400	-8%	-10%
Herald Square					
West 34 St: 5 - 7 Ave	$891	$883	$738	1%	21%
Meatpacking					
14 St: 9 - 10 Ave	$339	$339	$356	0%	-5%
Financial District					
Broadway: Battery Park - Chambers St	$265	$226	$257	17%	3%
SoHo					
Broadway: Houston - Broome St	$830	$890	$762	-7%	9%
West Village					
Bleeker St: 7 Ave South - Hudson St	$484	$524	$417	-8%	16%
Harlem					
125th St. (River to River)	$130	$117	$110	11%	18%

*Statistics reflect availabilities on 4/1/14

The factors driving demand for retail space in Manhattan's top corridors have not changed greatly. Tourism in the city is still strong, luxury brands are seeking association to select areas, and widely known global brands are looking for visibility in high traffic areas. Another factor that REBNY Advisory Group pointed out was that retailers now are looking for certain locations within these already high demand corridors besides simply corner space or a location near transit. Proximity to a major attraction in or near the corridor, they explained, can have a tremendous effect on desirability and price. For example, the available spaces on West 34th are more expensive closer to Macy's than those on the other end of the block. The same holds true with the Financial District where retailers are looking to be close to The World Trade Center.

Retailers wanting to be a part of the changing city in general and leaving their particular mark on its vibrant retail environment. These companies desire to make an impact in an area that gets them noticed and creates excitement around the brand. Saks moving to Lower Manhattan, Amazon taking space on West 34th, Nordstrom establishing a massive store at the base of the soon to be constructed 225 West 57th Street, and Neiman Marcus taking space at Hudson Yards for their first New York City store.

AVERAGE ASKING RENT, SELECTED MAJOR RETAIL CORRIDORS

	Fall 2014	Spring 2014	Fall 2013	% Change From Spring 2014	% Change From Fall 2013
EASTSIDE					
Madison Ave: 57 - 72 St	$1,709	$1,643	$1,380	4%	24%
Third Ave: 60 - 72 St	$266	$261	$249	2%	7%
East 86 St: Lexington Ave - 2nd Ave	$423	$384	$442	10%	-4%
WESTSIDE					
Broadway: 72 - 86 St	$377	$284	$434	33%	-13%
Columbus Ave: 66 - 79 St	$347	$360	$319	-4%	9%
MIDTOWN					
East 57 St: 5 Ave - Park Ave	$1,250	$1,000	$885	25%	41%
Fifth Ave: 42 - 49 St	$1,095	$1,029	$1,072	6%	2%
Fifth Ave: 49 - 59 St	$3,420	$3,550	$3,170	-4%	8%
Broadway & 7 Ave: 42 - 47 St	$2,317	$2,407	$2,175	-4%	7%
MIDTOWN SOUTH					
Flatiron					
Fifth Ave: 14 - 23 St	$403	$388	$329	4%	23%
Broadway: 14 - 23 St	$359	$392	$400	-8%	-10%
Herald Square					
West 34 St: 5 - 7 Ave	$891	$883	$738	1%	21%
DOWNTOWN					
Meatpacking					
14 St: 9 - 10 Ave	$339	$339	$356	0%	-5%
Financial District					
Broadway: Battery Park - Chambers St	$265	$226	$257	17%	3%
SoHo					
Broadway: Houston - Broome St	$830	$890	$762	-7%	9%
West Village					
Bleeker St: 7 Ave South - Hudson St	$484	$524	$417	-8%	16%
UPPER MANHATTAN					
Harlem					
125th St. (River to River)	$130	$117	$110	11%	18%

*Statistics reflect availabilities on 4/1/14

points from the previous quarter, but just below 10-year average of 7.9%. Large block availability was particular limited with just 10 blocks of space available over 20,000 square feet. Class A availability stood at 4.3%.

Space constrains limited leasing activity in Dumbo/Downtown Brooklyn for the second consecutive quarter. The first quarter total 57,530 square feet of leasing, down from the 1-year average of 81,517 square feet. Leasing activity will jump in the 2nd quarter of 2015, driven by Hillary Clinton's 77,685-square-foot lease at 1 Pierrepoint Plaza in Downtown Brooklyn.

Development level remain high in this tight market with growing demand. Major renovation projects are underway, and these developments will alleviate supply constrain in this market. During the first quarter, Quinlan Development Group and Building & Land Technology purchased 41 Flatbush Avenue, and plan to convert it from storage unit to office a 10-story 270,000 square-foot building. At nearby Navy Yards, 1.8 million square feet of redevelopment is underway in 3 buildings. Industry city in south Brooklyn is prepared for a $1.0 billion renovation. Jamestown LP, plans to convert the 16-story building, 6 million square-foot complex into a contemporary hub for manufacturing and technology tenants and the project also including 900,000 square feet ground-level retail.

The Long Island City office market carried positive momentum into the 1st quarter of 2015, as overall vacancy continued to improve while total net absorption remained firmly positive. Leasing activity in the first quarter topped out at 57,723 square feet, nearly doubling the previous quarter's 23,857 square feet. Average asking rents in Long Island City increased to $30.66/SF, up from 23.82 in the 4th quarter and up from $22.19/SF one year ago. The increase was driven by large, premium-priced blocks that were added to inventory, notably at 30-30 Northern Boulevard and The Silks Buildings, where asking rent have increased more than 50% since 2014.

Commercial tenants and investor continue to invest in Long Island City. Vomado Realty Trust announced the acquisition of 33-00 Northern Boulevard, a 437,000 square-foot office building sold for $142 million and is 98% leased. In 1st quarter of 2015, Regus, the office suite provider inked a 10-year deal totaling 34,000 square feet in the Falchi Building at 31-00 47th Avenue.

Retail

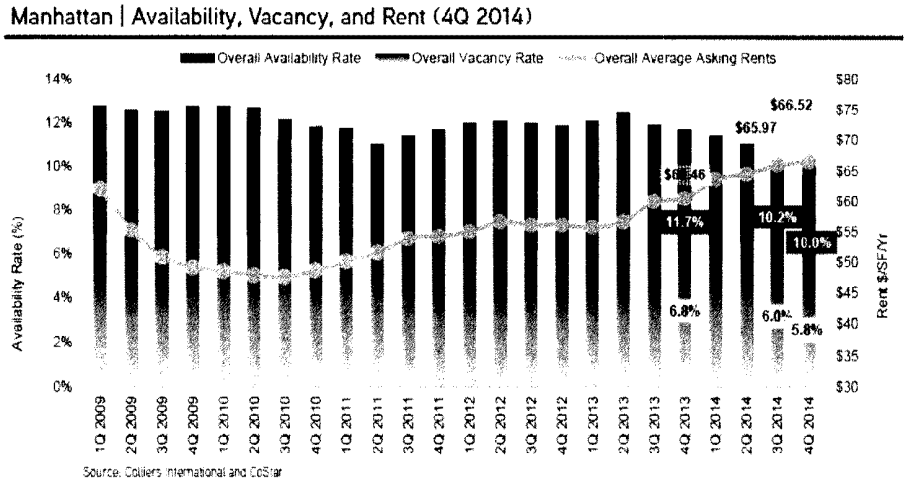
The retail market in New York City has mostly seen positive signs of improvement as asking rents year over year have increased The Manhattan retail leasing market maintained its strength and dynamism through the third quarter of 2014. The *Fall 2014 REBNY Retail Report* showed ground floor asking rents increasing in 13 of 17 corridors surveyed, year over year. Furthermore, despite the increasing rents of recent years, REBNY Retail Advisory Group reported that the market remained active.

While the average asking rent in most corridors increased compared to last year, the increases were not as extreme as previous reports. The average asking price for ground floor space on Fifth Avenue between 49th and 59th increased 8% from last fall to $3,420/SF. In Times Square along Broadway and Seventh Avenue between 42nd and 47th average ground floor asking rents increased 7% from last fall to $2,317/SF. Average asking rents in other prominent corridors increased strongly as well. Madison Avenue between 57th and 72nd streets had an increase of average ground asking rents of 24% to $1,709/SF. The average asking rent in Herald Square along West 34th Street increased 21% from last year to $891/SF.

SUBMARKET	INVENTORY SF	AVAILABLE SF	AVAILABILITY	ABSORPTION MONTHLY	ABSORPTION YEAR-TO-DATE	UNDER CONSTRUCTION SF	AVERAGE ASKING RENT CLASS A	AVERAGE ASKING RENT CLASS B	AVERAGE ASKING RENT OVERALL
MIDTOWN									
East Side/UN	20,842,455	1,433,902	6.9%	54,298	72,285		$67.16	$51.21	$63.57
Fashion District	33,081,198	2,912,466	8.8%	(101,964)	(398,598)		$73.65	$54.35	$53.13
Fifth/Madison	25,192,308	3,062,668	12.2%	(52,991)	(131,315)		$124.21	$75.95	$109.46
Grand Central	50,084,883	5,897,719	11.8%	144,087	197,125		$71.79	$56.54	$68.08
Midtown West/Columbus Circle	21,385,133	2,280,818	10.7%	97,863	68,175		$76.10	$51.74	$72.19
Park Avenue	30,089,432	2,846,170	9.5%	23,277	68,891		$98.05	$90.77	$97.69
Penn Plaza/Hudson Yards	14,585,528	1,091,692	7.5%	(10,387)	(15,291)	3,461,086	$68.64	$58.81	$60.44
Sixth Avenue/Rock Center	45,141,080	4,363,851	9.7%	(43,474)	(706,129)	472,535	$81.02	$73.34	$79.75
Times Square	17,965,613	2,113,694	11.8%	(171,158)	(153,276)		$87.38	$65.06	$79.83
MIDTOWN TOTALS	**260,367,830**	**26,952,980**	**10.1%**	**(88,449)**	**(998,133)**	**3,933,621**	**$85.14**	**$61.95**	**$77.81**
MIDTOWN SOUTH									
Chelsea/Meatpacking	19,575,179	1,302,337	6.7%	76,249	159,244	114,000	$90.00	$57.87	$54.33
Flatiron/Union Square	15,045,451	1,353,373	9.0%	(172,618)	(146,951)		$87.17	$74.34	$74.27
Hudson Square/TriBeCa	19,575,219	959,458	4.9%	275,141	356,226		$73.06	$66.54	$65.53
Madison Square/Park Avenue S	26,225,012	1,835,580	7.0%	86,793	(61,914)		$70.16	$63.21	$64.37
SoHo/NoHo/Village	7,238,360	272,607	3.8%	72,817	90,360		$101.40	$64.18	$72.14
MIDTOWN SOUTH TOTALS	**87,659,221**	**5,723,355**	**6.5%**	**338,382**	**386,965**	**114,000**	**$75.78**	**$67.82**	**$64.75**
DOWNTOWN									
City Hall/Insurance	4,963,218	490,132	9.9%	15,491	(37,465)		$46.96	$45.81	$44.87
Financial	53,064,463	5,975,016	11.3%	408,034	(665,202)		$53.06	$44.05	$50.51
World Trade Center	31,043,427	4,382,139	14.1%	(216,786)	(556,852)	2,861,402	$70.31	$41.86	$67.16
DOWNTOWN TOTALS	**89,071,108**	**10,847,287**	**12.2%**	**206,739**	**(1,259,519)**	**2,861,402**	**$61.48**	**$43.78**	**$57.48**
MANHATTAN TOTALS	**435,097,959**	**42,573,622**	**9.8%**	**484,672**	**(1,860,687)**	**6,909,023**	**$76.66**	**$59.59**	**$69.87**

Data Source: Cassidy Turley Manhattan Office Market Reports March 2015

As of 4Q of 2014, Overall New York Office vacancy rate decreased to 5.8% from 6.8% of 4Q of 2013 as availability rate lower to 10% compared to 11.7% of previous year.



Outer Boroughs - Office

According to *Newmark Grubb Knight Frank 1st Quarter* Office Market Research report, continued demand in a tight market pushed average asking rents upward in the Dumbo/Downtown Brooklyn market during the first quarter of 2015. Average asking rents climbed to $39.28, up from $37.15 in the previous quarter, and up from $33.36 one year ago. The availability rate was 7.4% in the first quarter, up 60 basis

Office Market

According to *Cassidy Turley Manhattan Office Market Reports March 2015,* space returns continued to flood the Manhattan office market in February as another 10 office buildings each added 45,000 square feet or more to the available supply. Despite 21 buildings coming to market with significant availabilities this year, the overall availability rate dipped 10 basis points to 9.8%. The bulk of the space returns occurred in Class B buildings, which accounted for eight of the aforementioned 10 buildings and posted the second consecutive month of negative absorption for Manhattan Class B. With many tenants driven towards value over the last four years, the 937,617 square feet of negative absorption posted this year will create more affordable opportunities in the market. After posting over 2 million square feet of negative absorption in January, Class A space bounced back by recording over 889,000 square feet of positive absorption.

Midtown

The Midtown availability rate inched up another 10 basis points to 10.1%, up from a recent low of 9.7% at the end of 2014. Similar to the overall Manhattan market trend in February, Midtown accounted for seven of the 10 large space returns, with six of the seven in Class B buildings. This led to over 677,000 square feet of negative absorption for Class B space, while Class A space absorbed all the space added to the market in January. Class A posted over 606,000 square feet of positive absorption and was fueled mostly by the Bloomberg 152,935-square-foot lease at 919 Third Avenue and the 96,780 square feet of expansion space leased by Public is at 1675 Broadway. Despite Midtown availability rising, asking rents continue to increase, with Class A up $0.17 to $85.14 per square foot and Class B up a mere $0.03 to $61.05 per square foot.

Midtown South

Midtown South continues to outperform the rest of the market, as the availability rate dropped 40 basis points in February to 6.5%. The available supply dipped below 6 million square feet for the first time since 2000. There is only 5.7 million square feet available in Midtown South, which equals one-fifth of the Midtown and one-half of the Downtown available supplies. The Flatiron/Union Square submarket was the only submarket to post negative absorption, as 181,950 square feet came on the market at 50 West 23rd Street, but leasing activity throughout the rest of Midtown South outpaced space returns and led to 338,382 square feet of positive absorption.

Downtown

The Downtown office market was back on track after posting almost 1.5 million square feet of negative absorption in January. The availability rate dipped 20 basis points to 12.2%, as 206,739 square feet of positive absorption was posted in February. This can be mostly attributed to the lease signed by WeWork at 85 Broad Street for 240,000 square feet. In spite of the positive overall trends, the World Trade submarket's availability rate jumped to over 14.0% for the first time in almost a year, as 319,644 square feet of NYMEX space at 1 North End Avenue became available. As new product continues to become available Downtown, asking rents continue to soar. Class A asking rents are up to $61.40 per square foot and have surpassed historical highs from 2008. Class B asking rents are also up, but at $43.76 per square foot, they are still slightly off record levels.

Brooklyn	Building (Average Prices)			
	Most Expensive		*Least Expensive*	
Studios	Dumbo	$3,004	Bay Ridge	$1,291
One-bedrooms	Dumbo	$3,979	Bay Ridge	$1,606
Two-bedrooms	Dumbo	$5,454	PLG	$2,008

Sources: MNS rental market report of March 2015

Rental – Queens

March rental price indicators in Queens were mixed, median rental price increased 3.7% to $2,952 from the same period last year. Average rental price slipped to 3% to $2,989 over the same period.

Queens Rental Market	MAR-15	%Chg (MO)	FEB-15	%Chg (YR)	MAR-14
Average Rental Price	$2,989	7.4%	$2,784	-3.0%	$3,080
Rental Price per Sq Ft	$46.57	13.8%	$40.93	12.1%	$41.56
Median Rental Price	$2,952	13.5%	$2,600	3.7%	$2,847
Number of New Rentals	158	-4.8%	166	-8.7%	173
Days on Market (From Original List Date)	32	10.3%	29	-50.0%	64
Listing Discount (From Original List Price)	-0.8%		0.7%		0.1%
Listing Inventory	309	11.2%	278	N/A	N/A
Queens Rental Market by Size	**MAR-15**	**%Chg (MO)**	**FEB-15**	**%Chg (YR)**	**MAR-14**
Studio - Average Rental Price	$2,281	11.3%	$2,049	9.0%	$2,092
Rental Price per Sq Ft	$55.00	17.0%	$47.01	16.4%	$47.25
Median Rental Price	$2,468	8.2%	$2,281	14.5%	$2,155
Number of New Rentals	29	11.5%	26	38.1%	21
1-Bedroom - Average Rental Price	$2,809	11.1%	$2,528	5.6%	$2,661
Rental Price per Sq Ft	$47.84	15.8%	$41.33	15.6%	$41.37
Median Rental Price	$2,957	18.7%	$2,492	8.1%	$2,735
Number of New Rentals	85	-7.6%	92	-2.3%	87
2-Bedroom - Average Rental Price	$3,673	2.1%	$3,597	-1.8%	$3,741
Rental Price per Sq Ft	$40.55	0.4%	$40.37	-4.1%	$42.29
Median Rental Price	$3,790	-1.9%	$3,863	-1.4%	$3,843
Number of New Rentals	41	-2.4%	42	-14.6%	48
3+ Bedroom - Average Rental Price	$5,566	23.5%	$4,507	21.6%	$4,578
Rental Price per Sq Ft	$51.20	27.1%	$40.29	25.1%	$40.92
Median Rental Price	$5,500	2.7%	$5,356	10.1%	$4,995
Number of New Rentals	3	-40.0%	5	-82.4%	17

Source: The Elliman Queens Rental Report 1Q 2015

Queens	Building (Average Prices)			
	Most Expensive		*Least Expensive*	
Studios	Long Island City	$2,385	Forest Hills	$1,417
One-bedrooms	Long Island City	$2,932	Flushing	$1,647
Two-bedrooms	Long Island City	$4,091	Ridgewood	$2,015

Sources: MNS rental market report of March 2015

Overall, we expect the reduced interest rates and push to increase credit for consumers to have a positive effect on the overall condominium, cooperative and housing market in the New York metro region. We further expect housing rents to remain stable throughout the remainder of 2015.

Queens Market Matrix	1Q-2015	%Chg (QTR)	1Q-2015	%Chg (YR)	1Q-2014
Average Sales Price	$492,340	0.0%	$492,217	14.6%	$429,544
Median Sales Price	$446,434	3.7%	$430,475	20.7%	$370,000
Number of Sales	2,567	-0.9%	2,590	-18.7%	3,156
Days on Market (From Last List Date)	85	-12.4%	97	-17.5%	103
Listing Discount (From Last List Price)	5.0%		0.1%		5.0%
Listing Inventory	4,695	-16.2%	5,602	-16.4%	5,617
Absorption Rate (mos)	5.5	-15.4%	6.5	3.8%	5.3
Year-to-Date	**1Q-2015**	**%Chg (QTR)**	**1Q-2015**	**%Chg (YR)**	**1Q-2014**
Average Sales Price (YTD)	$492,340	N/A	N/A	14.6%	$429,544
Median Sales Price (YTD)	$446,434	N/A	N/A	20.7%	$370,000
Number of Sales (YTD)	2,567	N/A	N/A	-18.7%	3,156

Source: The Elliman Queens Sales Report 1Q 2015

Rental -Brooklyn

After 5 consecutive months of year-over-year gains, the Brooklyn rental price indicators were mixed. The median rental price was $2,893, essentially unchanged from the prior year period. Average rental price was $2,321.

Brooklyn Rental Market	MAR-15	%Chg (MO)	FEB-15	%Chg (YR)	MAR-14
Average Rental Price	$3,231	2.2%	$3,160	-0.7%	$3,254
Rental Price per Sq Ft	$41.78	8.2%	$38.63	5.9%	$39.46
Median Rental Price	$2,893	1.0%	$2,863	-0.2%	$2,900
Number of New Rentals	564	57.5%	358	-34.0%	854
Days on Market (From Original List Date)	56	-5.1%	59	30.2%	43
Listing Discount (From Original List Price)	1.7%		1.2%		3.0%
Listing Inventory	1,852	-3.5%	1,919	23.9%	1,495
Brooklyn Rental w/Concessions	**MAR-15**	**%Chg (MO)**	**FEB-15**	**%Chg (YR)**	**MAR-14**
Median Rental Price	$2,881	1.2%	$2,848	-0.6%	$2,897
Share of New Rentals w/Concessions (%)	4.8%		5.6%		1.3%
Free Rent/Owner Paid (Mos)	1.1	0.0%	1.1	10.0%	1.0
Brooklyn Rental Market by Size	**MAR-15**	**%Chg (MO)**	**FEB-15**	**%Chg (YR)**	**MAR-14**
Studio - Average Rental Price	$2,291	2.2%	$2,241	3.1%	$2,222
Rental Price per Sq Ft	$52.07	6.1%	$49.07	13.0%	$46.06
Median Rental Price	$2,406	5.5%	$2,281	10.6%	$2,175
Number of New Rentals	70	66.7%	42	-17.6%	85
1-Bedroom - Average Rental Price	$2,759	-2.2%	$2,822	-1.3%	$2,795
Rental Price per Sq Ft	$43.33	0.8%	$42.99	4.1%	$41.64
Median Rental Price	$2,650	-7.4%	$2,863	-3.5%	$2,747
Number of New Rentals	235	59.9%	147	-36.1%	368
2-Bedroom - Average Rental Price	$3,662	10.8%	$3,305	3.0%	$3,556
Rental Price per Sq Ft	$42.88	13.6%	$37.74	5.9%	$40.48
Median Rental Price	$3,430	12.1%	$3,061	5.2%	$3,261
Number of New Rentals	203	66.4%	122	-33.9%	307
3+ Bedroom - Average Rental Price	$4,825	14.1%	$4,228	-3.5%	$5,001
Rental Price per Sq Ft	$35.45	18.7%	$29.86	-4.1%	$36.98
Median Rental Price	$4,287	20.7%	$3,552	-3.7%	$4,450
Number of New Rentals	56	21.7%	46	-40.4%	94

Source: The Elliman Brooklyn Rental Report 1Q 2015

quickly. Construction cranes continue to dot the skyline in these areas, as residential development continues.

Outer borough Sales - Brooklyn

Brooklyn housing prices continued to push higher as robust economy and limited inventory keep the pressure on. According to the *Elliman Report Brooklyn Sales 1Q 2015*, the median sales price increased 17.5% from the prior year quarter to $610,894, the highest result in 12 years the metric has been tracked. Average Sales price rose 10% from the sales period last year. By property type, the largest price gains were seen in the 1-3 family market, up 26.9% from the prior year quarter. Days on market decreased to 112 days from the 131 days of 1st quarter of 2014.

The number of Brooklyn sales declined 4.1% to 1,407 from the prior year quarter and declined year-over-year of the past 3 quarters due to limited inventory. Although inventory expanded 5.8% to 4,331, it remained inadequate to meet demand.

Brooklyn Market Matrix	1Q-2015	%Chg (QTR)	4Q-2014	%Chg (YR)	1Q-2014
Average Sales Price	$749,269	-1.0%	$756,569	10.0%	$681,182
Median Sales Price	$610,894	4.4%	$585,000	17.5%	$520,000
Number of Sales	1,507	-11.2%	1,697	-4.1%	1,572
Days on Market (From Last List Date)	112	43.6%	78	-14.5%	131
Listing Discount (From Last List Price)	4.6%		2.3%		1.1%
Listing Inventory	4,331	-28.0%	6,015	5.8%	4,092
Absorption Rate (mos)	8.6	-18.9%	10.6	10.3%	7.8
Year-to-Date	**1Q-2015**	**%Chg (QTR)**	**4Q-2014**	**%Chg (YR)**	**1Q-2014**
Average Sales Price (YTD)	$749,269	N/A	N/A	10.0%	$681,182
Median Sales Price (YTD)	$610,894	N/A	N/A	17.5%	$520,000
Number of Sales (YTD)	1,507	N/A	N/A	-4.1%	1,572

Source: The Elliman Brooklyn Sales Report 1Q 2015

Outer borough Sales - Queens

The housing market of Queens has been rising since last fall due to an improving local economy, low mortgage rates, and low inventory. According to the *Elliman Report Queens Sales Report 1Q 2015,* Median sales price jumped 20.7% to $446,434 from same period last year and 9th increase of the past 11 quarters. Average sales price rising 14.6% over the same period. The number of sales was in sync with the decline in supply, falling 18.7% to 2,567 over the same period.

The combination of falling sales and falling inventory kept the monthly absorption period essentially stable. Days on market, the average number of days between the date of last list price change and contract date, declined to 85 days form 103 over the same period.

had slightly less inventory to choose from during the most recent quarter when compared to a year ago. During the first quarter of 2014, 1.54% of apartments were vacant.

AVERAGE RENT SUMMARY: Q1 2015				
Location	Studio	1BR	2BR	3BR
BPC/Financial Dist.	$2,487	3,235	4,988	6,325
Chelsea	$2,332	3,302	5,404	6,080
East Village	$2,144	2,846	3,343	3,912
Gramercy/Flatiron	$2,375	3,311	5,085	6,177
Harlem	$1,401	2,064	2,405	3,083
Lower East Side	$2,059	2,462	3,105	4,118
Midtown East	$2,200	3,166	4,134	4,658
Midtown West	$2,261	2,954	4,025	4,674
Morningside Heights	$2,150	2,683	3,143	3,450
Murray Hill	$2,166	2,828	3,579	4,403
Soho/Tribeca	$2,450	3,798	5,976	9,937
Upper East Side	$1,924	2,574	3,262	5,813
Upper West Side	$2,065	2,727	4,078	5,771
Washington Heights	$1,359	1,709	2,028	2,400
West Village	$2,664	3,551	4,458	5,750
Average: Q1/15	$2,132	2,877	3,931	5,100
Average: Q4/14	$2,046	2,814	3,882	5,137
% Change	4.2%	2.2%	1.3%	-0.7%
Average: Q1/14	$2,039	2,791	4,029	5,167
% Change: Q1-14/15	4.6%	3.1%	-2.4%	-1.3%

AVERAGE RENT SUMMARY: March 2015				
Location	Studio	1BR	2BR	3BR
BPC / Financial Dist.	$2,530	3,182	4,950	6,202
Chelsea	$2,324	3,339	5,275	6,022
East Village	$2,131	2,828	3,429	4,060
Gramercy/Flatiron	$2,375	3,409	5,029	6,134
Harlem	$1,300	2,131	2,579	3,000
Lower East Side	$1,975	2,435	3,083	4,016
Midtown East	$2,240	3,255	4,223	4,693
Midtown West	$2,320	3,066	4,183	5,080
Morningside Heights	$2,100	2,598	3,280	3,300
Murray Hill	$2,075	2,834	3,517	4,317
Soho/Tribeca	$2,400	3,724	6,237	9,615
Upper East Side	$1,923	2,616	3,401	5,400
Upper West Side	$2,037	2,663	3,733	6,025
Washington Heights	$1,350	1,678	2,050	2,330
West Village	$2,691	3,783	4,300	5,754
Average: March	$2,108	2,885	3,941	5,053
Average: February	$2,054	2,817	4,020	5,168
% Change	3%	2%	-2%	-2%

Source: *Citi Habitats 1st Quarter 2015 Residential Report*

When comparing the first quarter of 2015 with the quarter that preceded it, average rents for studio units increased the most, with a relatively substantial 4.2% jump. In addition, one-bedroom homes increased in price by 2.2%, while two bedrooms were, on average, 1.3% more expensive. In contrast, rents for three-bedroom units fell by an average of 0.7%.

Year-over-year, average Manhattan rents increased for smaller apartment sizes, while they declined for larger-sized homes. As was the case when looking quarter-over-quarter, the largest rent increase occurred for studio apartments, with a 4.6% climb. Average rents for one-bedroom homes increased by 3.1% when compared to the first quarter of 2014, while pricing decreased for both two- and three-bedroom apartments. Average rents for these sized homes fell 2.4% and 1.3%, respectively.

Currently, the Manhattan rental market has reached a state of 'equilibrium,' where neither tenant nor landlord has the upper hand, but both are willing to transact. However, it is expect move-in concessions to become less common as we progress through the second quarter of the year, as is to be expected during this time of the year. All-in-all, the market should remain stable in spring. Rents have plateaued at a very high level and as a result, vacancies across the city are up slightly.

However, apartment seekers increasingly are exploring opportunities in the city's outer boroughs, as evidenced by the huge demand for new rental product in areas like Greenpoint and Williamsburg in Brooklyn, and Long Island City and Astoria, Queens. Rental developments introduced in these neighborhoods trade on average at a 20%-30% discount to Manhattan, and typically lease-up very

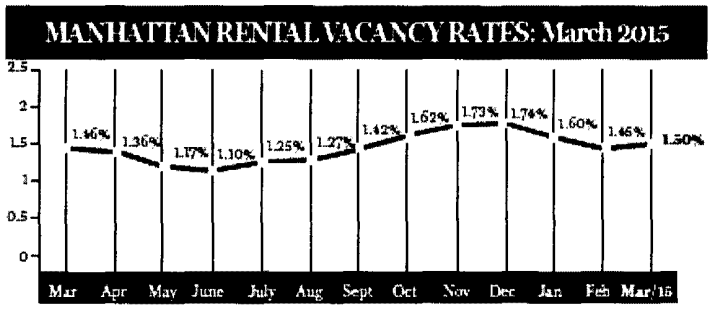
Manhattan	1Q15	1Q14	% Chg (yr)	4Q14	% Chg (qtr)
Overview					
Closed Sales	3,776	3,369	12%	3,541	7%
Contracts Signed	3,401	3,248	5%	3,373	1%
Inventory	4,973	5,039	-1%	4,446	12%
Months of Supply	3.8	3.7	4%	3.5	9%
Average Days on Market	95	102	-6%	100	-5%
Prices					
Median Price	$955K	$899K	6%	$950K	1%
Average Price	$1.726M	$1.692M	2%	$1.771M	-3%
Median PPSF	$1,214	$1,121	8%	$1,200	1%
Average PPSF	$1,602	$1,522	5%	$1,680	-5%
Median Price by Bedroom					
Studio	$450K	$440K	2%	$450K	0%
1 Bedroom	$758K	$729K	4%	$730K	4%
2 Bedroom	$1.480M	$1.450M	2%	$1.560M	-5%
3+ Bedroom	$3.044M	$3.495M	-13%	$3.128M	-3%

Source: *Corcoran Group 1st Quarter 2015 Report*

Inventory further tightened with 1% fewer listings than a year ago and days on market dropped 6%. Given these dynamics, the Manhattan market is notably under-supplied. At the rate of sales over the past year, the number of currently listed apartments in Manhattan is equivalent to just 3.8 months of supply, well below the six to nine months considered market equilibrium. Buyer competition, especially for lower priced units, is significant. The median price of studio, one, and two bedroom apartments all increased compared to last year, however three bedroom and larger residences actually decreased over the same period as more sales in this category shifted to the resale co-op market from new developments.

Rental

According to *Citi Habitats 1st Quarter 2015 Residential Report*, the Manhattan rental market vacancy rate increase from 1.46% in March 2014 to 1.50% in 1st Quarter 2015.



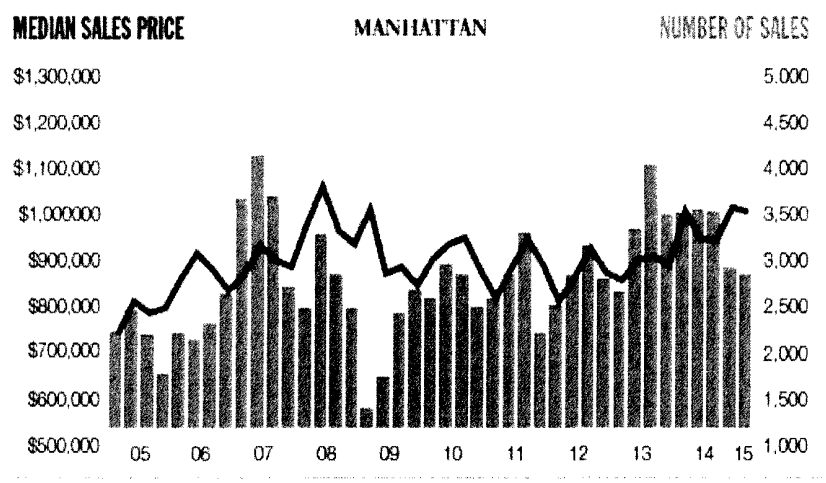
The borough's vacancy rate increased slightly, but steadily, each month during the quarter. When compared to the fourth quarter of 2014, overall market conditions have shifted slightly towards the landlord's favor. Average rents increased for all apartment sizes except three bedroom units, where they declined slightly. In addition, the borough-wide vacancy rate declined during the most recent quarter. When examining vacancy rates across Manhattan, we found 1.52% of apartments to be available during the first quarter of 2015, down from 1.72% in the fourth quarter of 2014. In addition, would-be tenants

Residential Market

Sales

Prudential Douglas Elliman 1st Quarter 2015 market report indicated that apartment listings are increasing and the number of days on the market decreased 13% year over year; as compared to the previous quarter the number of days on the market decreased 4.8%. The inventory of apartments is up 5.5% to 5,243 available units compared to 2014. The level of discounting was 4.7% from 2.4% in the prior quarter. The report indicated a decrease in median sales price to $970,000 from $972,428 in 1Q 2014.

Manhattan Market Matrix	1Q-2015	%Chg (QTR)	4Q-2014	%Chg (YR)	1Q-2014
Average Sales Price	$1,732,989	-0.4%	$1,740,156	-2.3%	$1,773,523
Average Price per Sq Ft	$1,263	-1.6%	$1,284	-7.3%	$1,363
Median Sales Price	$970,000	-1.0%	$980,000	-0.2%	$972,428
New Development	$1,625,000	-9.0%	$1,785,000	-6.1%	$1,731,025
Re-sale	$885,000	-0.3%	$888,000	-1.7%	$900,000
Number of Sales (Closed)	2,661	-2.1%	2,718	-19.5%	3,307
Days on Market (From Last List Date)	100	-4.8%	105	-13.0%	115
Listing Discount (From Last List Price)	4.7%		2.4%		2.6%
Listing Inventory (Active)	5,243	5.0%	4,995	5.5%	4,968
Absorption Rate (Months)	5.9	7.3%	5.5	31.1%	4.5
Pending Price Index (1Q 08 = 100)	113.05	-7.2%	121.79	8.4%	104.32
Pending Sales Index (1Q 08 = 100)	111.88	-33.6%	168.52	6.2%	105.31



Source: *Prudential Douglas Elliman 1st Quarter 2015*

The *Corcoran Group 1st Quarter 2015 Report* (Manhattan) indicated that during this period there were 3,776 market-wide sales, 12% higher than 1st Quarter 2014. Average sale price was 2% higher versus the Q1 2014, median sales price was up 6% and average price per square foot was up 5%. This quarter's strong sales performance resulted in the highest number of closings reported for any first quarter in over 6 years. However, the compared to 4th Quarter of 2014, the median sales price was lower by 3% and average price per square foot was lower than 5%.

There are more than 594,000 full- and part-time students enrolled in more than 110 institutions of higher education in New York City. The City University of New York is the nation's leading urban public university, serving 540,000 students – more than 271,000 degree-credit students and nearly 270,000 in adult, continuing and professional education — at 24 institutions in New York City.

New York City Crime Statistics

The statistics for 2014 reveal that the overall crime rate in New York City has continued to experience a decline. The table presented below is the New York City (citywide) Crime Statistics comparison for the calendar year of 2012, 2013 and 2014.

New York City Crime Statistics Citywide					
Crime	2012	2013	2014	2012-2013 % Change	2013-2014 % Change
Murder	419	335	333	-20.05%	-0.60%
Rape	1,445	1,378	1,352	-4.64%	-1.89%
Robbery	20,144	19,128	16,539	-5.04%	-13.54%
Felony Assault	19,381	20,297	20,207	4.73%	-0.44%
Burglary	19,168	14,429	16,765	-24.72%	16.19%
Grand Larceny	42,497	45,368	43,862	6.76%	-3.32%
Grand Larceny auto (GLA)	8,093	7,400	7,664	-8.56%	3.57%
Total	**111,147**	**108,335**	**106,722**	**-2.53%**	**-1.49%**

Source: NYC Police Department

Historical Perspective (Historical perspective is a complete calendar year of data.)										
	1990	1993	1998	2001	2014	%Chg '14 vs '01	%Chg '14 vs '98	%Chg '14 vs '93	%Chg '14 vs '90	
Murder	2,262	1,927	629	649	333	-48.7	-47.1	-82.7	-85.3	Murder
Rape	3,126	3,225	2,476	1,930	1,352	-29.9	-45.4	-58.1	-56.7	Rape
Robbery	100,280	85,892	39,003	27,873	16,539	-40.7	-57.6	-80.7	-83.5	Robbery
Fel. Assault	44,122	41,121	28,848	23,020	20,207	-12.2	-30.0	-50.9	-54.2	Fel. Assault
Burglary	122,055	100,936	47,181	32,694	16,765	-48.7	-64.5	-83.4	-86.3	Burglary
Gr. Larceny	108,487	85,737	51,461	46,291	43,862	-5.2	-14.8	-48.8	-59.6	Gr. Larceny
G.L.A.	146,925	111,622	43,315	29,607	7,664	-74.1	-82.3	-93.1	-94.8	G.L.A.
TOTAL	*527,257*	*430,460*	*212,913*	*162,064*	*106,722*	*-34.15*	*-49.88*	*-75.21*	*-79.76*	*TOTAL*

Data Source: New York City Police Department

New York City's International Significance

New York is considered to be the nation's financial and business capital due to the presence of Wall Street and the New York Stock Exchange. It represents the largest number of Fortune 500 companies and global center for arts, technology, media, fashion, advertising, finance and industry.[2] Manhattan's central business district contains the greatest concentration of business activities in the United States, with more than two million jobs generated by the various firms and businesses located here. Many of the nation's largest banks are headquartered in New York City.

New York City's economy continues to secure its stature as the world's leading global location for international business and finance, advanced business services and consulting, bio-medicine, and higher education. As a center of media and the arts, the region is successfully capitalizing on its unique image in popular culture and entertainment, as exemplified by the redevelopment of 42nd Street in Manhattan. The emergence as a modern entertainment complex, including motion picture production and theater development, has augmented the importance of the region as a "must visit" destination for domestic and international tourists. This has led to the further growth of supporting industries, such as hotels and restaurants resulting in an increasing demand for the region's airports and interstate transportation network. To accommodate the many business travelers, as well as tourists and residents, the city has a wide variety of hospitality, cultural and recreational facilities.

In addition to business travelers, New York City's cultural attractions, entertainment, restaurants and retail shopping have helped to make it the number one tourist destination in the country. It is the home of the Statue of Liberty and the United Nations world headquarters. Other attractions include the Empire State Building at West 34th Street and Fifth Avenue and Rockefeller Center on Fifth Avenue between West 48th and West 52nd Streets. The number of international and domestic visitors in 2013 was approximately 54.3 million; of those 11.4 million were international visitors according to NYC Official statistic. In 2013, total visitor spending from New York City tourism was $38.8 billion.

The theaters in the Times Square/Broadway district attract international attention. Lincoln Center, home of the Metropolitan Opera, the New York Philharmonic, the New York City Ballet and Opera and the Juilliard School of Music, is considered to be one of the most important centers for the performing arts in the world. The Metropolitan Museum of Art, the Museum of Modern Art, the American Museum of Natural History, the Cooper-Hewitt Museum, the Guggenheim and many of the city's other museums and galleries are internationally respected. Brooklyn has the Brooklyn Botanical Garden, Museum of Art, and Academy of Music that draw people from all over the world.

New York is also one of the world's leading art centers. The most prominent area for the art devotee is concentrated between East 57th and East 86th Streets between Fifth and Park Avenues. Many galleries and auction houses known throughout the world are located throughout the Upper East Side of the city, as well as in Chelsea, SoHo and Greenwich Village.

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[2] "New York City Region, Empire State Development". www.empire.state.ny.us/Regions_and_Counties/nyc.asp

Transportation

The majority of the labor force resides outside the Manhattan business districts and is in New York City's remaining four boroughs and the neighboring suburbs of Nassau, Suffolk and Westchester Counties, as well as the States of New Jersey and Connecticut. Many commute to the city via some form of mass transportation.

An extensive highway system extends across the five boroughs and connects New York City to major interstates through various alternative routes. MTA subways, buses, and railroads provide 2.63 billion trips each year to New Yorkers – the equivalent of about one in every three users of mass transit in the United States and two-thirds of the nation's rail riders. MTA bridges and tunnels carry nearly 300 million vehicles a year – more than any bridge and tunnel authority in the nation.

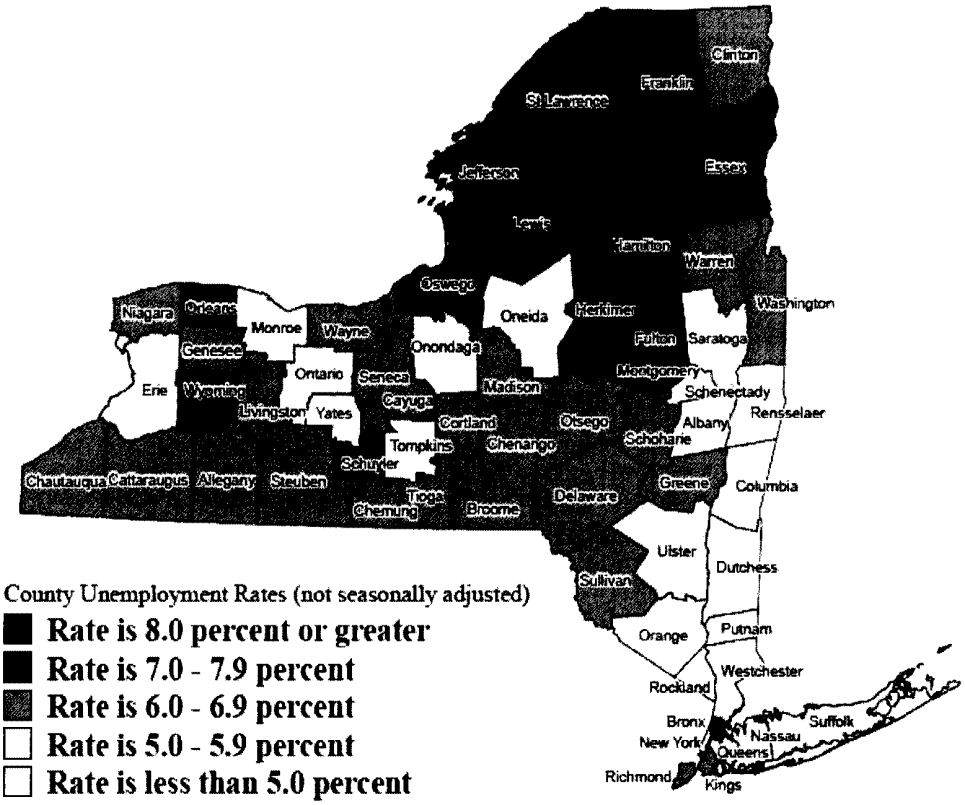
A network of surface and subsurface public transportation grids the city. The New York City Transit Authority and its affiliate, the Staten Island Rapid Transit Operating Authority, operate one of the largest municipal transit systems in the world. This system consists of more than 660 miles of subway tracks and more than 1,871 miles of bus routes, many of which operate 24 hours a day. On a typical business day, more than 7.7 million passengers ride the trains and buses. There were approximately 1.75 billion passengers in 2014 on the subway and almost 667 million passengers on buses according MTA website. In addition, the city operates ferries between Staten Island and lower Manhattan, ferry service is also provided from Yonkers to Battery Park and from New Jersey to Manhattan.

Additionally, the Port Authority Trans-Hudson System (PATH) operates a rapid rail system between New York and several cities in New Jersey. This system provides fast, inexpensive transportation for the many people who commute between New York and New Jersey. Local and express bus service is also available, providing surface transportation to most points within Manhattan and the outer boroughs.

The Port Authority Bus Terminal is located at Eighth Avenue between West 40th and West 42nd Streets, seven blocks north of Madison Square Garden and Pennsylvania Station. The 42nd Street-Times Square area is currently undergoing the Times Square Redevelopment project and the Jacob K. Javits Convention Center is located at Eleventh Avenue between West 34th and 37th Streets.

The three major international airports in the area include LaGuardia and John F. Kennedy Airports in Queens, New York and Newark Liberty Airport in Newark, New Jersey. The annual number of passengers at these airports, ending December 2014, was 117.3 million passengers according to *Monthly Summaries of Airport Activities* of the Port Authority of NY and NJ. This represents an increase of 3.3% over the last 12 months. The region handled 41.9 million internal passengers, breaking the all-time international passenger record set 2013.

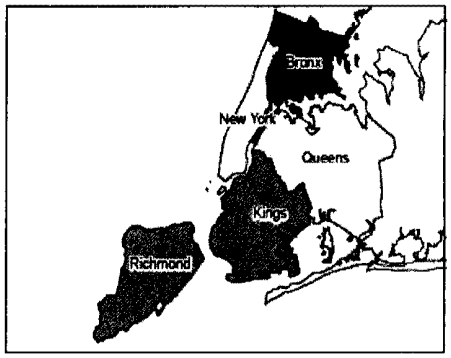
Unemployment Rates by County, New York State, March 2015



County Unemployment Rates (not seasonally adjusted)

- **Rate is 8.0 percent or greater**
- **Rate is 7.0 - 7.9 percent**
- **Rate is 6.0 - 6.9 percent**
- **Rate is 5.0 - 5.9 percent**
- **Rate is less than 5.0 percent**

New York State rate = 5.8 percent



Employment

The economy in New York City is heavily comprised of employment related to the large finance, media and education sectors. In addition to a large number of finance, insurance and real estate jobs, there are a vast amount of service-oriented jobs that cater to those in the businesses as well as the large tourism industry in New York City.

The New York State Department of Labor released preliminary local area unemployment rates for March 2015, which are calculated following procedures prescribed by the U.S. Bureau of Labor Statistics. The state's unemployment rate relies in part on the results of the Current Population Survey, which contacts approximately of 3,100 households in New York State each month.

Private sector employment in New York City rose by 104,200, or 3%, to 3,609,000 for the 12-month period ending March 2015. Jobs grew in educational and health services (+30,200), professional and business services (+26,300), trade, transportation, and utilities (+14,800), leisure and hospitality (+13,700), financial activities (+8,400), other services (+7,100), information (+3,600) and construction (+1,500). Manufacturing (-1,400) was the only sector to lose jobs. Non-private sector, Government employment rose by 3,100.

NYC Employment by Industry - Not Seasonally Adjusted (000's)				
Industry	**March-15**	**March-14**	**Change #**	**Change %**
Natural Resources, Mining and Constructi	123.5	122.0	1.5	1.2%
Manufacturing	74.5	75.9	-1.4	-1.8%
Trade, Transportation, and Utilities	620.0	605.2	14.8	2.4%
Information	187.7	184.1	3.6	2.0%
Financial Activities	452.0	443.6	8.4	1.9%
Professional and Business Services	680.8	654.5	26.3	4.0%
Education and Health Services	878.8	848.6	30.2	3.6%
Leisure and Hospitality	407.8	394.1	13.7	3.5%
Other Services	183.9	176.8	7.1	4.0%
Government	546.0	542.9	3.1	0.6%
Total	**4,155.0**	**4,047.7**	**107.3**	**2.7%**

Sources: Department of Labor NYC

The city's over-the-year picture was positive, with every sector except manufacturing adding jobs for the 12 months through March 2015. The city's over-the-year private sector growth rate (+3.0%) was above comparable rates at the state (+1.9%) and national (+2.6%) levels.

The over-the-year decline in the unemployment rate occurred even as New York City's labor force grew by 2.7%. The 1st quarter of 2015 unemployment rate is lower to 6.6% compared to 7.8% of 1st quarter of 2014 with improving economy and increasing of private sector jobs added.

	Unemployment Rate (%)		
	March-15	**February-15**	**March-14**
United States	5.5	5.5	6.6
New York State	5.7	5.8	6.6
New York City	6.6	6.6	7.8
NYS, Outside NYC	5.1	5.2	5.8

Source: U.S. Bureau of Labor Statistics

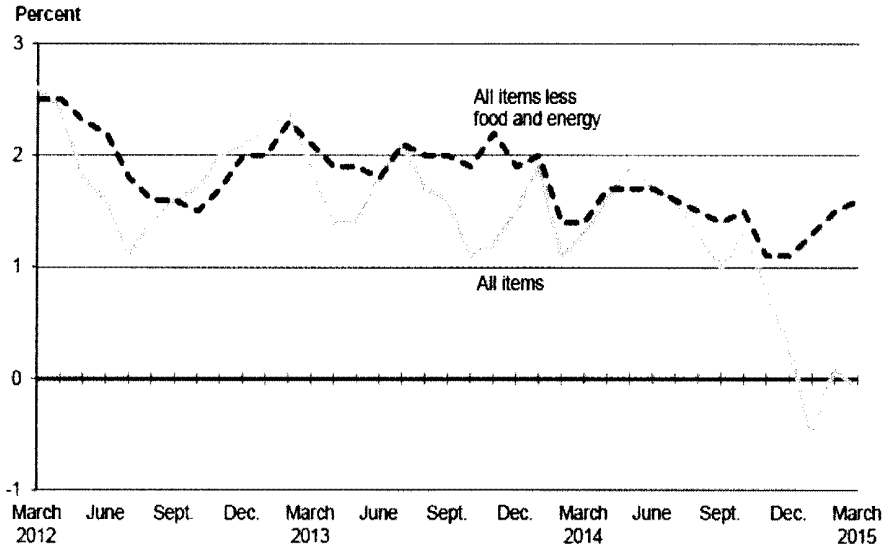
Income

According to *US Census Bureau* website, the median household income in New York State was estimated to be $58,003 in 2013. The borough with the highest median household income in 2013 (most recent available information) was Staten Island with a median household income of $72,596; Manhattan was second with a household income of $69,659. The median household income in Queens and Brooklyn are $57,001 and $46,086 respectively. The borough with the lowest median household income is the Bronx, which was estimated to be $34,388.

The *US Department of Labor, Bureau of Labor Statistics* reported that prices in the New York-Northern New Jersey-Long Island area, as measured by the Consumer Price Index for All Urban Consumers (CPI-U), ticked up 0.2% in March, after a 0.3% increase in February 2015, the U.S. Bureau of Labor Statistics reported. Chief Regional Economist Martin Kohli attributed the rise to higher prices for shelter and other expenditures that were largely offset by lower prices for energy.

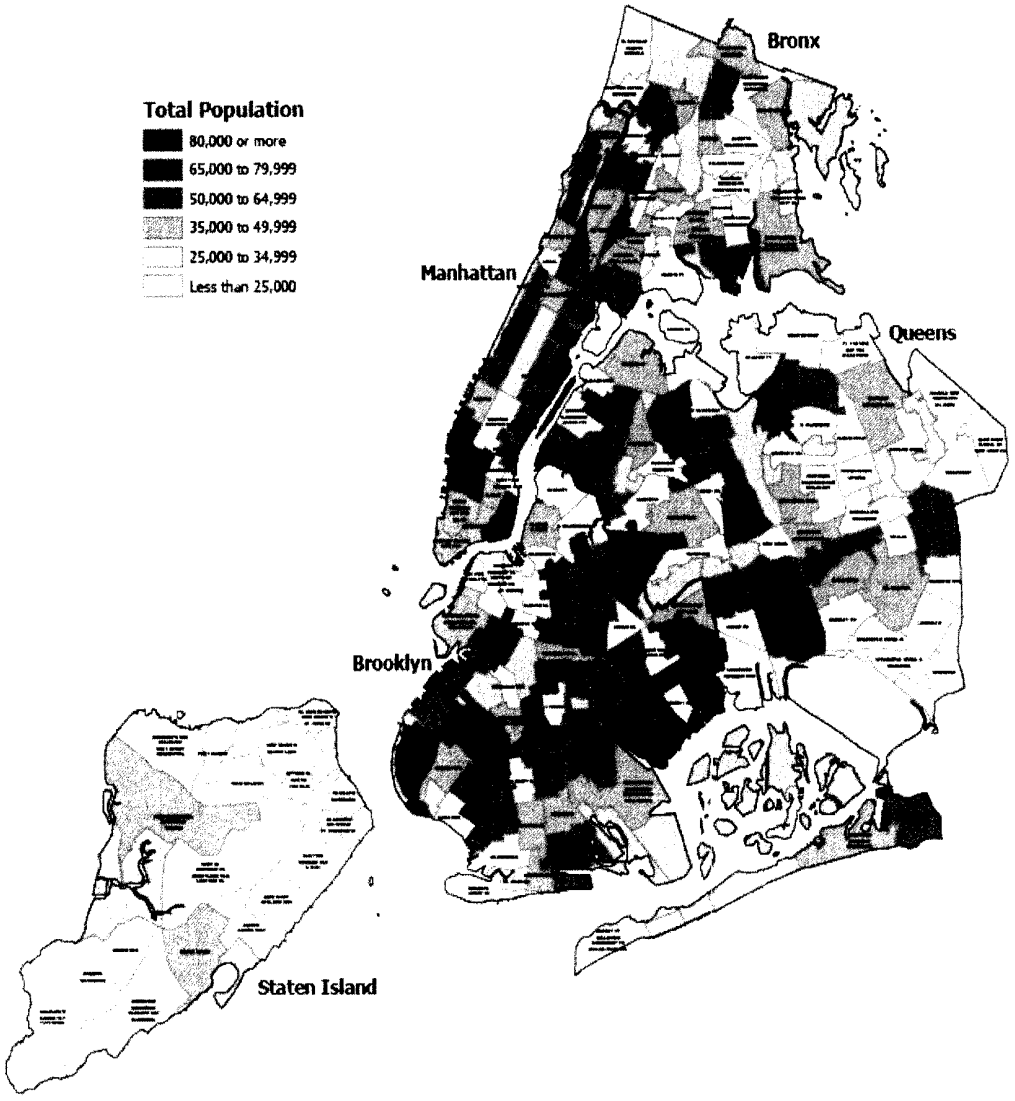
Over the year, the CPI-U inched down 0.1%, and the index for all items less food and energy advanced 1.6%. The 12-month increase in both indexes was primarily attributable to higher prices for shelter.

Chart 1. Over-the-year percent change in CPI-U, New York-Northern New Jersey-Long Island, March 2012–March 2015



Source: U.S. Bureau of Labor Statistics.

PL-P1 NTA: Total Population by Neighborhood Tabulation Area*
New York City, 2010



*Neighborhood Tabulation Areas or NTAs, are aggregations of census tracts that are subsets of New York City's 55 Public Use Microdata Areas (PUMAs). Primarily due to these constraints, NTA boundaries and their associated names may not definitively represent neighborhoods.

Source: U.S. Census Bureau, 2000 and 2010 Census Public Law 94-171 Files
Population Division - New York City Department of City Planning

NYC PLANNING

The five boroughs land use is varied; the entire New York City is developed with primarily 1- to 2-family homes (564,723 lots), with Queens containing the highest number (246,705) and Manhattan having the least (3,719). The land use of New York City as of 2014 is illustrated in below:

Land Use 2014				
		Lot Area		% of
	Lots	Sq. Ft (000)	%	Total Lots
1-2 Family Residential	564,723	1,829,877	27.15%	65.70%
Multi-Family Residential	142,733	832,276	12.35%	16.61%
Mixed Residential/Commercial	48,836	203,787	3.02%	5.68%
Commercial/Office	24,650	247,143	3.67%	2.87%
Industrial	11,464	235,407	3.49%	1.33%
Transportation/Utility	6,679	512,765	7.61%	0.78%
Institutions	12,246	460,941	6.84%	1.42%
Open Space/Recreation	5,007	1,819,726	27.00%	0.58%
Parking Facilities	11,436	88,927	1.32%	1.33%
Vacant Land	28,471	452,190	6.71%	3.31%
Miscellaneous	3,315	56,930	0.84%	0.39%
Total	**859,560**	**6,739,969**	**100.0%**	**100.0%**

Source: NYC Department of City Planning

Demographics

Population

New York City is the most populous city in the nation, with over 8 million residents, and one of the largest populations in the world. It makes up over 42% of the population of the entire state of New York. Between 2000 and 2010, New York City's population reached 8,175,133 an increase of 2.1%. During this decade, the borough with the largest population growth was Staten Island while Queens had the smallest population growth.

The chart below depicts New York City's population change during the past decade, and change between 2010 census and 2013 estimate by the US Census Bureau.

New York City's Population 2010 Population: 8,175,133					
Borough	2000	2010	2013	2000-2010 % Change	2010-2013 % Change
Bronx	1,332,650	1,385,108	1,418,733	3.9%	2.4%
Brooklyn	2,465,326	2,504,700	2,592,149	1.6%	3.5%
Manhattan	1,537,195	1,585,873	1,626,159	3.2%	2.5%
Queens	2,229,379	2,230,722	2,296,175	0.1%	2.9%
Staten Island	443,728	468,730	472,621	5.6%	0.8%
NYC Total	**8,008,278**	**8,175,133**	**8,405,837**	**2.1%**	**2.8%**

Source: US Census Bureau, 2013 number is estimated.

Since 2010, the U.S. Census Bureau estimates that New York City's population increased from 8,175,133 in April of 2010 to 8,405,837 in 2013. This is an increase of 230,704 residents or about 2.8% over the 2010 mark. The largest change in the city's population occurred in Brooklyn, growing by 3.5%, followed by Queens 2.9%, Manhattan 2.5%, and the Bronx 2.4%. Staten Island 0.8% showed the smallest gains since 2010.

NEW YORK CITY ANALYSIS

Location

New York City is located in the southern most portion of New York State, the five counties or boroughs, which were incorporated in 1898 into a single entity, which consist of Bronx County, Kings County (Brooklyn), Queens County, Richmond County (Staten Island) and New York County (Manhattan). All of the boroughs are subdivided into various community districts and unofficial areas/neighborhoods.

New York City has 578 miles of waterfront, while the total area is 304.9 square miles. Queens is the largest with 109.7 square miles and Manhattan is the smallest with 22.8 square miles.

New York City Land Area (in square miles)	
Bronx	42.4
Brooklyn	71.5
Manhattan	22.8
Queens	109.7
Staten Island	58.5
Total	**304.9**

26. In this appraisal assignment, the existence of potentially hazardous material used in the construction or routine maintenance such as the presence of urea-formaldehyde foam insulation, asbestos, and/or the existence of toxic waste, which may or may not be present on the property, was not observed by the appraiser(s); nor do we have any knowledge of the existence of such materials on or in the property. The appraiser, however, is not qualified to detect such substances. The existence of urea-formaldehyde foam insulation or other potentially hazardous waste materials may have an effect on the value of the property. The appraiser(s) urge the client to retain an expert in this field if desired.

14. It is assumed that a final approved survey will be submitted, conforming to the sketches and estimates as represented in this appraisal report.

15. It is assumed that the estimated land area as provided by public records and/or property owners is accurate and was utilized as the total land area throughout this appraisal report.

16. It is assumed that the Gross Building Area (inclusive of common areas) as ascertained from the owners of the property, City records, and the architectural floor plans are accurate and was utilized as the total Gross Building Area throughout this appraisal report.

17. If the reader is making a fiduciary or individual investment decision and has any questions concerning the material contained in this appraisal report, it is recommended that the reader contact the undersigned.

18. Projections, as utilized in this appraisal report, are based on certain assumptions and estimates concerning future events and circumstances. Future valuation estimates may be affected by events that are beyond the control of the property. These may be local, national, or international in scope. It must be understood that actual results achieved during projection periods may vary from those indicated and the variations could be material.

19. That this appraisal report is meant to be presented in its entirety. If this report is presented in any form other than its complete form, it becomes invalid.

20. That this appraisal report represents a summary of the findings of the data gathering process and the appropriate appraisal analysis. All input data would be too voluminous to include in this report. The exclusion of the same does not preclude the appraisers from referring to this data at a future date. If the occasion arises, the appraisers reserve the right to refer to any of the source material used in the preparation of this appraisal to further clarify any item contained in this report.

21. That, to the best of my knowledge and belief, the statements of fact contained in this appraisal report upon which the analysis, opinions, and conclusions are based, are true and correct; subject to the statement of Assumptions and Limiting Conditions herein set forth.

22. That this appraisal report sets forth all Limiting Conditions (imposed by the terms of our assignment or by the undersigned) affecting the analysis, opinions, and conclusions expressed herein.

23. Demographic and economic projections used herein may be based in whole or in part on information obtained from outside sources. The undersigned takes no responsibility for the accuracy of this information.

24. Unless agreements have been made previously, the appraiser(s) will not be required to give testimony or appear in court as a result of having made this appraisal with reference to the property in question. Additionally, this appraisal report was not prepared for court submission purposes.

25. Possession of this appraisal report, or a copy thereof, does not carry with it the right of publication. This appraisal may not be used for any other purpose or any person other than the party to whom it is addressed without the written consent of the appraiser(s) and, in any event, only with properly written qualifications and in its entirety.

LIMITING CONDITIONS

1. That no survey of the property has been made by the appraisers and no responsibility is assumed in connection with such matters. Representations in this appraisal report are included only to assist the reader in visualizing the property.

2. That no responsibility is assumed for matters of a legal nature affecting title to the property nor is an opinion of the title rendered.

3. That information furnished by others is assumed to be true, correct and reliable. A reasonable effort has been made to verify such information; however, no responsibility for its accuracy is assumed by the appraisers.

4. That all mortgages, liens, encumbrances, leases, and servitude have been disregarded unless so specified within this appraisal report. The property is appraised as though responsible ownership and competent management are in place.

5. It is assumed that there are no hidden or non-apparent conditions of the property, subsoil, or structures, which would render it more or less valuable. No responsibility is assumed for such conditions or for the engineering that may be required to discover them.

6. It is assumed that there is full compliance with all applicable federal, state, and local environmental regulations and laws unless nonconformity has been stated, defined, and considered in this appraisal report.

7. It is assumed that all applicable zoning and use regulations and restrictions have been complied with, unless nonconformity has been stated, defined, and considered in this appraisal report.

8. It is assumed that all required licenses, consent, or other legislative or administrative authority from any local, state, or national governmental or private entity or organization have been, or can be, obtained or renewed for any use on which the value estimate contained in this appraisal report is based.

9. It is assumed that the utilization of the land and improvements are within the boundaries or property lines of the property described and that there is no encroachment or trespass unless noted within the appraisal report.

10. It is assumed that the existing improvements conform to the Certificate of Occupancy as issued by the appropriate municipal agency.

11. It is assumed that the subject property rental information as furnished to the appraisers is accurate.

12. It is assumed that all of the necessary and required permits and licenses are, or will be, in full force and effect.

13. It is assumed that the forecast income and operating expense estimates are based, in part, upon projections based upon local conditions obtained through contractors, vendors, and those usually in contact with similar apartment project operations.

ESTIMATED MARKETING TIME

According to Statement 6 and Advisory Opinion G-7 of the Appraisal Standards Board of the Appraisal Foundation, marketing time and exposure time are separate and distinct concepts. The estimate of marketing time is separate from the appraisal process and pertains to the period immediately following the effective date of the appraisal.

A review of subject's area and surrounding markets transfer records suggests that the volume of transactions is strong, which confirms the presence of an active investor market for most forms of commercial real estate. The subject property is being valued as a commercial building fully capable of sustaining its current and/or projected rental income. Market activity, as presented within the Sales Comparison Approach section of this report, suggests that there is a demand for such properties and that conventional financing is available. Our appraisal of the subject property reveals no factors that would reasonably suggest that the subject property is not marketable. Accordingly, we believe, that if priced appropriately (that is to say, the appraised value), the subject property could sell within a reasonable period of time, which we consider to be 3-6 months. We acknowledge that in appraising the property to sell within 3-6 months, we must place most emphasis on the buyer's expectations and yield requirements.

The final conclusion of value is well supported by the Sales Comparison Approach and the Income Capitalization Approach, clearly indicating that the investment decisions relied upon the appraisal is market oriented. This further supports the notion that the property has indeed been appraised at a value that could be accomplished within 3-6 months. Therefore, assuming aggressive exposure and realistic asking price, the estimated marketing time for the subject property is also estimated at approximately 3-6 months.

EXTRAORDINARY ASSUMPTIONS

An extraordinary assumption is defined by the Uniform Standards of Professional Appraisal Practice as "an assumption, directly related to a specific assignment, which, if found to be false, could alter the appraiser's opinions or conclusions. Extraordinary assumptions presume as fact otherwise uncertain information about physical, legal or economic characteristics of the subject property, or about conditions external to the property, such as market conditions or trends; or about the integrity of data used in an analysis". This appraisal assumes the buildings will be constructed according to the architectural plans.

HYPOTHETICAL CONDITIONS

A hypothetical assumption is defined by the Uniform Standards of Professional Appraisal Practice as "that which is contrary to what exists but is supposed for the purpose or analysis. Hypothetical conditions assume conditions contrary to known facts about physical, legal, or economic characteristics of the subject property or about conditions external to the property, such as market conditions or trends; or about the integrity of data used in an analysis." This appraisal employs no hypothetical conditions.

processed in professionally recognized and acceptable approaches to value. The appraiser believes that the data used in this report accurately reflects the market.

DEFINITIONS

Market Value, for the purposes of this appraisal report, can be generally defined as "The most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition are the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

1. Buyer and seller are typically motivated;
2. both parties are well informed or well advised, and acting in what they consider their own best interests;
3. a reasonable time is allowed for exposure in the open market;
4. payment is made in terms of cash in United States dollars or in terms of financial arrangements comparable thereto; and
5. the price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale. (USPAP, 2013-14 edition)

EXPOSURE TIME

Exposure Time is defined as: "The estimated length of time the property interest being appraised would have been offered on the market prior to the hypothetical consummation of a sale at market value on the effective date of the appraisal; a retrospective estimate based upon an analysis of past events assuming a competitive and open market."[1]

It should be noted that exposure time varies for different property types and under changing market conditions. Additionally, exposure time is always presumed to proceed the effective date of the appraisal. Finally, in estimating a reasonable exposure period, consideration must be given to price, time and use, and not just an isolated estimate of time.

In estimating exposure time, we have considered information obtained through verification of the comparable sales, interviews with market participants when possible, land published investor surveys. It should be noted that information from the comparable sales was limited. As a result, the appraisers have held discussion with area brokers and property owners in relation to overall marketing time.

Based on these considerations, we have concluded a reasonable exposure for the subject property is three to six months. Local brokers familiar with the subject property indicated a much more optimistic time frame, depending on asking price and terms. Our conclusion is judged reasonable in lieu of the overall market. The market value stated herein assumes the above exposure time.

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[1] The Dictionary of Real Estate Appraisal (5th Edition; 2010) Appraisal Institute, page 73.

INTENDED USE OF THE APPRAISAL

This appraisal will be used by 88 Ave Realty, LLC, the intended user, for decision-making purposes with respect to EB5. The intended users of this report is 88 Ave Realty, LLC. All other uses and users are unintended.

SCOPE OF THE APPRAISAL

The services rendered in connection with this appraisal involved a site inspection and inspection of the improvement, field visits to the neighborhood and market area comprising the subject, a study of current market and neighborhood trends and opportunities; and a review of applicable zoning ordinances and real estate assessment per review of City published zoning maps and discussions with City tax personnel.

The Income Approach was used to estimate the value of the subject as an income-producing property. The subject property contains a commercial building and an apartment building. The appraiser has conducted a survey of commercial and residential property rentals in the subject area. The adjusted rentals are utilized to establish market rents for the subject to compare to the current tenant-occupied units, as well as applying the market rent to owner occupied and vacant units as of the effective date. After the potential gross income is determined, estimated expenses are then subtracted to produce a net operating income. Estimated expenses were based on industry standards, expense comparables, expense statement provided by the property owner and on the appraiser's experience with similar properties. A capitalization rate was determined via the Mortgage-Equity technique and by comparison to current competing rates of return. Properties of this type are usually bought and sold on the basis of their income, and it is therefore considered to be a reliable approach.

For the purposes of the Direct Sales Comparison Approach, research was conducted for recently transacted sales of commercial buildings and apartment buildings in the immediate neighborhood. The most appropriate unit of comparison is the price paid per square foot due to the nature of the subject. Appropriate adjustments are made between the sales and the subject after the appraiser has visited each sale. This approach is considered to be a good indication of value since it reflects the motivations of buyers and sellers in the marketplace.

In the Cost Approach, replacement cost estimates from the Marshall & Swift cost manual are usually utilized, along with estimates of land value based on comparable land sales. However, estimating costs and depreciation for a building of the subject's age is often very subjective and inaccurate. In addition, minimal land sales in the area further inhibits this approach. Therefore, this approach is precluded from this appraisal assignment. It must be noted that, although the Cost Approach is not performed in this report due to the fact that it is not applicable in subject property's condition and building age, the appraisal opinion does not invoke the departure from Uniform Standard of Professional Appraisal Practice Standard Rule 1-1. The appraiser already considers the applicability of the approach. Necessary communication has been made to the client to explain that the Cost Approach is not applicable in this appraisal and it does not significantly affect the reliability of the final reconciled estimated market value via the Sales and Income Approach. The client does not require the appraiser to eliminate the performance of this approach and invoke the Departure Rule of USPAP.

Public records, multiple listing service, newspapers and data systems of other appraisal firms, as well as our own, were searched and property owners, managers, developers, and real estate brokers were contacted, in order to obtain rental information and sales data presented in this report. The data is

IDENTIFICATION OF THE PROPERTY

148-44/48 Hillside Avenue is located on a rectangular shaped lot on the south side of Hillside Avenue between 148th Street and 150th Street, in the Jamaica neighborhood of Queens, City and State of New York. The site is identified on the Queens County Tax Maps as Block 9694, Lot 26. The site has a frontage of 45± feet on Hillside Avenue and a depth of 95± feet. The lot size is 4,275± square feet. The subject is located within census tract 0238.00. The site is generally level at grade and improved with all available public utilities including city sewers.

148-31/43 88th Avenue is located on an irregular shaped lot on the north side of 88th Avenue between 148th Street and 150th Street, in the Jamaica neighborhood of Queens, City and State of New York. The site is identified on the Queens County Tax Maps as Block 9694, Lot 49. The site has a frontage of 140± feet on 88th Avenue, a frontage of 10± feet on 150th Street and a depth of 190± feet. The lot size is 24,554± square feet. The subject is located within census tract 0238.00. The site is generally level at grade and improved with all available public utilities including city sewers.

PROPERTY RIGHTS APPRAISED

We have appraised the Leased Fee interest in the subject property. Leased fee interest is defined as "A freehold (ownership interest) where the possessory interest has been granted to another party by creation of a contractual landlord-tenant relationship".

EFFECTIVE DATE OF APPRAISAL

The effective date of this appraisal report is August 15, 2015, the date of the inspection. This report is subject to the property's conformance to all municipal requirements and representations as presented herein.

HISTORY OF THE PROPERTY

The subject property is known as 148-44/48 Hillside Avenue and 148-31/43 88th Avenue, in the Jamaica neighborhood of Queens, City and State of New York. The property was transferred on May 8, 2014 between IKI Associates LLC, as grantor, and 88 Ave Realty LLC, as grantee. The reported sale price was $5,420,000.

PRIOR ASSIGNMENT DISCLOSURES

I have performed no (or the specified) services, as an appraiser or in any other capacity, regarding the subject of this report within the three-year period immediately preceding this assignment.

PURPOSE AND FUNCTION OF THE APPRAISAL

The purpose of this appraisal report is to estimate the Land Value, the Gross Sellout Value Upon Completion and the Fallback Rental Value of the leased fee interest of the subject property. The function of this appraisal is to provide information to 88 Ave Realty, LLC. It does not possess any personal property, fixtures and/or intangibles. Hence the appraisal does not include appraisal of personal property, fixtures or intangibles.

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SUMMARY OF SALIENT FACTS AND CONCLUSIONS

Property Location:	148-44/48 Hillside Avenue & 148-31/43 88th Avenue Jamaica, NY 11435
Block – Lot:	9694 – 26 & 49
Effective Date of Appraisal:	August 31, 2015
Date of Report:	September 2, 2015
Owner of Record:	88 Ave Realty Inc.
Rights Appraised:	Leased Fee Interest
Zoning:	C2-3/R7A/DJ Commercial Over Residential District
Flood Zone	36081-0233 – Unshaded Zone X *Area of minimal flood hazard*
Census Tract #	0238.00
Land Area:	Lot 26: 4,275± square feet – 45' x 95' Lot 49: 24,554± square feet – 140' x 190' Total of 28,829± square feet
Improvements:	Lot 26: According to the architectural plans, the subject building will improved with a 6-story plus legal cellar, elevator, commercial building contains 1 retail store, 9 community facilities and 3 offices. Lot 49: According to the architectural plans, the subject building will improved with a 8-story plus cellar, elevator, apartment building contains 109 apartments and 55 parking spaces
Condition:	New
Gross Area:	Lot 26: 17,373± gross square feet above grade Lot 49: 98,652± gross square feet above grade Total of 116,025± square feet
Real Estate Taxes:	[redacted] (b)(4)

reporting requirements set forth under Standards Rule 2-2 of the Uniform Standards of Professional Practice for an appraisal report. As such, the accompanying report includes the pertinent data secured in our investigation, as well as the exhibits and the details of the processes used to arrive at our conclusion of value.

As a result of the examination and study performed, it is our opinion that the Gross Sellout Value Upon Completion of the subject property, anticipated on or about September 1, 2017 is:

[redacted] (b)(4)

Respectfully submitted,

Betsy Mak, MAI, AI-GRS, AI-RRS
Certified General Real Estate Appraiser
New York Certification #46-43206

BETSY MAK APPRAISAL GROUP LLC

Mailing Address: P.O. Box 1491, Flushing, NY 11354
Queens Office: 136-20 38 Ave #8A, Flushing, NY 11354
Tel: (718) 886-2800
Fax: (718) 352-0063
Website: www.BETSYMAK.com
Email: BETSYMAK@HOTMAIL.com

September 2, 2015

88 Ave Realty, LLC
148-44/48 Hillside Avenue
& 148-31/43 88th Avenue
Jamaica, NY 11435

Re: 88 Ave Realty, LLC
148-44/48 Hillside Avenue
& 148-31/43 88th Avenue
Jamaica, NY 11435

To Whom It May Concern:

At your request, we have completed an Appraisal Report for the above referenced property. The appraisal states the opinion of the property's Market Value subject to the various Assumptions and Limiting Conditions set forth in the accompanying report. The accompanying report includes the pertinent data secured in our investigation, as well as the exhibits and the details of the processes used to arrive at the conclusion of value.

148-44/48 Hillside Avenue is situated on the south side of Hillside Avenue, in the Jamaica neighborhood of Queens, City and State of New York. The sites are identified on the Queens County Tax Map as Block 9694, Lot 26. The subject site is a rectangular shaped 4,275± square feet parcel of land. According to the architectural plans, the subject building will improved with a 6-story plus legal cellar, elevator, commercial building contains 1 retail store, 9 community facilities and 3 offices with a total gross building area of 17,373± square foot. The construction anticipates to be completed on or about September 1, 2017.

148-31/43 88th Avenue is situated on the north side of 88th Avenue, in the Jamaica neighborhood of Queens, City and State of New York. The sites are identified on the Queens County Tax Map as Block 9694, Lot 49. The subject site is an irregular shaped 24,554± square feet parcel of land. According to the architectural plans, the subject building will improved with a 8-story plus cellar, elevator, apartment building contains 109 apartments and 55 parking spaces with a total gross building area of 98,652± square foot. The construction anticipates to be completed on or about September 1, 2017.

We have appraised the Gross Sellout Value Upon Completion and the Fallback Rentals of the leased fee interest in this property for EB5 purpose. This report conforms to the current Uniform Standards of Professional Practice and the Financial Institutions Reform, Recovery and Enforcement Act of 1989 (FIRREA). As per prior agreement, this is an appraisal report, which is intended to comply with the

APPRAISAL REPORT OF

148-44/48 HILLSIDE AVENUE
& 148-31/43 88th AVENUE
JAMAICA, NY 11435

AS OF AUGUST 31, 2015

REGIONAL CEN R: CENTURY NEW YORK CITY REG. NAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: 88TH AVE EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 8

Feasibility Study

The purpose of these documents is to show the viability of the project.

- **Appraisal Report** prepared by Betsy Mak Appraisal Group LLC, dated September 2, 2015

100% Recycled
30% PCW

Lynn Wei, Director of Marketing and Business Development

Lynn Wei is the CNYCRC's director of marketing and business development. Ms. Wei is responsible for a full spectrum of business development initiatives including creating and overseeing international marketing strategies for all CNYCRC project offerings. She is also involved in managing client relations. Ms. Wei is also a senior business development associate at the Century Development Group. In this capacity, she focuses on creating Request for Proposals and general marketing materials, as well as developing a customer analytical database, and implementing strategic marketing and communication initiatives. Ms. Wei graduated with a Master of Science degree in Economics from Brooklyn College, City University of New York and a Bachelor of Administrative Degree in Marketing from Shanghai Finance University

David Pan, Vice President

David Pan is a vice president of CNYCRC. He has over 15 years of experience in fixed-income securities trading and risk management. Mr. Pan has worked in various roles at Credit Suisse, Citigroup, Deutsche Bank and the hedge fund industry. Formerly a Director at Credit Suisse in the Strategic Risk Management division covering Residential Mortgage Backed Security (RMBS) business, he was instrumental in developing models and methodologies in assessing the firm's risk exposure to the mortgage security market. Prior to his Wall Street career, Mr. Pan spent
10 years as a senior software engineer responsible for the development of the state-of-the-art fixed-income security trading and analytics software systems. He graduated with a Bachelor's degree in Computer Science from Queens College, City University of New York.

Anthea Quan, Accounting Controller

Anthea Quan serves as the director of accounting controller for CNYCRC. She is responsible for the accounting, financial reporting, and audit functions. Ms. Quan also performs management of operating cash flow and financial analysis for development projects and investor distribution. She is passionate about accounting and has experience working with a variety of small businesses. Ms. Quan graduated from Yanbian University in China with a bachelor of mathematics. She is fluent in Chinese, English and Korean.

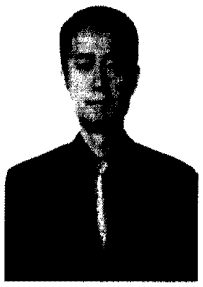
Tracy Law, Director of Project Management

Tracy Law is the director of project management of CNYCRC. Ms. Law is responsible for a full spectrum of the operation to ensure projects are done on time and within budget. Her constant communication with contractors and architects provides a strong network of relationships in the field. She is responsible for supervising and coordinating OS&E and FF&E. She is integral in bringing new hotels to full operation. Ms. Law graduated with a Bachelor of Science degree in Accounting from Queens College, City University of New York.

Qili Li, MD, Regional Center Principal

Qili Li, MD, FACOG, is a principal of CNYCRC. Dr. Li has been in private practice for more than 15 years specializing in the field of Obstetrics and Gynecology in downtown Flushing, Queens County, New York City. Dr. Li attended the Sophie Davis School of Biomedical Education. She graduated Magna Cum Laude. After receiving her Medical Doctor degree from New York Medical College, Dr.Li completed her internship and residency training in Obstetrics/Gynecology at North Shore University Hospital at Manhasset, New York. Dr.Li is board certified in the specialty of Obstetrics/Gynecology. She is also a fellow of the American College of Obstetrics/Gyneoclogy (ACOG). In recent years, Dr. Li has expanded her interest/investment into real estate. She is currently involved in several real estate development projects ranging from high end condominiums to hotel construction.

James Ho, Vice President



James Ho is a vice president of CNYCRC. Mr. Ho's role in the CNYCRC is to provide oversight of operations, maintain cohesion between the project's developer, general contractor, law and accounting firms, and to ensure overall compliance. Mr. Ho has extensive experience in computer programming, securities trading, and security related business. Currently, he is involved in real estate development of several projects in the New York City area. Mr. Ho graduated from Polytechnic University with a major in Electrical Engineering and Computer Science.

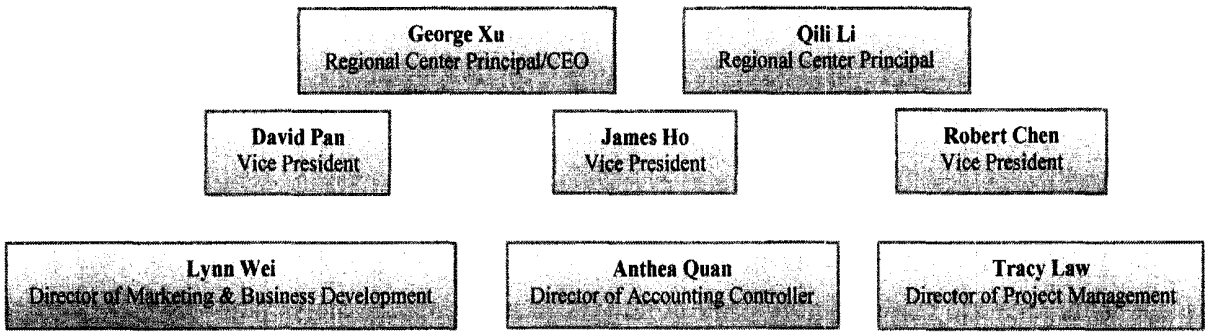
Robert Chen, Vice President

Robert Chen works for CNYCRC as the vice president, who oversees the overall operations of the Regional Center. He's also in charge of due diligence and evaluating potential projects and determining business feasibilities. Prior to joining CNYCRC, Mr. Chen had over 10 years' experience in a senior management position with FedEx. He has owned, managed, and operated companies in computer wholesale and repair business. Mr. Chen received his Bachelor of Science degree in Environmental Health Science from City University of New York.

SECTION VI: MANAGEMENT AND CORPORATE STRUCTURE

The business organizational structure and personnel experiences are as follows:

Business' organizational structure and its personnel's experience



George Xu, CEO/Regional Center Principal

George Xu is the founder and the principal of the Century New York City Regional Center (CNYCRC). Mr. Xu is also the founder and the President of Century Development Group, a real estate development company based in New York City. With nearly 20 years of real estate holding and development experience, he has worked on over a million square feet of real estate developments; mixed-use developments including residential, hospitality, office, and retail. He has also worked in all phases of assembly, acquisition, finance, design, construction, marketing, and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters, and he provides marketing oversight and policy guidance for the Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and Computer Science and a Master of Science degree in Computer Science from Polytechnic University, New York.

Rental Income	
Total All figures based on unrounded numbers	

CONSTRUCTION AND OPERATION IMPACTS

Construction Impacts

Revised construction costs as provided by the Client are itemized. Please see the Economic Studies for details. Approximately 88% of the project's development budget can be claimed as having an economic impact to the Region. The adjustment was made by excluding debt service reserves, property taxes during construction and a portion of the estimated financing costs.

Annual Operations Impacts

Projected Year 5 operating revenues total [redacted] and represent an impact to final demand. It can be assumed that in the range of 40% to 45% of these annual operating costs for the hotel represent personnel/labor costs.

To sum up, the Jamaica project will create [redacted] jobs, including [redacted] obs from direct and indirect from construction employment, and [redacted] direct and indirect jobs from operation. The project intends to raise [redacted] from [redacted] EB-5 investors.

(b)(4)

Table 9-3 below shows there will be a total of [redacted] jobs created from operations, of which boh direct/indirect jobs.

Table 9-3. Increase in Employment, Output, and Earnings for Hotel Operations

Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

C. Jobs Requested by the EB-5 Project

Based on the discussion above, **the requested job creation attributable to the regional center entity totals [redacted] This total consists [redacted] jobs from hard construction, [redacted] jobs from soft construction costs, and [redacted] jobs from direct and indirect employees.**

Table A. Summary of Employment and Revenue Estimates

Activity	Exp/Rev mil cur $	Exp/Rev mil 2010 $	RIMS II Mult	Total Jobs	Direct Jobs
Hard construction costs	[redacted]		13.2149	[redacted]	
Architect & Engineering Svcs			11.9014		

(b)(4)

Arts, entertainment, and recreation	
Accommodation	
Food services and drinking places	
Other services	
Household	
Total	

Table 8-6. Output and Earnings per New Worker for Soft Construction Costs for Building

Industry group	Employment	Output/Empl	Earnings/Empl
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

(b)(4)

B. Jobs Arising from Rental Income

Through application of the EB-5 Program criteria described above to the total jobs created by the Jamaica Project's rental income, the analyst concluded that the direct and indirect jobs created within the geographic boundaries of the regional center may be considered attributable to the regional center entity.

Finance and insurance	
Real estate and rental and leasing	
Professional and scientific services	
Management of companies	
Admin and waste mgmt services	
Educational services	
Health care and social assistance	
Arts, entertainment, and recreation	
Accommodation	
Food services and drinking places	
Other services	
Household	
Total	

Table 8-5 below shows there will be a total of [redacted] jobs created from the architectural, engineering, and design fees for the building. Output would rise about [redacted] while household earnings would increase by about [redacted] Table 8-6 shows the average output per new worker is about [redacted] while average earnings are about [redacted]

Table 8-5. Increase in Employment, Output, and Earnings for Soft Construction Costs for Building

Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			

Table 8-3. Increase in Employment, Output, and Earnings for Hard Construction Costs for Building			
Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

Table 8-4. Output and Earnings Per New Worker, Hard Construction Costs for Building			
Industry group	Employment	Output/Empl	Earnings/Empl
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			

DIRECT AND INDIRECT JOBS

Table A below presents the job creation associated with the Jamaica Project . Table A shows the annual revenue, the final demand multiplier, and the total number of jobs created by the construction, hotel operations, and rental income of the building. Since the construction will take more than 24 months, the economic impact figures for the hard construction costs and appropriate soft costs include direct as well as indirect and induced jobs. All figures are permanent jobs. The number of jobs created as a result of the Jamaica Project was determined using the RIMS II model. (b)(4)

Table A. Summary of Employment and Revenue Estimates

Activity	Exp/Rev mil cur $	Exp/Rev mil 2010 $	RIMS II Mult	Total Jobs	Direct Jobs
Hard construction costs			13.2149		
Architect & Engineering Svcs			11.9014		
Rental Income			13.0752		
Total					
All figures based on unrounded numbers					

JOBS REQUESTED BY THE EB-5 PROJECT

A. Jobs Arising from Construction Activities

In the case of the Jamaica Project , construction activity lasts for more than two years. Since the construction period will take more than 24 months, direct as well as indirect and induced jobs may be included in the EB-5 job count for hard construction costs (although not for FF&E) for each NAICS activity associated with the project's construction activities.

Table 8-3 below shows there will be a total of [ ] jobs would be created from the hard construction costs of the building. Output would rise about [ ] while household earnings would increase by about [ ] Table 8-4 shows the average output per new worker is about [ ] while average earnings are about [ ]

SECTION V: EMPLOYMENT AND JOB CREATION

(b)(4)

Based on the EB-5 Economic Impact Studies conducted by Evans, Carroll & Associates, Inc., the Jamaica Project will create [redacted] jobs, including [redacted] jobs from direct and indirect from construction employment, and [redacted] jobs from direct and indirect employees. The project intends to raise [redacted] from [redacted] EB-5 investors.

(b)(4)

The project is a mixed-use development. It is complex in terms of estimating its job creation effects. From permanent operations, impacts to final demand include the hotel, a real estate management entity that will lease commercial space, manage the condominium association and parking garage, plus the business operations of retail tenants. The issue of how the community center/space will be operated and whether income projections from that facility will be sufficient to support permanent employment are discussed in the Economic Impact Studies. In addition, the tenant-created employment is not included in the total calculation of the EB-5 capital raise.

The economic impact of the project was assessed and tabulated by Michael K. Evans of Evans, Carroll & Associates, Inc. Dr. Evans, Chairman of the company since 1980, is a specialist in EB-5 immigration analysis and economic impact studies of development projects and new construction. Dr. Evans holds a Ph.D. in Economics from Brown University and was an Assistant and Associate Professor of Economics at Wharton School, University of Pennsylvania. He was also Chief Economist at American Economics Group from 2000-2008. Please see Dr. Evans resume attached at **Exhibit 6**.

THE RIMS II INPUT/OUTPUT MODEL

Economic and job creation impact modeling to determine the likely economic and job creation impacts associated with the EB-5 project was performed using the RIMS II Input/Output model. RIMS II is widely used in both the public and private sector. In the public sector, for example, the Department of Defense uses RIMS II to estimate the regional impacts of military base closings. State transportation departments use RIMS II to estimate the regional impacts of airport construction and expansion. In the private-sector, analysts and consultants use RIMS II to estimate the regional impacts of a variety of projects, such as the development of shopping malls and sports stadiums.

The Project will receive the following permits:

Work Permits Schedule for Holiday Inn		
Permit:	Description:	Estimate Date:
Plan Approval		Oct-15
P-R Plan Review Application Receipt	Tree protection during construction	Nov-15
New Building Permit	To build new construction building	Jan-16
This is a vacant lot, so it's unnecessary to get a demo permit.		

(ii) **Satisfactory Compliance with *Matter of Ho*:**

Mr. George Xu has the appropriate qualifications that validate his position as an expert in the field, he is therefore in a position to be an authority on the construction budget and timeline.

In addition, George Xu's statement satisfactorily complies with the *Matter of Ho* in terms of comparison studies of the business described. On page 9 of the *Matter of Ho*, the submitted documents shall contain *"a comparison of competition's products."* And *"set forth the business' organizational structure and its personnel's experience"*. The letter and professional profile includes Mr. George Xu's previous experience and construction timeline and the attached documentation for Century Construction Group verifies their ability to accurately assess the construction budget based on the comparison studies of similar projects in similar locations.

PERMITS AND LICENSES

In New York City the construction is "as of-right" development which complies with all applicable zoning regulations and does not require any discretionary action (special permit or variance) by the City Planning Commission or Board of Standards and Appeals for approval. Assuming that the project complies with all other Code and Zoning regulations, the NYC Department of Buildings Plan Examiner Plan Examiner will approve the Plans, further to the architect's construction detailed blueprints and renditions.

It is not necessary for the project to seek the additional approvals of the City Planning Commission, or of the Local Community Board, or of any other outside party of interest. If the project complies with the applicable Zoning Laws currently in force, the developer is entitled to build. Therefore building permits are only valid for a limited amount of time and the project will apply for the relevant permits prior to the commencement of the construction activities.

September 15, 2015

Attention: EB-5 Unit
U.S. Citizenship and Immigration Services
California Service Center
Department of Homeland Security
24000, Avila Road, Room 2312
Laguna Niguel, CA 92677

Re: Jamaica Project / Mixed Use Condo, Retail, Medical office Development
148-44/46 Hillside Avenue, Jamaica, NY 11435
148-31/43 88th Avenue, Jamaica, NY 11435

Dear CSC EB-5 Unit Officer:

Century Construction Group was hired by 88th Ave Realty LLC as the general contractor on the above-referenced Project. I am the president of Century Construction Group and have worked in the construction industry for twenty years and have supervised, managed and/or constructed. My experience includes hospitality, commercial interior and residential projects. I have constructed similar projects to the proposed Jamaica Project in term of size, budgets and timeline. These projects include the Marriot Fairfield Inn, the Leavitt Manor Condominium and the Farrington Estate, all located in Flushing. I have been asked by 88th Ave Realty, LLC to provide you with some information concerning the Project in connection with certain funding obtained by EB-5.

Century Construction Group has advised that hard construction cost estimate would be [redacted] (b)(4)
The construction timeline is 27 months. This mixed used building consists of one eight-story residential building and one six-story retail and community/medical office building . The residential building will include 109 units of luxury condominium with exercise room, reading room, parking spaces and laundry room. The retail and community/medical office building will include retail spaces, community facility spaces, medical office spaces and parking spaces. The property is vacant land now and the excavation is scheduled to begin in December of 2015. I attest that the construction budgets and timeline are estimated based on established industry standards.

Very Truly Yours,

George Xu
President

35-06 Leavitt St., Suite CF-A Flushing, NY 11354
Tel: (718) 939 1060 Fax: (718) 939 1036
www.centurygroupdevelopment.com

budget was estimated by **Century Construction Group.** This was based on their previous experience of projects similar in size and nature and scope. [1]

Century Construction Group has worked in the construction industry for twenty (20) years and has supervised, managed and/or constructed similar projects to the Jamaica project, such as the Marriot Fairfield Inn, Leavitt Manor Condominium, and Whitestone Tower Condominium, which are all located in Flushing.

(i) Mr. George Xu is an Expert in the Field.

Founded and headed by George Xu, Century Development Group is an integrated Real Estate Development Company. Since the late 1990's, Mr. Xu has been involved in the developments of residential, commercial, mixed-use and hospitality projects primarily in the borough of Queens, New York. To date, George Xu has worked on over a million square feet of real estate developments; mixed-use developments including residential, hospitality, office, and retail. The total value of his completed projects is calculated to be over [redacted] The net worth of his current and developing projects is anticipated to be over [redacted] The total asset of his projects is over [redacted]

(b)(4) (b)(4) (b)(4)

Mr. George Xu is the owner of the Jamaica project and the owner of the proposed Century New York City Regional Center. With over 20 years of real estate holding and development experience, he has worked on over a million of square feet of real estate developments; mixed-use developments including residential, hospitality, office, retail, and in all phases of assembly, acquisition, finance, design, construction, marketing and sales. Mr. Xu's projects have involved close collaboration with the City of New York, as well as the State of New York on issues including zoning, land use, and environmental matters. Mr. Xu provides marketing oversight and policy guidance for the Century New York City Regional Center's operations. Mr. Xu holds a Bachelor of Science degree in Electrical Engineering and a Master of Science degree in Computer Science from Polytechnic University, New York.

Please see the snapshot of the verification letter below.

[1] Please see Exhibit 14 – Verification Letter and supporting documents.

(b)(4)

Soft Cost :		
Architect & Engineer (including Enviornmental MTA)		
Admin (Accounting etc.)		
Appraisal		
Bank Engineer		
Permit & Survey		
Real Estate Tax		
Insurance		
Title Insurance		
Bank Legal		
Borrower Legal		
Mortgage Recording Tax		
Bank Fee		
Interest Reserve		
(B)	**Total Soft Cost :**	**$**
Total Construction Cost (A)+(B) :		**$**
(C)	**Land Value :**	**$**
Total Project Cost (A)+(B)+(C) :		**$**

The Project hard construction costs prepared by ***Century Construction Group*** have been estimated to be [redacted] and the estimated time to complete the construction will be within **27 months**.

(i) **Analysis Method of the Construction Timeline and Costs**

The construction timeline is estimated to be 27 months excluding the time to demolish the existing structure. The construction budget for the project is estimated at [redacted] The mixed-used development will include two buildings: one building will be a six-floor commercial space with 17,099 rentable sf. The second building will be an eight-floor residential building with 109 units and 84,709 sf. The total building gross size is 101,808 sf. The buildings will include retail spaces, office spaces, residential spaces, community facilities, and parking spaces. The construction of the Project will take approximately 27-months to complete. The construction

(b)(4)

(b)(4)

11. MECHANICAL

11.01 HVAC system as per drawings
11.02 Provide and install exhaust & fresh air system as per drawings
11.03 Provide and install LG PTAC unit
11.04 Provide and install all kitchen and bath exhaust duct and fans
11.05 Provide and install HVAC system for lobby, trash storage and rec room Mitsubishi Citi-Multi

12. FIRE SYSTEM

12.01 Sprinkler system as per drawings
12.02 Stand Pipe system as per drawings
12.03 Provide and install sprinkler alarm system as per DOB and FDNY code

13. ELECTRICAL

13.01 Apply and install all electrical meters
13.02 Provide and install electrical panels
13.03 Provide and install lighting fixtures as per plan
13.04 Provide and install emergency exit lights
13.05 Provide and install receptacles
13.06 Provide and install Aiphone color audio / video intercom system
13.07 Provide and install all Verizon, TimeWarner lines
13.08 Provide and install 100 Amp panels in every Apt. unit
13.09 Provide and install 1600 ConEd SEB
13.10 Provide temporary electrical service

14. PLUMBING WORK

14.01 Provide all utility services and meters
14.02 Install copper water supply & no-hub drainage system and all vent pipes
14.03 Supply & install plumbing fixtures as per owner's schedule
14.04 Install new gas main service with meters
14.05 All supply and return water lines
14.06 All kitchen gas pipes to all equipment in buiding
14.07 Provide and install 1 duplex water booster and sewer e
14.08 Provide and install RZP as per design
14.09 Provide and install 3 150 Gal HWH and 1 25 Gal electrical HWH per residential
14.10 Provide and install all incoming water, sewer main as per plans

(A) Total Hard Construction Cost :

(b)(4)

(b)(4)

5. METALS

5.01 Concrete filled metal pan stairs
5.02 Metal framing and gates
5.03 Roof, railing and ladder
5.04 Structural metal framing
5.05 Provide and install steel dunnage
5.06 Omagalite exterior aluminum panel front and 2 sides

6. THERMAL & MOISTURE PROTECTION

6.01 Roof waterproofing
- a. Six-ply rubber roofing
- b. 2" rigid insulation
- c. Vent sheet
- d. Fire Stone 12 year labor and material warranty

6.02 Insulation
- a. Exterior wall insulation close cell sprayed on
- b. Interior wall insulation open cell sprayed on

7. DOORS & WINDOWS

7.01 Doors 1 3/4 " solid core doors, frames and hardware
7.02 Aluminum windows & storefront entrance by crystal or equal
7.03 All window system by crystal or equal per window schedule
7.04 All hollow metal door per schedule
7.05 Thermacore 490 garage door
7.06 Provide and install glass railing as per rendering

8. FINISHES

8.01 Gypsum board ceiling w / paint finished
8.02 Gypsum board wall w / paint finished
8.03 Epoxy paint for areaway, Elec.meter Rm., water meter Rm.
8.04 All apartment interior as per finish schedule
8.05 All hallways as per plan and finish schedule
8.06 All commercial, lobby as per design

9. CONVEYING SYSTEM

9.01 Provide and install Thyssen Krupp MRL 250FPM 2300# elevator
9.02 Standard cab $20,000 allowance

10. EQUIPMENT

10.01 Kitchen cabinets allowance is $5,000 per unit
10.02 All appliances
10.03 Bathroom accessories
10.04 Trash chute and compactor
10.05 Kitchen counter top to be Caesar Stone

"CONSTRUCTION COST DETAIL SHEET"

Project Location : 148-31/43 88th Ave&148-44/46 Hillside Ave, Jamaica, NY 11435

(b)(4)

SCOPE OF WORK:

1. GENERAL

1.01 Mobilization & preparation
1.02 Insurance-general liability 25M & workmen comp
1.03 Sign-offs
1.04 Permit applications
1.05 Provide all necessary SOE inspections
1.06 Provide all necessary TR-2 TR-3
1.07 Provide engineer on site for supervision of all foundation and shoring work
1.08 Provide all necessary surveys
1.09 Provide all necessary shop drawings

2. SITEWORK

2.01 Provide and Install roof protection on adjacent buildings
2.02 Scaffold
a. Provide and install Sidewalk Bridge
b. Provide and install scaffold to roof
c. Provide and install protection net to roof
d. Scaffold reinforcement
2.03 Shoring, Sheeting & Lagging as per SOE
2.04 Temporary Protection Plywood Fence
2.05 Provide and install exterior material hoist
2.06 Excavation and backfill as necessary
2.07 Provide and install sidewalk, trees, curb and curb as per approved BPP

3. MASONRY

3.01 Concrete block as per drawings
3.02 Stucco in rear of building
3.03 Stone on first floor as per rendering

4. CONCRETE

4.01 Foundation wall, straps beams and pile caps
4.02 Concrete Slabs
4.03 Roof Bulkhead
4.04 Sidewalk, curbs and pavement
4.05 Surveys and stakeout
4.06 All waterproofing of exterior foundation walls

(b)(4)

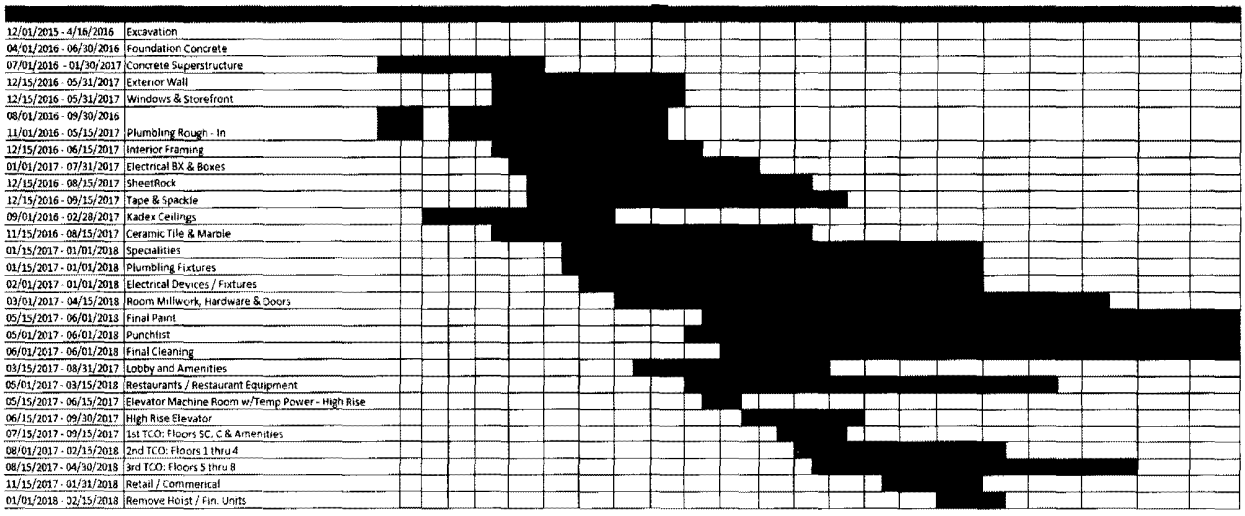
SECTION IV: CONSTRUCTION / PERMITS AND LICENSES

A. PARTICULARS OF THE CONSTRUCTION PHASES

Please refer to the timeline for the construction attached at **Exhibit 9.**
(Snap shot below)

This detailed construction timeline was produced by **Century Construction Group,** the General Contractors for the construction. The General Construction Verification Letter dated September 15, 2015 can be found at **Exhibit 14.**

Snapshot of the Construction Timeline



The construction of the Luxury Condominium project will take approximately 27-months to complete. The submitted schedule at **Exhibit 9.** The building is currently scheduled to start excavation soon.

The developer is scheduled to obtain the permit and licenses for construction and development of the project. The actual construction is expected to take place in December of 2015, and it is anticipated to be completed by February of 2018.

(b)(4)

The Parking Garage has 55 parking spaces. These parking spaces will be used by all the occupants of the building. It will be a paid-garage. At [redacted] per space, the total value upon completion would be [redacted] per space).

Base on the project forecast analysis, the total prospective market value upon completion by adding the completion values of all the sale components will be [redacted]

Profit Forecast:

Total Completion Project Value – Total Project Cost = Total Project Profit

[redacted]

(b)(4)

(b)(4)

Total Project Cost: [redacted]

This project consists of five components: Luxury Condominium, Commercial Retail, Community Facility/Medical Offices, and Parking Garage

Rental Approach:

The Luxury Condominiums will contain a total of 77,016 square feet with 109 condominium units. At [redacted] per square foot (psf), the annual rental income would be [redacted] psf).

The Commercial Retail has 7,174 square feet of space which consists of 6 retail stores. At [redacted] psf, the annual rental income would be [redacted] psf).

The Community Facility has a total square footage of 13,669. At [redacted] psf, the total sales would be [redacted]

The Parking Garage has 55 parking spaces. These parking spaces will be used by all the occupants of the building. It will be a paid-garage. At [redacted] per space rental per year, the total value upon completion would be [redacted] per space).

Based on the project forecast analysis, the total annual rental income will be [redacted]

Sales Approach:

The Luxury Condominiums will contain a total of 77,016 square feet with 109 condominium units. At [redacted] per square foot (psf), the retail sale would be [redacted] psf).

The Commercial Retail has 7,174 square feet of space which consists of 6 retail stores. At [redacted] psf, the retail sale would be [redacted] psf).

The Community Facility has a total square footage of 13,669. At [redacted] psf, the retail sale would be [redacted] psf).

(b)(4)

FINANCIAL PROJECTIONS AND ANALYSIS METHODOLOGY

The financial projection data of the project is provided by an Appraisal Report by Betsy Mak Appraisal Group, LLC. In order to examine the job creation based on the projections, the following analysis methodologies are considered: (1) reviewing Jamaica' Project's operational pro forma; (2) estimating the portion of that budget which would represent labor costs; (3) verifying the estimate for reasonableness by against the corresponding direct effects employment creation multipliers.

The Jamaica Project's forecasted market share and occupancy levels are based upon its anticipated competitive position within the market, as quantified by its penetration rate. The penetration rate is the ratio of a property's market share to its fair share.

The projections, demand capture, and occupancy performance for the Jamaica Project for these types of adjustments to market share within the defined competitive market. Consequently, the actual penetration factors applicable to the project and its competitors for each market segment in each projection year may vary from the penetration factors set out by the industry standards.

PROJECT PROFIT FORECAST

(b)(4)

The Project located at 148-46 Hillside Avenue, Jamaica, NY 11435, and 148-33 88th Avenue, Jamaica, NY 11435 and has an estimated total cost of approximately [redacted] After its total prospective market value upon completion of $[redacted] the project will achieve an anticipated profit of approximately [redacted]

Please see below for the breakdown:

Land Value:	
Hard Construction Costs:	
Soft and Other Costs:	

The figures are derived from the revenue estimates, which are based on a careful assessment of market conditions and likely achievable hotel rates and occupancy. Operating costs are based on industry norms. These costs and projections are supported by the independent Appraisal Report.

The Appraisal Report for the comparable set in the project's market is provided at **Exhibit 8.**

Please see below for the Rental Income Breakdown:

(b)(4)

COMMERCIAL RENT ROLL - SUMMARY

Unit	Lease Term	Market Rent	Square Feet	Annual Rent/S.F.

Annual Rent

RESIDENTIAL RENT ROLL

Type of Unit	# of Units	Monthly Rent	Annually Rent	Total Rent

The total projected annual rental income will be approximately

(b)(4)

It is to be noted that the first year of operations does not reflect anticipated long-term performance of the project. It only reflects the initial operations from the time the project first opens with little business, as it builds to full staffing complement, begins to work "the kinks" out of operations, gets marketing efforts underway and allows time for them to get traction, and builds the market image and place for the project. The term "stabilization" properly reflects the industry experience over most of the past century that after this initial ramp up, the project reaches a stabilized level that will be maintained during its 20 to 30 year economic lifespan.

The JCE Company intends to raise capital to cover the costs using both conventional financing and through business loans by means of a private placement offering to EB-5 investors. Specifically, the NCE will raise a maximum of [redacted] in EB-5 capital, which will be loaned to the JCE. The Company plans to sell EB5 Membership Units, at $500,000 per unit, to qualified foreign investors seeking to obtain permanent residence in the United States through the EB-5 Visa Program. No additional capital contributions are required.

Contingency Plan: As necessary, 88th Avenue Realty, LLC(JCE) may also receive temporary short-term bridge financing or traditional bank financing through lenders in order to commence construction and create jobs in advance of EB-5 funding.

SALES, COST, INCOME, AND INVESTMENT PROJECTIONS

Attached below is the **five-year** pro forma of the proposed Jamaica Project:

88 Ave Project Five Year Proforma (Rent)					
	2018	2019	2020	2021	2022
Revenues					
Luxury Condominium	[redacted]				
Commercial Retai					
Community Facility/Medical Office					
Parking Garage					
Total Revenues					
Exprenses					
Utilities:					
Gas and eletric					
Water and sewer					
Repairs and maintenance:					
Building					
Sprinkler					
Elevator					
Equipment					
Exterminating					
Supplies					
Management fees					
Insurance					
Taxes					
Telephone					
Payroll Expenses					
Office and administrative					
Total Expenses					
Net Operating Income					

SECTION III: FINANCIAL

VIABILITY OF THE PROJECT; PROJECT FUNDING & CAPITALIZATION EXIT PLAN; INCOME PROJECTIONS & REASONABLE ANALYSIS METHODOLOGY

EXIT PLAN & PROJECT VIABILITY

The loan from 88th Avenue EB5 Capital, LLC will be paid off in full either through the residential condominium sales, refinancing of building, retails and community facility upon stabilization. The project will not be refinanced or sold prior to the adjudication of the I-829 petitions.

The project principal has extensive experience and is confident that the proceeds from either strategy should be more than sufficient to pay off the EB-5 investors in full. However, in the event the above strategy is insufficient to pay off the loan in full, the borrower shall cover the shortfall from its own operating cash flow, or risk foreclosure and loss of its ownership of the Project to the Partnership. This is not a redemption clause. The EB-5 capital is placed "at risk". The developer will make the best efforts that are economically feasible to repay the EB-5 investors.

(b)(4)

USE OF CAPITAL

The Project's total cost is [redacted] which includes land costs estimated at [redacted] and development cost estimated at [redacted] consisting of hard construction costs of approximately [redacted] and soft costs of approximately [redacted] For analysis purposes this equates to a total development budget of [redacted] SF) of gross building area including parking decks. This budget includes hard costs, contingencies, financing, pre-opening and other soft costs, but excludes site acquisition.

media feed, including: Facebook, Linked In, Digg, You Tube, Twitter and more. The project will solicit new clients through postings on Oodle, Zillow and Craig's List.

Print: Driving phone calls, place large building signs, and place professional 25+ page brochures.

Location: Being that everything is close to Jamaica project, there is constant walk-in traffic, and the project is always nearby to assist clients.

Branding: The project will hire reputable and active local agencies with experience.

The project principals own Century Construction Group, an established brand in Flushing, New York. It has successfully completed and marketed similar projects such as Marriot Fairfield Inn., Leavitt Manor Condominium, Farrington Estate, all located in Flushing. The project principals plan to expand its existing midmarket to reach more audience through the Four Points Flushing Hotel project.

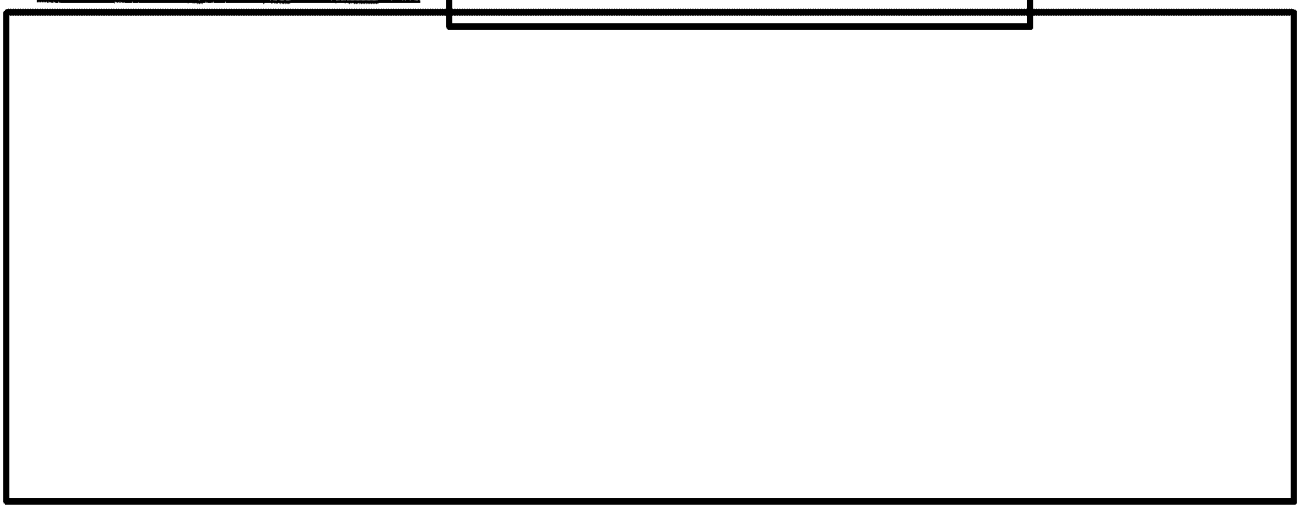
(b)(4)

Comparable Building Sale #10 –

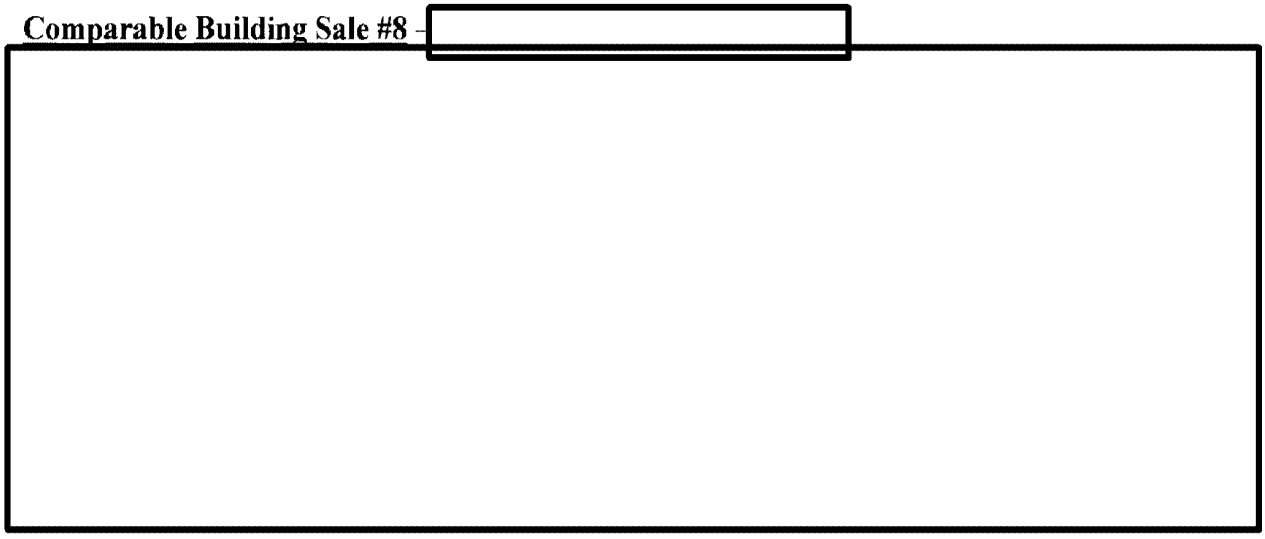
MARKETING STRATEGY

The project will extend its reach through various means of marketing. Please see below for their marketing approach:

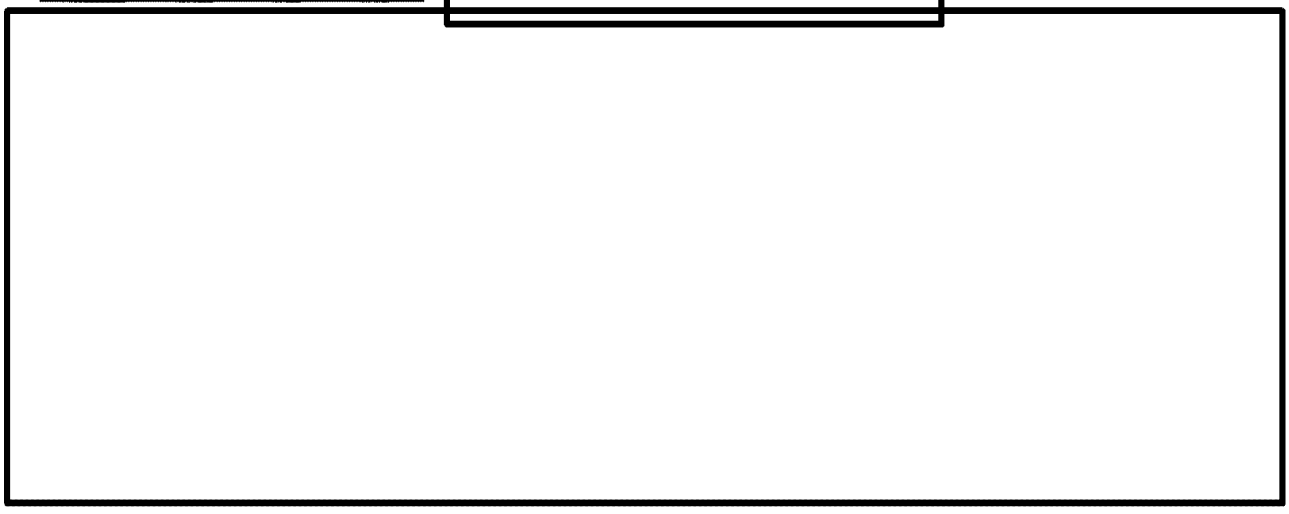
Comparable Building Sale #7 –



Comparable Building Sale #8 –



Comparable Building Sale #9 –



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Comparable Building Sale #4 –

Comparable Building Sale #5 –

Comparable Building Sale #6 –

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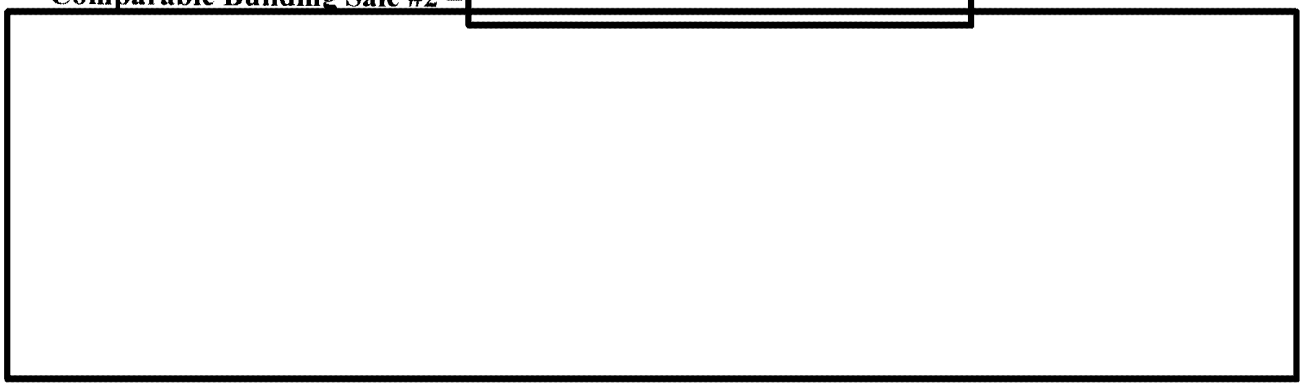
Comparable Building Sale #1 –

Comparable Building Sale #2 –



Comparable Building Sale #3 –

(b)(4)

reduced interest rates and push to increase credit for consumers to have a positive effect on the overall condominium, cooperative and housing market in the New York metro region. We further expect housing rents to remain stable throughout the remainder of 2015. Please see **Appraisal Report** attached at **Exhibit 8** for more information.

JAMAICA PROJECT'S COMPETITIVE ADVANTAGES AND HIGHLIGHTS

BRANDING:

The Jamaica project anticipates entering into a management agreement with First Management Group. First Management Group is a full-service Real Estate Management firm. They offer hands on property management for residential, cooperative, condominium and commercial properties.

PROJECT HIGHLIGHTS:

- **Close proximity to Manhattan, New York**
- **5-min walk to subway station--E,F trains take only 20mins to Manhattan**
- **Only few minutes to JFK Airport, also very close to LGA**
- **109-unit luxury condominium with full facilities**
- **5 min walk to Jamaica center, close to all the shopping malls**
- **Modern design, very stand out in the neighborhood**
- **Large commercial spaces for all the doctor office, day care center, senior center and retail stores**

COMPETITORS : COMPARABLE SALES

The following residential developments have been identified in the Jamaica, NY area similar to Jamaica's proposed plan. This section focuses on other building sales acompared to the Jamaica project.

Queens Market Matrix	1Q-2015	%Chg (QTR)	1Q-2015	%Chg (YR)	1Q-2014

Source: The Elliman Queens Sales Report 1Q 2015

March rental price indicators in Queens were mixed, median rental price increased to from the same period last year. Average rental price slipped to over the same period.

Queens Rental Market		MAR-15	%Chg (M)	FEB-15	%Chg (YR)	MAR-14
Average Rental Price						
Rental Price per Sq Ft						
Median Rental Price						
Number of New Rentals						
Days on Market (from Original List Date)						
Listing Discount (From Orgnl List Price)						
Listing Inventory						
Queens Rental Market by Size						
Studio -	Average Rental Price					
	Rental Price per Sq Ft					
	Median Rental Price					
	Number of New Rentals					
1 Bedroom -	Average Rental Price					
	Rental Price per Sq Ft					
	Median Rental Price					
	Number of New Rentals					
2 Bedroom -	Average Rental Price					
	Rental Price per Sq Ft					
	Median Rental Price					
	Number of New Rentals					
3+ Bedroom -	Average Rental Price					
	Rental Price per Sq Ft					
	Median Rental Price					
	Number of New Rentals					

Source: The Elliman Queens Rental Report 1Q 2015

Overall, we

Sources: MNS rental market report of March 2015

expect the

Manhattan	1Q15	1Q14	% Chg (yr)	4Q14	% Chg (qtr)
Overview					
Closed Sales					
Contracts Signed					
Inventory					
Months of Supply					
Average Days on Market					
Prices					
Median Price					
Average Price					
Median PPSF					
Average PPSF					
Median Price by Bedroo					
Studio					
1 Bedroom					
2 Bedroom					
3+ Bedroom					

(b)(4)

Source: *Corcoran Group 1st Quarter 2015 Report*

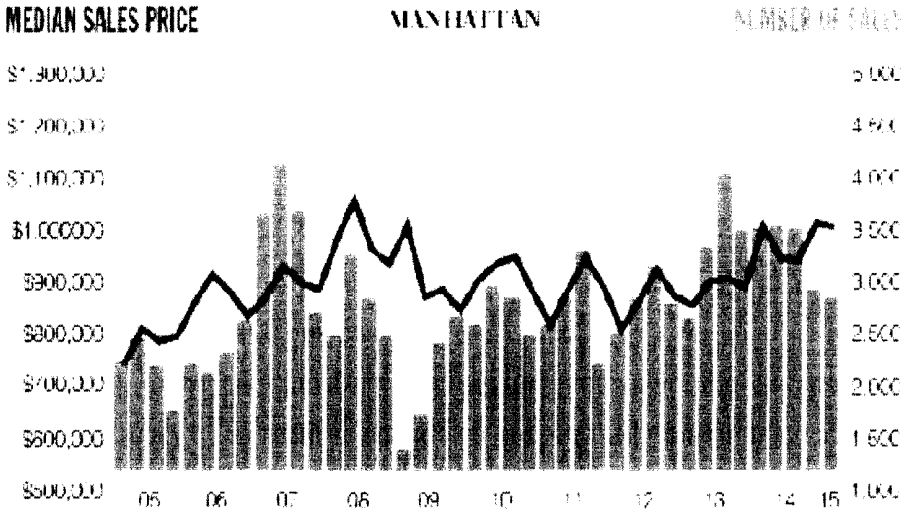
Inventory further tightened with 1% fewer listings than a year ago and days on market dropped 6%. Given these dynamics, the Manhattan market is notably under-supplied. At the rate of sales over the past year, the number of currently listed apartments in Manhattan is equivalent to just 3.8 months of supply, well below the six to nine months considered market equilibrium. Buyer competition, especially for lower priced units, is significant. The median price of studio, one, and two bedroom apartments all increased compared to last year, however three bedroom and larger residences actually decreased over the same period as more sales in this category shifted to the resale co-op market from new developments.

Rental

Queens - The housing market of Queens has been rising since last fall due to an improving local economy, low mortgage rates, and low inventory. According to the Elliman Report Queens Sales Report 1Q 2015, Median sales price jumped 20.7% to $446,434 from same period last year and 9th increase of the past 11 quarters. Average sales price rising 14.6% over the same period. The number of sales was in sync with the decline in supply, falling 18.7% to 2,567 over the same period.

The combination of falling sales and falling inventory kept the monthly absorption period essentially stable. Days on market, the average number of days between the date of last list price change and contract date, declined to 85 days form 103 over the same period.

Manhattan Market Matrix	1Q-2015	%Chg (qtr)	4Q-2014	%Chg (yr)	1Q-2014
Average Sales Price	$1,702,980	3.4%	$1,740,156	2.0%	$1,773,522
Average Price per Sq Ft	$1,263	1.6%	$1,284	7.0%	$1,360
Median Sales Price	$870,000	1.0%	$862,000	3.2%	$872,488
New Development	$1,625,000	-9.0%	$1,785,000	-9.1%	$1,731,025
Re-sale	$865,000	-3.9%	$899,000	-1.7%	$900,000
Number of Sales (Closed)	2,067	-2.1%	2,716	-19.0%	3,067
Days on Market (From Last List Date)	100	-4.8%	105	-13.0%	115
Listing Discount (From Last List Price)	4.7%		2.4%		2.0%
Listing Inventory (Active)	5,243	5.0%	4,995	5.5%	4,968
Absorption Rate (Months)	5.9	7.5%	5.5	31.1%	4.5
Pending Price Index (1Q 08 = 100)	118.06	-7.2%	121.79	3.4%	104.32
Pending Sales Index (1Q 08 = 100)	111.88	-33.6%	106.52	5.2%	105.31



Source: *Prudential Douglas Elliman 1st Quarter 2015*

The Corcoran Group 1st Quarter 2015 Report (Manhattan) indicated that during this period there were 3,776 market-wide sales, 12% higher than 1st Quarter 2014. Average sale price was 2% higher versus the Q1 2014, median sales price was up 6% and average price per square foot was up 5%. This quarter's strong sales performance resulted in the highest number of closings reported for any first quarter in over 6 years. However, the compared to 4th Quarter of 2014, the median sales price was lower by 3% and average price per square foot was lower than 5%.

New York City's Population 2010 Population: 8,175,133					
Borough	2000	2010	2013	2000-2010 % Change	2010-2013 % Change
Bronx	1,332,650	1,385,108	1,418,733	3.9%	2.4%
Brooklyn	2,465,326	2,504,700	2,592,149	1.6%	3.5%
Manhattan	1,537,195	1,585,873	1,626,159	3.2%	2.5%
Queens	2,229,379	2,230,722	2,296,175	0.1%	2.9%
Staten Island	443,728	468,730	472,621	5.6%	0.8%
NYC Total	**8,008,278**	**8,175,133**	**8,405,837**	**2.1%**	**2.8%**

Source: US Census Bureau, 2013 number is estimated.

Since 2010, the U.S. Census Bureau estimates that New York City's population increased from 8,175,133 in April of 2010 to 8,405,837 in 2013. This is an increase of 230,704 residents or about

2.8% over the 2010 mark. The largest change in the city's population occurred in Brooklyn, growing by 3.5%, followed by Queens 2.9%, Manhattan 2.5%, and the Bronx 2.4%. Staten Island 0.8% showed the smallest gains since 2010.

Residential Market

Sales

Prudential Douglas Elliman 1st Quarter 2015 market report indicated that apartment listings are increasing and the number of days on the market decreased 13% year over year; as compared to the previous quarter the number of days on the market decreased 4.8%. The inventory of apartments is up 5.5% to 5,243 available units compared to 2014. The level of discounting was 4.7% from 2.4% in the prior quarter. The report indicated a decrease in median sales price to $970,000 from $972,428 in 1Q 2014.

Land Use 2014				
		Lot Area		% of
	Lots	Sq. Ft (000)	%	Total Lots
1-2 Family Residential	564.723	1.829.877	27.15%	65.70%
Multi-Family Residential	142.733	832.276	12.35%	16.61%
Mixed Residential/Commercial	48.836	203.787	3.02%	5.68%
Commercial/Office	24.650	247.143	3.67%	2.87%
Industrial	11.464	235.407	3.49%	1.33%
Transportation/Utility	6.679	512.765	7.61%	0.78%
Institutions	12.246	460.941	6.84%	1.42%
Open Space/Recreation	5.007	1.819.726	27.00%	0.58%
Parking Facilities	11.436	88.927	1.32%	1.33%
Vacant Land	28.471	452.190	6.71%	3.31%
Miscellaneous	3.315	56.930	0.84%	0.39%
Total	**859,560**	**6,739,969**	**100.0%**	**100.0%**

Source: NYC Department of City Planning

Demographics

Population

New York City is the most populous city in the nation, with over 8 million residents, and one of the largest populations in the world. It makes up over 42% of the population of the entire state of New York. Between 2000 and 2010, New York City's population reached 8,175,133 an increase of 2.1%. During this decade, the borough with the largest population growth was Staten Island while Queens had the smallest population growth.

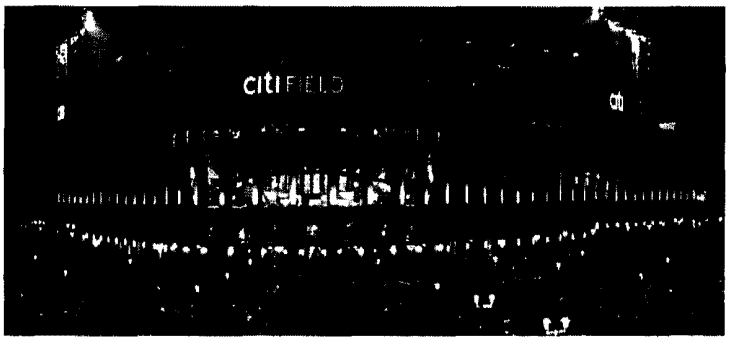
The chart below depicts New York City's population change during the past decade, and change between 2010 census and 2013 estimate by the US Census Bureau.

New York City has 578 miles of waterfront, while the total area is 304.9 square miles. Queens is the largest with 109.7 square miles and Manhattan is the smallest with 22.8 square miles.

New York City Land Area (in square miles)	
Bronx	42.4
Brooklyn	71.5
Manhattan	22.8
Queens	109.7
Staten Island	58.5
Total	**304.9**

The five boroughs land use is varied; the entire New York City is developed with primarily 1- to 2-family homes (564,723 lots), with Queens containing the highest number (246,705) and Manhattan having the least (3,719). The land use of New York City as of 2014 is illustrated in below:

Flushing Town Hall-Concert Hall, Queens Botanical Garden, Louis Armstrong House & Archives, and others.



Queens is one of the most ethnically diverse communities in the U.S. The Borough of Queens is home to more than 34,500 businesses, ranging from small retail outlets to large manufacturing plants. The project area encompasses some of the most commercially active portions of downtown Flushing, including the majority of Chinese and Korean businesses located in Flushing. Located one block from Main Street, the major thoroughfare in Flushing, the hotel is in an area known as "Chinese Flushing." The majority of the area's banking institutions, department stores, and office spaces are located on or near Main Street. A majority of the buildings and businesses are owned and patronized by the Chinese residents of the area; therefore, the neighborhood presents a fairly homogenous Asian image. Consequently, this area is a popular destination for Asian tourists who appreciate these somewhat familiar surroundings.

MARKET DEMANDS AND ANALYSIS METHOD

New York City is located in the southern most portion of New York State, the five counties or boroughs, which were incorporated in 1898 into a single entity, which consist of Bronx County, Kings County (Brooklyn), Queens County, Richmond County (Staten Island) and New York County (Manhattan). All of the boroughs are subdivided into various community districts and unofficial areas/neighborhoods.

associated services makes the area an attractive location for lodging facilities.

While modern-day business is the focus of Lower Manhattan, the market's historic representation makes the area unique. Among the historic attractions are Manhattan's oldest church, Trinity Church/St. Paul's Chapel, a national landmark built in 1766; Fraunces Tavern, which was built in 1719 and is the place where George Washington bade farewell to his officers; and the Federal Hall Memorial, the site where George Washington took the oath as America's first president.

Other points of interest in the Downtown area include the South Street Seaport, Battery Park, and the Federal Reserve Bank, to name a few. Access to the Statue of Liberty and Ellis Island is also provided from Battery Park, and represents some of the most important tourist attractions in New York City.

Lower Manhattan is expected to go through somewhat of a renaissance, fuelled by the redevelopment of the World Trade Center (WTC) site and the construction of a new transit station that will serve the transportation needs of Lower Manhattan.

World Trade Center Redevelopment

The WTC site now includes Tower 7, which was completed in May 2006 and developed by Silverstein Properties. Additional plans for the World Trade Center include the following. Please note that all data presented in relation to the WTC redevelopment has been sourced through the Lower Manhattan Development Corporation (LMDC).

- Four new skyscrapers (1 WTC, Freedom Tower; Towers 2, 3, and 4)
- National September 11 Memorial & Museum at the World Trade Center
- World Trade Center Transportation Hub
- Retail Complex
- Performing Arts Center

<u>Attractions in Flushing, Queens</u>

In addition to the Flushing Tennis Center and CitiField, Queens also hosts Queens Zoo, Aqueduct Racetrack,

ENT

Records, and Hershey's stores, as well as restaurants such as Ruby Foo's, the Bubba Gump Shrimp Company, Planet Hollywood Restaurant and Bar and Carmine's along with a number of multiplex movie theaters. It has also attracted a number of large financial, publishing, and media firms to set up their headquarters in the area including Ernst and Young, Reuters, New York Times, Barclays, Morgan Stanley, among many others.

Jacob K. Javits Convention Center is a large convention center at Eleventh Avenue on the west side of Manhattan. The exhibit space is over 675,000 square feet. On October 16, 2006, a groundbreaking ceremony was held to start construction of an expansion.

New York Cruise Piers is a world-class ship port situated on West 52nd Street, and offers ideal facilities for cruise arrivals and departures. New York Cruise brings the most spectacular—often the fastest, biggest, and most luxurious—passenger ships to the West Side of Manhattan.

Lower (Downtown) Manhattan

The Financial District contains an assortment of businesses, ranging from small retail shops to chain-affiliated department stores to financial houses and educational buildings. The area is primarily commercial in character and is home to the New York and American Stock Exchanges, the WTC Site, and the World Financial Center.

In addition, several large corporations have their headquarters in the area, such as Goldman Sachs, The Bank of New York, Deutsche Bank, the Federal Reserve Bank of New York, and many more. The close proximity of high-grade office space and

OPMENT

Liberty, and the Empire State Building. The theaters in the Broadway district attract international attention. Lincoln Center (the home of the Metropolitan Opera, the New York Philharmonic, the New York City Ballet and Opera, and the Juilliard School) is among the world's most important centers for the performing arts. The Metropolitan Museum of Art, the Museum of Modern Art, the American Museum of Natural History, and a number of the city's other museums and galleries are internationally respected.

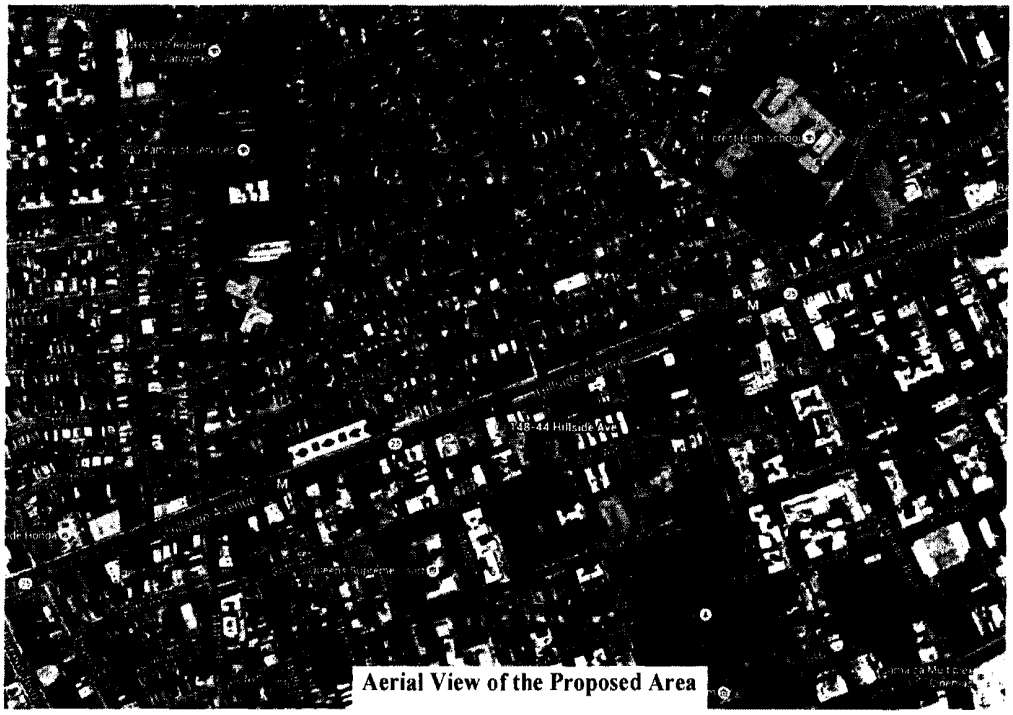
In the borough of Queens lies the Flushing Tennis Center, home of the U.S. Open; CitiField, home of the New York Mets baseball team; and Flushing Main Street, a vibrant, bustling district for shopping and restaurants. Brooklyn is also home to some of New York's most famous attractions including Coney Island, the Barclays Center, and the Brooklyn Academy of Music, as well as numerous shops and restaurants in the Williamsburg neighborhood. Directly to the north of midtown Manhattan lays Harlem, home to the world-famous Apollo Theatre as well as numerous renowned educational institutions including Columbia University and City College. Further north is the borough of the Bronx, home to Yankee Stadium, the venue for the New York Yankees baseball team, and numerous concerts and events; and the immensely popular Bronx Zoo.

Major Destinations & Attractions

New York City is one of the most popular and frequently visited destinations in the United States. A few of the major attractions include:

Times Square: a major intersection at the junction of Broadway and Seventh Avenue and stretching from West 42nd to West 47th Streets. It boasts attractions such as ABC's Times Square Studios, where Good Morning America is broadcast live, elaborate Toys "R" Us, Virgin

Map of Regional Access Routes



Aerial View of the Proposed Area

THE TARGET MARKET & PROSPECTIVE CUSTOMERS

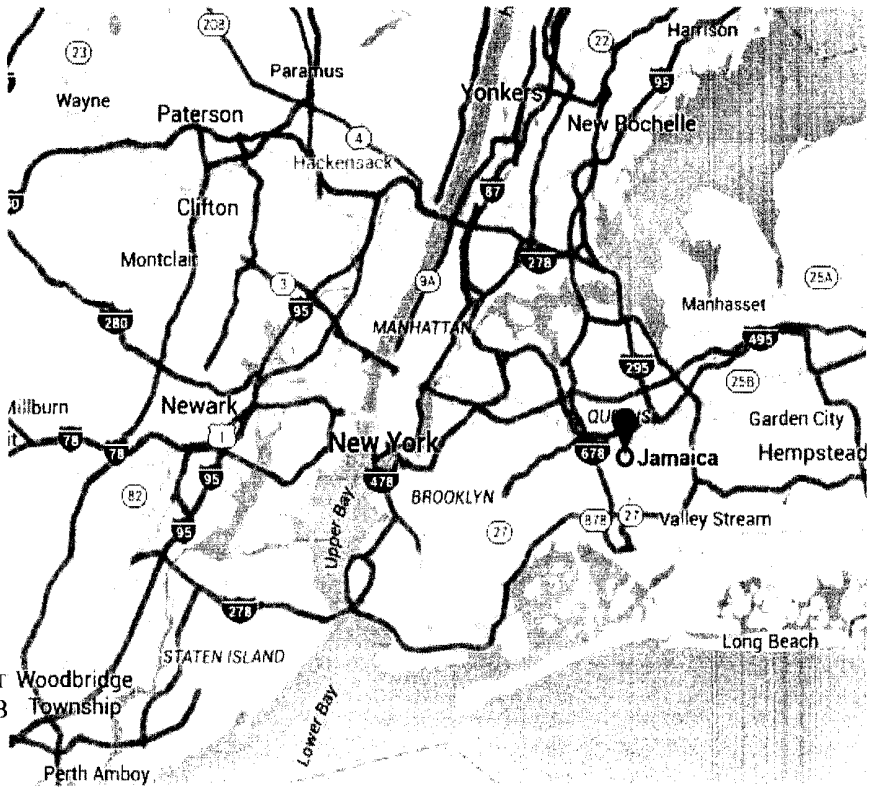
There is high demand of luxury condominium unit in Jamaica area due to its easy access to public transportation. We are targeting young professionals who work in Manhattan and are looking for luxury condos with great amenities, without paying the high rental price such as Long Island City and Manhattan.

Renowned for its cultural attractions, entertainment, restaurants, and retail outlets, New York City is one of the most popular tourist destinations in the country. The city is recognized as an international commercial and cultural center. It is home to the United Nations, the Statue of

Major thoroughfares include Long Island Expressway, Van Wyck Expressway, Clearview Expressway & Grand Central Pkwy. Long Island Expressway, which leads eastward to Long Island and westward to Brooklyn & Manhattan. Grand Central Pkwy, which leads eastward to Long Island and westward to Jackie Robinson Pkwy & Triboro Bridge. Van Wyck Expressway, which leads northward to Whitestone Bridge and southward to John F. Kennedy Airport. Clearview Expressway, which leads northward to Throgs Neck Bridge and southward to Hillside Avenue.

Commercial Use:

The prime commercial thoroughfares in the community are Archer Avenue, Hillside Avenue, Jamaica Avenue, Liberty Avenue, Merrick Boulevard, Parsons Boulevard, Guy R. Brewer Boulevard, Sutphin Boulevard, and Union Turnpike lined with predominantly one- to three-story commercial and mixed-use buildings, with retail space on the ground level. The majority of the shops and services in the area cater to the needs of the local community, including usages such as grocery stores, dry cleaners, bakeries, pharmacies, restaurants, etc.



SECTION II: MARKET ANALYSIS

This section includes the analysis of the target market, perspective customers, market demand and analysis method, and the project's competitive advantages and highlights.

Source of the data: The market analysis is provided by an Appraisal Report by Betsy Mak Appraisal Group, LLC. Betsy Mak Appraisal Group, LLC has been in business for ten years. They have appraisers covering all five boroughs of New York City and Nassau and Suffolk counties on the island. Betsy Mak is a Certified General Appraiser who has the highest level of appraisal licensing and more than ten years of appraisal experience.

Property types include residential, commercial, co-op, condo, and mixed-use; and specialize in estates and trusts. They are approved by many major lenders and FHA. Please see their website at www.betsymak.com for further information.

LOCATION

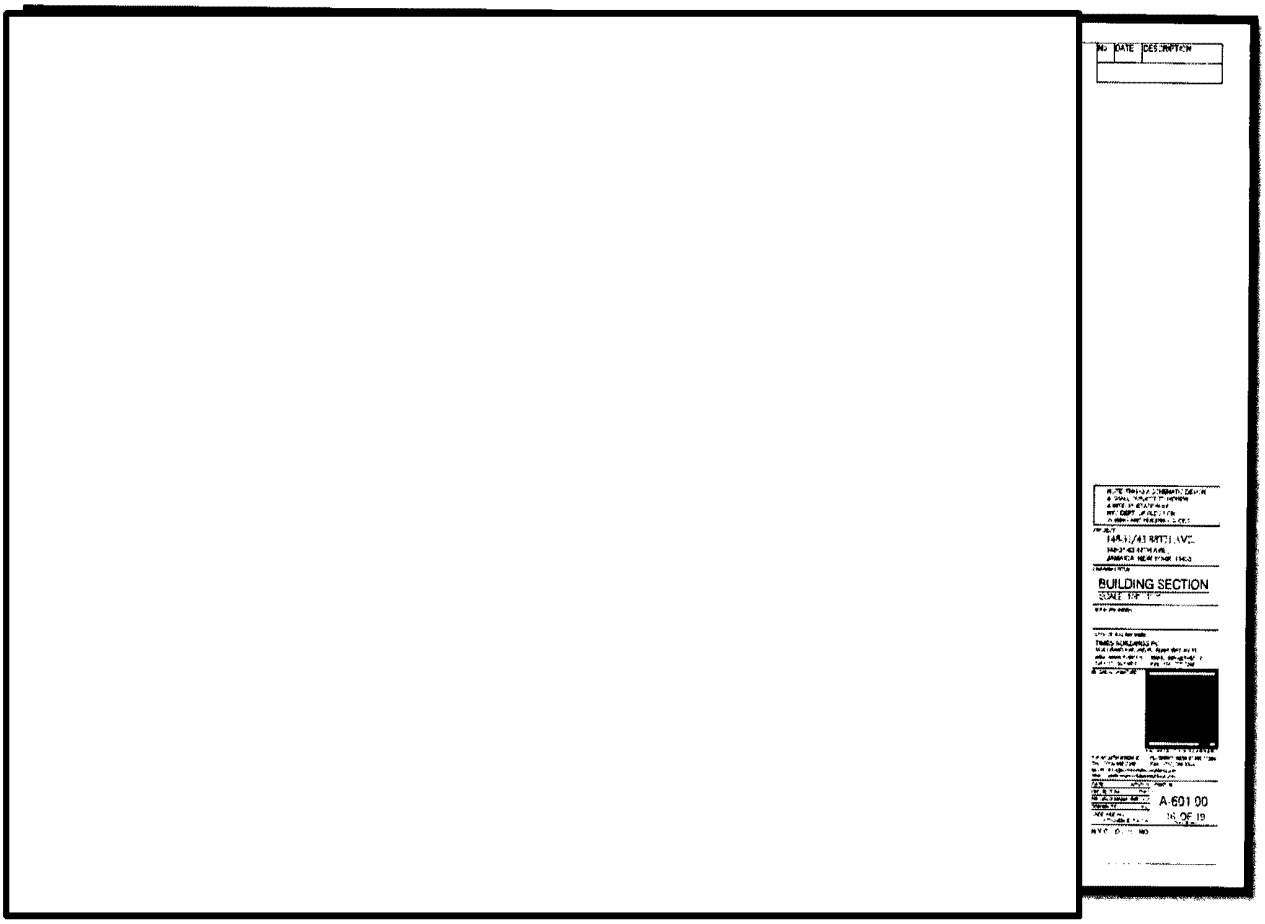
The Project is located in Jamaica, New York. Located in the Jamaica district of New York City's Queens Borough, the site is readily accessible to a variety of local, county, state, and interstate highways. Major interstates, such as Interstates 278, 495, and 95, connect Jamaica to other major cities – New Haven, Connecticut; Philadelphia, Pennsylvania; and not mention its close proximity to Manhattan, New York. Manhattan, the commercial center of New York City, may be easily accomplished via the Long Island Expressway, the Grand Central Parkway, the New York City Subway, and the Long Island Rail Road. The project's location is in a commercially active area in Jamaica.

Accessibility:

Public transportation in the area is adequate. The "E" & "F" subway line is available at Parsons Blvd Station, corner of Hillside Avenue and Parsons Blvd, two blocks away from subject. Local bus service is found along most major roadways including Hillside Avenue.

(b)(4)

BUILDNG SECTION FLOOR PLAN



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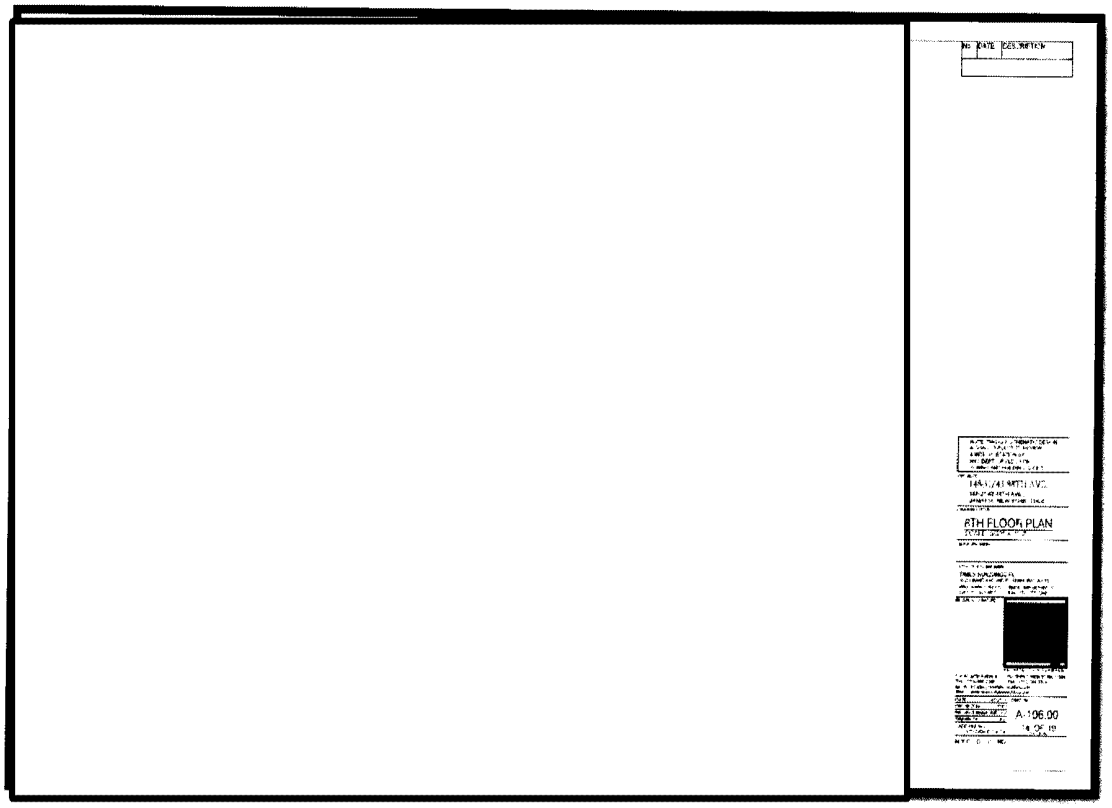
8TH FLOOR PLAN



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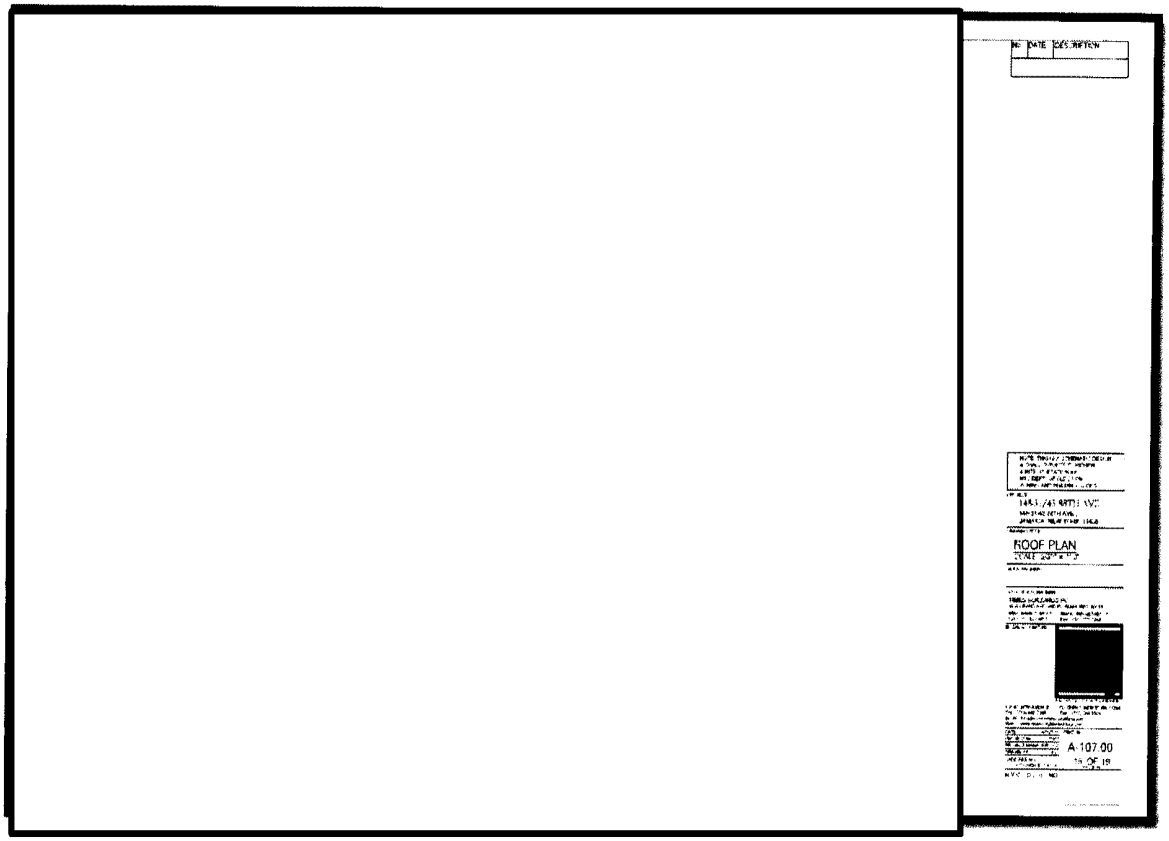
ROOF PLAN



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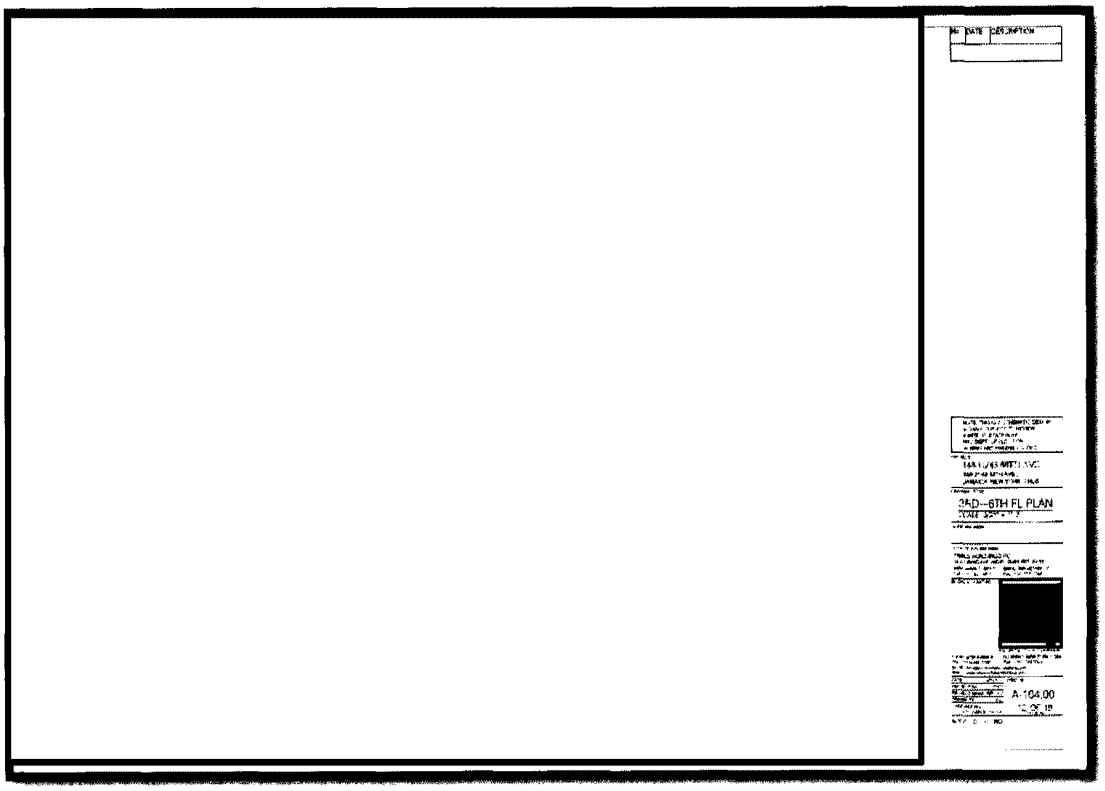
3RD - 6TH FLOOR PLAN



2ND

7TH FLOOR PLAN

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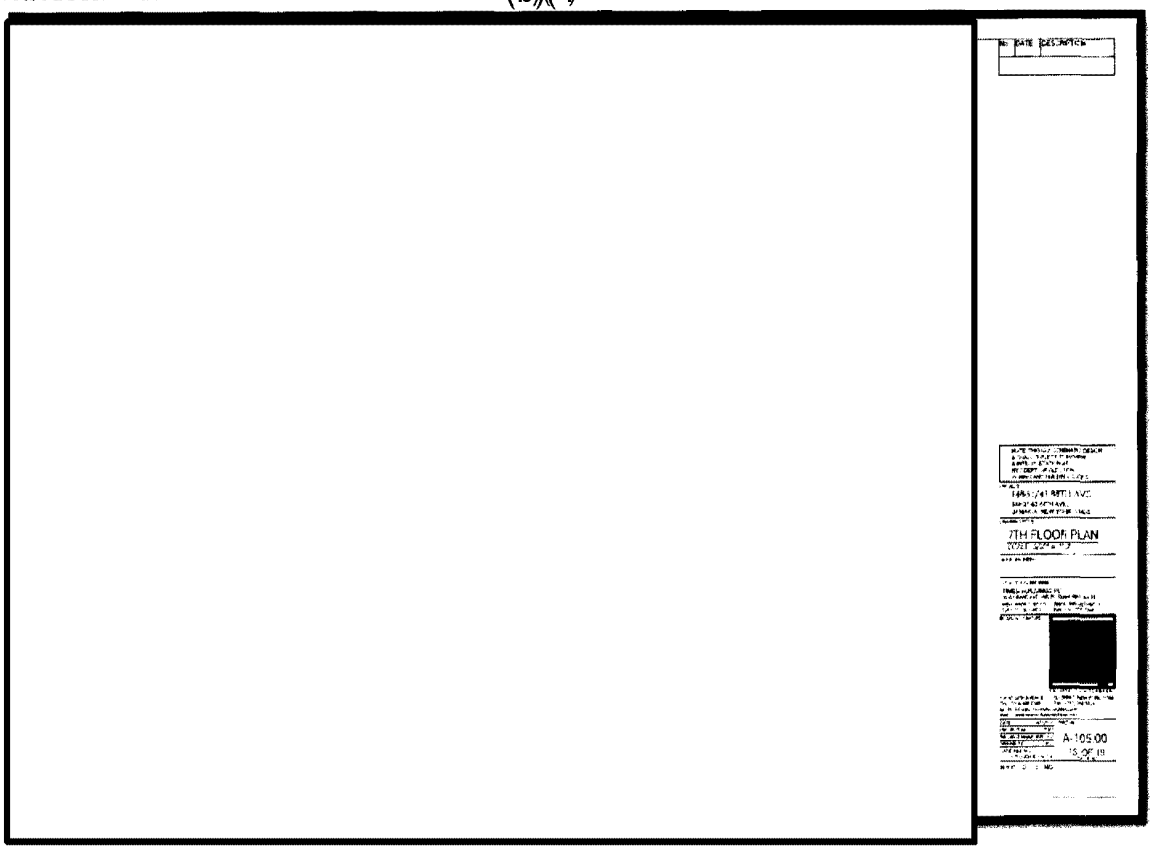

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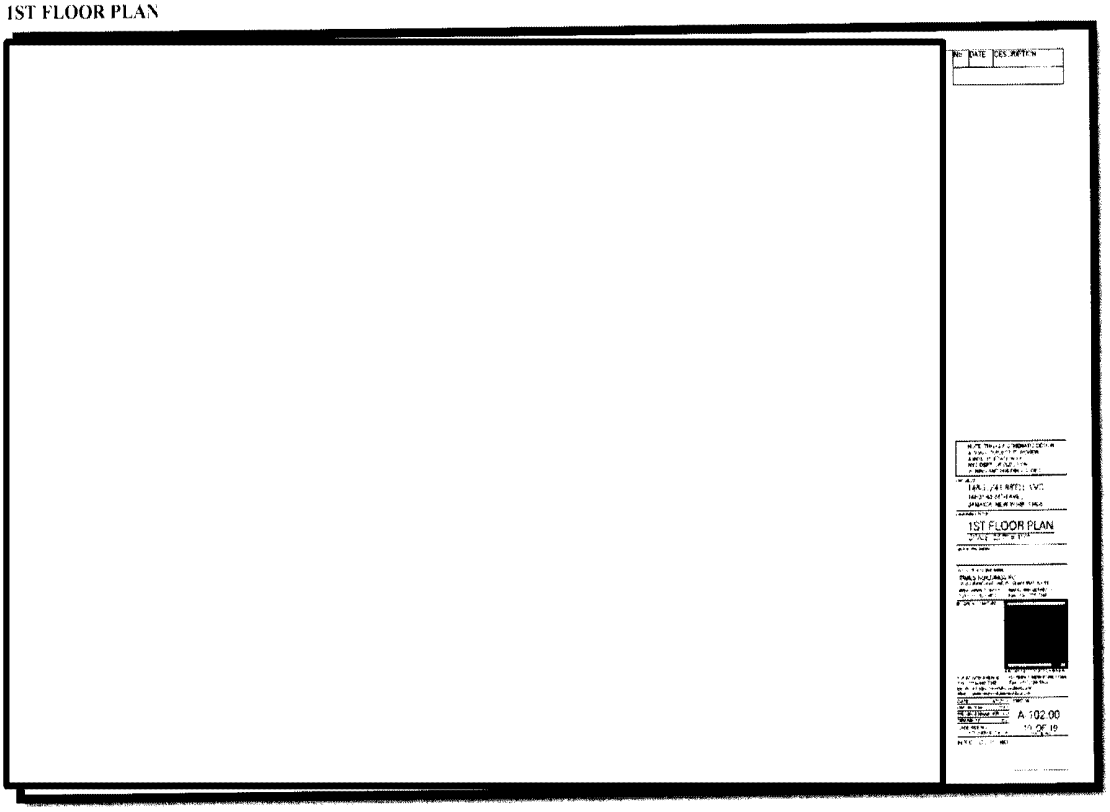
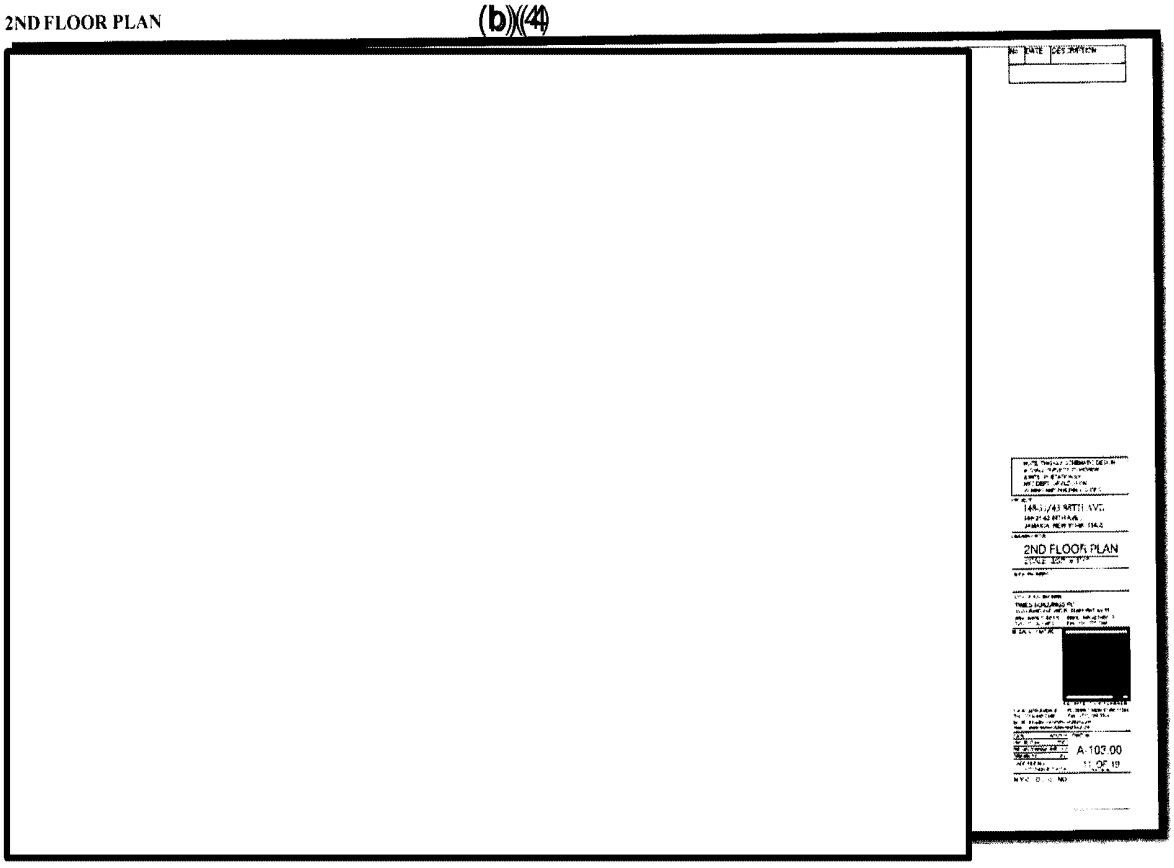
1ST FLOOR PLAN

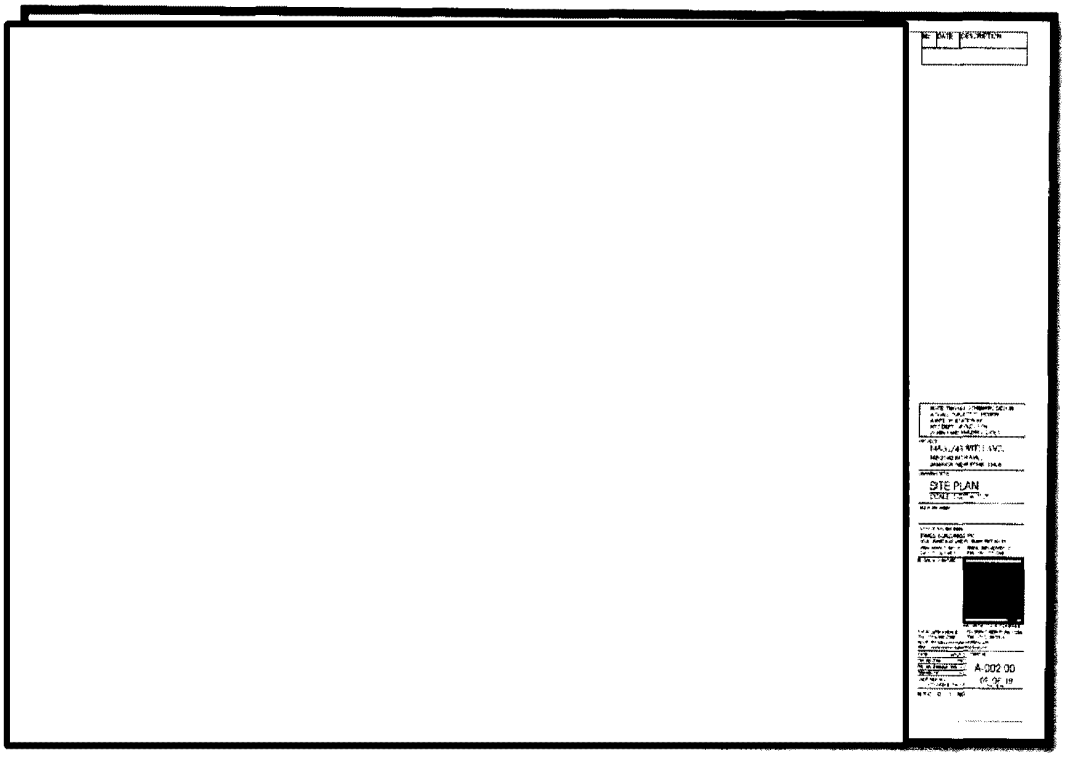


2ND FLOOR PLAN (b)(4)



Architectural Rendering of the Residential Building at 148-31/43 88th Avenue

SITE PLAN (b)(4)



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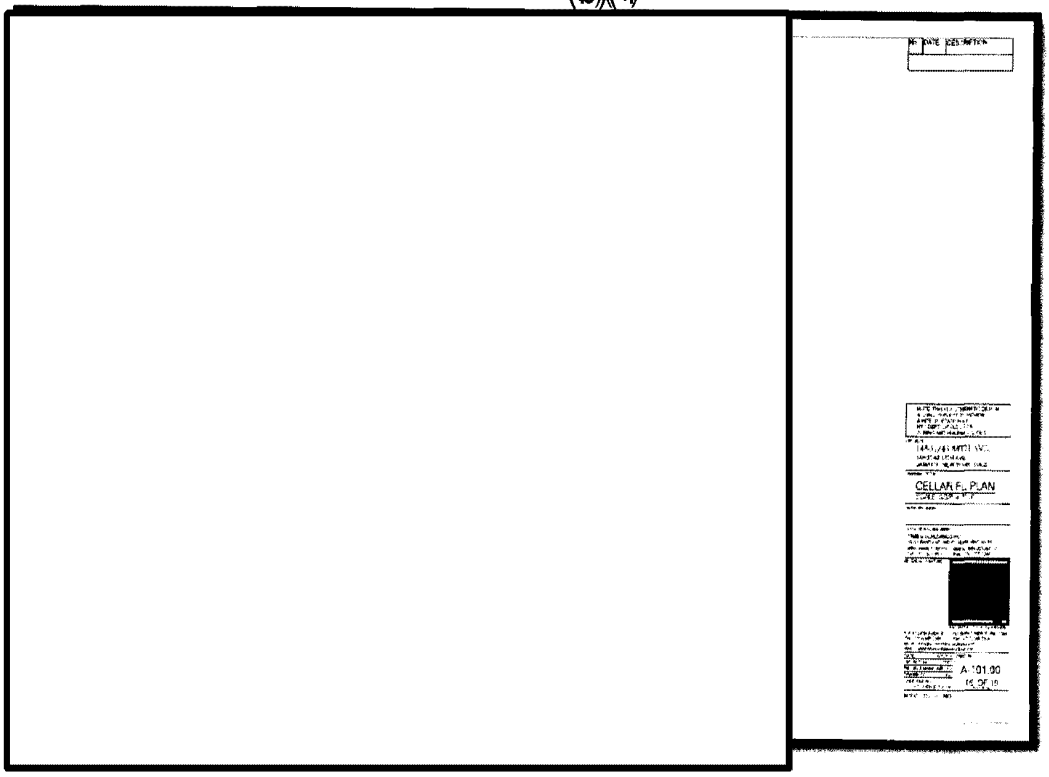

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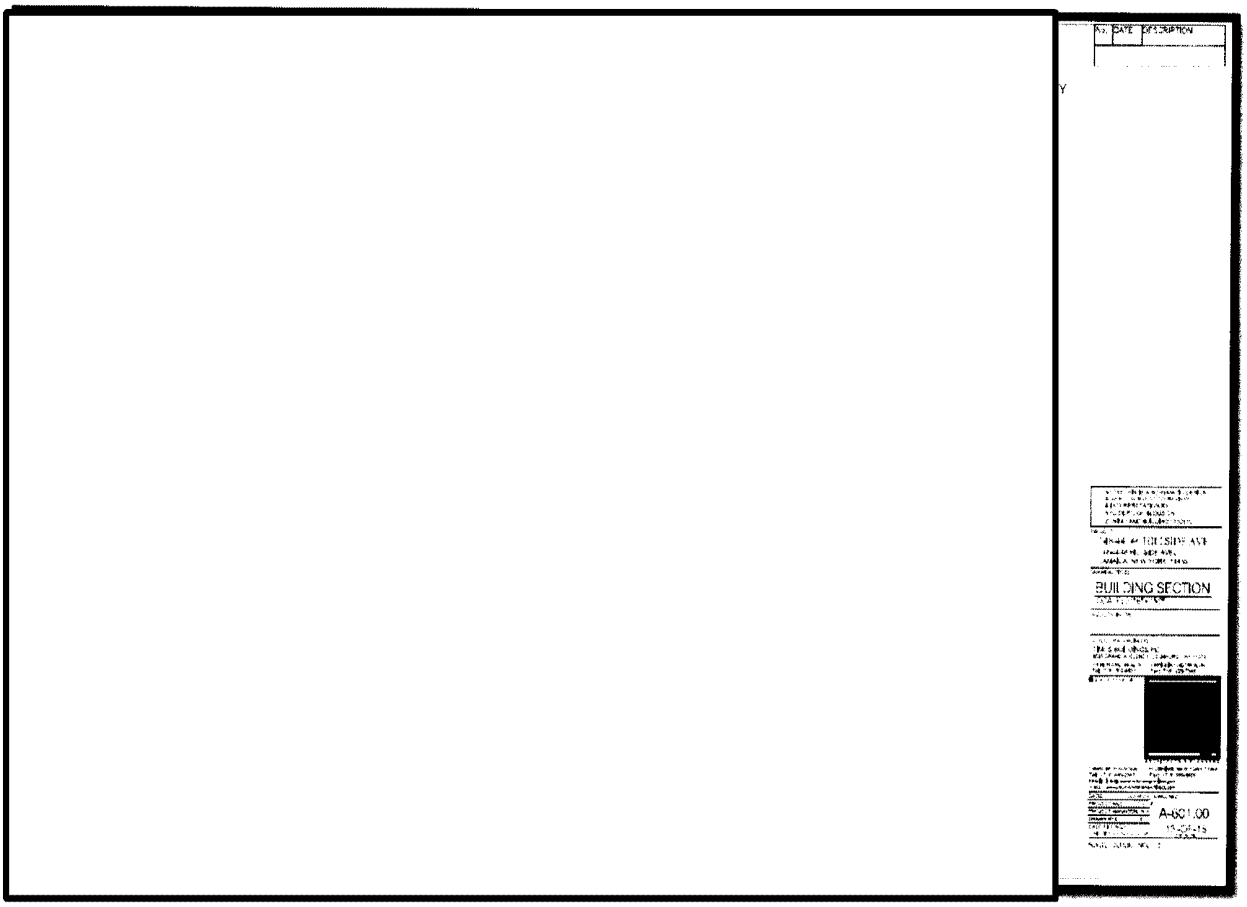
BUILDNG SECTION FLOOR PLAN



6TH FLOOR PLAN

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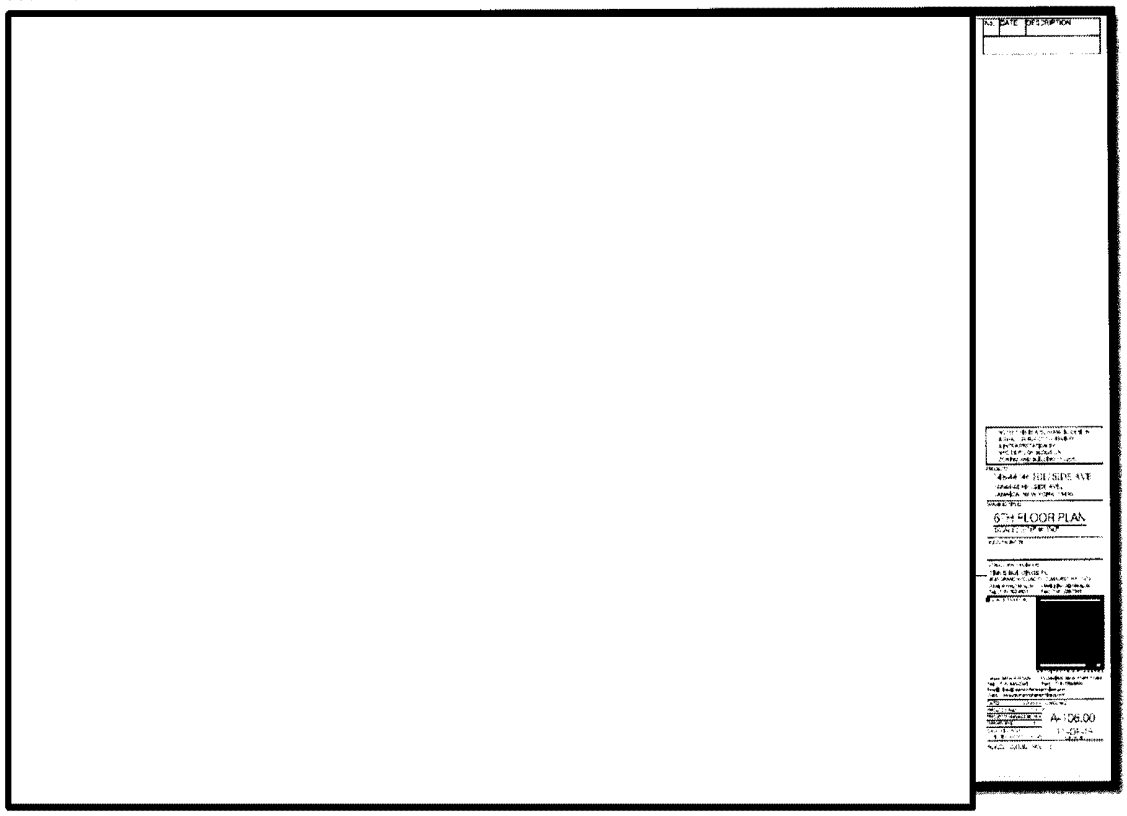

ROOF PLAN

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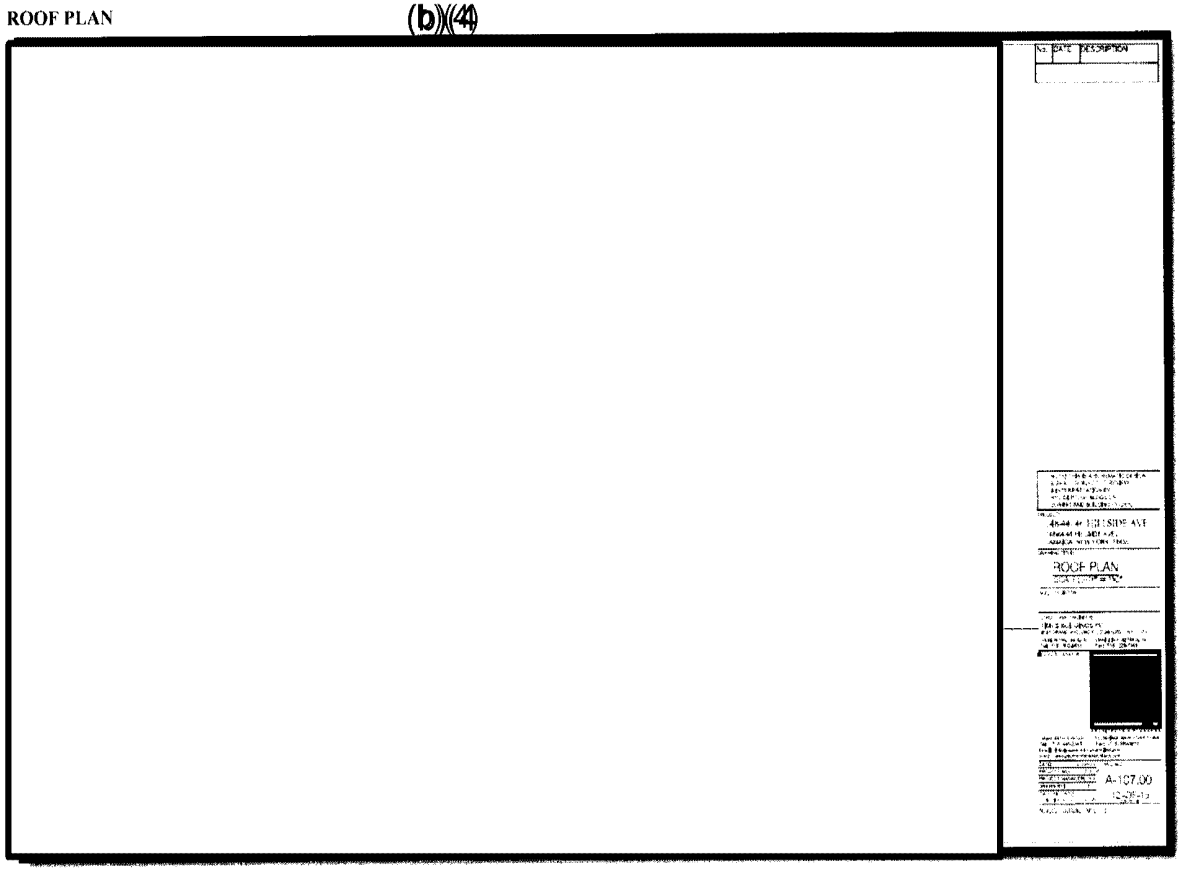

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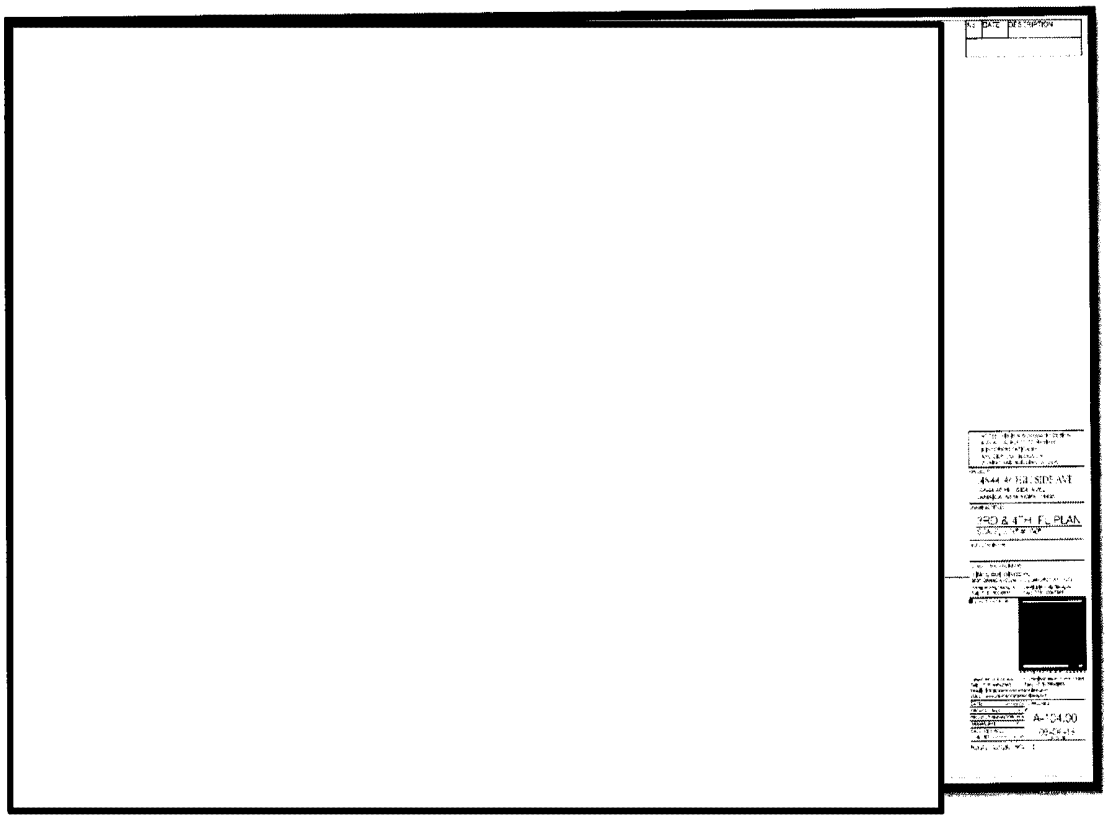
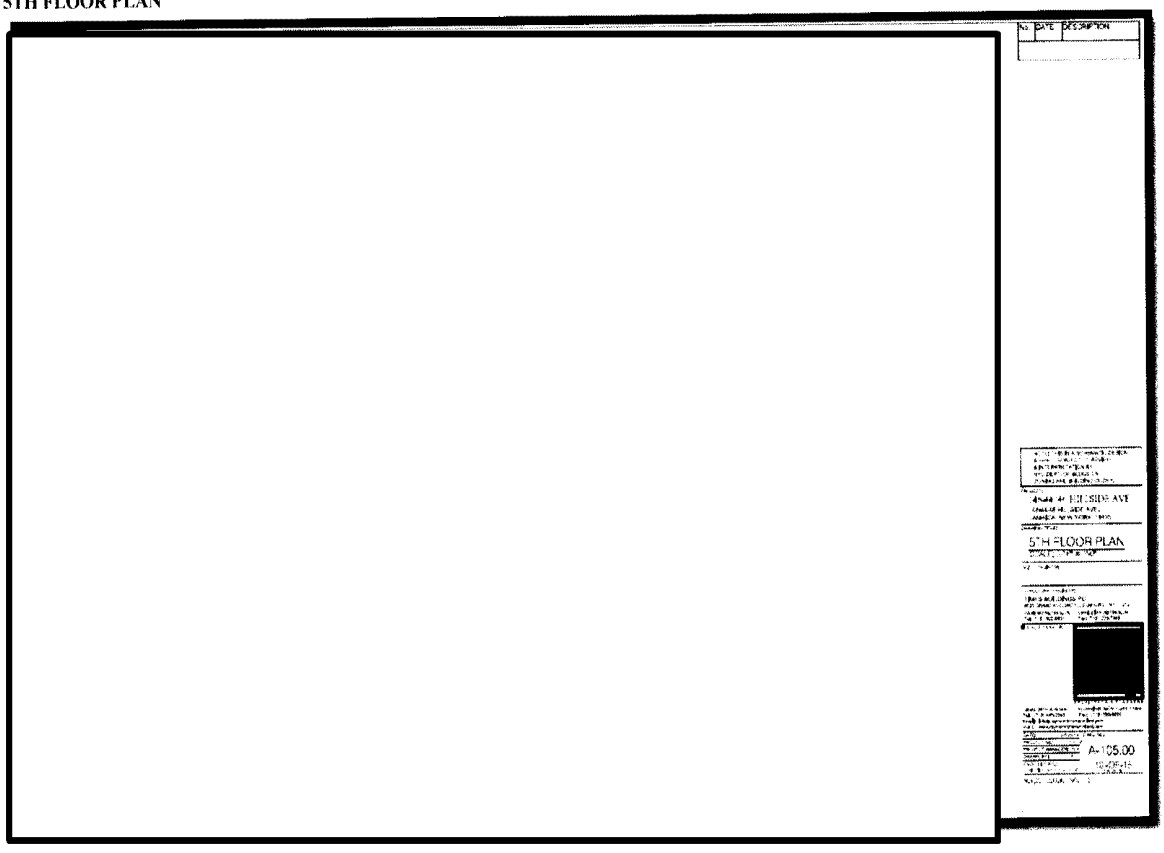


2ND

(b)(4)

5TH FLOOR PLAN



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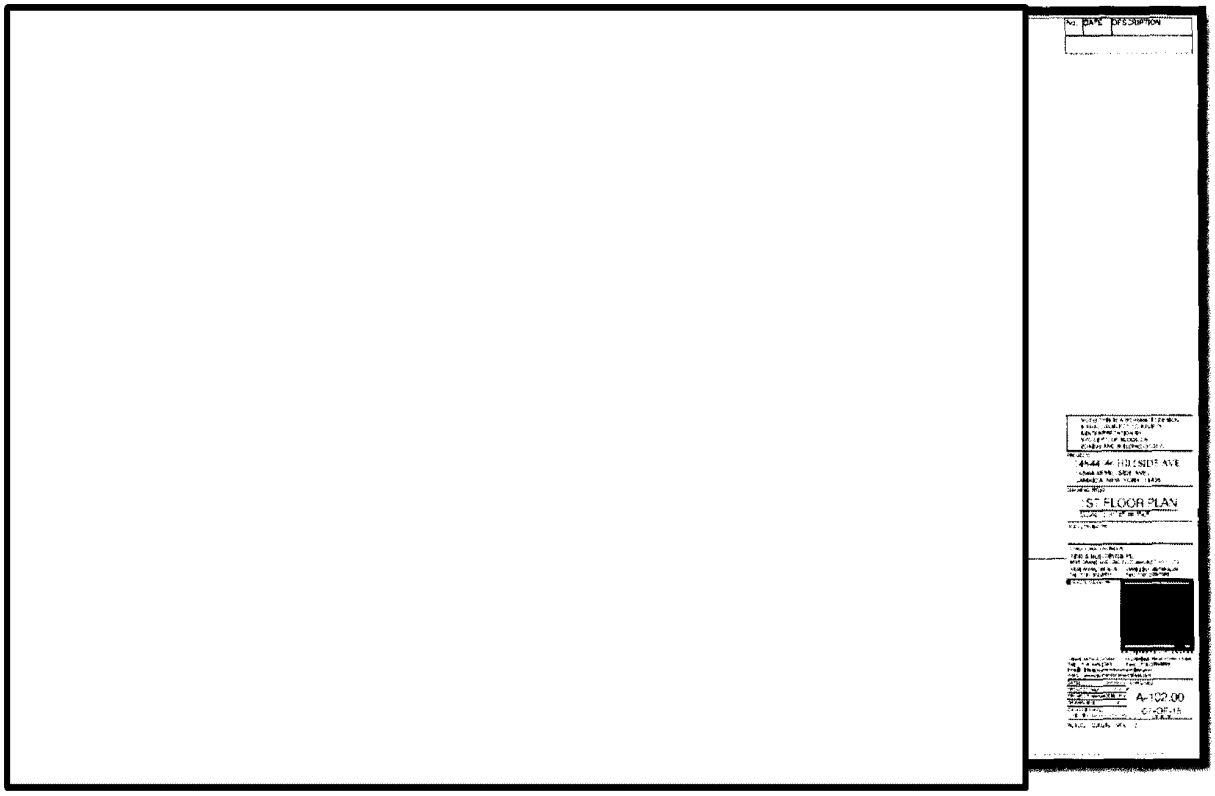

2ND FLOOR PLAN

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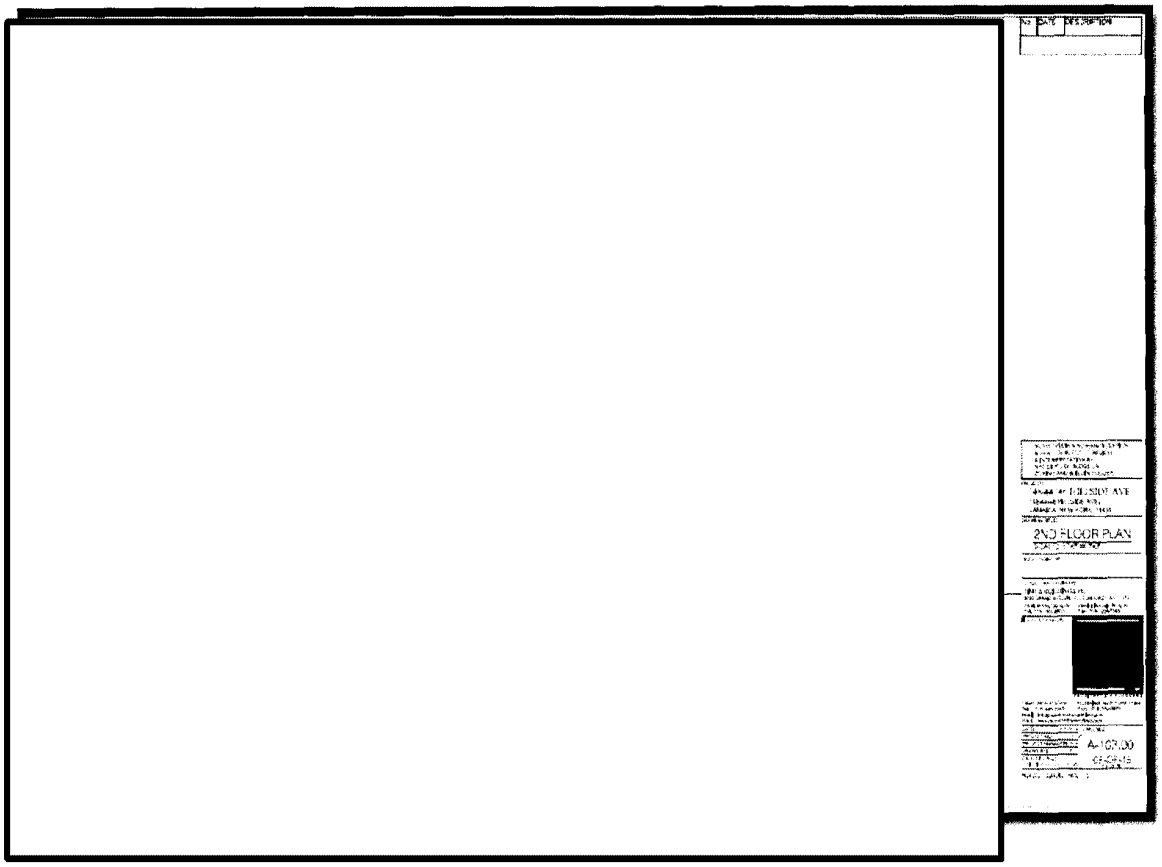
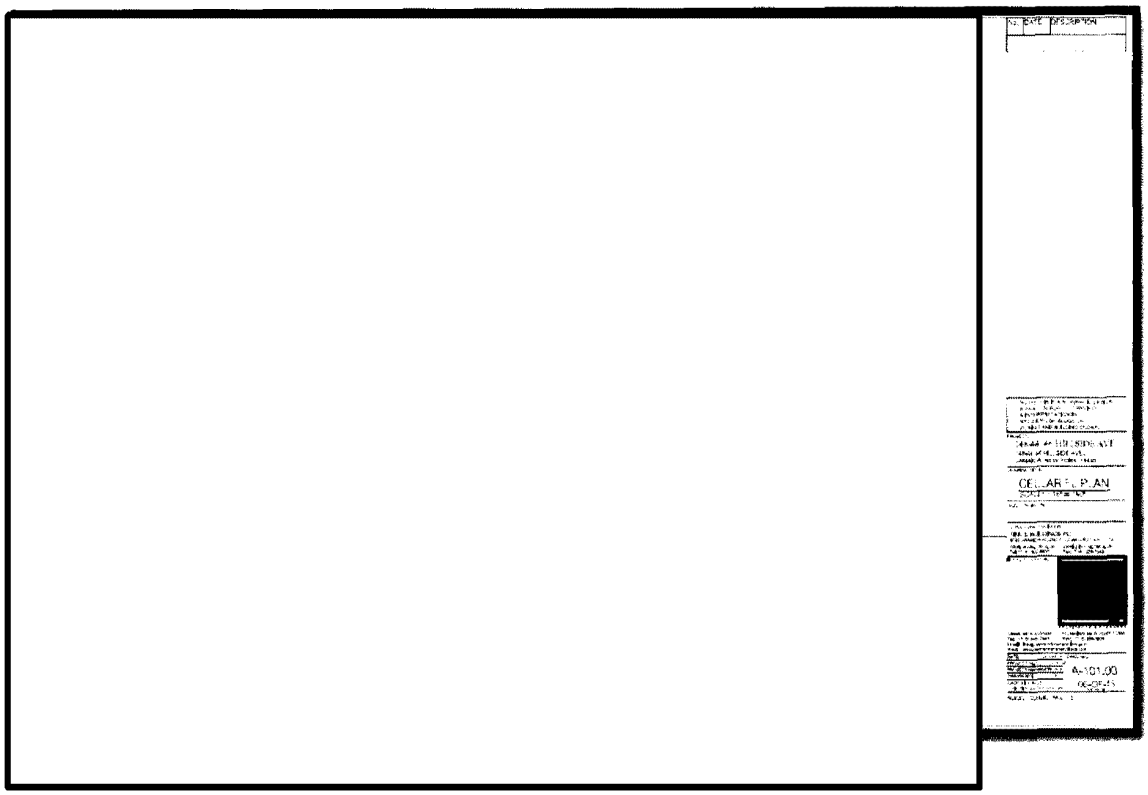


3RD & 4TH FLOOR PLAN

(b)(4)

CELLAR PLAN



1ST FLOOR PLAN

148-44/48 HILLSIDE AVENUE, JAMAICA, NY 11435

148-31/43 88TH AVENUE, JAMAICA, NY 11435

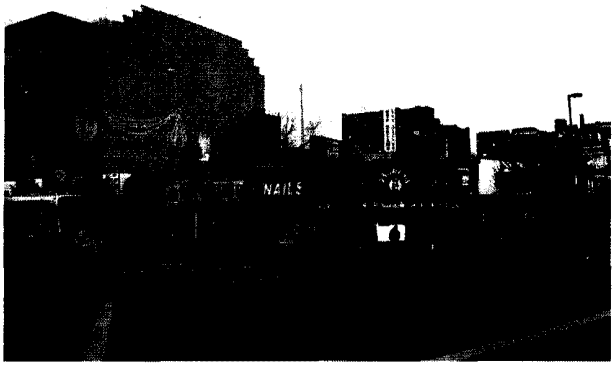
Architectural Rendering of the Commercial Building at 148-44/48 Hillside Avenue

SITE PLAN

(b)(4)

Service Center. The U.S. Food and Drug Administration's Northeast Regional Laboratory as well as the New York District Office are also located in Jamaica. Jamaica Center, the area around Jamaica Avenue and 165th Street, is a major commercial center, as well as the home of the Central Library of the Queens Borough Public Library. The New York Racing Association, based at Aqueduct Racetrack in South Ozone Park, lists its official address as Jamaica (Central Jamaica once housed NYRA's Jamaica Racetrack, now the massive Rochdale Village housing development). John F. Kennedy International Airport and the hotels nearby also use Jamaica as their address.

The following Images show Jamaica, Queens:



ARCHITECTURAL RENDERINGS & SITE PLAN

Below are architectural rendering and floor plans of the Project:

Jamaica is a middle-class neighborhood in the New York City borough of Queens. The neighborhood is part of Queens Community Board 12, which also includes Hollis, St. Albans, Springfield Gardens, Baisley Pond Park, Rochdale Village, and South Jamaica.

It was settled under Dutch rule in 1656 in New Netherland as Rustdorp. Under British rule, Jamaica became the center of the "Town of Jamaica". Jamaica was the county seat of Queens County from the formation of the county in 1683 until March 7, 1788, when the town was reorganized by the state government and the county seat was moved to Mineola (now part of Nassau County). In 1814, Jamaica became the first incorporated village on Long Island. When Queens was incorporated into the City of Greater New York in 1898, both the Town of Jamaica and the Village of Jamaica were dissolved, but the neighborhood of Jamaica regained its role as county seat. Today, some locals group Jamaica's surrounding neighborhoods into an unofficial Greater Jamaica, roughly corresponding to the former Town of Jamaica, including Richmond Hill, Woodhaven, St. Albans, Rosedale, Springfield Gardens, Hollis, Laurelton, Cambria Heights, Queens Village, Howard Beach and Ozone Park.

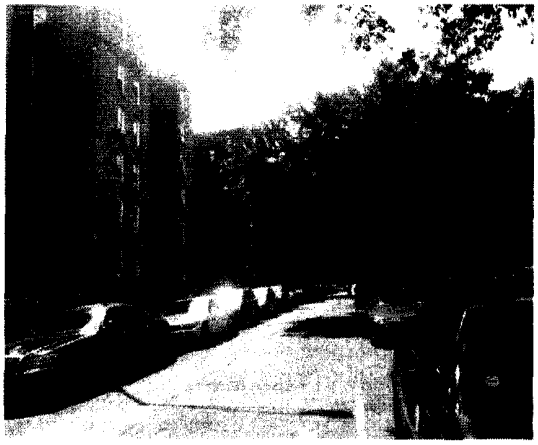
Jamaica is the location of several government buildings including Queens Civil Court, the civil branch of the Queens County Supreme Court, the Queens County Family Court and the Joseph P. Addabbo Federal Building, home to the Social Security Administration's Northeastern Program

Image shows View of Project Site at
148-31/43 88th Avenue, Jamaica, NY 11435

Four Direct Views of the Project Site:

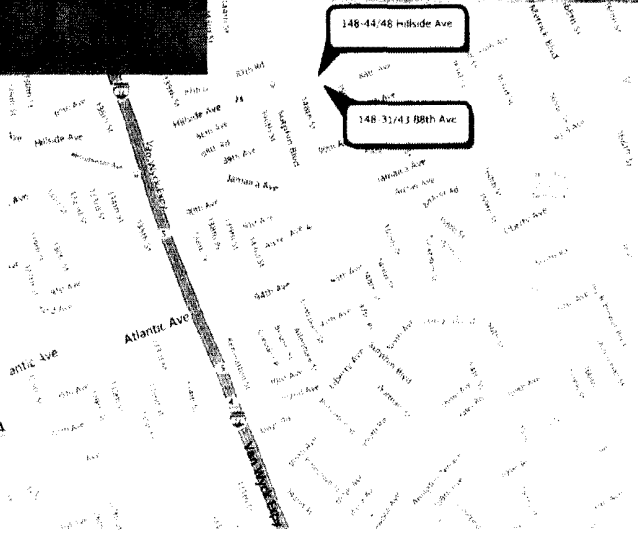
North

East



South

West



The Project **Location**

Image shows View of Project Site at 148-44/48 Hillside Avenue, Jamaica, NY 11435

Two Direct Views of the Project Site:

West

East

Flood Map (represents locations for both sites)

PROJECT LOCATION AND TARGET EMPLOYMENT AREA

The project is located at 148-44/48 Hillside Avenue & 148-31 88th Avenue in Jamaica, NY 11435.

148-44/48 Hillside Avenue is situated on the south side of Hillside Avenue, in the Jamaica neighborhood of Queens, City and State of New York. The sites are identified on the Queens County Tax Map as Block 9694, Lot 26. The subject site is a rectangular shaped 4,275± square feet parcel of land. The subject will have a 6-story plus legal cellar, elevator, commercial building, and contains 1 retail store, 9 community facilities, and 3 offices with a total gross building area of 17,373± square foot.

148-31/43 88th Avenue is situated on the north side of 88th Avenue, in the Jamaica neighborhood of Queens, City and State of New York. The sites are identified on the Queens County Tax Map as Block 9694, Lot 49. The subject site is an irregular shaped 24,554± square feet parcel of land. The subject will have an 8-story plus cellar, elevator, apartment building, and contains 109 apartments and 55 parking spaces with a total gross building area of 98,652± square foot.

The construction anticipates to be completed on or about September 1, 2017 for both buildings.

The location is in census tract 238 in Queens County, a designated Targeted Employment Area ("TEA") as of August 20, 2015, confirmed by the Empire State Development and New York State Department of Labor. Please see the TEA letters, attached at **Exhibit 4.**

Thus, the project is located in a TEA and shall have a minimum investment requirement by each member of $500,000 USD. Membership units for the EB-5 investors shall be sold a [redacted] (b)(4) USD, of which $500,000 USD shall be utilized towards the construction of the project and [redacted] USD shall go towards an Administrative Fee.

(b)(4)

SECTION I: THE BUSINESS

OVERVIEW OF THE EB-5 PROJECT
DESCRIPTION OF THE BUSINESS; SERVICES & OBJECTIVES

COMMERCIAL & RESIDENTIAL DEVELOPMENT

The Proposed Jamaica EB-5 Project entails a new construction of two mixed-use buidlings, which will consist of a 6 story commercial building containing 1 retail store, 9 community facilities and 3 offices, and an 8 story apartment building containing 109 apartments and 55 parking spaces. Both buildings will be located in Jamaica, Queens, one of the five boroughs of New York City.

The Jamaica Project is located in Jamaica, Queens in New York City. 148-44/48 Hillside Avenue is situated on the south side of Hillside Avenue, and 148-31/43 88th Avenue is situated on the north side of 88th Avenue. The location is a targeted employment area ("TEA") as of August 20, 2015. The proposed Jamaica Project will be further strengthened by rental units, retail spaces, and office spaces.

Construction Hard Costs

- Residential Building Construction - 2361
- Architectural, Engineering, and Related Services - 5413
- Offices of Real Estate Agents and Brokers - 5312

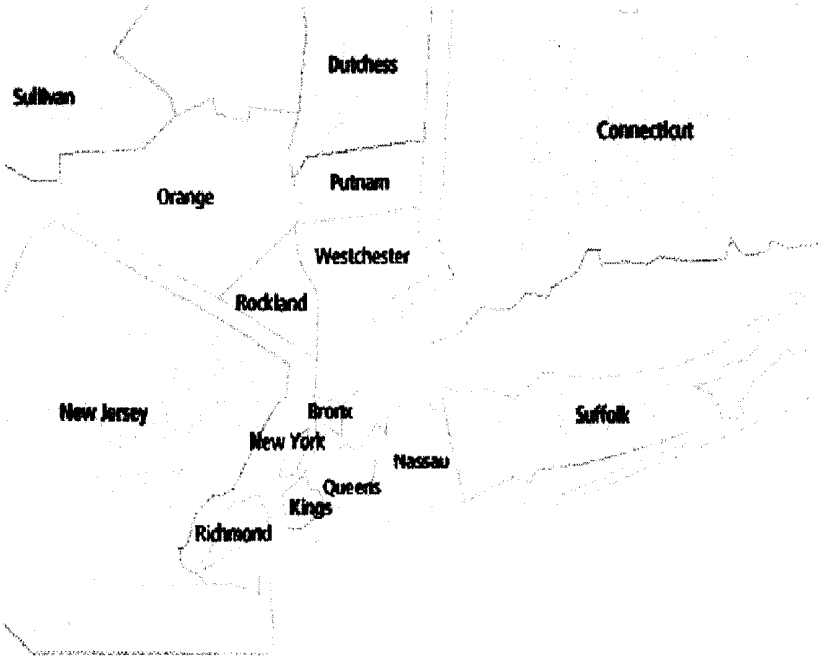
Financing & Soft Costs

- Other government enterprises – 921
- Architectural, engineering and related services – 5413
- Insurance - 5241
- Accounting tax preparation, bookkeeping services – 5412
- Legal Services – 5411
- Monetary authorities and depository credit intermediation – 5222
- Other miscellaneous professional and technical services - 5419

88th Avenue EB5 Capital, LLC ("NCE") is managed by Century New York City Regional Center, LLC. The Regional Center was designated as a "regional center" on May 14, 2015. The NCE was organized as a New York Limited Liability Company on August 7, 2015 with the primary business objective to raise EB-5 capital to fund real estate development projects such as the mixed-use development located at 148-44/48 Hillside Avenue & 148-31/43 88th Avenue in Jamaica, NY 11435. The project is owned by the project developer 88th Avenue Realty, LLC where Mr. George Xu is the principal.

GEOGRAPHIC SCOPE:

The Jamaica Project is located in Queens County. The RC includes the following seven (7) counties in the RC's geographic boundaries: Queens County, New York County, Kings County, Bronx County, Richmond County, Westchester County and Nassau County. Please see the County map below.



Pursuant to the Policy Memorandum on EB-5 Adjudications Policy (PM-602-0083), an amendment requirement is not required if investment opportunities arise outside the geographic area referenced above.

NAICS CODES:

The RC development project requests designation in the following industries based on the North America Industry Classification System **("NAICS")** Code:

The NCE is seeking to raise a maximum of [redacted] in investor capital from [redacted] EB-5 investors for the EB-5 Immigrant Investor Program (hereinafter "EB-5") for the Luxury Condominium. According to the Economic Impact Report, the project will create [redacted] jobs, including [redacted] jobs from direct and indirect from construction employment, and [redacted] direct/indirect jobs from operation.

LOCATION – TARGETED EMPLOYMENT AREA

The EB-5 investment within a targeted employment area is calculated at a ratio of $500,000 for every 10 jobs created. The maximum credited foreign investment the [redacted] jobs can support under the EB-5 Program is [redacted] capital raise. The Project is seeking to raise [redacted] from the EB-5 Program.

The project is located at 148-44/48 Hillside Avenue & 148-31/43 88th Avenue in Jamaica, NY 11435. The location is in census tract 238 in Queens County, a designated Targeted Employment Area ("TEA") as of August 20, 2015, confirmed by the Empire State Development and New York State Department of Labor. Please see the TEA letters, attached at **Exhibit 4.**

Thus the project is located in a TEA and shall have a minimum investment requirement by each member of $500,000 USD. Membership units for the EB-5 investors shall be sold at [redacted] USD, of which $500,000 USD shall be utilized towards the construction of the project and [redacted] USD shall go towards an Administrative Fee.

DEVELOPMENT COSTS:

The total cost of the Project is estimated at [redacted] consisting of land costs of approximately [redacted] hard construction costs of approximately [redacted] and soft and other costs of approximately [redacted] The owner's equity is approximately 26.6% of the development costs [redacted] The maximum raise of EB-5 investment funds would be [redacted]

The project developers anticipate receiving traditional bank financing in place for the remainder of the financing. Thus, intermediary short-term bridge financing may used to complete the construction. EB-5 investment may be used to replace a bridge loan from other commercial lenders. As necessary, the JCE may also provide temporary short-term bridge financing through member loans in order to commence construction and create jobs in advance of EB-5 funding. .

REGIONAL CENTER: (b)(4)

EXECUTIVE SUMMARY

The Jamaica Project plans to construct and develop a mixed-use development, which will included two buildings: The first building will be a six-floor commercial space with 17,099 rentable sf. The second building will be an eight-floor residential building with 109 units and 84,709 rentable sf. The total building gross size is 101,808 sf. The buildings will include retail spaces, office spaces, residential spaces, community facilities, and 55 paid parking spaces (the "Project") in Jamaica, Queens, one of the five boroughs of New York City. The project buildings are located at 148-44/46 Hillside Avenue in Jamaica, NY 11435 & 148-31/43 88th Avenue in Jamaica, NY 11435.

88th Avenue EB5 Capital, LLC will be the new commercial enterprise, (hereinafter the "NCE") a newly formed entity for the purpose of raising EB-5 investment capital. 88th Avenue Realty, LLC is the job creating entity (hereinafter "JCE") that owns and operates the project. The NCE will be managed by Mr. George Xu, the developer and owner of the Project. The business entity structure is outlined in the table below.

FUNCTION	ENTITY NAME
New Commercial Enterprise (NCE)	88th Avenue EB5 Capital, LLC
Regional Center (RC)	Century New York City Regional Center, LLC
Job Creating Entity (JCE)	88th Avenue Realty, LLC

The Jamaica Project entails new construction of two mixed-use buildings, which consists of a six-floor commercial space with 17,099 rentable sf, and an eight-floor residential building with 109 units and 84,709 rentable sf. The buildings will include retail spaces, office spaces, residential spaces, community facilities, and parking spaces in Jamaica, Queens, one of the five boroughs of New York City. The construction and operation of the regional base of invested capital, the creation of new jobs, and the associated economic growth effects will be put into effect with the capital raised from immigrant investors through the EB-5 Program.

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EB-5 BUSINESS PLAN

Mixed-Use Development (Commercial and Residential)

88th Avenue EB5 Capital, LLC

138-44/48 Booside Avenue / 138-31/43 Avenue

REGIONAL CEN R: CENTURY NEW YORK CITY RE ONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: 88TH AVE EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 7

Comprehensive I-526 Business Plan

- **Comprehensive I-526 Business Plan** in accordance with the Matter of Ho

100% Recycled 30% PCW

Over 30 articles in major academic journals and publications (list on request)

• Estimated the size and economic importance of the fluoropolymer industry, and calculated economic impact of shutting down domestic production.

• Built an econometric model to examine how U.S. tax and regulatory policies help determine whether the gold mining industry would invest in the U.S. or other countries. Testified before Congress to help defeat legislation inimical to the mining industry.

• Built an econometric model to predict consumer bankruptcies, based on recent growth in consumer credit outstanding, the overall economic environment, and recent changes in credit regulations

• Estimated the economic impact of the ethanol subsidy on the U.S. economy and Farm Belt States, including the impact on the balance of payments, employment, and tax receipts. Testified before Congress to help pass legislation to extent subsidies to the ethanol industry.

• Built an econometric model to determine the impact of updating and improving the system of locks on the Upper Mississippi River on corn prices and exports, farm income, and the overall economy.

BOOKS PUBLISHED

Macroeconomics for Managers, Blackwell, 2003

Practical Business Forecasting, Blackwell, 2002

Economic Impact of the Demand for Ethanol, Diane Publishing Company, 1998

How to Make Your Shrinking Salary Support You in Style for the Rest of Your Life, Random House, 1991

The Truth About Supply-Side Economics. Basic Books, 1983.

A Supply-Side Model of the U. S. Economy, mimeo (prepared for Senate Finance Committee), 1980.

An Econometric Model of the French Economy: A Short-Term Forecasting Model. O.E.C.D, March 1969.

Econometric Gaming (with L. R. Klein and M. J. Hartley). Random House, 1969.

Macroeconomic Activity: Theory, Forecasting and Control. Harper & Row, 1969.

The Wharton Econometric Forecasting Model (with L.R. Klein), Economics Research Unit, Wharton School: University of Pennsylvania Press, 1967. Enlarged edition, 1968.

• Determined the economic impact of the Oneida Indian gaming casino on the Green Bay metropolitan area.

• Estimated the negative economic impact on the Milwaukee area if a new Indian gaming casino were to be built in Kenosha, Wisconsin.

D. Economic Impact of Smoking Bans and Higher Taxes

• Testified on economic impact of smoking bans in Canada; certified as an expert witness by the Court.

• Examined the impact of smoking bans on restaurant sales in several different locations in the U.S. to determine how much sales changed when these bans were imposed, and the differential effects depending on whether these bans were partial or total.

• Determined the cross-border effects on retail sales from differential rates in cigarette, gasoline, and alcohol excise taxes

• Determined the economic impact of higher cigarette taxes on minority group employment.

• Estimated the economic impact and loss of Federal and state tax revenues when higher cigarette prices lead to increased smuggling.

E. Consulting Projects for Travel and Tourism

• Built an econometric model to predict tourism trips and revenues for the major regions of the U.S. economy.

• Constructed econometric models to predict tourism in Las Vegas and Orlando.

• Using the IMPLAN model, predicted economic impact of tourism and travel expenditures for all counties in Pennsylvania.

F. Other Private Sector Consulting Projects

• Calculated the revenue gain at the Federal, state and local level generated by domestic manufacturing of Airbus parts and equipment.

• Calculated the economic impact of proposed EPA bans on fluoropolymer production.

N• Calculated the economic benefits of EB-5 programs for a mixed-used retail shopping center in the New York City metropolitan area.

N• Calculated the economic benefits of EB-5 programs for foreign investors for proposed shopping centers in five separate counties in Southern California, including differential impacts of building the shopping centers in different counties.

B. Projects for State and Local Governments

• Constructed an econometric model for the State of New York and determined the change in employment, labor income, and tax revenues for 43 different tax changes proposed by the Governor's office.

• Constructed a detailed econometric model for the State of Pennsylvania to determine the economic impact of the complete panoply of state taxes levied; the model contains over 1,000 equations. In cooperation with American Economics Group, the model was developed to simulate the effect of changes in any state tax rate on households and businesses by income deciles, household status, age of individuals, size of households, and many other demographic variables. The change in business taxes can also be simulated for detailed industry classifications.

• Determined whether the Washington, D.C. water and sewer authority should accept a high bid for a new waste disposal system. Decision to reject has saved the authority over $200 million, as construction prices turned down sharply as predicted.

• Built an econometric model to determine the "tax gap" caused by Internet sales for the state of Minnesota.

• Determined appropriate levels of shelter grants individual counties in New York State, and for utility allowances in New York City. Reviewed and prepared testimony in ongoing court cases in these areas.

• Calculated the economic impact of the revitalization of downtown Milwaukee, Wisconsin.

C. Economic Impact of Casino Gaming

• Built an econometric model to predict the growth of the gaming industry over the next decade, and the economic impact of that industry on employment and tax revenues at the Federal and state levels.

• Estimated the economic impact of Indian casino gaming nationally and for the State of Wisconsin.

N• Prepared the economic analysis for a proposed EB-5 regional center in the San Francisco Bay area that included calculations for 10 different types of industries.

N• Prepared economic impact calculations for proposed EB-5 regional centers in New York City and Northeastern New Jersey.

• Calculated the economic impact of a rehabilitated office building in Albuquerque, New Mexico, including the increase in high quality jobs.

• Calculated the economic impact of a rehabilitated skilled nursing center in East Los Angeles, California, including the impact on nearby census tracts.

N• Calculated the economic impact of development of warehouse and light industrial manufacturing space in Las Vegas, Nevada.

N• Calculated the economic impact of rehabilitation and expansion of a vacation and health spa in Sharon Springs, New York

N• Calculated economic impact of revitalizing an old resort hotel and adding new facilities for Lake Geneva, WI.

• Calculated the employment and tax effects for a portfolio of projects undertaken under the New Market capital program.

E• Calculated generic employment changes for proposed EB-5 project for an Inland Port in Palm Beach County, FL

N• Calculated the economic impact of construction of El Monte Village in El Monte, CA.

• Calculated the economic impact of moving the Social Security Administration building in Birmingham, AL, and revitalizing the surrounding neighborhood.

• Calculated the economic impact of rehabbing and expanding the Everett Mall in Everett, WA.

• Determined the economic impact of building a new medical center in Charleston, SC

N• Calculated economic impact of expanding Sugarbush resort in VT. Study included expansion of existing facilities and addition of new facilities.

• Calculated economic impact for new market tax credit program in Portsmouth, N.H. Study included both overall economic impact, and the increase in employment and income and the decrease in the unemployment rate and incidence of poverty in individual census tracts.

N• Calculated the economic benefits of EB-5 programs for foreign investors for a mixed-use construction project, including a hotel, retail stores, apartments, and a sports stadium in the Washington, D. C. metropolitan area

N• Determined the nationwide economic impact of a $1 billion investment in Mississippi for a new hybrid motor vehicle plant.

N• Determined the economic impact of expanding a shipyard in Southeastern Louisiana.

N• Calculated the economic impact of a new shopping center in Buena Vista, California, and two other generic shopping centers in Los Angeles and San Bernardino counties.

E• Calculated the economic impact of enhancing resort areas in eight rural counties in Colorado.

N• Calculated the economic impact of the rehabilitation of Fitzsimons Village in Aurora, Colorado, by adding an office building with medical labs, hotel, shopping center, and residences.

E• Determined the economic impact of a mixed-use commercial center for the Kansas City metropolitan area.

N• Calculated the number of jobs created for a film production company in New York City.

N• Calculated economic impact of small-scale rooftop solar panels in various counties in California.

N• Calculated economic impact of 7 different types of proposed businesses for a proposed regional center in the Bay Area of California.

N• Determined the economic impact of a new biological research park, office building, and logistics center in Wooster, Ohio.

E• Calculated the economic effect of a mixed-use urban renewal project in Cleveland, Ohio.

N• Calculated economic impact of dairy farm and cheese processing plant in Northern California.

N• Determined economic impact of a shipyard, food processing plant, and semiconductor plant for a proposed regional center in Louisiana and Mississippi.

N• Calculated the economic impact of a new gaming casino in Natchez, Mississippi.

N• Developed an Input/output Model for Guam, which was then used to calculate the economic impact of several generic projects.

N• Calculated the economic impact of a retail shopping center in suburban Los Angeles County.

N• Prepared an economic impact analysis for the "timber to homes" project for a proposed regional center in Colorado.

N• Calculated the economic impact for a proposed regional center in Baltimore, Maryland that would include the rebuilding of depressed areas in East Baltimore and along the riverfront.

N• Prepared the economic analysis for a proposed EB-5 regional center for the entire state of Florida that included impact calculations for 14 different types of industries.

N• Calculated the economic impact of building and operating a mixed-use facility with medical offices, hotels, and apartments for a proposed EB-5 regional center in Queens, NY.

E• Determined a Targeted Employment Area for Philadelphia, PA as part of a proposed EB-5 regional center for the Philadelphia area.

N• Calculated the economic impact of a proposed office building and mixed-use facility for an EB-5 regional center in Dallas, Texas

N• Calculated the economic impact for various mixed-use projects for a proposed EB-5 regional center in the greater New York City area, including an extended stay hotel, urgent care center, financial lending firm for alternative assets, retail stores, apartments, office space, warehouses, industrial "flex" space, entertainment centers, restaurants, conference and convention centers, nursing home and assisted living facilities, medical offices, medical technology facilities, and high-tech manufacturing.

N• Calculated the economic impact of "green" hotels in 10 counties in Central California.

N• Calculated the economic impact of generic projects in manufacturing, financial services, health services, hotels, and restaurants for a proposed regional center for the state of Florida.

E• Calculated the economic impact of 12 different types of economic activity for an expansion of the Palm Beach Regional Center to five contiguous counties.

N• Calculated the economic impact of a new auto parts plant in Alabama to supply parts to Kia automobiles.

N• Calculated the economic impact of opening fast-food restaurants in Miami/Dade and Broward counties in FL.
N• Calculated the economic impact of a mixed-use commercial center in Flushing, Queens County, NY.

E• Calculated the economic impact of revitalizing and renovating part of the Brooklyn Navy Yard for "green" manufacturing facilities.

E• Calculated the economic impact of 12 different types of economic activity for various counties in Charlotte and Sarasota counties, FL

E• Calculated the economic impact of four new manufacturing and distribution companies in Palm Beach County, FL.

N• Calculated the economic impact of developing a resort area and building residences in rural Tennessee.

N• Calculated the economic impact of developing and operating a resort area in Southern Arizona.

N• Calculated the economic impact of revitalizing the depressed East Side of Cleveland, Ohio, with new commercial and industrial buildings.

N• Calculated the economic impact for a fractional-ownership marina in Port Charlotte, FL, plus office space, retail stores, restaurants, and a home brokerage office.

N• Calculated the economic impact of construction and operation of four retirement homes in Vermont.

E• Calculated the economic impact of an upscale retail shopping center in Vail, CO. and a medical office building in Edwards, CO (both in Eagle County).

E• Calculated economic impact of a wind turbine manufacturing plant in Larimer County, CO

N• Calculated economic impact of a hotel, retail stores, restaurants, office buildings, and bank facilities in Pasadena, CA

N• Calculated economic impact of a luxury hotel and condominiums in Destin, FL

N• Calculated economic impact of constructing and operating a mixed-use commercial project in Jupiter, FL

E• Determined whether 17 possible restaurant locations in Miami/Dade and Broward Counties qualified as Targeted Employment Areas.

E• Determined the economic impact of opening and operating a slot-machine casino in Hanover, MD, as part of a proposed EB-5 regional center for the Baltimore metropolitan area.

N• Calculated the economic impact of renovating and expanding a restaurant on Martha's Vineyard, MA, as part of an EB-5 regional center in that state.

N• Determined the economic impact of assembling and installing solar panels for residences in the state of LA.
E• Determined a Targeted Employment Area for Dallas, TX as part of a proposed EB-5 regional center for the Dallas area.

N• Calculated the economic impact for various mixed used projects for a proposed regional center for the entire State of Texas, including shopping centers, office buildings, restaurants, assisted living centers, medical technology facilities, and other personal and business services.

N• Calculated the economic impact for the construction and operation of several fast-food restaurants in 10 counties in central California.

N• Calculated the economic impact for the renovation and expansion of a shopping mall in Greenville, SC.

E• Calculated the economic impact of buying existing apartment buildings at deep discount prices, renovating and operating them, in 21 counties in FL.

N• Calculated the economic impact of building and operating an institute for proton cancer therapy for a proposed EB-5 regional center in Brooklyn, NY.

E● Calculated the economic impact of building and operating low-income housing in Boston, MA.

N● Calculated the economic impact of constructing and operating assisted living facilities in eight rural Texas counties.

N● Calculated the economic impact of a mixed-use commercial project in Riverside County, CA.

E● Calculated the economic impact of opening a manufacturing plant for "green" motor vehicles in the Detroit, MI area.

E● Calculated the economic impact of constructing and operating hotels and restaurants in Columbus, MS.

E● Calculated the economic impact of operating restaurants in the Hotel W in Hollywood, CA.

N● Calculated the economic impact of a mixed-use commercial project in McCook, IL (suburban Chicago).

N● Calculated the economic impact of constructing and operating a water-based amusement facility in San Diego, CA.

N● Calculated the economic impact of a mixed-use commercial facility in suburban Cincinnati, OH (project is in KY).

E● Calculated the economic impact of constructing and operating a casino, hotel, and restaurant in Las Vegas, NV.

N● Calculated the economic impact of a new academic institution for alternative energy in Santa Clarita, CA.

N● Calculated the economic impact of several mixed-used projects in San Francisco, Alameda County, Santa Clara County, and Fresno County.

N● Calculated the economic impact of a super energy store and solar farm in Riverside County, CA.

N● Calculated the economic impact of a prostate cancer treatment center in South Carolina.
E● Calculated the economic impact of refurbishing and expanding retail space at the George Washington Bridge in New York City.

E● Calculated the economic impact of building Atlantic Yards, new stadium for the New York Nets, in Brooklyn, NY

N● Calculated the economic impact of an assisted living center and several mixed-use commercial facilities in the Reno, NV area.

E● Calculated the economic impact of buying residential properties at deep discount prices, refurbishing and selling them, in South Florida.

E● Calculated the economic impact of a wastewater treatment plant in Victorville, CA

N● Calculated the economic impact of drilling for geothermal energy and constructing and operating power plants in several counties in Nevada

E● Calculated the economic impact of a vacation club operation in Orlando, FL

E● Calculated the economic impact of constructing and operating an extended-stay hotel in Boston, MA

E● Calculated the economic impact of constructing and operating an assisted living facility in Walton County, FL

N● Calculated the economic impact of manufacturing and constructing residential and commercial steel modular buildings in Lee County, FL

E● Calculated the economic impact of a chain of yogurt and juice stores and restaurants in southern Florida

E● Calculated the economic impact of two mixed-use commercial developments in Orange County, CA.

E● Calculated a Targeted Employment Area by census tracts for six counties in the Houston, TX metropolitan area

E● Calculated the expansion of new hybrid car manufacturing facility from Mississippi to Tennessee and Virginia.

E● Calculated the economic impact of construction and operation of a skilled nursing facility in Las Vegas, NV.

N● Calculated the economic impact of construction and operation of a proton cancer treatment center and medical offices buildings in Los Angeles County, CA.

E● Determined the economic impact of improving facilities at the Port of Baltimore in order to attract more shipping from the Panama Canal when the locks are widened.

N● Calculated the economic impact of a major hotel and resort area in Ft. Lauderdale, FL.

N● Calculated the economic impact of building steel homes in South Florida, including the local manufacture of steel fabricated parts.

E● Calculated the economic impact of constructing and operating a hotel at Times Square in New York City.

N● Calculated the economic impact of a mixed-used residential and commercial project in Atlanta, GA.
E● Calculated the economic impact of expanding and opening new restaurants in Dallas, TX. In a separate project, calculated the economic impact of renovating, refurbishing, and operating a boutique hotel in Dallas, TX.

E● Calculated the economic impact of developing and operating a chain of children's playrooms and party facilities in South Florida

E● Calculated the economic impact of developing a new stadium for the Nets basketball team, to be located in Brooklyn, NY

E● Calculated the economic impact of developing a Marriott hotel in Washington, D.C.

E● Calculated the economic impact of developing and operating a casino for foreign patrons in Las Vegas, NV

E● Calculated the economic impact of operating a series of yogurt fast-food restaurants in South Florida

E● Calculated the economic impact of constructing steel homes and commercial buildings in South Florida

N● Calculated the economic impact of construction and operation of a farm distillery in Vermont

N● Calculated the economic impact of purchase and renovation of deeply discounted residential properties in South Florida

N● Calculated the economic impact of a hotel to be built near LaGuardia Airport in Queens, NY

N● Calculated the economic impact for several mixed-use commercial and residential properties for a regional center covering southern Wisconsin and northern Illinois.

N● Calculated the economic impact for mixed-use commercial project in Flushing, NY

E● Calculated the economic impact for major new hotel near the Washington, D. C. conference center

N● Calculated the economic impact of an assisted living center in suburban Atlanta, GA

N● Calculated the economic impact of an office tower in mid-town Manhattan for the diamond trade

N● Calculated the economic impact of three mixed-use commercial and residential projects in Santa Clara County, CA

N● Calculated the economic impact of six mixed-use commercial and residential projects in Los Angeles, Orange, Riverside, and San Bernardino counties

N● Calculated the economic impact of operating a chain of pizza restaurants in southern Florida.

N● Calculated the economic impact of constructing and operating an assisted living facility in Atlanta, GA

E● Calculated the economic impact of constructing and operating an expansion of University Hospital in Cleveland, OH

N ● Calculated the economic impact of a new business to store and process field crops in Madison, MS

N● Calculated the economic impact of operating food service establishments and assisted living centers in 40 counties in Texas.

E● Calculated the economic impact of developing a mixed-use commercial center in Miami, FL

N● Calculated the economic impact of renovating a theater in New York City to show film highlights of previous Broadway hits.

N● Calculated the economic impact of renovating and operating distressed buildings in the San Francisco Bay area.

E● Calculated the economic impact of a mixed-use commercial center in Montgomery County, TX

E● Calculated the economic impact of expanding a manufacturing facility to produce more energy-efficient lighting in Sarasota, FL

N● Calculated the economic impact of developing facilities for amateur sporting events in northern GA

N● Calculated the economic impact of developing a mixed-use commercial center in Missoula, MT

N● Calculated the economic impact of operating call centers in Las Vegas, NV, and other western Nevada counties

E● Calculated the economic impact of constructing and operating a proton cancer treatment center in Boca Raton, FL

E● Calculated the economic impact of constructing and operating a "Green Box" facility in Detroit to process waste material on a pollution-free basis.

E● Calculated the economic impact of renovating and expanding commercial property in Lower Manhattan

N● Calculated the economic impact of constructing student housing and retail stores in Davie, FL

E● Calculated the economic impact of constructing residential housing near Harvard University

E● Calculated the economic impact of developing mixed-use commercial centers in Broward County, FL

E● Calculated the economic impact of renovating a Dallas apartment building

E● Calculated the economic impact of renovating and operating a nursing home in Las Vegas, NV

E● Calculated the economic impact of constructing a hotel and shopping center in Miami, FL

E● Calculated the economic impact of developing a design center in Miami/Dade county, FL

N● Calculated the economic impact of constructing and operating a company for manufacturing dental implants in Cuyahoga County, OH

N● Calculated the economic impact of constructing and operating a mixed-use commercial facility in Brooklyn, NY

N● Calculated the economic impact of constructing and operating an office building for financial services in downtown Manhattan, NY

N● Calculated the economic impact of constructing and operating a mixed-use facility in Southern California

N● Calculated the economic impact of constructing and operating a retail shopping center in Tampa, FL

N● Calculated the economic impact of constructing and operating a retail shopping center in Tampa, FL

N● Calculated the economic impact of constructing and operating a mixed-use commercial building in Seattle, WA

N● Calculated the economic impact of constructing and operating a charter school in Arizona

N● Calculated the economic impact of constructing and operating a resort in northeastern Utah

N● Calculated the economic impact of operating an online video game company

N● Calculated the economic impact of constructing and operating a hotel in New York City

N● Calculated the economic impact of constructing and operating a fashion mall in South Florida

E● Calculated the economic impact of construction and operation of a new automobile assembly plant in Petersburg, VA

N● Calculated the economic impact of operating a call center for the U.S. government in Muskogee, OK

N● Calculated the economic impact of developing a mixed-use commercial and residential center in Scottsdale, AZ

N● Calculated the economic impact of constructing and operating a "Green Box" facility in New Jersey to process waste material on a pollution-free basis.

N● Calculated the economic impact of constructing and operating a "Green Box" facility in Washington State to process waste material on a pollution-free basis.

E● Calculated the economic impact of constructing and operating a new hotel in Coral Gables, FL

E● Calculated the economic impact of developing a new residential community in Brevard County, and retail stores and restaurants in St. Lucie County, FL

E● Calculated the economic impact of constructing and operating a mixed-use commercial building in Queens, NY

E● Calculated the economic impact of operating a livery service in Queens, NY

N● Calculated the economic impact of constructing and operating residential properties in Southern California

N● Calculated the economic impact of operating a film and TV production studio in Los Angeles, CA

N● Calculated the economic impact of drilling oil wells in Montana

N● Calculated the economic impact of constructing and operating various residential and commercial buildings for 43 counties in Texas

E● Calculated the economic impact of constructing and operating a restaurant and dinner theater in Guam

N● Constructed an input/output model for the Commonwealth of the Northern Mariana Islands, and used it to calculated the economic impact of constructing and operating a restaurant in Saipan.

E● Calculated the economic impact of constructing and operating a new hotel in Miami, FL

E● Calculated the economic impact of constructing and operating a resort and wellness center in South Florida

N● Calculated the economic impact of expanding and operating a ski resort in Vermont.

N● Calculated the economic impact of constructing and operating residential and commercial buildings in 20 counties in South Central Texas

N● Calculated the economic impact of constructing and operating a hotel near the Newark, NJ airport

E● Calculated the economic impact of constructing and operating a company to process health insurance benefits in South Florida

E● Calculated the economic impact of constructing and operating a veterinary hospital in Palm Beach County, FL

N● Calculated the economic impact of constructing and operating various residential and commercial buildings for all counties in MA, CT, RI, and NH

N● Calculated the economic impact of constructing and operating a residential construction company in Maryland

N● Calculated the economic impact of constructing and operating various residential and commercial buildings for the entire state of Oklahoma

N● Calculated the economic impact of constructing and operating hotels, assisted living centers, and mixed-use commercial buildings in 8 counties in Southern California

N● Calculated the economic impact of constructing and operating a charter school in Broward County, FL

N● Calculated the economic impact of renovating a former public housing project in Chicago, IL

N● Calculated the economic impact of starting a high-tech company for optical displays in Orlando and Gainesville, FL

N● Calculated the economic impact of constructing and operating luxury hotels in four Southern California counties

E● Calculated the economic impact of expanding a manufacturing company in Ann Arbor, MI

N● Calculated the economic impact of reconverting an old mill building into offices and other commercial uses in Bristol County, MA

N● Calculated the economic impact of a film and TV production studio in Los Angeles, CA

N● Calculated the economic impact of constructing and operating various residential and commercial buildings in 35 Texas counties.

N● Calculated the economic impact of constructing and operating the world's tallest residential structure in Chicago, IL

N● Calculated the economic impact of constructing and operating a mixed-use commercial and residential building in Seattle, WA

N● Calculated the economic impact of constructing and operating a hotel in Cleveland, OH

N● Calculated the economic impact of a research facility in Jupiter, FL

N● Calculated the economic impact of constructing and operating an assisted living center in Horry County, SC

N● Calculated the economic impact of constructing and operating a chain pharmacy in Chicago, IL

E● Calculated the economic impact of constructing and operating a high-end hotel and resort in Aspen, CO

N● Calculated the economic impact of constructing and operating an assisted living center in Dallas, TX

E● Calculated the economic impact of constructing and operating an medical assistance company in Bronx, NY

N • Calculated the economic impact of producing movies in New Mexico

N • Calculated the economic impact of developing and operating a chain of child learning centers in Houston, TX

N • Calculated the economic impact of developing and operating a chain of medical research and supply centers in Houston.

N • Calculated the economic impact of developing and operating a chain of frozen yogurt stores in a wide area along the Gulf of Mexico, including locations in Florida, Alabama, Mississippi, Louisiana, and Texas

N • Calculated the economic impact of developing and operating assisted living centers and ancillary activities for several locations in Northeast Florida.

N • Calculated the economic impact of the construction and operation of an assisted living center in Santa Ana, CA

N • Calculated the economic impact of the construction and operation of several BBQ restaurants in South Florida.

N • Calculated the economic impact of the drilling oil wells in 8 counties in Texas and Louisiana.

N • Calculated the economic impact of operating coal mines for metallurgical coal in West Virginia.

N • Calculated the economic impact of operating gold mines in Alaska.

N • Calculated the economic impact of constructing and operating a mixed-use commercial center in Flushing, NY

N • Calculated the economic impact of constructing and operating two hotels, one in downtown San Diego, and one in Escondido, CA

N • Calculated the economic impact of expanding and operating an auto racing track in Palm Beach, FL

N• Calculated the economic impact of building and operating mobile housing villages for disaster relief.

N• Calculated the economic impact of operating an "incubator" for research on medical devices, preparations, and services in Houston, TX.

N• Calculated the economic impact of constructing and operating a mixed-use commercial center in Denver, CO.

N• Calculated the economic impact of constructing and operating a charter school in Miami/Dade County, FL

E• Calculated the economic impact of constructing and operating a hotel in Manhattan, NY

E • Calculated the economic impact of several mixed-use commercial projects in Southern California (4 such projects, each one covering 4 to 6 counties, including Clark County, NV)

E • Calculated the economic impact of a hotel in Norwalk, CT

E • Calculated the economic impact of copper mines throughout the state of Arizona

E • Calculated the economic impact of water park and hotel in Arlington Heights, IL (suburban Chicago)

N • Calculated the economic impact of renovation and expansion of Las Vegas casino (3 separate projects)

N • Calculated the economic impact of construction and operation of mixed-use shopping and commercial center in Hollywood Park, FL

N • Calculated the economic impact of development of office building in South Union Lake region of Seattle, WA

E • Calculated the economic impact of Development of mixed-use commercial and residential building in downtown Seattle, WA

N. • Calculated the economic impact of commercial mixed-use projects in New York City, upstate New York, and Northern New Jersey (one project)

N • Calculated the economic impact of developing and operating a major amusement park complex (rival to Disney World) near Lake Okeechobee, FL

N•. Calculated the economic impact of constructing and operating a hotel and conference center in Toledo, Ohio.

N. • Calculated the economic impact of renovating and expanding the New York Military Academy in Newburgh, NY

N • Calculated the economic impact of developing a mixed-use commercial project in downtown Philadelphia, PA (2 separate projects)

N • Calculated the economic impact of a film studio to produce motion pictures and TV programs in Los Angeles, CA.

N • Calculated the economic impact of building student housing in Arlington, TX

N • Calculated the economic impact of developing and operating a manufacturing plant for sports medical devices in suburban Chicago, IL

N • Calculated the economic impact of developing natural gas wells and wind farm in the Pocono Mountains section of Pennsylvania.

N • Calculated the economic impact of an assisted living center, hotel, and water park in Eastern CT.

N • Calculated the economic impact of a series of child day care and learning centers in San Antonio and Austin, TX

N • Calculated the economic impact of a mixed-use commercial and cultural center in Chinatown, Philadelphia

E • Calculated the economic impact of developing and operating charter schools in Florida (4 projects)

N • Calculated the economic impact of developing the Boston Seaport project near the Boston Harbor.

E • Calculated the economic impact of a mixed-use hotel and commercial project in downtown Boston, MA

E • Calculated the economic impact of expanding the Hialeah racetrack, Hialeah, FL

E • Calculated the economic impact of developing and expanding a resort area in Benton Harbor, MI

N • Calculated the economic impact of developing and operating a Holiday Inn near the World Trade Center, Manhattan

N • Calculated the economic impact of developing and operating a Marriott Courtyard hotel in downtown Houston.

N • Calculated the economic impact of building a greenhouse in Central California.

N. Calculated the economic impact of developing an aircraft manufacturing plant in Northeast Arkansas.

N. Calculated the economic impact of developing and operating alternative fuels plant in Clark County, NV.

N • Calculated the economic impact of a destination winery and associated attractions in North Carolina.

E • Calculated the economic impact of building and operating a luxury hotel in Palm Beach, FL

N • Calculated the economic impact of operating a Kosher cheese plant in upstate New York

E • Calculated the economic impact of developing and operating a hotel in Chicago, IL

N • Calculated the economic impact of expanding the operations of a plumbing and HVAC contractor

E • Calculated the economic impact for 4 separate projects in Guam, based on the input/output model previously developed by ECA

E • Calculated the economic impact of a resort in the Commonwealth of the Northern Mariana Islands, based on the input/output model previously developed by ECA.

E • Calculated the economic impact of drilling and extracting oil, natural gas, and natural gas liquids, Oklahoma (2 projects)

E • Calculated the economic impact of expanding a golf and ski resort, and a furniture manufacturing plant, in Northern New Hampshire

E • Calculated the economic impact of constructing and operating a medical facility and student dormitory in Brooklyn, NY

N • Calculated the economic impact of oil drilling and extraction in Marion County, TX

E • Calculated the economic impact of developing and operating mixed-use facilities in Los Angeles

N • Updated an input/output model for Puerto Rico, and used this model to determine the economic impact of constructing and operating a resort in Boqueron Bay

E • Calculated the economic impact of renovating properties for Mississippi State University and adding a hotel

E • Calculated the economic impact of renovating an assisted living facility in Anniston, AL

E • Calculated the economic impact of constructing an apartment tower in Phoenix, AZ

E • Calculated the economic impact of constructing and operating a hotel in Dallas, TX. Also calculated the impact of two assisted living centers in Dallas.

N • Calculated the economic impact of a mixed-use commercial facility in New London, CT.

N • Calculated the economic impact of a mixed-use commercial facility in suburban Chicago, IL

• Calculated the economic impact of a hotel, casino, and commercial mixed-use properties on the island of Matsu, Taiwan Republic (not an EB-5 project but similar methodology was used)

N • Calculated the economic impact of extracting lithium compounds from the Salton Sea in Imperial County, CA

N • Calculated the economic impact of constructing and operating geothermal power plants in southern CA

E • Calculated the economic impact of constructing luxury hotels and condominiums in Manhattan (6 separate projects)

N • Calculated the economic impact of producing motion pictures and TV programs in Miami, FL

E • Calculated the economic impact of constructing and operating a hotel, shopping center, and residences in Boca Raton, FL

E • Calculated the economic impact of developing and operating a time-sharing resort on Lake Tahoe, CA

N • Calculated the economic impact of constructing and operating a medical complex in the Houston, TX metropolitan area.

N • Calculated the economic impact of constructing a new interchange for the Pennsylvania Turnpike and I-95.

E • Calculated the economic impact of constructing and operating a mixed-use commercial facility in Newark, NJ

E • Calculated the economic impact of improving the infrastructure at the waterfront in Oakland, CA

E • Calculated the economic impact of constructing and operating a hotel in San Diego CA.

E • Calculated the economic impact of constructing and operating a hotel in downtown Cleveland, OH

E • Calculated the economic impact of constructing three multi-family residential properties in Austin, TX.

E • Calculated the economic impact of renovating and operating the former Wilshire hotel in Los Angeles.

E • Calculated the economic impact of constructing and operating a luxury hotel in Austin, TX

E • Calculated the economic impact of constructing a mixed-use industrial facility in Pflugerville, TX

E • Calculated the economic impact of constructing and operating charter schools in several different locations in Florida, and in Chicago (5 separate projects).

N • Calculated the economic impact of constructing and operating a manufacturing plant for wood pellets used for heating in Southern Georgia

E • Calculated the economic impact of constructing and operating a wind farm in the Texas panhandle.

E • Calculated the economic impact of constructing several luxury apartment buildings and hotels in Manhattan (4 separate projects)

E • Calculated the economic impact of operating a steel distribution center in Palm Beach County, FL

N • Calculated the economic impact of operating a boat for cleaning and processing fish anchored off the Mississippi River in Kentucky.

E • Calculated the economic impact of constructing and operating hotels in Seattle, WA (2 separate projects)

N • Calculated the economic impact of operation of a facility for bio-science trials, Newark, NJ

N • Calculated the economic impact of building and operating a steel mill in Northeast Arkansas.

E • Calculated the economic impact of expansion of commercial facilities in Cleveland, OH in (a) the area around University Circle, and (b) the downtown Flats area.

N • Calculated the economic impact of constructing and operating a geothermal power plant in Oregon.

E • Calculated the economic impact of constructing and operating a luxury apartment building in downtown Manhattan

E • Calculated the economic impact of constructing and operating a senior living facility in Palm Beach County, FL

E • Calculated the economic impact of constructing several multi-family residential buildings in Texas (3 separate projects)

E • Calculated the economic impact of operating a home insurance company to relieve the burden of Citizens Insurance in the State of Florida.

E • Calculated the economic impact of constructing and operating a restaurant chain specializing in high-quality health foods, Palm Beach County, FL

E • Calculated the economic impact of constructing and operating multi-family residential properties, hotels, and senior living facilities in the Denver metropolitan area.

E • Calculated the economic impact of constructing and operating multi-family residential properties, hotels, and senior living facilities in the Atlanta metropolitan area.

E • Calculated the economic impact of constructing and operating multi-family residential properties, hotels, and senior living facilities in the Atlanta metropolitan area.

E • Calculated the economic impact of constructing and operating multi-family residential properties, hotels, and senior living facilities in the Miami metropolitan area.

E • Calculated the economic impact of producing a series of 10 major motion pictures ($100 million or more each) in the New York City area.

E • Calculated the economic impact of constructing luxury homes on Key Largo, FL

N • Calculated the economic impact of construction and operation of three projects in Puerto Rico: a hotel in San Juan, a condo/hotel village in Arecibo, and a power plant in Loiza. Used Puerto Rico input/output model updated by ECA.

N • Calculated the economic impact of construction and operation of a time-sharing condominium in Hawaii.

E • Calculated the economic impact of constructing and operating a large Ferris Wheel on the Las Vegas strip, including the impact of advertising revenues and ancillary retail space.

E • Calculated the impact of operating an insurance company in South Florida.

N • Calculated the economic impact of construction and operation of sports complex in Attleboro, MA.

E • Calculated the economic impact of construction and operation of sports stadium and related retail ventures in Las Vegas, NV

E • Calculated the economic impact of construction and operation of resort complex in Hawaii

E • Calculated the economic impact of construction and operation of mixed-use commercial and residential property in Emerald Falls, OK

E • Calculated the economic impact of construction and operation of five hotels in rural Texas

N • Calculated the economic impact of developing and operating oil wells in the Bakken Formation in North Dakota.

E • Calculated the economic impact of construction and operation of 4 mixed-use buildings in the New York City metropolitan area.

E • Calculated the economic impact of construction and operation of a hotel in Queens, NYC

E • Calculated the economic impact of constructing and operating a hotel near LaGuardia airport, New York

E • Calculated the economic impact of constructing and operating a restaurant and wine bar on the Las Vegas strip.

E • Calculated the economic impact of constructing a medical complex in the Bronx, NY

E • Calculated the economic impact of constructing and operating a theme park restaurant in Downtown Disney World, Orlando, FL

E • Calculated the economic impact of constructing and operating an oil refinery in the Houston, TX metropolitan area

N • Calculated the economic impact of developing a planned town with single and multi-family residences, commercial space, and solar energy on a ranch in Hendry County, FL

E • Calculated the economic impact of developing a luxury condominium in Miami, FL

E • Calculated the economic impact of constructing and operating a hotel near Times Square, New York City

E • Calculated the economic impact of constructing and operating a hotel in Pascagoula, MS

E • Calculated the economic impact of constructing and operating a hotel in Orlando, FL

E • Calculated the economic impact of constructing and operating a senior living facility in suburban Atlanta, GA

E • Calculated the economic impact of construction and operation of apartment building in Washington, DC.

E • Calculated the economic impact of construction and operation of medical complex in Flushing, Queens, NY.

E • Calculated the economic impact of construction and operation of hotel in Chicago

E • Calculated the economic impact of construction and operation of insurance plan for pets, headquartered in New York City.

E • Calculated the economic impact of construction and operation of hotel in the Gowanus district of Brooklyn.

E • Calculated the economic impact of construction and operation of hotel near Times Square, Manhattan

E • Calculated the economic impact of construction and operation of 3 senior living and residential facilities in Southeast FL.

E • Calculated the economic impact of construction and operation of senior living and residential facilities in Seattle WA.(3 different projects)

E • Calculated the economic impact of construction and operation of charter school in Palm Beach County, FL

E • Calculated the economic impact of construction of mixed-use commercial project and infrastructure in New York City.

N • Calculated the economic impact of construction and operation of pellet mill in Arkansas, used to make fuel pellets mainly for export to Europe.

E • Calculated the economic impact of construction of senior living facilities in Houston, Texas

E • Calculated the economic impact of construction of skilled nursing facility in Las Vegas, NV

E • Calculated the economic impact of construction and operation of hotel in Chicago

E • Calculated the economic impact of construction and operation of wholesale distribution center and retail outlets in Queens, NYC

E • Calculated the economic impact of construction and operation of New Quincy Market in Quincy, MA.

E • Calculated the economic impact of operation of fund for providing capital for production of films in New Orleans, LA

E • Calculated the economic impact of renovation and operation of mixed-use facilities and rebuilding of infrastructure in Harlem, Manhattan, NYC

E • Calculated the economic impact of construction and operation of mixed-use residential and commercial buildings in New York City (2 projects)

E • Calculated the economic impact of construction and operation of "Discovery New York" entertainment center

E • Calculated the economic impact of construction and operation of hotel in Los Angeles (2 projects)

N • Calculated the economic impact of construction and operation of plant for steel fabrication in Alabama.

E • Calculated the economic impact of construction and operation of hotel and condominium in San Bernardino county, CA

N • Calculated the economic impact of construction and operation of a chain of frozen yogurt restaurants in the Gulf Coast area stretching from Florida to Texas

E • Calculated the economic impact of construction and operation of drilling for oil and gas wells in Texas

E • Calculated the economic impact of construction and operation of proton cancer center in Los Angeles County

E • Calculated the economic impact of construction and operation of hotels in Los Angeles (3 projects)

E • Calculated the economic impact of construction and operation former Deauville hotel in Miami Beach, FL

E • Calculated the economic impact of construction and operation of boutique hotel in Ontario, CA.

E • Calculated the economic impact of construction and operation of hotel in mid-town Manhattan.

E • Calculated the economic impact of renovation and operation of a commercial mixed-use building in San Francisco.

E • Calculated the economic impact of construction and operation of luxury condominium building in downtown Manhattan.

E • Calculated the economic impact of construction and rental income of a medical facility in Winston-Salem, NC

E • Calculated the economic impact of construction and rental income of office building in mid-town Manhattan.

E • Calculated the economic impact of construction and rental income of office building in downtown Cleveland, OH.

E • Calculated the economic impact of construction and operation of mixed-use commercial and residential project in Tacoma, WA.

E • Calculated the economic impact of construction and operation of senior living facility in Chicago.

N • Calculated the economic impact of construction and operation of manufacturing plant to produce synthetic coke fuel for steel manufacturing in rural West Virginia.

N • Calculated the economic impact of construction and operation of hotel and resort on the U. S. Virgin Islands

E • Calculated the economic impact of construction and operation of geothermal energy project in Nevada

E • Calculated the economic impact of construction and operation of hotel in Kenosha, WI

E • Calculated the economic impact of construction and operation of hotel in Hudson County, NJ (2 projects)

E • Calculated the economic impact of construction and operation of hospital in Chicago

E • Calculated the economic impact of renovation of old luxury hotel in Yonkers, NY

E • Calculated the economic impact of construction and rental income of apartment in Seattle, WA

E • Calculated the economic impact of construction and operation of restaurant in Las Vegas

E • Calculated the economic impact of construction and operation of bottle cap manufacturing plant

E • Calculated the economic impact of construction and operation of hotel in Michigan

E • Calculated the economic impact of construction and operation of charter school in South Florida (2 projects)

E • Calculated the economic impact of construction and rental income of apartment building in Jersey City

E • Calculated the economic impact of construction and operation of hotel in Brooklyn

E • Calculated the economic impact of construction and operation of hotel in Oakland, CA

E • Calculated the economic impact of construction and operation of hotel in Queens, NY

E • Calculated the economic impact of construction and operation of hotel and resort in the Mariana Islands

E • Calculated the economic impact of renovation and operation of hotel in Adams Morgan section of Washington, DC

E • Calculated the economic impact of construction and operation of hotel in Farmers Market section of Dallas

E • Calculated the economic impact of renovation of old Taystee Baking facility in Harlem, Manhattan, NY

E • Calculated the economic impact of development of master plan project for Treasure Island, San Francisco

E • Calculated the economic impact of construction and operation of hotel and resort in Puerto Rico

E • Calculated the economic impact of construction and operation of hotel in Yonkers, NY

E • Calculated the economic impact of construction and rental income of an apartment building in Hollywood, CA.

E • Calculated the economic impact of development of a sports stadium in Los Angeles

E • Calculated the economic impact of construction and operation of a hotel in Tacoma, WA

E • Calculated the economic impact of construction and operation of a hotel in Nyack, NY

E • Calculated the economic impact of construction and operation of a mixed-use building in Atlanta, GA

E • Calculated the economic impact of construction and operation of a charter school in Palm Beach County, FL

E • Calculated the economic impact of construction and operation of mixed-use buildings in Chicago (2 projects)

N • Calculated the economic impact of construction and operation of a sawmill in Arkansas

E • Calculated the economic impact of construction and operation of a hotel in Miami, FL

E • Calculated the economic impact of construction and operation of a hotel on the West Side of Manhattan

E • Calculated the economic impact of construction and operation of a mixed-use building in Temecula, CA

E • Calculated the economic impact of construction and operation of a charter school in Sarasota, FL

E • Calculated the economic impact of construction and operation of a gold mine in Washoe County, NV

E • Calculated the economic impact of construction of luxury housing development in Northern Virginia

E • Calculated the economic impact of renovating part of the Oakland, CA waterfront

E • Calculated the economic impact of construction and operation of a hotel in Puerto Rico

E • Calculated the economic impact of construction and operation of a warehouse in Chicago

E • Calculated the economic impact of renovation and expansion of the Nassau Coliseum, Nassau County, NY

N • Calculated the economic impact of construction and operation of country and western Music center in Riverside County, CA

E • Calculated the economic impact of construction and operation of mixed-use commercial building, Staten Island, NY

E • Calculated the economic impact of construction and operation of hotel in Queens, NY

E • Calculated the economic impact of renovation and expansion of a Blue Cross Call center in Columbus, GA

E • Calculated the economic impact of construction and operation of the Brooklyn Bridge marina and yacht club

E • Calculated the economic impact of construction and rental income of an apartment building in Houston, TX

E • Calculated the economic impact of construction and operation of a hotel building in Nashville, TN

E • Calculated the economic impact of construction and operation of a hotel in the NoMad district of Manhattan

E • Calculated the economic impact of construction and rental income of a townhouse development in Dublin, CA

E • Calculated the economic impact of construction and rental income of an housing development in Dallas, TX

E • Calculated the economic impact of construction and operation of a Times Square hotel in Manhattan

E • Calculated the economic impact of construction and operation of hotels in various counties in the Permian Basin in West Texas

E • Calculated the economic impact of construction and operation of a hotel building in Houston, TX

E • Calculated the economic impact of construction and rental income of high-rise hotels in downtown Chicago (3 projects)

N • Calculated the economic impact of construction and operation of an amusement park in suburban Phoenix, AZ

E • Calculated the economic impact of construction and operation of a mixed-use building in Stamford, CT

E • Calculated the economic impact of construction and operation of a hotel, resort, and casino in the Commonwealth of the Mariana Islands (CNMI).

E • Calculated the economic impact of construction and operation of a mixed-use building in Stamford, CT

E • Calculated the economic impact of construction and operation of a combined hotel and day care center, Queens, NY

E • Calculated the economic impact of construction and operation of a charter school in Broward County, FL

E • Calculated the economic impact of construction and operation of a mixed-use building in Stamford, CT

E • Calculated the economic impact of construction and operation of boutique hotel in Flushing, Queens, NY

E • Calculated the economic impact of construction and operation of several fast-food seafood restaurants in Miami/Dade County, FL

N • Calculated the economic impact of construction and operation of technology incubator in the Boston, MA area.

E • Calculated the economic impact of construction and operation of various hotels in Brooklyn and Queens, NY (3 projects)

E • Calculated the economic impact of construction and operation of a hotel and restaurants in Rancho Cucamonga, FL (2 projects)

E • Calculated the economic impact of construction and operation of assisted living center in Las Vegas, NV

N • Calculated the economic impact of expansion of a manufacturing plant to produce electric vehicles and parts, Jackson County, OR

E • Calculated the economic impact of construction and operation of residential housing development in South Florida (2 projects)

E • Calculated the economic impact of construction and operation of the Orlando Skypark in Orlando, FL

E • Calculated the economic impact of construction and operation of drilling and operating oil and gas wells in Texas (3 projects)

E • Calculated the economic impact of construction and operation of senior living facility in Flushing, Queens, NY

E • Calculated the economic impact of renovating and expanding the Queen Mary ship and adding various entertainment facilities

E • Calculated the economic impact of construction and operation of a water park in Temecula, CA

E • Calculated the economic impact of construction and operation of a hotel and conference center in Rockford, IL

E • Calculated the economic impact of construction and rental income from an apartment building in Portland, OR, and Glendale, CA (2 projects)

E • Calculated the economic impact of expansion of the Atlantic Yards project in Brooklyn, NY

E • Calculated the economic impact of construction and operation of a luxury office building and a luxury condominium building in mid-town Manhattan (2 projects)

E • Calculated the economic impact of construction and operation of a biofuels plant, converting sugar to fuels in South Florida

Built the first large-scale supply-side model of the U. S. economy

- Consultant, Environmental Protection Agency and Council on Environmental Quality

  Estimated inflationary impact of government regulations

- Consultant, National Aeronautics and Space Administration

  Estimate impact of R&D spending on productivity growth

- Consultant, U. S. Treasury

  Estimated impact of investment tax credit and accelerated depreciation on capital spending by industry

- Consultant, U. S. Department of Agriculture

  Built large-scale econometric model of agricultural sector of U. S. economy

- Consultant, Organization of Economic Cooperation and Development

  Built econometric model of the French economy

SAMPLE OF RECENT CONSULTING PROJECTS

A. Economic Impact of EB-5 Immigrant Investor Programs and New Markets Tax Credits

For more information on these projects, see www.evanseb5.com

Key to symbols: N, new regional center, E, extension of existing center

List is current as of July 20, 2014. There are over 500 projects listed, but while the list is extensive, it is not complete. In cases where the results are very similar, they are either grouped together or omitted entirely

E • Calculated the economic impact of construction and operation of medical college in Sacramento, CA.

E • Calculated the economic impact of construction and operation of mixed-use building in Madison County, AL.

E • Calculated the economic impact of construction and operation of hotels in the Dallas/Fort Worth, Houston, San Antonio, and Austin metropolitan areas as part of the 43-county "Texas Triangle" (2 projects)

PREVIOUS ACTIVITIES AND EDUCATION

- Contributing Editor, *Industry Week*

Wrote a column in each issue on economic and financial trends as they impact the manufacturing sector.

- Editor, *The Evans Report*

Weekly newsletter discussing economic trends and financial markets. Pioneered the concept of the Monthly Tracking Model to incorporate recent economic releases into the overall economic forecast, including methods to predict these economic data.

- Consultant, *National Printing Equipment and Supply Association*

Prepared quarterly forecasts of shipments of printing equipment and graphic arts supplies by product line, based on an econometric model constructed for NPES. Also prepares analysis and forecasts of exports and imports by principal product line.

- Consultant, *APICS -- The Educational Society for Resource Management*,

Designed and developed the *APICS Business Outlook Index*, which used survey data collected by the Evans Group to measure current production, production plans, shipments, employment, new orders, unfilled orders, inventory stocks, and the comparison of the actual to desired inventory/sales ratio to predict short-term changes in manufacturing sector activity. The results of this survey appeared every month in *APICS: The Performance Advantage*

- Consultant, *American Hardware Manufacturing Association*

Wrote a separate weekly edition of the Evans Report analyzing recent trends in the hardware and housing industries, including forecasts of the hardware industry based on an econometric model developed for AHMA.

- Board of Economists, *Los Angeles Times*

Wrote column every 6 weeks (5 other economists on the Board)

- Columnist, *United Press International*

Wrote twice-weekly column, "Dollars and Trends"

- Consultant, Senate Finance Committee,

Appendix: Resume of Dr. Michael K. Evans

mevans@evanscarrollecon.com

CURRENT AND PREVIOUS POSITIONS

• Chairman, *Evans, Carroll & Associates, Inc.*, 1980-present (previously Evans Economics)

Economic consulting firm specializing in EB-5 immigration analysis, economic impact studies of development projects and new construction, models of state and local tax receipts, impact of current and proposed government legislation, and construction of econometric models for individual industries and companies.

• Chief Economist, *American Economics Group*, 2000-2008.

Built a comprehensive state modeling system that provides economic analysis for a variety of consulting projects (see below).

• Clinical Professor of Economics, Department of Managerial Economics and Decision Sciences (MEDS), Kellogg Graduate School of Management, Northwestern University, 1996-99.

Taught courses in macroeconomics and business forecasting. Wrote textbooks for both courses.

• Winner of Blue Chip Economic Indicator Award for most accurate macroeconomic forecasts during the past four years, November 1999

• Founder and President, *Chase Econometric Associates*, 1970-1980

• Assistant and Associate Professor of Economics, Wharton School, University of Pennsylvania, 1964-69. Co-developer of the original Wharton Model.

• Visiting Professor, Radford University, (Radford, VA), 1987

Chairman of Institute for International Economic Competitiveness

• Visiting Lecturer, Hebrew University (Jerusalem), 1966-67

Built econometric model of the Israeli economy

• Ph. D. in Economics, Brown University. Dissertation, "A Postwar Quarterly Model of the United States Economy, 1948-1962". A. B. in Mathematical Economics, Brown University

(b)(4)

Table 10-2. Output and Earnings Per New Worker, Construction and Rental Income			
Industry group	Employment	Output/Empl	Earnings/Empl
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

(b)(4)

10. Summary Tables for the Entire Project

The two tables in this section show the combined effects of hard and soft construction costs and rental income for the multi-use commercial and residential project in Jamaica. The sums (or averages) are the aggregates of the tabular results shown in Sections (8) and (9) and are shown here for ease of exposition.

Table 10-1. Increase in Employment, Output, and Earnings for Construction and Rental Income

Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

Table 10-1 shows there will be a total of [redacted] jobs created from the construction and rental income of this project. Output would rise about [redacted] while household earnings would increase by about [redacted] Table 10-2 shows the average output per new worker is about $[redacted] while average earnings are about [redacted]

(b)(4)

Health care and social assistance	
Arts, entertainment, and recreation	
Accommodation	
Food services and drinking places	
Other services	
Household	
Total	

Table 9-3 shows there will be a total of about [ ] jobs created from the rental income, Output would rise about [ ] while household earnings would increase by about [ ] Table 9-3 shows the average output per new worker is about [ ] while average earnings are about [ ]

Table 9-4. Output and Earnings per New Worker for Rental Income

Industry group	Employment	Output/Empl	Earnings/Empl
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

(b)(4)

(b)(4)

Table 9-2. Pro Forma Income Statement for Rental Income

Five Year Proforma					
	2018	2019	2020	2021	2022
Revenues					
Residential Condominium					
Commercial Retail					
Community Facility/Medical Office					
Parking Garage					
Total Revenues					
Expenses					
Utilities:					
Gas and eletric					
Water and sewer					
Repairs and maintenance:					
Building					
Sprinkler					
Elevator					
Equipment					
Exterminating					
Supplies					
Management fees					
Insurance					
Taxes					
Telephone					
Payroll Expenses					
Office and administrative					
Total Expenses					
Net Operating Income					

Table 9-3. Increase in Employment, Output, and Earnings for Rental Income

Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			

(b)(4)

(b)(4)

9. Economic Impact of Rental Income

Table 9-1 shows the rental rates estimated by the developer for each of the four types of uses included in this project. Further details are available in the Appraisal.

Table 9-1. Summary of Assumptions for Rental Rates

COMMERCIAL RENT ROLL - SUMMARY

Unit	Lease Term	Market Rent	Square Feet	Annual Rent/S.F.
Retail Store	Vacant			
2nd Floor CF	Vacant			
3rd Floor CF	Vacant			
4th Floor CF	Vacant			
5th Floor CF	Vacant			
6th Floor CF	Vacant			
Cellar Office	Vacant			
55-Car Parking	Vacant			
Annual Rent				

RESIDENTIAL RENT ROLL

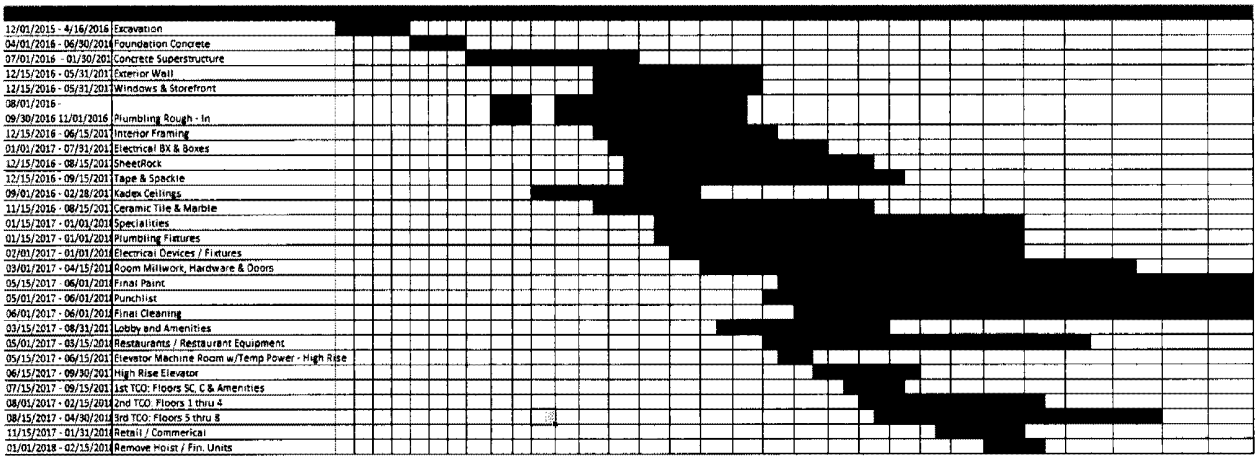
Type of Unit	# of Units	Monthly Rent	Annually Rent	Total Rent
Studio				
1-Bedroom				
2-Bedroom				
3-Bedroom				
Total				

The pro forma income statement for rental rates is shown in Table 9-2. This table also appears in the Executive Summary. The figure of [redacted] which is in 2018 dollars, is then deflated by the PPI for Lessors of Real Property, using the actual percentage increase for 2010-2014 and assuming the same rate of increase occurs in 2015-2018. The deflated figure is [redacted] in 2010 dollars. This figure is entered into the RIMS II model and the detailed industry results are shown below in Tables 9-3 and 9-4.

(b)(4)

12/01/2015 - 4/16/2016	Excavation
04/01/2016 - 06/30/2016	Foundation Concrete
07/01/2016 - 01/30/201	Concrete Superstructure
12/15/2016 - 05/31/2017	Exterior Wall
12/15/2016 - 05/31/2017	Windows & Storefront
08/01/2016 - 09/30/2016 11/01/2016	Plumbling Rough - In
12/15/2016 - 06/15/2017	Interior Framing
01/01/2017 - 07/31/2017	Electrical BX & Boxes
12/15/2016 - 08/15/2017	SheetRock
12/15/2016 - 09/15/2017	Tape & Spackle
09/01/2016 - 02/28/2017	Kadex Ceilings
11/15/2016 - 08/15/2017	Ceramic Tile & Marble
01/15/2017 - 01/01/2018	Specialities
01/15/2017 - 01/01/2018	Plumbling Fixtures
02/01/2017 - 01/01/2018	Electrical Devices / Fixtures
03/01/2017 - 04/15/2018	Room Millwork, Hardware & Doors
05/15/2017 - 06/01/2018	Final Paint
05/01/2017 - 06/01/2018	Punchlist
06/01/2017 - 06/01/2018	Final Cleaning
03/15/2017 - 08/31/2017	Lobby and Amenities
05/01/2017 - 03/15/2018	Restaurants / Restaurant Equipment
05/15/2017 - 06/15/2017	Elevator Machine Room w/Temp Power - High Ri
06/15/2017 - 09/30/2017	High Rise Elevator
07/15/2017 - 09/15/2017	1st TCO: Floors SC, C & Amenities
08/01/2017 - 02/15/2018	2nd TCO: Floors 1 thru 4
08/15/2017 - 04/30/2018	3rd TCO: Floors 5 thru 8
11/15/2017 - 01/31/2018	Retail / Commerical
01/01/2018 - 02/15/2018	Remove Hoist / Fin. Units

The Gantt Chart for this project is shown below, indicating a total time span of 27 months. Since the numbers on the left are difficult to read, they have been reproduced in a larger format. As seen below, construction is expected to start on 12/01/15 and the building is expected to be completed on 2/15/18, for a period of 27 months.



(b)(4)

Real estate and rental and leasing	
Professional and scientific services	
Management of companies	
Admin and waste mgmt services	
Educational services	
Health care and social assistance	
Arts, entertainment, and recreation	
Accommodation	
Food services and drinking places	
Other services	
Household	
Total	

Table 8-5 shows there will be a total of [ ] jobs created from the soft construction costs of the building. Output would rise about [ ] while household earnings would increase by about [ ] Table 8-6 shows the average output per new worker is about [ ] while average earnings are about [ ]

Table 8-6. Output and Earnings per New Worker for Soft Construction Costs for Building

Industry group	Employment	Output/Empl	Earnings/Empl
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

(b)(4)

Table 8-4. Output and Earnings Per New Worker, Hard Construction Costs for Building			
Industry group	Employment	Output/Empl	Earnings/Empl
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

The next two tables show the detailed industry results for soft costs.

Table 8-5. Increase in Employment, Output, and Earnings for Soft Construction Costs for Building			
Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			

(b)(4)

assumed the same rate of inflation will continue in 2015. Thus in 2010 dollars, the EB-5 eligible figures would be [redacted] for hard costs and [redacted] for EB-5 eligible soft costs.

The next four tables show the economic impact of hard construction costs and EB-5 eligible soft costs. The tables show the impact for the 20 major industrial classifications in the RIMS II input/output model; because the project will take more than two years, direct as well as indirect and induced impacts are included for hard and soft costs, although not for FF&E. Please note that in these and succeeding tables, output and earnings are in thousands of dollars.

Table 8-3. Increase in Employment, Output, and Earnings for Hard Construction Costs for Building

Industry group	Employment	Output	Earnings
Agriculture, forestry, fishing,	[redacted]		
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional and scientific services			
Management of companies			
Admin and waste mgmt services			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation			
Food services and drinking places			
Other services			
Household			
Total			

Table 8-3 shows there will be a total of about [redacted] jobs created from the hard construction costs of the building. Output would rise about [redacted] while household earnings would increase by about [redacted] Table 8-4 shows the average output per new worker is about [redacted] while average earnings are about [redacted]

(b)(4)

(b)(4)

Soft Cost :			
Architect & Engineer (including Enviroonmental MTA)			
Admin (Accounting etc.)			
Appraisal			
Bank Engineer			
Permit & Survey			
Real Estate Tax			
Insurance			
Title Insurance			
Bank Legal			
Borrower Legal			
Mortgage Recording Tax			
Bank Fee			
Interest Reserve			
(B)	**Total Soft Cost :**	**S**	
Total Construction Cost (A)+(B) :		**S**	
(C)	**Land Value :**	**S**	
Total Project Cost (A)+(B)+(C) :		**S**	

USCIS has requested information showing these construction costs are consistent with industry standards. Total hard construction cost is [redacted] and there are 135 rooms, which would be about [redacted] per room. However, construction costs in the Queens are 30% above the national average, according to RS Means, Square Foot Costs, 36th Annual Edition (2015), which would reduce this figure to about [redacted] very close to the average of midscale hotels with and without food and beverage, as shown in Table 8-2. The figure for purchases of FF&E is [redacted] for 135 rooms, or about [redacted] which is somewhat below the HVS figure.

As shown above, the total development cost of the project is estimated at [redacted] of which [redacted] is land costs. Of the other [redacted] represents hard costs, which are all EB-5 eligible, and [redacted] represents soft costs, of which [redacted] is EB-5 eligible.

All these figures are given in 2015 dollars, and should be deflated to 2010 dollars, since the input/output data are in 2010 dollars. Using the appropriate PPI indexes, the estimated cost of nonresidential construction would be expected to rise 13.3% over the five-year period and the cost of architectural and engineering fees would rise 7.7%. The actual percentage increases in the PPI for (a) nonresidential construction, and (b) architect and engineering fees are calculated, and it is then

(b)(4)

11. MECHANICAL

11.01 HVAC system as per drawings
11.02 Provide and install exhaust & fresh air system as per drawings
11.03 Provide and install LG PTAC unit
11.04 Provide and install all kitchen and bath exhaust duct and fans
11.05 Provide and install HVAC system for lobby, trash storage and rec room Mitsubishi Citi-Multi

12. FIRE SYSTEM

12.01 Sprinkler system as per drawings
12.02 Stand Pipe system as per drawings
12.03 Provide and install sprinkler alarm system as per DOB and FDNY code

13. ELECTRICAL

13.01 Apply and install all electrical meters
13.02 Provide and install electrical panels
13.03 Provide and install lighting fixtures as per plan
13.04 Provide and install emergency exit lights
13.05 Provide and install receptacles
13.06 Provide and install Aiphone color audio / video intercom system
13.07 Provide and install all Verizon, TimeWarner lines
13.08 Provide and install 100 Amp panels in every Apt. unit
13.09 Provide and install 1600 ConEd SEB
13.10 Provide temporary electrical service

14. PLUMBING WORK

14.01 Provide all utility services and meters
14.02 Install copper water supply & no-hub drainage system and all vent pipes
14.03 Supply & install plumbing fixtures as per owner's schedule
14.04 Install new gas main service with meters
14.05 All supply and return water lines
14.06 All kitchen gas pipes to all equipment in buiing
14.07 Provide and install 1 duplex water booster and sewer e
14.08 Provide and install RZP as per design
14.09 Provide and install 3 150 Gal HWH and 1 25 Gal electrical HWH per residential
14.10 Provide and install all incoming water, sewer main as per plans

(A) Total Hard Construction Cost :

(b)(4)

(b)(4)

5. METALS

5.01 Concrete filled metal pan stairs
5.02 Metal framing and gates
5.03 Roof, railing and ladder
5.04 Structural metal framing
5.05 Provide and install steel dunnage
5.06 Omagalite exterior aluminum panel front and 2 sides

6. THERMAL & MOISTURE PROTECTION

6.01 Roof waterproofing
- a. Six-ply rubber roofing
- b. 2" rigid insulation
- c. Vent sheet
- d. Fire Stone 12 year labor and material warrenty

6.02 Insulation
- a. Exterior wall insulation close cell sprayed on
- b. Interior wall insulation open cell sprayed on

7. DOORS & WINDOWS

7.01 Doors 1 3/4 " solid core doors, frames and hardware
7.02 Aluminum windows & storefront entrance by crystal or equal
7.03 All window system by crystal or equal per window schedule
7.04 All hollow metal door per schedule
7.05 Thermacore 490 garage door
7.06 Provide and install glass railing as per rendering

8. FINISHES

8.01 Gypsum board ceiling w / paint finished
8.02 Gypsum board wall w / paint finished
8.03 Epoxy paint for areaway, Elec.meter Rm., water meter Rm.
8.04 All apartment interior as per finish schedule
8.05 All hallways as per plan and finish schedule
8.06 All commercial, lobby as per design

9. CONVEYING SYSTEM

9.01 Provide and install Thyssen Krupp MRL 250FPM 2300# elevator
9.02 Standard cab $20,000 allowance

10. EQUIPMENT

10.01 Kitchen cabinets allowance is $5,000 per unit
10.02 All appliances
10.03 Bathroom accessories
10.04 Trash chute and compactor
10.05 Kitchen counter top to be Caesar Stone

8. Economic Impact of Construction Expenditures

Table 8-1. Summary of Construction and Development Budget

"CONSTRUCTION COST DETAIL SHEET"

Project Location : 148-31/43 88th Ave&148-44/46 Hillside Ave, Jamaica, NY 11435

(b)(4)

SCOPE OF WORK:

1. GENERAL

- 1.01 Mobilization & preparation
- 1.02 Insurance-general liability 25M & workmen comp
- 1.03 Sign-offs
- 1.04 Permit applications
- 1.05 Provide all necessary SOE inspections
- 1.06 Provide all necessary TR-2 TR-3
- 1.07 Provide engineer on site for supervision of all foundation and shoring work
- 1.08 Provide all necessary surveys
- 1.09 Provide all necessary shop drawings

2. SITEWORK

- 2.01 Provide and Install roof protection on adjacent buildings
- 2.02 Scaffold
  - a. Provide and install Sidewalk Bridge
  - b. Provide and install scaffold to roof
  - c. Provide and install protection net to roof
  - d. Scaffold reinforcement
- 2.03 Shoring, Sheeting & Lagging as per SOE
- 2.04 Temporary Protection Plywood Fence
- 2.05 Provide and install exterior material hoist
- 2.06 Excavation and backfill as necessary
- 2.07 Provide and install sidewalk, trees, curb and curb as per approved BPP

3. MASONRY

- 3.01 Concrete block as per drawings
- 3.02 Stucco in rear of building
- 3.03 Stone on first floor as per rendering

4. CONCRETE

- 4.01 Foundation wall, straps beams and pile caps
- 4.02 Concrete Slabs
- 4.03 Roof Bulkhead
- 4.04 Sidewalk, curbs and pavement
- 4.05 Surveys and stakeout
- 4.06 All waterproofing of exterior foundation walls

(b)(4)

Figure 7-4. Map of New York Consolidated Statistical Area

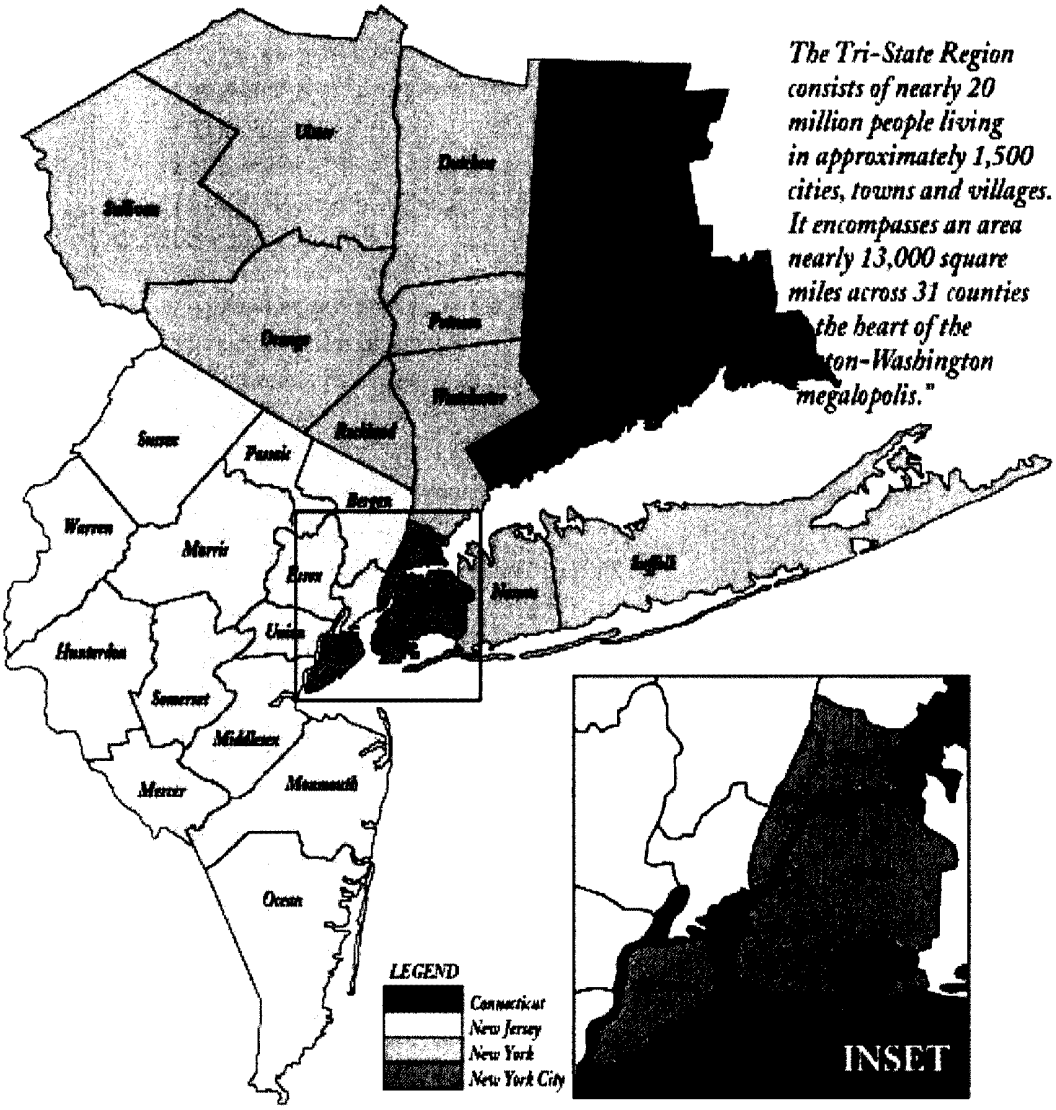


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Figure 7-3. Census Tracts near the Building

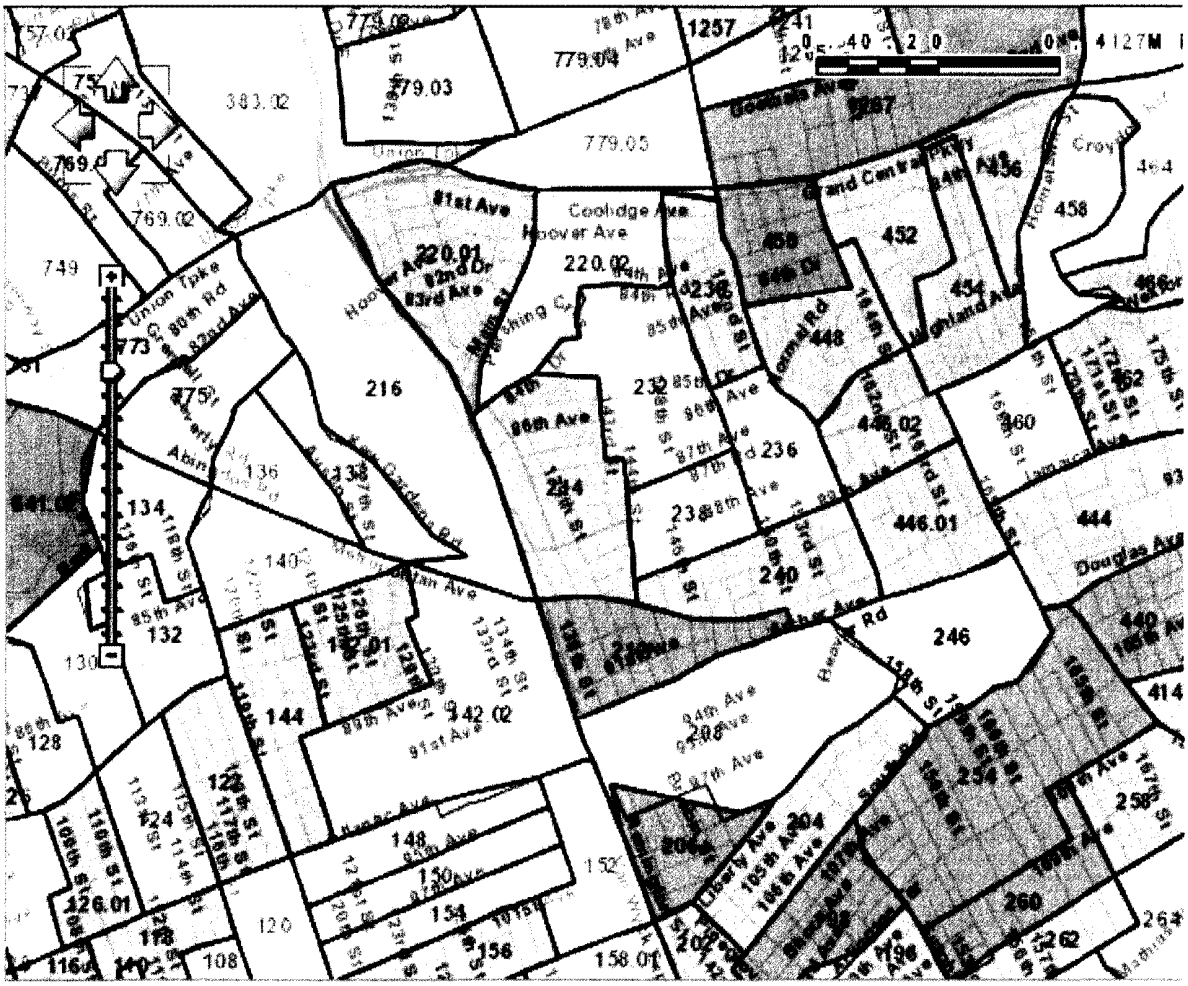
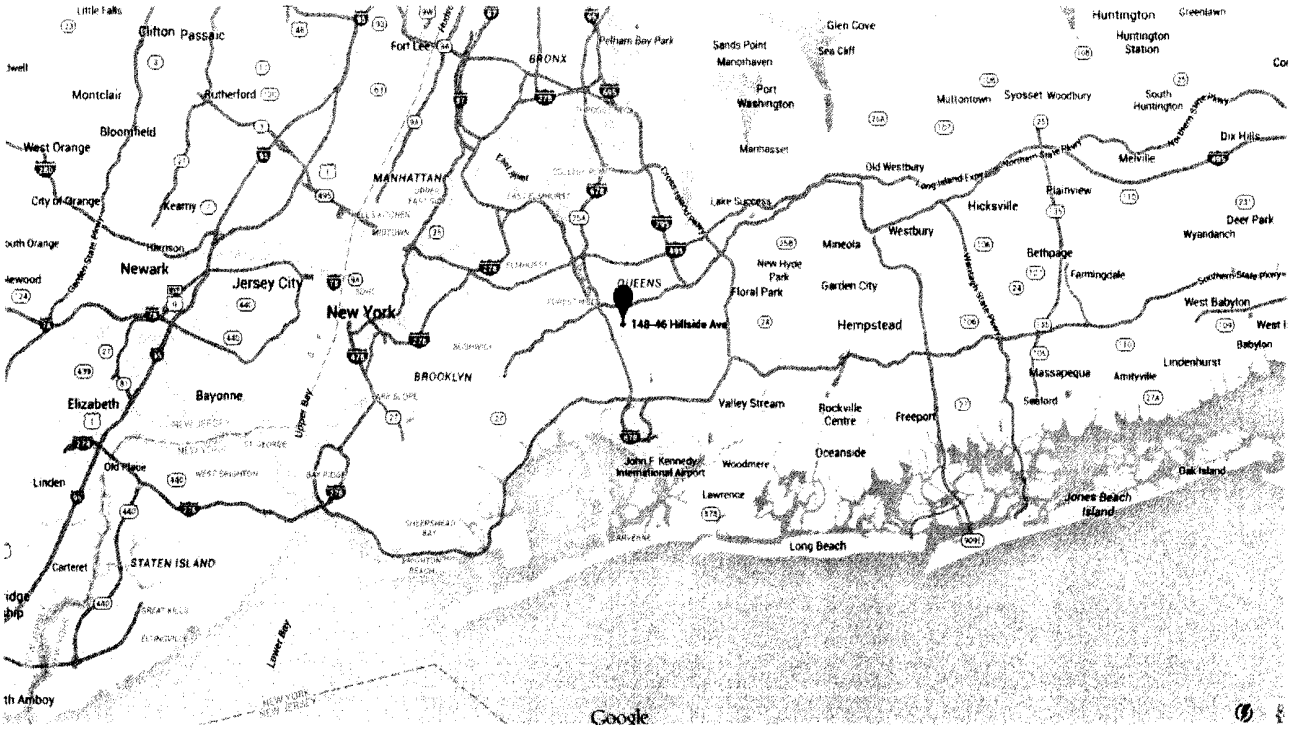


Figure 7-2. Location of Building in the NYC Metropolitan Area



The building is located in Census Tract (CT) 238 in Queens County (see center of map below). When combined with contiguous CTs, a TEA can be formed with an unemployment rate of at least 9.3% in 2014, based on the Census Share method of calculation. A letter of certification from the Empire State Development Agency of New York State will attest to this finding and will be added to the report when it is received.

Figure 7-1. Location of Building at 148-46 Hillside Ave/148-33 88th Ave, Jamaica

1,102	660,315	0.2%	97.4%	Connecticut	Fairfield County
761	661,076	0.1%	97.5%	New Jersey	Passaic County
741	661,817	0.1%	97.6%	New Jersey	Union County
551	662,368	0.1%	97.7%	New York	Dutchess County
484	662,852	0.1%	97.8%	New Jersey	Morris County
354	663,206	0.1%	97.8%	Connecticut	New Haven County
315	663,521	0.0%	97.9%	New York	Putnam County
240	663,761	0.0%	97.9%	New York	Ulster County
160	663,921	0.0%	97.9%	New Jersey	Sussex County
105	664,026	0.0%	97.9%	Connecticut	Litchfield County

Figures 7-1 and 7-2 show the location of the new building. Figure 7-3 shows Census Tracts near the building; the TEA certification letter from the State of New York will be added when it becomes available. Figure 7-4 shows the map of the New York Consolidated Statistical Area.

Table 7-1. Commuting Patterns for New York County, NY					
696,081	696,081	29.9%	29.9%	New York	New York County
391,008	1,087,089	16.8%	46.7%	New York	Kings County
370,243	1,457,332	15.9%	62.6%	New York	Queens County
191,620	1,648,952	8.2%	70.9%	New York	Bronx County
95,332	1,744,284	4.1%	75.0%	New York	Nassau County
82,796	1,827,080	3.6%	78.5%	New York	Westchester County
75,830	1,902,910	3.3%	81.8%	New Jersey	Hudson County
66,530	1,969,440	2.9%	84.6%	New Jersey	Bergen County
52,940	2,022,380	2.3%	86.9%	New York	Richmond County
40,320	2,062,700	1.7%	88.7%	New York	Suffolk County
34,210	2,096,910	1.5%	90.1%	New Jersey	Essex County
27,264	2,124,174	1.2%	91.3%	Connecticut	Fairfield County
19,084	2,143,258	0.8%	92.1%	New Jersey	Union County
14,894	2,158,152	0.6%	92.8%	New York	Rockland County
12,504	2,170,656	0.5%	93.3%	New Jersey	Morris County
10,971	2,181,627	0.5%	93.8%	New York	Orange County
10,108	2,191,735	0.4%	94.2%	New Jersey	Passaic County
5,484	2,197,219	0.2%	94.4%	New York	Dutchess County
4,186	2,201,405	0.2%	94.6%	New York	Putnam County
2,929	2,204,334	0.1%	94.7%	Connecticut	New Haven County
2,078	2,206,412	0.1%	94.8%	New York	Ulster County
1,778	2,208,190	0.1%	94.9%	Sussex	New Jersey
1,243	2,207,655	0.1%	94.9%	Connecticut	Litchfield County

Table 7-2. Commuting Patterns for Queens County, NY					
430,249	430,249	63.5%	63.5%	New York	Queens County
70,433	500,682	10.4%	73.8%	New York	Nassau County
69,681	570,363	10.3%	84.1%	New York	Kings County
25,052	595,415	3.7%	87.8%	New York	Suffolk County
21,564	616,979	3.2%	91.0%	New York	Bronx County
20,087	637,066	3.0%	94.0%	New York	New York County
5,698	642,764	0.8%	94.8%	New York	Richmond County
5,452	648,216	0.8%	95.6%	New York	Westchester County
4,229	652,445	0.6%	96.2%	New Jersey	Bergen County
2,269	654,714	0.3%	96.6%	New Jersey	Hudson County
1,744	656,458	0.3%	96.8%	New Jersey	Essex County
1,525	657,983	0.2%	97.0%	New York	Rockland County
1,230	659,213	0.2%	97.2%	New York	Orange County

7. Commuting Patterns, Maps of Area, and TEA Analysis

We now turn to the commuting patterns in this area. In determining the economic impact of new job creation, it is necessary to choose the counties that form the relevant area for analysis. The economic multipliers will be higher as the number of counties included in the area increases. Hence the commuting patterns of the workforce data from the 2006-10 American Community Survey are used to determine the optimal mix of counties to be included in the multiplier calculations. These commuters spend most of their paychecks in the counties where they live, so the economic impact of the new project creates some new induced jobs in bordering counties. Also, some of the goods and services purchased by the new businesses are produced or purchased from establishments in neighboring counties.

The following list includes all the counties included in the New York City metropolitan area, according to the latest figures available from the Census website.

35620 New York-Northern New Jersey-Long Island, NY-NJ-PA
Metropolitan Statistical Area Principal Cities: New York, NY; Newark, NJ; Edison, NJ; White Plains, NY; Wayne, NJ; Union, NJ; New Brunswick, NJ

20764 Edison-New Brunswick, NJ Metropolitan Division *Middlesex County*, *Monmouth County*, *Ocean County*, *Somerset County* 35004 Nassau-Suffolk, NY Metropolitan Division *Nassau County*, *Suffolk County*

35084 Newark-Union, NJ-PA Metropolitan Division *Essex County, NJ*; *Hunterdon County, NJ*; *Morris County, NJ*; *Sussex County, NJ*; *Union County, NJ*; Pike County, PA

35644 New York-White Plains-Wayne, NY-NJ Metropolitan Division *Bergen County, NJ*; *Hudson County, NJ*; *Passaic County, NJ*; *Bronx County, NY*; *Kings County, NY*; *New York County, NY*; *Putnam County, NY*; *Queens County, NY*; *Richmond County, NY*; *Rockland County, NY*; *Westchester County, NY*

The figures shown below are based on the commuting patterns for New York County (Manhattan) and Queens County. Commuting figures for other counties would show different patterns, but in general, these figures indicate that the large New York City metropolitan area not only covers the counties in this report, but additional counties that have not been included in our calculations because of their more tenuous nature to the overall region. In Table 7-1, the first column shows the county where people live who work in New York County; the second column shows the number of people working in New York County. For example, 696,081 people live and work in New York County; 391,008 live in Kings County but work in New York County, and so on; these 23 counties include 94.9% of the New York County workforce. For Queens County, as shown in Table 7-2, the total workforce is 678,019, so these 23 counties include 97.9% of the Queens County workforce.

2011	73.02	9.94	42.27	125.23
2010	68.03	9.63	40.93	118.59
2009	64.22	9.49	40.12	113.84
2008	69.95	9.87	40.38	120.20
2007	70.60	9.64	39.31	119.55
2006	67.43	9.03	36.79	113.25
2005	61.36	8.36	34.57	104.30
2004	57.59	8.01	33.28	98.88
2013/12	0.99%	0.89%	0.94%	0.97%
2012/11	4.53%	5.76%	4.46%	4.60%
2011/10	7.33%	3.24%	3.27%	5.60%
2010/09	5.94%	1.46%	2.00%	4.18%
2009/08	-8.19%	-3.86%	-0.64%	-5.30%
2008/07	-0.92%	2.44%	2.71%	0.55%
2007/06	4.70%	6.72%	6.86%	5.56%
2006/05	9.89%	8.03%	6.42%	8.59%
2005/04	6.55%	4.38%	3.90%	5.48%
2013/04	3.29%	3.17%	3.30%	3.28%

It does not come as any surprise that personal income in Fairfield County nosedived in 2009 along with the financial crash, with a drop almost double the national average rate; Litchfield was also hard hit, as the residents depend on the summer traffic to boost their incomes. However, even excluding 2009, the growth in personal income was below average; strong growth through 2007 disappeared and did not return. For the decade-long averages, all three counties have had almost identical growth rates in income, but Fairfield County has far outpaced the other two counties in recent years.

Table 6-27. Level and Growth Rate of Population, 3 Connecticut Counties in the NYC Area, and the Total of these Counties

	Fairfield	Litchfield	New Haven	3 counties
2013	939,904	186,924	862,287	1,989,115
2012	933,733	187,516	863,604	1,984,853
2011	927,744	188,946	863,761	1,980,451
2010	919,365	189,746	863,380	1,972,491
2009	910,421	190,015	860,025	1,960,461
2008	903,824	190,175	856,622	1,950,621
2007	897,498	189,866	853,598	1,940,962
2006	896,254	189,682	850,207	1,936,143
2005	897,653	188,912	847,162	1,933,727
2004	897,472	188,601	844,505	1,930,578
2013/12	0.66%	-0.32%	-0.15%	0.21%
2012/11	0.65%	-0.76%	-0.02%	0.22%
2011/10	0.91%	-0.42%	0.04%	0.40%
2010/09	0.98%	-0.14%	0.39%	0.61%
2009/08	0.73%	-0.08%	0.40%	0.50%
2008/07	0.70%	0.16%	0.35%	0.50%
2007/06	0.14%	0.10%	0.40%	0.25%
2006/05	-0.16%	0.41%	0.36%	0.12%
2005/04	0.02%	0.16%	0.31%	0.16%
2013/04	0.51%	-0.10%	0.23%	0.33%

Population growth in both the state of Connecticut and this three-county area remained sluggish over the past decade, with growth rates only about 1/3 of the national average. However, there were substantial differences in the individual county patterns. Fairfield County continued to post respectable, if somewhat below-average, increases in population, as hedge funds and other boutique financial organizations continued to thrive (as opposed to the problems encountered by big banks). New Haven and Litchfield County, on the other hand, suffered from the exurban pattern seen throughout this section for other counties in the area, with Litchfield County posting an actual decline in population ever since the recession.

Table 6-28. Level and Growth Rate of Personal Income (Billion $), 3 Connecticut Counties in the NYC Area, and the Total of these Counties

	Fairfield	Litchfield	New Haven	3 counties
2013	77.08	10.61	44.57	132.26
2012	76.33	10.52	44.15	130.99

2006	459,839	442,204	17,635	3.8
2007	466,532	448,188	18,344	3.9
2008	471,297	447,013	24,284	5.2
2009	471,953	436,665	35,288	7.5
2010	474,669	434,845	39,824	8.4
2011	477,888	438,851	39,037	8.2
2012	474,205	437,315	36,890	7.8
2013	470,777	436,766	34,011	7.2
2014	475,888	446,528	29,360	6.2
	Litchfield			
2005	102,186	97,509	4,677	4.6
2006	103,802	99,647	4,155	4.0
2007	104,535	100,133	4,402	4.2
2008	105,675	100,072	5,603	5.3
2009	105,724	97,384	8,340	7.9
2010	108,137	98,814	9,323	8.6
2011	107,758	99,089	8,669	8.0
2012	105,941	98,019	7,922	7.5
2013	104,646	97,393	7,253	6.9
2014	105,945	99,650	6,295	5.9
	New Haven			
2005	429,962	407,064	22,898	5.3
2006	437,427	416,565	20,862	4.8
2007	444,223	422,247	21,976	4.9
2008	449,379	421,335	28,044	6.2
2009	450,853	412,211	38,642	8.6
2010	462,321	416,076	46,245	10.0
2011	462,313	417,520	44,793	9.7
2012	456,794	415,427	41,367	9.1
2013	452,247	414,218	38,029	8.4
2014	455,537	422,625	32,912	7.2

In the 2001 recession, the unemployment rate in Fairfield County rose only to 5%, but in the more recent recession, Wall Street was harder hit, and that rate rose to 8.4%; however, that was the lowest in the three-county area and well below the 9.6% national average. The unemployment rate in Litchfield County rose to 8.6%, while New Haven was harder hit at 10.0%, well above the national average. Yale did not lay anyone off but they did reduce the breakfast portions for the students. The rest of the county was harder hit by the manufacturing slump. Recently, the unemployment rate in these three counties has declined during the recovery, but the reduction has been only from 9.1% to 6.6%, compared to a drop from 9.6% to 6.2% in the national economy from 2010 to 2014

Median earnings for workers	39,566	129.9%	30,454
Median earnings for male full-time	54,809	114.0%	48,099
Median earnings for female full-time	48,500	127.3%	38,097
PERCENTAGE BELOW POVERTY LEVEL			
All families	4.1%	35.3%	11.6%
All people	6.7%	42.4%	15.8%

Litchfield County is perhaps best known for the upscale community of Litchfield, where many wealthy New Yorkers have second homes. However, that represents only a small proportion of the total economic activity, and the rest of the county has only average levels of income. These second-residencers do not bring much to the economy of the county, and most of them have their primary homes elsewhere, so the income figures are not strongly tilted up by these households. In terms of the workforce, the higher than average proportions occur in manufacturing, 14.0% compared to 10.5% nationally, and education and health care, 27.8% compared to 23.0%. By comparison, the proportion of the workforce in tourism and leisure is only 8.0% compared to 9.7% nationally in spite of all those vacationing New Yorkers.

As noted above, there are very few poor people in Litchfield County, so the poverty rate for families is only 35% of the national average, compared to 59% for Fairfield County. There are enough upscale residents to push median household and family income to 136% of the national average; but in sharp contrast with Fairfield County, the mean income figures are about 12% below these levels instead of being substantially higher.

Table 6-26. Labor Market Statistics for 3 Connecticut Counties in the NYC Area, 2005-2014 Data

	3 counties			
2005	983,951	936,546	47,405	4.8
2006	1,001,068	958,416	42,652	4.3
2007	1,015,290	970,568	44,722	4.4
2008	1,026,351	968,420	57,931	5.6
2009	1,028,530	946,260	82,270	8.0
2010	1,045,127	949,735	95,392	9.1
2011	1,047,959	955,460	92,499	8.8
2012	1,036,940	950,761	86,179	8.3
2013	1,027,670	948,377	79,293	7.7
2014	1,037,370	968,803	68,567	6.6
	Fairfield			
2005	451,803	431,973	19,830	4.4

Construction	6,408	6.4%	8,930,742	6.2%
Manufacturing	13,948	14.0%	15,226,862	10.5%
Wholesale trade	1,496	1.5%	3,944,833	2.7%
Retail trade	10,321	10.4%	16,844,787	11.6%
Transportation & utilities	2,952	3.0%	7,083,841	4.9%
Information	2,152	2.2%	3,086,265	2.1%
Finance, insurance, & real estate	7,066	7.1%	9,562,287	6.6%
Professional & administrative	9,641	9.7%	16,038,857	11.1%
Educational services & health care	27,726	27.8%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	7,995	8.0%	14,019,659	9.7%
Other private services	4,306	4.3%	7,203,232	5.0%
Public administration	4,418	4.4%	6,864,026	4.7%
INCOME AND BENEFITS				
Total households	75,029	100.0%	116,291,033	100.0%
Less than $10,000	3,331	4.4%	8,783,120	7.6%
$10,000 to $14,999	1,908	2.5%	6,246,216	5.4%
$15,000 to $24,999	6,474	8.6%	12,575,679	10.8%
$25,000 to $34,999	5,544	7.4%	11,964,268	10.3%
$35,000 to $49,999	8,813	11.7%	15,840,707	13.6%
$50,000 to $74,999	13,413	17.9%	20,820,510	17.9%
$75,000 to $99,999	11,518	15.4%	13,823,793	11.9%
$100,000 to $149,999	13,061	17.4%	14,749,902	12.7%
$150,000 to $199,999	6,402	8.5%	5,644,221	4.9%
$200,000 or more	4,565	6.1%	5,842,617	5.0%
Median household income (dollars)	70,981	135.8%	52,250	
Mean household income (dollars)	90,110	122.2%	73,767	
Families	50,896	100.0%	76,680,463	100.0%
Less than $10,000	1,004	2.0%	3,743,131	4.9%
$10,000 to $14,999	785	1.5%	2,493,840	3.3%
$15,000 to $24,999	1,715	3.4%	6,284,315	8.2%
$25,000 to $34,999	2,620	5.1%	6,972,739	9.1%
$35,000 to $49,999	5,570	10.9%	10,067,795	13.1%
$50,000 to $74,999	8,986	17.7%	14,569,480	19.0%
$75,000 to $99,999	9,081	17.8%	10,652,848	13.9%
$100,000 to $149,999	11,904	23.4%	12,092,458	15.8%
$150,000 to $199,999	5,039	9.9%	4,793,949	6.3%
$200,000 or more	4,192	8.2%	5,009,908	6.5%
Median family income (dollars)	87,052	136.0%	64,030	
Mean family income (dollars)	107,113	124.5%	86,046	
Per capita income (dollars)	36,561	129.7%	28,184	

it fell off sharply during the recession and is now significantly below the 10.5% national average. There are also higher than average proportions of the workforce in information, and in professional services. Offsetting these, there are fewer than average workers in tourism and leisure, and public administration.

The economy of New Haven is dominated by Yale University, as can be seen by the 31.4% of the workforce in education and health care services, compared to 23.0% nationally. Except for that, however, the economy of the rest of the county is not in particularly good shape. There are substantial pockets of poverty scattered throughout the county, which brings the poverty rate for all families up to 82% of the national average; and mean family income is a relatively modest 116% of the national average.

Besides the bulge in employment in educational services, there are proportionately more than the average number in manufacturing, at 11.0% of the workforce, compared to 10.5% nationally. Most of the other industry groups have fewer than proportional numbers of employees, particularly tourism and leisure.

Table 6-25. Key Economic Statistics for Litchfield County Compared to the U. S. Economy

	Litchfield		USA	
	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS				
Population 16 years and over	154,827	100.0%	250,835,999	100.0%
In labor force	107,561	69.5%	159,484,493	63.6%
Civilian labor force	107,561	69.5%	158,498,347	63.2%
Employed	99,698	64.4%	145,128,676	57.9%
Unemployed	7,863	5.1%	13,369,671	5.3%
Armed Forces	0	0.0%	986,146	0.4%
Not in labor force	47,266	30.5%	91,351,506	36.4%
OCCUPATION				
Civilian employed population 16+	99,698	100.0%	145,128,676	100.0%
Management & professional	37,712	37.8%	52,753,573	36.3%
Service occupations	21,193	21.3%	26,654,335	18.4%
Sales and office occupations	20,572	20.6%	35,109,334	24.2%
Construction, maintenance, repair	8,946	9.0%	12,924,043	8.9%
Production & transportation	11,275	11.3%	17,687,391	12.2%
INDUSTRY				
Civilian employed population 16+	99,698	100.0%	145,128,676	100.0%
Agriculture & mining	1,269	1.3%	2,883,101	2.0%

$200,000 or more	59,629	18.2%	19,160	6.0%	5,842,617	5.0%
Median household income (dollars)	82,084	157.1%	58,571	112.1%	52,250	
Mean household income (dollars)	136,019	184.4%	81,252	110.1%	73,767	
Families	229,730	100.0%	204,533	100.0%	76,680,463	100.0%
Less than $10,000	6,625	2.9%	7,629	3.7%	3,743,131	4.9%
$10,000 to $14,999	3,958	1.7%	5,921	2.9%	2,493,840	3.3%
$15,000 to $24,999	11,083	4.8%	12,448	6.1%	6,284,315	8.2%
$25,000 to $34,999	13,152	5.7%	15,063	7.4%	6,972,739	9.1%
$35,000 to $49,999	20,668	9.0%	20,321	9.9%	10,067,795	13.1%
$50,000 to $74,999	29,918	13.0%	35,389	17.3%	14,569,480	19.0%
$75,000 to $99,999	26,974	11.7%	27,515	13.5%	10,652,848	13.9%
$100,000 to $149,999	41,084	17.9%	43,108	21.1%	12,092,458	15.8%
$150,000 to $199,999	21,981	9.6%	20,248	9.9%	4,793,949	6.3%
$200,000 or more	54,287	23.6%	16,891	8.3%	5,009,908	6.5%
Median family income (dollars)	101,721	158.9%	78,879	123.2%	64,030	
Mean family income (dollars)	163,857	190.4%	100,077	116.3%	86,046	
Per capita income (dollars)	49,129	174.3%	31,896	113.2%	28,184	
Median earnings for workers	39,144	128.5%	35,576	116.8%	30,454	
Median earnings for male full-time	71,768	149.2%	56,243	116.9%	48,099	
Median earnings for female full-time	51,813	136.0%	44,617	117.1%	38,097	
PERCENTAGE BELOW POVERTY LEVEL						
All families	6.8%	58.6%	8.9%	76.7%	11.6%	
All people	9.6%	60.8%	12.9%	81.6%	15.8%	

Please note that in these tables, the percentage figures in regular type refer to the overall category in that column, while the figures in red are relative to the U.S. average figures

Fairfield County is sometimes considered the quintessential bedroom community for New York City, and has unusually high incomes. Besides being the home of many wealthy communities, a burgeoning venture capital and hedge fund industry has grown up around Greenwich and Stamford, although it took a severe hit in 2009. Still, there are 3.6 times as many households and families in the top income bracket as is the case nationally. As a result, while median family income is 159% of the national average, mean income is even higher, at 190%; the figures are roughly the same for household income. The poverty rate for families is only about half the national average rate; but there are substantial pockets of poverty in Bridgeport, so the poverty rate is somewhat higher than would ordinarily be expected with such a high a mean income.

In terms of employment by major industry sector, the financial sector scores very strongly, with 11.5% of the workforce, compared to 6.6% nationally. The county also has a relatively robust manufacturing sector, employing 8.7% of the workforce, although

Population 16 years and over	743,289	100.0%	702,408	100.0%	250,835,999	100.0%
In labor force	512,260	68.9%	457,843	65.2%	159,484,493	63.6%
Civilian labor force	512,094	68.9%	456,776	65.0%	158,498,347	63.2%
Employed	463,442	62.4%	415,518	59.2%	145,128,676	57.9%
Unemployed	48,652	6.5%	41,258	5.9%	13,369,671	5.3%
Armed Forces	166	0.0%	1,067	0.2%	986,146	0.4%
Not in labor force	231,029	31.1%	244,565	34.8%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	463,442	100.0%	415,518	100.0%	145,128,676	100.0%
Management & professional	195,997	42.3%	161,151	38.8%	52,753,573	36.3%
Service occupations	85,986	18.6%	78,094	18.8%	26,654,335	18.4%
Sales and office occupations	111,197	24.0%	103,229	24.8%	35,109,334	24.2%
Construction, maintenance, repair	34,938	7.5%	29,582	7.1%	12,924,043	8.9%
Production & transportation	35,324	7.6%	43,462	10.5%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	463,442	100.0%	415,518	100.0%	145,128,676	100.0%
Agriculture & mining	1,459	0.3%	855	0.2%	2,883,101	2.0%
Construction	30,528	6.6%	19,017	4.6%	8,930,742	6.2%
Manufacturing	40,503	8.7%	45,619	11.0%	15,226,862	10.5%
Wholesale trade	10,433	2.3%	11,400	2.7%	3,944,833	2.7%
Retail trade	51,523	11.1%	48,368	11.6%	16,844,787	11.6%
Transportation & utilities	13,655	2.9%	15,422	3.7%	7,083,841	4.9%
Information	12,006	2.6%	8,951	2.2%	3,086,265	2.1%
Finance, insurance, & real estate	53,224	11.5%	25,697	6.2%	9,562,287	6.6%
Professional & administrative	78,627	17.0%	40,647	9.8%	16,038,857	11.1%
Educational services & health care	96,915	20.9%	130,661	31.4%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	39,670	8.6%	33,041	8.0%	14,019,659	9.7%
Other private services	24,986	5.4%	20,579	5.0%	7,203,232	5.0%
Public administration	9,913	2.1%	15,261	3.7%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	328,062	100.0%	321,048	100.0%	116,291,033	100.0%
Less than $10,000	17,652	5.4%	22,544	7.0%	8,783,120	7.6%
$10,000 to $14,999	10,766	3.3%	16,828	5.2%	6,246,216	5.4%
$15,000 to $24,999	26,000	7.9%	29,872	9.3%	12,575,679	10.8%
$25,000 to $34,999	20,943	6.4%	28,775	9.0%	11,964,268	10.3%
$35,000 to $49,999	32,063	9.8%	38,899	12.1%	15,840,707	13.6%
$50,000 to $74,999	45,302	13.8%	54,676	17.0%	20,820,510	17.9%
$75,000 to $99,999	36,933	11.3%	37,818	11.8%	13,823,793	11.9%
$100,000 to $149,999	52,665	16.1%	50,157	15.6%	14,749,902	12.7%
$150,000 to $199,999	26,109	8.0%	22,319	7.0%	5,644,221	4.9%

Table 6-23. Level and Growth Rate of Personal Income (Billion $), 7 Northern New Jersey Counties and the Total of These Counties

	Bergen	Essex	Hudson	Morris	Passaic	Sussex	Union	7 counties
2013	64.31	43.11	33.13	37.48	22.60	7.73	29.82	238.17
2012	63.67	42.74	32.65	37.24	22.49	7.74	29.18	235.72
2011	61.38	42.15	31.68	35.65	22.08	7.53	28.26	228.73
2010	57.91	40.34	29.27	33.83	21.06	7.30	26.83	216.54
2009	57.51	38.90	27.46	33.22	20.47	7.21	26.24	211.02
2008	60.28	39.72	26.95	35.23	20.62	7.47	27.24	217.51
2007	60.17	38.92	24.66	34.11	20.13	7.36	26.61	211.96
2006	56.12	37.18	23.21	32.55	19.01	6.95	25.60	200.62
2005	51.41	34.56	21.72	30.18	17.84	6.52	23.57	185.81
2004	49.35	33.25	20.55	29.11	16.88	6.26	22.81	178.22
2013/12	1.00%	0.87%	1.45%	0.66%	0.48%	-0.13%	2.16%	1.04%
2012/11	3.72%	1.42%	3.07%	4.45%	1.85%	2.85%	3.28%	3.06%
2011/10	6.00%	4.48%	8.23%	5.38%	4.84%	3.14%	5.31%	5.63%
2010/09	0.71%	3.70%	6.58%	1.82%	2.89%	1.15%	2.25%	2.62%
2009/08	-4.61%	-2.05%	1.92%	-5.69%	-0.71%	-3.42%	-3.68%	-2.98%
2008/07	0.19%	2.05%	9.26%	3.29%	2.42%	1.43%	2.40%	2.62%
2007/06	7.21%	4.68%	6.27%	4.80%	5.88%	5.90%	3.94%	5.65%
2006/05	9.16%	7.58%	6.84%	7.83%	6.57%	6.57%	8.61%	7.97%
2005/04	4.17%	3.95%	5.68%	3.68%	5.66%	4.20%	3.31%	4.26%
2013/04	2.98%	2.93%	5.44%	2.85%	3.29%	2.37%	3.02%	3.27%

The growth in income for these 7 counties was well below the national and metropolitan average. The more rapid growth in population in Hudson County was also reflected in the growth in income, due to the expansion of jobs in the financial services area. Sussex County posted the lowest growth rates over the decade, reflecting the actual decline in population, while growth in Essex, Morris, and Union counties were all well below average.

Group E. Fairfield, New Haven, and Litchfield Counties

Table 6-24. Key Economic Statistics for Fairfield and New Haven Counties Compared to the U. S. Economy, 2013 Data

	Fairfield		New Haven		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						

Table 6-22. Level and Growth Rate of Population, 7 Northern New Jersey Counties and the Total of These Counties

	Bergen	Essex	Hudson	Morris	Passaic	Sussex	Union	7 counties
2013	925,328	789,565	660,282	499,397	505,672	145,992	548,256	4,074,492
2012	919,010	786,943	653,369	497,632	504,245	147,192	544,102	4,052,493
2011	912,808	786,337	645,113	495,744	503,508	148,157	540,311	4,031,978
2010	906,509	784,476	635,691	492,755	502,203	148,792	537,736	4,008,162
2009	900,319	781,943	628,572	490,779	498,641	149,487	532,434	3,982,175
2008	895,328	778,165	619,533	489,743	494,904	150,145	527,528	3,955,346
2007	890,817	778,996	613,637	488,355	492,886	150,600	524,960	3,940,251
2006	889,406	781,027	613,577	487,486	492,730	150,508	525,153	3,939,887
2005	891,446	786,341	614,664	485,472	493,600	150,192	526,161	3,947,876
2004	893,378	791,305	614,607	483,997	493,981	149,906	526,916	3,954,090
2013/12	0.69%	0.33%	1.06%	0.35%	0.28%	-0.82%	0.76%	0.54%
2012/11	0.68%	0.08%	1.28%	0.38%	0.15%	-0.65%	0.70%	0.51%
2011/10	0.69%	0.24%	1.48%	0.61%	0.26%	-0.43%	0.48%	0.59%
2010/09	0.69%	0.32%	1.13%	0.40%	0.71%	-0.46%	1.00%	0.65%
2009/08	0.56%	0.49%	1.46%	0.21%	0.76%	-0.44%	0.93%	0.68%
2008/07	0.51%	-0.11%	0.96%	0.28%	0.41%	-0.30%	0.49%	0.38%
2007/06	0.16%	-0.26%	0.01%	0.18%	0.03%	0.06%	-0.04%	0.01%
2006/05	-0.23%	-0.68%	-0.18%	0.41%	-0.18%	0.21%	-0.19%	-0.20%
2005/04	-0.22%	-0.63%	0.01%	0.30%	-0.08%	0.19%	-0.14%	-0.16%
2013/04	0.39%	-0.02%	0.80%	0.35%	0.26%	-0.29%	0.44%	0.33%

In terms of population growth, this is a sluggish section of both the overall economy and the NYC metropolitan area, with average annual growth of only 0.33%. Even so, the population growth follows the pattern for New York City; an actual decline or very sluggish growth in the first half of the previous decade, followed by a significant improvement starting in 2009. The most impressive increase has occurred in Hudson County, as many financial firms move some of their operations across the river to Jersey City. On the other hand, population growth in Morris County has declined, and it has remained negative in Sussex County, once again reinforcing the decline in population in exurban counties in the New York City area.

	Passaic			
2005	234,831	221,929	12,902	5.5
2006	236,210	222,817	13,393	5.7
2007	236,506	223,853	12,653	5.3
2008	240,502	224,531	15,971	6.6
2009	245,108	218,128	26,980	11.0
2010	253,190	224,427	28,763	11.4
2011	253,480	225,657	27,823	11.0
2012	253,694	225,720	27,974	11.0
2013	249,870	225,177	24,693	9.9
2014	248,437	228,264	20,173	8.1
	Sussex			
2005	82,976	79,727	3,249	3.9
2006	84,041	80,543	3,498	4.2
2007	84,106	80,801	3,305	3.9
2008	85,205	81,001	4,204	4.9
2009	85,607	78,265	7,342	8.6
2010	82,352	74,595	7,757	9.4
2011	81,875	74,346	7,529	9.2
2012	81,319	74,052	7,267	8.9
2013	78,962	72,764	6,198	7.8
2014	78,651	73,737	4,914	6.2
	Union			
2005	264,877	252,218	12,659	4.8
2006	267,378	254,202	13,176	4.9
2007	267,086	255,096	11,990	4.5
2008	271,250	256,002	15,248	5.6
2009	273,986	248,517	25,469	9.3
2010	279,530	252,913	26,617	9.5
2011	280,990	254,353	26,637	9.5
2012	283,430	256,814	26,616	9.4
2013	279,832	256,606	23,226	8.3
2014	279,108	260,112	18,996	6.8

On balance, the unemployment rate for these 7 counties in Northern New Jersey is close to the national average, but there are significant differences among individual counties. In 2014, Essex (Newark), Hudson (Jersey City) Passaic (Patterson) and Union (Elizabeth) all had unemployment rates well above average, with rates of 7.9%, 6.5%, 8.1% and 6.8% respectively. On the other hand, the unemployment rates in Bergen and Morris Counties were 5.4% and 4.9%, compared to 6.2% nationally.

2008	478,208	457,226	20,982	4.4
2009	481,104	443,640	37,464	7.8
2010	478,578	440,132	38,446	8.0
2011	481,449	444,411	37,038	7.7
2012	484,151	447,068	37,083	7.7
2013	479,476	447,447	32,029	6.7
2014	479,448	453,688	25,760	5.4
	Essex			
2005	360,801	340,502	20,299	5.6
2006	362,670	341,287	21,383	5.9
2007	361,575	342,249	19,326	5.3
2008	365,516	341,987	23,529	6.4
2009	367,513	329,542	37,971	10.3
2010	382,559	341,115	41,444	10.8
2011	383,477	342,214	41,263	10.8
2012	384,514	343,448	41,066	10.7
2013	377,878	341,529	36,349	9.6
2014	375,861	346,237	29,624	7.9
	Hudson			
2005	287,475	271,796	15,679	5.5
2006	288,996	272,886	16,110	5.6
2007	290,029	275,553	14,476	5.0
2008	294,030	275,774	18,256	6.2
2009	300,162	268,583	31,579	10.5
2010	352,642	318,890	33,752	9.6
2011	357,300	324,530	32,770	9.2
2012	361,039	328,351	32,688	9.1
2013	358,912	330,025	28,887	8.0
2014	357,862	334,604	23,258	6.5
	Morris			
2005	267,019	258,297	8,722	3.3
2006	271,011	261,872	9,139	3.4
2007	271,713	263,489	8,224	3.0
2008	275,403	264,632	10,771	3.9
2009	275,319	255,852	19,467	7.1
2010	265,171	245,539	19,632	7.4
2011	265,907	247,240	18,667	7.0
2012	267,692	248,876	18,816	7.0
2013	263,630	247,523	16,107	6.1
2014	263,878	250,919	12,959	4.9

$200,000 or more	18,058	13.7%	5,009,908	6.5%
Median family income (dollars)	79,855	124.7%	64,030	
Mean family income (dollars)	114,596	133.2%	86,046	
Per capita income (dollars)	34,929	123.9%	28,184	
Median earnings for workers	36,224	118.9%	30,454	
Median earnings for male full-time	53,596	111.4%	48,099	
Median earnings for female full-time	44,831	117.7%	38,097	
PERCENTAGE BELOW POVERTY LEVEL				
All families	8.9%	76.7%	11.6%	
All people	11.5%	72.8%	15.8%	

Mean household and family income levels in Union County are about one-third higher than the national averages; however, median earnings for male full-time workers ($53,600) are only about 11% higher than the comparable U.S. figure ($48,100). Poverty rates in Union County for both families and households are about 25% lower than the national rates.

The mix of occupations in Union County is relatively similar to the U.S., with slightly more workers in wholesale trade, transportation, information, and finance – and slightly fewer in mining, retail, education, health care, and hospitality.

Table 6-21. Labor Market Statistics for 7 Northern New Jersey Counties and Total Area, 2005-2014 Data

	Labor Force	Employed	Unemployed	Un Rate, %
	7 Counties			
2005	1,963,802	1,872,884	90,918	4.6
2006	1,981,487	1,886,340	95,147	4.8
2007	1,982,487	1,896,264	86,223	4.3
2008	2,010,114	1,901,153	108,961	5.4
2009	2,028,799	1,842,527	186,272	9.2
2010	2,094,022	1,897,611	196,411	9.4
2011	2,104,478	1,912,751	191,727	9.1
2012	2,115,839	1,924,329	191,510	9.1
2013	2,088,560	1,921,071	167,489	8.0
2014	2,083,245	1,947,561	135,684	6.5
	Bergen			
2005	465,823	448,415	17,408	3.7
2006	471,181	452,733	18,448	3.9
2007	471,472	455,223	16,249	3.4

Production & transportation	36,622	13.8%	17,687,391	12.2%
INDUSTRY				
Civilian employed population 16+	265,949	100.0%	145,128,676	100.0%
Agriculture & mining	311	0.1%	2,883,101	2.0%
Construction	14,611	5.5%	8,930,742	6.2%
Manufacturing	25,179	9.5%	15,226,862	10.5%
Wholesale trade	9,251	3.5%	3,944,833	2.7%
Retail trade	27,773	10.4%	16,844,787	11.6%
Transportation & utilities	21,898	8.2%	7,083,841	4.9%
Information	6,707	2.5%	3,086,265	2.1%
Finance, insurance, & real estate	25,159	9.5%	9,562,287	6.6%
Professional & administrative	33,756	12.7%	16,038,857	11.1%
Educational services & health care	58,120	21.9%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	19,086	7.2%	14,019,659	9.7%
Other private services	13,257	5.0%	7,203,232	5.0%
Public administration	10,841	4.1%	6,864,026	4.7%
INCOME AND BENEFITS				
Total households	186,951	100.0%	116,291,033	100.0%
Less than $10,000	12,171	6.5%	8,783,120	7.6%
$10,000 to $14,999	7,665	4.1%	6,246,216	5.4%
$15,000 to $24,999	17,732	9.5%	12,575,679	10.8%
$25,000 to $34,999	14,279	7.6%	11,964,268	10.3%
$35,000 to $49,999	22,209	11.9%	15,840,707	13.6%
$50,000 to $74,999	31,413	16.8%	20,820,510	17.9%
$75,000 to $99,999	20,383	10.9%	13,823,793	11.9%
$100,000 to $149,999	28,383	15.2%	14,749,902	12.7%
$150,000 to $199,999	13,043	7.0%	5,644,221	4.9%
$200,000 or more	19,673	10.5%	5,842,617	5.0%
Median household income (dollars)	64,593	123.6%	52,250	
Mean household income (dollars)	97,757	132.5%	73,767	
Families	131,662	100.0%	76,680,463	100.0%
Less than $10,000	6,040	4.6%	3,743,131	4.9%
$10,000 to $14,999	2,641	2.0%	2,493,840	3.3%
$15,000 to $24,999	10,057	7.6%	6,284,315	8.2%
$25,000 to $34,999	8,518	6.5%	6,972,739	9.1%
$35,000 to $49,999	14,853	11.3%	10,067,795	13.1%
$50,000 to $74,999	21,331	16.2%	14,569,480	19.0%
$75,000 to $99,999	15,149	11.5%	10,652,848	13.9%
$100,000 to $149,999	23,480	17.8%	12,092,458	15.8%
$150,000 to $199,999	11,535	8.8%	4,793,949	6.3%

Mean family income (dollars)	90,046	104.6%	114,933	133.6%	86,046
Per capita income (dollars)	27,892	99.0%	39,225	139.2%	28,184
Median earnings for workers	32,052	105.2%	41,905	137.6%	30,454
Median earnings for male full-time	50,407	104.8%	70,611	146.8%	48,099
Median earnings for female full-time	39,682	104.2%	50,873	133.5%	38,097
PERCENTAGE BELOW POVERTY LEVEL					
All families	14.0%	120.7%	4.5%	38.8%	11.6%
All people	16.6%	105.1%	5.8%	36.7%	15.8%

While both of these are suburban counties in Northern New Jersey, Passaic has significant pockets of poverty, pushing the poverty rate for all families to 121% of the national average even though median and mean household and family income are slightly higher than average. On the other hand, Sussex County has median household and family income that are 169% and 155% of the national average, although the mean income figures are somewhat lower at 143% and 134%; these above-average figures are accompanied by poverty rates that are 39% and 37% of the national level for all families and all people respectively.

The proportions of employment by major industrial sector are generally close to national averages except that manufacturing is higher in both counties, and arts, entertainment and leisure is below average.

Table 6-20. Economic Profile of Union County, NJ and Comparison with the U.S. Data

	Union		USA	
	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS				
Population 16 years and over	430,590	100.0%	250,835,999	100.0%
In labor force	295,512	68.6%	159,484,493	63.6%
Civilian labor force	295,458	68.6%	158,498,347	63.2%
Employed	265,949	61.8%	145,128,676	57.9%
Unemployed	29,509	6.9%	13,369,671	5.3%
Armed Forces	54	0.0%	986,146	0.4%
Not in labor force	135,078	31.4%	91,351,506	36.4%
OCCUPATION				
Civilian employed population 16+	265,949	100.0%	145,128,676	100.0%
Management & professional	94,366	35.5%	52,753,573	36.3%
Service occupations	48,878	18.4%	26,654,335	18.4%
Sales and office occupations	65,579	24.7%	35,109,334	24.2%
Construction, maintenance, repair	20,504	7.7%	12,924,043	8.9%

INDUSTRY						
Civilian employed population 16+	230,149	100.0%	76,476	100.0%	145,128,676	100.0%
Agriculture & mining	132	0.1%	244	0.3%	2,883,101	2.0%
Construction	13,705	6.0%	5,363	7.0%	8,930,742	6.2%
Manufacturing	27,783	12.1%	8,795	11.5%	15,226,862	10.5%
Wholesale trade	9,279	4.0%	2,223	2.9%	3,944,833	2.7%
Retail trade	32,477	14.1%	8,570	11.2%	16,844,787	11.6%
Transportation & utilities	13,709	6.0%	4,103	5.4%	7,083,841	4.9%
Information	4,809	2.1%	2,088	2.7%	3,086,265	2.1%
Finance, insurance, & real estate	15,062	6.5%	5,367	7.0%	9,562,287	6.6%
Professional & administrative	26,716	11.6%	9,075	11.9%	16,038,857	11.1%
Educational services & health care	50,014	21.7%	17,914	23.4%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	19,937	8.7%	5,832	7.6%	14,019,659	9.7%
Other private services	9,650	4.2%	3,164	4.1%	7,203,232	5.0%
Public administration	6,876	3.0%	3,738	4.9%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	161,331	100.0%	54,765	100.0%	116,291,033	100.0%
Less than $10,000	12,074	7.5%	1,566	2.9%	8,783,120	7.6%
$10,000 to $14,999	9,212	5.7%	1,897	3.5%	6,246,216	5.4%
$15,000 to $24,999	16,105	10.0%	2,633	4.8%	12,575,679	10.8%
$25,000 to $34,999	14,606	9.1%	3,783	6.9%	11,964,268	10.3%
$35,000 to $49,999	19,268	11.9%	4,998	9.1%	15,840,707	13.6%
$50,000 to $74,999	23,714	14.7%	8,832	16.1%	20,820,510	17.9%
$75,000 to $99,999	18,856	11.7%	8,058	14.7%	13,823,793	11.9%
$100,000 to $149,999	24,612	15.3%	11,216	20.5%	14,749,902	12.7%
$150,000 to $199,999	11,758	7.3%	6,236	11.4%	5,644,221	4.9%
$200,000 or more	11,126	6.9%	5,546	10.1%	5,842,617	5.0%
Median household income (dollars)	58,898	112.7%	88,407	169.2%	52,250	
Mean household income (dollars)	82,360	111.6%	105,480	143.0%	73,767	
Families	120,135	100.0%	40,823	100.0%	76,680,463	100.0%
Less than $10,000	6,298	5.2%	947	2.3%	3,743,131	4.9%
$10,000 to $14,999	4,916	4.1%	442	1.1%	2,493,840	3.3%
$15,000 to $24,999	10,233	8.5%	1,468	3.6%	6,284,315	8.2%
$25,000 to $34,999	11,626	9.7%	1,568	3.8%	6,972,739	9.1%
$35,000 to $49,999	13,848	11.5%	3,651	8.9%	10,067,795	13.1%
$50,000 to $74,999	17,029	14.2%	6,098	14.9%	14,569,480	19.0%
$75,000 to $99,999	15,838	13.2%	6,369	15.6%	10,652,848	13.9%
$100,000 to $149,999	20,330	16.9%	10,032	24.6%	12,092,458	15.8%
$150,000 to $199,999	10,550	8.8%	5,348	13.1%	4,793,949	6.3%
$200,000 or more	9,467	7.9%	4,900	12.0%	5,009,908	6.5%
Median family income (dollars)	67,796	105.9%	99,198	154.9%	64,030	

Per capita income (dollars)	43,412	154.0%	50,154	178.0%	28,184
Median earnings for workers	45,901	150.7%	51,144	167.9%	30,454
Median earnings for male full-time	67,791	140.9%	80,154	166.6%	48,099
Median earnings for female full-time	53,953	141.6%	58,195	152.8%	38,097
PERCENTAGE BELOW POVERTY LEVEL					
All families	6.4%	55.2%	2.9%	25.0%	11.6%
All people	8.2%	51.9%	4.3%	27.2%	15.8%

Bergen and Morris counties are two of the more affluent counties in New Jersey; mean household and family income levels are 56% above the national figures in Bergen County and 89% above the national figures in Morris County. Along the same lines, the poverty rates in both counties are quite low, at 55% for Bergen County and an unusually low 25% for Morris County.

Consistent with its high-income profile, about half of the workforce is in management and professional jobs – 48% in Bergen and 50% in Morris, well above the national percentage of 36.3%. On the other side of the coin, each county has a smaller mix of workers in service occupations and production and transportation compared to the rest of the nation.

Table 6-19. Economic Profile of Passaic and Sussex Counties, NJ and Comparison with the U.S. Data

	Passaic		Sussex		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	397,011	100.0%	117,784	100.0%	250,835,999	100.0%
In labor force	250,782	63.2%	82,417	70.0%	159,484,493	63.6%
Civilian labor force	250,782	63.2%	82,284	69.9%	158,498,347	63.2%
Employed	230,149	58.0%	76,476	64.9%	145,128,676	57.9%
Unemployed	20,633	5.2%	5,808	4.9%	13,369,671	5.3%
Armed Forces	0	0.0%	133	0.1%	986,146	0.4%
Not in labor force	146,229	36.8%	35,367	30.0%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	230,149	100.0%	76,476	100.0%	145,128,676	100.0%
Management & professional	71,794	31.2%	30,969	40.5%	52,753,573	36.3%
Service occupations	41,055	17.8%	11,400	14.9%	26,654,335	18.4%
Sales and office occupations	59,787	26.0%	19,716	25.8%	35,109,334	24.2%
Construction, maintenance, repair	16,102	7.0%	6,624	8.7%	12,924,043	8.9%
Production & transportation	41,411	18.0%	7,767	10.2%	17,687,391	12.2%

Civilian employed population 16+	452,274	100.0%	259,541	100.0%	145,128,676	100.0%
Agriculture & mining	893	0.2%	671	0.3%	2,883,101	2.0%
Construction	23,303	5.2%	13,076	5.0%	8,930,742	6.2%
Manufacturing	39,974	8.8%	27,674	10.7%	15,226,862	10.5%
Wholesale trade	19,244	4.3%	7,723	3.0%	3,944,833	2.7%
Retail trade	44,203	9.8%	26,052	10.0%	16,844,787	11.6%
Transportation & utilities	20,076	4.4%	9,501	3.7%	7,083,841	4.9%
Information	15,634	3.5%	10,757	4.1%	3,086,265	2.1%
Finance, insurance, & real estate	40,573	9.0%	25,758	9.9%	9,562,287	6.6%
Professional & administrative	60,182	13.3%	41,305	15.9%	16,038,857	11.1%
Educational services & health care	111,818	24.7%	61,228	23.6%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	39,956	8.8%	17,201	6.6%	14,019,659	9.7%
Other private services	22,004	4.9%	10,486	4.0%	7,203,232	5.0%
Public administration	14,414	3.2%	8,109	3.1%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	338,063	100.0%	178,951	100.0%	116,291,033	100.0%
Less than $10,000	15,425	4.6%	4,358	2.4%	8,783,120	7.6%
$10,000 to $14,999	10,806	3.2%	4,464	2.5%	6,246,216	5.4%
$15,000 to $24,999	23,184	6.9%	8,651	4.8%	12,575,679	10.8%
$25,000 to $34,999	22,873	6.8%	8,507	4.8%	11,964,268	10.3%
$35,000 to $49,999	33,941	10.0%	13,382	7.5%	15,840,707	13.6%
$50,000 to $74,999	49,195	14.6%	24,247	13.5%	20,820,510	17.9%
$75,000 to $99,999	41,418	12.3%	25,554	14.3%	13,823,793	11.9%
$100,000 to $149,999	57,305	17.0%	36,859	20.6%	14,749,902	12.7%
$150,000 to $199,999	35,966	10.6%	20,874	11.7%	5,644,221	4.9%
$200,000 or more	47,950	14.2%	32,055	17.9%	5,842,617	5.0%
Median household income (dollars)	81,670	156.3%	100,176	191.7%	52,250	
Mean household income (dollars)	116,561	158.0%	137,202	186.0%	73,767	
Families	241,689	100.0%	127,593	100.0%	76,680,463	100.0%
Less than $10,000	6,455	2.7%	1,315	1.0%	3,743,131	4.9%
$10,000 to $14,999	5,146	2.1%	1,381	1.1%	2,493,840	3.3%
$15,000 to $24,999	10,773	4.5%	3,458	2.7%	6,284,315	8.2%
$25,000 to $34,999	10,946	4.5%	4,525	3.5%	6,972,739	9.1%
$35,000 to $49,999	21,911	9.1%	7,884	6.2%	10,067,795	13.1%
$50,000 to $74,999	33,899	14.0%	14,956	11.7%	14,569,480	19.0%
$75,000 to $99,999	31,453	13.0%	17,405	13.6%	10,652,848	13.9%
$100,000 to $149,999	45,996	19.0%	29,029	22.8%	12,092,458	15.8%
$150,000 to $199,999	31,445	13.0%	18,134	14.2%	4,793,949	6.3%
$200,000 or more	43,665	18.1%	29,506	23.1%	5,009,908	6.5%
Median family income (dollars)	100,242	156.6%	120,268	187.8%	64,030	
Mean family income (dollars)	136,333	158.4%	161,494	187.7%	86,046	

PERCENTAGE BELOW POVERTY LEVEL					
All families	14.2%	122.4%	16.8%	144.8%	11.6%
All people	17.8%	112.7%	19.7%	124.7%	15.8%

The income distributions in Essex and Hudson Counties can best be described as "fat-tailed", with greater than average percentages in the highest and lowest income brackets. To elaborate, 10% of families in each of the two counties earn less than $15,000 a year, compared to 8% nationally – while 12% of Essex families and 9% of Hudson families earn $200,000 or more, compared to 6.5% for the U.S. This dichotomy can also be seen in the high mean family incomes ($104,300 in Essex and $88,600 in Hudson, versus $86,000 for the U.S.) and large share of families living in poverty (14.2% in Essex and 16.8% in Hudson County, versus 11.6% for the nation).

Turning to the occupation data, both counties have lower than average shares in manufacturing as well as the arts, entertainment, hotel, and food service industries – and higher than average shares in transportation and finance. The counties differ in the mix of workers in the education and health care industries, as Essex (26.1%) has a higher proportion than average and Hudson has a lower proportion at 18.9%.

Table 6-18. Economic Profile of Bergen and Morris Counties, NJ and Comparison with the U.S Data

	Bergen		Morris		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	747,911	100.0%	399,742	100.0%	250,835,999	100.0%
In labor force	487,298	65.2%	276,135	69.1%	159,484,493	63.6%
Civilian labor force	487,057	65.1%	276,049	69.1%	158,498,347	63.2%
Employed	452,274	60.5%	259,541	64.9%	145,128,676	57.9%
Unemployed	34,783	4.7%	16,508	4.1%	13,369,671	5.3%
Armed Forces	241	0.0%	86	0.0%	986,146	0.4%
Not in labor force	260,613	34.8%	123,607	30.9%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	452,274	100.0%	259,541	100.0%	145,128,676	100.0%
Management & professional	215,452	47.6%	128,618	49.6%	52,753,573	36.3%
Service occupations	65,329	14.4%	34,536	13.3%	26,654,335	18.4%
Sales and office occupations	109,281	24.2%	65,139	25.1%	35,109,334	24.2%
Construction, maintenance, repair	26,305	5.8%	14,548	5.6%	12,924,043	8.9%
Production & transportation	35,907	7.9%	16,700	6.4%	17,687,391	12.2%
INDUSTRY						

Retail trade	35,388	10.0%	35,120	10.4%	16,844,787	11.6%
Transportation & utilities	25,562	7.2%	29,132	8.7%	7,083,841	4.9%
Information	9,626	2.7%	10,195	3.0%	3,086,265	2.1%
Finance, insurance, & real estate	27,706	7.8%	36,710	10.9%	9,562,287	6.6%
Professional & administrative	44,146	12.5%	51,417	15.3%	16,038,857	11.1%
Educational services & health care	92,522	26.1%	63,789	18.9%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	26,980	7.6%	32,362	9.6%	14,019,659	9.7%
Other private services	21,291	6.0%	17,371	5.2%	7,203,232	5.0%
Public administration	14,965	4.2%	9,171	2.7%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	277,102	100.0%	247,490	100.0%	116,291,033	100.0%
Less than $10,000	26,546	9.6%	21,443	8.7%	8,783,120	7.6%
$10,000 to $14,999	14,139	5.1%	13,270	5.4%	6,246,216	5.4%
$15,000 to $24,999	31,927	11.5%	28,881	11.7%	12,575,679	10.8%
$25,000 to $34,999	26,167	9.4%	20,632	8.3%	11,964,268	10.3%
$35,000 to $49,999	33,304	12.0%	26,730	10.8%	15,840,707	13.6%
$50,000 to $74,999	42,492	15.3%	40,876	16.5%	20,820,510	17.9%
$75,000 to $99,999	27,193	9.8%	27,339	11.0%	13,823,793	11.9%
$100,000 to $149,999	34,195	12.3%	33,447	13.5%	14,749,902	12.7%
$150,000 to $199,999	16,473	5.9%	16,136	6.5%	5,644,221	4.9%
$200,000 or more	24,666	8.9%	18,736	7.6%	5,842,617	5.0%
Median household income (dollars)	53,610	102.6%	56,079	107.3%	52,250	
Mean household income (dollars)	86,464	117.2%	82,118	111.3%	73,767	
Families	185,121	100.0%	149,585	100.0%	76,680,463	100.0%
Less than $10,000	11,871	6.4%	8,148	5.4%	3,743,131	4.9%
$10,000 to $14,999	7,521	4.1%	6,402	4.3%	2,493,840	3.3%
$15,000 to $24,999	17,459	9.4%	17,822	11.9%	6,284,315	8.2%
$25,000 to $34,999	16,011	8.6%	12,566	8.4%	6,972,739	9.1%
$35,000 to $49,999	20,338	11.0%	18,173	12.1%	10,067,795	13.1%
$50,000 to $74,999	28,081	15.2%	25,027	16.7%	14,569,480	19.0%
$75,000 to $99,999	19,930	10.8%	16,596	11.1%	10,652,848	13.9%
$100,000 to $149,999	26,534	14.3%	21,267	14.2%	12,092,458	15.8%
$150,000 to $199,999	14,937	8.1%	10,704	7.2%	4,793,949	6.3%
$200,000 or more	22,439	12.1%	12,880	8.6%	5,009,908	6.5%
Median family income (dollars)	65,415	102.2%	59,891	93.5%	64,030	
Mean family income (dollars)	104,283	121.2%	88,560	102.9%	86,046	
Per capita income (dollars)	31,595	112.1%	32,136	114.0%	28,184	
Median earnings for workers	32,402	106.4%	35,308	115.9%	30,454	
Median earnings for male full-time	52,023	108.2%	50,143	104.2%	48,099	
Median earnings for female full-time	43,802	115.0%	46,429	121.9%	38,097	

2007/06	6.21%	8.03%	7.04%
2006/05	6.83%	7.85%	7.30%
2005/04	8.41%	6.78%	7.66%
2013/04	3.56%	3.72%	3.64%

Growth in personal income in these two counties did far better than the national average through 2007 in spite of a decline in population, but that boom came to an abrupt end during the recession. Since then, the percentage increase in personal income has averaged slightly less than 3%, compared to 3.5% for the national economy. Given the lack of any growth in population, the increase in personal income is also likely to remain below average.

Group D. New Jersey: 7 Counties in Northern New Jersey: Essex, Hudson, Bergen, Morris, Passaic, Sussex, and Union Counties

Table 6-17. Economic Profile of Essex and Hudson Counties, NJ and Comparison with the U.S Data, 2012 Data

	Essex		Hudson		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	619,783	100.0%	539,758	100.0%	250,835,999	100.0%
In labor force	411,346	66.4%	371,896	68.9%	159,484,493	63.6%
Civilian labor force	411,346	66.4%	371,800	68.9%	158,498,347	63.2%
Employed	354,509	57.2%	336,685	62.4%	145,128,676	57.9%
Unemployed	56,837	9.2%	35,115	6.5%	13,369,671	5.3%
Armed Forces	0	0.0%	96	0.0%	986,146	0.4%
Not in labor force	208,437	33.6%	167,862	31.1%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	354,509	100.0%	336,685	100.0%	145,128,676	100.0%
Management & professional	129,991	36.7%	130,490	38.8%	52,753,573	36.3%
Service occupations	71,828	20.3%	64,148	19.1%	26,654,335	18.4%
Sales and office occupations	83,745	23.6%	75,870	22.5%	35,109,334	24.2%
Construction, maintenance, repair	28,016	7.9%	19,466	5.8%	12,924,043	8.9%
Production & transportation	40,929	11.5%	46,711	13.9%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	354,509	100.0%	336,685	100.0%	145,128,676	100.0%
Agriculture & mining	510	0.1%	337	0.1%	2,883,101	2.0%
Construction	21,311	6.0%	14,876	4.4%	8,930,742	6.2%
Manufacturing	24,384	6.9%	22,929	6.8%	15,226,862	10.5%
Wholesale trade	10,118	2.9%	13,276	3.9%	3,944,833	2.7%

2007	1,324,905	1,475,626	2,800,531
2006	1,332,318	1,477,687	2,810,005
2005	1,337,964	1,478,215	2,816,179
2004	1,339,761	1,470,849	2,810,610
2013/12	0.25%	-0.07%	0.08%
2012/11	0.34%	0.37%	0.36%
2011/10	0.69%	0.51%	0.59%
2010/09	0.53%	0.47%	0.50%
2009/08	0.23%	0.34%	0.29%
2008/07	-0.22%	-0.03%	-0.12%
2007/06	-0.56%	-0.14%	-0.34%
2006/05	-0.42%	-0.04%	-0.22%
2005/04	-0.13%	0.50%	0.20%
2013/04	0.08%	0.21%	0.15%

In the previous section we noted that the northern counties lost population in 2013 as the charms of exurban living diminished. The same pattern is seen here, with Suffolk County losing population in 2013, while Nassau County posted a 0.25% gain, anemic relative to the nation but about par for the overall region.

Table 6-16. Level and Growth Rate of Personal Income (Billion $), 2 Long Island Counties and the Total of These Counties

	Nassau	Suffolk	2 counties
2013	98.10	85.40	183.49
2012	97.70	85.11	182.81
2011	92.80	80.64	173.43
2010	88.19	77.24	165.43
2009	88.20	75.29	163.49
2008	90.51	77.71	168.22
2007	88.03	76.43	164.46
2006	82.88	70.75	153.63
2005	77.59	65.60	143.19
2004	71.57	61.43	133.00
2013/12	0.41%	0.33%	0.37%
2012/11	5.28%	5.55%	5.41%
2011/10	5.22%	4.40%	4.84%
2010/09	-0.01%	2.59%	1.19%
2009/08	-2.55%	-3.11%	-2.81%
2008/07	2.82%	1.67%	2.29%

	Nassau			
2005	689,655	661,861	27,794	4.0
2006	696,480	670,604	25,876	3.7
2007	694,915	669,351	25,564	3.7
2008	700,692	667,509	33,183	4.7
2009	692,905	645,100	47,805	6.9
2010	691,464	642,147	49,317	7.1
2011	683,792	637,159	46,633	6.8
2012	693,359	644,777	48,582	7.0
2013	694,605	653,605	41,000	5.9
2014	684,861	652,211	32,650	4.8
	Suffolk			
2005	777,672	745,077	32,595	4.2
2006	787,066	756,494	30,572	3.9
2007	787,940	757,541	30,399	3.9
2008	799,996	759,899	40,097	5.0
2009	791,881	734,271	57,610	7.3
2010	777,897	717,632	60,265	7.7
2011	771,146	712,463	58,683	7.6
2012	779,327	718,705	60,622	7.8
2013	778,226	727,502	50,724	6.5
2014	766,711	725,918	40,793	5.3

As was generally the case for the New York City suburbs, unemployment rose moderately in the recession but remained well below the national averages. The one anomaly here is that unemployment in Suffolk County inched higher in 2010 as the rest of the economy recovered, but it then fell in line with national averages in 2011. Both counties then posted a 0.2% gain before falling sharply in 2013 and 2014, with the Nassau unemployment rate down from 7.0% to 5.9% and 4.8%; and the Suffolk unemployment rate down from 7.8% to 6.5% and 5.3% in 2013 and 2014 respectively.

Table 6-15. Level and Growth Rate of Population, 2 Long Island Counties and the Total of These Counties, 2003-2012 Data

	Nassau	Suffolk	2 counties
2013	1,349,233	1,499,273	2,848,506
2012	1,345,827	1,500,338	2,846,165
2011	1,341,285	1,494,763	2,836,048
2010	1,332,088	1,487,206	2,819,294
2009	1,325,129	1,480,218	2,805,347
2008	1,322,048	1,475,255	2,797,303

$150,000 to $199,999	44,799	13.5%	45,527	12.4%	4,793,949	6.3%
$200,000 or more	66,739	20.1%	48,703	13.3%	5,009,908	6.5%
Median family income (dollars)	111,908	174.8%	98,447	153.8%	64,030	
Mean family income (dollars)	142,148	165.2%	120,474	140.0%	86,046	
Per capita income (dollars)	42,183	149.7%	36,639	130.0%	28,184	
Median earnings for workers	41,940	137.7%	40,234	132.1%	30,454	
Median earnings for male full-time	70,287	146.1%	64,522	134.1%	48,099	
Median earnings for female full-time	52,814	138.6%	49,371	129.6%	38,097	
PERCENTAGE BELOW POVERTY LEVEL						
All families	4.4%	37.9%	5.5%	47.4%	11.6%	
All people	6.1%	38.6%	7.3%	46.2%	15.8%	

Nassau County is another wealthy suburban county of New York City, but the figures are not quite as affluent as for Manhattan (at the upper end) or Westchester. Thus median family income is 175% of the national average, but mean income is a slightly lower 165%, as the income distribution is not as skewed as in Manhattan. The poverty rates are quite low, at 38% for all families and all people. Employment in information, financial, and professional and administrative services are all well above average, while the proportions for manufacturing, and for entertainment and leisure, are below average.

Residents of Suffolk County are not quite as affluent as their neighbors in Nassau County, as mean and median income levels are about 21 percentage points below the Nassau figures in all cases. The distribution of the workforce is quite similar to the national averages, with deviations only in construction (7.7% vs. 6.2% for the U.S.), manufacturing (7.6% vs. 10.5%), and leisure and entertainment (6.9% vs. 9.7%).

Table 6-14. Labor Market Statistics for 2 Long Island Counties, 2005-2014 Data

	2 counties			
2005	1,467,327	1,406,938	60,389	4.1
2006	1,483,546	1,427,098	56,448	3.8
2007	1,482,855	1,426,892	55,963	3.8
2008	1,500,688	1,427,408	73,280	4.9
2009	1,484,786	1,379,371	105,415	7.1
2010	1,469,361	1,359,779	109,582	7.5
2011	1,454,938	1,349,622	105,316	7.2
2012	1,472,686	1,363,482	109,204	7.4
2013	1,472,831	1,381,107	91,724	6.2
2014	1,451,572	1,378,129	73,443	5.1

Construction, maintenance, repair	45,862	6.9%	71,319	9.7%	12,924,043	8.9%
Production & transportation	45,513	6.9%	69,536	9.5%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	661,194	100.0%	734,458	100.0%	145,128,676	100.0%
Agriculture & mining	716	0.1%	3,983	0.5%	2,883,101	2.0%
Construction	40,860	6.2%	56,233	7.7%	8,930,742	6.2%
Manufacturing	30,459	4.6%	55,911	7.6%	15,226,862	10.5%
Wholesale trade	20,341	3.1%	24,761	3.4%	3,944,833	2.7%
Retail trade	64,619	9.8%	86,307	11.8%	16,844,787	11.6%
Transportation & utilities	32,597	4.9%	39,190	5.3%	7,083,841	4.9%
Information	21,222	3.2%	18,097	2.5%	3,086,265	2.1%
Finance, insurance, & real estate	64,768	9.8%	52,453	7.1%	9,562,287	6.6%
Professional & administrative	89,067	13.5%	83,787	11.4%	16,038,857	11.1%
Educational services & health care	187,381	28.3%	198,390	27.0%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	45,919	6.9%	48,704	6.6%	14,019,659	9.7%
Other private services	30,408	4.6%	33,137	4.5%	7,203,232	5.0%
Public administration	32,837	5.0%	33,505	4.6%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	438,588	100.0%	496,958	100.0%	116,291,033	100.0%
Less than $10,000	13,824	3.2%	18,129	3.6%	8,783,120	7.6%
$10,000 to $14,999	10,943	2.5%	15,849	3.2%	6,246,216	5.4%
$15,000 to $24,999	28,361	6.5%	32,020	6.4%	12,575,679	10.8%
$25,000 to $34,999	23,942	5.5%	33,850	6.8%	11,964,268	10.3%
$35,000 to $49,999	38,073	8.7%	45,366	9.1%	15,840,707	13.6%
$50,000 to $74,999	57,909	13.2%	74,219	14.9%	20,820,510	17.9%
$75,000 to $99,999	53,674	12.2%	67,485	13.6%	13,823,793	11.9%
$100,000 to $149,999	88,345	20.1%	102,711	20.7%	14,749,902	12.7%
$150,000 to $199,999	51,129	11.7%	52,195	10.5%	5,644,221	4.9%
$200,000 or more	72,388	16.5%	55,134	11.1%	5,842,617	5.0%
Median household income (dollars)	96,193	184.1%	85,439	163.5%	52,250	
Mean household income (dollars)	125,744	170.5%	106,778	144.8%	73,767	
Families	332,159	100.0%	367,123	100.0%	76,680,463	100.0%
Less than $10,000	6,387	1.9%	8,478	2.3%	3,743,131	4.9%
$10,000 to $14,999	3,047	0.9%	5,219	1.4%	2,493,840	3.3%
$15,000 to $24,999	13,368	4.0%	14,366	3.9%	6,284,315	8.2%
$25,000 to $34,999	13,742	4.1%	19,234	5.2%	6,972,739	9.1%
$35,000 to $49,999	24,034	7.2%	28,167	7.7%	10,067,795	13.1%
$50,000 to $74,999	41,193	12.4%	55,673	15.2%	14,569,480	19.0%
$75,000 to $99,999	43,073	13.0%	54,912	15.0%	10,652,848	13.9%
$100,000 to $149,999	75,777	22.8%	86,844	23.7%	12,092,458	15.8%

2009	13.08	14.64	5.26	7.07	26.97
2008	13.30	14.61	5.48	7.09	27.17
2007	12.87	14.02	5.34	6.71	26.07
2006	12.07	13.19	4.95	6.34	24.48
2005	11.29	12.49	4.61	5.87	22.97
2004	10.56	11.89	4.40	5.52	21.81
2013/12	0.42%	0.67%	0.16%	0.67%	0.57%
2012/11	4.50%	3.79%	5.12%	4.80%	4.31%
2011/10	5.37%	4.49%	4.50%	3.66%	4.27%
2010/09	1.87%	2.88%	1.56%	4.29%	2.99%
2009/08	-1.68%	0.25%	-3.99%	-0.28%	-0.75%
2008/07	3.41%	4.20%	2.47%	5.64%	4.21%
2007/06	6.58%	6.25%	7.92%	5.87%	6.49%
2006/05	6.89%	5.62%	7.51%	7.94%	6.59%
2005/04	6.98%	5.07%	4.66%	6.34%	5.31%
2013/04	3.77%	3.67%	3.26%	4.29%	3.75%

The decline in income in 2009 due to the financial plunge was not very serious for these counties, but the rebound was not very robust either, and by 2013, growth in income had also come to a halt, in line with the declining population.

Group C. Long Island: Nassau and Suffolk Counties

Table 6-13. Key Economic Statistics for Nassau and Suffolk Counties Compared to the U. S. Economy, 2013 Data

	Nassau		Suffolk		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	1,089,615	100.0%	1,203,740	100.0%	250,835,999	100.0%
In labor force	708,169	65.0%	788,888	65.5%	159,484,493	63.6%
Civilian labor force	707,844	65.0%	788,597	65.5%	158,498,347	63.2%
Employed	661,194	60.7%	734,458	61.0%	145,128,676	57.9%
Unemployed	46,650	4.3%	54,139	4.5%	13,369,671	5.3%
Armed Forces	325	0.0%	291	0.0%	986,146	0.4%
Not in labor force	381,446	35.0%	414,852	34.5%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	661,194	100.0%	734,458	100.0%	145,128,676	100.0%
Management & professional	287,718	43.5%	271,315	36.9%	52,753,573	36.3%
Service occupations	111,852	16.9%	126,949	17.3%	26,654,335	18.4%
Sales and office occupations	170,249	25.7%	195,339	26.6%	35,109,334	24.2%

Table 6-11. Level and Growth Rate of Population, 4 Upstate New York Counties and the Total of These Counties, 2003-2012 Data

	Dutchess	Orange	Putnam	Ulster	4 counties
2013	297,322	374,512	99,607	181,791	953,232
2012	298,209	374,438	99,916	182,582	955,145
2011	297,772	373,524	99,784	182,395	953,475
2010	296,887	372,079	99,666	182,638	951,270
2009	296,267	370,201	99,537	183,174	949,179
2008	295,319	368,464	99,454	182,818	946,055
2007	294,712	366,908	99,357	182,845	943,822
2006	294,362	364,522	99,575	182,438	940,897
2005	292,859	362,934	99,468	181,847	937,108
2004	290,781	358,727	98,964	180,942	929,414
2013/12	-0.30%	0.02%	-0.31%	-0.43%	-0.20%
2012/11	0.15%	0.24%	0.13%	0.10%	0.18%
2011/10	0.30%	0.39%	0.12%	-0.13%	0.23%
2010/09	0.21%	0.51%	0.13%	-0.29%	0.22%
2009/08	0.32%	0.47%	0.08%	0.19%	0.33%
2008/07	0.21%	0.42%	0.10%	-0.01%	0.24%
2007/06	0.12%	0.65%	-0.22%	0.22%	0.31%
2006/05	0.51%	0.44%	0.11%	0.32%	0.40%
2005/04	0.71%	1.17%	0.51%	0.50%	0.83%
2013/04	0.25%	0.48%	0.07%	0.05%	0.28%

Unlike the growth rate in the 7-county area described above, population growth in these 4 counties tailed off in latter half of the previous decade and then failed to improve at all, with anemic growth rates of 0.2% in 2011 and 2012 followed by an actual decline of 0.2% in 2013; the slump occurred in all four counties. Exurban living lost some of its charms, and tourism to these counties also suffered as cheaper airfares led to more exotic vacation preferences.

Table 6-12. Level and Growth Rate of Personal Income, Billions of Dollars, 4 Upstate New York Counties, and the Total of these Counties

	Dutchess	Orange	Putnam	Ulster	4 counties
2013	14.74	16.45	5.87	8.06	30.38
2012	14.67	16.34	5.87	8.01	30.21
2011	14.04	15.74	5.58	7.64	28.96
2010	13.33	15.06	5.34	7.37	27.77

2009	180,483	166,368	14,115	7.8
2010	181,305	166,840	14,465	8.0
2011	179,006	165,189	13,817	7.7
2012	179,570	165,371	14,199	7.9
2013	178,277	166,075	12,202	6.8
2014	175,742	166,109	9,633	5.5
	Putnam			
2005	56067	53984	2,083	3.7
2006	56183	54225	1,958	3.5
2007	55673	53787	1,886	3.4
2008	56065	53581	2,484	4.4
2009	55010	51328	3,682	6.7
2010	52593	48806	3,787	7.2
2011	51595	48012	3,583	6.9
2012	51563	47888	3,675	7.1
2013	51167	48067	3,100	6.1
2014	50203	47752	2,451	4.9
	Ulster			
2005	91,816	87,828	3,988	4.3
2006	92,551	88,744	3,807	4.1
2007	90,485	86,555	3,930	4.3
2008	90,715	85,770	4,945	5.5
2009	89,944	83,014	6,930	7.7
2010	93,602	86,306	7,296	7.8
2011	91,353	84,177	7,176	7.9
2012	91,044	83,486	7,558	8.3
2013	90,094	83,573	6,521	7.2
2014	88,232	83,136	5,096	5.8

This part of New York State was fairly well insulated from the collapse of the financial sector in late 2008 and was not particularly hard hit by the recession. The unemployment rate for the 4-county region rose to 7.6% in 2009 and 7.8% in 2010 before declining moderately to 7.6% in 2011, but these figures were below the 9.3%, 9.6% and 9.0% figures for the overall U. S. economy. Similar to the pattern for New York City, the unemployment rate for this 4-county region then took an upward bump to 7.9% in 2011 before declining sharply to 6.8% in 2013 and 5.4% in 2014

and a somewhat less impressive 113% for Ulster County. However, the poverty rates in Ulster County are slightly lower than in Orange County, as there are fewer rich and poor people in Ulster.

The employment profile for the two counties is fairly similar, with a smaller than average proportion of the workforce in manufacturing, financial services, and professional services, and a higher than average proportion in education and health care. The only major difference is Ulster County has a higher than average proportion of workers in arts, entertainment and leisure, while the proportion is below average for Orange County.

Table 6-10. Labor Market Statistics for 4 Upstate New York Counties, 2005-2014 Data

	4 counties			
2005	472,488	453,170	19,318	4.1
2006	476,210	457,329	18,881	4.0
2007	470,903	451,720	19,183	4.1
2008	475,002	450,305	24,697	5.2
2009	470,279	434,454	35,825	7.6
2010	476,694	439,629	37,065	7.8
2011	468,369	432,794	35,575	7.6
2012	468,524	431,703	36,821	7.9
2013	464,539	433,078	31,461	6.8
2014	456,230	431,480	24,750	5.4
	Dutchess			
2005	147,009	141,260	5,749	3.9
2006	147,568	141,973	5,595	3.8
2007	145,515	139,838	5,677	3.9
2008	146,689	139,178	7,511	5.1
2009	144,842	133,744	11,098	7.7
2010	149,194	137,677	11,517	7.7
2011	146,415	135,416	10,999	7.5
2012	146,347	134,958	11,389	7.8
2013	145,001	135,363	9,638	6.6
2014	142,053	134,483	7,570	5.3
	Orange			
2005	177,596	170,098	7,498	4.2
2006	179,908	172,387	7,521	4.2
2007	179,230	171,540	7,690	4.3
2008	181,533	171,776	9,757	5.4

INCOME AND BENEFITS						
Total households	123,977	100.0%	68,650	100.0%	116,291,033	100.0%
Less than $10,000	6,483	5.2%	3,808	5.5%	8,783,120	7.6%
$10,000 to $14,999	4,291	3.5%	3,513	5.1%	6,246,216	5.4%
$15,000 to $24,999	11,381	9.2%	6,046	8.8%	12,575,679	10.8%
$25,000 to $34,999	9,687	7.8%	8,388	12.2%	11,964,268	10.3%
$35,000 to $49,999	14,414	11.6%	7,106	10.4%	15,840,707	13.6%
$50,000 to $74,999	20,702	16.7%	14,357	20.9%	20,820,510	17.9%
$75,000 to $99,999	16,155	13.0%	8,231	12.0%	13,823,793	11.9%
$100,000 to $149,999	21,577	17.4%	9,748	14.2%	14,749,902	12.7%
$150,000 to $199,999	11,328	9.1%	4,311	6.3%	5,644,221	4.9%
$200,000 or more	7,959	6.4%	3,142	4.6%	5,842,617	5.0%
Median household income (dollars)	68,950	132.0%	58,429	111.8%	52,250	
Mean household income (dollars)	89,071	120.7%	75,070	101.8%	73,767	
Families	89,052	100.0%	43,124	100.0%	76,680,463	100.0%
Less than $10,000	3,010	3.4%	1,094	2.5%	3,743,131	4.9%
$10,000 to $14,999	2,396	2.7%	910	2.1%	2,493,840	3.3%
$15,000 to $24,999	6,771	7.6%	2,265	5.3%	6,284,315	8.2%
$25,000 to $34,999	5,250	5.9%	4,778	11.1%	6,972,739	9.1%
$35,000 to $49,999	9,596	10.8%	3,663	8.5%	10,067,795	13.1%
$50,000 to $74,999	15,282	17.2%	9,152	21.2%	14,569,480	19.0%
$75,000 to $99,999	12,473	14.0%	6,132	14.2%	10,652,848	13.9%
$100,000 to $149,999	17,763	19.9%	8,158	18.9%	12,092,458	15.8%
$150,000 to $199,999	9,680	10.9%	4,197	9.7%	4,793,949	6.3%
$200,000 or more	6,831	7.7%	2,775	6.4%	5,009,908	6.5%
Median family income (dollars)	79,574	124.3%	73,985	115.5%	64,030	
Mean family income (dollars)	99,370	115.5%	91,565	106.4%	86,046	
Per capita income (dollars)	30,587	108.5%	29,821	105.8%	28,184	
Median earnings for workers	31,854	104.6%	30,039	98.6%	30,454	
Median earnings for male full-time	53,706	111.7%	46,415	96.5%	48,099	
Median earnings for female full-time	41,182	108.1%	36,888	96.8%	38,097	
PERCENTAGE BELOW POVERTY LEVEL						
All families	10.2%	87.9%	5.1%	44.0%	11.6%	
All people	13.4%	84.8%	11.3%	71.5%	15.8%	

Orange and Ulster counties are more exurban or rural counties, and have less in common with the big city, although they still supply significant numbers of commuters. The income levels are moderately above the national averages, with mean and median household and family incomes averaging 128% of national levels for Orange County

and a very small manufacturing sector. Dutchess County, on the other hand, has more manufacturing and a below-average proportion of employment in those service industries. Relative to national average figures, the biggest bulge in employment in that county occurs in education and health care.

Table 6-9. Key Economic Statistics for Orange and Ulster Counties Compared to the U. S. Economy

	Orange		Ulster		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	287,826	100.0%	150,634	100.0%	250,835,999	100.0%
In labor force	193,253	67.1%	94,674	62.9%	159,484,493	63.6%
Civilian labor force	188,802	65.6%	94,527	62.8%	158,498,347	63.2%
Employed	173,704	60.4%	86,254	57.3%	145,128,676	57.9%
Unemployed	15,098	5.2%	8,273	5.5%	13,369,671	5.3%
Armed Forces	4,451	1.5%	147	0.1%	986,146	0.4%
Not in labor force	94,573	32.9%	55,960	37.1%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	173,704	100.0%	86,254	100.0%	145,128,676	100.0%
Management & professional	59,748	34.4%	35,855	41.6%	52,753,573	36.3%
Service occupations	32,171	18.5%	14,617	16.9%	26,654,335	18.4%
Sales and office occupations	47,474	27.3%	18,973	22.0%	35,109,334	24.2%
Construction, maintenance, repair	14,535	8.4%	8,385	9.7%	12,924,043	8.9%
Production & transportation	19,776	11.4%	8,424	9.8%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	173,704	100.0%	86,254	100.0%	145,128,676	100.0%
Agriculture & mining	1,936	1.1%	1,302	1.5%	2,883,101	2.0%
Construction	9,667	5.6%	6,063	7.0%	8,930,742	6.2%
Manufacturing	11,576	6.7%	6,579	7.6%	15,226,862	10.5%
Wholesale trade	5,731	3.3%	1,836	2.1%	3,944,833	2.7%
Retail trade	26,821	15.4%	10,854	12.6%	16,844,787	11.6%
Transportation & utilities	10,972	6.3%	3,034	3.5%	7,083,841	4.9%
Information	3,859	2.2%	2,219	2.6%	3,086,265	2.1%
Finance, insurance, & real estate	10,151	5.8%	3,942	4.6%	9,562,287	6.6%
Professional & administrative	15,532	8.9%	7,463	8.7%	16,038,857	11.1%
Educational services & health care	43,645	25.1%	26,615	30.9%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	14,269	8.2%	8,771	10.2%	14,019,659	9.7%
Other private services	7,989	4.6%	3,098	3.6%	7,203,232	5.0%
Public administration	11,556	6.7%	4,478	5.2%	6,864,026	4.7%

$10,000 to $14,999	3,213	3.0%	386	1.2%	6,246,216	5.4%
$15,000 to $24,999	9,486	8.8%	2,119	6.6%	12,575,679	10.8%
$25,000 to $34,999	10,473	9.7%	2,191	6.8%	11,964,268	10.3%
$35,000 to $49,999	10,476	9.7%	1,727	5.4%	15,840,707	13.6%
$50,000 to $74,999	18,318	17.0%	4,804	14.9%	20,820,510	17.9%
$75,000 to $99,999	16,122	15.0%	4,503	14.0%	13,823,793	11.9%
$100,000 to $149,999	18,742	17.4%	7,384	22.9%	14,749,902	12.7%
$150,000 to $199,999	9,258	8.6%	4,131	12.8%	5,644,221	4.9%
$200,000 or more	7,286	6.8%	3,835	11.9%	5,842,617	5.0%
Median household income (dollars)	70,056	134.1%	93,746	179.4%	52,250	
Mean household income (dollars)	89,242	121.0%	116,185	157.5%	73,767	
Families	72,476	100.0%	25,632	100.0%	76,680,463	100.0%
Less than $10,000	2,003	2.8%	394	1.5%	3,743,131	4.9%
$10,000 to $14,999	861	1.2%	128	0.5%	2,493,840	3.3%
$15,000 to $24,999	3,197	4.4%	1,001	3.9%	6,284,315	8.2%
$25,000 to $34,999	5,038	7.0%	1,535	6.0%	6,972,739	9.1%
$35,000 to $49,999	6,008	8.3%	1,376	5.4%	10,067,795	13.1%
$50,000 to $74,999	11,961	16.5%	3,871	15.1%	14,569,480	19.0%
$75,000 to $99,999	12,200	16.8%	4,145	16.2%	10,652,848	13.9%
$100,000 to $149,999	16,678	23.0%	6,196	24.2%	12,092,458	15.8%
$150,000 to $199,999	7,972	11.0%	3,725	14.5%	4,793,949	6.3%
$200,000 or more	6,558	9.0%	3,261	12.7%	5,009,908	6.5%
Median family income (dollars)	89,678	140.1%	102,453	160.0%	64,030	
Mean family income (dollars)	106,021	123.2%	124,999	145.3%	86,046	
Per capita income (dollars)	33,716	119.6%	40,315	143.0%	28,184	
Median earnings for workers	31,576	103.7%	40,963	134.5%	30,454	
Median earnings for male full-time	61,408	127.7%	69,613	144.7%	48,099	
Median earnings for female full-time	46,606	122.3%	48,150	126.4%	38,097	
PERCENTAGE BELOW POVERTY LEVEL						
All families	5.9%	50.9%	3.2%	27.6%	11.6%	
All people	9.1%	57.6%	4.4%	27.8%	15.8%	

Both these counties are directly north of Westchester, but while Putnam County, which directly borders on Westchester, is essentially a continuation of upscale suburban living, the income levels in Dutchess County are more moderate although still above average. Thus median family income in Putnam is 160% of the national average, compared to 140% for Dutchess. Similarly, the poverty rate for all families is an exceptionally low 28% for Putnam, compared to 51% for Dutchess County.

For the employment distribution by industry, Putnam County is very similar to Westchester, with a preponderance of employees in financial and professional services,

Group B. Dutchess, Putnam, Orange, and Ulster Counties

Table 6-8. Key Economic Statistics for Dutchess and Putnam Counties Compared to the U. S. Economy, 2013 Data

	Dutchess		Putnam		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	244,236	100.0%	81,295	100.0%	250,835,999	100.0%
In labor force	159,903	65.5%	56,268	69.2%	159,484,493	63.6%
Civilian labor force	159,717	65.4%	56,235	69.2%	158,498,347	63.2%
Employed	146,654	60.0%	53,348	65.6%	145,128,676	57.9%
Unemployed	13,063	5.3%	2,887	3.6%	13,369,671	5.3%
Armed Forces	186	0.1%	33	0.0%	986,146	0.4%
Not in labor force	84,333	34.5%	25,027	30.8%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	146,654	100.0%	53,348	100.0%	145,128,676	100.0%
Management & professional	59,645	40.7%	20,593	38.6%	52,753,573	36.3%
Service occupations	29,193	19.9%	10,092	18.9%	26,654,335	18.4%
Sales and office occupations	34,248	23.4%	13,752	25.8%	35,109,334	24.2%
Construction, maintenance, repair	11,474	7.8%	6,432	12.1%	12,924,043	8.9%
Production & transportation	12,094	8.2%	2,479	4.6%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	146,654	100.0%	53,348	100.0%	145,128,676	100.0%
Agriculture & mining	1,337	0.9%	338	0.6%	2,883,101	2.0%
Construction	9,237	6.3%	5,632	10.6%	8,930,742	6.2%
Manufacturing	11,176	7.6%	1,648	3.1%	15,226,862	10.5%
Wholesale trade	2,955	2.0%	817	1.5%	3,944,833	2.7%
Retail trade	16,993	11.6%	7,228	13.5%	16,844,787	11.6%
Transportation & utilities	7,100	4.8%	1,626	3.0%	7,083,841	4.9%
Information	3,712	2.5%	1,798	3.4%	3,086,265	2.1%
Finance, insurance, & real estate	8,272	5.6%	4,758	8.9%	9,562,287	6.6%
Professional & administrative	15,240	10.4%	7,315	13.7%	16,038,857	11.1%
Educational services & health care	42,903	29.3%	12,605	23.6%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	14,087	9.6%	4,197	7.9%	14,019,659	9.7%
Other private services	6,034	4.1%	1,882	3.5%	7,203,232	5.0%
Public administration	7,608	5.2%	3,504	6.6%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	107,752	100.0%	32,251	100.0%	116,291,033	100.0%
Less than $10,000	4,378	4.1%	1,171	3.6%	8,783,120	7.6%

Table 6-7. Level and Growth Rate of Personal Income (Billion $), 7 New York Counties in the NYC Area, and the Total of these Counties

	Bronx	Kings	New York	Queens	Richmond	Rockland	Westchester	7 counties
2013	46.61	109.66	197.79	103.25	24.26	18.18	77.86	577.61
2012	46.01	108.42	195.18	101.12	24.12	18.03	77.37	570.25
2011	45.46	104.28	186.98	97.40	23.48	17.13	72.04	546.77
2010	43.43	97.15	176.21	92.45	22.53	16.40	68.64	516.82
2009	41.77	92.53	161.73	89.72	22.19	16.24	66.73	490.91
2008	40.38	90.81	176.65	89.46	22.29	16.55	71.93	508.08
2007	39.07	86.06	181.98	86.67	21.56	16.38	72.07	503.78
2006	36.11	79.54	162.28	79.83	19.94	15.22	67.78	460.69
2005	33.81	74.19	144.14	74.69	18.67	14.14	61.73	421.37
2004	33.15	71.80	133.98	72.19	17.85	13.49	56.66	399.12
2013/12	1.30%	1.15%	1.34%	2.11%	0.59%	0.85%	0.62%	1.29%
2012/11	1.22%	3.97%	4.39%	3.82%	2.73%	5.22%	7.41%	4.29%
2011/10	4.66%	7.34%	6.11%	5.36%	4.19%	4.46%	4.95%	5.79%
2010/09	3.98%	4.99%	8.96%	3.04%	1.54%	1.00%	2.87%	5.28%
2009/08	3.43%	1.90%	-8.45%	0.29%	-0.46%	-1.90%	-7.23%	-3.38%
2008/07	3.36%	5.52%	-2.92%	3.22%	3.40%	1.06%	-0.19%	0.85%
2007/06	8.21%	8.20%	12.14%	8.56%	8.14%	7.62%	6.34%	9.35%
2006/05	6.79%	7.22%	12.59%	6.88%	6.79%	7.62%	9.79%	9.33%
2005/04	1.99%	3.33%	7.58%	3.47%	4.56%	4.83%	8.95%	5.57%
2013/04	3.85%	4.81%	4.42%	4.05%	3.46%	3.37%	3.59%	4.19%

The financial meltdown in New York City put a huge dent in Manhattan income in 2009, but the city bounced back quickly the following year, with the 2010 gain exceeding the 2009 loss; for the overall economy, the percentage increase in personal income in 2010 was the same as the decline in 2009. Growth also remained strong in 2011 and 2012, but then showed almost no gain in 2013, with sharp declines in each of the 7 counties listed above except the Bronx, which failed to share in the 2012 gains. This slowdown occurred even though the stock market rose 30% in 2013; however, financial institution profits were hurt by a variety of other factors, including fewer mega-mergers, foreign weakness, and continuing attacks on bank profits through various Federal lawsuits and Dodd-Frank legislation designed to curb trading excesses. As a result, many bonuses were smaller, and hence the growth in income was curtailed.

Table 6-6. Level and Growth Rate of Population, 7 New York Counties in the NYC Area, and the Total of these Counties, 2004-2013

	Bronx	Kings	New York	Queens	Richmond	Rockland	Westchester	7 counties
2013	1,418,733	2,592,149	1,626,159	2,296,175	472,621	320,903	968,802	9,695,542
2012	1,407,939	2,568,435	1,621,323	2,275,889	470,811	317,702	961,106	9,623,205
2011	1,395,933	2,541,018	1,607,316	2,257,837	471,026	315,588	956,791	9,545,509
2010	1,387,709	2,509,591	1,588,129	2,234,935	469,691	312,502	950,517	9,453,074
2009	1,376,261	2,487,751	1,583,431	2,217,166	466,965	308,652	944,201	9,384,427
2008	1,363,488	2,460,361	1,587,022	2,193,623	463,701	305,413	937,449	9,311,057
2007	1,354,056	2,441,324	1,581,402	2,177,351	459,642	301,668	933,414	9,248,857
2006	1,348,164	2,436,132	1,578,171	2,173,862	457,577	299,390	931,426	9,224,722
2005	1,351,736	2,445,809	1,573,573	2,185,222	457,028	298,737	933,401	9,245,506
2004	1,358,963	2,459,094	1,569,947	2,198,516	456,846	297,562	935,457	9,276,385
2013/12	0.77%	0.92%	0.30%	0.89%	0.38%	1.01%	0.80%	0.75%
2012/11	0.86%	1.08%	0.87%	0.80%	-0.05%	0.67%	0.45%	0.81%
2011/10	0.59%	1.25%	1.21%	1.02%	0.28%	0.99%	0.66%	0.98%
2010/09	0.83%	0.88%	0.30%	0.80%	0.58%	1.25%	0.67%	0.73%
2009/08	0.94%	1.11%	-0.23%	1.07%	0.70%	1.06%	0.72%	0.79%
2008/07	0.70%	0.78%	0.36%	0.75%	0.88%	1.24%	0.43%	0.67%
2007/06	0.44%	0.21%	0.20%	0.16%	0.45%	0.76%	0.21%	0.26%
2006/05	-0.26%	-0.40%	0.29%	-0.52%	0.12%	0.22%	-0.21%	-0.22%
2005/04	-0.53%	-0.54%	0.23%	-0.60%	0.04%	0.39%	-0.22%	-0.33%
2013/04	0.48%	0.59%	0.39%	0.48%	0.38%	0.84%	0.39%	0.49%

Population growth in New York City was quite sluggish over the past decade, but starting in 2008 has picked up sharply, with growth rates for the past six years averaging about 0.8%, only slightly less than the 0.93% national average growth rate. Growth peaked in 2011, as it slightly exceeded the national average, although it has backed off slightly. However, growth in Kings and Queens has remained strong throughout 2013, due in part to increased immigration and in part to the overall strength bolstered by the recovery in the stock market. For the next few years, population growth for this 7-county area will probably remain close to, but slightly below, the expected national average gain of about 0.9% per year.

2013	220219	201035	19,184	8.7
2014	222974	206826	16,148	7.2
	Rockland			
2005	151,221	145,210	6,011	4.0
2006	152,379	146,739	5,640	3.7
2007	153,871	147,944	5,927	3.9
2008	156,197	148,768	7,429	4.8
2009	153,851	143,259	10,592	6.9
2010	149,986	138,812	11,174	7.5
2011	148,889	138,344	10,545	7.1
2012	150,294	139,418	10,876	7.2
2013	150,126	140,784	9,342	6.2
2014	148,428	140,828	7,600	5.1
	Westchester			
2005	482,484	463,188	19,296	4.0
2006	487,426	469,034	18,392	3.8
2007	489,581	471,440	18,141	3.7
2008	495,831	472,088	23,743	4.8
2009	487,641	453,096	34,545	7.1
2010	478,703	443,503	35,200	7.4
2011	473,866	440,338	33,528	7.1
2012	477,347	442,713	34,634	7.3
2013	475,821	446,053	29,768	6.3
2014	470,316	446,219	24,097	5.1

New York City and the close-in suburbs were not particularly hard hit by the financial collapse in spite of Wall Street being the epicenter of that meltdown. However, the unemployment rate in the 7-county region rose only to 9.0% in 2009 and 9.2% in 2010, compared to 9.3% and 9.6% nationally; it then fell to 8.8% in 2011, which was also slightly below the 8.9% national average rate. However, it then took a surprising jump up in 2012, when the rest of the economy continued to improve; the 7-county average rose from 8.8% to 9.1%, with a rise in each county in this group. The rate then fell proportionately with the national average in 2013 and 2014. The unemployment rate in the Bronx remained high at 9.8% in 2014, however, meaning that the entire county qualified as a TEA.

2006	1073743	1016247	57,496	5.4
2007	1086423	1027298	59,125	5.4
2008	1106224	1039579	66,645	6.0
2009	1119823	1008638	111,185	9.9
2010	1163500	1047979	115,521	9.9
2011	1169931	1057568	112,363	9.6
2012	1192035	1074789	117,246	9.8
2013	1210844	1097519	113,325	9.4
2014	1222973	1128931	94,042	7.7
	New York			
2005	902717	857093	45,624	5.1
2006	909103	869930	39,173	4.3
2007	917566	877728	39,838	4.3
2008	931595	885850	45,745	4.9
2009	931604	852963	78,641	8.4
2010	881202	805553	75,649	8.6
2011	881143	812437	68,706	7.8
2012	895427	823912	71,515	8.0
2013	902951	836046	66,905	7.4
2014	915344	859957	55,387	6.1
	Queens			
2005	1,090,028	1,032,819	57,209	5.2
2006	1,091,546	1,042,607	48,939	4.5
2007	1,102,350	1,052,959	49,391	4.5
2008	1,120,482	1,064,170	56,312	5.0
2009	1,129,395	1,034,421	94,974	8.4
2010	1,106,461	1,011,049	95,412	8.6
2011	1,107,831	1,018,203	89,628	8.1
2012	1,125,279	1,032,011	93,268	8.3
2013	1,141,925	1,053,630	88,295	7.7
2014	1,157,675	1,083,808	73,867	6.4
	Richmond			
2005	231455	219267	12,188	5.3
2006	236624	226076	10,548	4.5
2007	239789	228808	10,981	4.6
2008	244150	231712	12,438	5.1
2009	246087	225883	20,204	8.2
2010	216953	196493	20,460	9.4
2011	216332	196673	19,659	9.1
2012	218140	197777	20,363	9.3

Rockland County is to the west of Westchester, and while the section of Rockland County that is closest to Westchester – and the Hudson River – maintains the same upscale characteristics, the western part of the county has a much lower level of income and higher incidence of poverty. Hence we find that mean family income is 153% of the national average, compared to over 182% in Westchester, and the poverty rate for all families is 91%, compared to 62%.

In terms of employment distribution, the proportion of workers in most sectors is close to the national average except for education and health care services, which employ 32.4% of the workforce, compared to 23.0% nationally. Offsetting that, the proportions in other industry sectors except construction are all slightly lower, with the biggest decrement occurring in manufacturing.

Table 6-5. Labor Market Statistics for 7 New York Counties in the NYC Area, 2005-2014 Data

	Labor Force	Employed	Unemployed	Un Rate, %
	7 counties			
2005	4,435,662	4,190,071	245,591	5.5
2006	4,456,199	4,242,381	213,818	4.8
2007	4,502,059	4,283,664	218,395	4.9
2008	4,578,225	4,326,312	251,913	5.5
2009	4,602,267	4,187,884	414,383	9.0
2010	4,579,094	4,155,868	423,226	9.2
2011	4,582,019	4,177,671	404,348	8.8
2012	4,654,334	4,232,110	422,224	9.1
2013	4,704,511	4,306,957	397,554	8.5
2014	4,744,340	4,413,720	330,620	7.0
	Bronx			
2005	507229	468809	38,420	7.6
2006	505378	471748	33,630	6.7
2007	512479	477487	34,992	6.8
2008	523746	484145	39,601	7.6
2009	533866	469624	64,242	12.0
2010	582289	512479	69,810	12.0
2011	584027	514108	69,919	12.0
2012	595812	521490	74,322	12.5
2013	602625	531890	70,735	11.7
2014	606630	547151	59,479	9.8
	Kings			
2005	1070528	1003685	66,843	6.2

Public administration	5,690	3.9%	6,864,026	4.7%
INCOME AND BENEFITS				
Total households	98,294	100.0%	116,291,033	100.0%
Less than $10,000	4,625	4.7%	8,783,120	7.6%
$10,000 to $14,999	5,337	5.4%	6,246,216	5.4%
$15,000 to $24,999	8,296	8.4%	12,575,679	10.8%
$25,000 to $34,999	6,072	6.2%	11,964,268	10.3%
$35,000 to $49,999	8,092	8.2%	15,840,707	13.6%
$50,000 to $74,999	13,193	13.4%	20,820,510	17.9%
$75,000 to $99,999	12,492	12.7%	13,823,793	11.9%
$100,000 to $149,999	18,594	18.9%	14,749,902	12.7%
$150,000 to $199,999	9,932	10.1%	5,644,221	4.9%
$200,000 or more	11,661	11.9%	5,842,617	5.0%
Median household income (dollars)	80,942	154.9%	52,250	
Mean household income (dollars)	105,528	143.1%	73,767	
Families	73,854	100.0%	76,680,463	100.0%
Less than $10,000	1,818	2.5%	3,743,131	4.9%
$10,000 to $14,999	2,426	3.3%	2,493,840	3.3%
$15,000 to $24,999	5,400	7.3%	6,284,315	8.2%
$25,000 to $34,999	4,296	5.8%	6,972,739	9.1%
$35,000 to $49,999	4,929	6.7%	10,067,795	13.1%
$50,000 to $74,999	9,039	12.2%	14,569,480	19.0%
$75,000 to $99,999	9,873	13.4%	10,652,848	13.9%
$100,000 to $149,999	16,063	21.7%	12,092,458	15.8%
$150,000 to $199,999	9,212	12.5%	4,793,949	6.3%
$200,000 or more	10,798	14.6%	5,009,908	6.5%
Median family income (dollars)	98,045	153.1%	64,030	
Mean family income (dollars)	120,394	139.9%	86,046	
Per capita income (dollars)	33,429	118.6%	28,184	
Median earnings for workers	36,588	120.1%	30,454	
Median earnings for male full-time	59,591	123.9%	48,099	
Median earnings for female full-time	50,896	133.6%	38,097	
PERCENTAGE BELOW POVERTY LEVEL				
All families	10.5%	90.5%	11.6%	
All people	15.0%	94.9%	15.8%	

Westchester County is a very affluent, white-collar suburban county; 46.6% of its workforce is in management and professional jobs, compared to 36.3% for the nation, while only 7.9% work in production and transportation, versus 12.2% nationally. Median income levels are 61% to 64% above the national figures, with mean income levels are 77 to 82% higher. Consistent with this, 21.7% of the families in Westchester County earn over $200,000 per year, well above the U.S. average of 6.5%.

Table 6-4. Key Economic Statistics for Rockland County Compared to the U. S. Economy, 2012 Data

	Rockland		USA	
	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS				
Population 16 years and over	243,141	100.0%	250,835,999	100.0%
In labor force	160,935	66.2%	159,484,493	63.6%
Civilian labor force	160,895	66.2%	158,498,347	63.2%
Employed	146,028	60.1%	145,128,676	57.9%
Unemployed	14,867	6.1%	13,369,671	5.3%
Armed Forces	40	0.0%	986,146	0.4%
Not in labor force	82,206	33.8%	91,351,506	36.4%
OCCUPATION				
Civilian employed population 16+	146,028	100.0%	145,128,676	100.0%
Management & professional	61,118	41.9%	52,753,573	36.3%
Service occupations	30,277	20.7%	26,654,335	18.4%
Sales and office occupations	34,309	23.5%	35,109,334	24.2%
Construction, maintenance, repair	9,934	6.8%	12,924,043	8.9%
Production & transportation	10,390	7.1%	17,687,391	12.2%
INDUSTRY				
Civilian employed population 16+	146,028	100.0%	145,128,676	100.0%
Agriculture & mining	159	0.1%	2,883,101	2.0%
Construction	7,359	5.0%	8,930,742	6.2%
Manufacturing	9,096	6.2%	15,226,862	10.5%
Wholesale trade	4,702	3.2%	3,944,833	2.7%
Retail trade	14,136	9.7%	16,844,787	11.6%
Transportation & utilities	5,938	4.1%	7,083,841	4.9%
Information	4,425	3.0%	3,086,265	2.1%
Finance, insurance, & real estate	9,546	6.5%	9,562,287	6.6%
Professional & administrative	16,946	11.6%	16,038,857	11.1%
Educational services & health care	47,245	32.4%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	11,964	8.2%	14,019,659	9.7%
Other private services	8,822	6.0%	7,203,232	5.0%

$15,000 to $24,999	14,818	8.8%	24,824	7.3%	12,575,679	10.8%
$25,000 to $34,999	12,024	7.2%	22,403	6.6%	11,964,268	10.3%
$35,000 to $49,999	16,109	9.6%	30,996	9.1%	15,840,707	13.6%
$50,000 to $74,999	28,714	17.1%	46,811	13.7%	20,820,510	17.9%
$75,000 to $99,999	20,186	12.0%	39,347	11.5%	13,823,793	11.9%
$100,000 to $149,999	30,194	18.0%	59,202	17.3%	14,749,902	12.7%
$150,000 to $199,999	15,154	9.0%	31,710	9.3%	5,644,221	4.9%
$200,000 or more	12,695	7.6%	56,751	16.6%	5,842,617	5.0%
Median household income (dollars)	69,633	133.3%	84,220	161.2%	52,250	
Mean household income (dollars)	90,193	122.3%	130,639	177.1%	73,767	
Families	122,079	100.0%	238,518	100.0%	76,680,463	100.0%
Less than $10,000	5,946	4.9%	6,140	2.6%	3,743,131	4.9%
$10,000 to $14,999	2,780	2.3%	5,898	2.5%	2,493,840	3.3%
$15,000 to $24,999	7,699	6.3%	12,861	5.4%	6,284,315	8.2%
$25,000 to $34,999	7,269	6.0%	12,129	5.1%	6,972,739	9.1%
$35,000 to $49,999	11,038	9.0%	19,412	8.1%	10,067,795	13.1%
$50,000 to $74,999	19,432	15.9%	30,012	12.6%	14,569,480	19.0%
$75,000 to $99,999	15,083	12.4%	26,473	11.1%	10,652,848	13.9%
$100,000 to $149,999	26,662	21.8%	46,442	19.5%	12,092,458	15.8%
$150,000 to $199,999	14,153	11.6%	27,402	11.5%	4,793,949	6.3%
$200,000 or more	12,017	9.8%	51,749	21.7%	5,009,908	6.5%
Median family income (dollars)	86,077	134.4%	104,983	164.0%	64,030	
Mean family income (dollars)	104,824	121.8%	156,979	182.4%	86,046	
Per capita income (dollars)	32,375	114.9%	47,305	167.8%	28,184	
Median earnings for workers	42,119	138.3%	41,850	137.4%	30,454	
Median earnings for male full-time	61,244	127.3%	70,603	146.8%	48,099	
Median earnings for female full-time	50,407	132.3%	55,907	146.7%	38,097	
PERCENTAGE BELOW POVERTY LEVEL						
All families	10.3%	88.8%	7.2%	62.1%	11.6%	
All people	12.8%	81.0%	9.7%	61.4%	15.8%	

Richmond County (Staten Island) has a disproportionately high share of its workforce in health care, finance, and public administration; this is offset by lower than average shares in manufacturing and leisure. Median household and family income levels are 33% above the comparable national figures; mean income levels are about 22% higher. Richmond County has 27.8% of the workforce in education and healthcare services, compared to 23.0% nationally, which is largely offset by only 2.4% in manufacturing, compared to 10.5% nationally.

Table 6-3. Key Economic Statistics for Richmond and Westchester Counties Compared to the U. S. Economy, 2013 Data

	Richmond		Westchester		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	379,237	100.0%	771,040	100.0%	250,835,999	100.0%
In labor force	227,147	59.9%	513,644	66.6%	159,484,493	63.6%
Civilian labor force	226,903	59.8%	513,492	66.6%	158,498,347	63.2%
Employed	210,276	55.4%	470,180	61.0%	145,128,676	57.9%
Unemployed	16,627	4.4%	43,312	5.6%	13,369,671	5.3%
Armed Forces	244	0.1%	152	0.0%	986,146	0.4%
Not in labor force	152,090	40.1%	257,396	33.4%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	210,276	100.0%	470,180	100.0%	145,128,676	100.0%
Management & professional	83,846	39.9%	219,290	46.6%	52,753,573	36.3%
Service occupations	42,215	20.1%	90,569	19.3%	26,654,335	18.4%
Sales and office occupations	49,673	23.6%	101,875	21.7%	35,109,334	24.2%
Construction, maintenance, repair	17,964	8.5%	28,443	6.0%	12,924,043	8.9%
Production & transportation	16,578	7.9%	30,003	6.4%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	210,276	100.0%	470,180	100.0%	145,128,676	100.0%
Agriculture & mining	141	0.1%	1,487	0.3%	2,883,101	2.0%
Construction	15,057	7.2%	28,718	6.1%	8,930,742	6.2%
Manufacturing	4,992	2.4%	18,945	4.0%	15,226,862	10.5%
Wholesale trade	4,018	1.9%	9,427	2.0%	3,944,833	2.7%
Retail trade	18,808	8.9%	44,014	9.4%	16,844,787	11.6%
Transportation & utilities	15,585	7.4%	18,117	3.9%	7,083,841	4.9%
Information	5,873	2.8%	14,563	3.1%	3,086,265	2.1%
Finance, insurance, & real estate	22,425	10.7%	45,885	9.8%	9,562,287	6.6%
Professional & administrative	24,617	11.7%	69,553	14.8%	16,038,857	11.1%
Educational services & health care	58,480	27.8%	135,517	28.8%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	14,920	7.1%	39,265	8.4%	14,019,659	9.7%
Other private services	10,688	5.1%	26,139	5.6%	7,203,232	5.0%
Public administration	14,672	7.0%	18,550	3.9%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	167,629	100.0%	341,755	100.0%	116,291,033	100.0%
Less than $10,000	11,574	6.9%	16,392	4.8%	8,783,120	7.6%
$10,000 to $14,999	6,161	3.7%	13,319	3.9%	6,246,216	5.4%

$150,000 to $199,999	24,305	8.3%	9,472	3.0%	4,793,949	6.3%
$200,000 or more	74,564	25.4%	6,736	2.1%	5,009,908	6.5%
Median family income (dollars)	88,247	137.8%	37,357	58.3%	64,030	
Mean family income (dollars)	177,804	206.6%	53,695	62.4%	86,046	
Per capita income (dollars)	63,336	224.7%	17,907	63.5%	28,184	
Median earnings for workers	51,527	169.2%	25,385	83.4%	30,454	
Median earnings for male full-time	82,087	170.7%	35,637	74.1%	48,099	
Median earnings for female full-time	65,369	171.6%	35,989	94.5%	38,097	
PERCENTAGE BELOW POVERTY LEVEL						
All families	14.8%	127.6%	27.6%	237.9%	11.6%	
All people	18.9%	119.6%	30.9%	195.6%	15.8%	

It is not surprising to find that in New York County (Manhattan), the proportion of the workforce engaged in financial services is more than twice the national average, standing at 16.7% compared to 6.6% nationally. Similarly, the proportion of the workforce in professional and administrative services is 19.6%, compared to 11.1% nationally, and the proportion in information services is 6.4%, compared to 2.1% nationally. Offsetting these sharp divergences on the positive side, there are a far smaller proportion of workers in construction, manufacturing, retail trade, and transportation services.

New York County has the greatest skewed income distribution of any county at the upper end, with 25.4% of families with incomes of over $200,000, compared to 6.5% nationally. As a result, mean family income is 207% of the national average; median family income is a far more moderate 138% of the average. However, there are also a higher than average proportion of households and families in the two lowest income brackets, with the result that the poverty levels are above average, at 128% of the national average for all families and 120% for all people. The "fat tails" of the income distribution at both ends leads to a shortfall in the middle of the distribution, with only 10.4% of the families with income between $50,000 and $75,000 per year, compared to 19% nationally.

The stark comparison between New York and Bronx counties can be seen by noting that whereas 25.4% of the families in New York County have incomes of over $200,000, the figure is only 2.1% for the Bronx. The Bronx also has a preponderance of households and families in the lower income brackets, with the result that the poverty rates are twice the national average. In terms of occupational distribution, nearly one-third of the workforce is employed in education and health care services, compared to 23% nationally; the major shortfall is in manufacturing.

Construction, maintenance, repair	17,197	2.0%	36,633	6.7%	12,924,043	8.9%
Production & transportation	32,491	3.7%	62,791	11.4%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	878,397	100.0%	550,661	100.0%	145,128,676	100.0%
Agriculture & mining	1,076	0.1%	280	0.1%	2,883,101	2.0%
Construction	15,165	1.7%	27,086	4.9%	8,930,742	6.2%
Manufacturing	22,961	2.6%	23,258	4.2%	15,226,862	10.5%
Wholesale trade	17,902	2.0%	9,381	1.7%	3,944,833	2.7%
Retail trade	77,296	8.8%	65,617	11.9%	16,844,787	11.6%
Transportation & utilities	19,864	2.3%	35,179	6.4%	7,083,841	4.9%
Information	55,822	6.4%	9,620	1.7%	3,086,265	2.1%
Finance, insurance, & real estate	147,111	16.7%	37,667	6.8%	9,562,287	6.6%
Professional & administrative	171,850	19.6%	43,186	7.8%	16,038,857	11.1%
Educational services & health care	204,080	23.2%	177,992	32.3%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	94,010	10.7%	65,550	11.9%	14,019,659	9.7%
Other private services	32,841	3.7%	34,270	6.2%	7,203,232	5.0%
Public administration	18,419	2.1%	21,575	3.9%	6,864,026	4.7%
INCOME AND BENEFITS						
Total households	726,357	100.0%	481,143	100.0%	116,291,033	100.0%
Less than $10,000	73,812	10.2%	80,215	16.7%	8,783,120	7.6%
$10,000 to $14,999	35,786	4.9%	43,684	9.1%	6,246,216	5.4%
$15,000 to $24,999	63,474	8.7%	66,323	13.8%	12,575,679	10.8%
$25,000 to $34,999	48,287	6.6%	56,834	11.8%	11,964,268	10.3%
$35,000 to $49,999	61,634	8.5%	62,081	12.9%	15,840,707	13.6%
$50,000 to $74,999	86,401	11.9%	72,942	15.2%	20,820,510	17.9%
$75,000 to $99,999	68,038	9.4%	42,810	8.9%	13,823,793	11.9%
$100,000 to $149,999	100,715	13.9%	36,797	7.6%	14,749,902	12.7%
$150,000 to $199,999	57,555	7.9%	11,498	2.4%	5,644,221	4.9%
$200,000 or more	130,655	18.0%	7,959	1.7%	5,842,617	5.0%
Median household income (dollars)	72,190	138.2%	33,009	63.2%	52,250	
Mean household income (dollars)	134,222	182.0%	48,800	66.2%	73,767	
Families	293,761	100.0%	314,768	100.0%	76,680,463	100.0%
Less than $10,000	19,990	6.8%	38,583	12.3%	3,743,131	4.9%
$10,000 to $14,999	12,591	4.3%	24,318	7.7%	2,493,840	3.3%
$15,000 to $24,999	25,013	8.5%	43,613	13.9%	6,284,315	8.2%
$25,000 to $34,999	21,176	7.2%	40,224	12.8%	6,972,739	9.1%
$35,000 to $49,999	23,774	8.1%	43,620	13.9%	10,067,795	13.1%
$50,000 to $74,999	30,443	10.4%	50,355	16.0%	14,569,480	19.0%
$75,000 to $99,999	23,003	7.8%	30,942	9.8%	10,652,848	13.9%
$100,000 to $149,999	38,902	13.2%	26,905	8.5%	12,092,458	15.8%

entertainment and leisure, and other private services. The major shortfall is in manufacturing, with only 4.5% of the workforce engaged, compared to 10.5% nationally.

In terms of income distribution, Queens is the quintessential "middle class" county, with median and mean household and family income narrowly straddling the national average; the average of the median household and family income is 3% higher, while the average of the mean household and family income is 3% below the average. Also, the poverty rate for all families is 106% of the national average, while the rate for all people is 97% of that average. The income distribution is also very similar to the national average.

The occupational distribution in Kings County is similar in many ways to Queens except that there are proportionately more employees in health care and information services, which includes newspapers, the Internet, and movie production. It also has a higher proportion in professional services, reflecting the large number of professionals who live "across the bridge" in Brooklyn. The proportions are lower than Queens and the U.S. for manufacturing and wholesale and retail trade; they are lower than Queens but higher than the U.S. average for transportation and other private services.

While Kings County has close to the average proportion of individuals and families in the upper income brackets, it has far more than average in the lower brackets. As a result, the poverty rate is well above the national average, at 168% for all families and 148% for all people. The larger proportions at the lower end of the income scale means that while all broad-based levels of income are below average, the figures are lower for median incomes than for mean incomes.

Table 6-2. Key Economic Statistics for New York and Bronx Counties Compared to the U. S. Economy, 2013 Data

	New York County		Bronx		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	1,412,105	100.0%	1,093,503	100.0%	250,835,999	100.0%
In labor force	949,725	67.3%	645,475	59.0%	159,484,493	63.6%
Civilian labor force	949,550	67.2%	644,781	59.0%	158,498,347	63.2%
Employed	878,397	62.2%	550,661	50.4%	145,128,676	57.9%
Unemployed	71,153	5.0%	94,120	8.6%	13,369,671	5.3%
Armed Forces	175	0.0%	694	0.1%	986,146	0.4%
Not in labor force	462,380	32.7%	448,028	41.0%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	878,397	100.0%	550,661	100.0%	145,128,676	100.0%
Management & professional	525,693	59.8%	131,581	23.9%	52,753,573	36.3%
Service occupations	122,088	13.9%	184,758	33.6%	26,654,335	18.4%
Sales and office occupations	180,928	20.6%	134,898	24.5%	35,109,334	24.2%

Total households	925,489	100.0%	784,243	100.0%	116,291,033	100.0%
Less than $10,000	108,318	11.7%	57,242	7.3%	8,783,120	7.6%
$10,000 to $14,999	62,956	6.8%	36,334	4.6%	6,246,216	5.4%
$15,000 to $24,999	100,034	10.8%	79,861	10.2%	12,575,679	10.8%
$25,000 to $34,999	91,703	9.9%	72,342	9.2%	11,964,268	10.3%
$35,000 to $49,999	112,562	12.2%	103,848	13.2%	15,840,707	13.6%
$50,000 to $74,999	150,225	16.2%	136,045	17.3%	20,820,510	17.9%
$75,000 to $99,999	95,643	10.3%	103,872	13.2%	13,823,793	11.9%
$100,000 to $149,999	109,352	11.8%	114,622	14.6%	14,749,902	12.7%
$150,000 to $199,999	45,105	4.9%	45,649	5.8%	5,644,221	4.9%
$200,000 or more	49,591	5.4%	34,428	4.4%	5,842,617	5.0%
Median household income (dollars)	47,520	90.9%	56,599	108.3%	52,250	
Mean household income (dollars)	71,501	96.9%	73,656	99.8%	73,767	
Families	586,156	100.0%	522,704	100.0%	76,680,463	100.0%
Less than $10,000	43,498	7.4%	24,197	4.6%	3,743,131	4.9%
$10,000 to $14,999	35,700	6.1%	16,337	3.1%	2,493,840	3.3%
$15,000 to $24,999	64,753	11.0%	49,390	9.4%	6,284,315	8.2%
$25,000 to $34,999	62,632	10.7%	47,723	9.1%	6,972,739	9.1%
$35,000 to $49,999	71,344	12.2%	69,272	13.3%	10,067,795	13.1%
$50,000 to $74,999	97,859	16.7%	91,950	17.6%	14,569,480	19.0%
$75,000 to $99,999	63,684	10.9%	70,679	13.5%	10,652,848	13.9%
$100,000 to $149,999	76,349	13.0%	88,325	16.9%	12,092,458	15.8%
$150,000 to $199,999	32,776	5.6%	37,061	7.1%	4,793,949	6.3%
$200,000 or more	37,561	6.4%	27,770	5.3%	5,009,908	6.5%
Median family income (dollars)	52,929	82.7%	63,030	98.4%	64,030	
Mean family income (dollars)	78,776	91.6%	81,203	94.4%	86,046	
Per capita income (dollars)	26,641	94.5%	26,463	93.9%	28,184	
Median earnings for workers	31,909	104.8%	32,002	105.1%	30,454	
Median earnings for male full-time	44,777	93.1%	42,366	88.1%	48,099	
Median earnings for female full-time	42,021	110.3%	43,353	113.8%	38,097	
PERCENTAGE BELOW POVERTY LEVEL						
All families	19.5%	168.1%	12.3%	106.0%	11.6%	
All people	23.3%	147.5%	15.3%	96.8%	15.8%	

Note that in these and succeeding tables, the figures in the percentage column in black refer to the group total, whereas the figures in red refer to the U. S. averages

Relative to the U.S., Queens County has a higher than average proportion of the workforce in transportation, representing the two airports; and also in financial services,

Group A. New York, Bronx, Kings, Queens, Richmond, Westchester, and Rockland Counties

Table 6-1. Key Economic Statistics for Kings and Queens Counties Compared to the U. S. Economy, 2013 Data

	Kings		Queens		USA	
	Estimate	Percent	Estimate	Percent	Estimate	Percent
EMPLOYMENT STATUS						
Population 16 years and over	2,051,110	100.0%	1,877,857	100.0%	250,835,999	100.0%
In labor force	1,299,296	63.3%	1,205,667	64.2%	159,484,493	63.6%
Civilian labor force	1,298,411	63.3%	1,205,352	64.2%	158,498,347	63.2%
Employed	1,163,409	56.7%	1,098,023	58.5%	145,128,676	57.9%
Unemployed	135,002	6.6%	107,329	5.7%	13,369,671	5.3%
Armed Forces	885	0.0%	315	0.0%	986,146	0.4%
Not in labor force	751,814	36.7%	672,190	35.8%	91,351,506	36.4%
OCCUPATION						
Civilian employed population 16+	1,163,409	100.0%	1,098,023	100.0%	145,128,676	100.0%
Management & professional	446,592	38.4%	355,866	32.4%	52,753,573	36.3%
Service occupations	284,838	24.5%	270,545	24.6%	26,654,335	18.4%
Sales and office occupations	256,073	22.0%	261,563	23.8%	35,109,334	24.2%
Construction, maintenance, repair	76,599	6.6%	94,686	8.6%	12,924,043	8.9%
Production & transportation	99,307	8.5%	115,363	10.5%	17,687,391	12.2%
INDUSTRY						
Civilian employed population 16+	1,163,409	100.0%	1,098,023	100.0%	145,128,676	100.0%
Agriculture & mining	771	0.1%	2,184	0.2%	2,883,101	2.0%
Construction	62,111	5.3%	72,948	6.6%	8,930,742	6.2%
Manufacturing	48,499	4.2%	49,619	4.5%	15,226,862	10.5%
Wholesale trade	28,979	2.5%	30,419	2.8%	3,944,833	2.7%
Retail trade	109,274	9.4%	112,185	10.2%	16,844,787	11.6%
Transportation & utilities	71,126	6.1%	80,604	7.3%	7,083,841	4.9%
Information	48,706	4.2%	31,160	2.8%	3,086,265	2.1%
Finance, insurance, & real estate	87,862	7.6%	92,524	8.4%	9,562,287	6.6%
Professional & administrative	148,130	12.7%	129,831	11.8%	16,038,857	11.1%
Educational services & health care	332,954	28.6%	252,697	23.0%	33,440,184	23.0%
Arts, entertain, hotel, food svcs	118,464	10.2%	129,718	11.8%	14,019,659	9.7%
Other private services	64,312	5.5%	72,614	6.6%	7,203,232	5.0%
Public administration	42,221	3.6%	41,520	3.8%	6,864,026	4.7%
INCOME AND BENEFITS						

6. Economic Parameters for 23 Counties in the New York Metropolitan Area

This section contains information about employment, income distribution, labor market parameters, the level and growth rate of population and personal income, and commuting patterns around New York City for 23 counties in the New York metropolitan area. This list is similar to, although not exactly the same as the NYC metro area as defined by Census, but it is smaller than the Consolidated Statistical Area or the BEA Economic Area for NYC. For ease of exposition we have divided the tables, commentary, and analysis into the five sub-groups. These subgroups are as follows:

A. NYC and Nearby Northern Suburbs — New York, Bronx, Richmond, Kings, Queens, Westchester, and Rockland
B. Upstate New York—Putnam, Dutchess, Orange, Ulster
C. Long Island—Nassau, Suffolk
D. New Jersey North—Bergen, Essex, Hudson, Morris, Passaic, Sussex, Union
E. Connecticut—Litchfield, New Haven, Fairfield

The analysis thus proceeds as follows. For each of these 5 subgroups, the following tables are presented:

1. Employment by major industrial classification, income distribution by household and families, mean and median levels of income and poverty rates. In general, there are 2 to 3 counties in each table, so there are anywhere from 1 to 4 tables for each subgroup in this category.

2. Labor market statistics: size of labor force, number of employed and unemployed, and unemployment rate

3. Level and growth rate of population

4. Level and growth rate of personal income

Other professional services: This category includes employees in consulting, scientific research and development, advertising, and management, as well as several other smaller, specialized categories. In general, consulting, management, and the all other category each account for about 1% of total employment, and R&D and advertising account for about ½% of total employment, for a total of about 4% of total employment. This figure will vary widely depending on the degree to which consultants and R&D are used by the new business.

Employment services: On a national average basis, 1 out of every 45 people is employed by this industry. Here again, the figures will vary widely depending on (a) the proportion of people who are hired through employment agencies, and (b) the proportion of the work that is outsourced to employment services.

Business support services include office management, travel arrangement, security, credit bureaus, telemarketing, and back-office jobs that are outsourced, such as direct mail, copying, and duplicating services. The back-office services would vary widely depending on the type of new business; retail stores, for example, would print and distribute more advertising brochures than a manufacturing operation. On a national average basis, these jobs account for about 2% of total employment.

Building support services, which includes janitorial services, lawn maintenance, and waste management. For an office building of 80,000 square feet, the cost would be approximately $2/sq ft per year for maintenance, or $160,000, which would support about 4 new jobs; here again, the figure would be lower for industrial buildings.

Restaurants: This category reflects business meals. Of course the number of business meals depends greatly on the type of business; lawyers, accountants, and consultants will have more business meals than manufacturing plants or water treatment facilities. On a national average basis, Commerce Department figures show that total restaurant sales in 2007 were $580 billion, while consumer expenditures at restaurants were $500 billion. However, that figure also includes tips, which are not included in restaurant sales. After subtracting 15% for tips, that indicates about $425 billion in food and beverage purchases by consumers, indicating about $155 billion for business expenses. With a labor force of approximately 140 million, that is equivalent to about $1,100 per employee. Hence if 200 new jobs were created, business meal expenses would rise an average of $221,000, which would imply about 4.5 new indirect jobs in the restaurant industry. These figures are likely to be somewhat higher when direct jobs are created for office buildings and hotels.

Government: The increase in public sector employees represents the amount funded by increased real estate taxes. For a construction project with $10 million in hard costs, the total value is likely to be between $15 and $20 million when one includes furniture, fixtures, equipment, and land values. Using a national average property tax rate of 1%, that would raise $150,000 to $200,000, which would create 1 to 2 new jobs in the public sector.

costs are usually about 5% to 9% of the total job. According to the national input/output file, the figures are 9.2% for commercial construction and 4.5% for industrial construction.

To summarize to this point, the number of indirect jobs as a proportion of direct jobs depends on (a) the national relationships, and (b) the regional purchase coefficients. In our presentation for the businesses in this report, we provide further discussion of those industries with the largest number of indirect jobs. However, there are a few industries that produce relatively large numbers of jobs in almost all cases, and these can be generally discussed at this stage in order to avoid repeating this information several times. The industries discussed here include banking, real estate, legal and accounting, architects and engineers, other professional services, employment services, other business services, restaurants, and government. In all of these cases, the vast majority of workers are hired locally. Our comments for the rest of this section are based on the assumption of a $10 million investment; the results are linear.

Banking and credit: On an aggregate basis, for every $10 million in deposits, very broadly defined (M3), there is about 1 new banking employee. As a rough rule of thumb, the size of M3 is roughly equal to the size of GDP. Hence we would expect about 1 new banking employee for every $10 million increase in output, as calculated from the RIMS II model.

Real estate: Additional real estate employees are based on two factors. One is the leasing activity of the new building, and the other is the increase in residential real estate activity as people get new jobs, either within the area or by moving into the area. On a lease basis, a $10 million investment is likely to result in a building of 80,000 square feet. If it leases for $40/square foot, that would be $3.2 million in annual lease payments, and with a 6% commission would generate $192,000 in revenues, which would account for about 2 new real estate employees (the figure would be less for industrial buildings). The increase in employment would also result in some real estate activity as workers moved into better housing in the same location, or moved in from other areas. In a normal year, there are about 7 million sales of new and existing homes for a labor force of about 140 million, or 5%. Hence if the total increase in employment were 200, that would imply 10 real estate transactions; if they average $200,000 at a 6% commission, that would be $12,000 per home or a total of $120,000, which would support approximately 1 new real estate job.

Legal & Accounting: Each of these accounts for about 1% of total employment; so if there were a total increase of 200 jobs, we would expect an average of 4 new employees in this classification.

Architects & Engineers: almost all of these jobs stem from the new construction activity. This category has already been discussed above; for a $10 million construction project, which would create about 80 new construction jobs, we would expect about 7 new jobs in architects and engineers for a commercial project and 3 to 4 new jobs for an industrial project.

spend for attorneys, and so on. These figures are based on information contained in the various Economic Censuses. The national coefficients would also determine, for example, how many architects and engineers would be hired for a construction project of a given scope and size, and how many new employees at financial institutions would be required to handle the additional cash flow generated by the new business. Both of these are discussed below in greater detail.

Even after these coefficients are determined, however, the regional purchase coefficients (RPC) must still be estimated. If, for example, a trucking firm spends 1% of its revenue on accountants, how much of that money is spent on local firms, and how much is spent outside the region?

That answer depends on various factors. The most important is the amount of the good or service produced within the region. If a trucking firm, for example, were located in a small county with no accountants, obviously it would not spend any of that money locally. That sets a lower limit but is not generally the case. Instead, a balancing algorithm is used.

Suppose, for example, that all the firms producing, distributing, or selling goods and services in a given county spent $10 million on accounting services. Also, suppose that total billings of all accountants in the county were $20 million. In that case, local accountants could handle all the local business, plus business from neighboring counties. If, on the other hand, total accountant billings in the county were only $5 million, local firms could not spend more than half of the money on local accountants.

Of course it is possible that there are adequate resources in the county but local firms choose to use companies outside the county; perhaps prices or service is better. No input/output model can account for such anomalies. On the other hand, given transportation costs, it would be highly unusual for a firm to be located in a given location and not serve the nearby businesses, instead choosing only those clients who were farther away.

The RIMS II model – and other regional input/output models – assigns regional purchase coefficients (RPCs) in all cases where the local industry purchases goods and services from local firms. This matrix could have as many as 406 * 406 = 164,836 elements, although in practice many of them are zero. Large counties with a wide variety of businesses have more non-zero elements than small counties with relatively few businesses.

In general, the RPCs tend to be close to zero for most manufactured goods, and close to unity for most services. While there are many exceptions to this rule, most firms will use financial, professional, business, and health care services that are located in that county or contiguous areas.

To take just one example of many, consider the number of new jobs created by architects and engineers for a new construction project of any given size. Most construction cost manuals, such as those published by R. S. Means, indicate that those

The direct effect multipliers for employment can be used if the data on the initial changes in employment by industry are available. In the direct effect employment multiplier table, each entry indicates the total change in employment in the region that results from a change of one job in the row industry. The total impact on regional employment is calculated by multiplying the initial change in employment in the row industry by the multiplier for the row.

Choosing a Multiplier

The choice of multiplier for estimating the impact of a project on output, earnings, and employment depends on the availability of estimates of the initial changes in final demand, earnings, and employment. If the estimates of the initial changes in all three measures are available, the RIMS II user can select any of the RIMS II multipliers. In theory, all the impact estimates should be consistent. If the available estimates are limited to initial changes in final demand, the user can select a final demand multiplier for impact estimation. If the available estimates are limited to initial changes in earnings or employment, the user can select a direct effect multiplier.

5. Methodology for Calculating Indirect Job Gains

In spite of the explanation of the RIMS II model given directly above, some USCIS adjudicators have asked for further clarification about how that model is used to determine the increase in the number of indirect jobs. That is an important issue because, unlike the direct job count, which can be verified by USCIS from various payroll and withholding documents, the calculation of indirect jobs cannot be verified directly but depends on mathematical calculations.

The general concept is based on the coefficients in the input/output model itself (the same methodology applies to RIMS II, IMPLAN, or any other generally recognized and accepted input/output model). In any given year, the government calculates how much input is used for a given production of output. The detailed figures are taken from the Economic Censuses taken once every five years; the figures are then updated from various annual supplements.

Basically the process has two steps, each of which is described next in greater detail. The first is to determine the amount of output, and hence the number of jobs, required to produce a given amount (say $1 million) of the final product or service. These are national coefficients. The second is to determine what proportion of those goods and services are purchased within the local region (the regional purchase coefficients, or RPCs).

In the case of a manufacturing process, the national coefficients are based on production functions: how much coke per ton of steel, how much steel per motor vehicle, how much flour for a loaf of bread, and so on. However, most of the jobs are created in the service sector, where Commerce Department data are used to determine, for example, how much restaurants spend on laundry services, how much airlines

of estimating procedures nationwide. Fourth, RIMS II multipliers are updated to reflect the most recent local-area wage-and-salary and personal income data.

Overview of Different Multipliers

RIMS II provides users with five types of multipliers: final demand multipliers for output, for earnings, and for employment; and direct-effect multipliers for earnings and for employment. These multipliers measure the economic impact of a change in final demand, in earnings, or in employment on a region's economy.

The final demand multipliers for output are the basic multipliers from which all other RIMS II multipliers are derived. In this table, each column entry indicates the change in output in each row industry that results from a $1 change in final demand in the column industry. The impact on each row industry is calculated by multiplying the final demand change in the column industry by the multiplier for each row. The total impact on regional output is calculated by multiplying the final demand change in the column industry by the sum of all the multipliers for each row except the household row.

RIMS II provides two types of multipliers for estimating the impacts of changes on earnings: final demand multipliers and direct effect multipliers. These multipliers are derived from the table of final demand output multipliers.

The final demand multipliers for earnings can be used if data on final demand changes are available. In the final demand earnings multiplier table, each column entry indicates the change in earnings in each row industry that results from a $1 change in final demand in the column industry. The impact on each row industry is calculated by multiplying the final demand change in the column industry by the multipliers for each row. The total impact on regional earnings is calculated by multiplying the final demand change in the column industry by the sum of the multipliers for each row.

Employment Multipliers

RIMS II provides two types of multipliers for estimating the impacts of changes on employment: final demand multipliers and direct effect multipliers. These multipliers are derived from the table of final demand output multipliers.

The final demand multipliers for employment can be used if the data on final demand changes are available. In the final demand employment multiplier table, each column entry indicates the change in employment in each row industry that results from a $1 million change in final demand in the column industry. The impact on each row industry is calculated by multiplying the final demand change in the column industry by the multiplier for each row. The total impact on regional employment is calculated by multiplying the final demand change in the column industry by the sum of the multipliers for each row.

users must provide geographically and industrially detailed information on the initial changes in output, earnings, or employment that are associated with the project or program under study. The multipliers can then be used to estimate the total impact of the project or program on regional output, earnings, and employment.

RIMS II is widely used in both the public and private sector. In the public sector, for example, the Department of Defense uses RIMS II to estimate the regional impacts of military base closings. State transportation departments use RIMS II to estimate the regional impacts of airport construction and expansion. In the private-sector, analysts and consultants use RIMS II to estimate the regional impacts of a variety of projects, such as the development of shopping malls and sports stadiums.

RIMS II Methodology

RIMS II uses BEA's benchmark and annual I-O tables for the nation. Since a particular region may not contain all the industries found at the national level, some direct input requirements cannot be supplied by that region's industries. Input requirements that are not produced in a study region are identified using BEA's regional economic accounts.

The RIMS II method for estimating regional I-O multipliers can be viewed as a three-step process. In the first step, the producer portion of the national I-O table is made region-specific by using six-digit NAICS location quotients (LQs). The LQs estimate the extent to which input requirements are supplied by firms within the region. RIMS II uses LQs based on two types of data: BEA's personal income data (by place of residence) are used to calculate LQs in the service industries; and BEA's wage-and-salary data (by place of work) are used to calculate LQs in the non-service industries.

In the second step, the household row and the household column from the national I-O table are made region-specific. The household row coefficients, which are derived from the value-added row of the national I-O table, are adjusted to reflect regional earnings leakages resulting from individuals working in the region but residing outside the region. The household column coefficients, which are based on the personal consumption expenditure column of the national I-O table, are adjusted to account for regional consumption leakages stemming from personal taxes and savings. In the last step, the Leontief inversion approach is used to estimate multipliers. This inversion approach produces output, earnings, and employment multipliers, which can be used to trace the impacts of changes in final demand on and indirectly affected industries.

Advantages of RIMS II

There are numerous advantages to using RIMS II. First, the accessibility of the main data sources makes it possible to estimate regional multipliers without conducting relatively expensive surveys. Second, the level of industrial detail used in RIMS II helps avoid aggregation errors, which often occur when industries are combined. Third, RIMS II multipliers can be compared across areas because they are based on a consistent set

4. Brief Guide to RIMS II Input/Output Model

The following material has been condensed from the RIMS II User Handbook.

Introduction and General Comments

Effective planning for public- and private-sector projects and programs at the State and local levels requires a systematic analysis of the economic impacts of these projects and programs on affected regions. In turn, systematic analysis of economic impacts must account for the inter-industry relationships within regions because these relationships largely determine how regional economies are likely to respond to project and program changes. Thus, regional input-output (I-O) multipliers, which account for inter-industry relationships within regions, are useful tools for conducting regional economic impact analysis.

In the 1970s, the Bureau of Economic Analysis (BEA) developed a method for estimating regional I-O multipliers known as RIMS (Regional Industrial Multiplier System), which was based on the work of Garnick and Drake. In the 1980s, BEA completed an enhancement of RIMS, known as RIMS II (Regional Input-Output Modeling System), and published a handbook for RIMS II users. In 1992, BEA published a second edition of the handbook in which the multipliers were based on more recent data and improved methodology. In 1997, BEA published a third edition of the handbook that provides more detail on the use of the multipliers and the data sources and methods for estimating them.

RIMS II is based on an accounting framework called an I-O table. For each industry, an I-O table shows the industrial distribution of inputs purchased and outputs sold. A typical I-O table in RIMS II is derived mainly from two data sources: BEA's national I-O table, which shows the input and output structure of nearly 500 U.S. industries, and BEA's regional economic accounts, which are used to adjust the national I-O table to show a region's industrial structure and trading patterns.

Using RIMS II for impact analysis has several advantages. RIMS II multipliers can be estimated for any region composed of one or more counties and for any industry, or group of industries, in the national I-O table. The accessibility of the main data sources for RIMS II keeps the cost of estimating regional multipliers relatively low. Empirical tests show that estimates based on relatively expensive surveys and RIMS II-based estimates are similar in magnitude.

BEA's RIMS multipliers can be a cost-effective way for analysts to estimate the economic impacts of changes in a regional economy. However, it is important to keep in mind that, like all economic impact models, RIMS provides approximate order-of-magnitude estimates of impacts. RIMS multipliers are best suited for estimating the impacts of small changes on a regional economy. For some applications, users may want to supplement RIMS estimates with information they gather from the region undergoing the potential change. To use the multipliers for impact analysis effectively,

for each of the categories of economic activity listed in Table A. For repair and maintenance construction office, this figure represents the amount spent times he input/output coefficient showing the total amount of output per $1 million of construction expenditures. The same methodology applies to all the other figures given in Table C. Detailed figures may be found in the tables in Section (8), which provide estimates of employment, output, and household earnings, and output and earnings per new worker, for the 20 major industrial classifications in the RIMS II input/output model.

3. Introduction and Scope of Work

Mona Shah and Associates plans to raise EB-5 funds for the development and operation of a mixed use commercial and residential project, to be located at 148-46 Hillside Ave/148-33 88th Ave, Jamaica, NY 11435. This project consists of four components: Luxury Condominium, Commercial Retail, Community Facility/Medical Offices, and Parking Garage. This study contains the economic impact analysis for hard and soft construction costs and rental income on these four components.

The calculations are based on the RIMS II input/output model for 23 of the 30 counties in the New York Combined Statistical Area (CSA). This area has already been approved by USCIS for a regional center. These counties are as follows:

1. NYC—New York, Bronx, Richmond, Kings, Queens, Westchester, Rockland
2. Upstate New York Suburbs —Putnam, Dutchess, Orange, Ulster
3. Long Island—Nassau, Suffolk
4. Connecticut—Litchfield, New Haven, Fairfield
5. New Jersey —Bergen, Essex, Hudson, Morris, Passaic, Sussex, Union

Section (4) contains a brief description of the RIMS II models and its various multipliers, and Section (5) contains additional information explaining how the indirect jobs are calculated. Section (6) contains and analyzes the key statistics for the 23-county area used to calculate the RIMS II multipliers. It is subdivided into five subsections, corresponding to the five groups shown above. Each subsection contains tables showing the following information: (1) data for employment by major occupation and industrial classification, income distribution by deciles, mean and median household and family income, and poverty rates, with these figures compared to the U.S. totals or averages; (2) key labor market statistics over the past decade for each county and the county group total; and (3) level and growth rate of population and personal income for these same areas. Section (7) shows the commuting patterns for New York City, maps of the area, and TEA analysis.

Section (8) presents the economic impact tables for the hard costs, EB-5 eligible soft costs, and purchases of FF&E. Separate sets of tables are presented for each category of construction for the increase in employment, output, and earnings, and the average level of output and earnings per new worker, for the 20 major industrial classifications in the RIMS II input/output model. Section (9) contains similar tables for rental income. Section (10) contains the summary tables for the project.

per new worker, and the total increase in earnings for construction and rental income. In each case, the RIMS II input/output model has been used to calculate the number of jobs in each major industrial classification, the average earnings per employee, and hence total earnings. The number of jobs by industrial classification is based on calculations imbedded in the RIMS II model for each of the activities as summarized in Table A and documented in detail throughout this report.

Demand for Business Services, Utilities, Maintenance and Construction, and New Supplier/Vendor Relationships Created with Manufacturers

The total economic impact of the regional center from the supplier purchases and business relationships for the construction and rental income would create approximately $8.2 million in additional economic activity across the region for the project. These supplier purchases are calculated from the indirect increase in output generated by the RIMS II model. It should be noted that some of these supplier industries might potentially locate within the regional center, and their economic output is included in this total.

The estimate of supplier purchases is based on the commodity data in the RIMS II input-output model. This data specifies the amount and type of commodity input needed to maintain specific types of business operations. The model estimates the supplier purchases based on the types of jobs and number of jobs that will be created within the regional center. In addition, the model allocates the supplier purchases to businesses within the region, based on trade flow data from the U.S. Bureau of Economic Analysis.

Utilities include services such as electricity, natural gas, and water and sewer facilities. The economic impact on utility services totals about $0.47 million.

Maintenance and repair services include some building and construction activity on existing buildings. The regional center would create an economic impact of about $0.17 million. These expenditures represent permanent, ongoing maintenance on the building after it is completed; they do not reflect the initial construction costs.

New supplier/vendor relationships with manufacturers would create an economic impact of about $3.2 million. This output primarily represents purchases of locally produced materials and parts for the construction of the building.

The regional center will also create demand for various types of business services, including professional and scientific services, management of companies, administrative services, and building support and waste management services. The impact of this activity totals about $4.4 million. This primarily represents payments to architects and engineers for the construction activities.

The figures given in Table C represent only a brief summary of the detailed calculations that have been undertaken and are reported in tabular format throughout the report. The figure for utility output, for example, represents the sum of utility output

Region Definition: Fairfield, CT; Litchfield, CT; New Haven, CT; Bergen, NJ; Essex, NJ; Hudson, NJ; Morris, NJ; Passaic, NJ; Sussex, NJ; Union, NJ; Bronx, NY; Dutchess, NY; Kings, NY; Nassau, NY; New York, NY; Orange, NY; Putnam, NY; Queens, NY; Richmond, NY; Rockland, NY; Suffolk, NY; Ulster, NY; Westchester, NY

*Includes Government enterprises.

1. Each entry in column 1 represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
2. Each entry in column 2 represents the total dollar change in earnings of households employed by all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
3. Each entry in column 3 represents the total change in number of jobs that occurs in all industries for each additional 1 million dollars of output delivered to final demand by the industry corresponding to the entry. Because the employment multipliers are based on 2010 data, the output delivered to final demand should be in 2010 dollars.
4. Each entry in column 4 represents the total dollar change in value added that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
5. Each entry in column 5 represents the total dollar change in earnings of households employed by all industries for each additional dollar of earnings paid directly to households employed by the industry corresponding to the entry.
6. Each entry in column 6 represents the total change in number of jobs in all industries for each additional job in the industry corresponding to the entry.

NOTE.–Multipliers are based on the 2002 Benchmark Input-Output Table for the Nation and 2010 regional data. Industry List A identifies the industries corresponding to the entries.

SOURCE.–Regional Input-Output Modeling System (RIMS II), Regional Product Division, Bureau of Economic Analysis.

Table C shows the annual level of household income, and the output for utilities, maintenance and repair construction, manufacturing output, and professional and business support services for the construction of the building and rental income.

Table C. Summary Measures of Economic Impact for Construction and Rental Income

All figures in thousands of dollars		
Household Income from		
Hard construction costs		(b)(4)
Architect & Engineering Svcs		
Rental Income		
Total these 3 categories		
Demand (output) for:		
Utilities		
Maintenance and repair construction		
Supplier/vendor links with manufacturers		
Professional and business support services		
Total these 4 categories		

Household Earnings (Labor Income)

The jobs created by the project subsequently create new sources of household income. The household income created within the regional center by the construction of the building and rental income is about (b)(4)

The details used to calculate these figures are given throughout the report. Separate tables are provided for the total number of jobs created, the average earnings

2. Tabulation of Principal Results

Table A shows the annual expenditures and revenue, the final demand multiplier, and the total number of jobs created by the construction and rental income of the building. All figures are permanent jobs. Direct jobs are calculated as total jobs divided by the employment multipliers given in Column (6) of Table B-2.

Table A. Summary of Employment and Revenue Estimates

Activity	Exp/Rev mil cur $	Exp/Rev mil 2010 $	RIMS II Mult	Total Jobs	Direct Jobs
			(b)(4)		
Hard construction costs			13.2149		
Architect & Engineering Svcs			11.9014		
Rental Income			13.0752		
Total					

All figures based on unrounded numbers

Table B1 shows the NAICS codes for each type of economic activity. The descriptions are taken from: http://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart=2012. Table B-2 shows the print screen of all the RIMS II multipliers used in this study, based on the 23-county area listed below

Table B-1. NAICS Codes for Each Type of Activity

2361	Residential Building Construction
5413	Architectural, Engineering, and Related Services
5312	Offices of Real Estate Agents and Brokers

Table B2. Print Screen of Multipliers

	(1)	(2)	(3)	(4)	(5)	(6)
230000 Construction	**1.9404**	**0.6293**	**13.2149**	**1.0609**	**1.7263**	**1.8832**
541300 Architectural, engineering, and related services	**2.0077**	**0.6555**	**11.9014**	**1.2448**	**1.8409**	**2.5144**
531000 Real estate	**1.4923**	**0.2656**	**13.0752**	**1.0991**	**1.9940**	**1.3588**

Five Year Proforma					
	2018	2019	2020	2021	2022
Revenues					
Residential Condominium					
Commercial Retail					
Community Facility/Medical Office					
Parking Garage					
Total Revenues					
Expenses					
Utilities:					
Gas and eletric					
Water and sewer					
Repairs and maintenance:					
Building					
Sprinkler					
Elevator					
Equipment					
Exterminating					
Supplies					
Management fees					
Insurance					
Taxes					
Telephone					
Payroll Expenses					
Office and administrative					
Total Expenses					
Net Operating Income					

- **Summing these components, there would be a total of [redacted] permanent new jobs created for the mixed use facility located at 148-46 Hillside Ave/148-33 88th Ave, Jamaica, NY, which is located in census tract (CT) 245 in Queens County. When combined with contiguous CTs, an area can be formed with an unemployment rate exceeding 9.3% in 2014, which qualifies as a TEA. Hence up to [redacted] EB-5 investors can each raise $500,000, for a total of up to [redacted] in EB-5 funds for this project.**

(b)(4)

1. Executive Summary

• Mona Shah and Associates plans to raise EB-5 funds for the development and operation of a mixed use commercial and residential project, to be located at 148-46 Hillside Ave/148-33 88th Ave, Jamaica, NY 11435. This project consists of four components: Luxury Condominium, Commercial Retail, Community Facility/Medical Offices, and Parking Garage. This study contains the economic impact analysis for hard and soft construction costs and rental income on these four components.

• The calculations are based on the RIMS II input/output model for 23 of the 30 counties in the New York Combined Statistical Area (CSA). This area has already been approved by USCIS for a regional center. These counties are as follows:

1. NYC—New York, Bronx, Richmond, Kings, Queens, Westchester, Rockland
2. Upstate New York Suburbs —Putnam, Dutchess, Orange, Ulster
3. Long Island—Nassau, Suffolk
4. Connecticut—Litchfield, New Haven, Fairfield
5. New Jersey —Bergen, Essex, Hudson, Morris, Passaic, Sussex, Union

(b)(4)

• The total development cost of the project is estimated at [redacted] of which [redacted] is land costs. Of the other [redacted] represents hard costs, which are all EB-5 eligible, and [redacted] represents soft costs, of which [redacted] is EB-5 eligible. Further details are shown in Section (8).

• All these figures are given in 2015 dollars, and should be deflated to 2010 dollars, since the input/output data are in 2010 dollars. Using the appropriate PPI indexes, the estimated cost of nonresidential construction would be expected to rise 13.3% over the five-year period and the cost of architectural and engineering fees would rise 7.7%; further details are discussed in Section (8). Thus in 2010 dollars, the EB-5 eligible figures would be [redacted] for hard costs and [redacted] for EB-5 eligible soft costs.

• Since the project will take 27 months to construct, direct as well as indirect and induced jobs may be included in the EB-5 job count for hard and soft construction costs. The final demand multipliers are 13.2149 and 11.9014 respectively. For the purchases of FF&E, direct jobs are excluded, so that multiplier would be 5.6974. Hence [redacted] new jobs would be created from hard construction cost, and [redacted] new jobs from soft costs, for a total of [redacted] new jobs from all facets of construction expenditures.

• The pro forma statement contained in the appraisal is shown below. For the first year of operations, total revenues are estimated at [redacted] in 2018 dollars, which would be about [redacted] in 2010 dollars. The final demand multiplier is 13.0752, so that would create another [redacted] jobs. The assumptions used to generate this rental income are discussed in detail in the appraisal and are summarized in Section (9).

(b)(4)

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Economic Impact of Construction and Operation of a Mixed Use Commercial and Residential Project, Located at 148-46 Hillside Ave/148-33 88th Ave, Jamaica, NY 11435, consisting of 4 Components: Luxury Condominium, Commercial Retail, Community Facility/Medical Offices, and Parking Garage, as Part of an EB-5 Regional Center for the New York City Area

Prepared for:

Mona Shah and Associates

Prepared by:

Michael K. Evans

Evans, Carroll & Associates, Inc.

2785 NW 26th St.

Boca Raton, FL 33434

561-470-9035

mevans@evanscarrollecon.com

September 8, 2015

January 21, 2015

Re: Engineering Design Services
148-31/43 88th Avenue, Jamaica, NY

perform in accordance with the terms of this agreement through no fault of the party initiating the termination.

9. Third-Party Claims:

Nothing contained in this agreement shall create a contractual relationship with or a cause of action in favor of a third party against either the Owner or the Engineer.

Very truly yours,

EJC ENGINEERING, PLLC

Eric Chang, P.E.

ACCEPTED:

Client: Century Construction Group Corporation

By:

Date: 1/22/15

J:\Work Other Files\Workfiles\2015\008-Proposal 148-31 88th Avenue Jamaica-George Xu.doc

four story buildings scattered along the east and west sides. Site terrain slopes mildly from Hillside Avenue at elevation around 64' to elevations around 62' along 88th Avenue.

The project consists of constructing an 8-story residential apartment and a 4-story community facility with a full cellar and sub cellar. The 4-story community facility will occupy Lots 26 and 27, and some part of Lot 36. The remaining area will be 8-story.

Preliminary design suggests that the sub cellar floor will extend approximately 20' below existing sidewalk and that both the cellar and sub-cellar floor will be used primarily for parking and house keeping purpose.

As the project is still in a conceptual design stage, no structural loading information was available at the time this report was prepared.

2. FIELD EXPLORATION – Test Borings

To explore the subsurface conditions of the site, a total of ten (10) borings, labeled B-1 through B-10, were performed at locations as shown on drawing G-001, which is attached at the end of this report.

All borings were installed by Craig Test Boring Company of Mays Landing, New Jersey during the period from June 10, 2014 to August 19, 2014. Test boring operation was inspected by GTC's professional engineering staff.

All borings were drilled and advanced with a truck-mounted drill rig using mud rotary method. Soils encountered in the borings were generally sampled at 5' intervals throughout, except for boring B-1 and B-2, which were sampled continuously for the first 12' and then every 5' thereafter. Each soil sample was extracted using a Standard Split-Spoon sampler by performing a Standard Penetration Test (SPT) in accordance with ASTM D1586.

During drilling operations, extracted soil samples were visually examined and classified by our field engineer. The soil samples were then placed in sealed glass jars and later returned to driller's shops for storage.

Detailed descriptions of the soils encountered in the test borings were documented in the boring logs, which are presented on drawing G-001.0 to G-001.2.

3. SUBSURFACE CONDITIONS

The following provides a general description of the soil profile inferred from the test borings. While the borings may indicate that the subsurface conditions appear to be uniform across

the site, it should be recognized that the number of borings was small compared to the size of the site, and that the existence of anomalies cannot be precluded.

3.1 Soil Profile

The boring revealed a soil profile that consists of 5'-10' of miscellaneous fill, followed by all glacial deposit to the maximum depth of the borings, at 102' below grade.

The fill was found to consist mostly of silty sands with trace to some concrete and brick fragments. The fill was generally loose, matching NYC Class 7 material.

The glacial deposit that underlies the fill consists predominantly of coarse-medium-fine sands with trace to some gravel and silt, consistent with SP/SM Group of the Unified Soil Classification System (USCS). The sand soils registered medium dense (blow counts between 10 and 30 blows per foot) to dense (blow counts greater than 30 bpf) compact condition, matching NYC Class 3b/3a material respectively with no specific pattern.

3.2 Groundwater

Groundwater was observed in the deep borings at a depth around 55' below existing grade.

It should be pointed out that groundwater table is known to fluctuate with seasonal, tidal, and climatic conditions.

4. DISCUSSION AND RECOMMENDATIONS

The boring data indicates a general profile of 5'-10' of miscellaneous fill, followed by glacial outwash sands to the maximum depth of the exploration.

4.1 Foundation Support Scheme and Design Criteria

Our analysis of the boring data suggests that the in-situ glacial outwash sands are suitable for the use of spread footing for support of the proposed construction.

Spread footings bearing on competent glacial sands of NYC Class 3b or better may be designed for a maximum allowable bearing capacity up to **3** tsf (tons per square foot).

To prevent from local shear failure, spread footings should have a minimum width of three (3) feet for strip/wall type and five (5) feet for individual/column type.

All new footing subgrade are to be subject to special inspection as required per NYC Building Code by a qualified soil engineer prior to placing steel reinforcement and concrete. At the discretion of the inspecting soil engineer, any unsuitable bearing material encountered

at the footing bottom should be removed and/or replaced with controlled compacted fill (See section 5.3 for fill material specifications and compaction requirement) or ¾" crushed stone as appropriate or as directed by the inspecting soil engineer.

Spread footings designed and installed in accordance with the recommendations described herein can be expected to yield settlements within tolerable limits of the proposed construction.

4.2 Seismic Design Considerations

In accordance with Table 1615.1.1 of the NYC Building Code, the site soil profile as revealed from the borings best matches Site Class D for seismic design purpose. Refer to NYC Building Code Chapter 16 for additional seismic-related criteria for foundation design.

4.3 Liquefaction Potential

In light of the relatively deep-seated groundwater table, liquefaction of the site soils is considered "unlikely" and not be a concern.

4.4 Sub Cellar Slab and Walls

4.4.1 Design groundwater level

Groundwater was observed in the deeper borings at an estimated depth of 55' below existing sidewalk, which is considered to have little effect on the foundation design. For the purpose of this report, however, deign groundwater table can be assumed at a depth of 50' below existing sidewalk.

4.4.2 Cellar Floor Slabs

Sub-Cellar floor slab can be designed as a slab-on-grade, bearing on 6" of ¾" crushed stone over existing glacial sand soil.

Prior to receiving crushed stone course, the slab subgrade should be subject to proof rolling under the observation of a qualified soil engineer. At the discretion of the inspecting soil engineer, any unsuitable bearing material identified should be removed and replaced with controlled compacted fill or crushed stone. Refer to section 5.3 of this report for fill material specification and compaction requirements.

4.4.3 Lateral Earth Pressures

Permanent basement walls should be designed to withstand long-term, at rest equivalent fluid pressures of 60 pounds per cubic foot (pcf) for wall above design groundwater level and 90 pcf for wall below design groundwater level.

Temporary walls, such as excavation shoring, if required, should be designed to withstand equivalent fluid pressure of 40 pcf for walls above groundwater level and 80 pcf for wall below groundwater level.

4.4.4 Foundation Drainage and under-slab drainage

Despite the relatively deep-seated groundwater table, we suggest that foundation drainage system be installed around the sub-cellar foundations, wherever possible, in order to ensure the cellar walls to be free of hydrostatic pressures.

Typical foundation drainage may consist of a 6" diameter perforated filter fabric-lined PVC or other approved pipe or drain tile, which should be covered with 6" of ¾" crushed stone in all directions. Water collected in the foundation drainage system should be directed to ejector pits or sump pits where it can be pumped out and discharged into approved facilities.

Backfilling against the cellar walls should use free-draining material consisting of poorly graded sands and gravel with less than 8% fines (minus 200 sieve size). 3/4" crushed stone can be used as backfill in lieu of the granular sands.

Under-slab drain system is optional but not required.

4.4.5 Waterproofing and Dampproofing

Waterproofing the sub-cellar slab is optional but not required, subject to the discretion of the design architect. As a minimum, however, the cellar floor should receive a vapor barrier and the cellar and sub-cellar walls should be damp proofed the entire height.

4.5 Construction Dewatering

Construction dewatering is not expected except for potential control of surface runoff.

5. CONSTRUCTION MONITORING

5.1 Protection of Adjacent Structures and Sidewalk

The excavation of the proposed cellar and sub cellar foundation may require shoring, bracing, and underpinning of the adjacent structures and sidewalks, which should be designed by a professional structural engineer engaged by the contractor. The design drawings should be submitted to the project engineer for review and approval prior to installation. The installation work shall be subject to control inspection by a qualified professional engineer as required per NYC Code.

5.2 Pre-construction Survey

It is recommended that a pre-construction survey be conducted to document the existing conditions of the adjacent structures and underground utility systems prior to commencement of any construction activities particularly during pile driving.

5.3 Filing and Backfilling

Filling and backfilling against pile caps shall utilize qualified fill material. Qualified fill should meet the grading requirement for control fill as stipulated in the NYC Building Code. Control fill should be placed in maximum 12" loose lifts and each lift should be compacted to at least 95% of its maximum dry density as determined in accordance with ASTM D1557.

6. LIMITATIONS

The conclusions and recommendations contained in this report are based on the subsurface data obtained during this investigation and on the details stated in this report. Should conditions be encountered which differ specifically from those stated in this report, we should be notified immediately so that our recommendations may be reviewed and/or revised, if necessary.

7. CONSTRUCTION CONSULTATION AND INSPECTION

Due to the nature of the soils and subsurface conditions at this site and the recommendations set forth herein, consultation and inspection services by a qualified soil engineer are recommended for the following:

1. Preparation of the site including all clearing, stripping of undesirable material, and initial proofrolling and compaction of the in-situ soils.

2. Placement of all controlled backfill and/or fill, if any.

3. Special inspection of site preparation.

We trust the above information will allow you to proceed with the design of the proposed mixed-use building.

We thank you for the opportunity of providing this service to you. Should you have any questions regarding this report, or if we can be of further assistance, please do not hesitate to contact us.

Respectfully Submitted
Geo Tech Consultants, LLC.

Steve J. J. Lin, P.E.

Attachments:

Drawing G-001.0	Record of Boring Logs (B-1 to B-3) with Boring Location Plan
Drawing G-001.1	Record of Boring Logs (B-4 to B-7)
Drawing G-001.2	Record of Boring Logs (B-8 to B-10)

LEGEND

SPLIT SPOON SAMPLE | DRILLING THROUGH
CORE DRILLING | SHELBY TUBE
N - Penetration resistance per 6"
BORING LOCATION | BORING & WELL
TEST PIT

NOTES

1. SOILS WERE SAMPLED USING SPLIT-SPOON SAMPLER BY MEANS OF A 140 POUNDS HAMMER, FREE FALLING A DISTANCE OF 30 INCHES, AUTOMATIC TRIP (OR CATHEAD) IN ACCORDANCE WITH ASTM D1586.
2. THE TOTAL NUMBER BLOWS FOR THE MIDDLE 12 INCHES OF PENETRATIONS IS TERMED AS STANDARD PENETRATION RESISTANCE (N).
3. UNDISTURBED SOIL SAMPLES WERE OBTAINED BY MEANS OF SHELBY TUBE SAMPLING IN ACCORDANCE WITH ASTM D1587.
4. BEDROCK WAS CORED USING HX OR BX DOUBLE CORE BARRELS IN ACCORDANCE WITH ASTM D2113.
5. SOIL DESCRIPTIONS ARE MADE THROUGH VISUAL EXAMINATION OF SOIL SAMPLES IN ACCORDANCE WITH THE PROCEDURE ESTABLISHED IN NYC CODE.
6. SOIL CLASSIFICATIONS ARE PROVIDED USING UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) AS WELL AS 2008 NYC SOIL CLASSIFICATION SYSTEM.
7. GROUND WATER TABLE INDICATED ON THE LOGS REPRESENTED THE LEVEL OF WATER WHERE IT WAS FIRST ENCOUNTERED DURING THE DRILLING.

BORING INSTALLED BY CRAIG TEST BORING Co, Inc.

ABBREVIATIONS		
C - COARSE	WH - WHITE	MULTI - MULTICOLORED
M - MEDIUM	RD - RED	TR - TRACE (1%-10%)
F - FINE	LT - LIGHT	LT - ADJECTIVE (21%-35%)
BN - BLOWN	DK - DARK	A - AND (36%-50%)
GY - GRAY	BLK - BLACK	W.O.H. - WEIGHT OF HAMMER

GRANULAR SOILS (MODIFIED BY STANDARD PENETRATION RESISTANCE)		SILT & CLAY	
DENSITY	N VALUE	CONSISTENCY	N VALUE
VERY LOOSE	4 OR LESS	VERY SOFT	OR LESS
LOOSE	5 TO 10	SOFT	2 TO 4
MEDIUM DENSE	11 TO 30	MEDIUM STIFF	5 TO 8
DENSE	31 TO 50	STIFF	9 TO 15
VERY DENSE	51 OR MORE	VERY STIFF	16 TO 30
		HARD	31 OR MORE

ROCK QUALITY (ROCK QUALITY DESIGNATION)	
R.Q.D. (%)	ROCK DESCRIPTION
0 - 25	VERY POOR
25 - 50	POOR
50 - 75	FAIR
75 - 90	GOOD
90 - 100	EXCELLENT

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

GW	WELL GRADED GRAVEL
GP	POORLY GRADED GRAVEL
GM	SILTY GRAVEL
GC	CLAYEY GRAVEL
SW	WELL GRADED SAND
SP	POORLY GRADED SAND
SM	SILTY SAND
SC	CLAYEY SAND
ML	SILTS OF LOW PLASTICITY
CL	CLAYS OF LOW PLASTICITY
MH	SILTS OF HIGH PLASTICITY
CH	CLAYS OF HIGH PLASTICITY
OH	ORGANIC SILT/CLAY OF HIGH PLASTICITY
Pt	PEAT AND HIGH ORGANIC SOIL

STRATA SYMBOL: Fill | Sand | Silt | Clay | Peat | Rock

2008 NYC CLASSIFICATION SYSTEM

1a	R.Q.D.>90%	HARD SOUND ROCK
1b	90%> R.Q.D.>50%	MEDIUM SOUND ROCK
1c	50%>R.Q.D.>30%	INTERMEDIATE SOUND ROCK
1d	R.Q.D.<30%	SOFT ROCK
2a	N>50	GRAVEL AND GRAVEL SOILS
2b	10<N<50	
3a	N>50	SANDS (OTHER THAN FINE SANDS)
3b	10<N<50	
4a	N>30	FINE SAND
4b	5<N<30	CLAY AND CLAY SOILS
4c	4<N<8	
5a	N>30	SILTS AND SILT SOILS
5b	10<N<30	
6	N<10	
7		

B-1

Ground Surface Elev: Existing Grade

Depth (ft)	Sample No.	Sample Recovery (in.)	Blow Count @ 6"	N Value	Soil Descriptions
0	S1	12	13 6 5	11	Crnf sands, fr. silt, sm. concrete & brick fragments / bn, moist, m. dense (Fill)(Class 7)
	S2	12	3 1 2 3	3	Same / v. loose (Fill)(Class 7)
5	S3	12	2 2 2 2	4	Same (Fill)(Class 7)
	S4	12	2 2 4 3	6	Same / loose (Fill)(Class 7)
	S5	12	15 20 18 17	38	Same / dense (Fill)(Class 7)
10	S6	12	18 14 14 15	28	Crnf sands, sm. gravel / bn, moist, m. dense (SP)(Class 3b)
15	S7	12	8 12 12 12	24	Same (SP)(Class 3b)
20	S8	12	7 8 15 34	23	Same (SP)(Class 3b)
25	S9	12	30 22 17 12	39	Same / dense (SP)(Class 3a)
30	S10	12	14 23 26 28	49	Same (SP)(Class 3a)
35	S11	12	9 6 35 40	41	Same (SP)(Class 3a)
40	S12	12	40 30 24 25	54	Same / v. dense (SP)(Class 3a)
45	S13	12	16 16 17 20	33	Same / dense (SP)(Class 3a)
50	S14	12	15 15 16 17	30	Same (SP)(Class 3a)

TEST BORING COMPLETED @ 52'

Date drilled: 8/19/2014
Ground water was not encountered at the time of drilling

B-2

Ground Surface Elev: Existing Grade

Depth (ft)	Sample No.	Sample Recovery (in.)	Blow Count @ 6"	N Value	Soil Descriptions
0	S1	12	12 8 6 5	14	Crnf sands, fr. silt, sm. concrete & brick fragments / bn, moist, m. dense (Fill)(Class 7)
	S2	12	1 2 1 1	3	Same / v. loose (Fill)(Class 7)
5	S3	12	3 3 5 12	8	Crnf sands, sm. silt / bn, moist, loose (SP/SM)(Class 6)
	S4	12	9 11 12 19	23	Crnf sands, sm. gravel / bn, moist, m. dense (SP)(Class 3b)
	S5	12	20 20 25 31	45	Same / dense (SP)(Class 3a)
10	S6	12	30 58 36 27	94	Same / v. dense (SP)(Class 3a)
15	S7	12	5 6 7 9	13	Same / m. dense (SP)(Class 3b)
20	S8	12	20 16 17 16	33	Same / dense (SP)(Class 3a)
25	S9	12	11 10 7 7	17	Same / m. dense (SP)(Class 3b)
30	S10	12	11 11 9 9	20	Same (SP)(Class 3b)
35	S11	12	44 45 50 68	95	Same / v. dense (SP)(Class 3a)
40	S12	12	24 25 17 20	42	Same / dense (SP)(Class 3a)
45	S13	12	13 16 15 20	31	Same (SP)(Class 3a)
50	S14	12	9 11 9 12	20	Same / m. dense (SP)(Class 3b)

TEST BORING COMPLETED @ 52'

Date drilled: 8/19/2014
Ground water was not encountered at the time of drilling

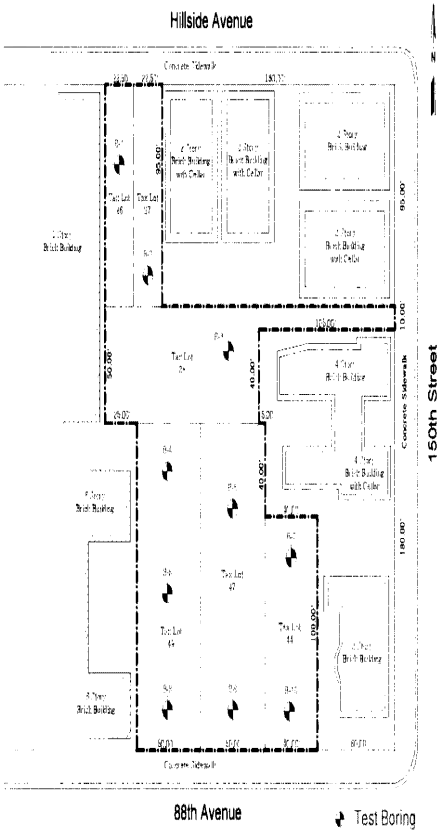
B-3

Ground Surface Elev: Existing Grade

Depth (ft)	Sample No.	Sample Recovery (in.)	Blow Count @ 6"	N Value	Soil Descriptions
0	S1	12	6 4 2 2	6	Crnf sands, sm brick, concrete fragments/ dk-bn, moist, loose (Fill)(Class 7)
5	S2	12	1 2 16 15	18	Crnf sands, sm gravel, fr. silt/ yellowbn, moist, m. dense (SP/SM)(Class 3b)
10	S3	12	22 45 34 26	79	Same/ dk-bn, v. dense (SP)(Class 3a)
15	S4	12	8 10 9 14	24	Same, fr. gravel/ m. dense (SP)(Class 3b)
20	S5	12	10 9 11 10	20	Same, sm. gravel (SP)(Class 3b)
25	S6	12	11 23 24 20	47	Same/ dense (SP)(Class 3a)
30	S7	12	9 8 9 9	17	Same/ m. dense (SP)(Class 3b)
35	S8	12	7 11 11 11	22	Mf sands, sm. silt, fr. clay/ bn, moist, m. dense (SM)(Class 3b)
40	S9	12	17 26 27 22	53	Crnf sands, fr. gravel/ dk-bn, moist, v. dense (SP)(Class 3a)
45	S10	12	21 21 15 13	36	N.R. (Possibly SP)(Class 3a)
50	S11	12	8 10 12 16	22	Crnf sands, fr. gravel/ bn, moist, m. dense (SP)(Class 3b)

TEST BORING COMPLETED @ 52'

Date drilled: 8/10/2014
Ground water was not encountered at the time of drilling



Test Boring Location Plan

PROJECT
148-33 88th Avenue
Jamaica, NY

CLIENT
Century Construction

Geo Tech Consultants, LLC
52 East 2nd Street Mineola, NY 11501
Tel 516-355-0217
Fax 516-355-0217

DRAWING TITLE
Record of Boring Logs with Boring Location Plan

SEAL AND SIGNATURE

DRAWN BY	L.Yuan
DATE	9-22-2014
SCALE	N.T.S.
PROJECT NO.	CENT214
DRAWING NO.	G-001.0

LEGEND

SPLIT SPOON SAMPLE | DRILLING THROUGH
CORE DRILLING | SHELBY TUBE
P - Penetration resistance per 6"
BORING LOCATION | BORING & WELL
TEST PIT

NOTES:
1. SOILS WERE SAMPLED USING A SPLIT-SPOON SAMPLER BY MEANS OF A 140 POUNDS HAMMER FREE FALLING A DISTANCE OF 30 INCHES, AUTOMATIC TRIP (OR CATHEAD), IN ACCORDANCE WITH ASTM D1586.
2. THE TOTAL NUMBER BLOWS FOR THE MIDDLE 12 INCHES OF PENETRATION IS TERMED AS STANDARD PENETRATION RESISTANCE (N).
3. UNDISTURBED SOIL SAMPLES WERE OBTAINED BY MEANS OF SHELBY TUBE SAMPLING IN ACCORDANCE WITH ASTM D1587.
4. BEDROCK WAS CORED USING NX OR BX DOUBLE CORE BARRELS IN ACCORDANCE WITH ASTM D2113.
5. SOIL DESCRIPTIONS ARE MADE THROUGH VISUAL EXAMINATION OF SOIL SAMPLES IN ACCORDANCE WITH THE PROCEDURES ESTABLISHED IN NYC CODE
6. SOIL CLASSIFICATIONS ARE PROVIDED USING UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) AS WELL AS 2008 NYC SOIL CLASSIFICATION SYSTEM.
7. GROUND WATER TABLE INDICATED ON THE LOGS REPRESENTS THE LEVEL OF WATER WHERE IT WAS FIRST ENCOUNTERED DURING THE DRILLING.
8. BORING INSTALLED BY: CRAG TEST BORING Co. Inc.

ABBREVIATIONS

C - COARSE	WH - WHITE	MATL - MULTICOLORED
M - MEDIUM	RD - RED	TR - TRACE (1%-10%)
F - FINE	LT - LIGHT	LT - ADJECTIVE (21%-35%)
BN - BROWN	DK - DARK	S - AND (36%-50%)
GR - GRAY	BLK - BLACK	WOH - WEIGHT OF HAMMER

STANDARD PENETRATION RESISTANCE OF SOIL

SAND		SILT & CLAY	
DENSITY	N VALUE	CONSISTENCY	N VALUE
VERY LOOSE	4 OR LESS	VERY SOFT	1 OR LESS
LOOSE	5 TO 10	SOFT	2 TO 4
MEDIUM DENSE	11 TO 30	MEDIUM STIFF	5 TO 8
DENSE	31 TO 50	STIFF	9 TO 15
VERY DENSE	51 OR MORE	VERY STIFF	16 TO 30
		HARD	31 OR MORE

ROCK QUALITY / ROCK QUALITY DESIGNATION

R.Q.D. (%)	ROCK DESCRIPTION
0 - 25	VERY POOR
25 - 50	POOR
50 - 75	FAIR
75 - 90	GOOD
90 - 100	EXCELLENT

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

GW	WELL GRADED GRAVEL
GP	POORLY GRADED GRAVEL
GM	SILTY GRAVEL
GC	CLAYEY GRAVEL
SW	WELL GRADED SAND
SP	POORLY GRADED SAND
SM	SILTY SAND
SC	CLAYEY SAND
ML	SILTS OF LOW PLASTICITY
CL	CLAYS OF LOW PLASTICITY
MH	SILTS OF HIGH PLASTICITY
CH	CLAYS OF HIGH PLASTICITY
OH	ORGANIC SILT/CLAY OF HIGH PLASTICITY
PT	PEAT AND HIGHLY ORGANIC SOIL

STRATA SYMBOL: GRAVEL | SAND | SILT | CLAY | ROCK

2008 NYC CLASSIFICATION SYSTEM

1a	R.Q.D.=90-%	HARD SOUND ROCK
1b	65%<R.Q.D.<90%	MEDIUM SOUND ROCK
1c	50%<R.Q.D.<65%	INTERMEDIATE SOUND ROCK
1d	R.Q.D.<50%	SOFT ROCK
2a	N>30	GRAVEL AND GRAVEL SOILS
2b	10<N<30	
3a	N>30	SANDS (OTHER THAN FINE SANDS)
3b	10<N<30	
4a	N>30	FINE SAND
4b	4<N<30	CLAY AND CLAY SOILS
4c	4<N<8	
5a	N>30	SILTS AND SILT SOILS
5b	10<N<30	
6	N<10	
7		

B-4

Ground Surface Elev: Existing Grade

Depth (ft)	Sample No.	Blow Count @ 6"	Soil Descriptions
0	S1	8 8 4 3	3" concrete / Cmf sands, sm. silt and clay/ gy-bn, moist, m. dense (Fill)(Class 7)
5	S2	WOH	Mf sands, sm. silt and clay/ yellow-bn, moist, loose (Fill)(Class 7)
10	S3	21 24 28 35	Cmf sands, sm. gravel, tr. silt/ yellow-bn, moist, v. dense (SP)(Class 3a)
15	S4	16 13 12 12	N.R. (Possibly SP)(Class 3b)
20	S5	14 18 14 16	Cmf sands, sm. gravel/ dk-bn, moist, dense (SP)(Class 3a)
25	S6	10 11 12 12	Same/ m. dense (SP)(Class 3b)
30	S7	13 12 10 11	Same (SP)(Class 3b)
35	S8	9 21 42 55	Same, sm. silt, tr. clay/ gy-bn, v. dense (SP/SM)(Class 3a)
40	S9	50/1"	N.R. (Possibly SP)(Class 3a)
45	S10	15 17 17 19	Cmf sands, sm. gravel, tr. silt/ bn, moist, dense (SP)(Class 3a)
50	S11	10 12 17 13	Same, sm. silt, tr. clay/ dk-bn, moist, m. dense (SP/SM)(Class 3b)
55	S12	11 13 12 17	Same, tr. to sm. silt/ wet (SP/SM)(Class 3b)
60	S13	9 10 16 23	Same (SP/SM)(Class 3b)
65	S14	10 10 16 18	Same (SP/SM)(Class 3b)

GWT

B-4 Continue

B-4 Continue

Depth (ft)	Sample No.	Blow Count @ 6"	Soil Descriptions
70	S15	8 10 16 18	Same (SP/SM)(Class 3b)
75	S16	8 7 11 16	Same (SP/SM)(Class 3b)
80	S17	10 10 12 16	Same/ bn (SP/SM)(Class 3b)
85	S18	9 11 11 14	Same (SP/SM)(Class 3b)
90	S19	10 14 20 32	Mf sands, sm. silt/ gy-bn, wet, dense (SM)(Class 3a)
95	S20	19 20 20 18	Same (SM)(Class 3a)
100	S21	16 19 21 23	Same (SM)(Class 3a)

TEST BORING COMPLETED @ 102'

Date drilled: 6/12/2014
Groundwater was encontered at 55 ft below grade

B-5

Ground Surface Elev: Existing Grade

Depth (ft)	Sample No.	Blow Count @ 6"	Soil Descriptions
0	S1	5 3 6 10	3" concrete / Mf sands, sm. silty clay, roots/ dk-gy, moist, loose (Fill)(Class 7)
5	S2	5 6 13 16	Cmf sands, sm. gravel/ red-bn, moist, m. dense (SP)(Class 3b)
10	S3	19 18 16 22	Same/ dense (SP)(Class 3a)
15	S4	7 11 12 15	Same/ dk-bn, m. dense (SP)(Class 3b)
20	S5	6 6 10 15	Same, sm. gravel and silt/ bn (SP/SM)(Class 3b)
25	S6	14 10 12 15	Same, tr. clay/ gy-bn. (SP/SM/SC)(Class 3b)
30	S7	6 8 11 9	Cmf sands, sm. gravel/ dk-bn. (SP)(Class 3b)
35	S8	5 5 7 14	Same (SP/SM)(Class 3b)
40	S9	20 44 50 55	Same/ v. dense (SP)(Class 3a)
45	S10	10 12 13 18	Same/ m. dense (SP)(Class 3b)
50	S11	10 10 11 15	Same (SP)(Class 3b)

TEST BORING COMPLETED @ 52'

Date drilled: 6/13/2014
Ground water was not encountered at the time of drilling

B-6

Ground Surface Elev: Existing Grade

Depth (ft)	Sample No.	Blow Count @ 6"	Soil Descriptions
0	S1	12 18 12 9	3" concrete / Cmf sands, brick fragments/ dk-gy, moist, m. dense (Fill)(Class 7)
5	S2	3 4 17 21	Cmf sands, sm. gravel/ yellow-bn, moist, m. dense (SP)(Class 3b)
10	S3	10 7 10 10	Same, tr. gravel & silt (SP)(Class 3b)
15	S4	9 12 12 10	Same (SP)(Class 3b)
20	S5	11 12 13 16	N.R. (Possibly SP)(Class 3b)
25	S6	16 16 16 16	Same, sm. gravel, tr. silt/ bn, dense (SP)(Class 3a)
30	S7	7 9 9 9	Same (SP)(Class 3b)
35	S8	22 32 39 55	Same (SP)(Class 3a)
40	S9	13 12 13 12	Cmf sands, sm. gravel/ bm, moist, m. dense (SP)(Class 3b)
45	S10	13 12 14 14	Same, tr. silt (SP)(Class 3b)
50	S11	8 10 11 10	Same (SP)(Class 3b)

TEST BORING COMPLETED @ 52'

Date drilled: 6/11/2014
Ground water was not encountered at the time of drilling

B-7

Ground Surface Elev: Existing Grade

Depth (ft)	Sample No.	Blow Count @ 6"	Soil Descriptions
0	S1	5 10 11 4	3" concrete / Cmf sands, brick fragments/ dk-gy, moist, m. dense (Fill)(Class 7)
5	S2	5 6 12 13	Cmf sands, sm. gravel, tr. silt/ red-bn, moist, m. dense (SP)(Class 3b)
10	S3	19 22 24 18	Same, sm. gravel &silt/ bn, dense (SP)(Class 3a)
15	S4	13 14 22 24	Same, sm. gravel, tr. silt (SP)(Class 3a)
20	S5	6 5 10 13	Same/ m. dense (SP)(Class 3b)
25	S6	14 15 5 5	Same (SP)(Class 3b)
30	S7	11 11 14 10	Same/ dk-bn. (SP)(Class 3b)
35	S8	50/2"	N.R. (Possibly SP)(Class 3a)
40	S9	24 35 41 31	Cmf sands, sm. gravel/ dk-bn, moist, v. dense (SP)(Class 3a)
45	S10	28 25 40 30	Same (SP)(Class 3a)
50	S11	19 27 27 31	Same (SP)(Class 3a)

TEST BORING COMPLETED @ 52'

Date drilled: 6/11/2014
Ground water was not encountered at the time of drilling

PROJECT
148-33 88th Avenue
Jamaica, NY

CLIENT
Century Construction

Geo Tech Consultants, LLC
52 East 2nd Street
Mineola, NY 11501
Tel: 516-350-0217
Fax: 516-350-0217

DRAWING TITLE
Record of Boring Logs with Boring Location Plan

SEAL AND SIGNATURE

DRAWN BY	L.Yuan
DATE	8-22-2014
SCALE	N.T.S.
PROJECT NO.	CENT214
DRAWING NO.	G-001.1

LEGEND

SPLIT SPOON SAMPLE | DRILLING THROUGH
CORE DRILLING | SHELBY TUBE
- Penetration resistance per 6"
BORING LOCATION | BORING & WELL
TEST PIT

NOTES:
1. SOILS WERE SAMPLED USING SPLIT-SPOON SAMPLER BY MEANS OF A 140 POUNCE HAMMER, FREE FALLING A DISTANCE OF 30 INCHES, AUTOMATIC TRIP (OR CATHEAD) IN ACCORDANCE WITH ASTM D1586.
2. THE TOTAL NUMBER BLOWS FOR THE MIDDLE 12 INCHES OF PENETRATIONS IS TERMED AS STANDARD PENETRATION RESISTANCE (N).
3. UNDISTURBED SOIL SAMPLES WERE OBTAINED BY MEANS OF SHELBY TUBE SAMPLING IN ACCORDANCE WITH ASTM D1587.
4. BEDROCK WAS CORED USING NX OR BX DOUBLE CORE BARRELS IN ACCORDANCE WITH ASTM D2113.
5. SOIL DESCRIPTIONS ARE MADE THROUGH VISUAL EXAMINATION OF SOIL SAMPLES IN ACCORDANCE WITH THE PROCEDURES ESTABLISHED IN NYC CODE.
6. SOIL CLASSIFICATIONS ARE PROVIDED USING UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) AS WELL AS 2008 NYC SOIL CLASSIFICATION SYSTEM.
7. GROUND WATER TABLE INDICATED ON THE LOGS REPRESENTS THE LEVEL OF WATER WHERE IT WAS FIRST ENCOUNTERED DURING THE DRILLING.

BORING INSTALLED BY: CHAD TEST BORING Co. Inc.

ABBREVIATIONS		
C - COARSE	WH - WHITE	MULTI - MULTICOLORED
M - MEDIUM	RD - RED	TR - TRACE (1%-10%)
F - FINE	LT - LIGHT	LY - ADJECTIVE (21%-35%)
BN - BROWN	DK - DARK	A - AND (36%-50%)
GY - GRAY	BLK - BLACK	W.O.H. - WEIGHT OF HAMMER

GRAIN SIZE CHARACTERISTICS RELATED TO SPLIT SPOON SAMPLES			
SAND		SILT & CLAY	
DENSITY	N VALUE	CONSISTENCY	N VALUE
VERY LOOSE	4 OR LESS	VERY SOFT	1 OR LESS
LOOSE	5 TO 10	SOFT	2 TO 4
MEDIUM DENSE	11 TO 30	MEDIUM STIFF	5 TO 8
DENSE	31 TO 50	STIFF	9 TO 15
VERY DENSE	51 OR MORE	VERY STIFF	16 TO 30
		HARD	31 OR MORE

ROCK QUALITY (ROCK QUALITY DESIGNATION)	
R.Q.D. (%)	ROCK DESCRIPTION
0 - 25	VERY POOR
25 - 50	POOR
50 - 75	FAIR
75 - 90	GOOD
90 - 100	EXCELLENT

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)	
GW	WELL GRADED GRAVEL
GP	POORLY GRADED GRAVEL
GM	SILTY GRAVEL
GC	CLAYEY GRAVEL
SW	WELL GRADED SAND
SP	POORLY GRADED SAND
SM	SILTY SAND
SC	CLAYEY SAND
ML	SILTS OF LOW PLASTICITY
CL	CLAYS OF LOW PLASTICITY
MH	SILTS OF HIGH PLASTICITY
CH	CLAYS OF HIGH PLASTICITY
OH	ORGANIC SILTS/CLAY OF HIGH PLASTICITY
PT	PEAT AND HIGH ORGANIC SOIL

STRATA SYMBOL

2008 NYC CLASSIFICATION SYSTEM		
GRP		
1a	R.Q.D.>90%	HARD SOUND ROCK
1b	90%>R.Q.D.>50%	MEDIUM SOUND ROCK
1c	50%>R.Q.D.>30%	INTERMEDIATE SOUND ROCK
1d	R.Q.D.<30%	SOFT ROCK
2a	N>30	GRAVEL AND GRAVEL SOILS
2b	10<N<30	
3a	N>30	SANDS (OTHER THAN FINE SANDS)
3b	10<N<30	
4a	N>30	FINE SAND
4b	8<N<30	CLAY AND CLAY SOILS
4c	4<N<8	
5a	N>30	SILTS AND SILT SOILS
5b	10<N<30	
6	N<10	
7		

B-8

Ground Surface Elev: Existing Grade

Depth (ft)	Sample No.	Recovery (in)	Blow Count @ 6"	Soil Descriptions
0	S1	6	2 3 - 8	Cmf sands, brick fragments/ dk-gy, moist, loose (Fill)(Class 7)
5	S2	10	10 12 - 15	Cmf sands, sm. gravel, tr. silt/ yellow-bn, moist, m. dense (SP)(Class 3b)
10	S3	18	22 15 - 22	Same/ bn, dense (SP)(Class 3a)
15	S4	10	8 12 - 30	Same, sm. gravel &silt/ m. dense (SP)(Class 3b)
20	S5	9	10 11 - 11	Same, sm. gravel, tr. silt (SP)(Class 3b)
25	S6	9	11 12 - 12	Same (SP)(Class 3b)
30	S7	6	6 4 - 7	Same/ loose (SP)(Class 3b)
35	S8	18	29 21 - 41	Same/ dk-bn, v. dense (SP)(Class 3a)
40	S9	10	10 12 - 14	Same/ m. dense (SP)(Class 3b)
45	S10	11	6 6 - 5	Same/ bn (SP)(Class 3b)
50	S11	9	8 7 - 9	Same (SP)(Class 3b)

TEST BORING COMPLETED @ 52'

Date drilled: 6/11/2014
Ground water was not encountered at the time of drilling

B-9

Ground Surface Elev: Existing Grade

Depth (ft)	Sample No.	Recovery (in)	Blow Count @ 6"	Soil Descriptions
0	S1	2	1 1 - 2	Mf sands, sm. silt and clay/ yellow-bn, moist, v. loose (Fill)(Class 7)
5	S2	6	14 20 - 28	Cmf sands, sm. gravel &silt/ bn, moist, dense (SP)(Class 3a)
10	S3	14	20 16 - 24	Same/ dk-bn (SP)(Class 3a)
15	S4	12	16 9 - 10	Same, sm. gravel, tr. silt/ bn, moist, m. dense (SP)(Class 3b)
20	S5	10	10 11 - 14	Same (SP)(Class 3b)
25	S6	8	8 10 - 14	Same (SP)(Class 3b)
30	S7	6	6 6 - 6	Same (SP)(Class 3b)
35	S8	5	7 7 - 9	Same (SP)(Class 3b)
40	S9	17	19 19 - 14	Same/ dense (SP)(Class 3a)
45	S10	16	16 18 - 17	Same (SP)(Class 3a)
50	S11	15	10 7 - 10	Same/ m. dense, wet (SP)(Class 3b)
55	S12	3	5 7 - 7	Same, tr. gravel (SP)(Class 3b)
60	S13	11	11 12 - 15	Same (SP)(Class 3b)
65	S14	16	14 17 - 20	Same, sm. silt/ dense (SP/SM)(Class 3a)

B-9 Continue

B-9 Continue

Depth (ft)	Sample No.	Recovery (in)	Blow Count @ 6"	Soil Descriptions
70	S15	12	9 7 - 7	Same/ m. dense (SP/SM)(Class 3b)
75	S16	6	7 8 - 8	Same (SP/SM)(Class 3b)
80	S17	8	7 7 - 12	Same (SP/SM)(Class 3b)
85	S18	7	10 11 - 11	Same (SP/SM)(Class 3b)
90	S19	14	12 16 - 16	Mf sands, sm. silt/ bn-gy, wet, m. dense (SM)(Class 3b)
95	S20	14	16 17 - 21	Cmf sands, tr. to sm. silt/ bn, wet, dense (SP/SM)(Class 3a)
100	S21	23	31 31 - 28	Same/ gy-bn, wet, v. dense (SP/SM)(Class 3a)

TEST BORING COMPLETED @ 102'

Date drilled: 6/16/2014
Groundwater was encountered at 55 ft below grade

B-10

Ground Surface Elev: Existing Grade

Depth (ft)	Sample No.	Recovery (in)	Blow Count @ 6"	Soil Descriptions
0	S1	5	4 3 - 2	3" concrete Mf sands, sm. silt &clay, roots/ gy-bn, moist, loose (Fill)(Class 7)
5	S2	11	12 15 - 18	Cmf sands, sm.gravel/ yellow-bn, moist, m. dense (SP)(Class 3b)
10	S3	8	7 8 - 9	Same (SP)(Class 3b)
15	S4	11	9 10 - 9	N.R. (Possibly SP)(Class 3b)
20	S5	15	13 15 - 16	Cmf sands, sm. gravel/ bn, moist, m. dense (SP)(Class 3b)
25	S6	7	8 10 - 10	Same (SP)(Class 3b)
30	S7	8	8 9 - 8	Same, tr. silt/ dk-bn (SP)(Class 3b)
35	S8	22	42 50/5"	Same/ v. dense (SP/SM)(Class 3a)
40	S9	18	20 18 - 20	Mf sands, tr. to sm. silt/ dk-bn, moist, dense (SP/SM)(Class 3a)
45	S10	16	16 17 - 21	Cmf sands, tr. to sm. silt/ dk-bn, moist, dense (SP/SM)(Class 3a)
50	S11	10	11 11 - 12	Same, sm. gravel/ m. dense (SP)(Class 3b)

TEST BORING COMPLETED @ 52'

Date drilled: 6/16/2014
Ground water was not encountered at the time of drilling

PROJECT: 148-33 88th Avenue Jamaica, NY

CLIENT: Century Construction

Geo Tech Consultants, LLC
59 East 2nd Street, Mineola, NY 11501
Tel: 516.355.0216
Fax: 516.355.0217

DRAWING TITLE: Record of Boring Logs with Boring Location Plan

SEAL AND SIGNATURE

DRAWN BY	L.Yuan
DATE	8-22-2014
SCALE	N.T.S.
PROJECT NO.	CENT214
DRAWING NO.	G-001.2

100% Recycled 30% PCW

REGIONAL CENTER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: 88TH AVE EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 12

Real Estate Purchase Agreements

The purpose of these documents is to show that the business is credible – executed purchase agreements and deed for the land to construct the hotel and condominium evidencing commitment to the project.

- **Executed Purchase Agreement** – purchase price for [redacted] from Isaac Kubersky. This agreement is executed by Isaac Kubersky and by 88th Avenue Realty, LLC on January 8, 2014

(b)(4)

- **Sale of Real Property** dated May 8, 2014
- **Special Warranty Deed** dated May 12, 2014
- **Owner's Policy of Title Insurance**

YOUNG, KLEIN AND LONTOS, P.C.
ATTORNEYS AT LAW
86-25 LEFFERTS BOULEVARD
RICHMOND HILL, NEW YORK 11418
TEL: (718) 793-5100
FAX: (718) 793-5105

DREW R. LONTOS
DAVID KLEIN (1914-1948)
LOUIS W. YOUNG (1911-2004)

January 8, 2014

via first class mail

LEE-LEE CHANG, ESQ.
136-21 Roosevelt Avenue, Suite 304
Flushing, NY 11354

Re: IKI ASSOCIATES LLC TO XU
Premises: Block: 9694 Lots: 26, 27, 36, 44, 47 & 49

Dear Ms. Chang:

Please find enclosed two (2) fully executed contract of Sale on the above referenced matter.

This will confirm that we are holding the sum of [redacted] (b)(4) in escrow as attorney for the seller on the above matter. Said funds are deposited in our IOLA Account at Capital One Bank, 115-20 Jamaica Avenue, Richmond Hill, New York 11418.

Kindly forward a title report as soon as available.

Please keep me posted as to your client's Mortgage Commitment.

Very truly yours,
YOUNG, KLEIN & LONTOS, P.C

By: _____
DREW R. LONTOS

DRL/ant
cc: IKI Associates LLC

CONTRACT OF SALE--OFFICE, COMMERICAL AND MULTI-FAMILY RESIDENTIAL PREMISES (2000)
This form was originally prepared by the Committee on Real Property of the Association of the Bar of the City of New York. This form may have been altered by the user and any such alterations may not be apparent. To view or download the original unaltered text of this form and an introduction to this form, visit the Real Estate Law page at www.abcny.org.

CONTRACT OF SALE

between

IKI ASSOCIATES LLC ("Seller")

and

George Xu or an LLC to be formed in which Xu is a majority member

("Purchaser")

Dated: ~~**December**~~ January 8 , 2013/14

Premises:

Street Address:	**Block: 9694 Lots: 26, 27, 36, 44, 47, 49**
City or Town:	**Jamaica**
County:	**Queens**
State:	**New York**

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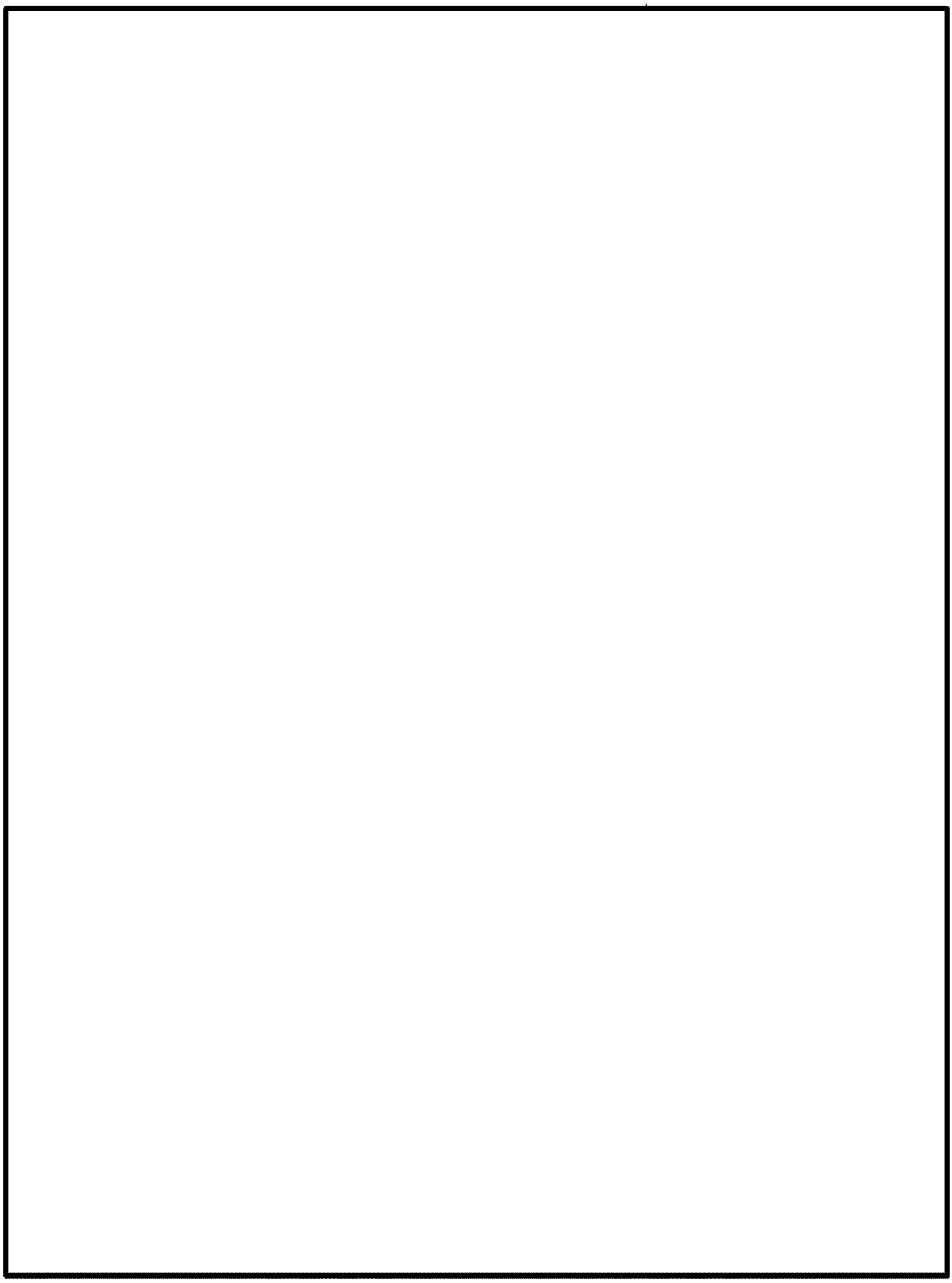
Contract of Sale—Office, Commercial and Multi-Family Residential Premises

(b)(4)



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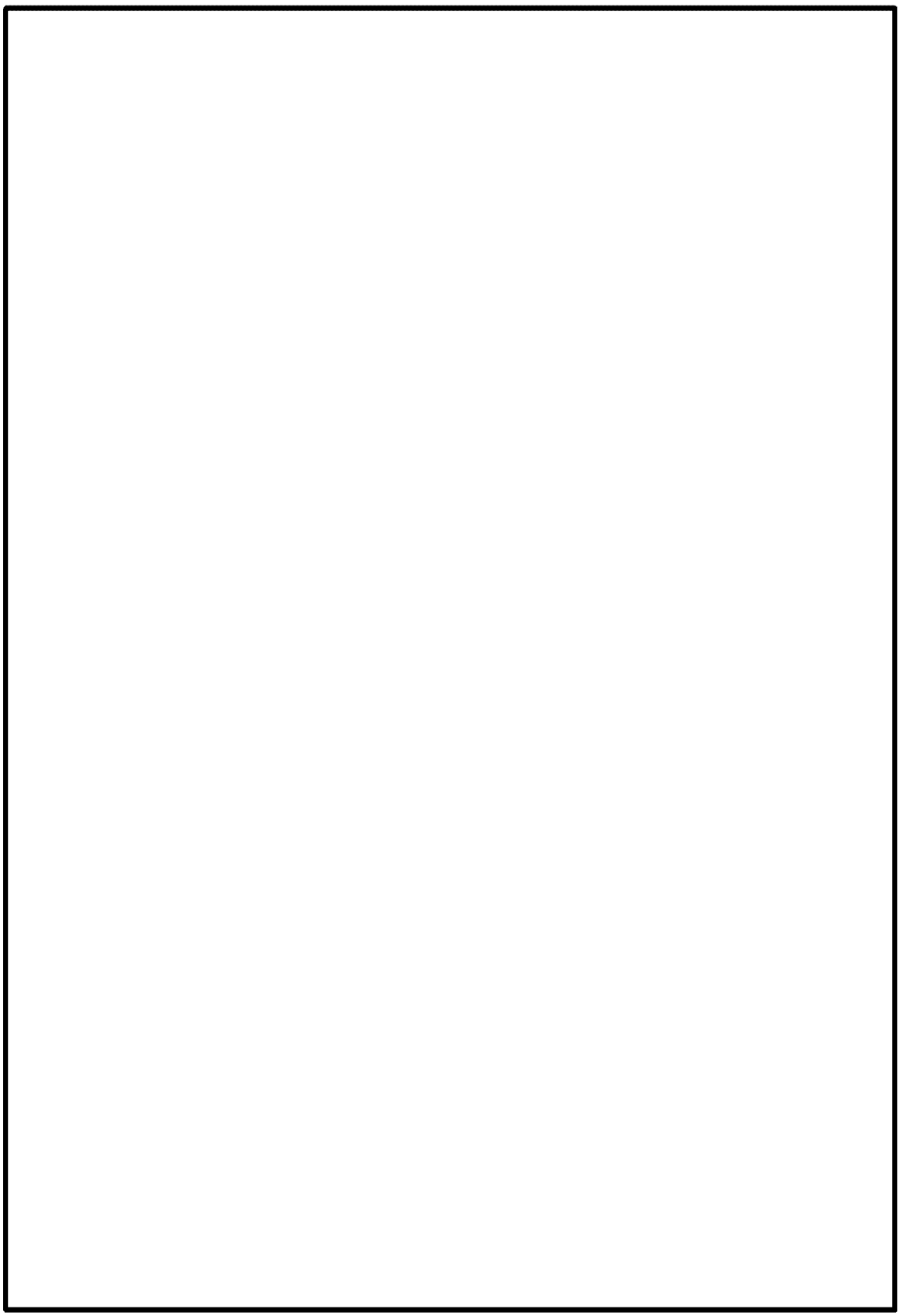

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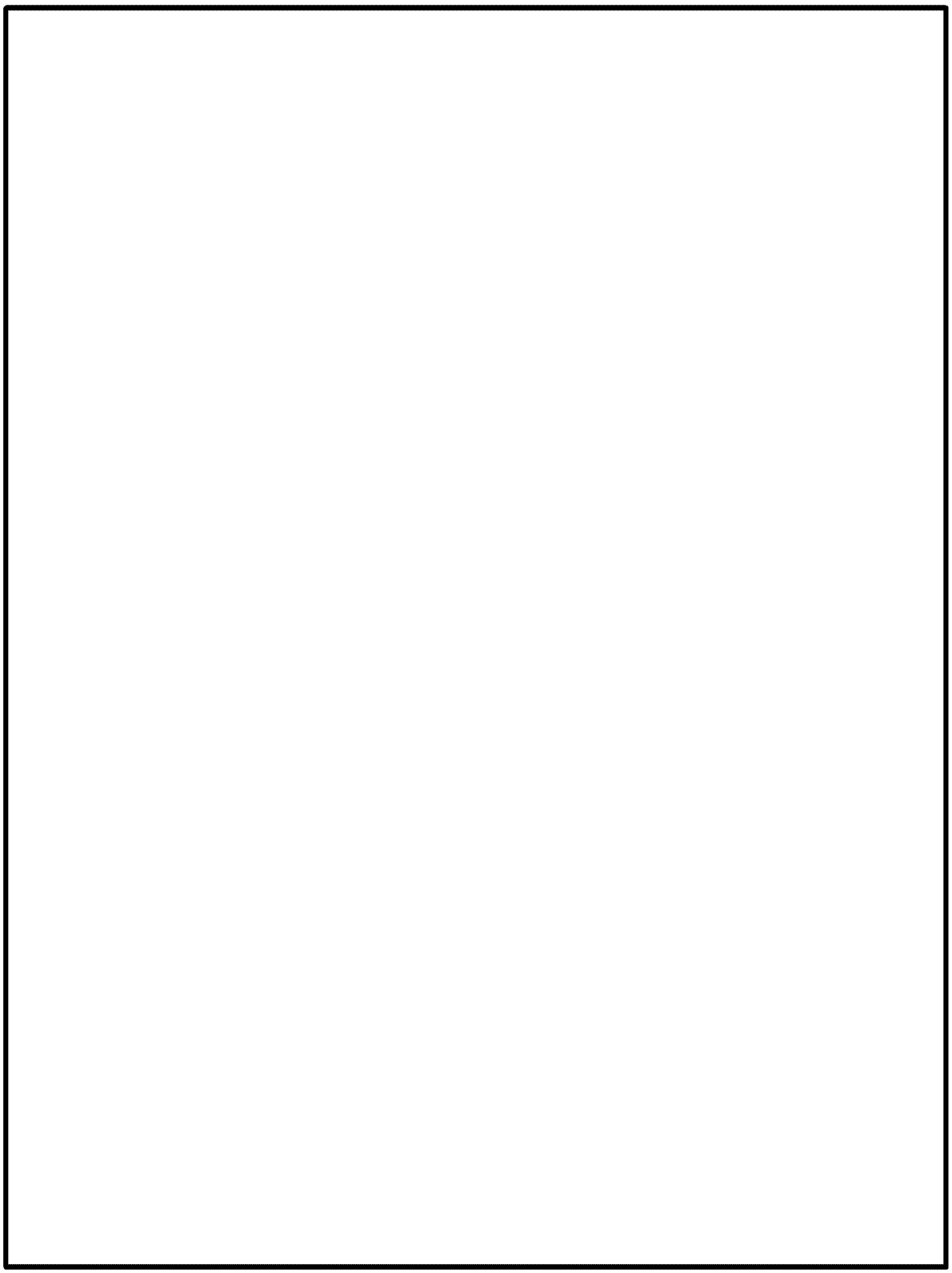

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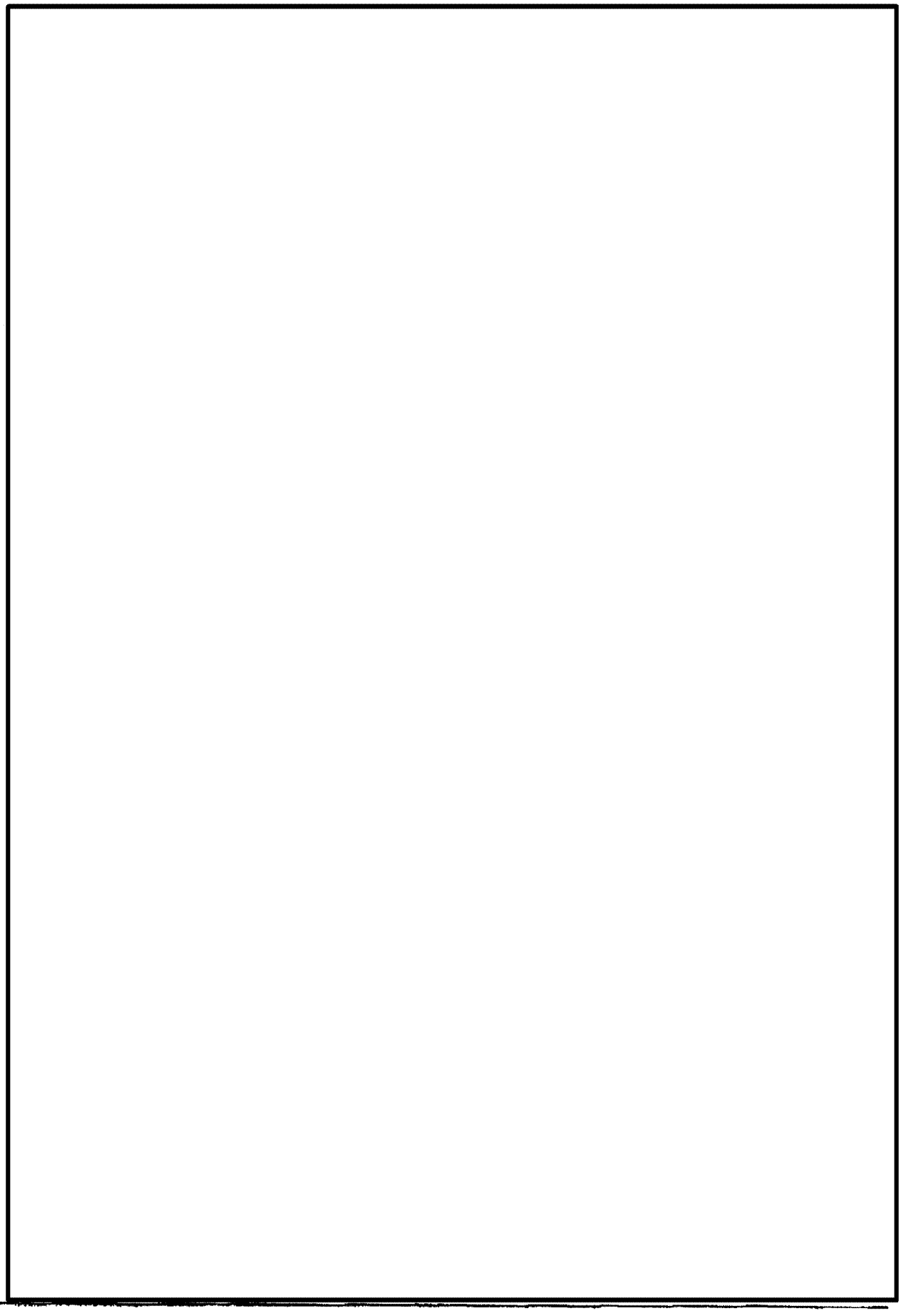

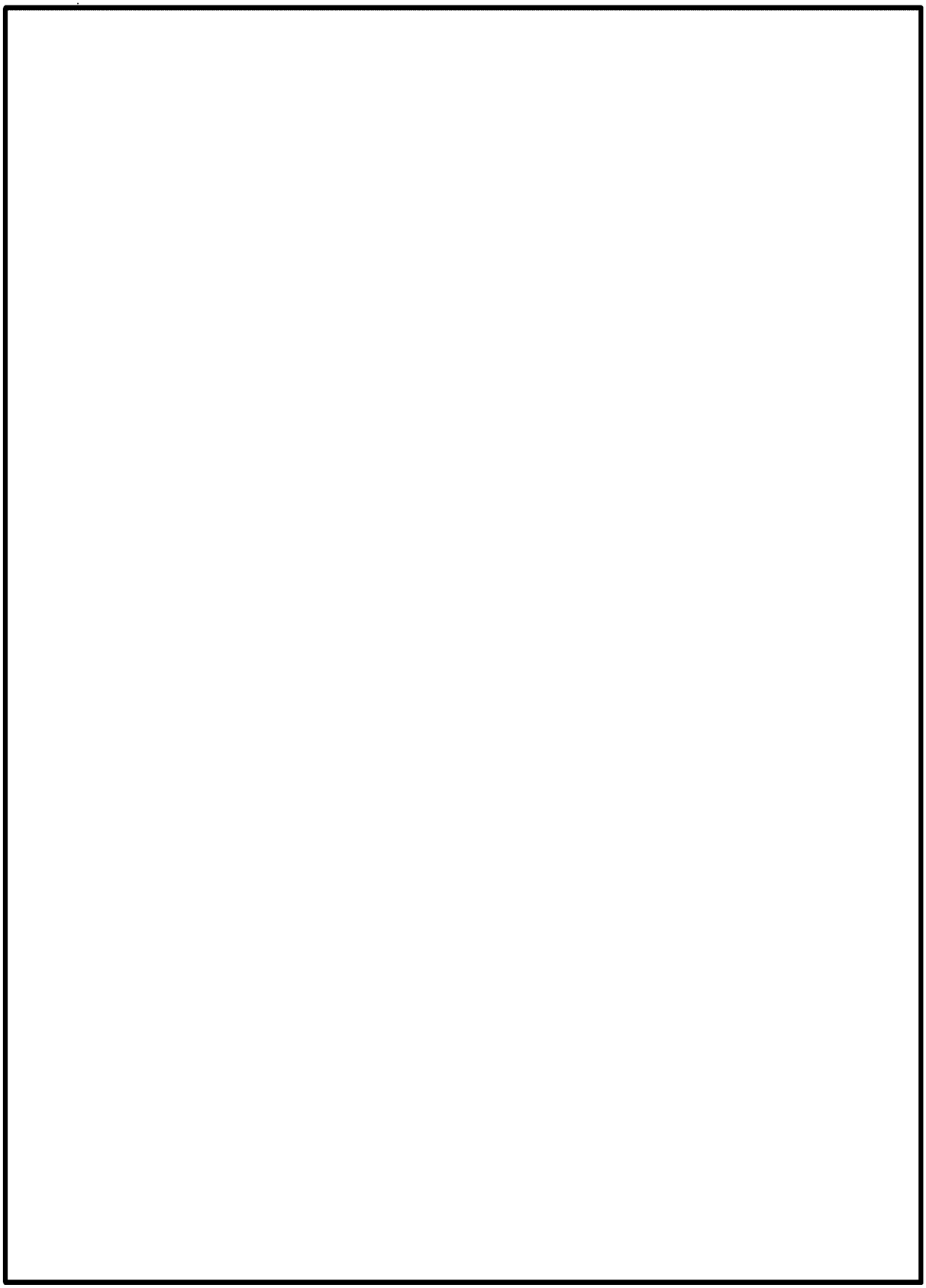

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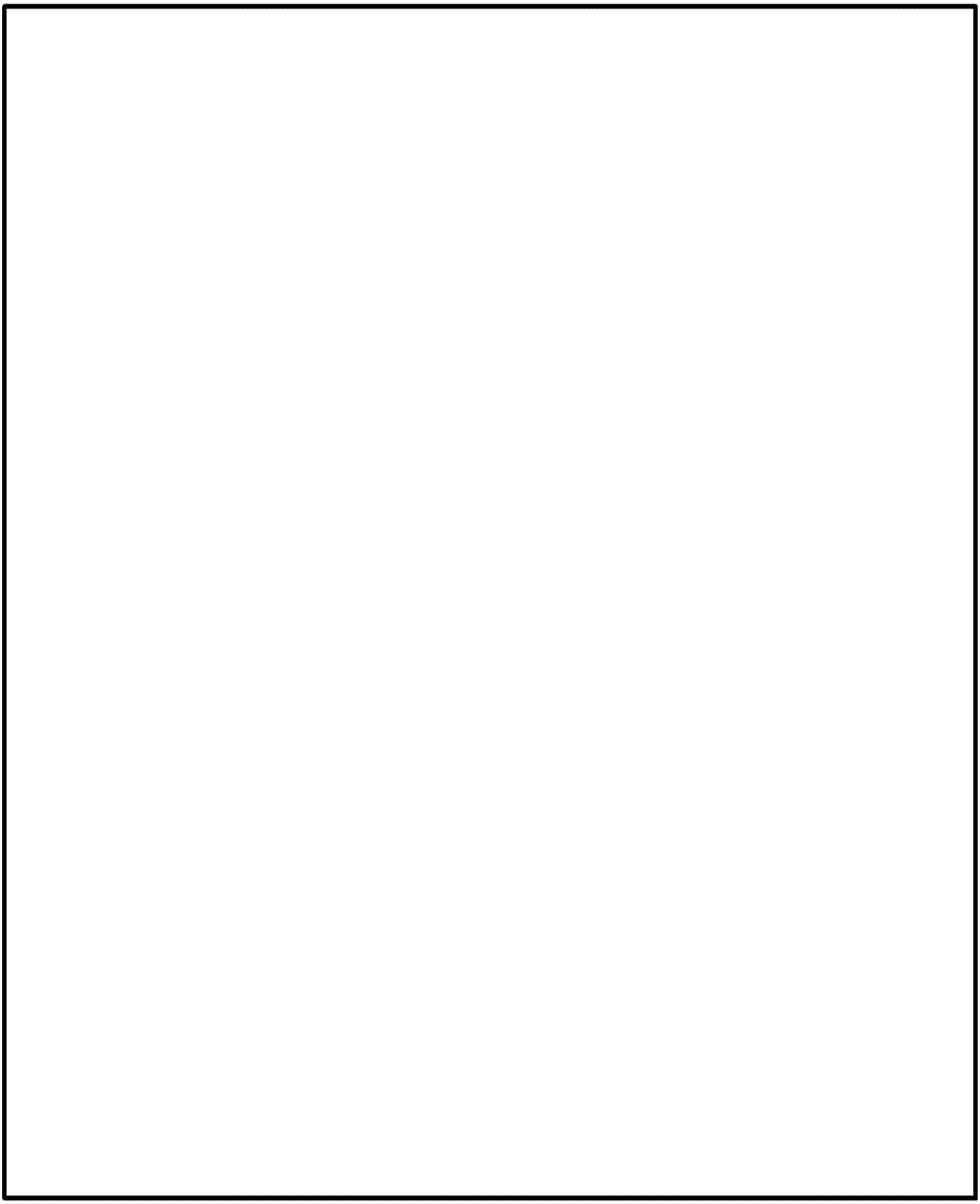

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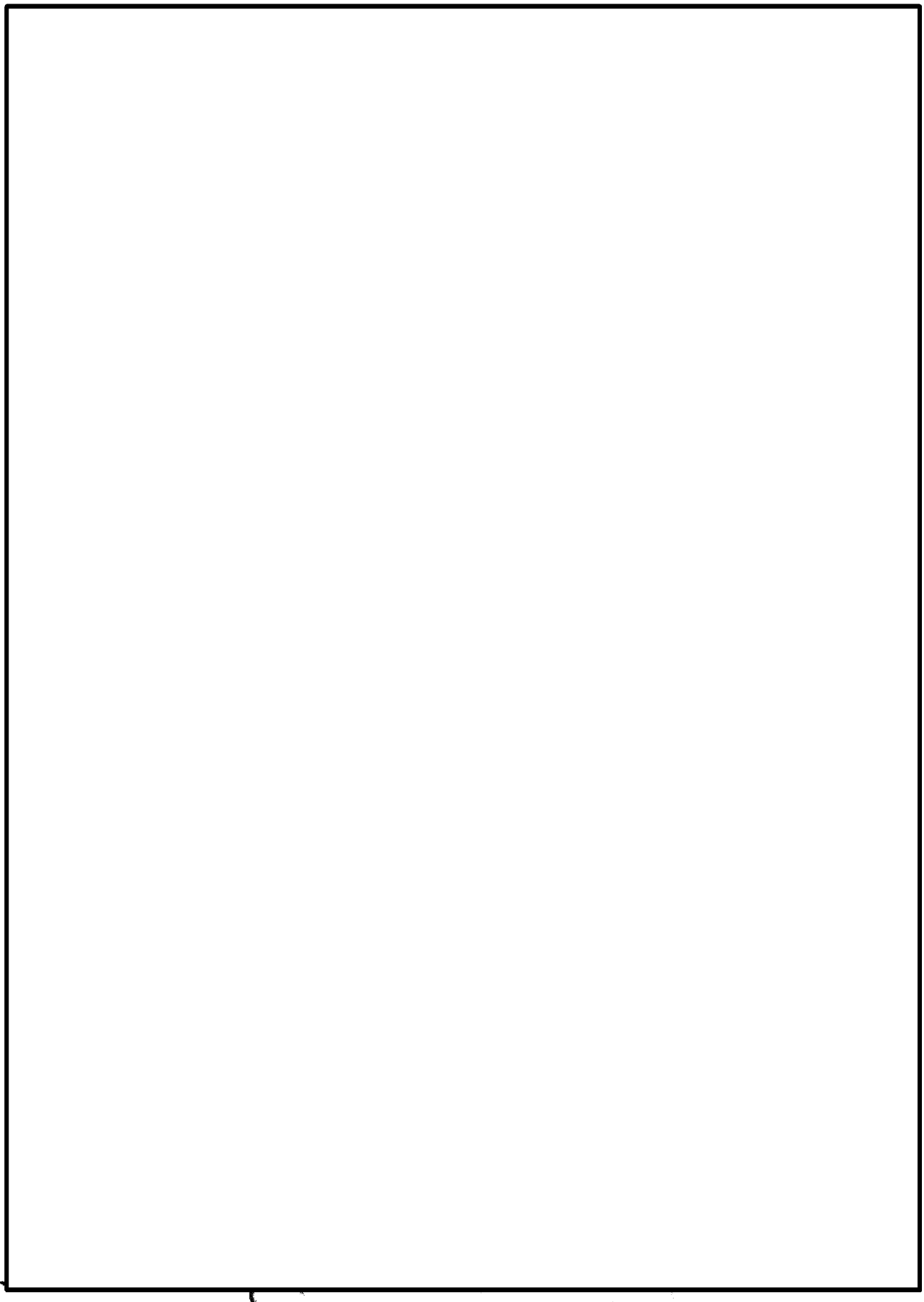

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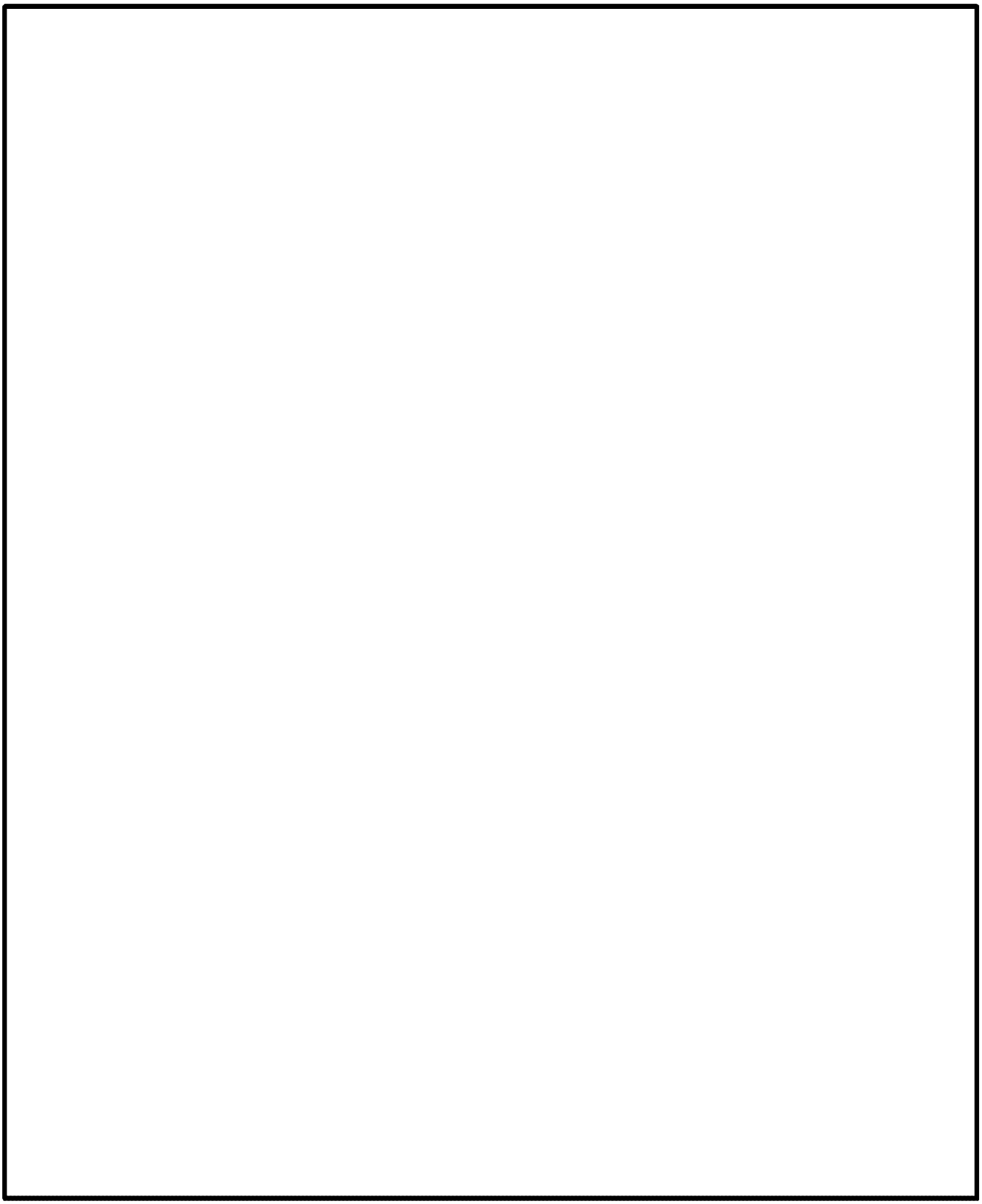

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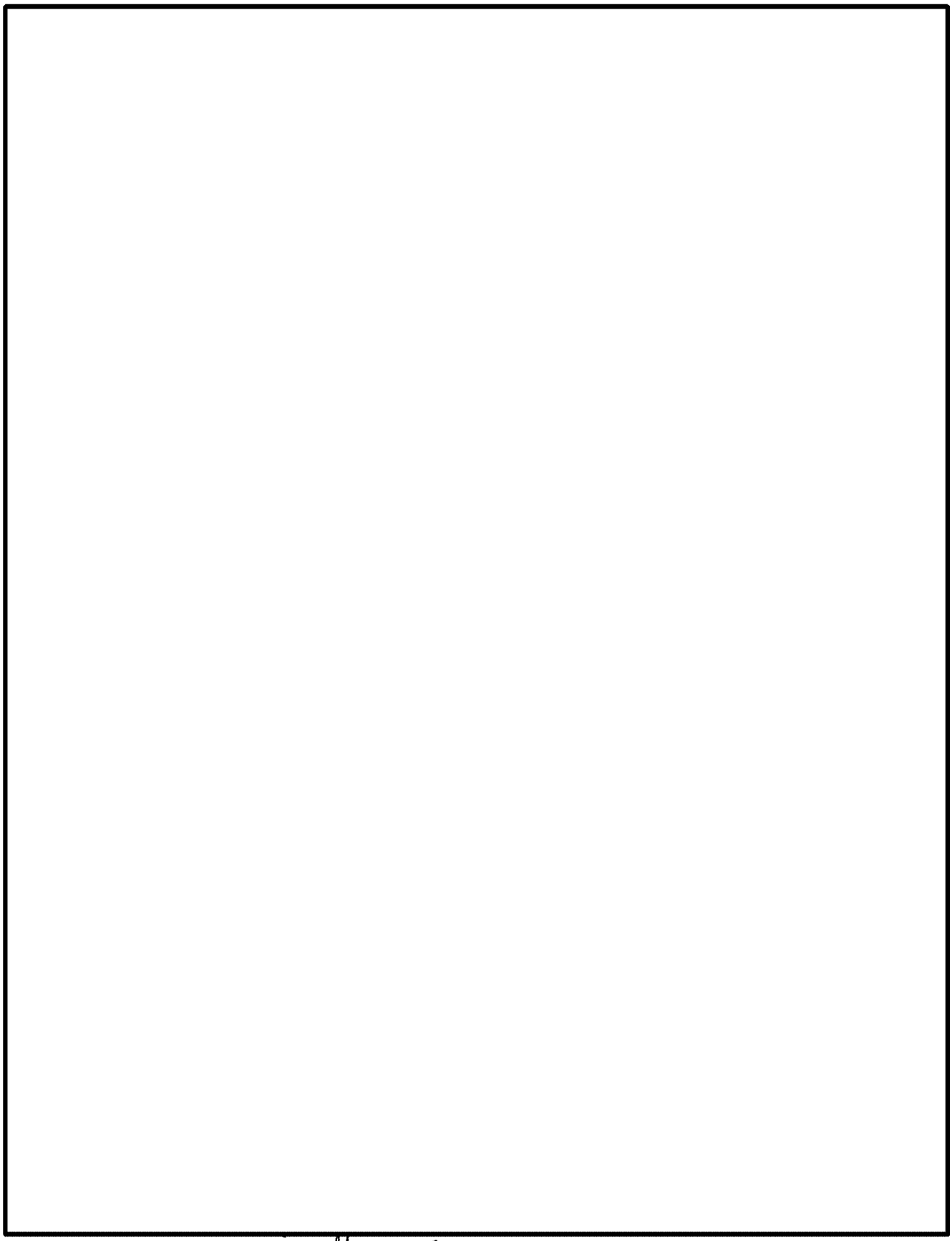

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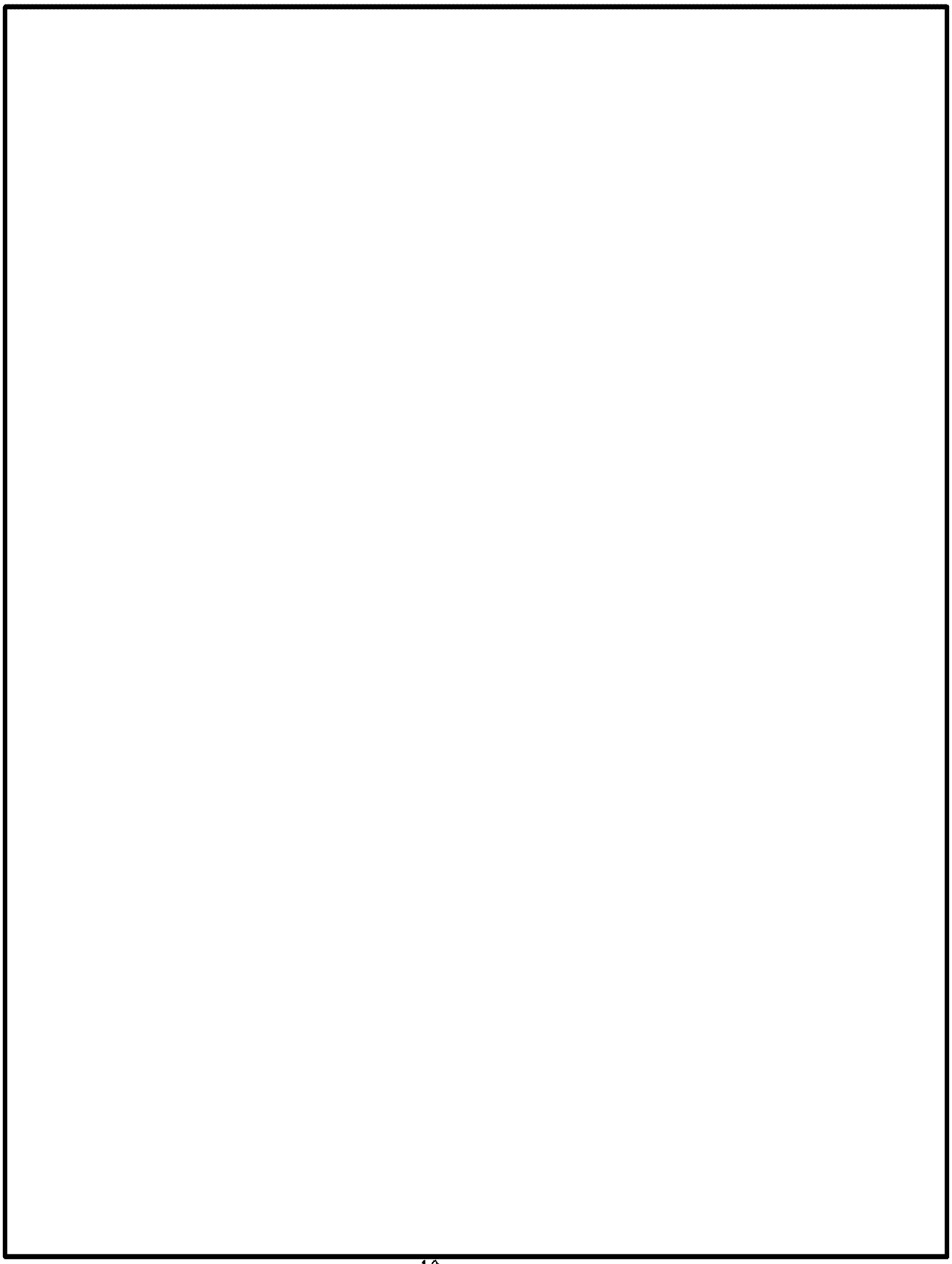

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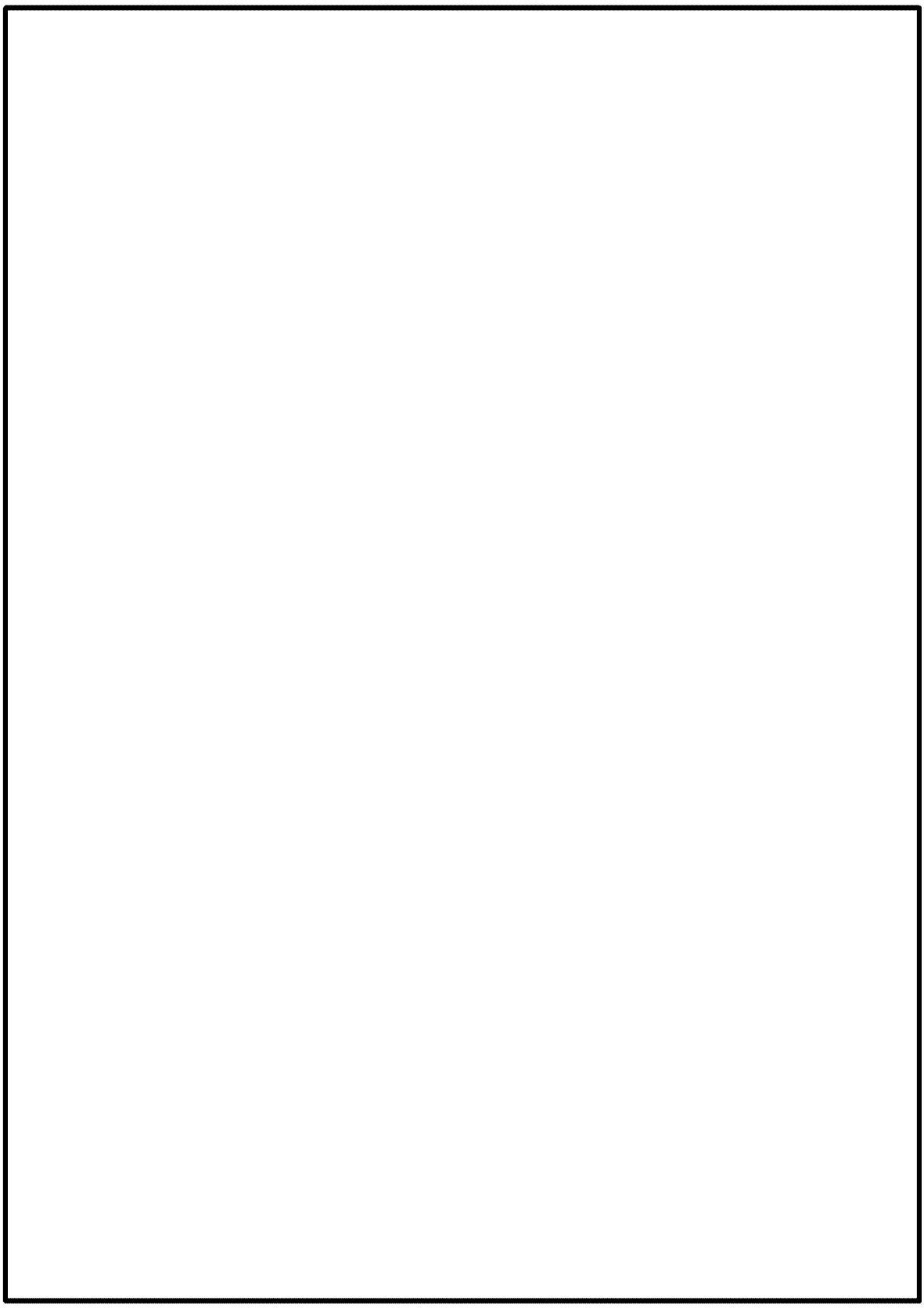

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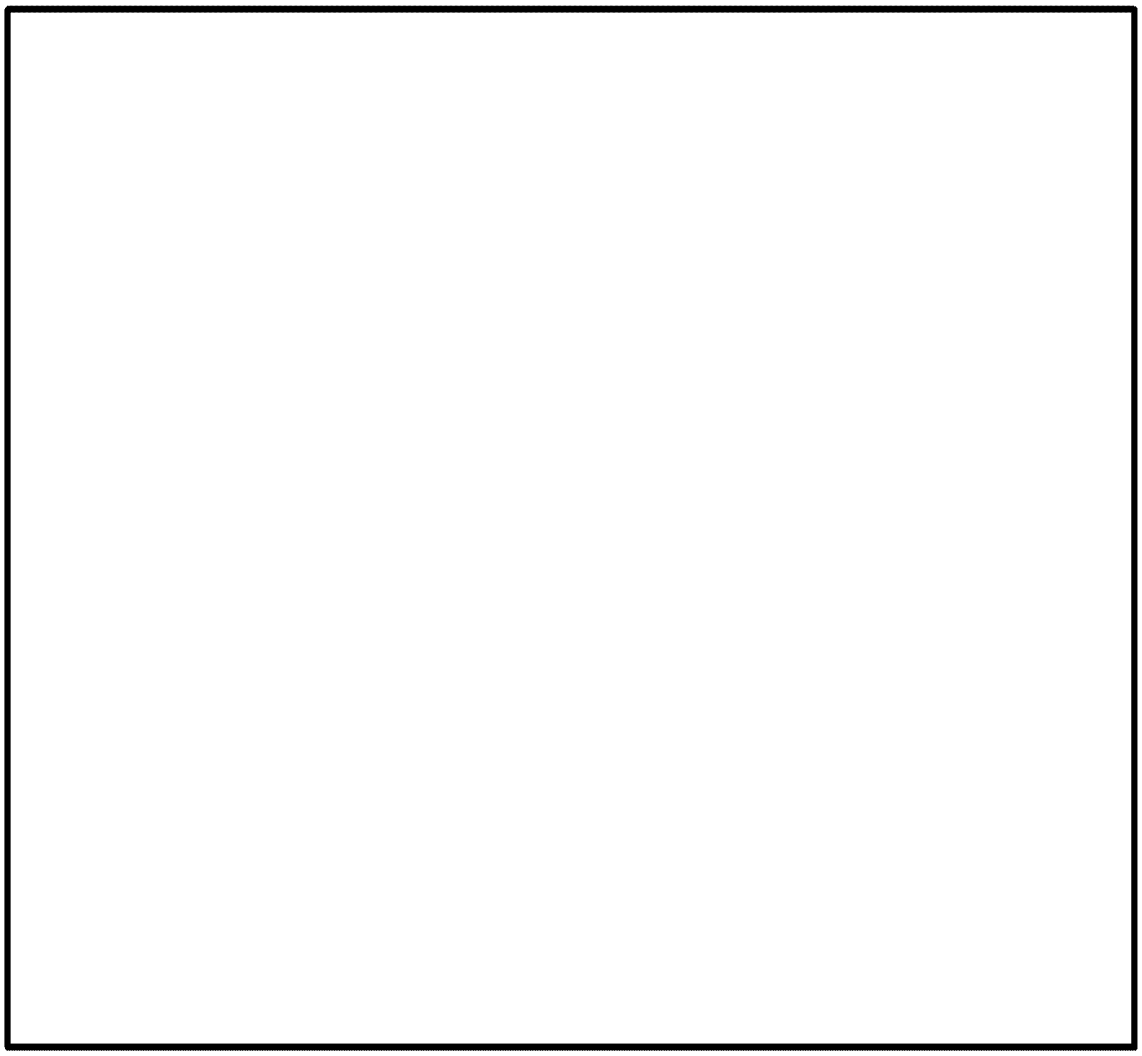


IN WITNESS WHEREOF, the parties hereto have executed this contract as of the date first above written.

Seller:

IKI ASSOCIATES LLC

By:_____
Issac Kubersky, managing member

Purchaser:

By:_____
George Xu

Receipt by Escrowee

The undersigned Escrowee hereby acknowledges receipt of $542,000.00

_____
ESCROWEE

Schedule A

DESCRIPTION OF PREMISES

(to be attached separately and to include tax map designation)

Schedule B

PERMITTED EXCEPTIONS

1. Zoning regulations and ordinances which are not violated by the existing structures or present use thereof and which do not render title uninsurable.

2. Consents by the Seller or any former owner of the Premises for the erection of any structure or structures on, under or above any street or streets on which the Premises may abut.

3 and 4 deleted

5. Unpaid installments of assessments not due and payable on or before the Closing Date.

6. deleted

7. (a) Rights of utility companies to lay, maintain, install and repair pipes, lines, poles, conduits, cable boxes and related equipment on, over and under the Premises, provided that none of such rights imposes any monetary obligation on the owner of the Premises.

(b) Minor Encroachments of stoops, areas, cellar steps, trim cornices, lintels, window sills, awnings, canopies, ledges, fences, hedges, coping and retaining walls projecting from the Premises over any street or highway or over any adjoining property and encroachments of similar elements projecting from adjoining property over the Premises.

(c) Revocability or lack of right to maintain vaults, coal chutes, excavations or sub-surface equipment beyond the line of the Premises.

(d) Any state of facts that an accurate survey or personal inspection of the premises would disclose, provided the same does not render the title uninsurable

Schedule C

PURCHASE PRICE

The Purchase Price shall be paid as follows:

(a) By check subject to collection, the receipt of which is hereby acknowledged by Seller:

(b) By check or checks delivered to Seller at the Closing in accordance with the provisions of §2.02:

(c) By acceptance of title subject to the following Existing Mortgage(s):

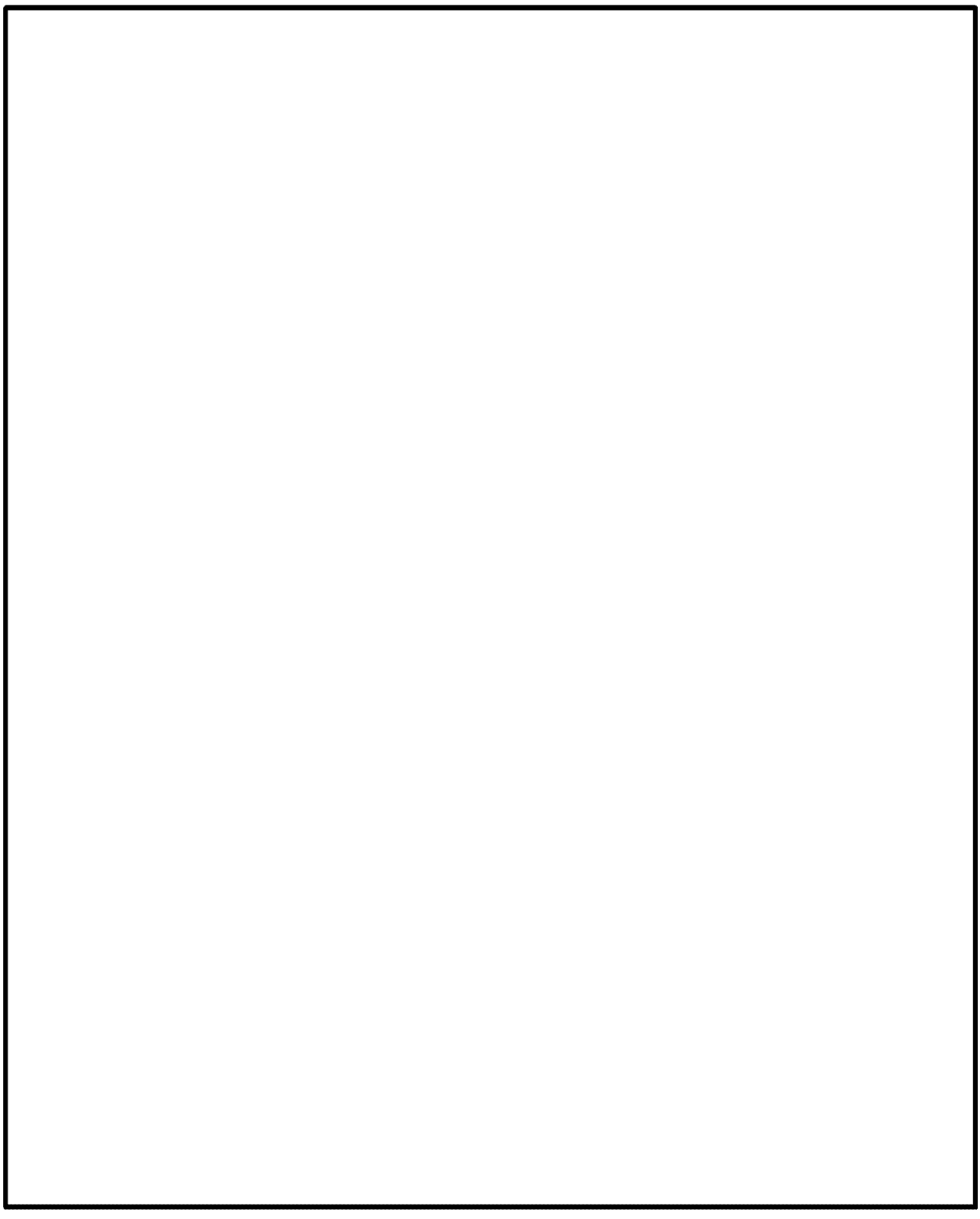
(d) By execution and delivery to Seller by Purchaser or its assignee of a note secured by a Purchase Money Mortgage on the Premises, payable as follows:

Purchase Price

(b)(4)

Schedule D

MISCELLANEOUS (b)(4)



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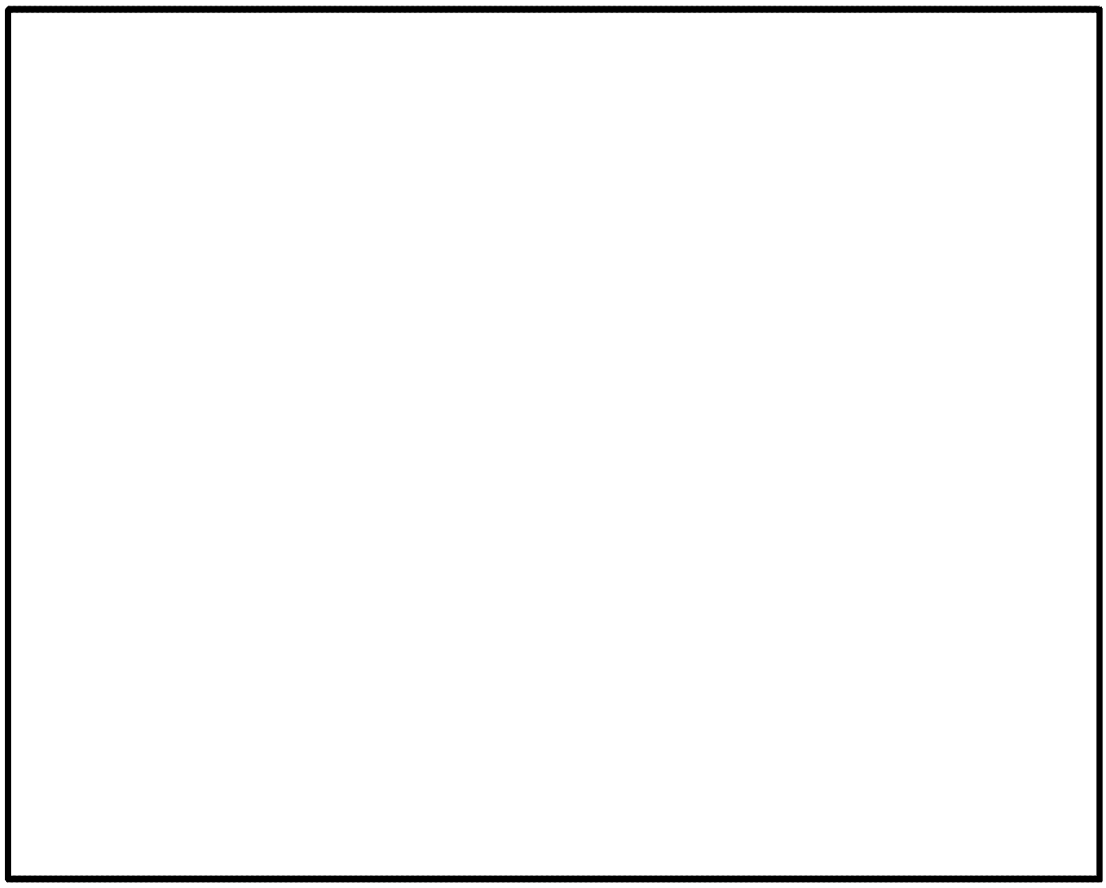
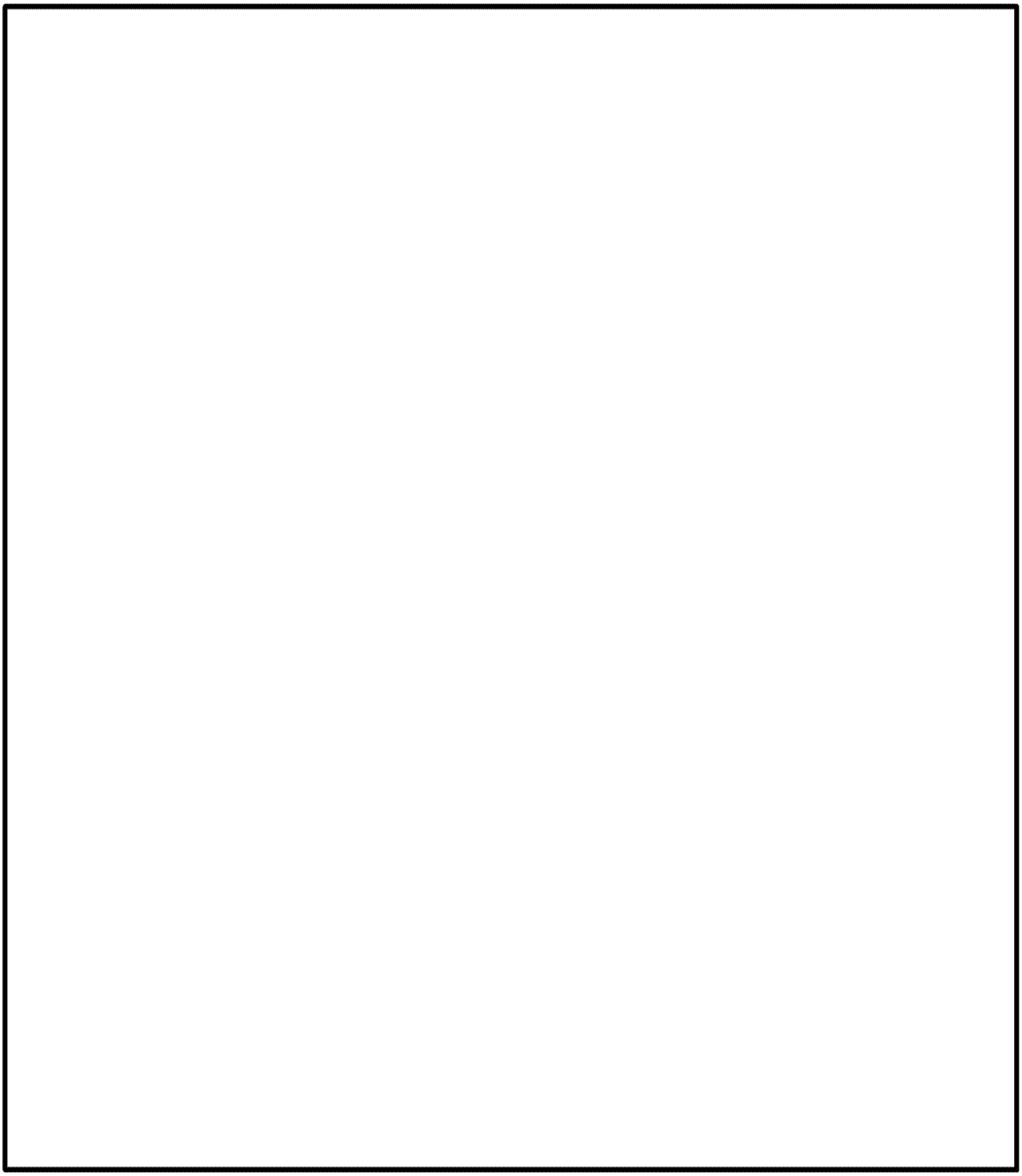


(b)(4)

ENVIRONMENTAL DUE DILIGENCE CONTINGENCY RIDER



(b)(4)

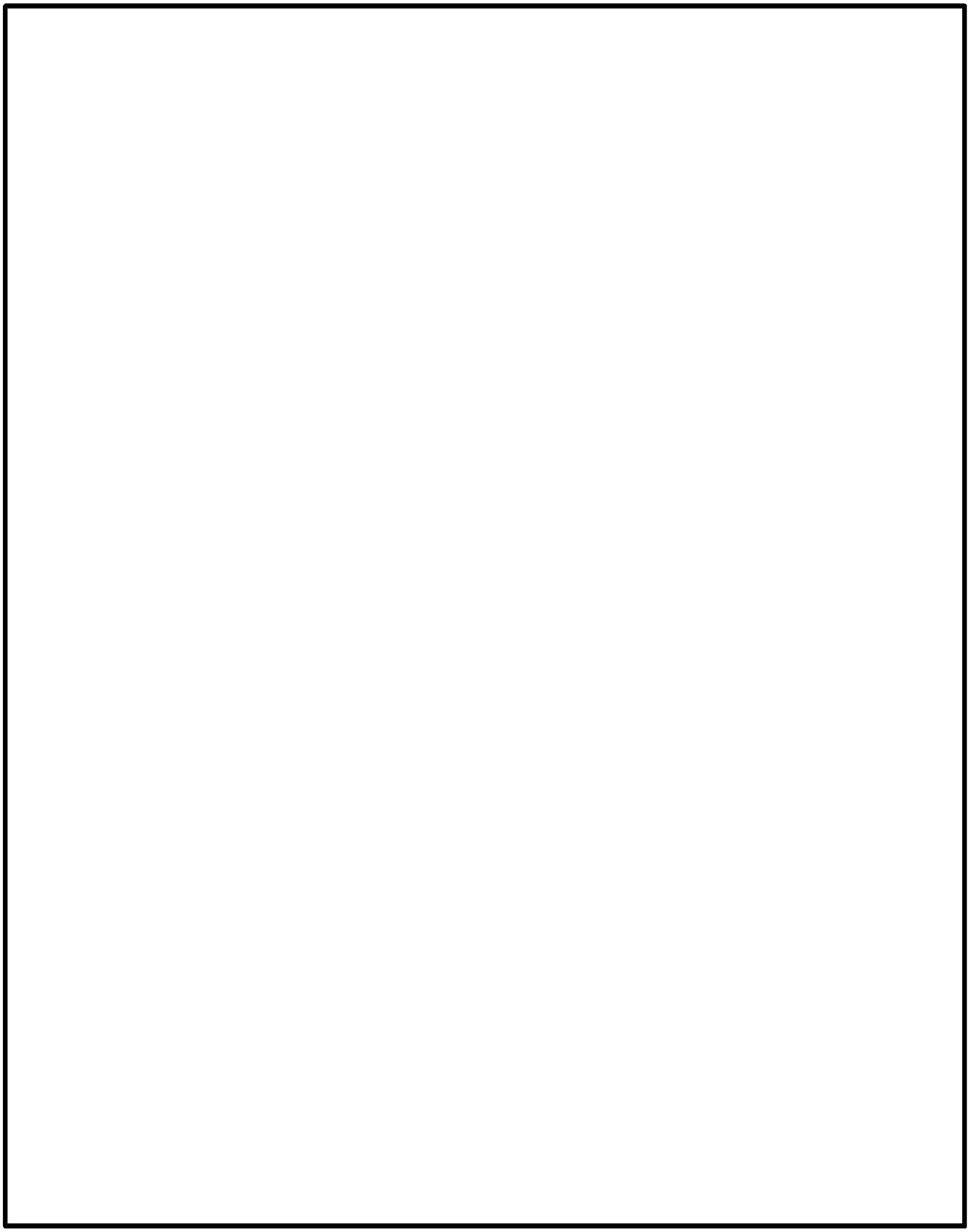
IKI ASSOCIATES LLC

BY: ISAAC KUBERSKY

BY: GEORGE XU

SALE OF REAL PROPERTY

ESTIMATED CLOSING STATEMENT (b)(4)



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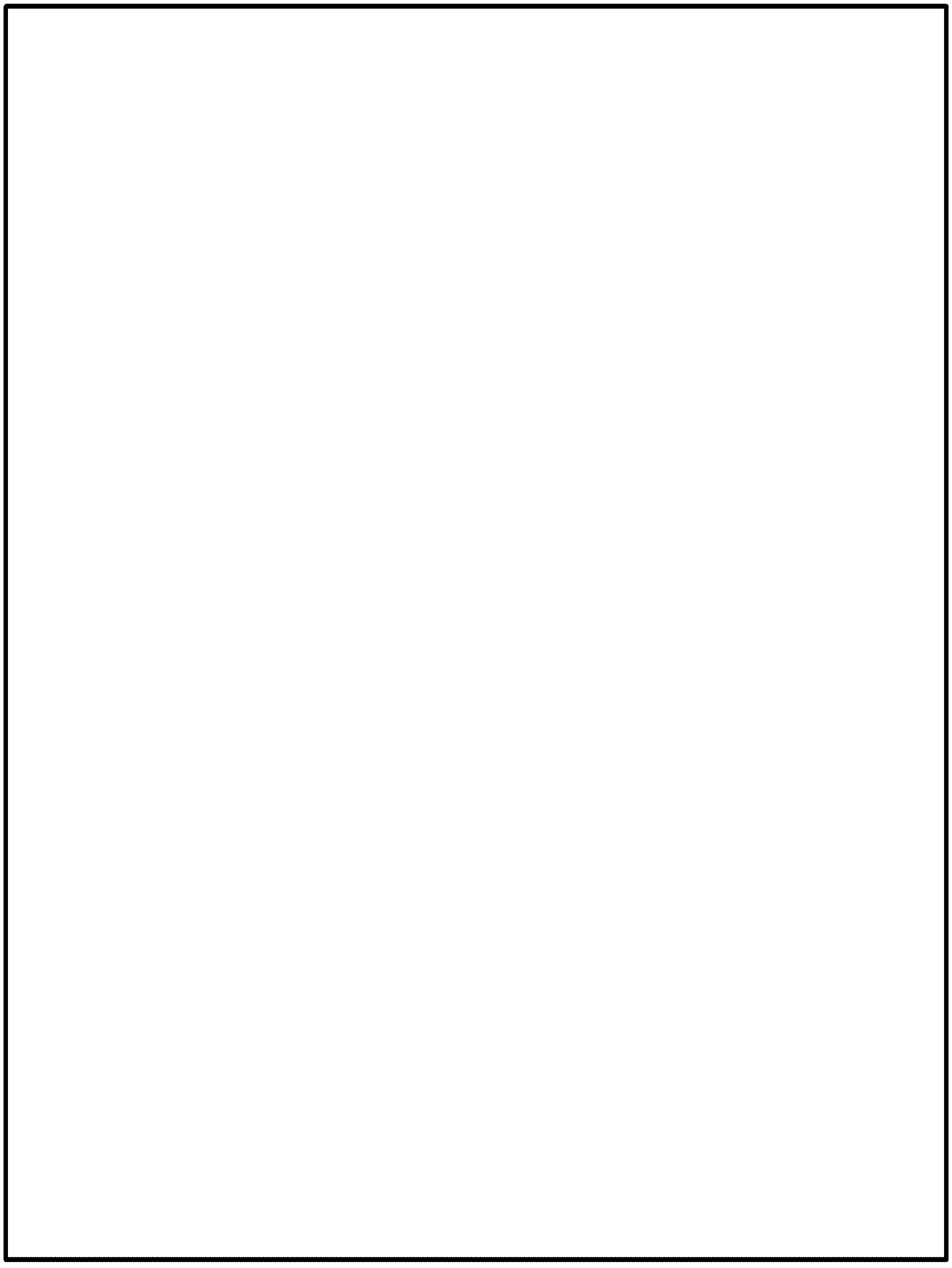

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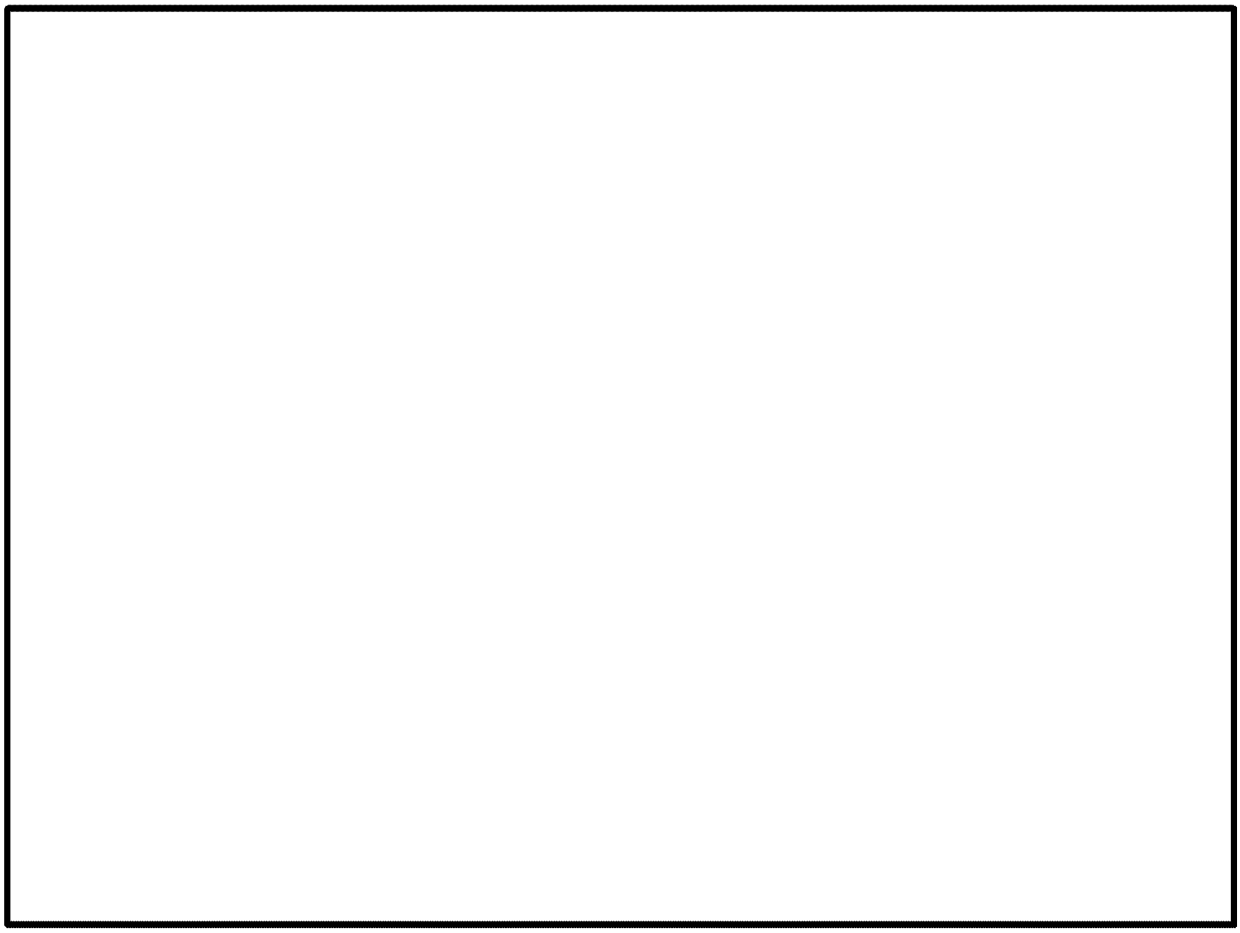


NYC DEPARTMENT OF FINANCE
OFFICE OF THE CITY REGISTER

This page is part of the instrument. The City Register will rely on the information provided by you on this page for purposes of indexing this instrument.The information on this page will control for indexing purposes in the event of any conflict with the rest of the document.

2014050900664001001E9847

RECORDING AND ENDORSEMENT COVER PAGE **PAGE 1 OF 9**

Document ID: 2014050900664001 Document Date: 05-08-2014 Preparation Date: 05-12-2014
Document Type: DEED
Document Page Count: 7

PRESENTER:
FEDERAL STANDARD ABSTRACT, INC. (PICK-UP)
36-36 MAIN STREET
FLUSHING, NY 11354
718-888-7778
RECORDING@FEDERALSTANDARDABSTRACT.COM

RETURN TO:
LEE-LEE CHANG, ESQ.
136-21 ROOSEVELT AVENUE, SUITE 304
FLUSHING, NY 11354
FSA282-04815Q/SC

PROPERTY DATA

Borough	Block	Lot	Unit	Address
QUEENS	9694	26	Entire Lot	148-44 HILLSIDE AVENUE

Property Type: COMMERCIAL REAL ESTATE

Borough	Block	Lot	Unit	Address
QUEENS	9694	27	Entire Lot	148-46 HILLSIDE AVENUE

Property Type: COMMERCIAL REAL ESTATE

☒ Additional Properties on Continuation Page

CROSS REFERENCE DATA

CRFN_____ *or* DocumentID_____ *or* _____ Year____ Reel____ Page_____ *or* File Number_____

PARTIES

GRANTOR/SELLER:
IKI ASSOCIATES LLC
434 EAST 165TH STREET
BRONX, NY 10456

GRANTEE/BUYER:
88 AVE REALTY, LLC
35-06 LEAVITT STREET, #CF-A
FLUSHING, NY 11354

FEES AND TAXES

Mortgage :		
Mortgage Amount:	$	0.00
Taxable Mortgage Amount:	$	0.00
Exemption:		
TAXES: County (Basic):	$	0.00
City (Additional):	$	0.00
Spec (Additional):	$	0.00
TASF:	$	0.00
MTA:	$	0.00
NYCTA:	$	0.00
Additional MRT:	$	0.00
TOTAL:	$	0.00
Recording Fee:	$	87.00
Affidavit Fee:	$	0.00

Filing Fee:	$	250.00
NYC Real Property Transfer Tax:	$	142,275.00
NYS Real Estate Transfer Tax:	$	21,680.00

RECORDED OR FILED IN THE OFFICE OF THE CITY REGISTER OF THE CITY OF NEW YORK
Recorded/Filed 05-27-2014 09:28
City Register File No.(CRFN): **2014000179958**

City Register Official Signature

Superior Abstract Corporation

Agents for
United General Title Insurance Company

Title No. UGTQ704303

SCHEDULE A

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, WITH THE BUILDINGS AND IMPROVEMENTS THEREON ERECTED, SITUATE, LYING AND BEING AT JAMAICA IN THE FOURTH WARD OF THE BOROUGH OF QUEENS, CITY OF NEW YORK, COUNTY OF QUEENS AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

(As to Lots 26 and 27)

BEGINNING at a point in the Southerly side of Hillside Avenue distant 180 feet Westerly from the corner formed by the intersection of the Southerly side of Hillside Avenue with the Westerly side of Alsop Street; and

RUNNING THENCE Southerly, parallel with Alsop Street, 95 feet;

THENCE Westerly, parallel with Hillside Avenue, 45 feet;

THENCE Northerly, again parallel with Alsop Street, 95 feet to the Southerly side of Hillside Avenue; and

THENCE Easterly along the said Southerly side of Hillside Avenue 45 feet to the point or place of **BEGINNING.**

Insure

SAID PREMISES BEING KNOWN AS: 148-44 and 148-46Hillside Avenue, Jamaica, New York

Superior Abstract Corporation

Agents for
United General Title Insurance Company

Title No. UGTQ704303

SCHEDULE A

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, WITH THE BUILDINGS AND IMPROVEMENTS THEREON ERECTED, SITUATE, LYING AND BEING AT JAMAICA IN THE FOURTH WARD OF THE BOROUGH OF QUEENS, CITY OF NEW YORK, COUNTY OF QUEENS AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

(As to Lot 36)

BEGINNING at a point on the Westerly side of Alsop Street, distant ninety-five (95) feet Southerly from the corner formed by the intersection of the Westerly side of Alsop Street with the Southerly side of Hillside Avenue and;

RUNNING THENCE Westerly, parallel with Hillside Avenue, two hundred and twenty-five (225) feet;

THENCE Southerly, parallel with Alsop Street, forty-five and sixty one-hundredths (45.60) feet;

THENCE Easterly, parallel with Willett Street, one hundred twenty (120) feet;

THENCE Northerly, parallel with Alsop Street, forty (40) feet;

THENCE Easterly, parallel with Willett Street, one hundred five (105) feet to the Westerly side of Alsop Street ten (10) feet;

THENCE Northerly along the Westerly side of Alsop Street, ten (10) feet to the point or place of **BEGINNING.**

SAID PREMISES BEING KNOWN: 87-10 150th Street, Queens, New York

Superior Abstract Corporation

Agents for
United General Title Insurance Company

Title No. UGTQ704303

SCHEDULE A

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING IN THE BOROUGH AND COUNTY OF QUEENS, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

(As to Lot 44)

BEGINNING at a point on the Northerly side of 88th Avenue, formerly Willett Street, distant 60 feet Westerly from the Northwest corner of 88th Avenue and 150th Street, formerly Alsop Street;

RUNNING THENCE Northerly parallel with 150th Street, 100 feet;

THENCE Westerly parallel with 88th Avenue, 40 feet;

THENCE Southerly again parallel with 150th Street, 100 feet to the Northerly side of 88th Avenue;

THENCE Easterly and along the Northerly side of 88th Avenue, 40 feet to the point or place of **BEGINNING.**

SAID PREMISES BEING KNOWN AS: No street address

Insure

Superior Abstract Corporation

Agents for
United General Title Insurance Company

Title No. UGTQ704303

SCHEDULE A

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, WITH THE BUILDINGS AND IMPROVEMENTS THEREON ERECTED, SITUATE, LYING AND BEING AT JAMAICA IN FOURTH WARD OF THE BOROUGH OF QUEENS OF THE CITY OF NEW YORK AND IN THE BOROUGH OF QUEENS AND STATE OF NEW YORK AND KNOWN AND DESIGNATED AS AND BY LOTS NO. 159 AND 160 ON A CERTAIN MAP ENTITLED "MAP NUMBER TWO OF THE BRONSON PROPERTY IN THE VILLAGE OF JAMAICA QUEENS COUNTY, SURVEYED AUGUST 1887 BY E.W. CONKLIN" AND FILED IN THE OFFICE OF THE CLERK NOW REGISTER OF THE COUNTY OF QUEENS SEPTEMBER 28, 1887, SAID LOTS TAKEN TOGETHER BEING DESCRIBED ON SAID MAP AS FOLLOWS:

(As to Lot 47)

BEGINNING at a point in the Northerly side of Willett Avenue, now known as 88th Avenue, distant 100 feet Westerly from the Northwesterly corner of Willett Avenue and Alsop Street, now known as 150th Street;

RUNNING THENCE Northerly and parallel with Alsop Street 140 feet;

THENCE Westerly and parallel with Willett Avenue 50 feet;

THENCE Southerly again parallel with Alsop Street 140 feet to the Northerly side of Willett Avenue;

THENCE Easterly along said Northerly side of Willett Avenue 50 feet to the point or place of **BEGINNING.**

SAID PREMISES BEING KNOWN AS: No street address

Superior Abstract Corporation

Agents for
United General Title Insurance Company

Title No. UGTQ704303

SCHEDULE A

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, WITH THE BUILDINGS AND IMPROVEMENTS THEREON ERECTED, SITUATE, LYING AND BEING IN THE BOROUGH OF QUEENS, CITYOF NEW YORK (FORMERLY VILLAGE OF JAMAICA) COUUNTY OF QUEENS AND STATE OF NEW YORK, AND NUMBERED AS LOTS ONE HUNDRED AND FIFTY-SEVEN (157), ONE HUNDRED AND FIFTY-EIGHT (158) ON A CERTAIN MAP ENTITLED "MAP NO. 2 OF BRONSON PROPERTY IN THE VILLAGE OF JAMAICA, QUEENS COUNTY, SURVEYED AUGUST, 1887, BY E.W. CONKLIN" AND FILED IN THE OFFICE OF THE CLERK OF THE COUNTY OF QUEENS, ON THE TWENTY EIGHTH DAY OF SEPTEMBER, 1887, SAID TOWN LOTS TAKEN TOGETHER, BEING DESCRIBED IN SAID MAP AS FOLLOWS; NAMELY:

(As to Lot 49)

BEGINNING at a point on the Northerly side of 88th Avenue formerly known as Willett Avenue, distant one hundred and fifty (150) feet Westerly from the Northwesterly corner of 88th Avenue, formerly known as Willett Avenue, and 150th Street, formerly known as Alsop Street;

RUNNING THENCE Northerly and parallel with 150th Street formerly known as Alsop Street, one hundred and forty (140) feet;

THENCE Westerly, and parallel with 88th Avenue, formerly known as Willett Avenue, fifty (50) feet;

THENCE Southerly, and parallel with 150th Street, formelry known as Alsop Street, one hundred forty (140) feet, to the Northerly side of 88th Avenue, formerly known as Willett Avenue and;

THENCE Easterly along the Northerly side of 88th Avenue, formerly known as Willett Avenue, fifty (50) feet, to the point or place of **BEGINNING.**

Ensure

SAID PREMISES BEING KNOWN AS: 148-33 88th Avenue, Queens, New York

100% Recycled
30% PCW

REGIONAL CENTER: CENTURY NEW YORK CITY REGIONAL CENTER, LLC
RECEIPT NO: RCW1420251818
PROJECT: 88TH AVE EB5 CAPITAL, LLC

PETITIONER: JOHN DOE

Exhibit 13

Permits

Please see a full discussion of the permits of the project in the attached Comprehensive Business Plan (**Exhibit 7**).

- **Work Permit Schedule**

The Project will receive the following permits:

Work Permits Schedule for Holiday Inn		
Permit:	Description:	Estimate Date:
Plan Approval		Oct-15
P-R Plan Review Application Receipt	Tree protection during construction	Nov-15
New Building Permit	To build new construction building	Jan-16
This is a vacant lot, so it's unnecessary to get a demo permit.		

100% Recycled
30% PCW

REGIONAL CENTER: CENTURY NEW YORK CITY R
RECEIPT NO: RCW1420
PROJECT: 88TH AVE E

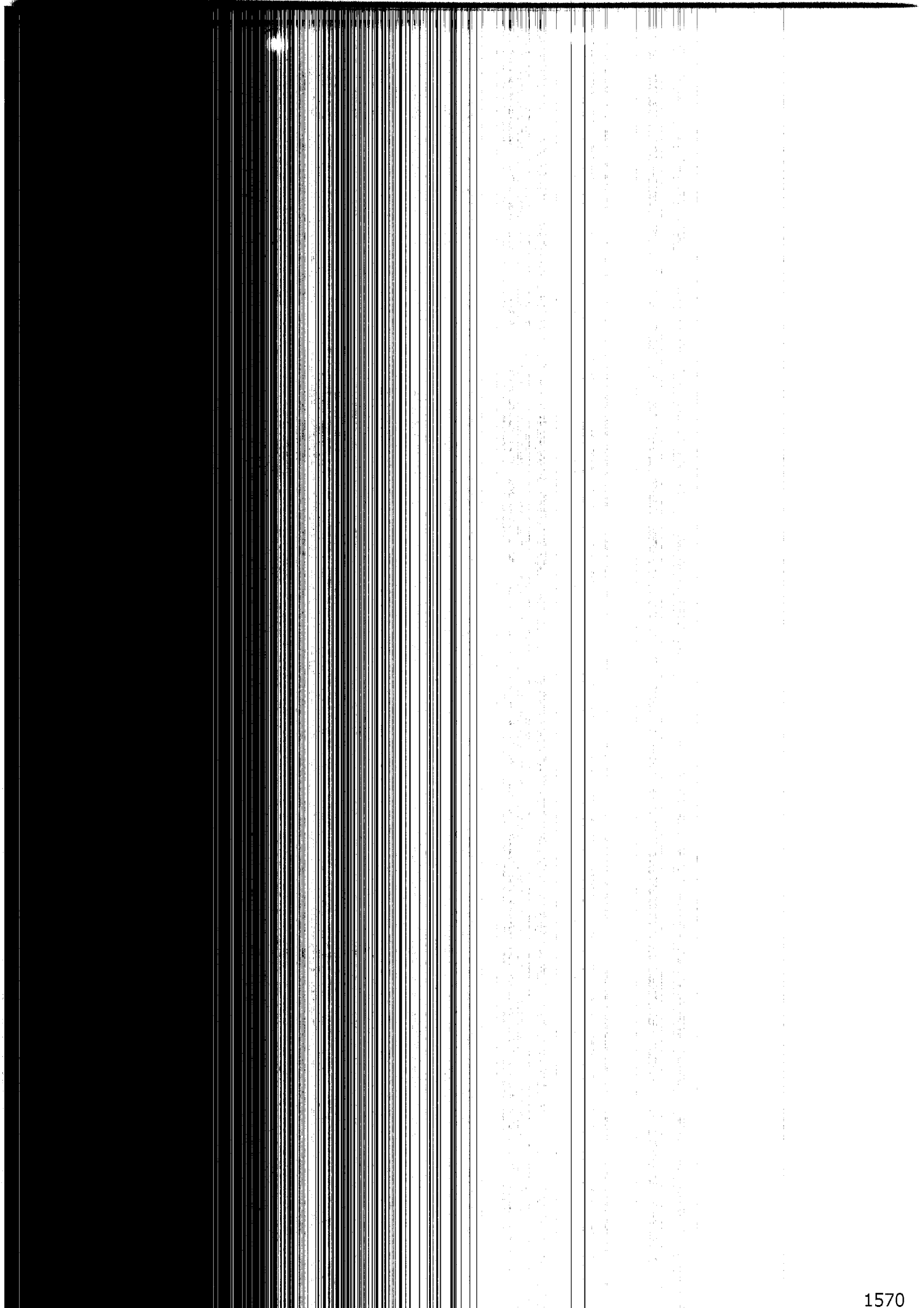
PETITIONER: JOHN DOE

Exhibi

Financ

Please see a full discussion of the
project in the attached Comprehe
(Exhibit 7).

- **Sources and Uses** - budget
- **Five Year Projections**
- **Verification Letter** from
Group, LLC verifying their
and project development
15, 2015.



"CONSTRUCTION COST DETAIL SHEET"

Project Location : 148-31/43 88th Ave&148-44/46 Hillside Ave, Jamaica, NY 11435

(b)(4)

SCOPE OF WORK:

1. GENERAL

1.01 Mobilization & preparation
1.02 Insurance-general liability 25M & workmen comp
1.03 Sign-offs
1.04 Permit applications
1.05 Provide all necessary SOE inspections
1.06 Provide all necessary TR-2 TR-3
1.07 Provide engineer on site for supervision of all foundation and shoring work
1.08 Provide all necessary surveys
1.09 Provide all necessary shop drawings

(b)(4)

2. SITEWORK

2.01 Provide and Install roof protection on adjacent buildings
2.02 Scaffold
  a. Provide and install Sidewalk Bridge
  b. Provide and install scaffold to roof
  c. Provide and install protection net to roof
  d. Scaffold reinforcement
2.03 Shoring, Sheeting & Lagging as per SOE
2.04 Temporary Protection Plywood Fence
2.05 Provide and install exterior material hoist
2.06 Excavation and backfill as necessary
2.07 Provide and install sidewalk, trees, curb and curb as per approved BPP

3. MASONRY

3.01 Concrete block as per drawings
3.02 Stucco in rear of building
3.03 Stone on first floor as per rendering

4. CONCRETE

4.01 Foundation wall, straps beams and pile caps
4.02 Concrete Slabs
4.03 Roof Bulkhead
4.04 Sidewalk, curbs and pavement
4.05 Surveys and stakeout
4.06 All waterproofing of exterior foundation walls

5. METALS

5.01 Concrete filled metal pan stairs
5.02 Metal framing and gates
5.03 Roof, railing and ladder
5.04 Structural metal framing
5.05 Provide and install steel dunnage
5.06 Omagalite exterior aluminum panel front and 2 sides

6. THERMAL & MOISTURE PROTECTION

6.01 Roof waterproofing
- a. Six-ply rubber roofing
- b. 2" rigid insulation
- c. Vent sheet
- d. Fire Stone 12 year labor and material warrenty

6.02 Insulation
- a. Exterior wall insulation close cell sprayed on
- b. Interior wall insulation open cell sprayed on

7. DOORS & WINDOWS

7.01 Doors 1 3/4 " solid core doors, frames and hardware
7.02 Aluminum windows & storefront entrance by crystal or equal
7.03 All window system by crystal or equal per window schedule
7.04 All hollow metal door per schedule
7.05 Thermacore 490 garage door
7.06 Provide and install glass railing as per rendering

8. FINISHES

8.01 Gypsum board ceiling w / paint finished
8.02 Gypsum board wall w / paint finished
8.03 Epoxy paint for areaway, Elec.meter Rm., water meter Rm.
8.04 All apartment interior as per finish schedule
8.05 All hallways as per plan and finish schedule
8.06 All commercial, lobby as per design

9. CONVEYING SYSTEM

9.01 Provide and install Thyssen Krupp MRL 250FPM 2300# elevator
9.02 Standard cab $20,000 allowance

10. EQUIPMENT

10.01 Kitchen cabinets allowance is $5,000 per unit
10.02 All appliances
10.03 Bathroom accessories
10.04 Trash chute and compactor
10.05 Kitchen counter top to be Caesar Stone

(b)(4)

11. MECHANICAL

11.01 HVAC system as per drawings
11.02 Provide and install exhaust & fresh air system as per drawings
11.03 Provide and install LG PTAC unit
11.04 Provide and install all kitchen and bath exhaust duct and fans
11.05 Provide and install HVAC system for lobby, trash storage and rec room Mitsubishi Citi-Multi

12. FIRE SYSTEM

12.01 Sprinkler system as per drawings
12.02 Stand Pipe system as per drawings
12.03 Provide and install sprinkler alarm system as per DOB and FDNY cod

13. ELECTRICAL

13.01 Apply and install all electrical meters
13.02 Provide and install electrical panels
13.03 Provide and install lighting fixtures as per plan
13.04 Provide and install emergency exit lights
13.05 Provide and install receptacles
13.06 Provide and install Aiphone color audio / video intercom system
13.07 Provide and install all Verizon, TimeWarner lines
13.08 Provide and install 100 Amp panels in every Apt. unit
13.09 Provide and install 1600 ConEd SEB
13.10 Provide temporary electrical service

14. PLUMBING WORK

14.01 Provide all utility services and meters
14.02 Install copper water supply & no-hub drainage system and all vent pipes
14.03 Supply & install plumbing fixtures as per owner's schedule
14.04 Install new gas main service with meters
14.05 All supply and return water lines
14.06 All kitchen gas pipes to all equipment in builing
14.07 Provide and install 1 duplex water booster and sewer e
14.08 Provide and install RZP as per design
14.09 Provide and install 3 150 Gal HWH and 1 25 Gal electrical HWH per residential
14.10 Provide and install all incoming water, sewer main as per plans

(A) Total Hard Construction Cost :

(b)(4)

(b)(4)

Soft Cost :

Architect & Engineer (including Envioronmental MTA)
Admin (Accounting etc.)
Appraisal
Bank Engineer
Permit & Survey
Real Estate Tax
Insurance
Title Insurance
Bank Legal
Borrower Legal
Mortgage Recording Tax
Bank Fee
Interest Reserve

(B) Total Soft Cost :

Total Construction Cost (A)+(B) :

(C) Land Value :

Total Project Cost (A)+(B)+(C) :

88 Ave Project Five Year Proforma (Rent)					
	2018	2019	2020	2021	2022
Revenues					
Luxury Condominium					
Commercial Retai					
Community Facility/Medical Office					
Parking Garage					
Total Revenues					
Exprenses					
Utilities:					
Gas and eletric					
Water and sewer					
Repairs and maintenance:					
Building					
Sprinkler					
Elevator					
Equipment					
Exterminating					
Supplies					
Management fees					
Insurance					
Taxes					
Telephone					
Payroll Expenses					
Office and administrative					
Total Expenses					
Net Operating Income					

(b)(4)

September 15, 2015

Attention: EB-5 Unit
U.S. Citizenship and Immigration Services
California Service Center
Department of Homeland Security
24000, Avila Road, Room 2312
Laguna Niguel, CA 92677

Re: Jamaica Project / Mixed Use Condo, Retail, Medical office Development
148-44/46 Hillside Avenue, Jamaica, NY 11435
148-31/43 88th Avenue, Jamaica, NY 11435

Dear CSC EB-5 Unit Officer:

Century Construction Group was hired by 88th Ave Realty LLC as the general contractor on the above-referenced Project. I am the president of Century Construction Group and have worked in the construction industry for twenty years and have supervised, managed and/or constructed. My experience includes hospitality, commercial interior and residential projects. I have constructed similar projects to the proposed Jamaica Project in term of size, budgets and timeline. These projects include the Marriot Fairfield Inn, the Leavitt Manor Condominium and the Farrington Estate, all located in Flushing. I have been asked by 88th Ave Realty, LLC to provide you with some information concerning the Project in connection with certain funding obtained by EB-5.

Century Construction Group has advised that hard construction cost estimate would be [redacted] (b)(4) The construction timeline is 27 months. This mixed used building consists of one eight-story residential building and one six-story retail and community/medical office building . The residential building will include 109 units of luxury condominium with exercise room, reading room, parking spaces and laundry room. The retail and community/medical office building will include retail spaces, community facility spaces, medical office spaces and parking spaces. The property is vacant land now and the excavation is scheduled to begin in December of 2015. I attest that the construction budgets and timeline are estimated based on established industry standards.

Very Truly Yours,

George Xu
President

35-06 Leavitt St., Suite CF-A Flushing, NY 11354
Tel: (718) 939-1060 Fax: (718) 939-1036
www.centurygroupdevelopment.com

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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