

37-10 CRESCENT STREET

QUEENS, NEW YORK

**Remedial Action Work Plan & STIP List
(1/5/2015)**

NYC VCP Number: 15CVCP057Q

OER E-Designation Project Number: 14EHAZ057Q

Prepared for:

37-10 Crescent Street Owner, LLC

80 8th Avenue, Suite 1010

New York, New York 10011

Prepared by:



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JANUARY 2015



January 5, 2015

New York City Office of Environmental Remediation
City Voluntary Cleanup Program
c/o Shaminder Chawla
100 Gold Street, 2nd Floor
New York, NY 10038

Re: VCP # 15CVCP057Q
E-Designation # 15EHAZ057Q
37-10 Crescent Street, Long Island City, New York, 11101
Remedial Action Work Plan (RAWP) Stipulation List

Dear Mr. Chawla:

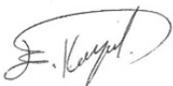
Athenica Environmental Services hereby submits a Remedial Action Work Plan (RAWP) Stipulation List for the Site to the New York City Office of Environmental Remediation (OER) on behalf of 37-10 Crescent Street Owner, LLC. This letter serves as an addendum to the RAWP to stipulate additional content, requirements, and procedures that will be followed during the site remediation. The contents of this list are added to the RAWP and will supersede the content in the RAWP where there is a conflict in purpose or intent. The additional requirements/procedures include the following Stipulation List below:

1. The criterion attached in **Appendix 1** will be utilized if additional petroleum containing tank or vessel is identified during the remedial action or subsequent redevelopment excavation activities. All petroleum spills will be reported to the NYSDEC hotline as required by applicable laws and regulations. This contingency plan is designed for heating oil tanks and other small or moderately sized storage vessels. If larger tanks, such as gasoline storage tanks are identified, OER will be notified before this criterion is utilized.
2. A pre-construction meeting is required prior to start of remedial excavation work at the site. A pre-construction meeting will be held at the site and will be attended by OER, the developer or developer representative, the consultant, excavation/general contractor, and if applicable, the soil broker.
3. A pre-approval letter from all disposal facilities will be provided to OER prior to any soil/fill material removal from the site. Documentation specified in the RAWP - Appendix 3 - Section 1.6 "Materials Disposal Off-Site" will be provided to OER. If a

different disposal facility for the soil/fill material is selected, OER will be notified immediately.

4. Signage for the project will include a sturdy placard mounted in a publically accessible right of way to building and other permits signage will consist of the NYC VCP Information Sheet (attached **Appendix 2**) announcing the remedial action. The Information sheet will be laminated and permanently affixed to the placard.
5. In the event that hazardous waste is identified during the remedial action or subsequent redevelopment excavation activities at this NYC VCP project, and removal and transportation of hazardous waste becomes necessary, the project may be subject to the New York State Department of Environmental Conservation's Special Assessment Tax (ECL 27-0923) and Hazardous Waste Regulatory Fees (ECL 72-00402). See DEC's website for more information: <http://www.dec.ny.gov/chemical/9099.html>.
6. OER requires parties seeking City Brownfield Incentive Grants to carry insurance. For a cleanup grant, both the excavator and the trucking firm(s) that handle removal of soil must carry or be covered under a commercial general liability (CGL) policy that provides \$1 million per claim in coverage. OER recommends that excavators and truckers also carry contractors pollution liability (CPL) coverage, also providing \$1 million per claim in coverage. The CGL policy, and the CPL policy if obtained, must name the City of New York, the NYC Economic Development Corporation, and Brownfield Redevelopment Solutions as additional insured. For an investigation grant, an environmental consultant must be a qualified vendor in the BIG program and carry \$1 million of professional liability (PL) coverage. A fact sheet regarding insurance is attached as **Appendix 3**.
7. Daily reports will be provided during active excavation work. If no work is performed for extended time period, daily report frequency will be reduced to weekly basis. Daily report template is attached in **Appendix 4**.
8. The stamped/signed RAWP certification page is included in **Appendix 5**.

Sincerely,



Ezgi Karayel
Project Manager

Cc: Sarah Pong, NYCOER

Appendix 1
Generic Procedures for Management of Underground Storage Tanks
Identified under the NYC VCP

Prior to Tank removal, the following procedures should be followed:

- Remove all fluid to its lowest draw-off point.
- Drain and flush piping into the tank.
- Vacuum out the “tank bottom” consisting of water product and sludge.
- Dig down to the top of the tank and expose the upper half.
- Remove the fill tube and disconnect the fill, gauge, product, vent lines and pumps. Cap and plug open ends of lines.
- Temporarily plug all tank openings, complete the excavation, remove the tank and place it in a secure location.
- Render the tank safe and check the tank atmosphere to ensure that petroleum vapors have been satisfactorily purged from the tank.
- Clean tank or remove to storage yard for cleaning.
- If the tank is to be moved, it must be transported by licensed waste transporter. Plug and cap all holes prior to transport leaving a 1/8 inch vent hole located at the top of the tank during transport.
- After cleaning, the tank must be made acceptable for disposal at a scrap yard, cleaning the tanks interior with a high pressure rinse and cutting the tank in several pieces.

During the tank and pipe line removal, the following field observations should be made and recorded:

- A description and photographic documentation of the tank and pipe line condition (pitting, holes, staining, leak points, evidence of repairs, etc.).
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.).
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation, with a calibrated photoionization detector (PID).

Impacted Soil Excavation Methods

The excavation of the impacted soil will be performed following the removal of the existing tanks. Soil excavation will be performed in accordance with the procedures described under Section 5.5 of Draft DER-10 as follows:

- A description and photographic documentation of the excavation.
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.).
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation, with calibrated photoionization detector (PID).

Final excavation depth, length, and width will be determined in the field, and will depend on the horizontal and vertical extent of contaminated soils as indentified through physical examination (PID response, odor, staining, etc.). Collection of verification samples will be performed to evaluate the success of the removal action as specified in this document.

The following procedure will be used for the excavation of impacted soil (as necessary and appropriate):

- Wear appropriate health and safety equipment as outlined in the Health and Safety Plan.

- Prior to excavation, ensure that the area is clear of utility lines or other obstructions. Lay plastic sheeting on the ground next to the area to be excavated.
- Using a rubber-tired backhoe or track mounted excavator, remove overburden soils and stockpile, or dispose of, separate from the impacted soil.
- If additional UST's are discovered, the NYSDEC will be notified and the best course of action to remove the structure should be determined in the field. This may involve the continued trenching around the perimeter to minimize its disturbance.
- If physically contaminated soil is present (e.g., staining, odors, sheen, PID response, etc.) an attempt will be made to remove it, to the extent not limited by the site boundaries or the bedrock surface. If possible, physically impacted soil will be removed using the backhoe or excavator, segregated from clean soils and overburden, and staged on separated dedicated plastic sheeting or live loaded into trucks from the disposal facility. Removal of the impacted soils will continue until visibly clean material is encountered and monitoring instruments indicate that no contaminants are present.
- Excavated soils which are temporarily stockpiled on-site will be covered with tarp material while disposal options are determined. Tarp will be checked on a daily basis and replaced, repaired or adjusted as needed to provide full coverage. The sheeting will be shaped and secured in such a manner as to drain runoff and direct it toward the interior of the property.

Once the site representative and regulatory personnel are satisfied with the removal effort, verification of confirmatory samples will be collected from the excavation in accordance with DER-10.

Appendix 2
NYC VCP Signage



NYC Voluntary Cleanup Program

**37-10 Crescent Street
Site #: 15CVCP057Q**

This property is enrolled in the New York City Voluntary Cleanup Program for environmental remediation. This is a voluntary program administered by the NYC Office of Environmental Remediation.

Or scan with smart phone:



For more information,
log on to: www.nyc.gov/oer

If you have questions or would like more information,
please contact:

Shaminder Chawla at (212) 442-3007
or email us at brownfields@cityhall.nyc.gov

Appendix 3
BIG Program Insurance Fact Sheet

FACT SHEET – BIG PROGRAM INSURANCE REQUIREMENTS

Investigation Grants – for a developer or site owner to be eligible for a BIG investigation grant, its environmental consultant(s) must be:

- a Qualified Vendor in the BIG Program; and
- maintain Professional Liability (PL) insurance of \$1M per claim and annual aggregate.

Cleanup Grants – for a developer or site owner to be eligible for a BIG cleanup grant:

- Its general contractor or excavation/foundation contractor hired to perform remedial work must maintain Commercial General Liability (CGL) insurance of at least \$1M per occurrence and \$2M in the general aggregate. It is recommended that the general contractor or excavation/foundation contractor also maintain a Contractors Pollution Liability policy (CPL) of at least \$1M per occurrence.
- Its subcontractors who are hired by the general contractor etc. to perform remedial work at a site, including soil brokers and truckers, must also maintain a CGL policy in the amount and with the terms set forth above. It is recommended that subcontractors also maintain a CPL policy in the amount and with the terms set forth above.

The CGL policy, and the CPL policy if in force, must list the city, EDC and BRS as additional insureds, include completed operations coverage and be primary and non-contributory to any other insurance the additional insureds may have.

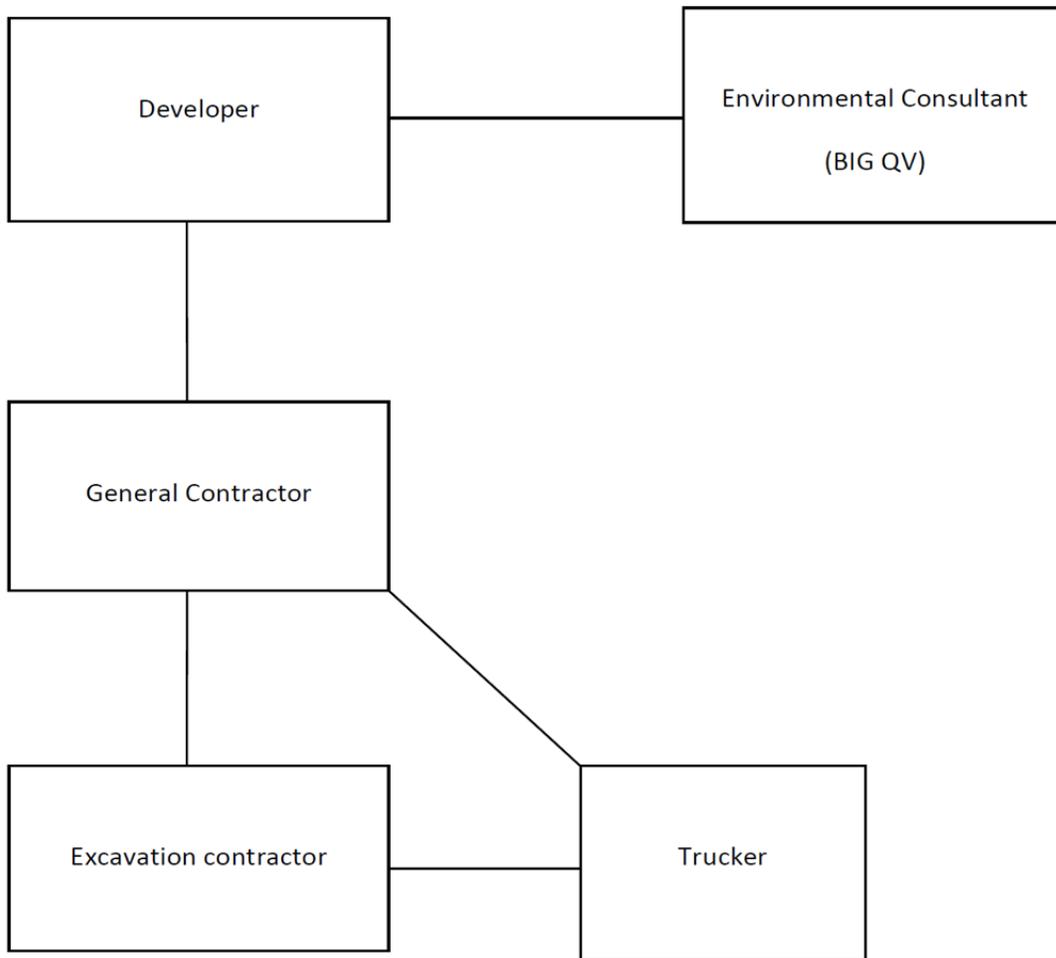
- Its environmental consultant(s) hired to oversee the cleanup must be:
 - a. a BIG Qualified Vendor; and
 - b. maintain Professional Liability (PL) insurance of \$1M per claim and annual aggregate.

If, in the alternative, the developer hires its environmental consultant to perform the cleanup, the environmental consultant must maintain CGL insurance in the amount and with the terms set forth above. It is recommended that the environmental consultant also maintain CPL coverage in the amount and with the terms set forth in the first two bulleted items listed above.

A schematic presenting the contractual relationships described above appears on page 2. Parties who must be named as Additional Insureds on Cleanup Grant insurance policies (CGL and CPL) are presented on page 3.

Example of Contractual Relationships for Cleanup Work

The Office of Environmental Remediation’s Voluntary Cleanup Plan program requires applicants to identify the parties who are engaged in active remediation of their sites including: the General Contractor hired to remediate and/or the excavation contractor hired to excavate soil from the site and the trucking firm(s) that remove soil from the site for disposal at approved facilit(ies).



The chart above shows contractual relationships that typically exist for projects that are enrolled in the Voluntary Cleanup Program.

BIG Program Additional Insureds

The full names and addresses of the additional insureds required under the Required CGL Policy and recommended CPL Policy are as follows:

“City and its officials and employees”

New York City Mayor’s Office of Environmental Remediation
253 Broadway, 14th Floor
New York, NY 10007

“NYC EDC and its officials and employees”

New York City Economic Development Corporation
110 William Street
New York, NY 10038

“BIG Grant Administrator and its officials and employees”

Brownfield Redevelopment Solutions, Inc.
739 Stokes Road, Units A & B
Medford, NJ 08055

Appendix 4
Daily Report Template

Generic Template for Daily Status Report

Instructions

The Daily Status Report submitted to OER should adhere to the following conventions:

- Remove this cover sheet prior to editing.
- Remove all the **red text** and replace with site-specific information.
- Submit the final version as a Word or PDF file.

Daily Status Reports

Daily status reports providing a general summary of activities for each day of *active remedial work* will be emailed to the OER Project Manager by the end of the following day. Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of work performed;
- Quantities of material imported and exported from the Site;
- Status of on-Site soil/fill stockpiles;
- A summary of all citizen complaints, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP excursions, if any;
- Photograph of notable Site conditions and activities.

The frequency of the reporting period may be revised in consultation with OER project manager based on planned project tasks. Daily email reports are not intended to be the primary mode of communication for notification to OER of emergencies (accidents, spills), requests for changes to the RAWP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAWP will be communicated directly to the OER project manager by personal communication. Daily reports will be included as an Appendix in the Remedial Action Report.

DAILY STATUS REPORT

Prepared By: Enter Your Name Here

WEATHER	Snow		Rain		Overcast		Partly Cloudy	X	Bright Sun	
TEMP.	< 32		32-50		50-70	X	70-85		>85	

VCP Project No.:	14CVCP000M	E-Number Project No.:	14EHAN000M	Date:	01/01/2014
Project Name:	Name or Address				

Consultant: Person(s) Name and Company Name	Safety Officer: Person(s) Name and Company Name
General Contractor: Person(s) Name and Company Name	Site Manager/ Supervisor: Person(s) Name and Company Name

Work Activities Performed (Since Last Report):
Provide details about the work activities performed.

Working In Grid #: A1, B1, C1

Samples Collected (Since Last Report):
No samples collected or provide details

Air Monitoring (Since Last Report):
No air monitoring performed or provide details

Problems Encountered:
No problems encountered or provide details

Planned Activities for the Next Day/ Week:
Provide details about the work activities planned for the next day/ week.

									Example:	
Facility # Name/ Location Type of Waste Solid <u>Or</u> Liquid	Facility # Name Location Type of Waste Solid <u>Or</u> Liquid		##### Clean Earth Carteret, NJ petroleum soils Solid							
(Trucks, Cu.Yds. <u>Or</u> Gallons)	Trucks	Cu. Yds. <u>Or</u> Gallons	Trucks	Cu. Yds.						
Today									5	120
Total									25	600

NYC Clean Soil Bank		Receiving Facility: Name/ Address (Approved by OER)			
Tracking No.:	13CCSB000				
Today	Trucks 5	Cu. Yds. 25	Total	Trucks 120	Cu. Yds. 600

Site Grid Map
 Insert the site grid map here

Photo Log

Photo 1 – provide a caption	Insert Photo Here – Photo of the entire site
Photo 2 – provide a caption	Insert Photo Here – Photo of the work activities performed
Photo 3 – provide a caption	Insert Photo Here – Photo of the work activities performed

Appendix 5
Signed/Stamped RAWP Certification Page

CERTIFICATION

I, Reza Sharif, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action in regards to installation of Engineering Controls for the 37-10 Crescent Street Site (NYC OER Project Number 14EHAZ057Q and NYC VCP Project Number 15CVCP057Q).

I, William E. Silveri, am a Qualified Environmental Professional as defined in §43-140. I have primary direct responsibility for implementation of the remedial action for the 37-10 Crescent Street Site (NYC OER Project Number 14EHAZ057Q and NYC VCP Project Number 15CVCP057Q).

I certify that this Remedial Action Work Plan (RAWP) 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 RAWP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

Reza sharif
Name
074803
NYS PE License Number
[Signature]
Signature
1-5-15
Date



William E. Silveri
QEP Name
[Signature]
QEP Signature
1-5-15
Date

37-10 CRESCENT STREET

QUEENS, NEW YORK

Remedial Action Work Plan

NYC VCP Number: 15CVCP057Q

OER E-Designation Project Number: 14EHAZ057Q

Prepared for:

37-10 Crescent Street Owner, LLC

80 8th Avenue, Suite 1010

New York, New York 10011

Prepared by:



45-09 Greenpoint Avenue, Queens, New York, 11104

ekarayel@athenica.com

(718) 784-7490

DECEMBER 2014

REMEDIAL ACTION WORK PLAN

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- Appendix 2: Sustainability Statement
- Appendix 3: Soil/Materials Management Plan
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- Appendix 5: Vapor Barrier Specifications and Compatibility Letter

LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AS/SVE	Air Sparging/Soil Vapor Extraction
BOA	Brownfield Opportunity Area
CAMP	Community Air Monitoring Plan
C/D	Construction/Demolition
COC	Certificate of Completion
CQAP	Construction Quality Assurance Plan
CSOP	Contractors Site Operation Plan
DCR	Declaration of Covenants and Restrictions
ECs/ICs	Engineering and Institutional Controls
HASP	Health and Safety Plan
IRM	Interim Remedial Measure
VCA	Voluntary Cleanup Agreement
MNA	Monitored Natural Attenuation
NOC	Notice of Completion
NYC VCP	New York City Voluntary Cleanup Program
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York State Department of Health and Mental Hygiene
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 DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
ORC	Oxygen-Release Compound
OSHA	United States Occupational Health and Safety Administration
PE	Professional Engineer
PID	Photo Ionization Detector
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RAOs	Remedial Action Objectives
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan or Plan
RCA	Recycled Concrete Aggregate
RD	Remedial Design
RI	Remedial Investigation
RMZ	Residual Management Zone

SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SVOC	Semi-Volatile Organic Compound
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound

CERTIFICATION

I, Reza Sharif, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for the 37-10 Crescent Street Site (NYC OER Project Number 14EHAZ057Q and NYC VCP Project Number 15CVCP057Q).

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Name

NYS PE License Number

Signature

Date

QEP Name

QEP Signature

Date



EXECUTIVE SUMMARY

37-10 Crescent Street Owner, LLC has applied to enroll in the New York City Voluntary Brownfield Cleanup Program (NYC VCP) to investigate and remediate an approximately 18,300-square foot site located at 37-10 Crescent Street in Queens, New York 11101. A remedial investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP). The remedial action described in this document provides for the protection of public health and the environment consistent with the intended property use, complies with applicable environmental standards, criteria and guidance and conforms to applicable laws and regulations.

Site Location and Current Usage

The Site is located at 37-10 Crescent Street in the Long Island City section of Queens, New York and is identified as Block 367 and Lot 27 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 18,300-square feet and is bounded by a 6-story building currently under construction and a warehouse occupied by a commercial supply company to the north, an open parking lot to the south, a 2-story and a 7-story commercial buildings to the east, and a machine shop and commercial facility to the west. A map of the site boundary is shown in Figure 2. Currently, the Site is used for parking and offices for a limousine company and contains a single story warehouse occupying the entire site footprint. The existing on-Site building does not have a basement.

Summary of Proposed Redevelopment Plan

The proposed future use of the Site will consist of a 7-story residential and manufacturing mixed use building with a full basement. The first floor will consist of manufacturing space. Floors 2 through 6 will consist of residential apartments with a community space on the 7th floor. The proposed basement will be utilized as a parking garage, mechanical room and boiler room. The foundations of the building are to be determined upon the completion of geotechnical investigation. The new building footprint will cover the entire Site. For the construction of the new basement, the proposed development of the Site will require excavation to a depth of approximately 10-11 feet below grade surface (bgs). Therefore, an estimated 7,350 cubic yards (11,000 tons) of soil will be removed for excavation of the new building's basement. Layout of

the proposed site development is presented in Figure 3. The current zoning designation is M1-2/R6A denoting it as mixed use manufacturing and residential. The proposed use is consistent with existing zoning for the property.

Summary of Environmental Findings

1. Elevation of the property ranges from 35 to 37 feet.
2. Depth to groundwater ranges from 28.71 to 29.61 feet bgs at the Site.
3. Groundwater flow is generally west to southwest beneath the Site.
4. Bedrock was not encountered during this investigation.
5. The stratigraphy of the site, from the surface, consists of approximately 2 to 4 feet of historic fill underlain by 8 to 10 feet of fine to coarse sand with pebbles.
6. Soil/fill samples results were compared to NYSDEC Unrestricted Use Soil Cleanup Objectives and Restricted Residential Soil Cleanup Objectives as presented in 6NYCRR Part 375-6.8 and CP51. Soil/fill samples collected during the RI showed trace concentrations of several VOCs with acetone (max of 0.18 mg/kg) exceeding Unrestricted Use SCOs. Trace concentrations of tetrachloroethylene (maximum of 0.013 mg/Kg) was detected in five samples. Several SVOCs consisting of Polycyclic Aromatic Hydrocarbons (PAHs) were detected with benz(a)anthracene (max of 1.48 mg/kg) and chrysene (max of 2.18 mg/kg) exceeding Unrestricted Use SCOs in one shallow sample. One pesticide, 4,4'-DDT (max of 0.00768 mg/kg) exceeded Unrestricted Use SCOs in two samples. Total PCBs exceeded Unrestricted Use SCOs at a concentration of 0.171 mg/kg in one soil sample. Several metals including barium (max of 447 mg/kg), copper (max of 76.3 mg/kg), lead (max of 1460 mg/kg), and zinc (max of 1460 mg/kg) exceeded Unrestricted Use SCOs. Of these metals, barium and lead also exceeded Restricted Residential Use in one deep sample. Overall, the findings were consistent with observations for historic fill sites in areas throughout NYC.
7. Groundwater samples results were compared to New York State 6NYCRR Part 703.5 Class GA groundwater quality standards (GQS). Groundwater samples collected during the investigations showed no PCBs or pesticides in any sample. Trace concentrations of

both VOCs and SVOCs were detected, but none exceeded their GQS. PCE (max of 4.4 µg/L) and TCE (max of 0.43 µg/L) were detected in groundwater below their respective GQS. Several metals were identified in groundwater but only antimony (max of 5 µg/L), magnesium (max of 36,600 µg/L), manganese (max of 3,080 µg/L), and sodium (max of 146,000 µg/L) exceeded their respective GQS.

8. Soil vapor results collected during the RI were compared to the compounds listed in Table 3.1 Air Guideline Values Derived by the NYSDOH located in the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion dated October 2006. Soil vapor samples collected during the RI showed high levels of petroleum-related and chlorinated VOCs. Total concentrations of petroleum-related VOCs (BTEX) ranged from 106.5 µg/m³ to 126.9 µg/m³. Chlorinated VOCs tetrachloroethylene (PCE) was detected in all soil vapor samples ranging from 85 to 370 µg/m³, trichloroethylene (TCE) was detected in four samples at a maximum concentration of 27 µg/m³, and 1,1,1-trichloroethane (TCA) was detected in two soil vapor samples at a maximum concentration of 27 µg/m³. Carbon tetrachloride was not detected in any sample. Concentrations for PCE and TCE were above the monitoring level ranges established within the State DOH soil vapor guidance matrix.

Summary of the Remedy

The proposed remedial action achieves protection of public health and the environment for the intended use of the property. The proposed remedial action achieves all of the remedial action objectives established for the project and addresses applicable standards, criterion, and guidance; is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants; is cost effective and implementable; and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and performance of all required NYC VCP Citizen Participation activities according to an approved Citizen Participation Plan.

2. Performance of a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Selection of NYSDEC 6NYCRR Part 375 Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs).
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
5. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency specified by disposal facility. A Waste Characterization Report documenting sample procedures, location, analytical results and disposal facility(s) approval letters will be submitted to NYCOER prior to the start of the remedial action.
6. Excavation and removal of soil/fill exceeding Unrestricted Use (Track 1) SCOs. The entire footprint of the Site will be excavated to a depth of approximated 10-11 feet below grade for construction of the new building's basement level. Approximately 7,350 cubic yards (11,000 tons) of soil will be excavated and removed from this Site. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media on-Site.
7. Management of excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials.
8. Removal of underground storage tanks if encountered and closure of petroleum spills (if evidence of a spill/leak is encountered during Site excavation) in compliance with applicable local, State and Federal laws and regulations.
9. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media on-Site.
10. Collection and analysis of six end-point samples to determine the performance of the remedy with respect to attainment of Track 1 SCOs.

11. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
12. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
13. Submission of a Remedial Action Report (RAR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, lists any changes from this RAWP.

If Track 1 Unrestricted Use SCOs are not achieved, the following construction elements implemented as part of new development will constitute Engineering Controls:

14. As part of new development, a 60-mil vapor barrier consisting of Geo-Seal® Triple-Layer System (2 chemical resistant layers and 1 spray applied core layer) will be installed beneath the building slab and behind the foundation walls.
15. As part of new development, construction and maintenance of an engineered composite cover consisting of a 5” concrete building slab to prevent human exposure to residual soil/fill remaining under the Site.
16. As part of new development, construction and operation of a ventilated parking garage as per NYC Building Department’s codes and requirements.
17. If Track 1 SCOs are not achieved, submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency.
18. If Track 1 SCOs are not achieved, the property will continue to be registered with an E-Designation by the NYC Buildings Department. Establishment of Engineering Controls and Institutional Controls in this RAWP and a requirement that management of these controls must be in compliance with an approved SMP. Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of

residual contaminated material unless it is conducted in accordance with the SMP; and
(4) higher level of land usage without OER-approval.

COMMUNITY PROTECTION STATEMENT

The Office of Environmental Remediation created the New York City Voluntary Cleanup Program (NYC VCP) to provide governmental oversight for the cleanup of contaminated property in NYC. This Remedial Action Work Plan (“cleanup plan”) describes the findings of prior environmental studies that show the location of contamination at the site, and describes the plans to clean up the site to protect public health and the environment.

This cleanup plan provides a very high level of protection for neighboring communities and also includes many other elements that address common community concerns, such as community air monitoring, odor, dust and noise controls, hours of operation, good housekeeping and cleanliness, truck management and routing, and opportunities for community participation. The purpose of this Community Protection Statement is to explain these community protection measures in non-technical language to simplify community review.

Remedial Investigation and Cleanup Plan. Under the NYC VCP, a thorough cleanup study of this property (called a remedial investigation) has been performed to identify past property usage, to sample and test soils, groundwater and soil vapor, and identify contaminant sources present on the property. The cleanup plan has been designed to address all contaminant sources that have been identified during the study of this property.

Identification of Sensitive Land Uses. Prior to selecting a cleanup, the neighborhood was evaluated to identify sensitive land uses nearby, such as schools, day care facilities, hospitals and residential areas. The cleanup program was then tailored to address the special conditions of this community.

Qualitative Human Health Exposure Assessment. An important part of the cleanup planning for the Site is the performance of a study to find all of the ways that people might come in contact with contaminants at the Site now or in the future. This study is called a Qualitative Human Health Exposure Assessment (QHHEA). A QHHEA was performed for this project. This assessment has considered all known contamination at the Site and evaluated the potential for people to come in contact with this contamination. All identified public exposures will be addressed under this cleanup plan.

Construction Health and Safety Plan. This cleanup plan includes a Construction Health and Safety Plan (CHASP) that is designed to protect community residents and on-Site workers. The elements of this plan are in compliance with safety requirements of the United States Occupational Safety and Health Administration (OSHA). This plan includes many protective elements including those discussed below.

Site Safety Coordinator. This project has a designated Site safety coordinator to implement the Health and Safety Plan. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator's name and number will be reported to OER prior to construction when determined.

Worker Training. Workers participating in cleanup of contaminated material on this project are required to be trained in a 40-hour hazardous waste operators training course and to take annual refresher training. This pertains to workers performing specific tasks including removing contaminated material and installing cleanup systems in contaminated areas.

Community Air Monitoring Plan. Community air monitoring will be performed during this cleanup project to ensure that the community is properly protected from contaminants, dust and odors. Air samples will be tested in accordance with a detailed plan called the Community Air Monitoring Plan or CAMP. Results will be regularly reported to the NYC Office of Environmental Remediation. This cleanup plan also has a plan to address any unforeseen problems that might occur during the cleanup (called a 'Contingency Plan').

Odor, Dust and Noise Control. This cleanup plan includes actions for odor and dust control. These actions are designed to prevent off-Site odor and dust nuisances and includes steps to be taken if nuisances are detected. Generally, dust is managed by application of physical covers and by water sprays. Odors are controlled by limiting the area of open excavations, physical covers, spray foams and by a series of other actions (called operational measures). The project is also required to comply with NYC noise control standards. If you observe problems in these areas, please contact the on-Site Project Manager (will be reported to OER prior to construction when determined) or NYC Office of Environmental Remediation Project Manager Sarah Pong at (212) 442-8342.

Quality Assurance. This cleanup plan requires that evidence be provided to illustrate that all cleanup work required under the plan has been completed properly. This evidence will be summarized in the final report, called the Remedial Action Report. This report will be submitted to the NYC Office of Environmental Remediation and will be thoroughly reviewed.

Storm-Water Management. To limit the potential for soil erosion and discharge, this cleanup plan has provisions for storm-water management. The main elements of the storm water management include physical barriers such as tarp covers and erosion fencing, and a program for frequent inspection.

Hours of Operation. The hours for operation of cleanup will comply with the NYC Department of Buildings construction code requirements or according to specific variances issued by that agency. For this cleanup project, the hours of operation of remedial construction will be from 7:00 am to 5:00 pm. These hours conform to the New York City Department of Buildings construction code requirements.

Signage. While the cleanup is in progress, a placard will be prominently posted at the main entrance of the property with a laminated project Fact Sheet that states that the project is in the NYC Voluntary Cleanup Program, provides project contact names and numbers, and locations of project documents can be viewed.

Complaint Management. The contractor performing this cleanup is required to address all complaints. If you have any complaints, you can call the facility Project Manager (will be reported to OER prior to construction when determined), the NYC Office of Environmental Remediation Project Manager Sarah Pong at (212) 442-8342, or call 311 and mention the Site is in the NYC Voluntary Cleanup Program.

Utility Mark-outs. To promote safety during excavation in this cleanup, the contractor is required to first identify all utilities and must perform all excavation and construction work in compliance with NYC Department of Buildings regulations.

Soil and Liquid Disposal. All soil and liquid material removed from the Site as part of the cleanup will be transported and disposed of in accordance with all applicable City, State and Federal regulations and required permits will be obtained.

Soil Chemical Testing and Screening. All excavations will be supervised by a trained and properly qualified environmental professional. In addition to extensive sampling and chemical testing of soils on the Site, excavated soil will be screened continuously using hand-held instruments, by sight, and by smell to ensure proper material handling and management, and community protection.

Stockpile Management. Soil stockpiles will be kept covered with tarps to prevent dust, odors and erosion. Stockpiles will be frequently inspected. Damaged tarp covers will be promptly replaced. Stockpiles will be protected with silt fences. Hay bales will be used, as needed to protect storm water catch basins and other discharge points.

Trucks and Covers. Loaded trucks leaving the Site will be covered in compliance with applicable laws and regulations to prevent dust and odor. Trucks will be properly recorded in logs and records and placarded in compliance with applicable City, State and Federal laws, including those of the New York State Department of Transportation. If loads contain wet material that can leak, truck liners will be used. All transport of materials will be performed by licensed truckers and in compliance with all laws and regulations.

Imported Material. All fill materials proposed to be brought onto the Site will comply with rules outlined in this cleanup plan and will be inspected and approved by a qualified worker located on-Site. Waste materials will not be brought onto the Site. Trucks entering the Site with imported clean materials will be covered in compliance with applicable laws and regulations.

Equipment Decontamination. All equipment used for cleanup work will be inspected and washed, if needed, before it leaves the Site. Trucks will be cleaned at a truck inspection station on the property before leaving the Site.

Housekeeping. Locations where trucks enter or leave the Site will be inspected every day and cleaned regularly to ensure that they are free of dirt and other materials from the Site.

Truck Routing. Truck routes have been selected to: (a) limit transport through residential areas and past sensitive nearby properties; (b) maximize use of city-mapped truck routes; (c) limit total distance to major highways; (d) promote safety in entry to highways; (e) promote overall safety in trucking; and (f) minimize off-Site line-ups (queuing) of trucks entering the

property. Operators of loaded trucks leaving the Site will be instructed not to stop or idle in the local neighborhood.

Final Report. The results of all cleanup work will be fully documented in a final report (called a Remedial Action Report) that will be available for you to review online at the public document repository located at Queens Library – Long Island City Branch.

Long-Term Site Management. If long-term protection is needed after the cleanup is complete, the property owner will be required to comply with an ongoing Site Management Plan that calls for continued inspection of protective controls, such as Site covers. The Site Management Plan is evaluated and approved by the NYC Office of Environmental Remediation. Requirements that the property owner must comply with are established through a city environmental designation. A certification of continued protectiveness of the cleanup will be required from time to time to show that the approved cleanup is still effective.

REMEDIAL ACTION WORK PLAN

1.0 SITE BACKGROUND

37-10 Crescent Street Owner, LLC has applied to enroll in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 37-10 Crescent Street in the Long Island City section of Queens, New York (the “Site”). A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP) in a manner that will render the Site protective of public health and the environment consistent with the contemplated end use. This RAWP establishes remedial action objectives, provides a remedial alternatives analysis that includes consideration of a permanent cleanup, and provides a description of the selected remedial action. The remedial action described in this document provides for the protection of public health and the environment, complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

1.1 Site Location and Current Usage

The Site is located at 37-10 Crescent Street in the Long Island City section of Queens, New York and is identified as Block 367 and Lot 27 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 18,300-square feet and is bounded by a 6-story building currently under construction and a warehouse occupied by a commercial supply company to the north, an open parking lot to the south, a 2-story and a 7-story commercial buildings to the east, and a machine shop and commercial facility to the west. A map of the site boundary is shown in Figure 2. Currently, the Site is used for parking and offices for a limousine company and contains a single story warehouse occupying the entire site footprint. The existing on-Site building does not have a basement.

1.2 Proposed Redevelopment Plan

The proposed future use of the Site will consist of a 7-story residential and manufacturing mixed use building with a full basement. The first floor will consist of manufacturing space. Floors 2 through 6 will consist of residential apartments with a community space on the 7th floor. The proposed basement will be utilized as a parking garage, mechanical room and boiler room. The foundations of the building are to be determined upon the completion of geotechnical

investigation. The new building footprint will cover the entire Site. For the construction of the new basement, the proposed development of the Site will require excavation to a depth of approximately 10-11 feet below grade surface (bgs). Therefore, an estimated 7,350 cubic yards (11,000 tons) of soil will be removed for excavation of the new building's basement. Layout of the proposed site development is presented in Figure 3. The current zoning designation is M1-2/R6A denoting it as mixed use manufacturing and residential. The proposed use is consistent with existing zoning for the property.

The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

1.3 Description of Surrounding Property

The Site is located within a primarily mixed use residential, commercial, and manufacturing area of Queens, New York. The Site is bounded by a 6-story building currently under construction and a warehouse occupied by a commercial supply company to the north, an open parking lot to the south, a 2-story and a 7-story commercial building to the east, and a machine shop and commercial facility to the west.

P.S 112 Dutch Kills is located approximately 180 feet to the northeast of the Site at 25-05 37th Ave, Long Island City, NY 11101. I.S. 204 Oliver W Holmes is located approximately 500 feet to the east of the Site at 36-41 28th Street, Long Island City, NY 11106. There are no hospitals or day care facilities within 500 feet of the Site. Figure 2 shows the surrounding land usage.

1.4 Remedial Investigation

A remedial investigation was performed and the results are documented in a companion document called "Remedial Investigation Report, 37-10 Crescent Street Queens, New York", dated December 2014 (RIR).

Summary of Past Uses of Site and Areas of Concern

Based upon the review of the Phase I Environmental Site Assessment (ESA) Report prepared by Athenica in April 2014, a Site history was established. The Site consists of an 18,300 square-foot lot that is developed with a 1-story warehouse fronting Crescent Street. The Site was listed as a bowling alley in the current structure from its build date, circa 1958 until approximately

1970. From 1970 until at least 2006 the Site was designated as a manufacturing facility occupied by Continental Gourmet Company and Holfia Company Inc. until 1991. In 1991, the Site was listed as occupied by L&H Vitamins Inc. and in 2005 by Commonwealth Worldwide. The current occupants, a limousine company, are listed at the Site since 2013.

The AOCs identified for this site include:

1. Past industrial use of adjacent properties to the west as a truck manufacturing facility and to the east as a rug cleaner facility.
2. Presence of urban fill from grade to approximately 2 to 4 feet bgs throughout the Site.

Summary of the Work Performed under the Remedial Investigation

The scope of work implemented in August of 2014 by Athenica included:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Performed a GPR survey;
3. Installed eight (8) soil borings across the entire project Site, and collected seventeen (17) soil samples for chemical analysis from the soil borings to evaluate soil quality;
4. Installed three (3) groundwater monitoring wells throughout the Site to establish groundwater flow and collected three (3) groundwater samples for chemical analysis to evaluate groundwater quality; and
5. Installed five (5) soil vapor probes across the entire project Site and collected five (5) samples for chemical analysis.

Summary of Environmental Findings

1. Elevation of the property ranges from 35 to 37 feet.
2. Depth to groundwater ranges from 28.71 to 29.61 feet bgs at the Site.
3. Groundwater flow is generally west to southwest beneath the Site.
4. Bedrock was not encountered during this investigation.
5. The stratigraphy of the site, from the surface, consists of approximately 2 to 4 feet of historic fill underlain by 8 to 10 feet of fine to coarse sand with pebbles.

6. Soil/fill samples results were compared to NYSDEC Unrestricted Use Soil Cleanup Objectives and Restricted Residential Soil Cleanup Objectives as presented in 6NYCRR Part 375-6.8 and CP51. Soil/fill samples collected during the RI showed trace concentrations of several VOCs with acetone (max of 0.18 mg/kg) exceeding Unrestricted Use SCOs. Trace concentrations of tetrachloroethylene (maximum of 0.013 mg/Kg) was detected in five samples. Several SVOCs consisting of polycyclic aromatic hydrocarbons (PAHs) were detected with benz(a)anthracene (max of 1.48 mg/kg) and chrysene (max of 2.18 mg/kg) exceeding Unrestricted Use SCOs in one shallow sample. One pesticide, 4,4'-DDT (max of 0.00768 mg/kg) exceeded Unrestricted Use SCOs in two samples. Total PCBs exceeded Unrestricted Use SCOs at a concentration of 0.171 mg/kg in one soil sample. Several metals including barium (max of 447 mg/kg), copper (max of 76.3 mg/kg), lead (max of 1460 mg/kg), and zinc (max of 1460 mg/kg) exceeded Unrestricted Use SCOs. Of these metals, barium and lead also exceeded Restricted Residential Use in one deep sample. Overall, the findings were consistent with observations for historic fill sites in areas throughout NYC.
7. Groundwater samples results were compared to New York State 6NYCRR Part 703.5 Class GA groundwater quality standards (GQS). Groundwater samples collected during the investigations showed no PCBs or pesticides in any sample. Trace concentrations of both VOCs and SVOCs were detected, but none exceeded their GQS. PCE (max of 4.4 µg/L) and TCE (max of 0.43 µg/L) were detected in groundwater below their respective GQS. Several metals were identified in groundwater but only antimony (max of 5 µg/L), magnesium (max of 36,600 µg/L), manganese (max of 3,080 µg/L), and sodium (max of 146,000 µg/L) exceeded their respective GQS.
8. Soil vapor results collected during the RI were compared to the compounds listed in Table 3.1 Air Guideline Values Derived by the NYSDOH located in the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion dated October 2006. Soil vapor samples collected during the RI showed high levels of petroleum-related and chlorinated VOCs. Total concentrations of petroleum-related VOCs (BTEX) ranged from 106.5 µg/m³ to 126.9 µg/m³. Chlorinated VOCs tetrachloroethylene (PCE) was detected in all soil vapor samples ranging from 85 to 370

$\mu\text{g}/\text{m}^3$, trichloroethylene (TCE) was detected in four samples at a maximum concentration of $27 \mu\text{g}/\text{m}^3$, and 1,1,1-trichloroethane (TCA) was detected in two soil vapor samples at a maximum concentration of $27 \mu\text{g}/\text{m}^3$. Carbon tetrachloride was not detected in any sample. Concentrations for PCE and TCE were above the monitoring level ranges established within the State DOH soil vapor guidance matrix.

For more detailed results, consult the RIR. Based on an evaluation of the data and information from the RIR and this RAWP, disposal of significant amounts of hazardous waste is not suspected at this site.

2.0 REMEDIAL ACTION OBJECTIVES

Based on the results of the RI, the following Remedial Action Objectives (RAOs) have been identified for this Site:

Groundwater

- Prevent direct exposure to contaminated groundwater.

Soil

- Prevent direct contact with contaminated soil.
- Prevent exposure to contaminants volatilizing from contaminated soil.

Soil Vapor

- Prevent exposure to contaminants in soil vapor.
- Prevent migration of soil vapor into dwelling and other occupied structures.

3.0 REMEDIAL ALTERNATIVES ANALYSIS

The goal of the remedy selection process below is to select a remedy that is protective of human health and the environment taking into consideration the current, intended and reasonably anticipated future use of the property. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found in exceedance of applicable standards, criteria and guidance values (SCGs). A remedy is then developed based on the following ten criteria:

- Protection of human health and the environment;
- Compliance with SCGs;
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Implementability;
- Cost effectiveness;
- Community Acceptance;
- Land use; and
- Sustainability

The following is a detailed description of the alternatives analysis and remedy selection to address impacted media at the Site. As required, a minimum of two remedial alternatives are evaluated, as follows:

Alternative 1 is a Track 1 alternative that involves selection of Unrestricted Use (Track 1) soil cleanup objectives (SCOs) and complete removal of all soil/fill material that exceeds the Unrestricted Use (Track 1) SCOs. Alternative 2 is a Track 4 alternative that involves establishment of Site-Specific (Track 4) SCOs and removal of the soil/fill material that exceed Track 4 SCOs. These Alternatives are:

Alternative 1 involves:

- Selection of NYSDEC 6NYCRR Part 375-6.8 Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs);

- Removal of all soil/fill exceeding Track 1 Unrestricted Use SCOs throughout the Site and confirmation that Track 1 Unrestricted Use SCOs have been achieved with post-excavation endpoint sampling. If soil/fill containing analytes at concentrations above Unrestricted Use SCOs is still present at the base of the excavation after removal of all soil required for construction of the new building's cellar level is complete, additional excavation will be performed to ensure complete removal of soil that does not meet Track 1 Unrestricted Use SCOs; and
- No Engineering or Institutional Controls are required for a Track 1 cleanup, but a composite cover consisting of concrete slab, a vapor barrier, and ventilated garage will be installed beneath the new building as a part of development to prevent potential exposures from off-Site soil vapor.

Alternative 2 involves:

- Establishment of Site-Specific (Track 4) SCOs;
- Removal of all soil/fill exceeding Track 4 Site-Specific SCOs and confirmation that Track 4 Site-Specific SCOs have been achieved with post-excavation endpoint sampling. Historic fill at this Site extends to depths of four feet below grade. Excavation for the construction of the new building's cellar level would take place to a depth of approximately 10-11 feet bgs across the entire Site footprint. If soil/fill containing analytes at concentrations above Track 4 Site-Specific SCOs is still present at the base of the excavation after removal of all soil required for construction of the new building is complete, additional excavation will be performed to meet Track 4 Site-Specific SCOs;
- Installation of a soil vapor barrier beneath the new building slab and along foundation sidewalls to prevent potential exposures from soil vapor;
- Placement of a final cover over the entire building footprint to prevent exposure to remaining soil/fill;
- Establishment of use restrictions including prohibitions on the use of groundwater from the Site; and prohibitions on other sensitive site uses, such as farming or vegetable gardening, to prevent future exposure pathways; and prohibition of a higher level of land use without OER approval;

- Establishment of an approved Site Management Plan (SMP) to ensure long-term management of these Engineering and Institutional Controls including the performance of periodic inspections and certification that the controls are performing as they were intended. The SMP will note that the property owner and property owner's successors and assigns must comply with the approved SMP; and
- Continued registration as an E-designated property to memorialize the remedial action and the Engineering and Institutional Controls required by this RAWP.

3.1 Threshold Criteria

Protection of Public Health and the Environment

This criterion is an evaluation of the remedy's ability to protect public health and the environment, and an assessment of how risks posed through each existing or potential pathway of exposure are eliminated, reduced or controlled through removal, treatment, and implementation of Engineering Controls or Institutional Controls. Protection of public health and the environment must be achieved for all approved remedial actions.

Alternative 1 would be protective of human health and environment by removing contaminated soil/fill exceeding Track 1 Unrestricted Use SCOs and groundwater protection standards, thus eliminating potential for direct contact with contaminated soil/fill once construction is complete and eliminating the risk of contamination leaching into groundwater. Also, the installation of a vapor barrier system and composite cover as part of new construction would provide protection of public health and environment based on on-Site contamination.

Alternative 2 would achieve comparable protection of human health and the environment by excavating and removing historic fill at the Site and by ensuring that remaining soil/fill on-Site meets Track 4 Site-Specific SCOs, as well as by placement of Institutional and Engineering controls, including a composite cover system and a vapor barrier system. The composite cover system would prevent direct contact with any remaining on-Site soil/fill. Vapor barrier and ventilated sub garage will prevent vapor intrusion. Implementing Institutional Controls including a Site Management Plan and continued "E" designation of property would ensure that the composite cover system remains intact and protective. Establishment of Track 4 Site-Specific SCOs would minimize the risk of contamination leaching into groundwater.

For both Alternatives, potential exposure to contaminated soils or groundwater during construction would be minimized by implementing a Construction Health and Safety Plan (CHASP), an approved Soil/Materials Management Plan and Community Air Monitoring Plan (CAMP). Potential contact with contaminated groundwater would be prevented as its use is prohibited by city laws and regulations. Potential future migration of off-Site soil vapors into the new building would be prevented by operation of ventilated garage and by installing a vapor barrier below the new building's basement slab and along the foundation walls.

3.2 Balancing Criteria

Compliance with Standards, Criteria and Guidance (SCGs)

This evaluation criterion assesses the ability of the alternative to achieve applicable standards, criteria and guidance.

Alternative 1 would achieve compliance with the remedial goals, chemical-specific SCGs and RAOs for soil through removal of soil to achieve Track 1 Unrestricted Use SCOs and Groundwater Protection Standards. Compliance with SCGs for soil vapor would also be achieved by installing a vapor barrier system beneath the new building's basement slab and extending the vapor barrier vertically behind the foundation walls, as part of development. In addition, the cellar of the new building will contain a ventilated garage per City Department of Buildings codes.

Alternative 2 would achieve compliance with the remedial goals, chemical-specific SCGs and RAOs for soil through the removal of soil to meet Track 4 Site-Specific SCOs. Compliance with SCGs for soil vapor would also be achieved by installing a vapor barrier beneath the new building's basement slab and extending the vapor barrier vertically behind the foundation walls. A Site Management Plan would ensure that these controls remained protective for the long term. In addition, the cellar of the new building will contain a ventilated garage per City Department of Buildings codes.

Health and safety measures contained in the CHASP and Community Air Monitoring Plan (CAMP) that comply with the applicable SCGs shall be implemented during Site redevelopment under this RAWP. For both Alternatives, focused attention on means and methods employed during the remedial action would ensure that handling and management of contaminated material

would be in compliance with applicable SCGs. These measures will protect on-site workers and the surrounding community from exposure to Site-related contaminants.

Short-term Effectiveness and Impacts

This evaluation criterion assesses the effects of the alternative during the construction and implementation phase until remedial action objectives are met. Under this criterion, alternatives are evaluated with respect to their effects on public health and the environment during implementation of the remedial action, including protection of the community, environmental impacts, time until remedial response objectives are achieved, and protection of workers during remedial actions.

Both Alternative 1 and 2 have similar short-term effectiveness during their respective implementations, as each requires excavation of historic fill material. Both alternatives would result in short-term dust generation impacts associated with excavation, handling, load out of materials, and truck traffic. Short term impacts could potentially be higher for Alternative 1 if excavation of greater amounts of historical fill material is encountered below the excavation depth of the proposed building. However, focused attention to means and methods during the remedial action work during a Track 1 removal action, including community air monitoring and appropriate truck routing, would minimize or negate the overall impact of these activities.

An additional short-term adverse impact and risks to the community associated with both remedial alternatives is increased truck traffic. Approximately 440, 25-ton capacity truck trips would be necessary to transport fill and soil excavated during Site development. Truck traffic will be routed on the most direct course using major thoroughfares where possible and flaggers will be used to protect pedestrians at Site entrances and exits.

The effects of these potential adverse impacts to the community, workers and the environment would be minimized through implementation of corresponding control plans including a Construction Health and Safety Plan (CHASP), Community Air Monitoring Plan (CAMP) and a Soil/Materials Management Plan (SMMP), during all on-Site soil disturbance activities and would minimize the release of significant contaminants into the environment. Both alternatives provide short term effectiveness in protecting the surrounding community by decreasing the risk of contact with on-Site contaminants. Construction workers operating under

appropriate management procedures and a CHASP would be protected from on-Site contaminants (personal protective equipment would be worn consistent with the documented risks within the respective work zones).

Long-term Effectiveness and Permanence

This evaluation criterion addresses the results of a remedial action in terms of its permanence and quantity/nature of waste or residual contamination remaining at the Site after response objectives have been met, such as permanence of the remedial alternative, magnitude of remaining contamination, adequacy of controls including the adequacy and suitability of Engineering Controls/Institutional Controls (ECs/ICs) that may be used to manage contaminant residuals that remain at the Site and assessment of containment systems and ICs that are designed to eliminate exposures to contaminants, and long-term reliability of ECs.

Alternative 1 would achieve long-term effectiveness and permanence related to on-Site contamination by permanently removing all impacted soil/fill above Track 1 Unrestricted Use SCOs and with the installation of a vapor barrier and composite cover, as part of new construction.

Alternative 2 would provide long-term effectiveness by removing most on-Site contamination and attaining Track 4 Site-Specific SCOs, placing a vapor barrier and composite cover across the Site, establishing use restrictions, establishing a Site Management Plan (SMP) to ensure long-term management of ECs/ICs, and maintaining continued registration as an E-designated property to memorialize these controls for the long term. Groundwater use restrictions will eliminate potential exposure to groundwater and establishment of an SMP will ensure that this protection remains effective for the long-term. The SMP would ensure long-term effectiveness of all ECs and ICs by requiring periodic inspection and certification that these controls and use restrictions continue to be in place and functioning as they were intended assuring that protections designed into the remedy will provide continued high level of protection in perpetuity.

Both Alternatives would result in removal of soil contamination exceeding their respective SCOs, providing the highest level, most effective and permanent remedy over the long-term with respect to a remedy for contaminated soil, which will eliminate any migration to groundwater.

Potential sources of soil vapor and groundwater contamination will also be eliminated as part of the remedy.

Reduction of Toxicity, Mobility, or Volume of Contaminated Material

This evaluation criterion assesses the remedial alternative's use of remedial technologies that permanently and significantly reduce toxicity, mobility, or volume of contaminants as their principal element. The following is the hierarchy of source removal and control measures that are to be used to remediate a Site, ranked from most preferable to least preferable: removal and/or treatment, containment, elimination of exposure and treatment of source at the point of exposure. It is preferred to use treatment or removal to eliminate contaminants at a Site, reduce the total mass of toxic contaminants, cause irreversible reduction in contaminants mobility, or reduce of total volume of contaminated media.

Alternative 1 would permanently eliminate the toxicity, mobility, and volume of contaminants from on-Site soil by removing all soil in excess of Track 1 Unrestricted Use SCOs.

Alternative 2 would remove most of the historic fill at the Site, and any remaining on-Site soil beneath the new building would meet Track 4 Site-Specific SCOs.

Alternative 1 would eliminate a greater total mass of contaminants on Site. The removal of soil to a depth of approximately 10-11 feet below grade for the new development in both scenarios would probably result in relatively minor differences between these two alternatives.

Implementability

This evaluation criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation, including technical feasibility of construction and operation, reliability of the selected technology, ease of undertaking remedial action, monitoring considerations, administrative feasibility (e.g. obtaining permits for remedial activities), and availability of services and materials.

The techniques, materials and equipment to implement both remedial Alternatives 1 and 2 are readily available and have been proven effective in remediating the contaminants associated with the Site. They use standard materials, services, and well-established technology. The

reliability of these remedies is also high. There are no specific difficulties associated with any of the activities proposed.

Cost Effectiveness

This evaluation criterion addresses the cost of alternatives, including capital costs (such as construction costs, equipment costs, and disposal costs, engineering expenses) and site management costs (costs incurred after remedial construction is complete) necessary to ensure the continued effectiveness of a remedial action.

Since historic fill at the Site was found during the RI to only extend to a depth of up to 2 to 4 feet below grade surface, and the new building requires excavation of the entire Site to a depth of 10-11 feet, the costs associated with both Alternative 1 and Alternative 2 will likely be comparable. Costs associated with Alternative 1 could potentially be higher than Alternative 2 if soil with analytes above Track 1 Unrestricted Use SCOs is encountered below the excavation depth required for development. Costs associated with the Track 1 cleanup are higher than the Track 4 alternative due to a higher volume of soil/fill to be excavated for off-Site disposal to achieve a Track 1 status over the entire site. However, long-term costs for site management are eliminated for Alternative 1 and may be required for Alternative 2. In both cases, appropriate public health and environmental protections are achieved.

The remedial plan creates an approach that combines the remedial action with the redevelopment of the Site, including the construction of the building foundation and subgrade structures. The remedial plan is also cost effective in that it will take into consideration the selection of the closest and most appropriate disposal facilities to reduce transportation and disposal costs during the excavation of historic fill and other soils during the redevelopment of the Site.

Community Acceptance

This evaluation criterion addresses community opinion and support for the remedial action. Observations here will be supplemented by public comment received on the RAWP.

Based on the overall goals of the remedial program and initial observations by the project team, both of the alternatives are expected to be acceptable to the community. This RAWP will

be undergo public review under the NYC VCP and will provide the opportunity for detailed public input on the remedial alternatives and the selected remedial action. This public comment related to site remediation will be considered by OER prior to approval of this plan. The Citizen Participation Plan for the project is provided in Appendix 1. Observations here will be supplemented by public comment received on the RAWP.

Land Use

This evaluation criterion addresses the proposed use of the property. This evaluation has considered reasonably anticipated future uses of the Site and takes into account: current use and historical and/or recent development patterns; applicable zoning laws and maps; NYS Department of State's Brownfield Opportunity Areas (BOA) pursuant to section 970-r of the general municipal law; applicable land use plans; proximity to real property currently used for residential use, and to commercial, industrial, agricultural, and/or recreational areas; environmental justice impacts, Federal or State land use designations; population growth patterns and projections; accessibility to existing infrastructure; proximity of the site to important cultural resources and natural resources, potential vulnerability of groundwater to contamination that might emanate from the site, proximity to flood plains, geography and geology; and current Institutional Controls applicable to the site.

Both Alternatives for remedial action at the site are comparable with respect to the proposed use and to land uses in the vicinity of the Site. The proposed use is consistent with the existing zoning designation for the property and is consistent with recent development patterns. The Site is surrounded by commercial and residential properties and both alternatives provide comprehensive protection of public health and the environment for these uses. Improvements in the current brownfield condition of the property achieved by both alternatives are also consistent with the City's goals for cleanup of contaminated land and bringing such properties into productive reuse. Both alternatives are equally protective of natural resources and cultural resources.

Sustainability of the Remedial Action

This criterion evaluates the overall sustainability of the remedial action alternatives and the degree to which sustainable means are employed to implement the remedial action including

those that take into consideration NYC's sustainability goals defined in PlaNYC: A Greener, Greater New York. Sustainability goals may include: maximizing the recycling and reuse of non-virgin materials; reducing the consumption of virgin and non-renewable resources; minimizing energy consumption and greenhouse gas emissions; improving energy efficiency; and promotion of the use of native vegetation and enhancing biodiversity during landscaping associated with Site development.

Alternative 1 would use the most energy and produce the most greenhouse gasses, as it would have the largest volume of material to truck off site. While Alternative 2 would result in lower energy use based on reducing the volume of material transported off-site, both remedial alternatives are comparable with respect to the opportunity to achieve sustainable remedial action. The remedial plan would take into consideration the shortest trucking routes during off-Site disposal of historic fill and other soils, which would reduce greenhouse gas emissions and conserve energy used to fuel trucks. New York City Clean Soil Bank program may be utilized for reuse of native soils. To the extent practicable, energy efficient building materials, appliances, and equipment will be utilized to complete the development. A complete list of green remedial activities considered as part of the NYC VCP is included in the Sustainability Statement, included as Appendix 2.

4.0 REMEDIAL ACTION

4.1 Summary of Preferred Remedial Action

The preferred remedial action alternative is Alternative 1, the Track 1 Alternative. The preferred remedial action alternative achieves protection of public health and the environment for the intended use of the property. The preferred remedial action alternative will achieve all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action alternative is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants. The preferred remedial action alternative is cost effective and implementable and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

The proposed remedial action achieves protection of public health and the environment for the intended use of the property. The proposed remedial action achieves all of the remedial action objectives established for the project and addresses applicable standards, criterion, and guidance; is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants; is cost effective and implementable; and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and performance of all required NYC VCP Citizen Participation activities according to an approved Citizen Participation Plan.
2. Performance of a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Selection of NYSDEC 6NYCRR Part 375 Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs).
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
5. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency specified by disposal

facility. A Waste Characterization Report documenting sample procedures, location, analytical results and disposal facility(s) approval letters will be submitted to NYCOER prior to the start of the remedial action.

6. Excavation and removal of soil/fill exceeding Unrestricted Use (Track 1) SCOs. The entire footprint of the Site will be excavated to a depth of approximated 10-11 feet below grade for construction of the new building's basement level. Approximately 7,350 cubic yards of soil will be excavated and removed from this Site.
7. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media on-Site.
8. Management of excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials.
9. Removal of underground storage tanks if encountered and closure of petroleum spills (if evidence of a spill/leak is encountered during Site excavation) in compliance with applicable local, State and Federal laws and regulations.
10. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media on-Site.
11. Collection and analysis of six end-point samples to determine the performance of the remedy with respect to attainment of Track 1 SCOs.
12. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
13. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
14. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.

15. Submission of a Remedial Action Report (RAR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, lists any changes from this RAWP.

The following construction elements will be implemented as part of new development:

16. As part of new development, installation of a 60-mil vapor barrier system (Geo-Seal® Triple-Layer System) beneath the building slab as well as behind foundation sidewalls of the proposed building below grade.
17. As part of new development, construction and maintenance of an engineered composite cover consisting of a 5” concrete building slab to prevent human exposure to residual soil/fill remaining under the Site.
18. As part of new development, construction of a ventilated parking garage as per NYC Building Department’s codes and requirements.
19. If Track 1 SCOs are not achieved, submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency.
20. If Track 1 SCOs are not achieved, the property will continue to be registered with an E-Designation by the NYC Buildings Department. Establishment of Engineering Controls and Institutional Controls in this RAWP and a requirement that management of these controls must be in compliance with an approved SMP. Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

4.2 Soil Cleanup Objective and Soil/Fill Management

Track 1 Unrestricted Use SCOs are proposed for this project. The SCOs for this Site are listed in Table 1. If Track 1 Unrestricted Use SCOs are not achieved, the 6NYCRR Part 375, Table 6.8(b) Track 2 Restricted Residential SCOs will be used as amended by the following Site-Specific Track 4 SCOs:

Contaminant	Track 4 Site-Specific SCOs
Lead	1,000 mg/kg
Barium	650 mg/kg

Soil and materials management on-Site and off-Site, including excavation, handling and disposal, will be conducted in accordance with the Soil/Materials Management Plan in Appendix 3. The location of planned excavations is shown in Figure 4.

Discrete contaminant sources (such as hotspots) identified during the remedial action will be identified by GPS or surveyed. This information will be provided in the Remedial Action Report.

Estimated Soil/Fill Removal Quantities

The total quantity of soil/fill expected to be excavated and disposed off-Site is approximately 7,350 cubic yards. Disposal facilities will be reported to OER when they are identified and prior to the start of remedial action.

End-Point Sampling

Removal actions for development purposes under this plan will be performed in conjunction with confirmation soil sampling. Six (6) confirmation samples will be collected from the base of the excavation at locations shown in Figure 5. The RI provided endpoint data that met Track 1 - Unrestricted Use SCOs for soil located immediately below the proposed basement level. However, additional post-excavation end-point sampling and testing will be performed promptly following completion of excavation. For comparison to Track 1 Unrestricted Use SCOs, samples will be analyzed for VOCs, SVOC, pesticides, PCBs, and metals according to analytical methods described below. For comparison to Track 4 Site-Specific SCOs, analytes will only include trigger compounds and elements established on the Track 4 Site-Specific SCO list above.

Hot-spot removal actions, whether established under this RAWP or identified during the remedial program, will be performed in conjunction with post remedial end-point samples to ensure that hot-spots are fully removed. Analytes for end-point sampling will be those

parameters that are driving the hot-spot removal action and will be approved by OER. Frequency for hot-spot end-point sample collection is as follows:

1. For excavations less than 20 feet in total perimeter, at least one bottom sample and one sidewall sample biased in the direction of surface runoff.
2. For excavations 20 to 300 feet in perimeter:
 - For surface removals, one sample from the top of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.
 - For subsurface removals, one sample from each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.
3. For sampling of volatile organics, bottom samples should be taken within 24 hours of excavation, and should be taken from the zero to six-inch interval at the excavation floor. Samples taken after 24 hours should be taken at six to twelve inches.
4. For contaminated soil removal, post remediation soil samples for laboratory analysis should be taken immediately after contaminated soil removal. If the excavation is enlarged horizontally, additional soil samples will be taken pursuant to bullets 1-3 above.

Post-remediation end-point sample locations and depth will be biased towards the areas and depths of highest contamination identified during previous sampling episodes unless field indicators such as field instrument measurements or visual contamination identified during the remedial action indicate that other locations and depths may be more heavily contaminated. In all cases, post-remediation samples should be biased toward locations and depths of the highest expected contamination.

New York State ELAP-certified labs will be used for all confirmation and end-point sample analyses. Labs performing confirmation and end-point sample analyses will be reported in the RAR. The RAR will provide a tabular and map summary of all confirmation and end-point sample results and will include all data including non-detects and applicable standards and/or guidance values. End-point samples will be analyzed for compounds and elements as described above utilizing the following methodology:

Soil analytical methods will include:

- Volatile organic compounds by EPA Method 8260;
- Semi-volatile organic compounds by EPA Method 8270;
- Target Analyte List metals; and
- Pesticides/PCBs by EPA Method 8081.

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.

Quality Assurance/Quality Control

The fundamental QA objective with respect to accuracy, precision, and sensitivity of analysis for laboratory analytical data is to achieve the QC acceptance of the analytical protocol. The accuracy, precision and completeness requirements will be addressed by the laboratory for all data generated.

One duplicate sample for every 20 samples collected will be submitted to the approved laboratory for analysis of the same parameters. One trip blank will be submitted to the laboratory with each shipment of soil samples.

Collected samples will be appropriately packaged, placed in coolers and shipped via overnight courier or delivered directly to the analytical laboratory by field personnel. Samples will be containerized in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of ice or “cold-paks” to maintain a temperature of 4°C.

Dedicated disposable sampling materials will be used for the collection endpoint samples, eliminating the need to prepare field equipment (rinsate) blanks. However, if non-disposable equipment is used, (stainless steel scoop, etc.) field rinsate blanks will be prepared at the rate of 1 for every eight samples collected. Decontamination of non-dedicated sampling equipment will consist of the following:

- Gently tap or scrape to remove adhered soil
- Rinse with tap water
- Wash withalconox® detergent solution and scrub

- Rinse with tap water
- Rinse with distilled or deionized water

Prepare field blanks by pouring distilled or deionized water over decontaminated equipment and collecting the water in laboratory provided containers. Trip blanks will be used whenever samples are transported to the laboratory for analysis of VOCs. Trip blanks will not be used for samples to be analyzed for metals, SVOCs or pesticides. One blind duplicate sample will be prepared and submitted for analysis every 20 samples.

Import and Reuse of Soils

Import of soils onto the property and reuse of soils already on-Site is not anticipated at this time. In the event that import and/or reuse of soil is necessary, import and/or reuse will be performed in conformance with the Soil/Materials Management Plan in Appendix 3.

4.3 Engineering Controls

The excavation required for the proposed Site development will achieve Unrestricted Use SCOs Track 1SCOs. Track 1 remedial actions do not require Engineering Controls. However, the elements below will be incorporated into the foundation design as part of development. If Track 1 is not achieved, these elements will constitute Engineering Controls that will be employed in the remedial action to address residual contamination remaining at the Site.

- Composite cover system consisting of the 5-inch concrete building slab;
- Vapor barrier system.

Composite Cover System

Exposure to residual soil/fill will be prevented by an engineered, composite cover system to be built on the Site. This composite cover system is comprised of a concrete foundation that is to be approved by NYCDOB prior to permits being issued and will encompass the buildings slab; sub-grade foundation walls. The construction is anticipated to occupy the entire footprint of the property. This composite cover system is comprised of the 5-inch thick concrete building slab.

Figure 6 shows the typical design for each remedial cover type used on this Site. Figure 7 shows the location of each cover type built at the Site.

The composite cover system will be a permanent Engineering Control. The system will be inspected and reported at specified intervals as required by this RAWP and the SMP. A Soil Management Plan will be included in the Site Management Plan and will outline the procedures to be followed in the event that the composite cover system and underlying residual soil/fill is disturbed after the remedial action is complete. Maintenance of this composite cover system will be described in the Site Management Plan in the RAR.

Vapor Barrier

As part of development, migration of potential soil vapor from on-Site or off-Site sources in the future will be mitigated with a combination of concrete building slab and vapor barrier. In order to prevent subsurface vapors from impacting the interior air of the buildings, a vapor barrier system (VBS) consisting of Geo-Seal® Triple-Layer System (2 chemical resistant layers and 1 spray applied core layer) will be installed beneath the building slab and behind the foundation walls. The system consists of a geo-seal base which is rolled out geotextile facing down to allow geo-seal core to be applied directly to the high density polyethylene. Then, the core is applied at a 60-mil thickness, which is sprayed over the base layer, around penetrations, and the overlapping base layer seams. Finally, the Geo-Seal bond, proprietary protection layer, is placed over the core layer to enhance the curing of the membrane and to increase puncture resistance. The installation of the VBS will be described in the RAR. The RAR will include photographs of the installation process, PE/RA certified letter (on company letterhead) from primary contractor responsible for installation oversight and field inspections, and a copy of the manufacturers certificate of warranty.

The project's Professional Engineer licensed by the State of New York will have primary direct responsibility for overseeing the implementation of the vapor barrier. Figure 7 shows the details of the vapor barrier system. Details including the specifications and compatibility letter are provided in Appendix 5.

Ventilated Garage

A sub grade ventilated garage will be installed and operated per requirements of the New York City Department of Buildings codes and regulations.

4.4 Institutional Controls

Track 1 remedial actions do not require Institutional Controls. If Track 1 Unrestricted Use SCOs are not achieved, Institutional Controls (IC) will be utilized in this remedial action to manage residual soil/fill and other media and render the Site protective of public health and the environment. Institutional Controls are listed below. Long-term employment of EC/ICs will be established and will be implemented under a site-specific Site Management Plan (SMP) that will be included in the RAR. The property will continue to be registered with an E-Designation at the NYC Buildings Department.

If Track 1 SCOs are not achieved, Institutional Controls for this remedial action are:

- The property will continue to be registered with an E-Designation by the NYC Buildings Department. This RAWP includes a description of all ECs and ICs and summarizes the requirements of the Site Management Plan which will note that the property owner and property owner's successors and assigns must comply with the approved SMP;
- Submittal of a Site Management Plan in the RAR for approval by OER that provides procedures for appropriate operation, maintenance, monitoring, inspection, reporting and certification of ECs. SMP will require that the property owner and property owner's successors and assigns will submit to OER a periodic written statement that certifies that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by OER; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. OER retains the right to enter the Site in order to evaluate the continued maintenance of any controls. This certification shall be submitted at a frequency to be determine by OER in the SMP and will comply with RCNY §43-1407(1)(3).
- Vegetable gardens and farming on the Site are prohibited in contact with residual soil materials;
- Use of groundwater underlying the Site is prohibited without treatment rendering it safe for its intended use;
- All future activities on the Site that will disturb residual material must be conducted pursuant to the soil management provisions in an approved SMP;

- The Site will be used for residential and manufacturing use and will not be used for a higher level of use without prior approval by OER.

4.5 Site Management Plan

Site Management is not required for Track 1 remedial actions. However, if Track 1 SCOs are not achieved, Site Management will be the last phase of remediation and begins with the approval of the Remedial Action Report and issuance of the Notice of Completion (NOC) for the Remedial Action. The Site Management Plan (SMP) describes appropriate methods and procedures to ensure implementation of all ECs and ICs that are required by this RAWP. The Site Management Plan is submitted as part of the RAR but will be written in a manner that allows its use as an independent document. Site Management continues until terminated in writing by OER. The property owner is responsible to ensure that all Site Management responsibilities defined in the Site Management Plan are implemented.

The SMP will provide a detailed description of the procedures required to manage residual soil/fill left in place following completion of the remedial action in accordance with the Brownfield Cleanup Agreement with OER. This includes a plan for: (1) implementation of EC's and ICs; (2) implementation of monitoring programs; (3) operation and maintenance of EC's; (4) inspection and certification of EC's; and (5) reporting.

Site management activities, reporting, and EC/IC certification will be scheduled by OER on a periodic basis to be established in the SMP and will be subject to review and modification by OER. The Site Management Plan will be based on a calendar year and certification reports will be due for submission to OER by July 31 of the year following the reporting period.

4.6 Qualitative Human Health Exposure Assessment

The objective of the qualitative exposure assessment is to identify potential receptors and pathways for human exposure to the contaminants of concern (COC) that are present at, or migrating from, the Site. The identification of exposure pathways describes the route that the COC takes to travel from the source to the receptor. An identified pathway indicates that the potential for exposure exists; it does not imply that exposures actually occur.

Investigations reported in the Remedial Investigation Report (RIR) are sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA). As part of the VCP process, a

QHHEA was performed to determine whether the Site poses an existing or future health hazard to the Site's exposed or potentially exposed population. The sampling data from the RI were evaluated to determine whether there is any health risk by characterizing the exposure setting, identifying exposure pathways, and evaluating contaminant fate and transport. This QHHEA was prepared in accordance with Appendix 3B and Section 3.3 (b) 8 of the NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation.

Known and Potential Sources

Urban fill is present at the Site from grade to approximately 2 to 4 feet below grade. Based on the results of the RIR, the contaminants of concern are as follows:

Soil:

- One VOCs, acetone was detected at concentration above its Unrestricted Use SCO.
- SVOCs (PAHs): benz(a)anthracene exceeded its Restricted Residential Use SCO.
- A pesticide, 4,4'-DDT was detected at a concentration slightly exceeding its Unrestricted Use SCOs.
- Four metals including barium, copper, lead and zinc were exceeded their respective Unrestricted Use SCOs, with barium and lead also exceeding Restricted Residential Use SCOs.

Groundwater:

- Three dissolved metals including magnesium, manganese and sodium were detected above their respective GQS.

Soil Vapor:

- Chlorinated VOCs including tetrachloroethylene and trichloroethylene were detected above the mitigation threshold range established by NYSDOH Final Guidance on Soil Vapor Intrusion.

Nature, Extent, Fate and Transport of Contaminants

The PAHs and pesticides were present only within the shallow soil samples collected from the urban fill layer, with the exception of 4,4'-DDT which was also detected at 6 to 8 feet bgs in

one sample. PCBs were detected in the shallow soil collected from the urban fill layer, with the exception of one sample where PCBs was detected at 10 to 12 feet bgs. Metals detections were found in the shallow soil samples from 0 to 2 feet bgs, with the exception of lead and barium which were both found in one 6 to 8 feet bgs sample and only lead in one 10 to 12 feet bgs sample. Only dissolved metals in groundwater exceeded their GQS. There were detections of several VOCs and SVOCs which were well below their respective GQS. TCA was detected in two soil vapor samples well below NYS DOH monitoring thresholds. PCE and TCE were identified in the soil vapor at concentrations above NYS DOH monitoring thresholds in four samples.

Potential Routes of Exposure

The five elements of an exposure pathway are: (1) a contaminant source; (2) contaminant release and transport mechanisms; (3) a point of exposure; (4) a route of exposure; and (5) a receptor population. An exposure pathway is considered complete when all five elements of an exposure pathway are documented. A potential exposure pathway exists when any one or more of the five elements comprising an exposure pathway cannot be documented. An exposure pathway may be eliminated from further evaluation when any one of the five elements comprising an exposure pathway has not existed in the past, does not exist in the present, and will never exist in the future. Three potential primary routes exist by which chemicals can enter the body:

- Ingestion of water, fill, or soil;
- Inhalation of vapors and particulates; and
- Dermal contact with water, fill, soil, or building materials.

Existence of Human Health Exposure

Current Conditions: The potential for exposure to urban fill does not exist under current conditions because of the existing concrete slab. The Site is served by public water supply and groundwater use for potable supply is prohibited, groundwater is not used at the Site and there is no potential for exposure. The only concern is the potential for exposure of soil vapors.

Construction/Remediation Activities: During remedial action, construction workers will be exposed to site constituents including metals in soils as a result of on-Site construction and

excavation activities. The proposed Site development includes the removal of existing soil to a depth of approximately 10-11 feet across the entire Site and construction of a new 7-story building with a full basement floor slab over the entire footprint of the Site. On-Site construction workers potentially could ingest, inhale or have dermal contact with any exposed impacted soil, and fill. Similarly, off-Site receptors could be exposed to dust and vapors from on-Site activities. During construction, on-Site and off-Site exposures to contaminated dust from on-Site will be addressed through the implementation of the Soil/Materials Management Plan, storm-water pollution prevention, dust controls, and through the implementation of the Community Air-Monitoring Program and a Construction Health and Safety Plan.

Proposed Future Conditions: Under future remediated conditions, all soils in excess of Track 1 Unrestricted Use SCOs will be removed. The Site will be fully capped, limiting potential direct exposure to soil remaining in place, and a vapor barrier system as well as the ventilated parking garage will prevent any exposure to potential off-Site soil vapors in the future. The Site is served by a public water supply, and groundwater is not used at the Site for potable supply. There are no plausible off-Site pathways for ingestion, inhalation, or dermal exposure to contaminants derived from the Site under future conditions.

Receptor Populations

On-Site Receptors: Current on-Site receptors are limited to employees, site representatives and visitors granted access to the property. During construction, on-Site receptors will include construction worker, site representatives, and visitors. After construction, on-Site receptors will include child and adult residents and visitors.

Off-Site Receptors: Potential off-site receptors within a 0.25-mile radius of the Site include: adult and child residents; commercial and construction workers; pedestrians; trespassers, and cyclists, based on the following:

1. Commercial Businesses (up to 0.25 miles) – existing and future
2. Residential Buildings (up to 0.25 miles) –existing and future
3. Building Construction/Renovation (up to 0.25 miles) – existing and future
4. Pedestrians, Trespassers, Cyclists (up to 0.25 miles) – existing and future
5. Schools (up to 0.25 mile) – existing and future

Overall Human Health Exposure Assessment

There are no potential complete exposure pathways (i.e., source, route to exposure, receptor population) for the current conditions. There is a potential complete, exposure pathway that requires mitigation during implementation of the remedy. There will not be a complete exposure pathway after the Site is developed. Based upon this analysis, complete on-site exposure pathways appear to be present only during the construction/remediation phase. During the remedial action, on-Site and off-Site exposure pathways will be minimized by preventing access to the Site, through implementation of soils/materials management, storm water pollution prevention, dust controls, employment of a community air monitoring program, and implementation of a construction health and safety plan. After the remedial action is complete, there will be no remaining exposure pathways to on-Site soil/fill, as all soil above Track 1 Unrestricted Use SCOs will have been removed and a vapor barrier will have been installed as part of development. The vapor barrier system will prevent potential vapor intrusion. The composite cover system will prevent contact with residual soil and continued protection after the remedial action will be achieved by the implementation of site management including periodic inspection and certification of the performance of remedial controls. Potential post-construction use of groundwater is not considered an option because groundwater in this area of New York City is not used as a potable water source.

5.0 REMEDIAL ACTION MANAGEMENT

5.1 Project Organization and Oversight

Principal personnel who will participate in the remedial action include Ezgi Karayel (Project Manager) and William Silveri (Sr. Project Manager). The Professional Engineer (PE) and Qualified Environmental Professionals (QEP) for this project are Reza Sharif, PE and William Silveri, PG, CHMM, respectively.

For the vapor barrier system installation, Reza Sharif, PE will provide oversight. For the other components of the RAWP, William Silveri, the QEP, will provide oversight.

5.2 Site Security

Site access will be controlled by DOB approved construction fence. For work areas of limited size, barrier tape will be sufficient to delineate and restrict access.

5.3 Work Hours

The hours for operation of remedial construction will be from 7:00 am to 5:00 pm. These hours conform to the New York City Department of Buildings construction code requirements.

5.4 Construction Health and Safety Plan

The Construction Health and Safety Plan is included in Appendix 4. The Site Safety Coordinator will be determined prior to construction. Remedial work performed under this RAWP 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 remedial construction work will ensure that performance of work is in compliance with the HASP and applicable laws and regulations. The HASP pertains to remedial and invasive work performed at the Site until the issuance of the Notice of Completion.

All field personnel involved in remedial 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 CHASP and be required to sign an CHASP 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 remedial 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.

An emergency contact sheet with names and phone numbers is included in the CHASP. That document will define the specific project contacts for use in case of emergency.

5.5 Community Air Monitoring Plan

Real-time air monitoring for volatile organic compounds (VOCs) and particulate levels at the perimeter of the exclusion zone or work area will be performed. Continuous monitoring will be performed for all ground intrusive activities and during the handling of contaminated or potentially contaminated media. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pit excavation or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be performed during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection, for instance, will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. Depending upon the proximity of potentially exposed individuals, continuous monitoring may be performed during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence. Exceedences of action levels observed during performance of the Community Air Monitoring Plan (CAMP) will be reported to the OER Project Manager and included in the Daily Report.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis during invasive work. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown.

All 15-minute readings must be recorded and be available for OER personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate

monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m³) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m³ above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m³ above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m³ of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for OER personnel to review.

5.6 Agency Approvals

All permits or government approvals required for remedial construction have been or will be obtained prior to the start of remedial construction. Approval of this RAWP by OER does not constitute satisfaction of these requirements and will not be a substitute for any required permit.

5.7 Site Preparation

Pre-Construction Meeting

OER will be invited to attend the pre-construction meeting at the Site with all parties involved in the remedial process prior to the start of remedial construction activities.

Mobilization

Mobilization will be conducted as necessary for each phase of work at the Site. Mobilization includes field personnel orientation, equipment mobilization (including securing all sampling equipment needed for the field investigation), marking/staking sampling locations and utility mark-outs. Each field team member will attend an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures.

Utility Marker Layouts, Easement Layouts

The presence of utilities and easements on the Site will be fully investigated prior to the performance of invasive work such as excavation or drilling under this plan by using, at a minimum, the One-Call System (811). Underground utilities may pose an electrocution, explosion, or other hazard during excavation or drilling activities. All invasive activities will be performed in compliance with applicable laws and regulations to assure safety. Utility companies and other responsible authorities will be contacted to locate and mark the locations, and a copy of the Markout Ticket will be retained by the contractor prior to the start of drilling, excavation or other invasive subsurface operations. Overhead utilities may also be present within the anticipated work zones. Electrical hazards associated with drilling in the vicinity of overhead utilities will be prevented by maintaining a safe distance between overhead power lines and drill rig masts.

Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations will be employed during invasive and other work contemplated under this RAWP. The integrity and safety of on-Site and off-Site structures will be maintained during all invasive, excavation or other remedial activity performed under the RAWP.

Dewatering

Groundwater is present at approximately 29 feet below grade and dewatering is not expected during construction.

Equipment and Material Staging

Equipment and materials will be stored and staged in a manner that complies with applicable laws and regulations.

Stabilized Construction Entrance

Steps will be taken to ensure that trucks departing the site will not track soil, fill or debris off-Site. Such actions may include use of cleaned asphalt or concrete roads or use of stone or other aggregate-based egress paths between the truck inspection station and the property exit. Measures will be taken to ensure that adjacent roadways will be kept clean of project related soils, fill and debris.

Truck Inspection Station

An outbound-truck inspection station will be set up close to the Site exit. Before exiting the NYC VCP Site, trucks will be required to stop at the truck inspection station and will be examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris will be removed. Brooms, shovels and potable water will be utilized for the removal of soil from vehicles and equipment, as necessary.

Extreme Storm Preparedness and Response Contingency Plan

Damage from flooding or storm surge can include dislocation of soil and stockpiled materials, dislocation of site structures and construction materials and equipment, and dislocation of support of excavation structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures and cause downed power lines creating dangerous site conditions and loss of power. In the event of emergency conditions caused by an extreme storm event, the enrollee will undertake the following steps for site preparedness prior to the event and response after the event.

Storm Preparedness

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property; loose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment such as excavators and generators will be removed from holes, trenches and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions for the site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights such as sandbags for added security and worn or ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be

removed from the property; stormwater management systems will be inspected and fortified, including, as necessary: clean and reposition silt fences, haybales; clean storm sewer filters and traps; and secure and protect pumps and hosing.

Storm Response

At the conclusion of an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A site inspection report will be submitted to OER at the completion of site inspection and after the site security is assessed. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. Damage from storm conditions that result in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures or equipment will be reported to public safety authorities via appropriate means such as calling 911. Petroleum spills will be reported to NYS DEC within 2 hours of identification and consistent with State regulations. Emergency and spill conditions will also be reported to OER. Public safety structures, such as construction security fences will be repaired promptly to eliminate public safety threats. Debris will be collected and removed. Dewatering will be performed in compliance with existing laws and regulations and consistent with emergency notifications, if any, from proper authorities. Eroded areas of soil including unsafe slopes will be stabilized and fortified. Dislocated materials will be collected and appropriately managed. Support of excavation structure will be inspected and fortified as necessary. Impacted stockpiles will be contained and damaged stockpile covers will be replaced. Storm-water control systems and structures will be inspected and maintained as necessary. If soil or fill materials are discharged off site to adjacent properties, property owners and OER will be notified and corrective measure plan designed to remove and clean dislocated material will be submitted to OER and implemented following approval by OER and granting of site access by the property owner. Impacted off-Site areas may require characterization based on site conditions, at the discretion of OER. If on-Site petroleum spills are identified, a qualified environmental professional will determine the nature and extent of the spill and report to NYS DEC's spill hotline at DEC 800-457-7362. If the source of the spill is ongoing and can be identified, it should be stopped if this can be done safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYS DEC.

Storm Response Reporting

A site inspection report will be submitted to OER at the completion of site inspection. An inspection report established by OER is available on OER's website (www.nyc.gov/oer) and will be used for this purpose. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. The site inspection report will be sent to the OER project manager and will include the site name, address, tax block and lot, site primary and alternate contact name and phone number. Damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the site was dislocated and whether any of the soil left the site; estimates of the volume of soil that left the site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial program or the construction program, such as damage to the support of excavation; presence of on-Site or off-Site exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYS DEC; description of corrective actions; schedule for corrective actions. This report should be completed and submitted to OER project manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

5.8 Traffic Control

Drivers of trucks leaving the NYC VCP Site with soil/fill will be instructed to proceed without stopping in the vicinity of the site to prevent neighborhood impacts. The planned route on local roads for trucks leaving the site are Crescent Street to Queens Boulevard or Crescent Street to the RFK Bridge.

5.9 Demobilization

Demobilization will include:

- As necessary, restoration of temporary access areas and areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, temporary water management areas, and access area);
- Removal of sediment from erosion control measures and truck wash and disposal of materials in accordance with applicable laws and regulations;

- Equipment decontamination, and;
- General refuse disposal.

Equipment will be decontaminated and demobilized at the completion of all field activities. Investigation equipment and large equipment (e.g., soil excavators) will be washed at the truck inspection station as necessary. In addition, all investigation and remediation derived waste will be appropriately disposed.

5.10 Reporting and Record Keeping

Daily Reports

Daily reports providing a general summary of activities for each day of active remedial work will be emailed to the OER Project Manager by the end of the following day. Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of work performed;
- Quantities of material imported and exported from the Site;
- Status of on-Site soil/fill stockpiles;
- A summary of all citizen complaints, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP excursions, if any;
- Photograph of notable Site conditions and activities.

The frequency of the reporting period may be revised in consultation with OER project manager based on planned project tasks. Daily email reports are not intended to be the primary mode of communication for notification to OER of emergencies (accidents, spills), requests for changes to the RAWP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAWP will be communicated directly to the OER project manager by personal communication. Daily reports will be included as an Appendix in the Remedial Action Report.

Record Keeping and Photo-Documentation

Job-site record keeping for all remedial work will be performed. These records will be maintained on-Site during the project and will be available for inspection by OER staff. Representative photographs will be taken of the Site prior to any remedial activities and during major remedial activities to illustrate remedial program elements and contaminant source areas. Photographs will be submitted at the completion of the project in the RAR in digital format (i.e. jpeg files).

5.11 Complaint Management

All complaints from citizens will be promptly reported to OER. Complaints will be addressed and outcomes will also be reported to OER in daily reports. Notices to OER will include the nature of the complaint, the party providing the complaint, and the actions taken to resolve any problems.

5.12 Deviations from the Remedial Action Work Plan

All changes to the RAWP will be reported to the OER Project Manager and will be documented in daily reports and reported in the Remedial Action Report. The process to be followed if there are any deviations from the RAWP will include a request for approval for the change from OER noting the following:

- Reasons for deviating from the approved RAWP;
- Effect of the deviations on overall remedy; and
- Determination that the remedial action with the deviation(s) is protective of public health and the environment.

6.0 REMEDIAL ACTION REPORT

A Remedial Action Report (RAR) will be submitted to OER following implementation of the remedial action defined in this RAWP. The RAR will document that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The RAR will include:

- Information required by this RAWP.
- As-built drawings for all constructed remedial elements, required certifications, manifests and other written and photographic documentation of remedial work performed under this remedy.
- Site Management Plan (if Track 1 is not achieved).
- Description of any changes in the remedial action from the elements provided in this RAWP and associated design documents.
- Tabular summary of all end point sampling results and all material characterization results, QA/QC results for end-point sampling, and other sampling and chemical analysis performed as part of the remedial action.
- Test results or other evidence demonstrating that remedial systems are functioning properly.
- Account of the source area locations and characteristics of all contaminated material removed from the Site including a map showing source areas.
- Account of the disposal destination of all contaminated material removed from the Site. Documentation associated with disposal of all material will include transportation and disposal records, and letters approving receipt of the material.
- Account of the origin and required chemical quality testing for material imported onto the Site.
- Continue registration of the property with an E-Designation by the NYC Department of Buildings (if Track 1 is not achieved).
- Reports and supporting material will be submitted in digital form.

Remedial Action Report Certification

The following certification will appear in front of the Executive Summary of the Remedial Action Report. The certification will include the following statements:

I, Reza Sharif, 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 37-10 Crescent Street Site (NYC OER Project Number 14EHAZ057Q and NYC VCP Project Number 15CVCP057Q).

I, William Silveri, am a qualified Environmental Professional. I had primary direct responsibility for implementation remedial program for the 37-10 Crescent Street Site (NYC OER Project Number 14EHAZ057Q and NYC VCP Project Number 15CVCP057Q).

I certify that the OER-approved Remedial Action Work Plan dated xx/xx/xxxx and Stipulations in a letter dated xx/xx/xxxx were 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.

7.0 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 4 month remediation period is anticipated.

Schedule Milestone	Weeks from Remedial Action Start	Duration (Weeks)
OER Approval of RAWP	0	-
Fact Sheet 2 announcing start of remedy	2	-
Mobilization	4	2 days
Remedial Excavation	5	4
Demobilization	9	2 days
Submit Remedial Action Report	15	4

FIGURES

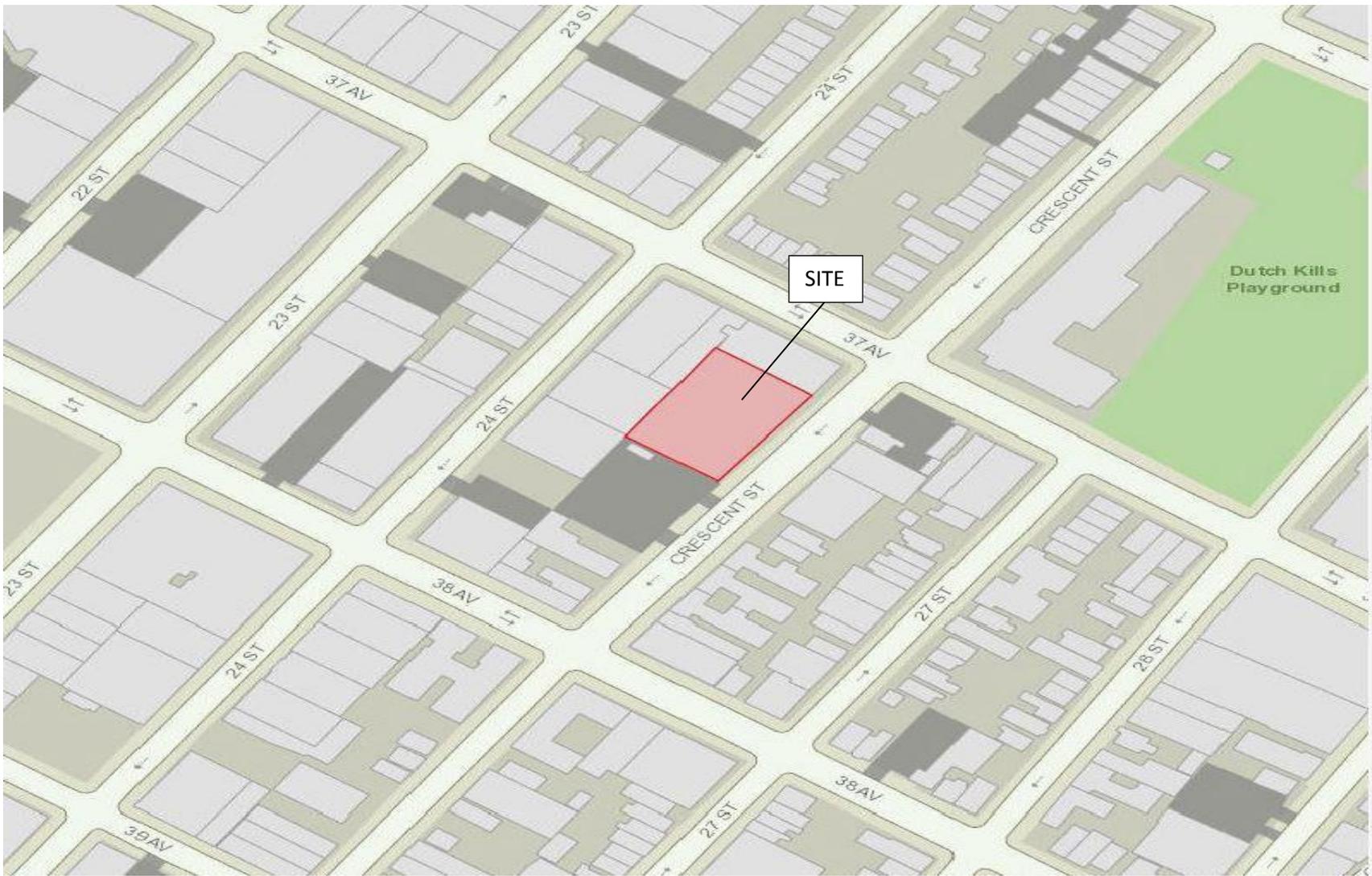
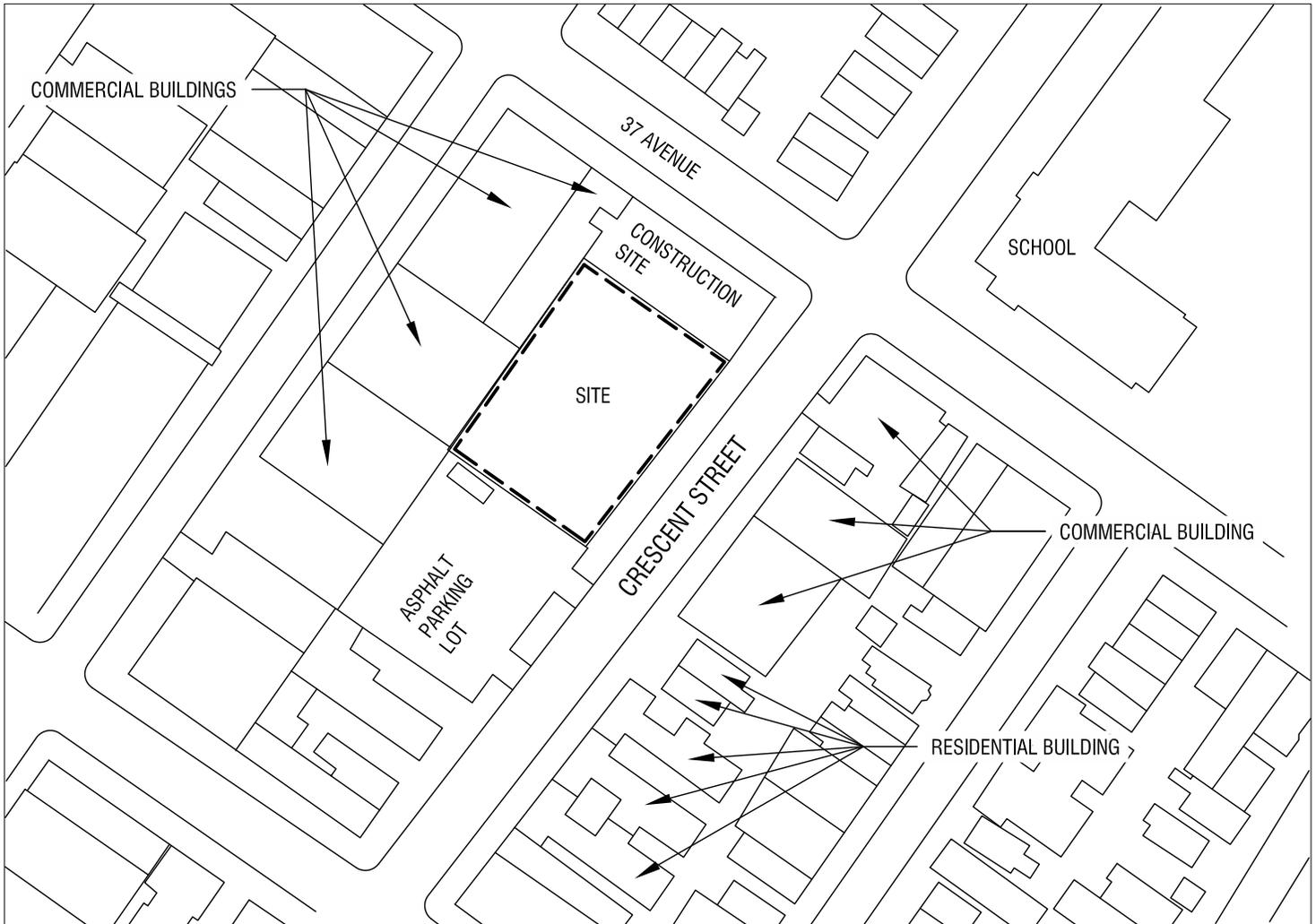
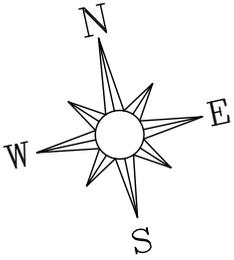


Figure 1- Site Location Map
37-10 Crescent Street
Queens, New York



PREPARED FOR: 37-10 CRESCENT STREET OWNER, LLC
PROJECT MANAGER: EZGI KARAYEL
DRAWN BY: PAUL TAN

DATE: 09/22/2014
PROJECT#:14-133-1037



Legend:
- - - - - BUILDING / PROPERTY BOUNDARY

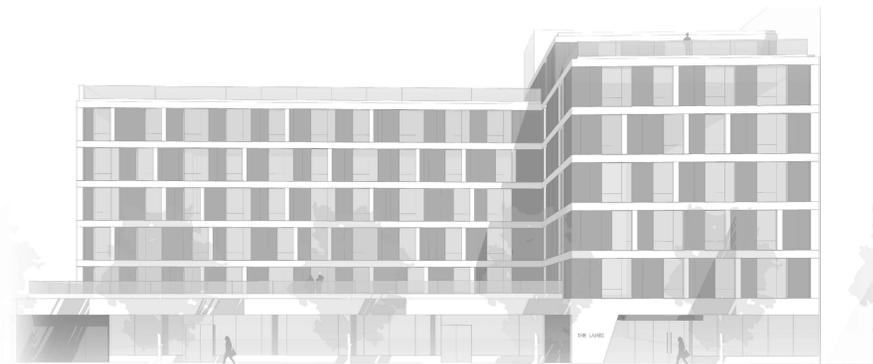


Site map:	37-10 CRESCENT STREET QUEENS, NY 11377
Figure:	2
Title:	REMEDIAL ACTION WORK PLAN SITE BOUNDARY MAP
Date:	September 22, 2014
Drawn by:	ALEJANDRO MOREJON CORTINA
Checked by:	ETHAN RAINEY
Drawing Scale:	N.T.S.
Project No.:	14-133-1037

37-10 Crescent St.

37-10 Crescent St., Long Island City, NY 11101

ISSUED FOR D.O.B. FILING



Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

Architect :
FOGARTY FINGER
architecture | interiors
289 Hudson Street New York, NY 10013
t 212 966 7450 f 212 966 7444

Consultants :
Owner:
37-10 Crescent St Owner, LLC
80 Eighth Ave, Suite1010
New York, New York 10011
212-675-6953

Structural Engineer:
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12 West 32nd Street
New York, NY 10001
Tel 212 643 1500

MEP Engineer:
Sideris Kefalas Engineers, PE
217-22 Northern Boulevard
Bayside, New York 11361
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Expeditor:
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New York, NY 10007
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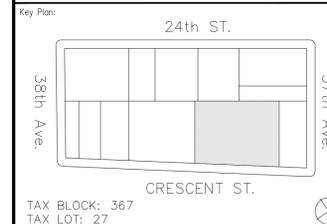
BUILDING DATA

ADDRESS:
37-10 Crescent St.,
Long Island City,
NY 11101

TAX BLOCK 367
TAX LOT 27
ZONE R5-D/M1-2 & R6-A/M1-2
MAP 9B

DRAWING LIST

- | | |
|--------------------------|---|
| T-001.00 | TITLE SHEET |
| G-002.00 | ACCESSIBILITY REQUIREMENTS |
| G-003.00 | ABBREVIATIONS, SYMBOLS & LEGENDS |
| G-004.00 | GENERAL NOTES, DOB REQUIREMENTS |
| ZONING AND CODE DRAWINGS | |
| Z-001.00 | ZONING ANALYSIS & AREA CALCULATIONS |
| Z-002.00 | ZONING DIAGRAMS & AREA CALCULATIONS |
| Z-003.00 | ZONING DIAGRAMS |
| A-001.00 | LIFE SAFETY PLAN - CELLAR LEVEL |
| A-002.00 | LIFE SAFETY PLAN - GROUND LEVEL |
| A-003.00 | LIFE SAFETY PLAN - SECOND LEVEL |
| A-004.00 | LIFE SAFETY PLAN - 3RD - 6TH LEVEL |
| A-005.00 | LIFE SAFETY PLAN - PENTHOUSE LEVEL |
| A-010.00 | SURVEY |
| EN-001.00 | ENERGY CODE - AREA SCHEDULE AND DIAGRAM |
| EN-002.00 | ENERGY CODE ANALYSIS |
| EN-002A.00 | AIR BARRIER DIAGRAMS |
| ARCHITECTURAL DRAWINGS | |
| A-100.00 | CELLAR LEVEL PLAN |
| A-101.00 | GROUND LEVEL PLAN |
| A-102.00 | SECOND LEVEL PLAN |
| A-103.00 | THIRD-SIXTH LEVEL PLAN |
| A-104.00 | PENTHOUSE PLAN |
| A-105.00 | BULKHEAD/ROOF PLAN |
| A-301.00 | EXTERIOR ELEVATION |
| A-302.00 | EXTERIOR ELEVATION |
| A-303.00 | EXTERIOR ELEVATION |
| A-304.00 | EXTERIOR ELEVATION |
| A-400.00 | BUILDING SECTIONS |
| A-401.00 | BUILDING SECTIONS |
| A-402.00 | STAIR SECTION & PLAN |
| A-411.00 | WALL SECTIONS |
| A-412.00 | WALL SECTIONS |
| A-600.00 | PARTITION TYPES |
| A-601.00 | PARTITION TYPES & DETAILS |
| A-602.00 | DOOR SCHEDULE |
| A-603.00 | DOOR TYPES |
| STRUCTURAL | |
| S-001.00 | STRUCTURAL NOTES |
| F-100.00 | CELLAR FLOOR & FOUNDATION PLAN |
| F-101.00 | FOUNDATION SECTIONS & DETAILS |
| F-102.00 | FOUNDATION SECTIONS |
| S-101.00 | FIRST FLOOR FRAMING PLAN |
| S-102.00 | SECOND FLOOR FRAMING PLAN |
| S-103.00 | TYPICAL (3RD-6TH) FLOOR FRAMING PLAN |
| S-104.00 | 7TH FLOOR & ROOF FRAMING PLAN |
| S-105.00 | HIGH ROOF FLOOR FRAMING PLAN |
| S-300.00 | WALL SECTIONS |
| S-400.00 | TYPICAL SECTIONS & DETAILS |
| S-401.00 | TYPICAL SECTIONS & DETAILS |
| S-402.00 | TYPICAL SECTIONS & DETAILS |
| S-500.00 | COLUMN SCHEDULE |



01 11.25.2014 D.O.B. FILING SET
NO. DATE: ISSUE:

PROJECT
37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
11101

DRAWING TITLE
TITLE SHEET

SEAL & SIGNATURE	DATE: 11.25.2014
	PROJECT No: stein_37-10_47cres
	DRAWING BY:
	CHK BY:
	DWG. No.:
	T-001.00
CADD FILE No.:	1 of 49

ACCESSIBILITY CODE ANALYSIS

NYC CODE - LOCAL LAW 58

27-292.1 AS SET FORTH THIS BUILDING SHALL BE PROVIDED WITH ELEMENTS AND FACILITIES TO MAKE BUILDINGS ACCESSIBLE AND USABLE BY PEOPLE HAVING PHYSICAL DISABILITIES.

27-292.4 THIS SUB-ARTICLE SHALL APPLY. THE PROVISIONS OF THIS ARTICLE SHALL BE SUPPLEMENTAL TO AND TAKE PRECEDENCE OVER LESS RESTRICTIVE PROVISIONS OF REFERENCED NATIONAL STANDARDS.

27-292.4.1 PRIMARY ENTRANCE TO BE ACCESSIBLE. EXTERIOR ACCESSIBLE ROUTE TO BE PROVIDED. ALL EXTERIOR ENTRANCES ARE ACCESSIBLE INTERIOR ACCESSIBLE ROUTE TO BE PROVIDED. ALL AREAS ARE ON PATH OF TRAVEL TO COMPLY WITH RS 4-6. ACCESSIBLE ROUTE ELEVATORS SHALL COMPLY WITH SUBCHAPTER 18, WHERE AN INTERIOR ACCESSIBLE ROUTE IS REQUIRED. SEE B104. IN ASSEMBLY OCCUPANCIES HAVING A MEZZANINE OR BALCONY WITH SIMILAR VIEW AS THAT OF MAIN FLOOR ACCESSIBILITY TO MEZZANINE SHALL NOT BE REQUIRED PROVIDED THE TOILETS ARE LOCATED ON MAIN FLOOR.

27-292.8 ALL DWELLING UNITS IN BUILDINGS WITH ELEVATORS SHALL BE ADAPTABLE. THEY SHALL BE CONSTRUCTED AND EQUIPPED IN ACCORDANCE WITH RS 4-6 WITH RESPECT TO DOOR OPENING, CLEAR FLOOR SPACE AND ACCESSIBLE ROUTE. SEE B104, A410, A411. BATHROOMS, KITCHENS AND KITCHENETTES SHALL COMPLY WITH REQUIREMENTS OF RS 4-6 WITH RESPECT TO ADAPTABILITY AND MUST BE CAPABLE OF BEING MADE USABLE. WASHING AND DRYING MACHINES SHALL COMPLY WITH OR BE CAPABLE OF BEING CONVERTED TO REQUIREMENTS IN RS 4-6. EMERGENCY WARNING DEVICES SHALL BE CAPABLE OF BEING CONVERTED TO AUDIBLE AND VISUAL INDICATION AS REQUIRED BY SUBARTICLE 17, ARTICLE 6, RS 17-11, RS 17-12 AND RS 4-6.

27-292.10 ALL SPACES AND ROOMS INTENDED FOR GENERAL PUBLIC AND OCCUPANT USE SHALL BE ACCESSIBLE AND USABLE. DOORS AND FLOORS SHALL COMPLY WITH RS 4-6. LOCATION AND NUMBER OF PLUMBING FIXTURES SHALL COMPLY WITH RS 16-5. SEE B100.

27-292.15 EMERGENCY WARNING SYSTEMS SHALL COMPLY WITH REQUIREMENTS OF RS 4-6.

27-292.16 CONTROLS AND OPERATING SYSTEMS SHALL COMPLY WITH REQUIREMENTS RS 4-6.

27-292.17 TACTILE WARNINGS SHALL BE PROVIDED AT HAZARDOUS LOCATIONS AND SHALL COMPLY WITH REQUIREMENTS OF RS 4-6.

27-292.18 SIGNAGE AND SYMBOLS OF ACCESSIBILITY SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS: PARKING, LOADING ZONES, TOILETS, DRINKING FOUNTAINS, TELEPHONES, WHERE INFORMATION OR DIRECTIONAL SIGNAGE IS DEEMED NECESSARY AND SHALL COMPLY WITH RS 4-6.

ANSI A117.1 RS 4-6 WITH NYC MODIFICATIONS:

4.2 SPACE ALLOWANCES FOR WHEELCHAIRS - 36" X 48" TYPICAL MINIMUM.

4.3 ACCESSIBLE ROUTE - MINIMUM 36" WIDTH, SLOPE GREATER THAN 1:20 SHALL COMPLY WITH RAMP REQUIREMENTS, CROSS SLOPE MAY NOT EXCEED 1 IN 50, CHANGES IN HEIGHT GREATER THAN 1/2" REQUIRE RAMP OR SIMILAR, STAIRS SHALL NOT BE PART OF ACCESSIBLE ROUTE. ACCESSIBLE ROUTES SHALL ALSO SERVE AS MEANS OF EGRESS FOR EMERGENCIES OR CONNECT TO AN AREA OF REFUGE.

4.4 PROTRUDING OBJECTS BETWEEN HEIGHT OF 27" AND 80" SHALL PROTRUDE NO MORE THAN 4". BELOW 27" PROTRUSIONS ANY AMOUNT. MINIMUM HEADROOM IS 80".

4.5 CHANGES IN LEVEL UP TO 1/4" MAY BE VERTICAL. CHANGES IN LEVEL TO 1" SHALL BE BEVELED WITH SLOPE NOT TO EXCEED 1:2. CHANGES IN LEVEL GREATER THAN 1" SHALL BE BY MEANS OF RAMP. FIGURE 7D IS MODIFIED AS INDICATED IN TEXT.

4.6.2 ACCESSIBLE PARKING SHALL BE LOCATED ON SHORTEST POSSIBLE ROUTE TO ENTRY. PARKING SPACES SHALL BE MINIMUM 96" AND SHALL HAVE ADJACENT AISLE 60" WHICH MAY BE SHARED BY TWO SPACES. IF MORE THAN 30 SPACES PROVIDED, TWO SPACES MUST BE PROVIDED USABLE BY HIGH ACCESS VEHICLES 108" HIGH WITH 96" WIDE SPACE AND 96" ACCESS AISLE.

4.6.2.1 MULTIPLE DWELLINGS - IN THE PARKING FACILITY OF A MULTIPLE DWELLING WHERE USED EXCLUSIVELY ON ACCESSORY BASIS FOR PARKING BY RESIDENTS, SPACES FOR HANDICAPPED MAY BE RENTED OUT ON A MONTHLY BASIS TO NON DISABLED, SUBJECT TO THE PROVISION THAT SPACE MUST BE RELINQUISHED AT END OF MONTH UPON REQUEST OF HANDICAPPED RESIDENT OR EMPLOYEE.

4.6.2.3 FULL SIGNS - SIGNS WHICH INDICATE "FULL" SHALL HAVE A STATEMENT INDICATING HANDICAP SPACES THAT REMAIN AVAILABLE FOR PHYSICALLY HANDICAPPED PERSONS WHEN ONE OR MORE SUCH SPACES ARE STILL AVAILABLE.

4.6.3 PASSENGER LOADING ZONES SHALL PROVIDE AN ACCESS AISLE 48" WIDE AND 20' LONG ADJACENT AND PARALLEL TO THE VEHICLE PULL UP SPACE AND CONNECTED TO ACCESSIBLE ROUTE. VERTICAL CLEARANCE OF 114" SHALL BE PROVIDED.

4.8 RAMP - MINIMUM 1:12 SLOPE; MINIMUM 3', MAXIMUM 30' LENGTH; 5' MINIMUM LANDINGS, HANDRAILS REQUIRED IF RISE GREATER THAN 6", 12" EXTENSION AT TOP & BOTTOM WITH 1-1/2" CLEAR SPACE. DOORS OPENING ONTO RAMPS TO COMPLY WITH REQUIREMENT FOR STAIR DOORS (27-3750. NON-SLIP SURFACE IS REQUIRED.

4.9 INTERIOR STAIRS FOR EXIT STAIRS PER SECTION 27-375 NYC CODE

4.10 ELEVATORS - PER RS 18-1 REQUIREMENTS. ELEVATORS TO BE FILED SEPARATELY. SEE B104.

4.11 PLATFORM LIFTS MAY BE PART OF AN ACCESSIBLE ROUTE - PER RS 18-1 REQUIREMENTS.

4.13 DOORS - MINIMUM CLEAR OPENING OF 32". DOORS PART OF AN ACCESSIBLE ROUTE SUBJECT TO REQUIREMENTS AND MANEUVERING CLEARANCES SHOWN ON CA5, HARDWARE AND OPENING FORCE SHALL COMPLY WITH 4.13

4.14 ENTRANCES SHALL BE PART OF AND CONNECTED TO AN ACCESSIBLE ROUTE.

4.16 WATER CLOSETS TO BE PROVIDED WITH REQUIRED CLEAR AREA SET AT 17-19" ABOVE FLOOR, GRAB BARS CONTROLS AND DISPENSERS AS REQUIRED.

4.17 TOILET STALLS SHALL COMPLY WITH 4.16.

4.19 LAVATORIES SHALL BE MOUNTED WITH CLEARANCE OF AT LEAST 29" ABOVE FLOOR AND HEIGHT NOT TO EXCEED 34". A CLEAR FLOOR SPACE OF 30" BY 48" EXTENDING 19" BELOW SINK SHALL BE PROVIDED. MIRRORS SHALL BE MOUNTED NO HIGHER THAN 40".

4.20 BATHTUBS IN DWELLING UNITS SHALL COMPLY WITH THE PROVISIONS OF 4.32.4.4.

4.21 SHOWERS IN DWELLING UNITS SHALL COMPLY WITH 4.32.4.5

4.23 STORAGE FACILITIES SHALL BE PROVIDED WITH CLEAR FLOOR AREA 30" X 48" AND WITHIN SPECIFIED REACH OF PERSON USING A WHEELCHAIR. CLOTHES RODS SHALL BE MAXIMUM OF 54".

4.24 GRAB BARS DIAMETER 1 1/8" - 1 1/2" WIDTH WITH 1 1/2" CLEARANCE TO WALL, BENDING STRESS OF 250L/PF MINIMUM AND SHEAR STRESS OF 250L/PF MINIMUM.

4.25 CONTROL AND OPERATING MECHANISMS ALONG ACCESSIBLE ROUTE AND AS PART OF ACCESSIBLE ELEMENTS SHALL BE PLACED WITHIN REACH OF PERSON IN WHEELCHAIR AND SHALL BE OPERABLE WITH ONE HAND WITHOUT ANY SPECIAL MANIPULATION AND REQUIRE FORCE NOT GREATER THAN 5 LBF.

4.26 ALARMS SHALL BE BOTH AUDIBLE AND VISUAL AND COMPLY WITH RS 17-3C

4.27 DETECTABLE WARNINGS SHALL BE PROVIDED ON WALKING SURFACES, DOORS TO HAZARDOUS AREAS OPEN STAIRS AND HAZARDOUS VEHICLE AREAS.

4.28 SIGNAGE THAT PROVIDES EMERGENCY INFORMATION, GENERAL CIRCULATION INFORMATION OR IDENTIFIES ROOMS OR SPACES SHALL BE PROVIDED WITH FEATURES USABLE BY THE DISABLED AS DESCRIBED IN TEXT.

4.32 DWELLING UNITS SHALL BE ADAPTABLE AND USABLE, AND SHALL INCLUDE BATHROOMS, DOORS, WATER CLOSETS, LAVS, MIRRORS, MEDICINE CABINETS, SHOWERS, BATHTUBS, KITCHENS AND APPLIANCES, SINK AND LAUNDRY. BATHROOM DOORS MAY SWING IN PROVIDED IT IS REVERSIBLE; MODIFICATIONS TO ADAPTABLE BATHROOM AND KITCHEN DIMENSIONS AND ARRANGEMENTS AS SHOWN ON CA5. SEE A410 AND A411

4.3.7 AN ACCESSIBLE ROUTE WITH SLOPE GREATER THAN 1:20 IS A RAMP AND MUST COMPLY WITH 4.8.

4.3.8 CHANGES IN LEVEL GREATER THAN 1/4" SHALL BE ACCOMPLISHED BY MEANS OF ACCESSIBLE ELEMENT.

4.3.10 ACCESSIBLE ROUTES SERVING ANY ACCESSIBLE SPACE SHALL ALSO SERVE AS MEANS OF EGRESS FOR EMERGENCIES OR CONNECT TO AN AREA OF RESCUE ASSISTANCE.

4.3.11 AREAS OF RESCUE ASSISTANCE SHALL BE ONE OF THE FOLLOWING:
 1. A PORTION OF A STAIRWAY WITHIN A SMOKEPROOF ENCLOSURE.
 2. A PORTION OF AN EXTERIOR BALCONY LOCATED ADJACENT TO AN EXIT STAIRWAY.
 3. A PORTION OF A ONE-HOUR FIRE RATED CORRIDOR IMMEDIATELY ADJACENT TO AN EXIT STAIR.
 4. A VESTIBULE LOCATED IMMEDIATELY ADJACENT TO AN EXIT ENCLOSURE.

4. A PORTION OF A STAIRWAY LANDING WHICH IS VENTED AND SEPARATED BY ONE-HOUR DOORS.
 5. AN APPROVED AREA OR ROOM EQUIPPED WITH SMOKE BARRIER.
 6. AN ELEVATOR LOBBY WHEN PRESSURIZED AND PROVIDED WITH COMPLIANT SIZE, COMMUNICATION AND SIGNAGE.

4.4 PROTRUDING OBJECTS ABOVE 27" MAXIMUM PROJECTION 4", MINIMUM HEADROOM 80".

4.5 CHANGES IN LEVEL GREATER THAN 1/4" REQUIRE RAMP.

4.6 PARKING - MINIMUM VERTICAL CLEARANCE OF 114" IS REQUIRED ALONG PASSENGER LOADING ZONE. ACCESS AISLE 60" WIDE AND 20' LONG IS REQUIRED ADJACENT TO PASSENGER LOADING.

4.8 RAMP - MAXIMUM SLOPE OF 1:12 WITH LANDING LENGTH MINIMUM OF XX, 36" MINIMUM WIDTH, HANDRAILS AND EDGE PROTECTION REQUIRED.

4.10 ELEVATOR CONTROLS, OPERATION, SIGNALS, SIZE AND COMMUNICATIONS SHALL BE USABLE AND ACCESSIBLE BY PERSONS IN WHEELCHAIR.

4.11 PLATFORM LIFTS SHALL FACILITATE UNASSISTED ENTRY, OPERATION AND EXIT FROM LIFT.

4.13 DOORS SHALL COMPLY WITH SIZE CLEARANCES, HARDWARE AND OPENING FORCE.

4.14 ENTRANCES SHALL BE PART OF AN ACCESSIBLE ROUTE.

4.15 DRINKING FOUNTAINS SHALL COMPLY WITH HEIGHT, CONTROLS AND CLEARANCES.

4.16 WATER CLOSETS SHALL COMPLY WITH CLEAR FLOOR AREA, HEIGHT, GRAB BARS CONTROLS AND DISPENSER REQUIREMENTS.

4.17 TOILET STALLS SHALL COMPLY WITH SIZE, CLEARANCES, DOORS AND GRAB BAR REQUIREMENTS.

4.18 URINALS SHALL COMPLY WITH HEIGHT, CLEAR FLOOR AREA AND CONTROL REQUIREMENTS.

4.19 LAVATORIES SHALL COMPLY WITH HEIGHT AND CLEARANCES, CLEAR FLOOR AREA, MIRROR AND FAUCET REQUIREMENTS.

4.20 BATHTUBS SHALL COMPLY WITH CLEAR FLOOR AREA, SEAT, GRAB BAR, SHOWER SPRAY AND CONTROLS REQUIREMENTS.

4.21 SHOWER STALLS SHALL COMPLY WITH SIZE AND CLEARANCE, SEAT, GRAB BARS CONTROLS AND SHOWER SPRAY REQUIREMENTS.

4.22 TOILET ROOMS SHALL BE PROVIDED ON AN ACCESSIBLE ROUTE. DOORS SHALL NOT SWING INTO THE CLEARANCES REQUIRED FOR ANY FIXTURE. AN UNOBSTRUCTED TURNING SPACE SHALL BE PROVIDED. THE CLEAR FLOOR SPACE AT FIXTURES, THE ACCESSIBLE ROUTE AND TURNING SPACE MAY OVERLAP. IF ANY TOILET FIXTURE IS SUPPLIED AT LEAST ONE OF EACH TYPE MUST BE COMPLIANT.

4.23 BATHROOMS, BATHING FACILITIES AND SHOWER ROOMS SHALL BE PROVIDED ON AN ACCESSIBLE ROUTE. DOORS SHALL NOT SWING INTO THE CLEARANCES REQUIRED FOR ANY FIXTURE. AN UNOBSTRUCTED TURNING SPACE SHALL BE PROVIDED. THE CLEAR FLOOR SPACE AT FIXTURES, THE ACCESSIBLE ROUTE AND TURNING SPACE MAY OVERLAP. IF ANY TOILET FIXTURE IS SUPPLIED AT LEAST ONE OF EACH TYPE MUST BE COMPLIANT.

4.24 SINKS REQUIRED TO BE ACCESSIBLE SHALL COMPLY WITH REQUIRED HEIGHT AND CLEARANCE, DEPTH, CLEAR FLOOR SPACE, PIPE ARRANGEMENT AND FAUCETS.

4.25 STORAGE FACILITIES SHALL COMPLY WITH REQUIRED CLEAR FLOOR SPACE, HEIGHT AND HARDWARE REQUIREMENTS.

4.26 HANDRAILS, GRAB BARS, TUB AND SHOWER SEATS SHALL COMPLY WITH REQUIRED SIZE, SPACING AND STRUCTURAL STRENGTH REQUIREMENTS.

4.27 CONTROLS AND OPERATING MECHANISMS THAT ARE PART OF AN ACCESSIBLE ROUTE OR ELEMENT SHALL COMPLY WITH CLEAR FLOOR AREA, HEIGHT AND OPERATION REQUIREMENTS

4.28 ALARMS SHALL COMPLY WITH AUDIBLE, VISUAL, HEIGHT AND LOCATION REQUIREMENTS.

4.29 DETECTABLE WARNINGS SHALL BE PROVIDED AND SHALL COMPLY WITH REQUIREMENTS.

4.30 SIGNAGE SHALL BE INSTALLED WITH PROPER SYMBOLS, CHARACTER PROPORTION, HEIGHT, BRILLE, FINISH AND CONTRAST AND MOUNTING HEIGHT AND LOCATION AS REQUIRED.

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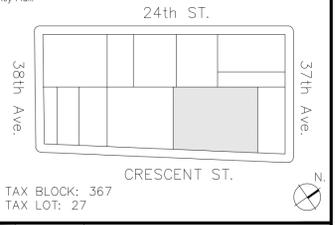
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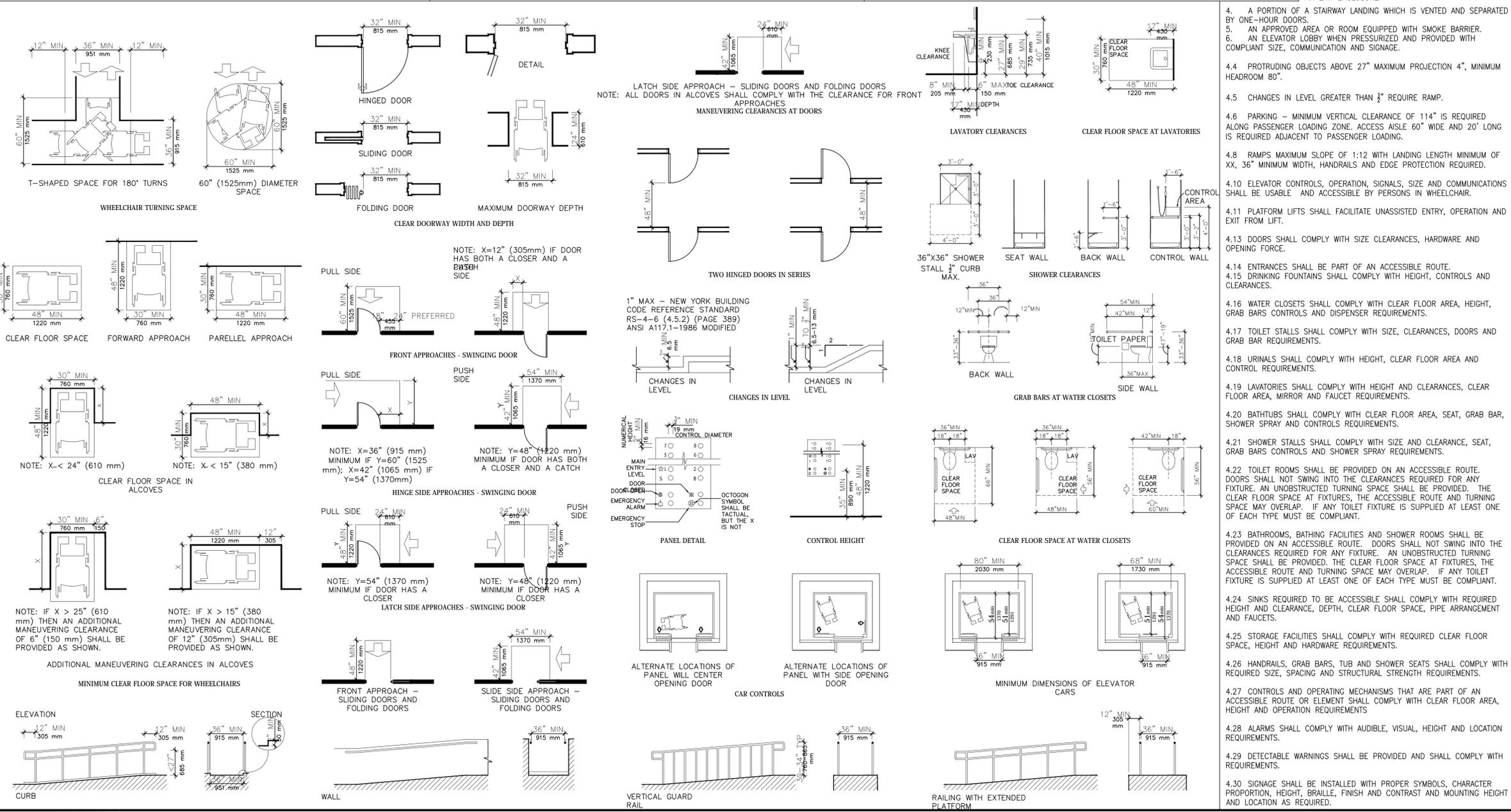
Key Plan:
 24th St.
 38th Ave.
 37th Ave.
 CRESCENT ST.
 TAX BLOCK: 367
 TAX LOT: 27



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LONG ISLAND CITY, NEW YORK		
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 2 of 49



EXAMPLES OF EDGE PROTECTION AND HANDRAIL EXTENSIONS

ABBREVIATIONS

@	AT	ENGR	ENGINEER
AC	AIR CONDITIONING	EP	ELECTRICAL PANELBOARD
ACT	ACOUSTICAL CEILING TILE	EQ	EQUAL
AD	AREA DRAIN	EQUIP	EQUIPMENT
ADJ	ADJUSTABLE	EW	EACH WAY
AFF	ABOVE FINISHED FLOOR	EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
APP	ACCORDION FOLDING PARTITION	EXH	EXHAUST
AGG	AGGREGATE	EXIST	EXISTING
ALT	ALTERNATE	EXP	EXPANSION
AL	ALUMINUM	EXT	EXTERIOR
AP	ACCESS PANEL	EXTN	EXTENSION
APPROX	APPROXIMATE		
AR	ACID RESISTANT	FD	FLOOR DRAIN
ARCH	ARCHITECT(URAL)	FHC	FIRE HOSE CABINET
ASPH	ASPHALT	FIN	FINISH
AV	AUDIOVISUAL	FIN FL	FINISH FLOOR
AWG	AMERICAN WIRE GAUGE	FLR	FLOOR
AWT	ACOUSTICAL WALL TREATMENT	FDN	FOUNDATION
L	ANGLE	FSR	FLEXIBLE SHEET ROOFING
&	AND	FSK	FLOOR SERVICE SINK
		FT/	FEET
BIT	BITUMINOUS	FTG	FOOTING
BLDG	BUILDING	FE	FIRE EXTINGUISHER
BLKG	BLOCKING	FEC	FIRE EXTINGUISHER CABINET
BM	BENCH MARK/BEAM		
BOS	BOTTOM OF STEEL	GA	GAUGE
BOT	BOTTOM	GALV	GALVANIZE(D)
BRG	BEARING	GB	GRAB BAR
BRK	BRICK	GL	GLASS
BUR	BUILT-UP ROOF	GWB	GYPSUM WALLBOARD
CAB	CABINET	H	HEIGHT/HIGH
CAR	CARPET	HB	HOSE BIBB
CAT	CATALOG	HDWE	HARDWARE
CB	CHALKBOARD/CATCH BASIN	HM	HOLLOW METAL
CFM	CUBIC FEET PER MINUTE	HORIZ	HORIZONTAL
CH	CABINET HEATER	HPT	HIGH POINT
CI	CAST IRON	HS	HIGH STRENGTH
CJ	CONTROL JOINT	HTG	HEATING
CL	CENTERLINE	HVAC	HEATING/VENTILATING/AIR CONDITIONING
CLR	CLEAR	HPDL	HIGH PRESSURE DECORATIVE LAMINATE
CLG	CEILING	HW	HIGHWAY
CMP	CORRUGATED METAL PIPE	HWY	HIGHWAY
CMT	CERAMIC MOSAIC TILE		
CMU	CONCRETE MASONRY UNIT	ID	INSIDE DIAMETER
CO	CLEAN OUT	IN"	INCH
COL	COLUMN	INCL	INCLUDE(D), (ING)
COMP	COMPACTED	INFO	INFORMATION
CONC	CONCRETE	INSUL	INSULATION/INSULATED
CONSTR	CONSTRUCTION	INTR	INTERIOR
CONT	CONTINUOUS/CONTINUE	INV	INVERT
CONTR	CONTRACTOR		
CORR	CORRUGATED	JS	JOIST SUBSTITUTE
CPT	CARPET	JST	JOIST
CT	CERAMIC TILE	JT	JOINT
C TO C	CENTER TO CENTER		
CSK	COUNTER SINK	KIT	KITCHEN
CU FT/CF	CUBIC FEET		
CU IN/CI	CUBIC INCH	L	LENGTH
CU YD/CY	CUBIC YARD	LAM	LAMINATE(D)
CUSP	CUSPIDOR	LAV	LAVATORY
CW	COLD WATER	LB/#	POUND
CWF	CEMENTITIOUS WOOD FIBER	LKR	LOCKER
		LL	LIVE LOAD
		LLH	LONG LEG HORIZONTAL
d	PENNY (NAILS, ETC.)	LLV	LONG LEG VERTICAL
D	DEPTH/DEEP	LVR	LOUVER
o	DEGREE	LW	LONG WAY
DC	DISPLAY CASE		
DEPT	DEPARTMENT	M	METER/THOUSAND
DET	DETAIL	MAS	MASONRY
DF	DRINKING FOUNTAIN	MAT	MATERIAL
DIA/Ø	DIAMETER	MAX	MAXIMUM
DIM	DIMENSION	MB	MARKER BOARD
DIV	DIVISION	MECH	MECHANICAL
DL	DEAD LOAD	MEZZ	MEZZANINE
DWG	DRAWING	MFR	MANUFACTURER
DS	DOWN SPOUT	MH	MANHOLE
DWC	DRINKING WATER COOLER	MIN	MINIMUM
		MISC	MISCELLANEOUS
		MM	MILLIMETER
E	EAST	MO	MASONRY OPENING
EA	EACH	MET	METAL
EF	EACH FACE		
EJ	EXPANSION JOINT	N	NORTH
EL	ELEVATION	NIC	NOT IN CONTRACT
ELEC	ELECTRIC(AL)	NO/#	NUMBER
ELEV	ELEVATOR		

ABBREVIATIONS

NOM	NOMINAL	TOF	TOP OF FOOTING
NTS	NOT TO SCALE	TOS	TOP OF STEEL
		TOM	TOP OF MASONRY
OC	ON CENTER	TT	TERRAZZO TILE
OD	OUTSIDE DIAMETER	TV	TELEVISION
OPNG	OPENING	TYP	TYPICAL
OPP	OPPOSITE	TWS	TACKABLE WALL SURFACE
OPP HD	OPPOSITE HAND		
O TO O	OUT TO OUT		
OW	OPERABLE WALL	UON	UNLESS OTHERWISE NOTED
OWSJ	OPEN WEB STEEL JOIST	UV	UNIT VENTILATOR
OZ	OUNCE	UR	URINAL
PA	PUBLIC ADDRESS	VCT	VINYL COMPOSITION TILE
PERF	PERFORATED	VCGB	VINYL COVERED GYPSUM WALLBOARD
PL	PLATE/PROPERTY LINE		
PLAS	PLASTER	VERT	VERTICAL
PLAM	PLASTIC LAMINATE	VIF	VERIFY IN FIELD
PLBG	PLUMBING	VIT	VITREOUS
PLYWD	PLYWOOD	VOL	VOLUME
PREFAB	PREFABRICATED	VR	VAPOR RETARDER
PS	PROJECTION SCREEN	VRB	VENTED RESILIENT BASE
PSF	POUNDS PER SQUARE FOOT	VS	VENT STACK
PSI	POUNDS PER SQUARE INCH	VT	VINYL TILE
PSS	PENCIL SHARPENER SUPPORT		
PVC	POLYVINYL CHLORIDE		
PVMT	PAVEMENT		
QT	QUARRY TILE		
		W	WEST/WIDE/WIDTH
R	RISER	W/	WITH
RA	RETURN AIR	W/O	WITHOUT
RAD/R	RADIUS	WA	WARDROBE ACCESSORIES
RB	RESILIENT BASE	WB	WOOD BASE
RCP	REINFORCED CONCRETE PIPE	WC	WATER CLOSET/WIND COLUMN
RD	ROOF DRAIN	WD	WOOD
RDG	ROLL DOWN GRILLE	WH	WATER HEATER
RDS	ROLL DOWN SHUTTER	WP	WORKING POINT
REF	REFERENCE	WSSK	WALL SERVICE SINK
REFR	REFRIGERATOR	WWF	WELDED WIRE FABRIC
REINF	REINFORCING		
REQ'D	REQUIRED	YD	YARD/YARD DRAIN
REV	REVISION(S)		
RM	ROOM		
RO	ROUGH OPENING		
ROW	RIGHT-OF-WAY		
S	SOUTH		
SA	SUPPLY AIR		
SAN	SANITARY		
SCHED	SCHEDULE		
SD	STORM DRAIN/SMOKE DETECTOR		
SECT	SECTION		
SEW	SEWER		
SGFT	STRUCTURAL GLAZED FACING TILE		
SHT	SHEET		
SIM	SIMILAR		
SP	SPACE		
SPEC(S)	SPECIFICATION(S)		
SPKR	SPEAKER		
SQ	SQUARE		
SQ FT/SF	SQUARE FEET		
SQ IN/SI	SQUARE INCHES		
SQ YD/SY	SQUARE YARDS		
SST	STAINLESS STEEL		
ST	STORM/STREET		
STD	STANDARD		
STL	STEEL		
STRUCT.	STRUCTURAL		
SUSP	SUSPENDED		
SW	SHORT WAY/SIDEWALK		
SYMB	SYMBOL		
SYMM	SYMMETRY(ICAL)		
SYNTH	SYNTHETIC		
T	TREAD		
T&B	TOP AND BOTTOM		
T&G	TONGUE AND GROOVE		
TA	TOILET ACCESSORY(IES)		
TB	TACK BOARD		
TC	TOP OF CURB		
TEL	TELEPHONE		
TER	TERRAZZO		
TOC	TOP OF CONCRETE		

MATERIAL SYMBOLS

	STRUCTURAL CONCRETE
	BATT INSULATION
	RIGID INSULATION
	TERRA-COTTA
	FINISH WOOD
	WOOD BLOCKING
	PLYWOOD
	GYPSUM WALLBOARD
	STEEL (IN SECTION)
	BRONZE (IN SECTION)
	ALUMINUM (IN SECTION)
	GRANITE
	SAND, GROUT, PLASTER, G.W.B.
	CONCRETE
	TERRAZZO
	MARBLE
	SLATE
	PRECAST CONCRETE
	FACE BRICK
	FIRE BRICK
	GLAZED BRICK
	CONCRETE MASONRY UNIT (PLAN)
	METAL SHAPES
	ACOUSTIC TILE CEILING
	CARPET
	CONCRETE MASONRY UNIT (CORED, IN SECTION)
	CONCRETE MASONRY UNIT (SOLID, IN SECTION)
	SPRAY-ON INSULATION OR FIRE PROTECTION
	WIRE FENCE
	CORRUGATED METAL FORMING
	METAL ROOF DECK

DRAFTING SYMBOLS

	DOOR TAG
	WINDOW TAG
	FURNITURE TAG
	KEY NOTE TAG
	PARTITION TYPE TAG
	SMOKE AND CO DETECTOR
	ROOM FLOOR AREA
	LIGHT AND AIR TAG
	DETAIL NUMBER
	DETAIL TAG
	REVISION NUMBER
	DRAWING EVISIONS
	COLUMN GRID BUBBLE
	MATCH LINE

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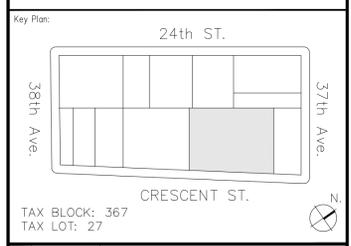
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CHK BY: FFA
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CADD FILE No.: _____ 3 of 49

GENERAL NOTES

- THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL WORK PERMITS, SIDEWALK SHED PERMIT, LICENSES, TESTS AND ALL OTHER REQUIRED CERTIFICATES FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK.
- THE CONTRACTOR SHALL OBTAIN ALL SIGN-OFFS FROM APPLICABLE MUNICIPAL AGENCIES FOR ALL WORK COMPLETED.
- MAINTAIN A CURRENT AND COMPLETE SET OF CONTRACT DOCUMENTS AT THE JOB SITE.
- MAINTAIN A TELEPHONE AND FAX MACHINE WITH WORKING PHONE LINES THROUGHOUT THE PROGRESS OF THE WORK.
- ERECT AND MAINTAIN, AS REQUIRED BY EXISTING FIELD CONDITIONS THROUGHOUT THE ENTIRE PROGRESS OF THE WORK, ALL SAFEGUARDS AND BARRICADES FOR SAFETY INCLUDING POSTING WARNING SIGNS ENFORCING REGULATIONS AND PROTECTION OF PROPERTY.
- VERIFY EXISTING CONDITIONS. NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES BEFORE COMMENCEMENT OF WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING AND PROTECTING ALL WORK DURING CONSTRUCTION AGAINST DAMAGES, BREAKAGES, COLLAPSE, DISTORTIONS AND OFF-ALIGNMENT ACCORDING TO APPLICABLE CODES, STANDARDS AND GOOD PRACTICE.
- ALL NOTES HEREIN MENTIONED WITH THOSE ON THE VARIOUS DRAWINGS SHALL APPLY TO ALL DRAWINGS AND FORM PART OF THE CONTRACT.
- EACH CONTRACTOR WILL BE HELD STRICTLY RESPONSIBLE FOR HIS WORK. ANY DISCREPANCIES ON THE PLANS OR DETAILS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT.
- PRIOR TO CLOSING OF ANY CEILINGS, ALL MECHANICAL SYSTEMS (ie. HVAC, PLUMBING, SPRINKLER AND ELECTRICAL) ARE TO BE INSPECTED AND WHERE REQUIRED, TESTED BY LOCAL AUTHORITIES AND/OR TESTING AGENCIES HAVING JURISDICTION TO INSURE THEIR PROPER INSTALLATION AND FUNCTION.
- CEILING HEIGHTS ARE DIMENSIONED IN RELATIONSHIP TO THE FINISHED FLOOR, UNLESS SPECIFICALLY NOTED.
- LIGHT FIXTURES SHOWN IN ACCIDENTAL TILE CEILING ARE TO BE LOCATED IN THE CENTER OF THE NEAREST LOCATED TILE, UNLESS OTHERWISE NOTED IN PLANS.
- ALL ELECTRICAL WORK IS TO BE COORDINATED WITH HVAC WORK, PLUMBING, WOODWORK, PARTITIONS, AND ALL OTHER WORK.
- COORDINATE ALL TELEPHONE WORK WITH OWNERS REPRESENTATIVE AND LOCAL TELEPHONE COMPANY BEFORE STARTING WORK.
- SHOP DRAWINGS ARE REQUIRED FOR ALL TRADES. SEE SPECIFICATIONS FOR FURTHER INFORMATION.
- ALL WORK SHOWN ON THESE DRAWINGS IS INCLUDED IN THIS CONTRACT UNLESS SPECIFICALLY NOTED OTHERWISE.
- ALL GYPSUM BOARD (INCLUDING BUT NOT LIMITED TO CEILINGS, SOFFITS, FASCIAS, COLUMN ENCLOSURES, ETC.) ARE TO BE TAPED, SANDED, PRIMED AND PAINTED, UNLESS NOTED OTHERWISE.
- CHECK ALL HEIGHTS AND POSSIBLE CEILING CONDITIONS FOR CLEARANCE OF DUCTWORK AND ALL OTHER CONSTRAINTS TO ASSURE THE LOCATION AND SIZE OF ALL SYSTEMS TO BE INSTALLED. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IN WRITING IMMEDIATELY BEFORE PROCEEDING WITH THE WORK.
- CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND ARCHITECT'S OFFICE MUST BE NOTIFIED OF ANY VARIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN BY THESE DRAWINGS.
- ALL CONSTRUCTION, DIMENSIONS AND DETAILS SHALL CONCUR WITH AND BE DETERMINED FROM THESE DRAWINGS ONLY.
- DRAWINGS ARE NOT TO BE SCALED FOR INFORMATION.
- ALL PERMITS ISSUED BY THE DEPARTMENT OF BUILDINGS SHALL BE POSTED IN A CONSPICUOUS PLACE OPEN TO PUBLIC INSPECTION FOR THE ENTIRE TIME OF THE PROSECUTION OF THE WORK OF THE USE AND OPERATION OF THE EQUIPMENT OR UNTIL THE EXPIRATION OF THE PERMIT.

BUILDING DEPARTMENT NOTES

- ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE 2008 BUILDING CODE OF THE CITY OF NEW YORK.
- SAFETY OF PUBLIC AND PROPERTY DURING CONSTRUCTION OPERATIONS SHALL COMPLY WITH ALL PROVISIONS OF SUBCHAPTER 1 OF CHAPTER 1 OF TITLE 27.
 - CONSTRUCTION SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES, ORDINANCES, RULES AND REGULATIONS PERTAINING TO LABOR AND MATERIALS.
 - ALL MATERIALS, ASSEMBLIES FORMS AND METHODS OF CONSTRUCTION SHALL COMPLY WITH ARTICLE SEVEN OF SUBCHAPTER 1 OF CHAPTER 1 OF TITLE 27.
 - AT LEAST 24 HOUR WRITTEN NOTICE SHALL BE GIVEN TO THE COMMISSIONER BEFORE COMMENCEMENT OF WORK (27-195).
 - THE ARCHITECT OF RECORD HAS NOT BEEN RETAINED FOR ANY FIELD SUPERVISION OR INSPECTION; HIS RESPONSIBILITY IS LIMITED TO THE ACCURACY OF THE PLAN. ALL CONTROLLED AND OTHER REQUIRED INSPECTIONS AND TESTING AND SUPERVISION SHALL BE SUPPLIED BY THE CONTRACTOR
 - ALL MATERIALS, ASSEMBLIES, FORMS AND METHODS OF CONSTRUCTION AND SERVICE EQUIPMENT SHALL MEET THE FOLLOWING REQUIREMENTS:
IT SHALL HAVE BEEN ACCEPTABLE PRIOR TO THE EFFECTIVE DATE OF THE CODE BY THE BOARD OR, SHALL HAVE BEEN ACCEPTED FOR USE UNDER THE PRESCRIBED CODE TEST METHODS BY THE COMMISSIONER OR, APPROVED BY THE BOARD OF STANDARDS AND APPEALS (C27-131).
 - AS PER 27-328(a), (b), (c), (d) FIRE RETARDANT WOOD MAY BE USED FOR INTERIOR FURRING AND BLOCKING OF EXTERIOR WALLS; AND FURRING AND BLOCKING OF INTERIOR WALLS AND PARTITIONS. FIRE-RETARDANT WOOD SHALL HAVE A FLAME SPREAD RATING NOT GREATER THAN 25 AS PER RS 5-3 AND RS 5-4. SUCH WOODS SHALL BEAR THE IDENTIFICATION OF A TESTING LABORATORY. FIRE RETARDANT WOOD MAY NOT BE USED WHERE EXPOSED TO THE WEATHER.
 - ALL MATERIALS OR ASSEMBLIES REQUIRED TO HAVE A FIRE RESISTANCE RATING SHALL COMPLY WITH ONE OF THE FOLLOWING:
IT SHALL CONFORM WITH NFPA "FIRE RESISTANCE RATING" -"DECEMBER 1964" OR, IT SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ASTM E-119-1961, "STANDARD METHODS OF FIRE TESTS OF BUILDING CONSTRUCTION AND MATERIALS" AND ACCEPTED BY THE COMMISSIONER, OR IT SHALL HAVE BEEN ACCEPTABLE PRIOR TO THE EFFECTIVE DATE OF THE CODE.
 - ALL MATERIALS, ASSEMBLIES AND METHODS OF CONSTRUCTION REGULATED BY THE CODE AND NOT LISTED HERE-IN SHALL BE SUBJECT TO INSPECTION BY THE CONTRACTOR AND HIS INSPECTING ENGINEER. SIGNED COPIES OF ALL TEST AND INSPECTION REPORTS SHALL BE FILED WITH THE DEPARTMENT OF BUILDINGS , AS REQUIRED BY THE CONTRACTOR'S INSPECTING ENGINEER.

- WHERE PIPES, WIRES, CONDUITS, DUCTS, ETC., PIERCE FIRE PROTECTION OF INDIVIDUALLY ENCASED STRUCTURAL MEMBERS, SUCH PENETRATION SHALL NOT EXCEED 2 PERCENT OF ANY ONE FACE SUCH PROTECTION AND SHALL BE CLOSED OFF WITH CLOSE FITTING METAL ESCUTCHEONS OR PLATES (C27-324A)
- OPENING PROTECTIVES INCLUDING FRAMES, SELF-CLOSING DEVICES AND HARDWARE SHALL COMPLY WITH ASTM E-152, 1966 "STANDARD METHODS OF FIRE TEST OF DOOR ASSEMBLIES" AND ASTM E-163, 1965 "STANDARD METHODS OF FIRE TEST OF WINDOW ASSEMBLIES" AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH NFPA NO. 8-1967 "INSTALLATION OF FIRE DOORS AND WINDOWS". OPENING PROTECTIVES SHALL BE LABELED, CERTIFYING PERFORMANCE RATING, AND SHALL HAVE BEEN ACCEPTED BY THE COMMISSIONER OR THE BOARD OF STANDARD AND APPEALS (C27-329).
- INTERIOR FIRE SEPARATIONS AND FIRE DIVISIONS TO BE AS PER TABLE 5-1/5-2.
- SMOKE DENSITY RATING TO BE AS PER SEC. 27-348.
- INTERIOR FINISHES TO BE AS PER SEC. 27-348 AND TABLE 5-4.
- SPACES SHALL COMPLY WITH HANDICAP REQUIREMENTS AS PER SUB-ARTICLE 2 OF SUB-CHAPTER 14 AND AS AMENDED BY LOCAL LAW 58/1987, AND THE ADA OF 1990.
- ALL REQUIRED FIRESTOPPING SHALL BE IN ACCORDANCE WITH SEC. 27-328. ALL EXIT DOORS SHALL BE FIREPROOF SELF-CLOSING WITH REQUIRED LABEL
- STAIR ENCLOSURES SHALL BE VENTED IN ACCORDANCE WITH 27-344.D.
- ALL EXITS SHALL BE KEPT READILY ACCESSIBLE AND UNOBSTRUCTED AT ALL TIMES.(TABLE 6-1)
- ALL EXIT DOORS SHALL BE FIREPROOF SELF-CLOSING WITH REQUIRED LABEL RATINGS IN ACCORDANCE WITH SEC. 27-371.
- STAIRS SHALL HAVE HANDRAILS ON EACH SIDE (EXCEPT STAIRS LESS THAN 44 INCHES IN WIDTH), HAVING FINGER CLEARANCE 1 1/2 INCHES, PROJECTING NOT MORE THAN 3 1/2 INCHES INTO THE REQUIRED STAIR WIDTH.
- HEIGHT OF HANDRAIL SHALL BE BETWEEN 30" AND 34" ABOVE THE THREAD NOSING. HANDRAILS SHALL BE RETURNED TO WALLS AND POSTS AT THEIR TERMINATION. MATERIALS OF HANDRAILS SHALL HAVE A FLAMESPREAD RATING NOT EXCEEDING 150. HANDRAILS SHALL BE DESIGNED TO RESIST A SIMULTANEOUS APPLICATION OF A LATERAL FORCE OF 40 PLF AND A VERTICAL LOAD OF 50 PLF. LANDINGS AND PLATFORMS SHALL BE ENCLOSED ON SIDES BY WALL OR RAILINGS, AT LEAST 3'-0" HIGH. RISERS SHALL BE MAXIMUM 7 1/2" HIGH, EXCEPT 7 3/4" HIGH AT RESIDENTIAL AREAS. TREADS MINIMUM 9 1/2" WIDE EXCLUSIVE OF NOSING AND THE SUM OF 2 RISERS PLUS 1 TREAD EXCLUSIVE OF NOSING SHALL NOT BE LESS THAN 24 NOR MORE THAN 25 1/2 INCHES.
- TREAD STRINGERS AND LANDINGS SHALL BE BUILT OF / OR SURFACED WITH NON-SKID MATERIALS.
- ALL ASSEMBLY SPACES SHALL BE PROVIDED WITH EMERGENCY LIGHTING TO STREET. ILLUMINATION OF AT LEAST 5 FOOTCANDLES MEASURED AT THE FLOOR LEVEL SHALL BE MAINTAINED CONTINUOUSLY IN EXITS AND THEIR ACCESS FACILITIES (C27-542).
- EXIT LIGHTING SHALL BE ON CIRCUITS THAT ARE SEPARATE FROM ANY OTHER CIRCUITS, WITH BATTERY OR EMERGENCY BACK UP, AND SHALL CONFORM TO SECTION 27-381.
- LOCATION OF EVERY EXIT ON EVERY FLOOR SHALL BE CLEARLY INDICATED BY EXIT SIGN PLACED, IF REQUIRED, AT AN ANGLE WITH THE EXIT OPENING. INSTALL DIRECTIONAL SIGNS TO SERVE AS GUIDE FROM ALL PORTIONS OF THE CORRIDOR OR FLOOR. SIGNS SHALL BE ON SEPARATE CIRCUITS, TAKEN OFF AHEAD OF THE MAIN SWITCH (C27-383 - C27-387).
- EXIT SIGNS SHALL BE INTERNALLY LIGHTED, HAVING AN INITIAL BRIGHTNESS OF THE LETTERS OF AT LEAST 25 FOOTLAMBERTS. LETTERS SHALL BE RED, THE BACKGROUND SHALL BE WHITE. LETTERS SHALL BE BLOCK LETTERING, AT LEAST 8" HIGH WITH 3/4" STROKES. ALSO ALL EXIT SIGNS SHALL CONFORM WITH SECTIONS 27-383 - 27-387, 27-541 & 27-534(e).
- ALL INTERIOR TOILETS SHALL BE MECHANICALLY VENTED IN ACCORDANCE WITH SECTION C27-759 OF THE BUILDING CODE.
- THE ELEVATOR AND ALL STAIR SIGNS SHALL CONFORM TO SECTION 27-390 THROUGH 27-393.
- CEILINGS THAT CONTRIBUTE TO THE REQUIRED FIRE RESISTANCE RATING OF A FLOOR OR ROOF ASSEMBLY SHALL BE CONTINUOUS BETWEEN FIRE DIVISIONS, FIRE SEPARATIONS OR VERTICAL PARTITIONS HAVING THE SAME FIRE RESISTANCE RATING AS THE CEILING. CONCEALED SPACE ABOVE SUCH CEILING, UNLESS SPRINKLERED, SHALL BE FIRESTOPPED INTO AREAS NOT EXCEEDING 3,000 SQ. FT. ACCESS TO SUCH SPACES MAY BE THROUGH ONE OR MORE OPENINGS NOT EXCEEDING 9 SQ.FT. AND PROTECTED BY SELF-CLOSING OPENING PROTECTIVES (C27-327).
- SUSPENDED CEILINGS SHALL COMPLY WITH SECTION C27-350 OF THE BUILDING CODE, WITH METAL HANGERS, PURLINS AND RUNNERS AS REQUIRED.
- WALLS TO BE ANCHORED TO COLUMNS AS PER RS10-1.
- PARTITIONS SHALL REST DIRECTLY UPON THE CONCRETE FLOOR CONSTRUCTION AND MAY EXTEND TO THE CONCRETE CONSTRUCTION OF THE FLOOR OR ROOF ABOVE. SEE PARTITION TYPE SHEET.
- ALL COMBUSTIBLE FLOORING TO HAVE FLAME SPREAD RATING IN ACCORDANCE WITH SUB-ARTICLE C27-348.
- INTERIOR WALLS, PARTITIONS, FLOOR AND CEILING CONSTRUCTION AND MECHANICAL EQUIPMENT SHALL BE DESIGNED AND CONSTRUCTED TO PROVIDE MINIMUM PROTECTION FOR RESIDENTIAL BUILDINGS WITHIN 100' FROM EXTRANEOUS NOISES EMANATING FROM EXTERIOR MECHANICAL EQUIPMENT AND SHALL CONFORM TO THE NOISE-REDUCTION REQUIREMENTS OF SUB-ARTICLE C27-770.
- FLOOR NUMBERS TO BE PROVIDED ON ALL FLOORS IN STAIR HALL AND AT ELEVATOR LANDINGS IN ACCORDANCE WITH SECTION D26-21.03 AND RULES OF THE DEPARTMENT OF BUILDINGS.
- EXIT DOORS SHALL BE READILY OPENABLE AT ALL TIMES FROM THE SIDE FROM WHICH EGRESS IS TO BE MADE. DOORS OPENING INTO INTERIOR ENCLOSED STAIR SHALL NOT BE LOCKED FROM EITHER SIDE EXCEPT THAT DOORS MAY BE LOCKED TO PREVENT ACCESS TO THE STAIR FROM THE OUTDOORS AT THE STREET LEVEL.
- ALL DOORS TO REQUIRED EXIT STAIRS SHALL BE 3'-0" WIDE EXCEPT IF OTHERWISE NOTED.
- ALL DOORS SHALL BE 7'-0" HIGH UNLESS OTHERWISE NOTED.
- DOORS AND ASSEMBLIES SHALL HAVE THE FOLLOWING FIRE RESISTIVE RATINGS. C27-371. DOORS TO STAIRS 3/4 HOURS, EXCEPT WHERE OTHERWISE NOTED. DOORS TO ELEVATOR SHAFTS 1 1/2 HOUR.
- ALL WIRE GLASS IN RATED DOORS AND WINDOWS WILL BE OF A TYPE APPROVED BY THE B.S.A.
- CORRIDORS AND EXIT PASSAGEWAYS SHALL HAVE A MIN. CLEAR HEIGHT OF 7'-6" FOR AT LEAST 75% OF THE FLOOR AREA WITH NO POINT LESS THAN 7 FT. IN HEIGHT (C27-375c). PROJECTION BELOW THE CEILING SHALL NOT OBSTRUCT FULL VIEW OF EXIT SIGNS (C27-369).
- CONCRETE CINDER BLOCKS SHALL BE TYPE APPROVED BY THE BOARD OF STANDARDS AND APPEALS.

- INTERIOR REQUIRED STAIR SHALL BE ENCLOSED WITH CONSTRUCTION FOR 2 HOUR FIRE RATING IN ACCORDANCE WITH NEW YORK CITY BUILDING CODE - TABLE 3-4, (27-375)
- ALL VENT DUCT SHAFTS SHALL BE ENCLOSED WITH 2 HOUR ENCLOSURE. NO DUCT VENTS TO PASS THROUGH STAIR ENCLOSURES. 1 1/2 HOUR AUTOMATIC SELF-CLOSING FIRE DAMPERS TO BE INSTALLED IN VENT DUCTS WHEN THEY PIERCE PUBLIC CORRIDORS.
- NO WORK TO BE DONE BEYOND THE BUILDING LINES WITHOUT THE APPROVAL OF THE DEPARTMENT OF HIGHWAYS.
- FIRESTOPPING: CONCEALED SPACES WITHIN PARTITIONS, WALLS, FLOORS, ROOFS, STAIRS, FURRING PIPE SPACES, COLUMN ENCLOSURES, ETC. SHALL BE FIRESTOPPED (EXCEPT WHERE CONCEALED SPACE IS SPRINKLERED OR IS CONSTRUCTED AS A SHAFT) AS FOLLOWS:
- CONSTRUCTION GROUP 1: WITH NON-COMBUSTIBLE MATERIAL THAT CAN BE SHAPED AS ACCEPTED BY A.S.T.M. E-814 "THROUGH PENETRATION FIRE STOP SYSTEM."
- NON-COMBUSTIBLE FIRESTOPPING MAY BE MASONRY SET IN MORTAR, CONCRETE 3/4" MORTAR OR PLASTER ON NON-COMBUSTIBLE LATH, PLASTER BOARD AT LEAST 3/8" THICK, SHEET METAL OF AT LEAST 0.002" THICK, SOLID WEB METAL STRUCTURAL MEMBERS, 1/4" MINIMUM FIREPROOF CEMENT BOARD OF EQUIVALENT MATERIALS, MINERAL SLAG, OR ROCKWOOL WHEN COMPACTED INTO CONFINED SPACE (27-345).
- FIREPROOFING: THE VARIOUS OCCUPANCIES REQUIRED TO BE SEPARATED FROM EACH OTHER BY FIRE SEPARATING OR DIVISIONS AS PER C27-240 SHALL BE SO SEPARATED BY PARTITIONS HAVING THE REQUIRED FIRE RATING IN ACCORDANCE WITH C27-339.
- THE CONSTRUCTION CLASSIFICATION OF THE BUILDING IS CONSTRUCTION GROUP 1 NON-COMBUSTIBLE CLASS "1C". THE CONSTRUCTION ELEMENTS SHALL BE OF THE REQUIRED MINIMUM FIRE RESISTANCE RATINGS AS OUTLINED IN TABLE 3-4 AND DEFINED IN SUB-ARTICLE C27-318 TO C27-354.
- CONDUITS IN FIRE-RATED PARTITIONS SHALL NOT EXCEED 3/4 INCH DIAMETER. OUTLETS IN SUCH PARTITIONS WILL BE BACKED UP WITH APPROVED MATERIALS.
- PENETRATION OF OPENINGS IN WALLS, PARTITIONS OR FLOORS FOR PIPE SLEEVES, ELECTRIC DEVICES, ETC., SHALL BE PACKED SEALED.
- WHERE GLASS FACING IS USED, THICKNESS AND AREA COMPLIES WITH SUB-ARTICLE (C27-643 - C27-651).
- FIRE PREVENTION APPLICATIONS WILL BE FILED IF REQUIRED FOR ALL INSTALLATIONS.
- FIRE EXTINGUISHING EQUIPMENT:
(A)PER C27-933(C) - INSPECTIONS AND TESTS OF STANDPIPES ARE SUBJECT TO CONTROLLED INSPECTION, IF CONTRACTOR'S ENGINEER DOES NOT CHOOSE TO HAVE TESTS WITNESSED BY REPRESENTATIVE OF DEPARTMENTS.
(B)PER C27-967, C27-933(C) - INSPECTIONS AND TEST OF SPRINKLER SYSTEMS ARE SUBJECT TO CONTROLLED INSPECTION, IF CONTRACTORS APPLICANT ENGINEER DOES NOT CHOOSE TO HAVE TESTS WITNESSED BY REPRESENTATIVE OF THE DEPARTMENT.
- NO CONDUITS, PIPES, MEDICINE CABINETS, ETC. SHALL ENCRONCH ON PARTITIONS INCLUDING STAIRS OR ELEVATOR SHAFTS OR OTHER RELATED PARTITIONS.
- RADIO AND TV WIRES AND ANTENNAE SHALL COMPLY WITH SECTION 62 M.D.L. AND SHALL BE REPLACED A MIN. OF 10'-0" ABOVE HIGHEST POINT ON ROOF.
- MASONRY MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF RS10-1, SECTION 3, AND TO COMPLY WITH C27-601 FOR CERTIFICATION.
- ALL MASONRY LOAD BEARING AND NON-LOAD BEARING WALLS SHALL BE BONDED IN ACCORDANCE WITH SECTION 7, RS 10-1.
- LINTELS SUPPORTING MASONRY WALL OVER 4 FEET IN WIDTH SHALL BE FIRE PROTECTED WITH MATERIALS HAVING THE REQUIRED FIRE RESISTANCE RATING OF THE WALL SUPPORTED (C27-326).
- MECHANICAL VENTILATION, AIR CONDITIONING AND REFRIGERATION: ALL FINAL INSPECTION AND TESTS OF A REQUIRED VENTILATING SYSTEM SHALL BE MADE AS PER C27-779, BY AN ENGINEER PROVIDED BY THE CONTRACTOR.
- ALL INSPECTION AND TESTS OF A REFRIGERATION SYSTEM SHALL BE MADE AS PER C27-781, BY THE CONTRACTOR
- ALL INTERIOR OCCUPIED SPACES SHALL BE MECHANICALLY VENTILATED IN ACCORDANCE WITH SUB-ARTICLE 12.
- HEATING AND COMBUSTION EQUIPMENT: ALL FINAL INSPECTIONS AND TESTS FOR BOILERS SHALL BE SUBJECT TO THE PROVISIONS FOR CONTROLLED INSPECTION (SUCH AS INSPECTIONS AND TESTS, HOWEVER, MAY BE MADE BY DEPARTMENT INSPECTORS OR BY A DULY AUTHORIZED INSURANCE COMPANY INSPECTOR) PER C27-787(A).
- ALL APPLICATIONS FOR EQUIPMENT USE PERMIT FOR HEATING SYSTEMS SHALL BE ACCOMPANIED BY A SIGNED STATEMENT BY AN ARCHITECT OR ENGINEER RETAINED BY THE CONTRACTOR STATING THAT THE SYSTEM HAS BEEN OPERATED AND FUNCTIONS SATISFACTORILY AND THAT TO THE BEST OF HIS KNOWLEDGE AND BELIEF THE SYSTEM WILL MEET THE CODE TEMPERATURE REQUIREMENTS PER C27-187.
- GAS APPLIANCES TO COMPLY WITH SECTION 54 M.D.L. C27-879.

THIRD PARTY INSPECTIONS

- CONTROLLED INSPECTIONS AND ALL RELATED ENGINEERING AND TESTING SERVICES SHALL BE OBTAINED BY THE CONTRACTOR FOR THE FOLLOWING AREAS OF WORK: SEE ALSO STRUCTURAL AND MEP DRAWINGS.
- | NEW BUILDING APPLICATION - SPECIAL INSPECTION ITEMS | | |
|---|----------------|------------|
| A. STRUCTURAL STEEL - WELDING | BC1704.3.1 | |
| B. STRUCTURAL STEEL - ERECTION & BOLDING | BC1704.3.2 | BC1704.3.3 |
| C. CONCRETE - CAST IN PLACE | BC1704.4 | |
| D. MASONRY | BC1705.5 | |
| E. SOIL - SITE PREPARATION | BC1704.7.1 | |
| F. MECHANICAL SYSTEMS | BC1705.15 | |
| G. SITE STORM DRAINAGE DISPOSAL & DETENTION SYSTEM INSTALLATION | BC1704.20 | |
| H. SPRINKLER SYSTEMS | BC1704.21 | |
| I. HEATING SYSTEMS | BC1704.23 | |
| J. FIRESTOP, DRAFTSTOP, AND FIREBLOCK SYSTEM | BC1704.25 | |
| K. CONCRETE TEST CYLINDERS | BC1905.6 (TR2) | |
| L. CONCRETE DESIGN MIX | BC1905.3 (TR3) | |
-
- | PROGRESS INSPECTION ITEMS | | |
|---------------------------------------|-----------------|--|
| A. FOOTING AND FOUNDATION | BC109.3.4 | |
| B. FRAME INSPECTION | BC109.3.3 | |
| C. ENERGY CODE COMPLIANCE INSPECTIONS | BC109.3.5 (TR8) | |
| D. FIRE RESISTANCE RATED CONSTRUCTION | BC109.3.4 | |
| E. FINAL | BC109.5 | |
-
- | ENERGY CODE PROGRESS INSPECTION ITEMS | | |
|---|-----------|--|
| A. PROTECTION OF FOUNDATION INSULATION | IA1, IA11 | |
| B. INSULATION PLACEMENT AND R-VALUES | IA2, IA2 | |
| C. FENESTRATION THERMAL VALUES AND RATINGS | IA3, IA3 | |
| D. FENESTRATION RATINGS OF AIR LEAKAGE | IA4, IA4 | |
| E. FENESTRATION AREAS | IA5, IA5 | |
| F. AIR SEALING AND INSULATION - VISUAL | IA6, IA6 | |
| G. HVAC AND SERVICE WATER HEATING EQUIP. | IB3, IB3 | |
| H. HVAC AND SERVICE WATER HEATING SYS. CONTROLS | IB4, IB4 | |
| I. DUCT PLENUM & PIPING INSULATION & SEALS | IB5, IB5 | |
| J. ELECTRICAL METERING | IC1, IC1 | |
| K. LIGHTING IN DWELLING UNITS | IC2, IC2 | |
| L. INTERIOR LIGHTING POWER | IC3 | |
| M. MAINTENANCE INFORMATION | ID1, ID1 | |
- VERIFY IN FIELD ALL EXISTING CONDITIONS AND CONTACT THE ARCHITECT WHEN A CONDITION IN THE FIELD DOES NOT COMPLY WITH THESE DOCUMENTS, INCLUDING ANY AND ALL DEVIATIONS OF DIMENSIONS SHOWN HERE-IN. THESE DEVIATIONS MUST BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO INSTALLATION OF SAME.
 - THE COMMISSIONER MAY ACCEPT SIGNED STATEMENTS BY ARCHITECTS AND ENGINEERS RETAINED BY THE CONTRACTOR AND SUPPORTING INSPECTIONS AND TEST REPORTS SUPPLIED BY THE CONTRACTOR WITHOUT VERIFYING INSPECTION OR TEST BY DEPARTMENT INSPECTORS PER C27-209.
 - EQUIPMENT REQUIRING USE OF PERMITS SHALL BE INSPECTED AND TESTED TO DETERMINE PROPER FUNCTIONING AND COMPLIANCE WITH THE BUILDING CODE AND OTHER APPLICABLE LAWS AND REGULATIONS. ALL INSPECTIONS AND TESTS SHALL BE CONDUCTED IN ACCORDANCE WITH THE REQUIRED INSPECTION AND OF HEATING SYSTEM, A SIGNED STATEMENT BY ARCHITECT OR ENGINEER RETAINED BY THE CONTRACTOR SHALL TEST PROCEDURES AND SIGNED COPIES OF REQUIRED INSPECTIONS AND TEST BE SUBMITTED WITH THE PERMIT APPLICATION, STATING THAT THE SYSTEM HAS REPORTS SHALL BE FILED WITH THE DEPARTMENT OF BUILDINGS AND FORM BE OPERATED AND FUNCTIONS SATISFACTORILY, AND THAT TO THE BEST OF PART OF THE PAPERS ACCOMPANYING THE PERMIT APPLICATION, IN THE CASE HIS KNOWLEDGE AND BELIEF, THE SYSTEM WILL MEET THE CODE TEMPERATURE REQUIREMENT.
 -

HOUSING MAINTAINENCE & MULTIPLE DWELLING LAWS

- PREMISES TO COMPLY WITH ARTICLE 17 OF HMC FOR HEAT AND HOT WATER. HEAT TO BE SUPPLIED BETWEEN OCTOBER 1 TO MAY 31; BETWEEN THE HOURS OF 6 AM TO 10 PM, 68 DEGREES F. AND BETWEEN 10 PM TO 6 AM 55 DEGREES.
- PAINTING OF PUBLIC PARTS AND WITHIN THE DWELLING TO COMPLY WITH SECTION D26.12.01 HMC.
- PREMISES TO BE MAINTAINED AND KEPT FREE OF RODENTS AND INSECT INFESTATION AS PER SECTION D26-13.03 AND D26-13.05 HMC.
- RECEPTACLES FOR COLLECTION OF WASTE MATTER TO BE PROVIDED AS PER SECTION D26-14.03 HMC.
- DRAINAGE OF ROOFS, COURTS AND YARD TO COMPLY WITH SECTION D26-16.03 HMC.
- PROPER ELECTRIC LIGHTING EQUIPMENT WITHIN DWELLING TO BE PROVIDED AND MAINTAINED AS PER SECTION D26-19.01, 19.03, 19.04 HMC.
- PROPER ELECTRIC LIGHT TO BE PROVIDED AT OR NEAR THE FRONT ENTRANCE DOORS AND IN YARDS AND COURTS AS PER SECTION D26-10.07 HMC AND CONNECTED TO HOUSE LINES SERVICING PUBLIC HALLS.
- BOARD OF STANDARDS AND APPEALS APPROVED TYPE PEEPHOLES APPROXIMATELY 5 FEET ABOVE FURNISHED FLOOR TO BE PROVIDED IN ENTRANCE DOORS AND DWELLING UNITS AS PER SECTION D26-01 HMC AND DEPARTMENT OF RULES AND REGULATIONS.
- KEY LOCK IN THE ENTRANCE DOOR TO EACH DWELLING UNIT WITH AT LEAST ONE KEY TO BE PROVIDED BY OWNER AS PER SECTION D26-20.05 HMC.
- APPROVED TYPE MAIL RECEPTACLES AND DIRECTORY OF PERSONS LIVING IN DWELLING TO BE PROVIDED AS PER 22.01 HMC AND REGULATIONS OF THE POST OFFICE DEPARTMENT.
- PROPER FLOOR SIGNS TO BE PROVIDED IN PUBLIC HALL NEAR STAIRS AND WITHIN STAIRS ENCLOSURES AS PER SECTION D26-22.08 HMC AND DEPARTMENT RULES AND REGULATIONS.
- PROPER STREET NUMBERS TO BE PROVIDED IN FRONT OF THE DWELLING AS PER SECTION D26-21.05 HMC AND RULES AND REGULATIONS OF THE BOROUGH PRESIDENT.
- REGISTRATION STATEMENT TO BE FILED AS PER SECTION D26-41.01 AND D26 41.03
- REGISTRATION IDENTIFICATION SIGN CONTAINING DWELLING SERIAL NUMBER TO BE POSTED AS PER SECTION D26-41.15 HMC.
- INTERCOM AND OR BUZZER SYSTEM TO BE INSTALLED AS PER SECTION C26-604.4 (2) AND SECTION 56 MDL.
- FACILITIES AND EQUIPMENT SHALL COMPLY WITH D26-32.01 HMC.
- LIGHTING AND VENTILATION SHALL COMPLY WITH D26-32.03 HMC.
- ALL COMBUSTIBLE MATERIALS WITHIN ONE FOOT OF COOKING APPARATUS TO BE PROPERLY FIRE RETARDED AND MINIMUM 2 FOOT CLEARANCE MAINTAINED ABOVE EXPOSED COOKING SURFACE. COMBUSTIBLE MATERIAL BETWEEN 2 FEET AND 3 FEET ABOVE EXPOSED COOKING SURFACE TO BE FIRE RETARDED AS PER SECTION D26-32.05 HMC AND DEPARTMENT RULES AND REGULATIONS (F.R. MATERIAL TO BE 3/16"NON-COMBUSTIBLE MATERIAL WITH 26 GA METAL OR MATERIAL OF EQUAL FIRE RATING)
- NO KITCHEN SHALL BE OCCUPIED FOR SLEEPING PURPOSES. SECTION D26-03.05 HMC.

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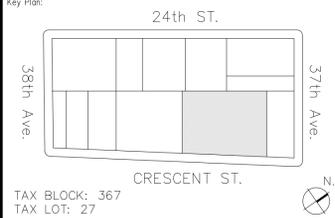
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Key Plan:



TAX BLOCK: 367
TAX LOT: 27

SMOKE DETECTING NOTES

- SMOKE DETECTING DEVICES**
- SMOKE DETECTING DEVICES SHALL CONFORM TO SUBCHAPTER 17, ARTICLE 6 OF THE BUILDING CODE.
 - DWELLING UNITS SHALL BE EQUIPPED WITH SMOKE DETECTING DEVICES RECEIVING THEIR PRIMARY POWER FROM THE BUILDING WIRING AND THERE SHALL BE NO SWITCHES IN THE CIRCUIT OTHER THAN THE OVER CURRENT DEVICE PROTECTING THE BRANCH CIRCUIT, PROVIDED, HOWEVER THAT DWELLING UNITS IN EXISTING UNITS IN EXISTING BUILDINGS MAY, IN THE ALTERNATIVE, BE EQUIPPED WITH BATTERY OPERATED SMOKE DETECTING DEVICES EXCEPT WHERE SUCH BUILDINGS ARE SUBSTANTIALLY IMPROVED OR ALTERED ON OR AFTER JANUARY 1, 1982, PER SEC 27-980.
 - ALL SMOKE DETECTING DEVICES SHALL BE ACCEPTED PURSUANT TO RULES AND REGULATIONS PROMULGATED BY THE COMMISSIONER, APPROVED BY THE BOARD OF STANDARDS AND APPEALS OR LISTED BY A NATIONALLY RECOGNIZED INDEPENDENT LABORATORY. NO DEVICE SHALL BE DEEMED TO BE IN COMPLIANCE WITH THIS PROVISION UNLESS IT IS OF EITHER THE IONIZATION OR PHOTO-ELECTRIC TYPE AS PER SEC 27-981.
 - ALL SMOKE DETECTORS MUST BE INSTALLED WITHIN 15'-0" OF THE ENTRANCE TO ANY SLEEPING ROOM, AND MAY BE WALL OR CEILING MOUNTED AS INDICATED ON PLANS AS PER NFPA #74-1980.
 - PROVIDE AND INSTALL AT LEAST ONE APPROVED CARBON MONOXIDE ALARM WITHIN FIFTEEN FEET OF THE PRIMARY ENTRANCE TO EACH SLEEPING ROOM.
 -

01 11.25.2014 D.O.B. FILING SET
NO DATE: ISSUE:

PROJECT
37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
11101

DRAWING TITLE

GENERAL NOTES & DOB REQUIREMENTS

SEAL & SIGNATURE

DATE: 11.25.2014

PROJECT No: stein_37-10_47cres

DRAWING BY: FFA

CHK BY: FFA

DWG. No:

G-003.00

CADD FILE No:

4 of 49

ADDRESS 37-10 CRESCENT ST, LONG ISLAND CITY, QUEENS, NEW YORK, 11101

OWNER 37-10 CRESCENT ST OWNER LLC, SAGAMORE CRESCENT LLC

DESCRIPTION NEW 7 STORY MIXED USE BUILDING

BLOCK 367

LOT 27

ZONING DISTRICT M1-2/R5D & M1-2/R6A (SPECIAL LONG ISLAND CITY MIXED USE DISTRICT (LIC) - DUTCH KILLS SUB DISTRICT)

ZONING MAP 9B

PERMITTED USES USE GROUP 1,2,3,4 - RESIDENTIAL

(117-631 (C)) LIMITED TO THE FOLLOWING USES: PHOTOGRAPHIC OR MOTION PICTURE PRODUCTION STUDIOS AND RADIO OR TELEVISION STUDIOS LISTED IN USE GROUP 10A; AND USES LISTED IN USE GROUPS 16A, 16D, 17A AND 17B AS SET FORTH IN SECTION 123-22

PROPOSE USE: USE GROUP 2 - MULTI FAMILY RESIDENTIAL
USE GROUP 16A - CONTRACTORS ESTABLISHMENT

OCCUPANCY: CELLAR - PARKING
LEVEL 1 - RESIDENTIAL AND MANUFACTURING
LEVEL 2-7 - RESIDENTIAL

CHAPTER 7 - SPECIAL PROVISIONS FOR ZONING LOTS DIVIDED BY DISTRICT BOUNDARIES

(77-22) FLOOR AREA RATIO - SEE DIAGRAM AT 1/Z-001

RESIDENTIAL	M1-2/R5D	M1-2/R6A	
TOTAL LOT AREA	18,275 SF	69%	31%
FAR	2	3	
ADJUSTED FAR	1.38	0.92	2.308 FAR
MAX PERMITTED	18,275 X 2.308 =		42,178 SF
PROPOSED RESIDENTIAL FLOOR AREA			42,170 SF CONFORMS

MANUFACTURING	M1-2/R5D	M1-2/R6A	
TOTAL LOT AREA	18,275 SF	69%	31%
FAR	3	4	
ADJUSTED FAR	2.07	1.23	3.308 FAR
MAX PERMITTED	18,275 X 3.308 =		60,453 SF
PROPOSED MANUFACTURING FLOOR AREA			13,979 SF CONFORMS

PROPOSED MIXED USE FLOOR AREA 42,170 SF + 13,979 SF = 56,149 SF CONFORMS

M1-2/R5D

LOT AREA: 12,638 SF

(117-63) (123-64 a.3) (23-141) RESIDENTIAL BASE FLOOR AREA RATIO M1-2/R5D

RESIDENTIAL 2.0 FAR (LIMITED QUALITY HOUSING)

MAX PERMITTED 2.0 X 12,638 = 25,276 SF

MAX PERMITTED (77-22) 2.3 X 12,638 = 29,174 SF

PROPOSED FLOOR AREA **27,103 SF CONFORMS**

(117-631 c) MANUFACTURING BASE FLOOR AREA RATIO M1-2/R5D*

MANUFACTURING 3.0 FAR

MAX PERMITTED 3.0 X 12,638 = 37,914 SF

MAX PERMITTED (77-22) 3.3 X 12,638 = 41,806 SF

PROPOSED FLOOR AREA **11,785 SF CONFORMS**

M1-2/R6A

LOT AREA: 5,637 SF

(117-63) (123-64 a.3) (23-145) RESIDENTIAL BASE FLOOR AREA RATIO M1-2/R6A

RESIDENTIAL 3.0 FAR (QUALITY HOUSING)

MAX PERMITTED 3.0 X 5,637 = 16,911 SF

MAX PERMITTED (77-22) 2.3 X 5,637 = 12,965 SF

PROPOSED FLOOR AREA **15,561 SF CONFORMS**

(117-631 c) MANUFACTURING BASE FLOOR AREA RATIO M1-2/R6A*

MANUFACTURING 4.0 FAR

MAX PERMITTED 4.0 X 5,637 = 22,548 SF

MAX PERMITTED (77-22) 3.3 X 5,637 = 18,602 SF

PROPOSED FLOOR AREA **1,990 SF CONFORMS**

(*LIMITED USES AS LISTED ABOVE)

(117-63) (123-64 b) MAXIMUM LOT COVERAGE

NOT APPLICABLE - MIXED USE

(77-25) (23-22) MAXIMUM ALLOWABLE DWELLING UNIT

M1-2/R5D DISTRICT DWELLING UNIT FACTOR = 760

MAX RESIDENTIAL ZONING FLOOR AREA PERMITTED = 25,276 SF

MAXIMUM NUMBER OF DWELLING UNITS 25,276 / 760 = **33 UNITS**

M1-2/R6A DISTRICT DWELLING UNIT FACTOR = 680

MAX RESIDENTIAL ZONING FLOOR AREA PERMITTED = 16,911 SF

MAXIMUM NUMBER OF DWELLING UNITS 16,911 / 680 = **25 UNITS**

COMBINED SITE MAXIMUM NUMBER OF DWELLING UNITS = 33 + 25 = **58 UNITS**

COMBINED SITE PROPOSED NUMBER OF DWELLING UNITS = **55 UNITS CONFORMS**

M1-2/R5D

(117-63) (123-661) HEIGHT AND SETBACK REGULATIONS

MINIMUM BASE HEIGHT

ALLOWED N/A

MAXIMUM BASE HEIGHT

ALLOWED = 40'-0"

PROPOSED = 12'-0" **CONFORMS**

MINIMUM STREETWALL SETBACK ABOVE BASE HEIGHT

REQUIRED = 25'-0"

PROPOSED = 25'-0" **CONFORMS**

MAXIMUM BUILDING HEIGHT

ALLOWED = 60'-0"

PROPOSED = 60'-0" **CONFORMS**

M1-2/R6A

(117-63) (123-662 b) HEIGHT AND SETBACK REGULATIONS

MINIMUM BASE HEIGHT

ALLOWED = 40'-0"

PROPOSED = 60'-0" **CONFORMS**

MAXIMUM BASE HEIGHT

ALLOWED = 60'-0"

PROPOSED = 60'-0" **CONFORMS**

MINIMUM STREETWALL SETBACK ABOVE BASE HEIGHT

REQUIRED ON A NARROW STREET = 15'-0"

PROPOSED = 15'-0" **CONFORMS**

MAXIMUM BUILDING HEIGHT

ALLOWED = 70'-0"

PROPOSED = 70'-0" **CONFORMS**

117-632 STREET WALL LOCATION

THE STREETWALL OF ANY RESIDENTIAL OR MIXED USE BUILDING SHALL BE LOCATED NO CLOSER TO NOR FURTHER FROM THE STREET LINE THAN THE STREETWALL OF AN ADJACENT BUILDING.

CONFORMS

(23-47) REAR YARD

RESIDENTIAL PORTION OF MIXED USE BUILDING

MINIMUM ALLOWED 30'-0"

REQUIRED = 30'-0"

PROPOSED = 30'-0" **CONFORMS**

(23-851) INNER COURT

NOT LESS THAN 1,200SF MIN DIMENSIONS 30'

CONFORMS

(43-23 b.1) PERMITTED OBSTRUCTIONS IN REQUIRED YARDS OR REAR YARD EQUIVALENTS

ANY BUILDING OR PORTION OF BUILDING USED FOR ANY PERMITTED USE... PROVIDED THAT THE HEIGHT OF SUCH BUILDING SHALL NOT EXCEED ONE STORY, EXCLUDING BASEMENT. NOR IN ANY EVENT 23 FEET ABOVE CURB LEVEL.

CONFORMS

(77-30) (25-23) (44-21) PARKING RESIDENTIAL (25-23)

	M1-2/R5D	M1-2/R6A	
TOTAL LOT AREA	18,275 SF	69%	31%
PARKING REQUIRED	66%	50%	
ADJUSTED PARKING	46%	15%	61%
PARKING REQUIRED	55 UNITS X 61% =		34 SPACES
PROPOSED SPACES			34 SPACES CONFORMS

MANUFACTURING (44-21)

PARKING REQUIRED 1 SPACE PER 1,000SF MANUFACTURING

PARKING REQUIRED **13,775 SF / 1,000 SF = 14 SPACES**

PROPOSED SPACES **14 SPACES CONFORMS**

TOTAL PARKING REQUIRED 34 SPACES + 14 SPACES = 48 SPACES

TOTAL PARKING PROVIDED 48 SPACES CONFORMS

(44-52) REQUIRED ACCESSORY OFF-STREET LOADING BERTHS

USE GROUPS 10A, 16A

FIRST 25,000 SQUARE FEET OF FLOOR AREA - NONE

USE GROUPS 16D, 17A, 17B

FIRST 8,000 SQUARE FEET OF FLOOR AREA - NONE

NONE PROVIDED **CONFORMS**

(16-23) CURB CUT RESTRICTIONS

(A) NOT PERMITTED WITHIN 50' OF STREET INTERSECTION

CONFORMS SEE 1/Z-003.00

ZR 12-10 (12) (ii) EXTERIOR WALL ZONING FLOOR AREA DEDUCTION

FENESTRATION LESS THAN 40% PER ECC 502.3.1

CONFORMS

AREA WEIGHTED AVERAGE CALCULATION TABLE

	Area A (SF)	U-Factor (Proposed) B	UA (Proposed) [multiply Area by U-Factor (Proposed)] C=A*B	U-Factor (Code-Max.) D	UA (Code) [multiply Area by U-Factor (Code Max.)] E=A*D
Type A - CMU	4,752	0.054	257	0.064	304
Type B - METAL PANEL	2,125	0.054	115	0.064	136
Type C - RAINDOOR	4,724	0.052	247	0.064	302
Type D - EIFS	13,778	0.053	730	0.064	882
Type E - VISION GLASS	7,397	0.39	2,885	0.40	2,958
Total Area	32,776		4,234		4,582

Compare U-Factors: Proposed vs. Code in Percentage [Total UA (Proposed)]/Total UA (Code)] x 100 = **92%**

(23-03) (26-41) STREET TREE PLANTING

1 TREE FOR EVERY 25' OF STREET FRONTAGE

REQUIRED: 158/25 = 6 TREES

PROPOSED: 6 TREES **CONFORMS**

(25-85) ENCLOSED BICYCLE PARKING SPACES

QUALITY HOUSING

NUMBER OF SPACES REQUIRED: (1) / 2 UNITS = 28

NUMBER OF SPACES PROPOSED: 28 **CONFORMS**

(77-40) SUPPLEMENTAL REGULATIONS

(28-21) MINIMUM SIZE OF DWELLING UNIT

ALLOWED 400 SF

PROPOSED SMALLEST D.U.: 487 SF **CONFORMS**

(28-22) DOUBLE GLAZED WINDOWS

INCLUDED **CONFORMS**

(28-23) REFUSE STORAGE AND DISPOSAL

INCLUDED - SEE FLOOR PLANS **CONFORMS**

(28-31) REQD RECREATION SPACE

3.3% OF RESIDENTIAL FLOOR AREA

REQUIRED 3.3% X 42,187 SF = 1,391 SF

PROPOSED

INDOOR (GROUND FLOOR): 558 SF

INDOOR (7TH FLOOR): 834 SF

TOTAL: 1,392 SF **CONFORMS**

(28-41) DENSITY PER CORRIDOR

REQUIRED MAXIMUM UNITS/CORRIDOR = 11 UNITS

PROPOSED= 11 UNITS **CONFORMS**

(28-25) DAYLIGHT IN CORRIDORS

50% OF AREA OF CORRIDOR MAYBE EXCLUDED FROM THE DEFINITION OF A FLOOR AREA IF A WINDOW WITH A CLEAR, NON TINTED, GLAZED AREA OF AT LEAST 20 SF IS PROVIDED IN SUCH CORRIDOR.

PROPOSED AREA OF CORRIDOR WINDOW: 35 SF **CONFORMS**

(28-24) LAUNDRY FACILITIES

1 WASHING MACHINE PER 20 DWELLING UNITS

REQUIRED = 3

PROVIDED = 3 **CONFORMS**

1 DRYER PER 40 DWELLING UNITS

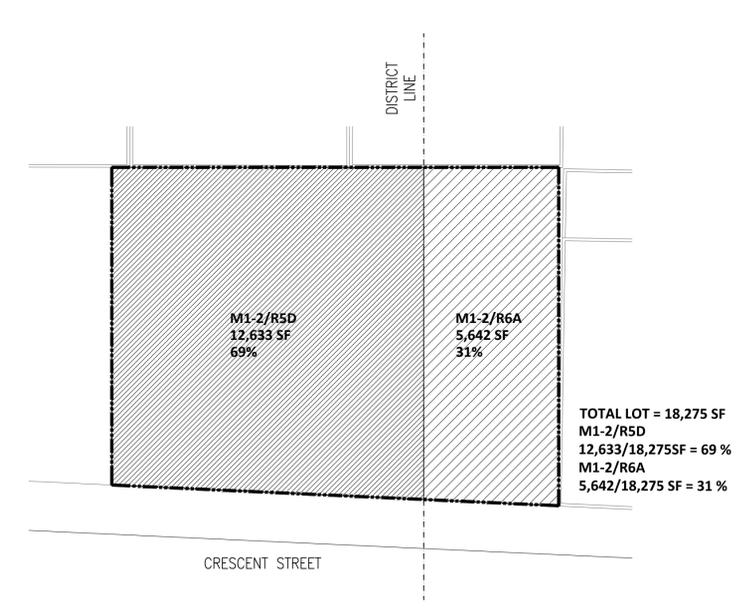
REQUIRED = 2

PROVIDED = 3 **CONFORMS**

ZR 12-10 (12) (ii) EXTERIOR WALL ZONING FLOOR AREA DEDUCTION

FENESTRATION LESS THAN 40% PER ECC 502.3.1 **CONFORMS**

AREA WEIGHTED AVERAGE CALCULATION TABLE



TOTAL LOT = 18,275 SF

M1-2/R5D 12,633/18,275SF = 69%

M1-2/R6A 5,642/18,275 SF = 31%

Client:

37-10 Crescent Street Owner LLC

Sagamore Crescent LLC

Architect:

FOGARTY FINGER

architecture interiors

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Consultants:

Owner:

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Wexler and Associates

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MEP Engineer:

Sideris Kefalas Engineers, PE

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Bayside, New York 11361

Tel 718 224 9091

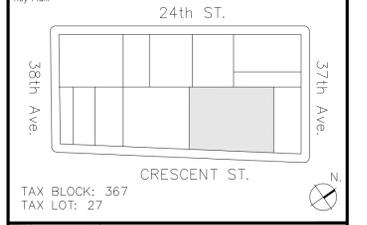
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TAX BLOCK: 367

TAX LOT: 27

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PROJECT

37-10 CRESCENT ST.

LONG ISLAND CITY, NEW YORK

11101

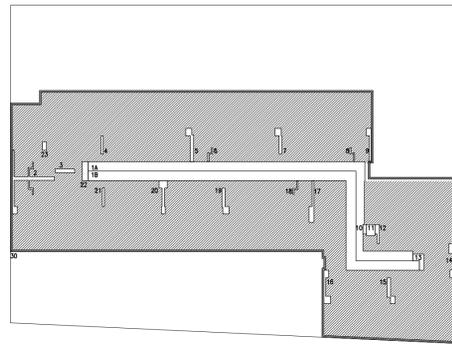
ZONING ANALYSIS & AREA CALCULATIONS

DATE: 11.25.2014	PROJECT No: stein_37-10_47cres
DRAWING BY:	CHK BY:
DWG. No.: Z-001.00	CADD FILE No.:
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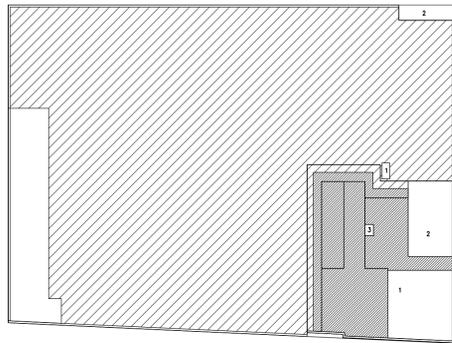
CELLAR FLOOR: (NOT INCLUDED IN FAR)

GROSS FLOOR AREA	=	18,275 SF
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3rd-6th FLOORS: AREA DEDUCTION

RESIDENTIAL		
1A CORRIDOR-DAYLIGHT 0.5 X 975	=	488 SF
1B CORRIDOR(<11UNITS) 0.5 X 975	=	488 SF
02 PLUMBING:	=	42 SF
03 PLUMBING: 6'-10" X 1'-4"	=	9 SF
04 PLUMBING: 6'-5" X 9"	=	5 SF
05 PL/MECH:	=	16 SF
06 PLUMBING:	=	3 SF
07 PL/MECH:	=	12 SF
08 PLUMBING:	=	3 SF
09 PL/MECH:	=	11 SF
10 MECHANICAL: 3'-4" X 1'-3"	=	4 SF
11 TRASH ROOM MECH: 4' X 3'	=	12 SF
12 PL/MECH:	=	8 SF
13 MECHANICAL:	=	15 SF
14 PL/MECH:	=	24 SF
15 PL/MECH:	=	12 SF
16 PL/MECH:	=	15 SF
17 PL/MECH:	=	16 SF
18 PLUMBING:	=	3 SF
19 PL/MECH:	=	13 SF
20 PL/MECH:	=	17 SF
21 PLUMBING: 6'-6" X 9"	=	5 SF
22 MECHANICAL: 6'-8" X 2'-2"	=	6 SF
23 MECHANICAL: 3'-0" X 1'-5"	=	4 SF
ZR-12-10(12)(i)DEDUCTION	=	
30 A: 8" X 493'	=	329 SF
TOTAL AREA DEDUCTION	=	1,560 SF
GROSS FLOOR AREA	=	9,503 SF
NET FLOOR AREA	=	7,943 SF



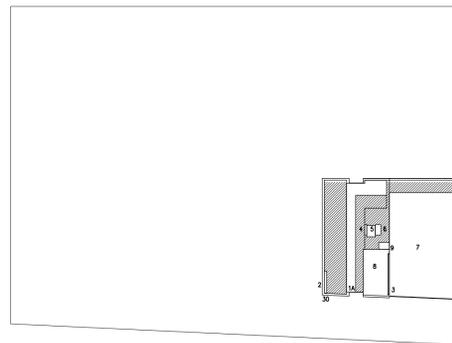
GROUND FLOOR: AREA DEDUCTION

RESIDENTIAL		
01 RECREATION ROOM:	=	558 SF
02 BIKE ROOM: 15SF/BIKE	=	420 SF
03 COMPACTOR ROOM	=	12 SF
ZR-12-10(12)(i)DEDUCTION *	=	
18 18" X 109'	=	73 SF
TOTAL AREA DEDUCTION	=	1,063 SF
GROSS FLOOR AREA	=	2,787 SF
NET FLOOR AREA	=	1,724 SF

MANUFACTURING		
01 MECHANICAL: 5'-8" X 2'-8"	=	15 SF
02 MECHANICAL: 19'-9" X 5'-4"	=	105 SF
ZR-12-10(12)(i)DEDUCTION	=	
18 18" X 318'	=	212 SF
TOTAL AREA DEDUCTION	=	332 SF
GROSS FLOOR AREA	=	14,311 SF
NET FLOOR AREA	=	13,979 SF

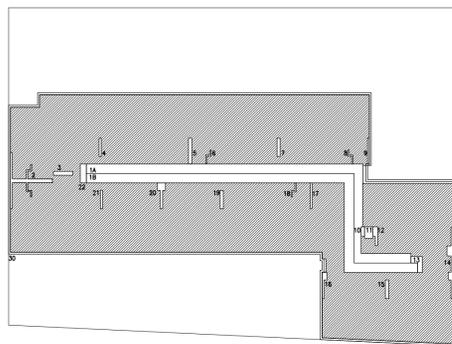
MANUFACTURING	=	13,979 SF
RESIDENTIAL	=	1,724 SF
TOTAL	=	
TOTAL NET FLOOR AREA	=	15,703 SF

* SEE CALCULATION TABLE Z-001



7th FLOOR: AREA DEDUCTION

RESIDENTIAL		
1A CORRIDOR-DAYLIGHT 0.5 X 317	=	159 SF
02 PLUMBING: 7'-9" X 10"	=	7 SF
03 PLUMBING: 14'-3" X 6"	=	7 SF
04 MECHANICAL: 3'-8" X 9"	=	3 SF
05 TRASH ROOM MECH: 4' X 3'	=	12 SF
06 MECHANICAL: 3'-8" X 1'-11"	=	7 SF
07 RECREATION: 3'-8" X 1'-11"	=	834 SF
08 LAUNDRY ROOM:	=	144 SF
09 MECHANICAL: 2'-6" X 3'-9"	=	9 SF
ZR-12-10(12)(i)DEDUCTION	=	
30 A: 8" X 181'	=	121 SF
TOTAL AREA DEDUCTION	=	1,303 SF
GROSS FLOOR AREA	=	1,981 SF
NET FLOOR AREA	=	678 SF



2nd FLOOR: AREA DEDUCTION

RESIDENTIAL		
1A CORRIDOR-DAYLIGHT 0.5 X 975	=	488 SF
1B CORRIDOR(<11UNITS) 0.5 X 975	=	488 SF
02 PLUMBING:	=	38 SF
03 PLUMBING: 6'-10" X 1'-4"	=	9 SF
04 PLUMBING: 6'-5" X 9"	=	5 SF
05 PLUMBING: 9'-1" X 1'-2"	=	11 SF
06 PLUMBING:	=	3 SF
07 PLUMBING: 6'-5" X 1'-0"	=	7 SF
08 PLUMBING:	=	3 SF
09 PLUMBING: 9'-7" X 8"	=	6 SF
10 MECHANICAL: 3'-4" X 1'-3"	=	4 SF
11 TRASH ROOM MECH: 4' X 3'	=	12 SF
12 PL/MECH:	=	8 SF
13 MECHANICAL:	=	15 SF
14 PLUMBING:	=	24 SF
15 PLUMBING: 6'-6" X 1'-2"	=	8 SF
16 PLUMBING:	=	9 SF
17 PLUMBING: 9'-1" X 8"	=	6 SF
18 PLUMBING:	=	3 SF
19 PLUMBING: 6'-5" X 1'-1"	=	7 SF
20 PLUMBING:	=	13 SF
21 PLUMBING: 6'-6" X 9"	=	5 SF
22 MECHANICAL: 6'-8" X 2'-2"	=	6 SF
ZR-12-10(12)(i)DEDUCTION	=	
30 A: 8" X 493'	=	329 SF
TOTAL AREA DEDUCTION	=	1,507 SF
GROSS FLOOR AREA	=	9,503 SF
NET FLOOR AREA	=	7,996 SF

PROPOSED FLOOR AREA

RESIDENTIAL		
1st FLOOR	=	1,724 SF
2nd FLOOR	=	7,996 SF
3rd-6th FLOORS	=	31,772 SF
(7,943 SF x 4)	=	
7th FLOOR	=	678 SF
TOTAL NET FLOOR AREA	=	42,170 SF
MANUFACTURING		
1st FLOOR	=	13,979 SF
TOTAL NET FLOOR AREA	=	13,979 SF
TOTAL		
MANUFACTURING	=	13,979 SF
RESIDENTIAL	=	42,170 SF
TOTAL NET FLOOR AREA	=	56,149 SF

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

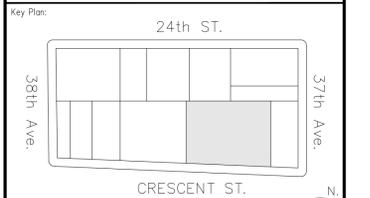
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TAX BLOCK: 367
TAX LOT: 27

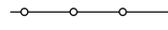
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ISSUE:

37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
11101

DRAWING TITLE
AREA CALCULATIONS

SEAL & SIGNATURE: _____ DATE: 11.25.2014
DRAWING BY: PROJECT No: stein_37-10_47cres
CHK BY: _____
DWC No.: _____
Z-003.00
CADD FILE No.: _____ 7 of 49

LEGEND

-  HABITABLE SPACE
-  GENERAL TRAVEL DISTANCE
-  TRAVEL DISTANCE WITHIN DWELLING UNIT
-  1 HR RATED SEPARATION (45 MINUTE SELF-CLOSING DOOR)
-  2 HR RATED SEPARATION (90 MINUTE SELF-CLOSING DOOR)
-  3 HR RATED SEPARATION (3HR SELF-CLOSING DOOR)

-  EXIT SIGNS (ARROW INDICATE DIRECTION)
-  SMOKE AND CO DETECTOR
-  DOOR WIDTH
-  FIRE RESISTANT RATING (IN MINUTES)
-  EGRESS CAPACITY

GENERAL NOTES:

1. CORRIDOR PARTITIONS ARE REQUIRED TO BE 1 HR RATED PARTITION BUT HAVE ADEQUATE LAYERS OF DRYWALL TO MEET STC RATING.
2. THE BUILDING IS FULLY SPRINKLERED PER NFPA 13
3. AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
 - BTW RESIDENTIAL UNITS: 1HR
 - BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
 - COMPACTOR ROOM: 3HR
4. MAXIMUM PATH OF TRAVEL=125'. PER DOB TECHNICAL AFFAIRS, WHERE THE CONDITIONS OF EXEMPTION 4 OF SECTION BC 28-1016.3 ARE FULLY MET (R2 OCCUPANCY, 2-HOUR RATED CORRIDOR, 1 1/2" FIRE RATED DOORS AND UP TO 80' DEAD END CORRIDOR), THE 75 COMMON PATH OF TRAVEL IN SECTION BC 1013.3 DOES NOT APPLY.

* TYPICAL ALL FLOORS

GENERAL BUILDING DATA

BUILDING LIMITATIONS

CATEGORY	CODE SECTION	CRITERIA
1. APPLICABLE BUILDING CODES: HANDICAPPED LAWS AND GUIDELINES		2008 NYC BUILDING CODE/ANSI 117.1-2003 FAIR HOUSING ACT AMERICANS WITH DISABILITIES ACT
2. BUILDING OCCUPANCY	28.2-310.1.2	GROUP R-2 - APARTMENT HOUSE GROUP F-2 - LOW HAZARD FACTORY INDUSTRIAL GROUP S-2 - PARKING
3. CONSTRUCTION CLASSIFICATION	BC 602 TABLE 601	TYPE III-A
4. HEIGHT LIMITATIONS, GROUP R-2, CONSTRUCTION TYPE III-A	BC 503 TABLE 503	6 STORIES AND 1 STORY INCREASE WITH SPRINKLERS MAX HEIGHT = 65' + 20' INCREASE FOR SPRINKLERS =85' PROPOSED HEIGHT = 69'-08" COMPLIES
5. AREA LIMITATIONS	BC 1205	BUILDING AREA (GROUND)= 18,238 SF AREA RESIDENTIAL FLOOR = 36,485 SF MAX ALLOWED = 72,000 SF COMPLIES
6. NATURAL LIGHT	BC 1205	LIGHTING
7. NATURAL VENTILATION	BC 1203	VENTILATION
8. FIRE RESISTANCE RATING REQUIREMENT (TABLE 601 & 602)		

CONSTRUCTION ELEMENT	RATING IN HOURS
STRUCTURAL FRAMING (INC. COLUMNS, GIRDERS, TRUSSES)	1
BEARING WALLS - EXTERIOR	2
BEARING WALLS - INTERIOR	1
NONBEARING WALLS & PARTITIONS EXTERIOR	SEE TABLE 602
(b) ROOF SUPPORTS: FIRE RESISTANCE RATINGS OF STRUCTURAL FRAME AND BEARING WALLS ARE PERMITTED TO BE REDUCED BY 1 HOUR WHERE SUPPORTING ROOF ONLY.	
NONBEARING WALLS & PARTITIONS INTERIOR	0
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	1c
SHAFT ENCLOSURE	2

8. SPRINKLERS	FULLY SPRINKLERED ALL FLOORS	
9. INTERIOR FINISH CLASS	VERTICAL EXITS AND EXIT PASSAGE WAYS	CLASS B
BC 803 TABLE 803.5	EXIT ACCESS CORRIDORS	CLASS B (R2) CLASS C (F2) CLASS C (S2)
	ROOMS AND ENCLOSED SPACES	CLASS C
11. TRAVEL DISTANCE TABLE 1015.1	200' FOR R2 & M, CONSTRUCTION TYPE I-B 250' FOR F2 & S2	
12. LOCATION OF EXITS 28.2-1014.2.	R2: DOOR OPENINGS TO VERT EXITS SHALL BE 15' (MIN) DIST. FROM EACH OTHER	
13. DOOR SEPARATION 28.2-1014.2.1	IN AREA EQUIPPED WITH AUTOMATIC SPRINKLER SYSTEM, THE SEPARATION DISTANCE OF THE EXIT DOORS SHALL NOT BE LESS THAN 1/3 OF THE LENGTH OF THE MAX. OVERALL DIAGONAL DIMENSION OF THE AREA SERVED	
14. EXIT DOORS 28.2-1008.1.1.1	MAX WIDTH 48" (PER LEAF) MIN WIDTH 36" (SINGLE DOOR)	
15. STAIRS 28.2-1009.	RESIDENTIAL INTERIOR STAIR MAY NOT BE LESS THAN 36" WIDE WHEN SERVING NOT MORE THAN 30 OCCUPANTS PER STAIR ON ANY FLOOR	

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

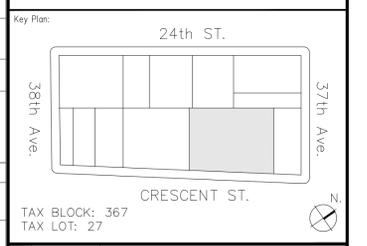
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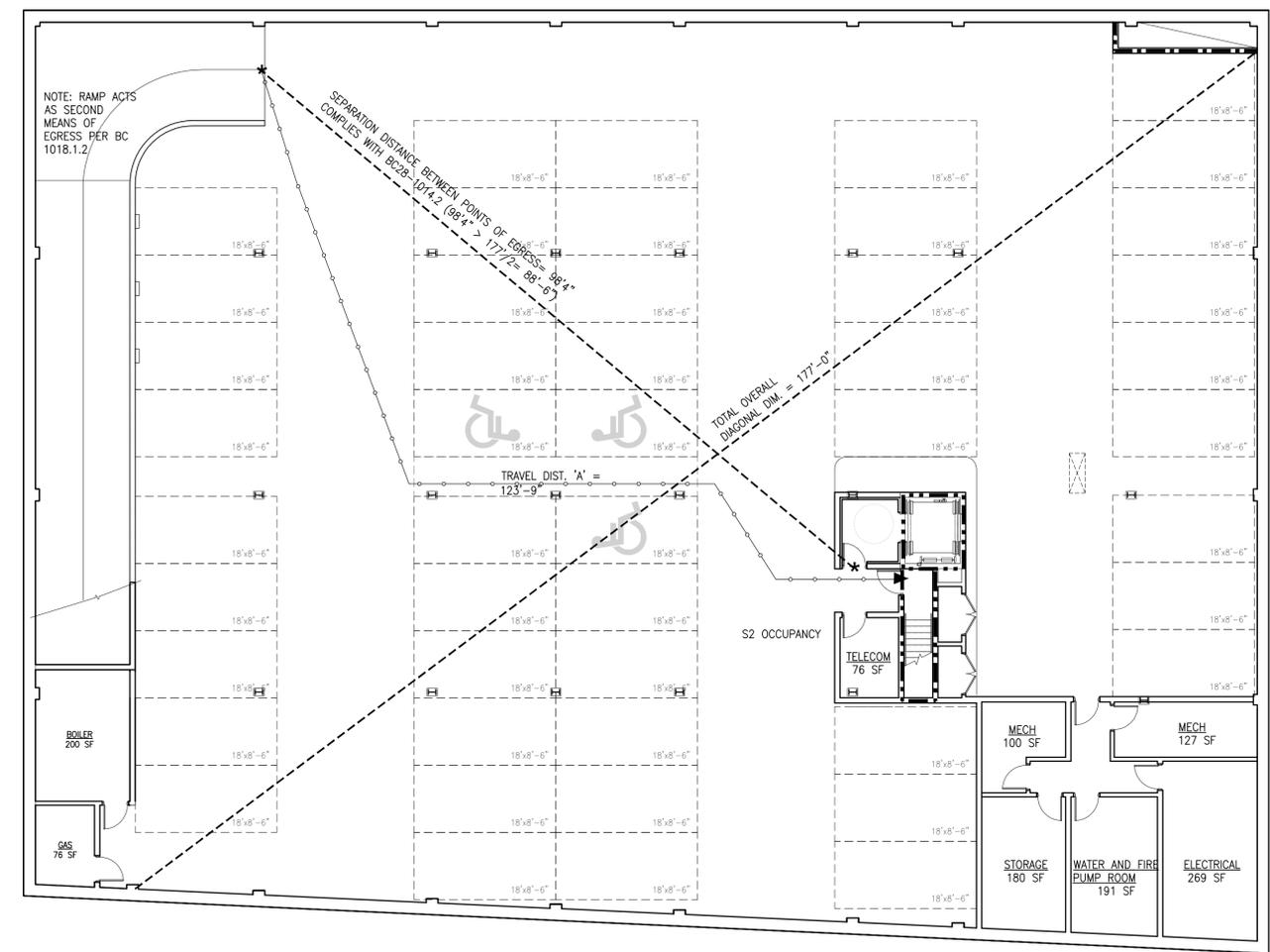
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TAX LOT: 27

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NO. DATE: ISSUE:

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LONG ISLAND CITY, NEW YORK
11101

DRAWING TITLE
LIFE SAFETY PLANS

SEAL & SIGNATURE: _____ DATE: 11.25.2014
PROJECT No: stein_37-10_47cres
DRAWING BY: _____
CHK BY: _____
DWC No.: _____
A-001.00
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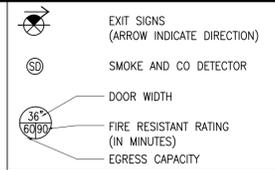
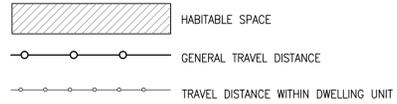
PARKING AREA = 15,380 SF
PER OCCUPANT = 290 GSF
PROPOSED OCCUPANCY LOAD = 77 P

STAIR A = 44" WIDTH = 146 P MAX
DOOR WIDTH = 36" = 36 / 0.2 = 180 P MAX
MAX. ALLOW. OCCUPANT LOAD = 146 P
= 77 P
COMPLIES

TRAVEL DISTANCE TO DOOR = 123'-9"
MAX. TRAVEL DIST. ALLOWED = 250'
COMPLIES

OVERALL DIAGONAL DISTANCE = 177'
EXIT ACCESS REMOTENESS = 98'-4" > 88'-6" (177/2)
COMPLIES

LEGEND



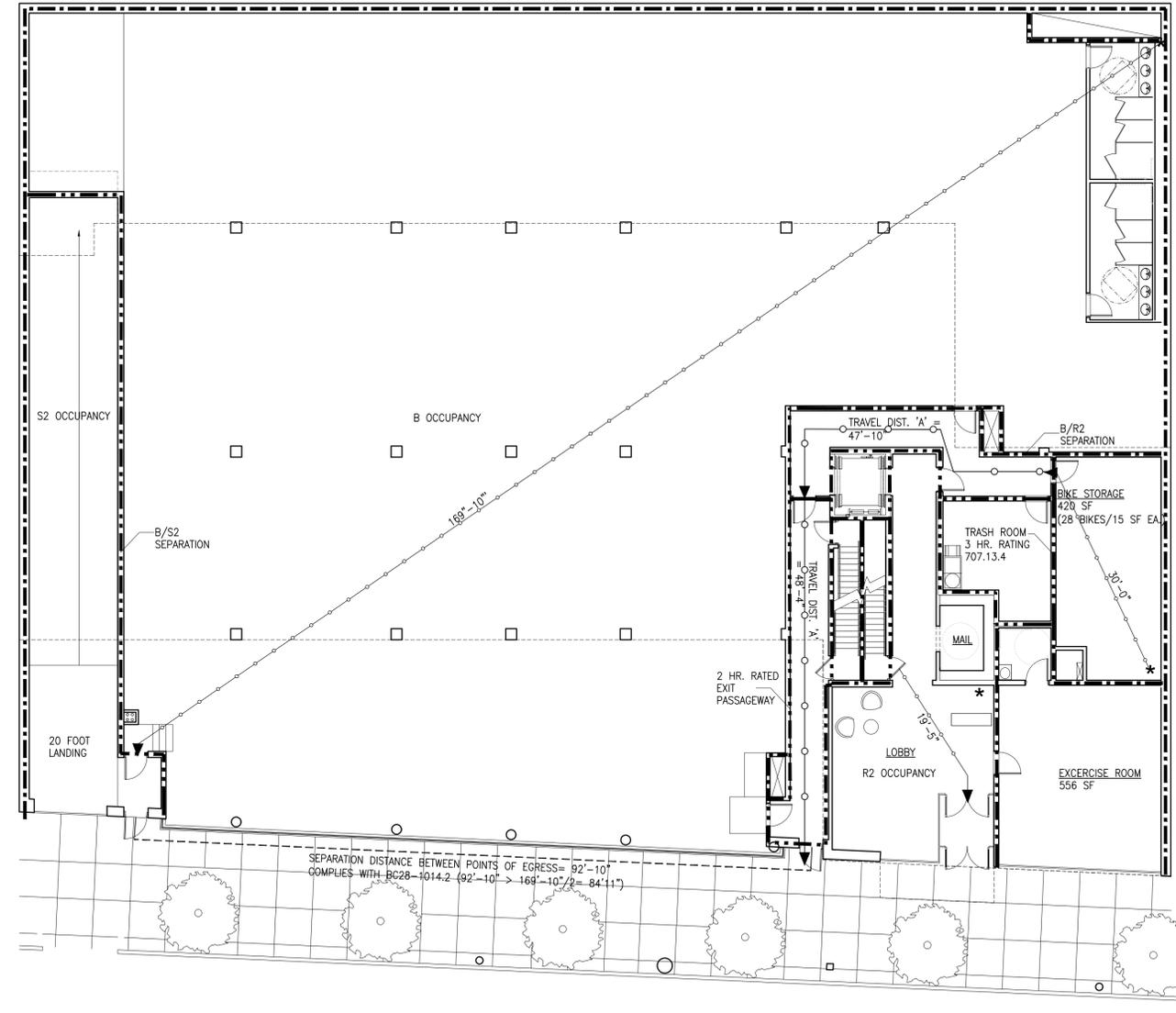
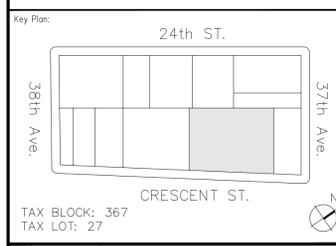
GENERAL NOTES:

1. CORRIDOR PARTITIONS ARE REQUIRED TO BE 1 HR RATED PARTITION BUT HAVE ADEQUATE LAYERS OF DRYWALL TO MEET STC RATING.
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* TYPICAL ALL FLOORS

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BUSINESS AREA = 13,333 SF
FLOOR AREA PER OCCUPANT = 100 GSF
PROPOSED OCCUPANT LOAD = 133 P
REQ. DOOR WIDTH 133 (2) = 27"
DOOR WIDTH PROVIDED = 72"/2 = 360 MAX P COMPLIES

MAX. ALLOW. TRAVEL DISTANCE = 250'
MAX. TRAVEL DISTANCE TO DOOR = 169'-10" COMPLIES

REQUIRED PLUMBING FIXTURES
OCCUPANT LOAD / 2 = 67 MALE
= 67 FEMALE
REQ. FIXTURES (SEC. PC.403.1) = 3 PER SEX
REQ. LAVATORIES = 3 PER SEX

EXERCISE ROOM = 552 SF
FLOOR AREA PER OCCUPANT = 50 GSF
PROPOSED OCCUPANT LOAD = 11 P

BIKE STORAGE = 420 SF
FLOOR AREA PER OCCUPANT = 300 G
PROPOSED OCCUPANT LOAD = 2 P

REQ. DOOR WIDTH = 133(2) = 3"
DOOR WIDTH PROVIDED = 36"/2 = 180 MAX P COMPLIES

TRAVEL DISTANCE TO DOOR = 30'-0"
TRAVEL DIST. 'A' = 47'-10"
TRAVEL DIST 'B' = 48'-4"

MAX. TRAVEL DIST. ALLOWED = 200'
MAX. TRAVEL DIST. PROVIDED = 77'-10" COMPLIES

MAX. TRAVEL DISTANCE = TRAVEL DISTANCE A + MOST REMOTE POINT WITHIN OCCUPIED AREA.
30'-0" + 47'-10" = 77'-10"

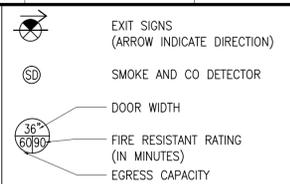
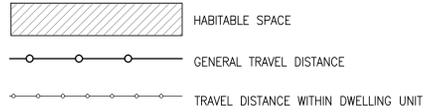
01 11.25.2014 D.O.B. FILING SET
NO. DATE: ISSUE:

PROJECT
37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
11101

DRAWING TITLE
LIFE SAFETY PLANS

SEAL & SIGNATURE
DATE: 11.25.2014
PROJECT No: stein_37-10_47cres
DRAWING BY:
CHK BY:
DWC No.:
A-002.00
CADD FILE No.: 9 of 49

LEGEND



GENERAL NOTES:

- CORRIDOR PARTITIONS ARE REQUIRED TO BE 1 HR RATED PARTITION BUT HAVE ADEQUATE LAYERS OF DRYWALL TO MEET STC RATING.
- THE BUILDING IS FULLY SPRINKLERED PER NFPA 13
- AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
- BTW RESIDENTIAL UNITS: 1HR
- BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
- COMPACTOR ROOM: 3HR

- MAXIMUM PATH OF TRAVEL=125'. PER DOB TECHNICAL AFFAIRS, WHERE THE CONDITIONS OF EXEMPTION 4 OF SECTION BC 28-1016.3 ARE FULLY MET (R2 OCCUPANCY, 2-HOUR RATED CORRIDOR, 1 1/2" FIRE RATED DOORS AND UP TO 80' DEAD END CORRIDOR), THE 75 COMMON PATH OF TRAVEL IN SECTION BC 1013.3 DOES NOT APPLY.
- * TYPICAL ALL FLOORS

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

Architect:
FOGARTY FINGER
architecture interiors
289 Hudson Street New York, NY 10013
t 212 966 7450 f 212 966 7444

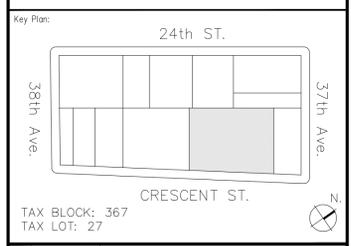
Consultants:

Owner:
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Structural Engineer:
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MEP Engineer:
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Expeditor:
William Vitacco Associates LTD
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New York, NY 10007
Tel 212 791 4578



DWELLING UNIT AREA = 7,291 SF
FLOOR AREA PER OCCUPANT = 200 GSF
PROPOSED OCCUPANT LOAD = 38 P

DOOR WIDTH = 36" / 0.2 = 180 MAX P
STAIR A = 36" WIDTH = 30 MAX P
MAX. ALLOW. OCCUPANT LOAD = 30 P
PROPOSED OCCUPANT LOAD = 19 P
COMPLIES

DOOR WIDTH = 36" / 0.2 = 180 P MAX
STAIR B = 36" WIDTH = 30 P MAX
MAX. ALLOW. OCCUPANT LOAD = 30 P
PROPOSED OCCUPANT LOAD = 19 P
COMPLIES

TRAVEL DISTANCE TO DOOR = 37'-2"
TRAVEL DIST. 'A' = 79'-10"
TRAVEL DIST. 'B' = 48'-8"

MAX. TRAVEL DIST. ALLOWED = 200'
MAX. TRAVEL DIST. PROVIDED = 117'
COMPLIES

MAX TRAVEL DISTANCE = TRAVEL DISTANCE A + TRAVEL DISTANCE WITHIN THE APARTMENT

MAX LENGTH OF DEAD END = 80' WITH 2 HR RATING
LENGTH OF PROPOSED DEAD END = 79'-10"
COMPLIES

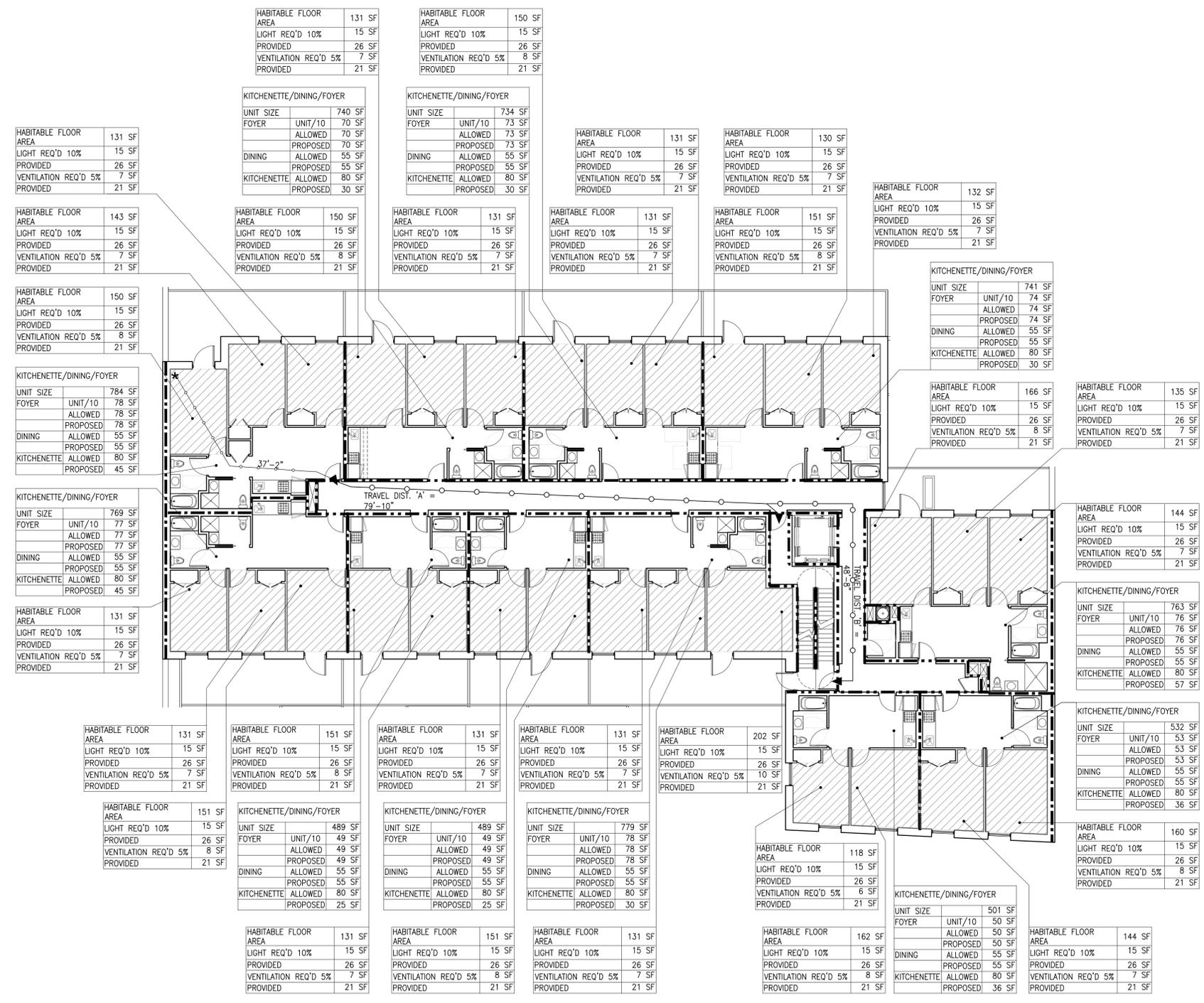
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37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
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DRAWING TITLE
LIFE SAFETY PLANS

SEAL & SIGNATURE

DATE: 11.25.2014
PROJECT No: stein_37-10_47cres
DRAWING BY:
CHK BY:
DWC No:
A-003.00
CADD FILE No.:
10 of 49



LEGEND

	HABITABLE SPACE
	GENERAL TRAVEL DISTANCE
	TRAVEL DISTANCE WITHIN DWELLING UNIT

	1 HR RATED SEPARATION (45 MINUTE SELF-CLOSING DOOR)
	2 HR RATED SEPARATION (90 MINUTE SELF-CLOSING DOOR)
	3 HR RATED SEPARATION (3HR SELF-CLOSING DOOR)

	EXIT SIGNS (ARROW INDICATE DIRECTION)
	SMOKE AND CO DETECTOR
	DOOR WIDTH
	FIRE RESISTANT RATING (IN MINUTES)
	EGRESS CAPACITY

GENERAL NOTES:

- CORRIDOR PARTITIONS ARE REQUIRED TO BE 1 HR RATED PARTITION BUT HAVE ADEQUATE LAYERS OF DRYWALL TO MEET STC RATING.
- THE BUILDING IS FULLY SPRINKLERED PER NFPA 13
- AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
 - BTW RESIDENTIAL UNITS: 1HR
 - BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
 - COMPACTOR ROOM: 3HR

4. MAXIMUM PATH OF TRAVEL=125' PER DOB TECHNICAL AFFAIRS, WHERE THE CONDITIONS OF EXEMPTION 4 OF SECTION BC 28-1016.3 ARE FULLY MET (R2 OCCUPANCY, 2-HOUR RATED CORRIDOR, 1 1/2" FIRE RATED DOORS AND UP TO 80' DEAD END CORRIDOR), THE 75 COMMON PATH OF TRAVEL IN SECTION BC 1013.3 DOES NOT APPLY.

* TYPICAL ALL FLOORS

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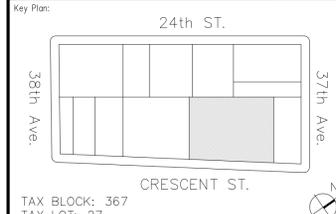
Architect:
FOGARTY FINGER
architecture interiors
 289 Hudson Street New York, NY 10013
 t 212 966 7450 f 212 966 7444

Consultants:
 Owner:
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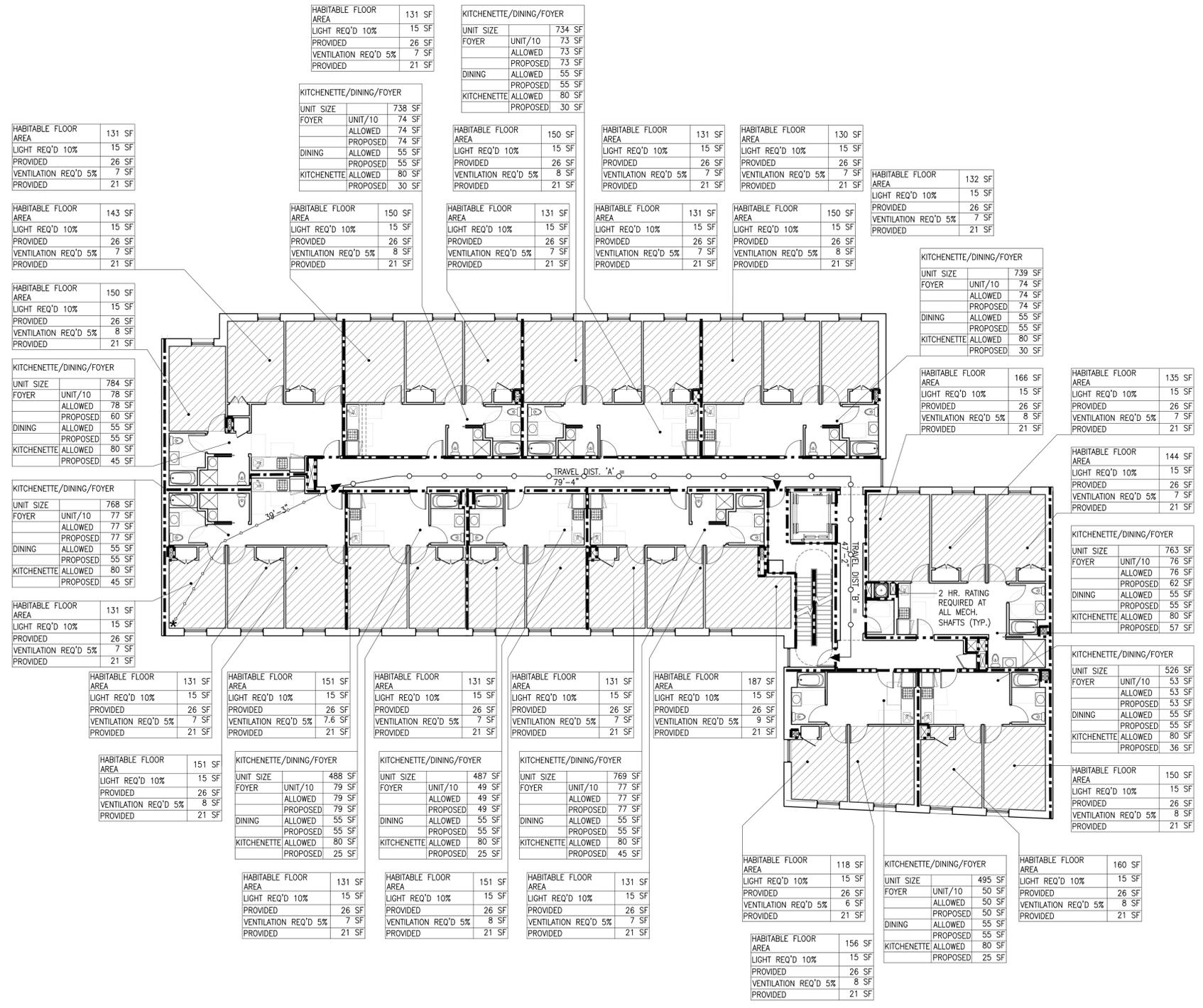
Structural Engineer:
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 Tel 212 643 1500

MEP Engineer:
 Sideris Kefalas Engineers, PE
 217-22 Northern Boulevard
 Bayside, New York 11361
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Expeditor:
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 New York, NY 10007
 Tel 212 791 4578



DWELLING UNIT AREA	= 7,321 SF
FLOOR AREA PER OCCUPANT	= 200 GSF
PROPOSED OCCUPANT LOAD	= 38 P
DOOR WIDTH = 36" = 36 / 0.2	= 180 P MAX
STAIR B = 36" WIDTH	= 30 P MAX
MAX. ALLOW. OCCUPANT LOAD	= 30 P
PROPOSED OCCUPANT LOAD	= 19 P
	COMPLIES
DOOR WIDTH = 36" = 36 / 0.2	= 180 P MAX
STAIR B = 36" WIDTH	= 30 P MAX
MAX. ALLOW. OCCUPANT LOAD	= 30 P
PROPOSED OCCUPANT LOAD	= 19 P
	COMPLIES
TRAVEL DISTANCE TO DOOR	= 39'-3"
TRAVEL DIST. 'A'	= 79'-4"
TRAVEL DIST. 'B'	= 49'-10"
MAX. TRAVEL DIST. ALLOWED	= 200'
MAX. TRAVEL DIST. PROVIDED	= 118'-8"
	COMPLIES
MAX TRAVEL DISTANCE = TRAVEL DISTANCE A + TRAVEL DISTANCE WITHIN THE APARTMENT	
MAX LENGTH OF DEAD END = 80' WITH 2 HR RATING	
LENGTH OF PROPOSED DEAD END = 79'-5"	
	COMPLIES



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37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
11101

DRAWING TITLE:
LIFE SAFETY PLANS

SEAL & SIGNATURE: _____ DATE: 11.25.2014
 PROJECT No: stein_37-10_47cres
 DRAWING BY: _____
 CHK BY: _____
 DWG. No.: _____
A-004.00
 CAD FILE No.: _____ 11 of 49

LEGEND

HABITABLE SPACE

GENERAL TRAVEL DISTANCE

TRAVEL DISTANCE WITHIN DWELLING UNIT

1 HR RATED SEPARATION
(45 MINUTE SELF-CLOSING DOOR)

2 HR RATED SEPARATION
(90 MINUTE SELF-CLOSING DOOR)

3 HR RATED SEPARATION
(3HR SELF-CLOSING DOOR)

EXIT SIGNS
(ARROW INDICATE DIRECTION)

SMOKE AND CO DETECTOR

DOOR WIDTH

FIRE RESISTANT RATING
(IN MINUTES)

EGRESS CAPACITY

GENERAL NOTES:

1. CORRIDOR PARTITIONS ARE REQUIRED TO BE 1 HR RATED PARTITION BUT HAVE ADEQUATE LAYERS OF DRYWALL TO MEET STC RATING.

2. THE BUILDING IS FULLY SPRINKLERED PER NFPA 13

3. AS PER CODE SECTION 508.3.3 THE REQUIRED AND PROVIDED FIRE SEPARATION BETWEEN CERTAIN AREAS ARE AS FOLLOWS:
 - BTW RESIDENTIAL UNITS: 1HR
 - BTW RESIDENTIAL UNIT & CORRIDOR: 2HR
 - COMPACTOR ROOM: 3HR

4. MAXIMUM PATH OF TRAVEL=125'. PER DOB TECHNICAL AFFAIRS, WHERE THE CONDITIONS OF EXEMPTION 4 OF SECTION BC 28-1016.3 ARE FULLY MET (R2 OCCUPANCY, 2-HOUR RATED CORRIDOR, 1 1/2" FIRE RATED DOORS AND UP TO 80' DEAD END CORRIDOR), THE 75 COMMON PATH OF TRAVEL IN SECTION BC 1013.3 DOES NOT APPLY.

* TYPICAL ALL FLOORS

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Sagamore Crescent LLC

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architecture | interiors
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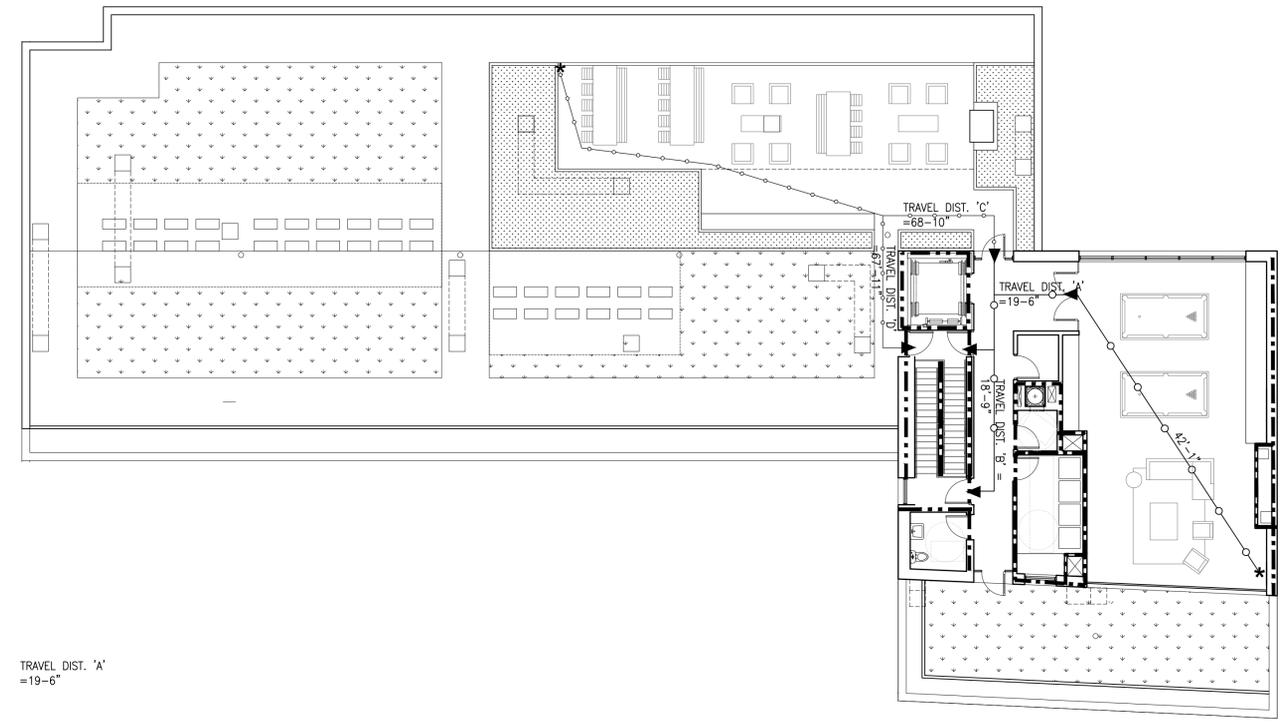
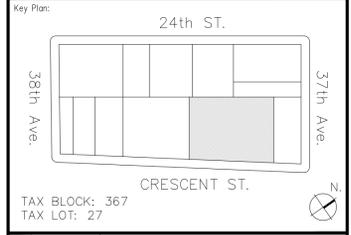
Consultants:

Owner:
 37-10 Crescent St Owner, LLC
 80 Eighth Ave, Suite1010
 New York, New York 10011
 212-675-6953

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Expeditor:
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 New York, NY 10007
 Tel 212 791 4578



PENTHOUSE AREA	= 596 SF
FLOOR AREA PER OCCUPANT	= 15 NET
PROPOSED OCCUPANT LOAD	= 40 P
TRAVEL DISTANCE TO DOOR	= 42'-1"
TRAVEL DIST. 'A'	= 19'-6"
TRAVEL DIST. 'B'	= 18'-9"
MAX. TRAVEL DIST. ALLOWED	= 200'
MAX. TRAVEL DIST. PROVIDED	= 61'-7"
	COMPLIES
ROOF DECK	= 304 SF
FLOOR AREA PER OCCUPANT	= 15 NET
PROPOSED OCCUPANT LOAD	= 20 P
MAX. TRAVEL DIST. ALLOWED	= 200'
TRAVEL DIST. 'C'	= 67'-11"
TRAVEL DIST. 'D'	= 67'-10"
	COMPLIES
DOOR WIDTH = 36" @ 0.2	= 180 P MAX
STAIR WIDTH A+B = 36" @ 2	= 60 P MAX
72" WIDTH	= 60 P
PROPOSED OCCUPANT LOAD	COMPLIES

TRAVEL DIST. 'A'
 = 19'-6"

01 11.25.2014 D.O.B. FILING SET
 NO. DATE: ISSUE:

PROJECT:
37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
11101

DRAWING TITLE
LIFE SAFETY PLANS

SEAL & SIGNATURE: _____ DATE: 11.25.2014
 PROJECT No: stein_37-10_47cres
 DRAWING BY: _____
 CHK BY: _____
 DWG. No.: **A-005.00**
 CADD FILE No.: _____ 12 of 49

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

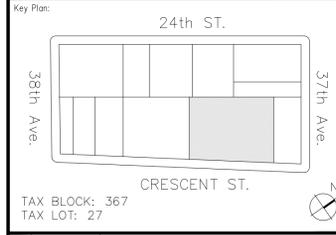
Architect:
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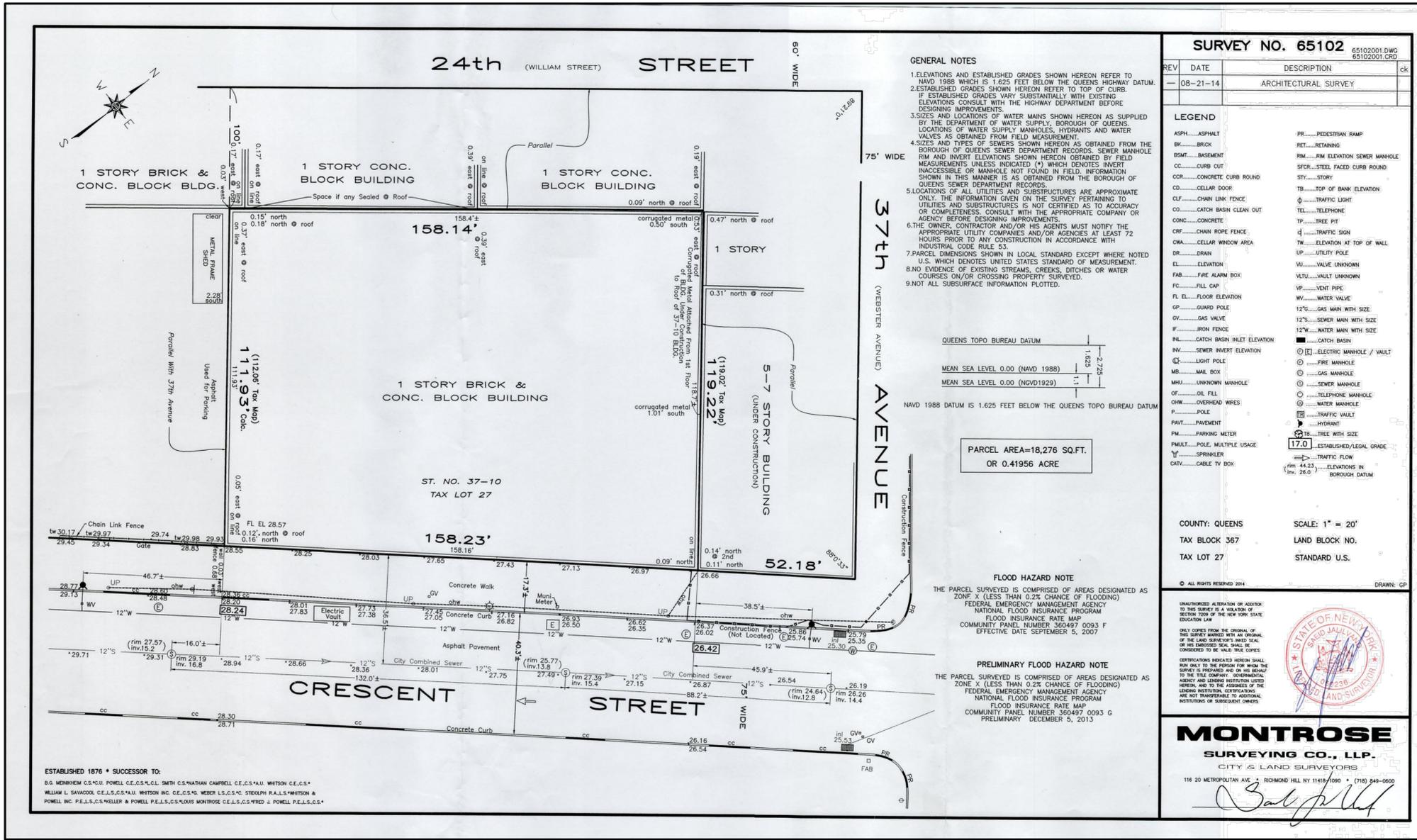
TAX BLOCK: 367
TAX LOT: 27

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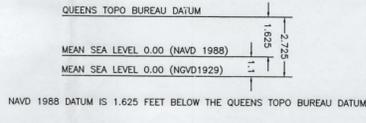
PROJECT:
37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
11101

DRAWING TITLE:
SURVEY

DATE: 11.25.2014
PROJECT No: stein_37-10_47cres
DRAWING BY: FFA
CHK BY: FFA
DWG. No.: **A-010.00**
CADD FILE No.: 13 of 49



GENERAL NOTES
1. ELEVATIONS AND ESTABLISHED GRADES SHOWN HEREON REFER TO NAVD 1988 WHICH IS 1.625 FEET BELOW THE QUEENS HIGHWAY DATUM.
2. ESTABLISHED GRADES SHOWN HEREON REFER TO TOP OF CURB.
IF ESTABLISHED GRADES VARY SUBSTANTIALLY WITH EXISTING ELEVATIONS CONSULT WITH THE HIGHWAY DEPARTMENT BEFORE DESIGNING IMPROVEMENTS.
3. SIZES AND LOCATIONS OF WATER MAINS SHOWN HEREON AS SUPPLIED BY THE DEPARTMENT OF WATER SUPPLY, BOROUGH OF QUEENS. LOCATIONS OF WATER SUPPLY MANHOLES, HYDRANTS AND WATER VALVES AS OBTAINED FROM FIELD MEASUREMENT.
4. SIZES AND TYPES OF SEWERS SHOWN HEREON AS OBTAINED FROM THE BOROUGH OF QUEENS SEWER DEPARTMENT RECORDS. SEWER MANHOLE RIM AND INVERT ELEVATIONS SHOWN HEREON OBTAINED BY FIELD MEASUREMENTS UNLESS INDICATED (*) WHICH DENOTES INVERT UNACCESSIBLE OR MANHOLE NOT FOUND IN FIELD. INFORMATION SHOWN IN THIS MANNER IS AS OBTAINED FROM THE BOROUGH OF QUEENS SEWER DEPARTMENT RECORDS.
5. LOCATIONS OF ALL UTILITIES AND SUBSTRUCTURES ARE APPROXIMATE ONLY. THE INFORMATION GIVEN ON THE SURVEY PERTAINING TO UTILITIES AND SUBSTRUCTURES IS NOT CERTIFIED AS TO ACCURACY OR COMPLETENESS. CONSULT WITH THE APPROPRIATE COMPANY OR AGENCY BEFORE DESIGNING IMPROVEMENTS.
6. THE OWNER, CONTRACTOR AND/OR HIS AGENTS MUST NOTIFY THE APPROPRIATE UTILITY COMPANIES AND/OR AGENCIES AT LEAST 72 HOURS PRIOR TO ANY CONSTRUCTION IN ACCORDANCE WITH INDUSTRIAL CODE RULE 53.
7. PARCEL DIMENSIONS SHOWN IN LOCAL STANDARD EXCEPT WHERE NOTED U.S. WHICH DENOTES UNITED STATES STANDARD OF MEASUREMENT.
8. NO EVIDENCE OF EXISTING STREAMS, CREEKS, DITCHES OR WATER COURSES ON/OR CROSSING PROPERTY SURVEYED.
9. NOT ALL SUBSURFACE INFORMATION PLOTTED.



PARCEL AREA=18,276 SQ.FT.
OR 0.41956 ACRE

FLOOD HAZARD NOTE
THE PARCEL SURVEYED IS COMPRISED OF AREAS DESIGNATED AS ZONE X (LESS THAN 0.2% CHANCE OF FLOODING) FEDERAL EMERGENCY MANAGEMENT AGENCY NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP COMMUNITY PANEL NUMBER 360497 0093 F EFFECTIVE DATE SEPTEMBER 5, 2007

PRELIMINARY FLOOD HAZARD NOTE
THE PARCEL SURVEYED IS COMPRISED OF AREAS DESIGNATED AS ZONE X (LESS THAN 0.2% CHANCE OF FLOODING) FEDERAL EMERGENCY MANAGEMENT AGENCY NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP COMMUNITY PANEL NUMBER 360497 0093 G PRELIMINARY DECEMBER 5, 2013

SURVEY NO. 65102 65102001.DWG 65102001.CRD

REV	DATE	DESCRIPTION	CK
—	08-21-14	ARCHITECTURAL SURVEY	ck

LEGEND

ASPH.....ASPHALT	PR.....PEDESTRIAN RAMP
BR.....BRICK	RET.....RETAINING
BSMT.....BASEMENT	RIM.....RIM ELEVATION SEWER MANHOLE
CC.....CURB CUT	SFCR.....STEEL FACED CURB ROUND
CCR.....CONCRETE CURB ROUND	STY.....STORY
CD.....CELLAR DOOR	TB.....TOP OF BANK ELEVATION
CLF.....CHAIN LINK FENCE	TL.....TRAFFIC LIGHT
CO.....CATCH BASIN CLEAN OUT	TR.....TREE P.Y.
CONC.....CONCRETE	T.....TRAFFIC SIGN
CRF.....CHAIN ROPE FENCE	TW.....ELEVATION AT TOP OF WALL
CWA.....CELLAR WINDOW AREA	UP.....UTILITY POLE
DR.....DRAIN	VE.....VALVE UNKNOWN
EL.....ELEVATION	VLT.....VAULT UNKNOWN
FAB.....FIRE ALARM BOX	VF.....VENT PIPE
FC.....FILL CAP	WF.....WATER VALVE
FL.....FLOOR ELEVATION	12".....GAS MAIN WITH SIZE
GP.....GUARD POLE	12".....SEWER MAIN WITH SIZE
GV.....GAS VALVE	12".....WATER MAIN WITH SIZE
IF.....IRON FENCE	INL.....CATCH BASIN INLET ELEVATION
INL.....CATCH BASIN INLET ELEVATION	INV.....SEWER INVERT ELEVATION
INVT.....UNKNOWN MANHOLE	IP.....INVERT
IP.....INVERT	MB.....MAIL BOX
MB.....MAIL BOX	MHU.....UNKNOWN MANHOLE
MHU.....UNKNOWN MANHOLE	OF.....OIL FILL
OF.....OIL FILL	OWH.....OVERHEAD WIRES
OWH.....OVERHEAD WIRES	P.....POLE
P.....POLE	PAV.....PAVEMENT
PAV.....PAVEMENT	PM.....PARKING METER
PM.....PARKING METER	PMULT.....POLE, MULTIPLE USAGE
PMULT.....POLE, MULTIPLE USAGE	SP.....SPRINKLER
SP.....SPRINKLER	CATV.....CABLE TV BOX
CATV.....CABLE TV BOX	

COUNTY: QUEENS
TAX BLOCK 367
TAX LOT 27

SCALE: 1" = 20'
LAND BLOCK NO.
STANDARD U.S.

UNAUTHORIZED ALTERATION OR ADDITION TO THIS SURVEY IS A VIOLATION OF SECTION 209 OF THE NEW YORK STATE EDUCATION LAW

ONLY CORRECTIONS FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S INK SEAL OR HIS EMPLOYED SEAL SHALL BE CONSIDERED TO BE VALID TRUE COPIES

CERTIFICATIONS INDICATED HEREON SHALL RUN ONLY TO THE PERSON FOR WHOM THE SURVEY IS PERFORMED AND ON HIS BEHALF TO THE FILE COMPANY, GOVERNMENTAL AGENCY AND LENDING INSTITUTION LISTED HEREON AND TO THE ASSIGNEE OF THE LENDING INSTITUTION. CERTIFICATIONS ARE NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS



MONTROSE
SURVEYING CO., LLP.
CITY & LAND SURVEYORS
116 20 METROPOLITAN AVE. • FISHKILL, NY 11739-0900 • (718) 849-0800

Signature of Surveyor

ESTABLISHED 1876 • SUCCESSOR TO:
B.G. MENKHEIM C.S.&C.U. POWELL C.E.C.S.&L.C.L. SMITH C.S.MATHIAN CAMPBELL C.E.C.S.&A.U. WHITSON C.E.C.S.
WILLIAM L. SAVACCOLO C.E.L.S.C.S.&A.U. WHITSON INC. C.E.C.S.&C. WEBER L.S.C.S.&C. STODOLPH R.A.L.S.&WHITSON &
POWELL INC. P.E.L.S.C.S.&WELER & POWELL P.E.L.S.C.S.&LOUIS MONTROSE C.E.L.S.C.S.&MYRED J. POWELL P.E.L.S.C.S.&

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

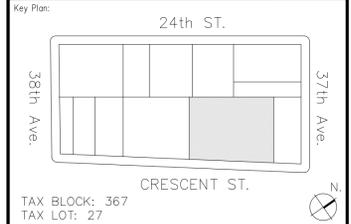
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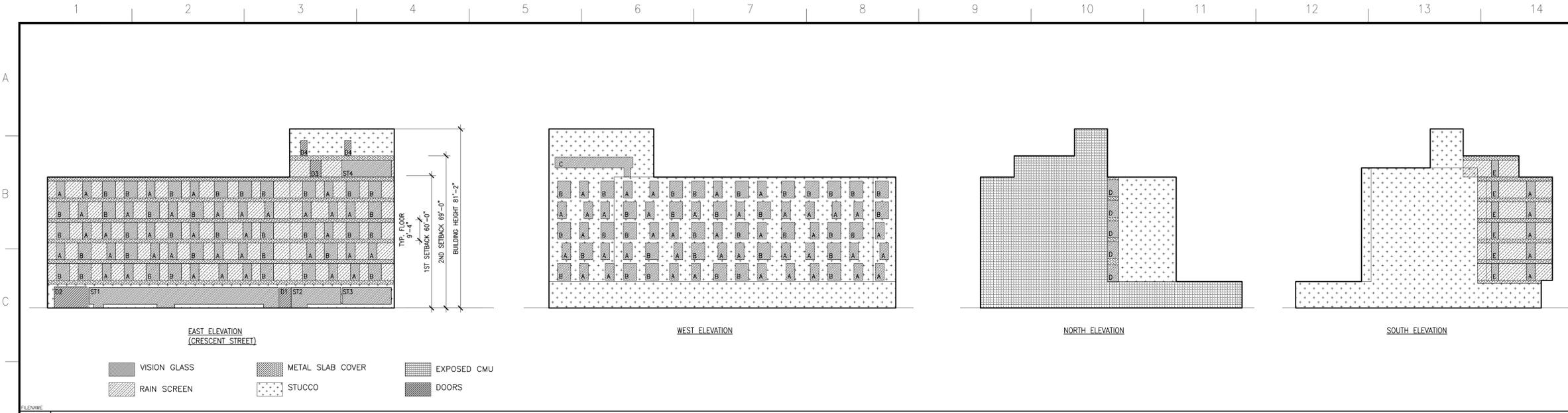
Expeditor:
 William Vitacco Associates LTD
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 New York, NY 10007
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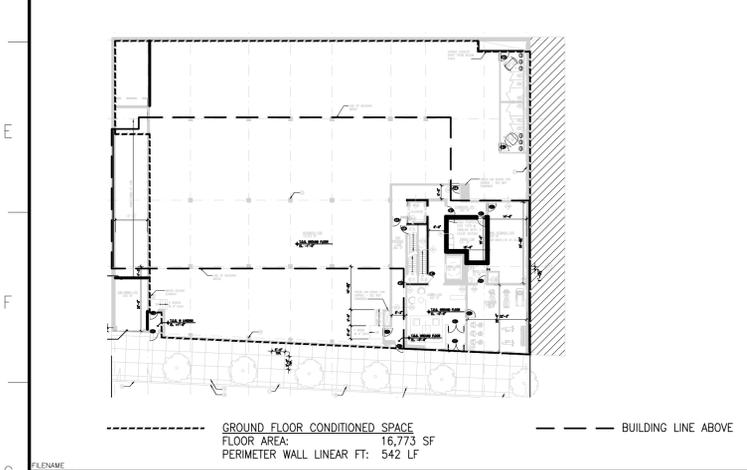
01 11.25.2014 D.O.B. FILING SET
 NO. DATE: ISSUE:
 PROJECT:
37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
11101

DRAWING TITLE
ENERGY CODE –
AREA SCHEDULE &
DIAGRAMS

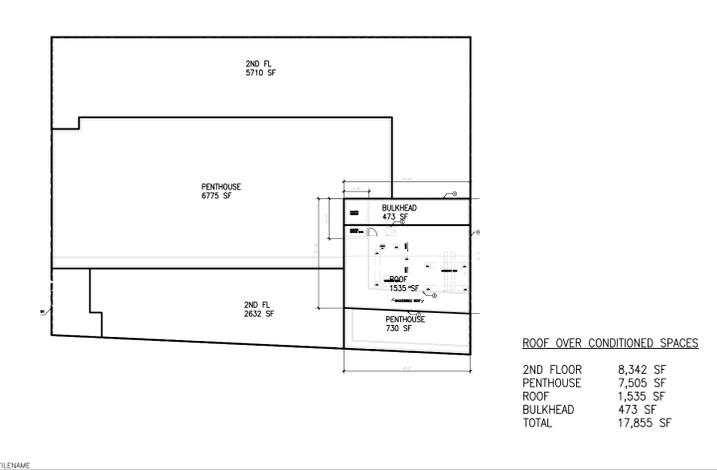
SEAL & SIGNATURE: _____ DATE: 11.25.2014
 PROJECT No: stein_37-10_47cres
 DRAWING BY: FFA
 CHK BY: FFA
 DWG. No.: **EN-001.0**
 CADD FILE No.: _____ 14 of 49



1 BUILDING ENVELOPE ELEVATIONS
 SCALE: NTS



2 GROUND FLOOR & WALL AREAS
 SCALE: 1/32"=1'-0"



3 ROOF AREAS
 SCALE: 1/32"=1'-0"

WINDOW SCHEDULE - WALL TYPE A U-FACTOR 0.48 SHGC: 0.3

COMPONENT NAME	ID	AREA	QUANTITY	SUB-TOTAL	TOTAL
EAST EXTERIOR WALL	A	31	36	1116	2,634
	B	46	33	1518	
	ST1	693	1	693	
	ST2	187	1	187	
	ST3	171	1	171	
WEST EXTERIOR WALL	A	31	40	1240	3033
	B	46	35	1610	
	C	183	1	183	
NORTH EXTERIOR WALL	D	39	5	195	195
SOUTH EXTERIOR WALL	A	31	5	155	311
	E	26	6	156	

DOOR SCHEDULE

COMPONENT NAME	ID	AREA	QUANTITY	SUB-TOTAL	TOTAL
EAST EXTERIOR WALL	D1	48	1	48	48
	D2	142	1	142	142
	D3	38	1	38	38
	D4	21	2	42	42

WALL TYPE SCHEDULE

COMPONENT NAME	WALL TYPE - A (EXPOSED CMU)	WALL TYPE - B (METAL SLAB COVER)	WALL TYPE - C (CEMENT BOARD RAINSCREEN)	WALL TYPE - D (EIFS)	DOORS	WALL TYPE - E (VISION GLASS)	GROSS FAÇADE AREA
EAST EXTERIOR WALL	-	1,701	-	397	270	3,858	10,410
WEST EXTERIOR WALL	-	-	3,531	-	-	3,033	10,410
NORTH EXTERIOR WALL	4,752	46	-	1,242	-	195	6,241
SOUTH EXTERIOR WALL	-	378	1,193	4,304	-	311	6,157
TOTAL	4,752	2,125	4,724	13,778	270	7,397	33,218

4 VISION GLASS SCHEDULE AND WALL TYPE BREAKDOWN
 NTS

TR8 IDENTIFIER	INSPECTION TESTS & REQUIREMENTS	PERIODIC (MINIMUM)	REFERENCE STANDARD (SEE NYSECC CHAPER 6) OR OTHER CRITERIA	ECC OR OTHER CITATION
IA	ENVELOPE INSPECTIONS			
IA1	PROTECTION OF EXPOSED FOUNDATION INSULATION: INSULATION SHALL BE VISUALLY INSPECTED TO VERIFY PROPER PROTECTION WHERE APPLIED TO THE EXTERIOR OF BASEMENT OR CELLAR WALLS, CRAWL SPACE WALLS AND/OR THE PERIMETER OF SLAB ON-GRADE FLOORS	AS REQUIRED DURING FOUNDATION WORK AND PRIOR TO BACKFILL	APPROVED CONSTRUCTION DOCUMENTS	303.2.1; ASHRAE 90.1 - 5.8.1.7
IA2	INSULATION PLACEMENT AND R-VALUES: INSTALLED INSULATION FOR EACH COMPONENT OF THE CONDITIONED SPACE ENVELOPE AND AT JUNCTIONS BETWEEN COMPONENTS SHALL BE VISUALLY INSPECTED TO ENSURE THAT THE R-VALUES ARE MARKED. THAT SUCH R-VALUES CONFORM TO THE R-VALUES IDENTIFIED IN THE CONSTRUCTION DOCUMENTS AND THAT THE INSULATION IS PROPERLY INSTALLED. CERTIFICATIONS FOR UNMARKED INSULATION SHALL BE SIMILARLY VISUALLY INSPECTED.	AS REQUIRED TO VERIFY CONTINUOUS ENCLOSURE WHILE WALLS, CEILINGS AND FLOORS ARE OPEN	APPROVED CONSTRUCTION DOCUMENTS	303.1, 303.1.1, 303.1.2, 502.1, 502.2; ASHRAE 90.1 - 5.5, 5.6, OR 11, 5.8.1
IA3	FENESTRATION THERMAL VALUES AND PRODUCT RATINGS: U-FACTORS AND SHGC VALUES OF INSTALLED FENESTRATION SHALL BE VISUALLY INSPECTED FOR CONFORMANCE WITH THE U-FACTORS AND SHGC VALUES IDENTIFIED IN THE CONSTRUCTION DRAWINGS BY VERIFYING THE MANUFACTURER'S NFRC LABEL OR, WHERE NOT LABELED, USING THE RATINGS IN ECC TABLES 303.1.3 (1), (2) AND (3). WHERE ASHRAE 90.1 IS USED, VISIBLE LIGHT TRANSMITTANCE VALUES SHALL ALSO BE VERIFIED.	AS REQUIRED DURING INSTALLATION	APPROVED CONSTRUCTION DOCUMENTS; NFRC 100, NFRC 200	303.1, 303.1.3; 502.3; ASHRAE 90.1 - 5.5, 5.6 OR 11; 5.8.2
IA4	FENESTRATION AND DOOR ASSEMBLY PRODUCT RATINGS FOR AIR LEAKAGE: WINDOWS AND SLIDING OR SWING DOOR ASSEMBLIES, EXCEPT SITE BUILT WINDOWS AND/OR DOORS, SHALL BE VISUALLY INSPECTED TO VERIFY THAT INSTALLED ASSEMBLIES ARE LABELED BY THE MANUFACTURER TO THE REFERENCED STANDARD. FOR CURTAIN WALL, STORFRONT GLAZING, COMMERCIAL ENTRANCE DOORS AND REVOLVING DOORS, THE TESTING REPORTS SHALL BE REVIEWED TO VERIFY THAT THE INSTALLED ASSEMBLY COMPLIES WITH THE STANDARD CITED IN THE APPROVED PLANS.	AS REQUIRED DURING INSTALLATION; PRIOR TO FINAL CONSTRUCTION INSPECTION	NFRC 400, AAMA/WDMA 1011/S.2/A440/ASTM E283; ANSI/DASMA 105	502.4; ASHRAE 90.1 - 5.4.3.2
IA5	FENESTRATION AREAS: DIMENSION OF WINDOWS, DOORS AND SKYLIGHTS SHALL BE VERIFIED BY VISUAL INSPECTION	PRIOR TO FINAL CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	502.3; ASHRAE 90.1 - 5.5.4, 5.6, OR 11
IA6	SEALING: OPENING AND PENETRATIONS IN THE BUILDING ENVELOPE, INCLUDING SITEBUILT FENESTRATION AND DOORS, SHALL BE VISUALLY INSPECTED TO VERIFY THAT A CONTINUOUS AIR BARRIER AROUND THE ENVELOPE FORMS AND AIR-TIGHT ENCLOSURE. THE PROGRESS INSPECTOR SHALL VISUALLY INSPECT TO VERIFY THAT MATERIALS AND/OR ASSEMBLIES HAVE BEEN TESTED AND MEET THE REQUIREMENTS OF THE RESPECTIVE STANDARDS, OR THAT THE BUILDING IS TESTED AND MEETS THE REQUIREMENTS OF THE STANDARD, IN ACCORDANCE WITH THE STANDARD(S) CITED IN THE APPROVED PLANS.	AS REQUIRED DURING CONSTRUCTION	APPROVED CONSTRUCTION DOCUMENTS ASTM E2178 ASTM E2357, ASTM E1677, ASTM E779, ASTM E283	502.4.3, 502.4.7; ASHRAE 90.1 - 5.4.3.1
IA9	BUILDING ENTRANCE VESTIBULES: REQUIRED ENTRANCE VESTIBULE SHALL BE VISUALLY INSPECTED FOR PROPER OPERATION	PRIOR TO FINAL CONSTRUCTION INSPECTION	APPROVED CONSTRUCTION DOCUMENTS	502.4.6; ASHRAE 90.1 - 5.4.3.4

5 PROGRESS INSPECTIONS FOR ENERGY CODE COMPLIANCE
 NTS



EN1: Energy Cost Budget Worksheet
Must be typewritten.

Do Not Submit Separately.
Must be incorporated in the drawing set.

1 Location Information Required for all applications.

House No(s) 37-10 Street Name Crescent Street

Borough QUEENS Block 367 Lot 27 BIN _____ CB No. _____

Work on Floor(s) One through seven Apt/Condo No(s) _____

2 Applicant Information Required for all applications.

Last Name Chartier First Name Thomas Middle Initial _____

Business Name Chartier Sustainability Group Business Telephone 201-420-1237

Business Address 70 Monroe Street Business Fax _____

City Hoboken State NJ Zip 07030 Mobile Telephone 201-294-4244

E-Mail thomas@chartier-group.com License Number 083157

Energy Model Inputs NYS approved energy model software:

Envelope	Proposed Design Input	Budget (Standard Design) Input
Above-grade wall U-factor	0.054	0.064
Below-grade wall U-factor	1.14	1.14
Roof construction U-factor	0.031	0.048
Exterior floor U-factor	0.038	0.038
Sub-slab construction (yes/no)	No	No
Window-to-gross wall ratio	23%	23%
Average fenestration assembly U-factor	0.39	0.40
Average fenestration assembly SHGC	0.39	0.40
Fixed shading devices (yes/no)	No	No
Automated movable shading devices (yes/no)	No	No

Lighting

Average ambient lighting power density (W/ft ²)	0.73	0.91
Lighting occupant sensor controls (yes/no)	Yes (Stairs only)	No
Automatic daylighting controls (yes/no)	No	No
Exterior lighting power (tradable surfaces) (kW)	Yes	Yes
Exterior lighting power (non-tradable surfaces) (kW)	Yes	Yes

Heating, Ventilating & Air Conditioning

Refrigeration equipment type	Air-sourced heat pump	Air-sourced heat pump
Heating equipment type	Air-sourced heat pump	Air-sourced heat pump
Demand controlled ventilation (yes/no)	No	No
Economizer type (air or water)	None	None
Domestic hot water heating source	Natural Gas	Natural Gas

EN1 PAGE 2

Unregulated Energy	Proposed Design Input	Budget (Standard Design) Input
Average Receptacle equipment power density (W/ft ²)	0.86	0.86
Average Unregulated lighting power density (W/ft ²)	0	0
Other process loads	An additional 5.3 kW per apartment for kitchen appliances	An additional 5.3 kW per apartment for kitchen appliances

Energy Cost Budget Conformance	Proposed Design Output	Budget (Standard Design) Output
Annual Regulated Energy Cost (\$)	116186	159253
Annual Regulated Energy Use (BTU/GSF)	25677	34445
Annual Regulated Energy Cost Per Sq. Ft. (GCSF)	1.35	1.85

Energy Model Output Breakdown

Energy Use Breakdown	Proposed Design Output (% BTU/yr)	Budget (Standard Design) Output (% BTU/yr)
Heating	15.8	18.7
Cooling	10.9	11.3
Heat rejection	2 (heat pump supply)	3.8 (heat pump supply)
Fans	13	15.7
Pumps	<1	<1
Lighting	22.1	21.8
Unregulated loads (e.g., plug loads, elevators, escalators, kitchen, process equipment, exterior lighting)	34.1	27.5
Total	100%	100%

Falsification of any statement is a misdemeanor under § 26-124 of the NYC Administrative Building Code and is punishable by a fine or imprisonment, or both. It is unlawful to give to a city employee, or for a city employee to accept, any benefit, monetary or otherwise, either as a gratuity for properly performing the job or in exchange for special consideration. Violation is punishable by imprisonment or fine or both.

Name (please print)
Thomas Chartier

Signature: Date: 11/24/14

P.E. / R.A. Seal (Professional Engineer Seal)

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

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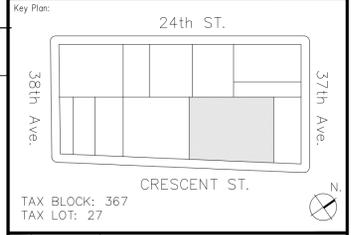
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Tel 718 224 9091

Expeditor:
William Vitacco Associates LTD
299 Broadway Fifth Floor
New York, NY 10007
Tel 212 791 4578

1 ENVELOPE COMPLIANCE CERTIFICATE
SCALE: NTS



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PROJECT
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11101

ENERGY CODE ANALYSIS

DATE: 11.25.2014
PROJECT No: stein_37-10_47cres
DRAWING BY: FFA
CHK BY: FFA
DWC No:
EN-002.0
CADD FILE No.:
15 of 49

Client:
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Sagamore Crescent LLC

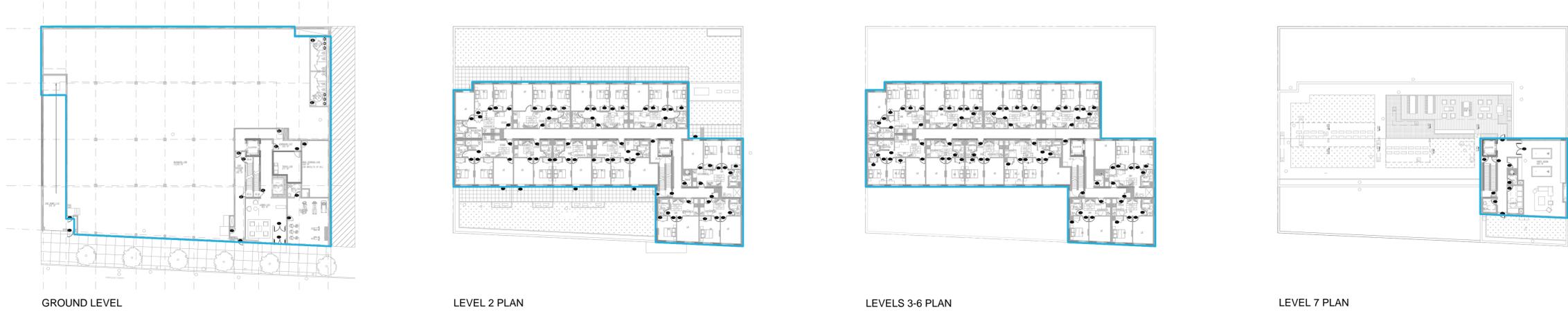
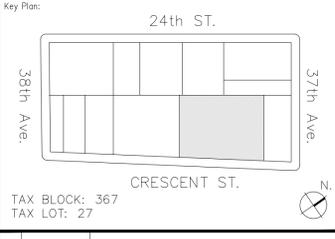
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GROUND LEVEL

LEVEL 2 PLAN

LEVELS 3-6 PLAN

LEVEL 7 PLAN

— LINE INDICATES AIR BARRIER.
REFER TO A -401 AND A-402 FOR DETAILS..

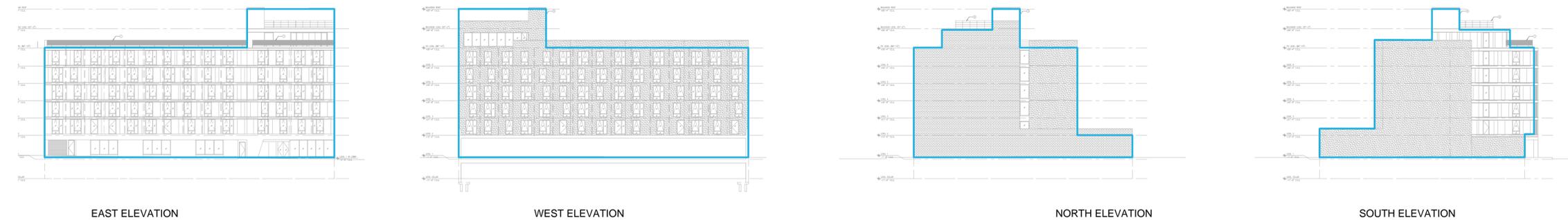
2 BUILDING PLANS: THERMAL BOUNDARY
SCALE: 1/32" = 1'-0"

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NO. DATE: ISSUE:

PROJECT
37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
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DRAWING TITLE
**AIR BARRIER
DIAGRAMS**

DATE: 11.25.2014
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DRAWING BY: FFA
CHK BY: FFA
DWC No.:
EN-002A
CADD FILE No.:
16 of 49



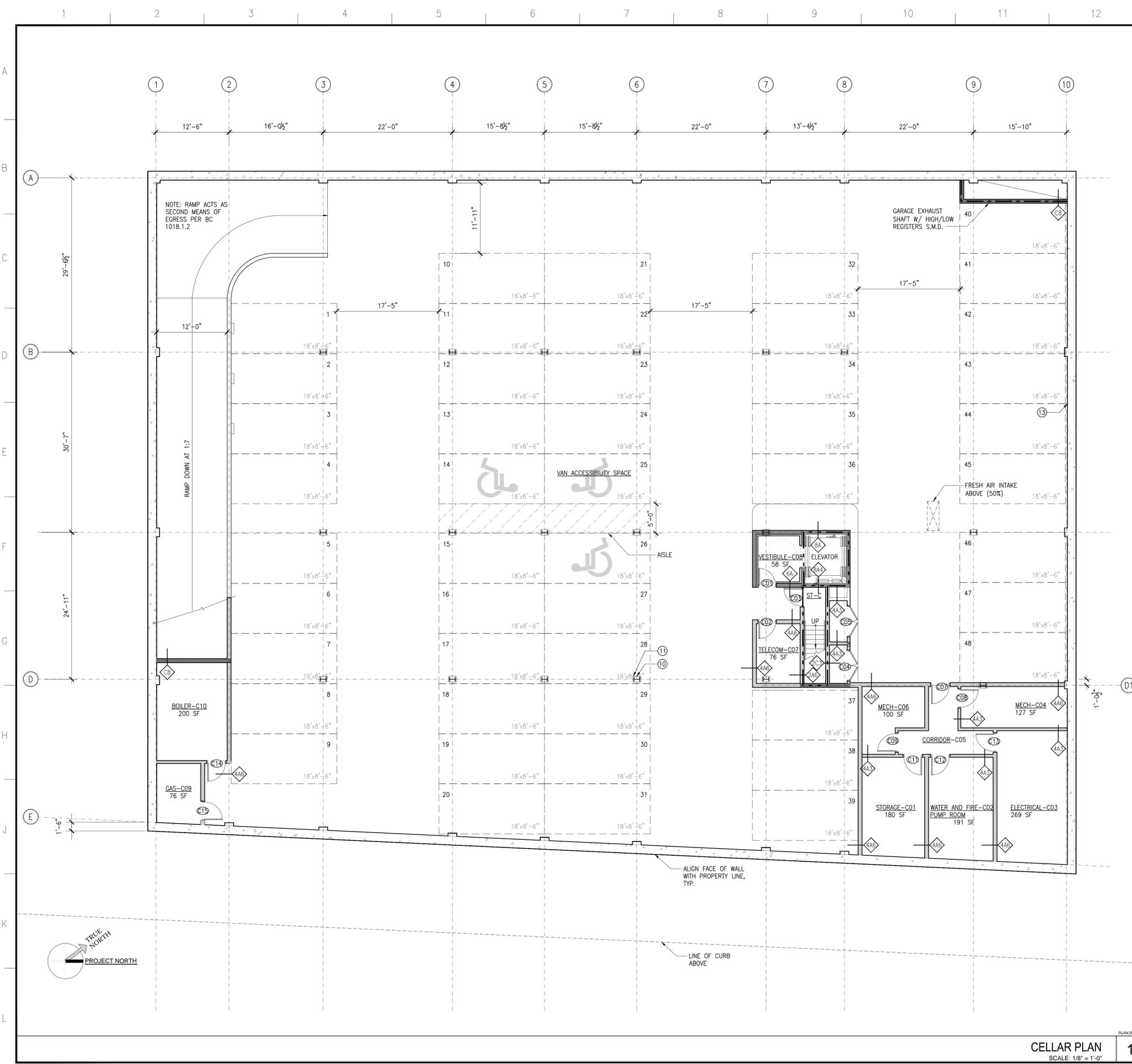
EAST ELEVATION

WEST ELEVATION

NORTH ELEVATION

SOUTH ELEVATION

1 BUILDING SECTION AND ELEVATIONS: THERMAL BOUNDARY
SCALE: 1/32" = 1'-0"



PLAN GENERAL NOTES:

- XX-01 FLOOR FINISH
- FINISH TRANSITION
- ELECTRICAL PANEL
- RD ROOF DRAIN
- GYP SUM BOARD PARTITION
- 8" CMU WALL
- CONCRETE WALL
- TOILET EXHAUST
- KITCHEN EXHAUST
- FRESH AIR

PLAN KEY NOTES:

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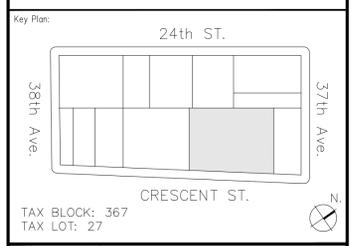
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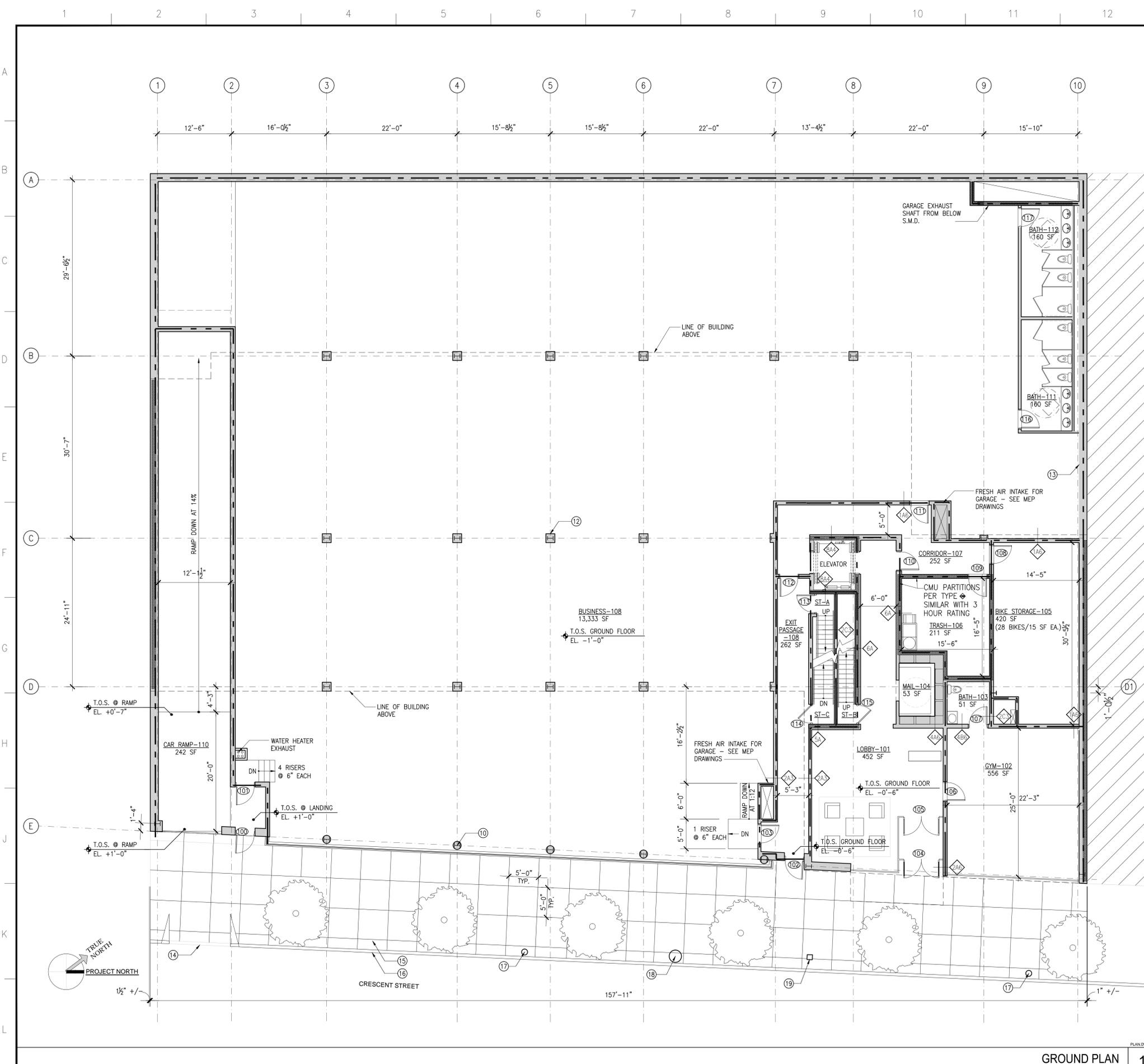


TAX BLOCK: 367	TAX LOT: 27
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DRAWING TITLE
LEVEL CELLAR PLAN

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	A-100.00
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- PLAN GENERAL NOTES:**
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Sagamore Crescent LLC

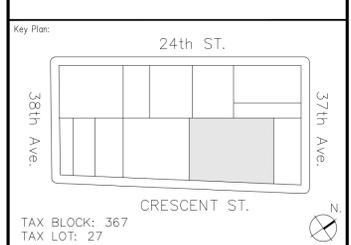
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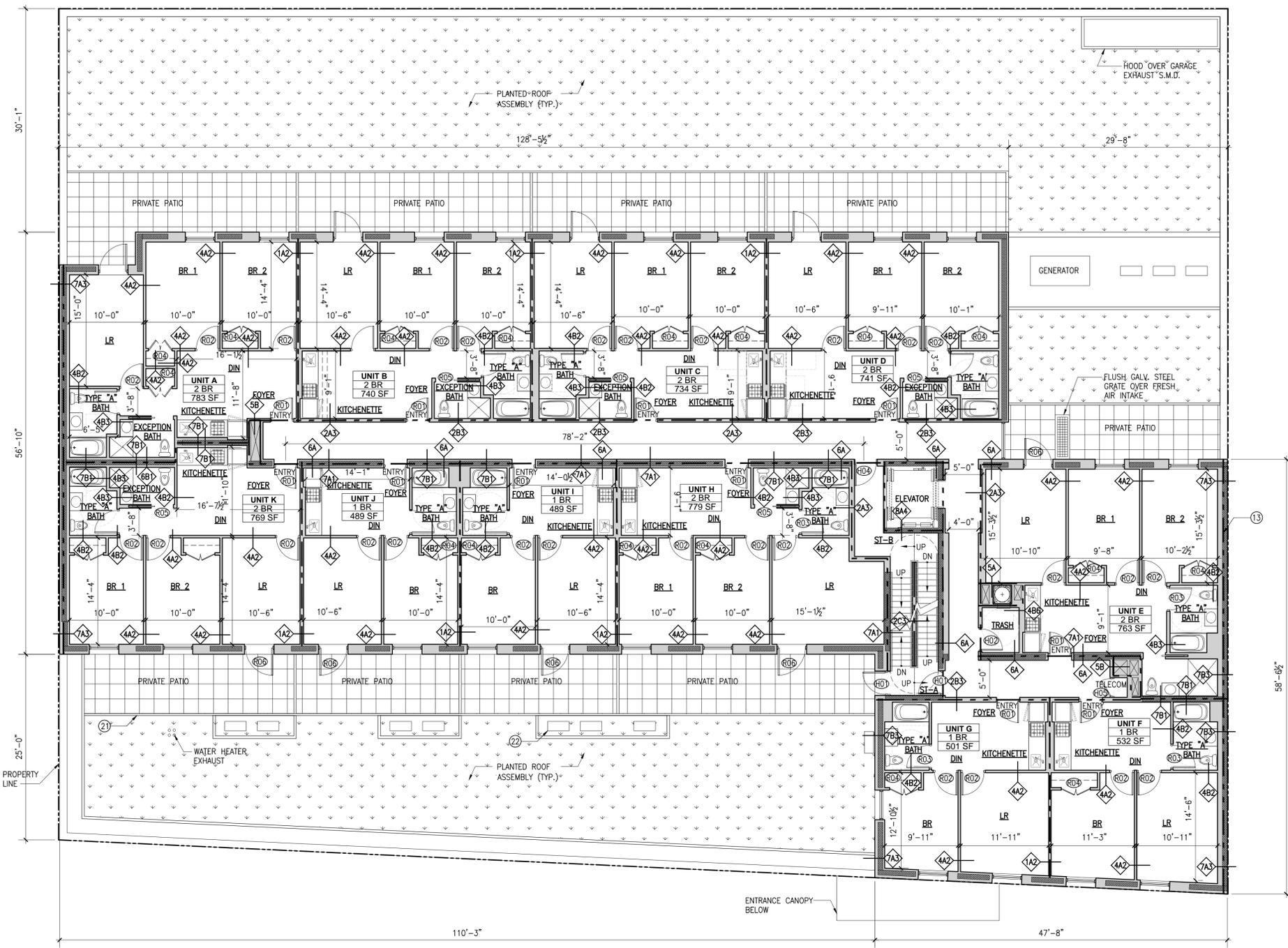
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DRAWING TITLE
GROUND LEVEL PLAN

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DATE: 11.25.2014
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 DRAWING BY: FFA
 CHK BY: FFA
 DWG. No.:
A-101.00
 CADD FILE No.:
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Sagamore Crescent LLC

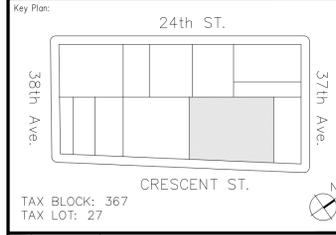
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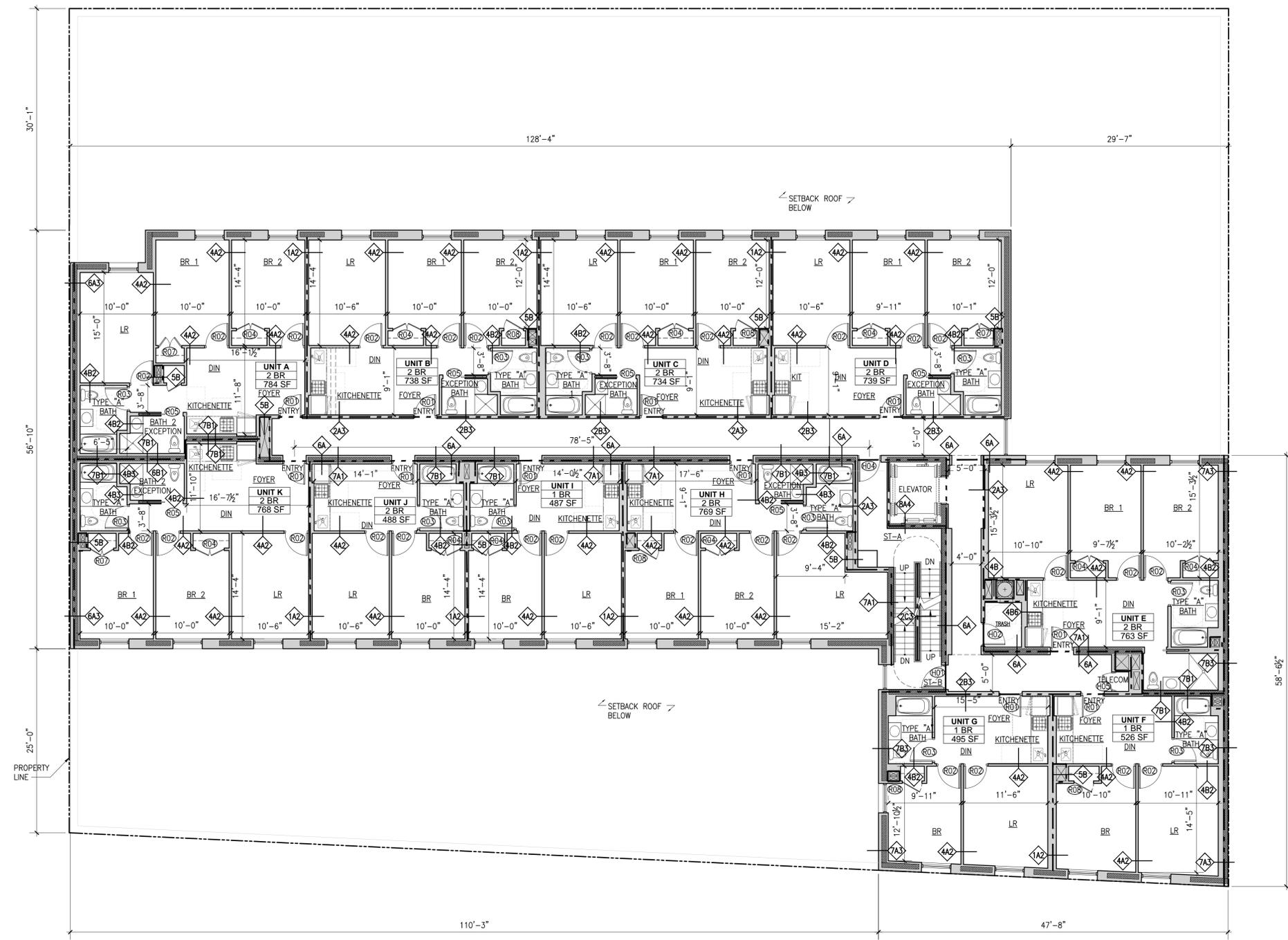


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PROJECT
37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
11101

DRAWING TITLE
LEVEL 2 PLAN

SEAL & SIGNATURE	DATE: 11.25.2014
	PROJECT No: stein_37-10_47cres
	DRAWING BY: FFA
	CHK BY: FFA
	DWG. No.: A-102.00
CADD FILE No.:	19 of 49



PLAN GENERAL NOTES:

- XX-01 FLOOR FINISH
- ◆ FINISH TRANSITION
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- KX KITCHEN EXHAUST
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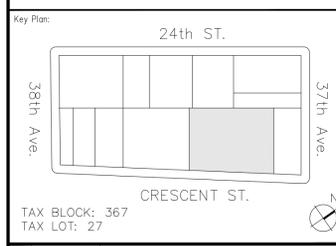
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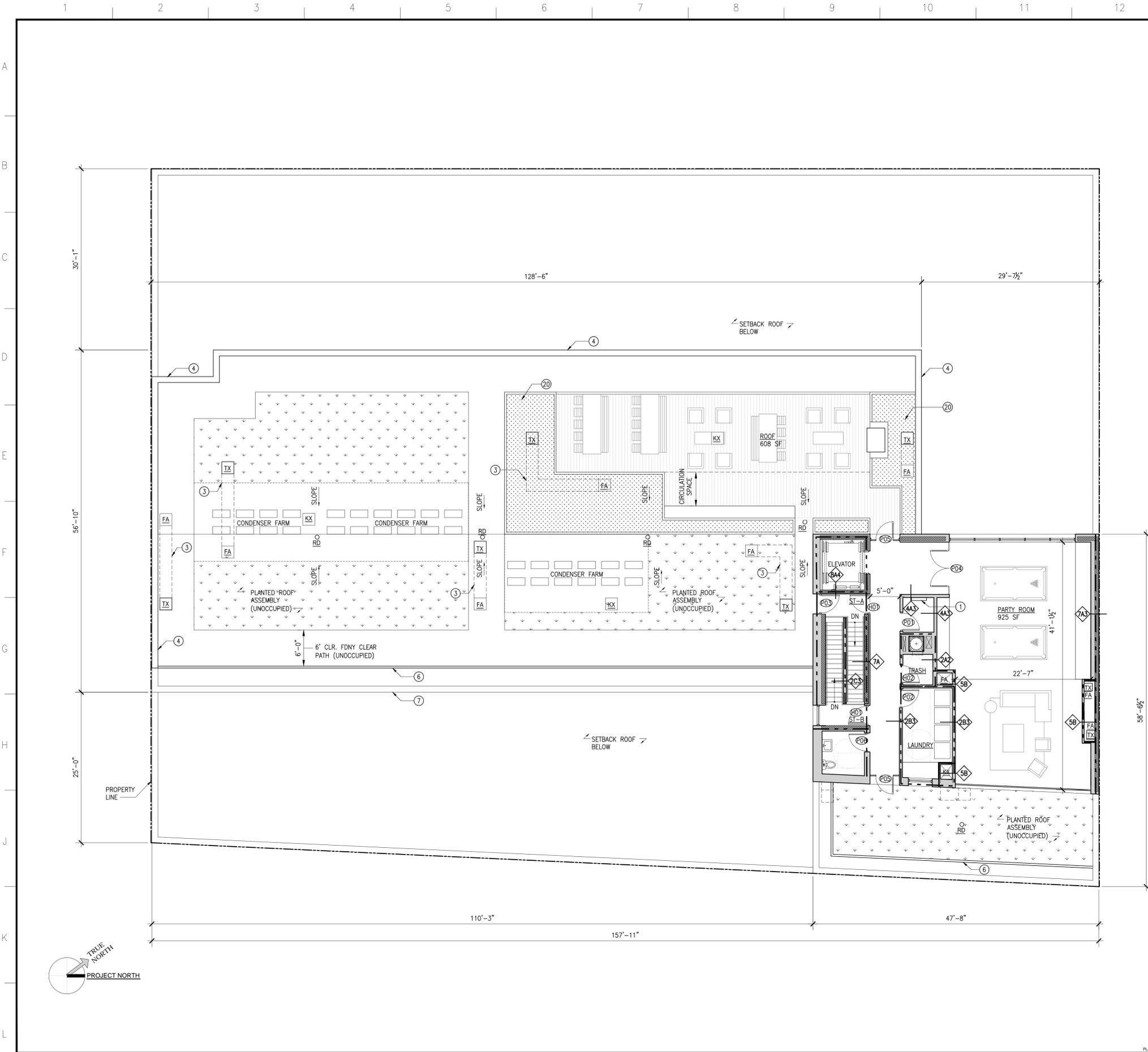


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DRAWING TITLE:
LEVEL 3-6 PLAN

SEAL & SIGNATURE: _____ DATE: 11.25.2014
PROJECT No: stein_37-10_47cres
DRAWING BY: FFA
CHK BY: FFA
DWG. No.: **A-103.00**
CADD FILE No.: _____ 20 of 49



PLAN GENERAL NOTES:

- XX-01 FLOOR FINISH
- FINISH TRANSITION
- ELECTRICAL PANEL
- RD ROOF DRAIN
- GYPSUM BOARD PARTITION
- 8" CMU WALL
- CONCRETE WALL
- TX TOILET EXHAUST
- KX KITCHEN EXHAUST
- FA FRESH AIR

PLAN KEY NOTES:

- 1 LADDER TO BULKHEAD LEVEL.
- 2 HATCH TO LADDER BELOW.
- 3 FRESH AIR OFFSET IN SUSPENDED CEILING.
- 4 42" HIGH PARAPET
- 5 42" HIGH OSHA RAIL SETBACK FROM ROOF EDGE
- 6 42" HIGH GUARDRAIL SETBACK FROM ROOF EDGE ,TYP.
- 7 OUTSIDE FACE OF CURB ALIGNS WITH WALL BELOW
- 8 DOWNSPOUT TO ROOF BELOW
- 9 ELECTRIC CAR CHARGING STATION
- 10 STL. COLUMN WITH 1 HR. SPRAY-ON FIRE-PROOFING, TYP.
- 11 CONCRETE ENCASE LOWER 48" OF COLUMN, TYP.
- 12 STEEL COLUMN WITH 1HR. GYP. BOARD FIREPROOFING PER U.L. L419
- 13 2HR. EXTERIOR BEARING WALL PER U.L. U904
- 14 LOCATION OF EXISTING CURB CUT
- 15 REMOVE EXISTING SIDEWALK AND INSTALL NEW
- 16 NEW CONCRETE CURB
- 17 EXISTING UTILITY POLE TO REMAIN
- 18 EXISTING LIGHT POLE TO REMAIN
- 19 EXISTING MUNICIPAL METER TO REMAIN
- 20 18" HIGH PLANTER
- 21 42" HIGH STL. PRIVACY SCREEN
- 22 CONDENSING UNIT FOR APARTMENT SPLIT SYSTEMS, TYP.

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

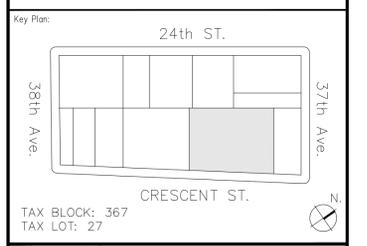
Architect:
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architecture interiors
 289 Hudson Street New York, NY 10013
 t 212 966 7450 f 212 966 7444

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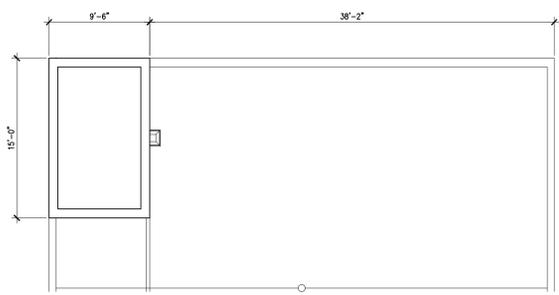


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PROJECT
37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
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DRAWING TITLE
PENTHOUSE PLAN

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 DATE: 11.25.2014
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 DWG. No.:
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 21 of 49



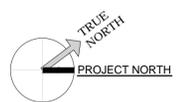
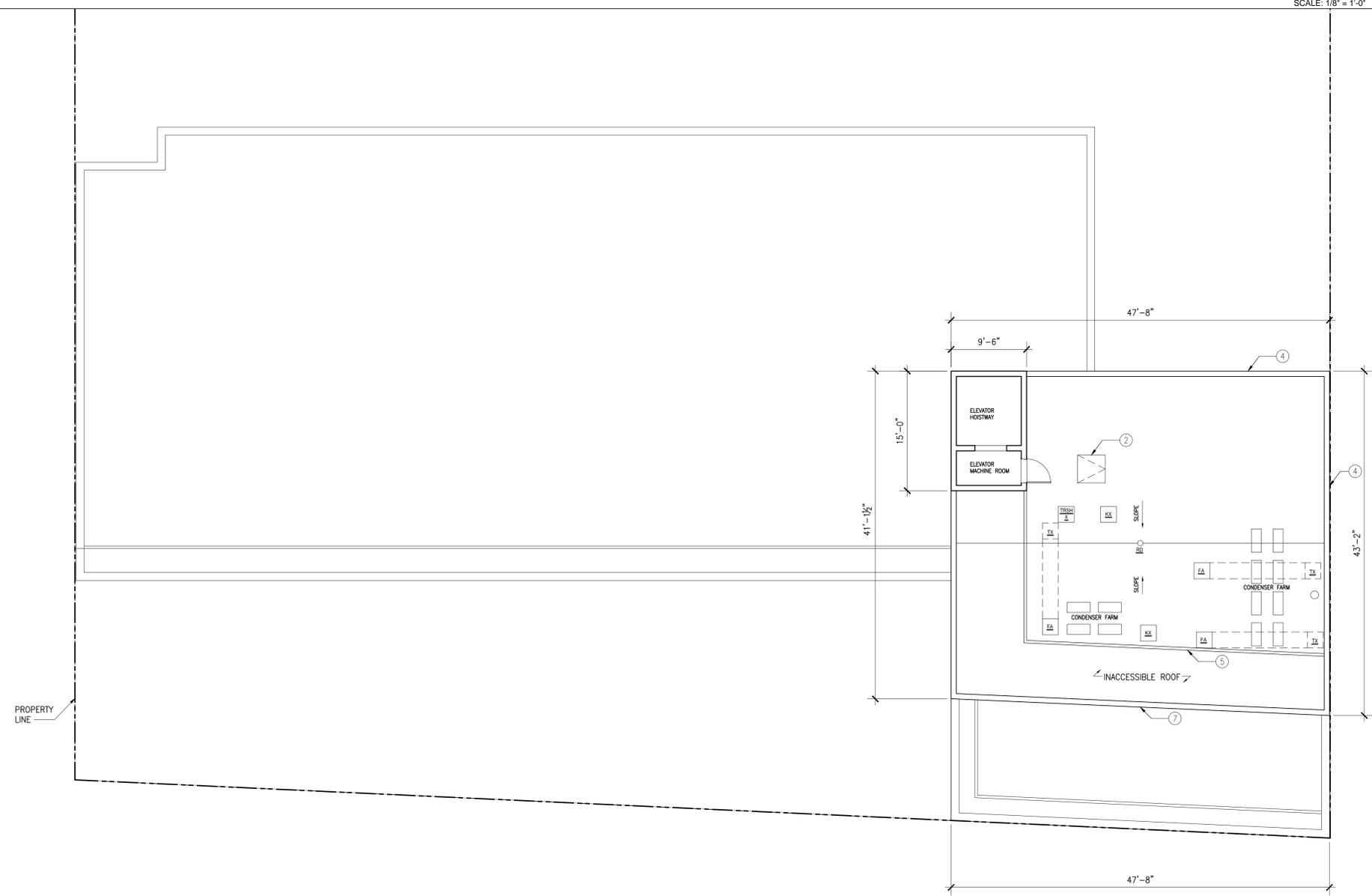
BULKHEAD ROOF PLAN
SCALE: 1/8" = 1'-0"

PLAN GENERAL NOTES:

- XX-01 FLOOR FINISH
- ◆ FINISH TRANSITION
- ELECTRICAL PANEL
- RD ROOF DRAIN
- GYPSUM BOARD PARTITION
- ▨ 8" CMU WALL
- CONCRETE WALL
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- 21 42" HIGH STL. PRIVACY SCREEN
- 22 CONDENSING UNIT FOR APARTMENT SPLIT SYSTEMS, TYP.



BULKHEAD PLAN
SCALE: 1/8" = 1'-0"

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

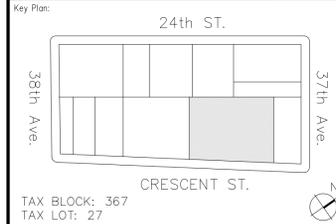
Architect :
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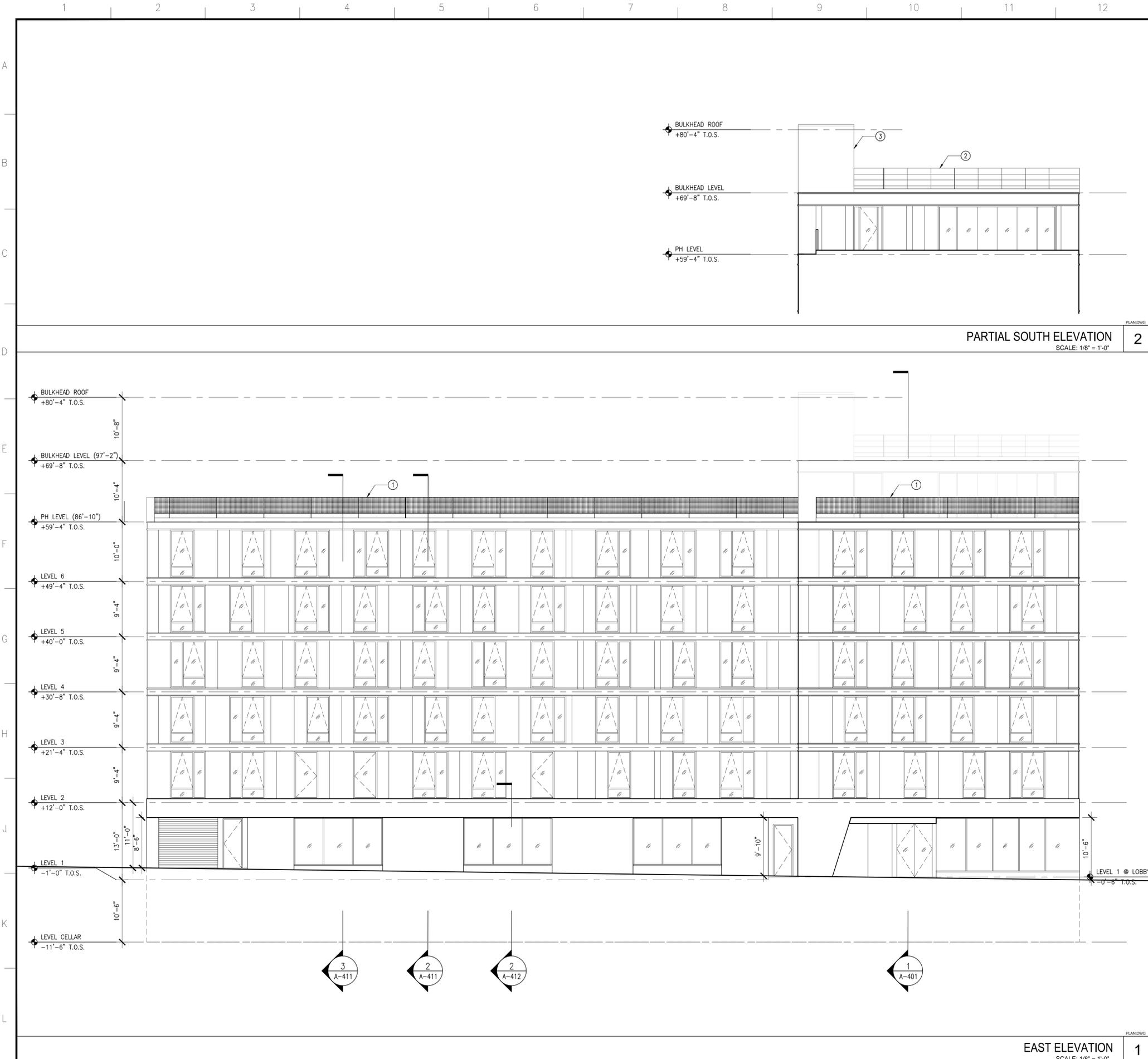


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DRAWING TITLE
LEVEL ROOF PLAN

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	DWG. No.: A-105.00
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- ELEVATION KEY NOTES:
- ① PERFORATED METAL GUARDRAIL
 - ② SET BACK OSHA RAIL
 - ③ ELEVATOR BULKHEAD

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

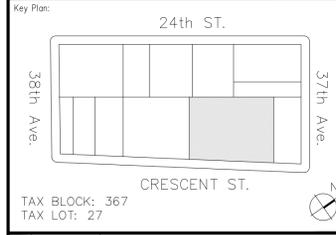
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PROJECT
37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
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DRAWING TITLE
EAST ELEVATION

DATE: 11.25.2014
PROJECT No: stein_37-10_47cres
DRAWING BY: FFA
CHK BY: FFA
DWG. No.: A-301.00
CADD FILE No.: 23 of 49

PARTIAL SOUTH ELEVATION
 SCALE: 1/8" = 1'-0" 2

EAST ELEVATION
 SCALE: 1/8" = 1'-0" 1

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- ELEVATION KEY NOTES:
- ① PERFORATED METAL GUARDRAIL
 - ② SET BACK OSHA RAIL
 - ③ ELEVATOR BULKHEAD

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

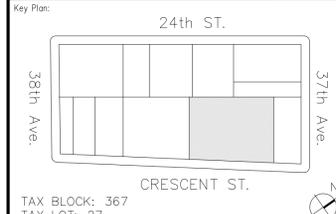
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architecture | interiors
289 Hudson Street New York, NY 10013
t 212 966 7450 f 212 966 7444

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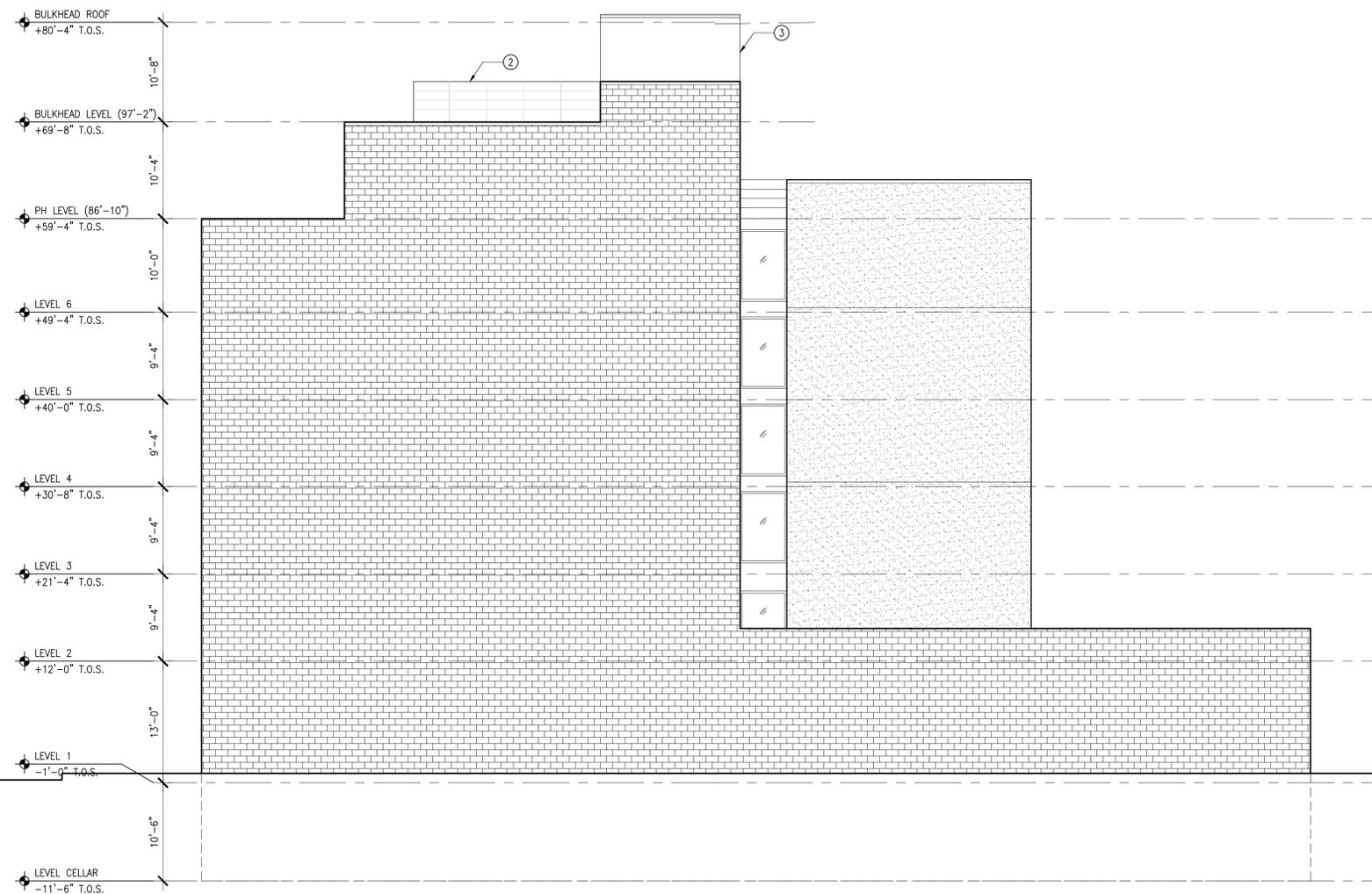
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DRAWING TITLE
WEST ELEVATION

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	PROJECT No: stein_37-10_47cres
	DRAWING BY: FFA
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	DWG. No.: A-302.00
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WEST ELEVATION
SCALE: 1/8" = 1'-0"

PLAN/DWG
1



- ELEVATION KEY NOTES:
- ① PERFORATED METAL GUARDRAIL
 - ② SET BACK OSHA RAIL
 - ③ ELEVATOR BULKHEAD

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

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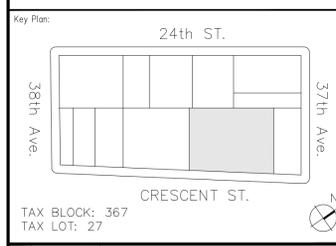
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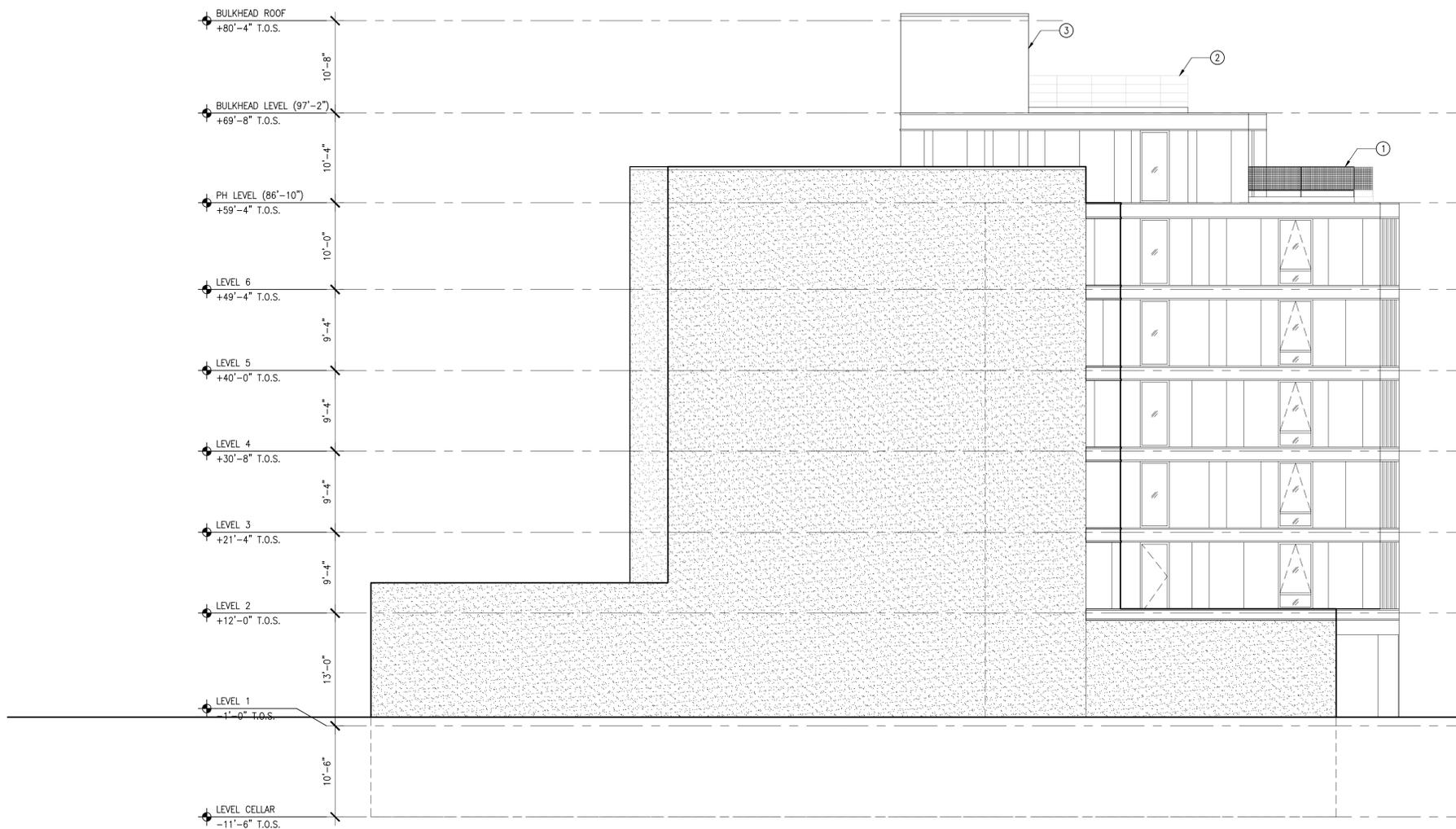
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37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
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DRAWING TITLE:
NORTH ELEVATION

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	PROJECT No: stein_37-10_47cres
	DRAWING BY: FFA
	CHK BY: FFA
	DWG. No.: A-303.00
CADD FILE No.:	25 of 49

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- ELEVATION KEY NOTES:
- ① PERFORATED METAL GUARDRAIL
 - ② SET BACK OSHA RAIL
 - ③ ELEVATOR BULKHEAD

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

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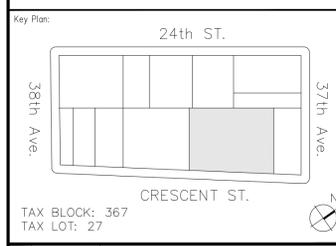
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DRAWING TITLE
SOUTH ELEVATION

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	PROJECT No: stein_37-10_47cres
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	CHK BY: FFA
	DWG. No.: A-304.00
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WEST ELEVATION
SCALE: 1/8" = 1'-0"

1

Client:
 37-10 Crescent Street Owner LLC
 Sagamore Crescent LLC

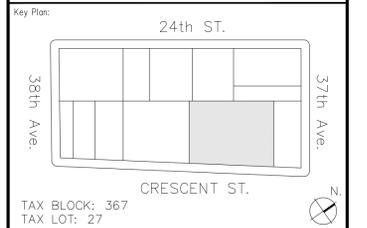
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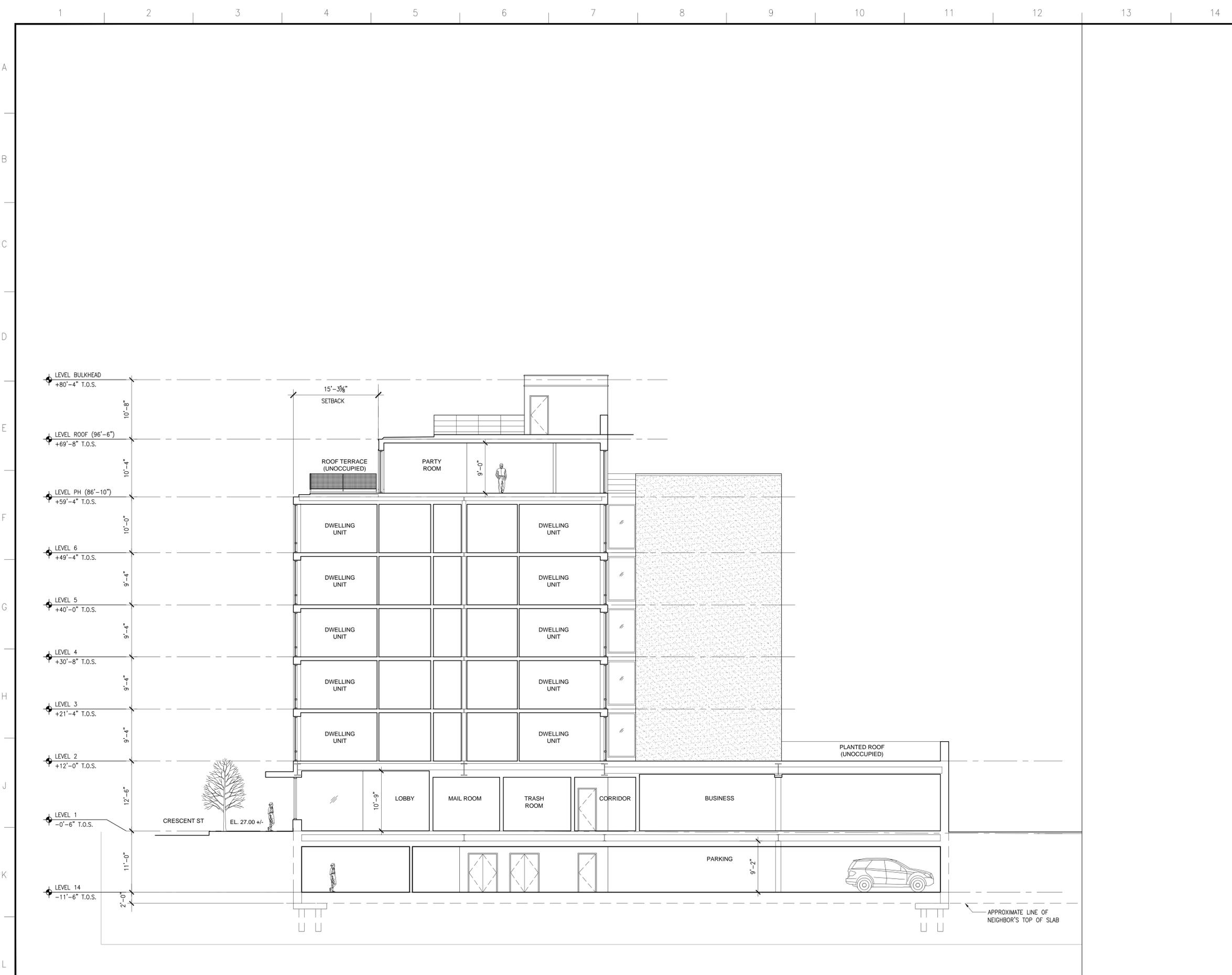


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PROJECT
37-10 CRESCENT ST.
 LONG ISLAND CITY, NEW YORK
 11101

DRAWING TITLE
BUILDING SECTION

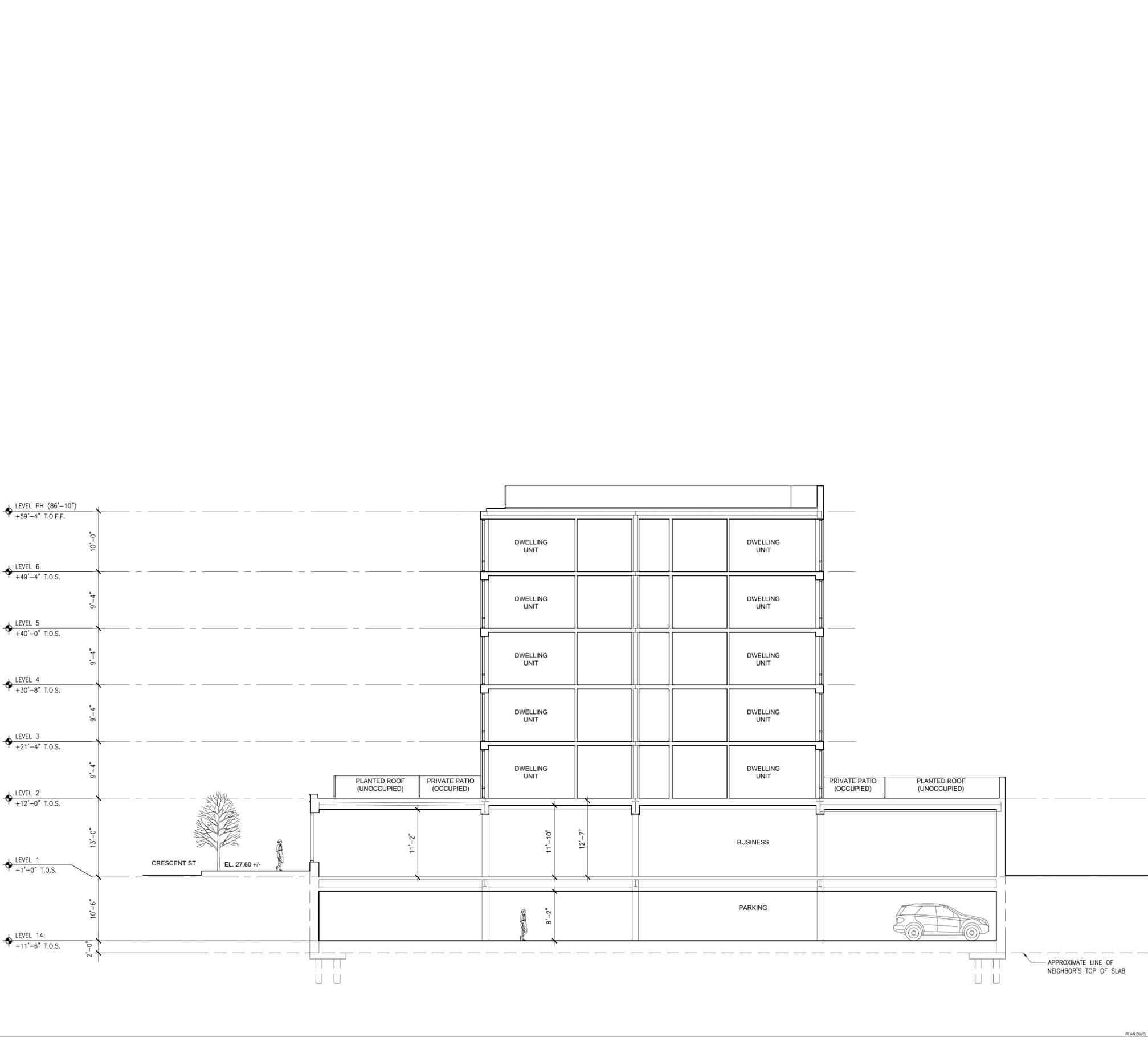
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 PROJECT No: stein_37-10_47cres
 DRAWING BY: FFA
 CHK BY: FFA
 DWG. No.:
A-400.00
 CADD FILE No.:
 27 of 49



BUILDING SECTION
 SCALE: 1/8" = 1'-0"

1 2 3 4 5 6 7 8 9 10 11 12 13 14

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K
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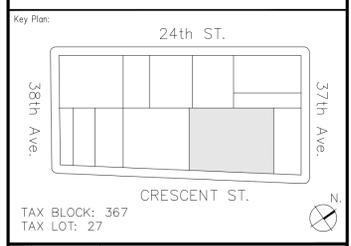
BUILDING SECTION
SCALE: 1/8" = 1'-0"

PLAN/DWG
1

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

Architect:
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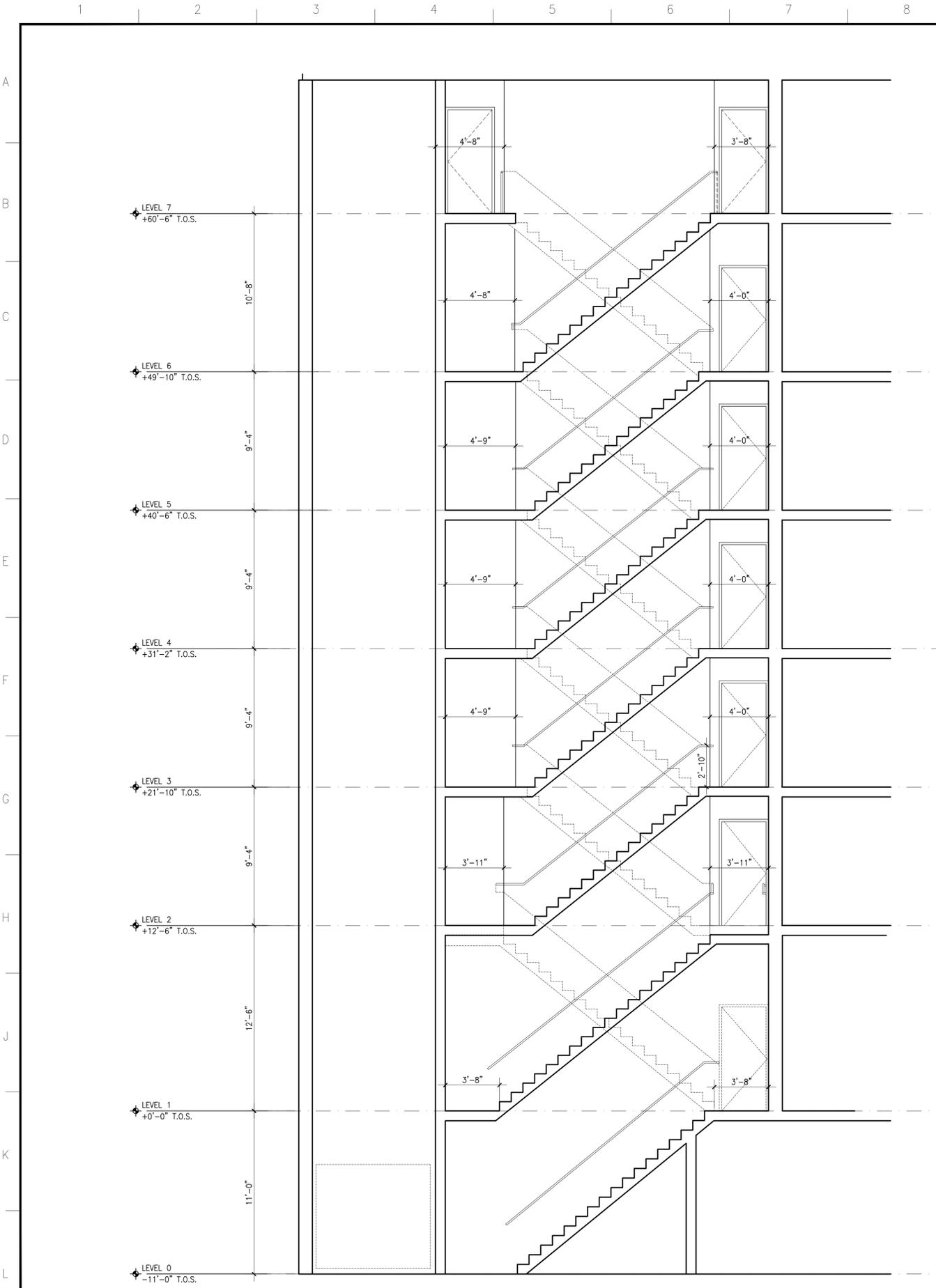


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LONG ISLAND CITY, NEW YORK
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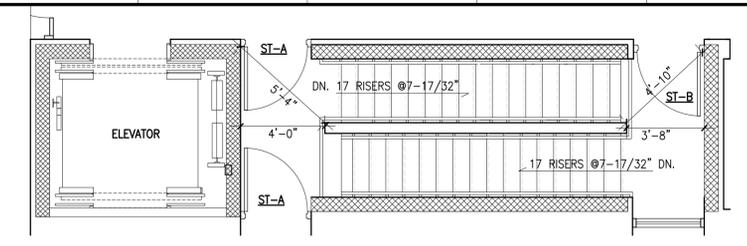
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BUILDING SECTION

DATE: 11.25.2014
PROJECT No: stein_37-10_47cres
DRAWING BY: FFA
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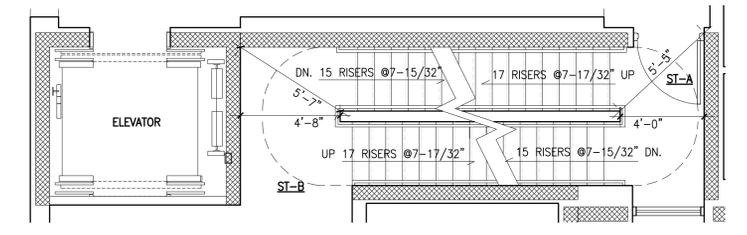
EGRESS STAIR SECTION
SCALE: 1/4" = 1'-0"

6



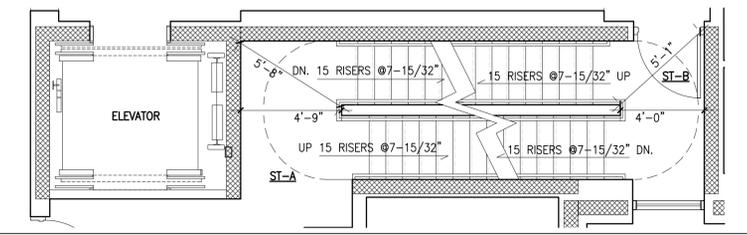
EGRESS STAIR @ 7TH FLOOR
SCALE: 1/4" = 1'-0"

5



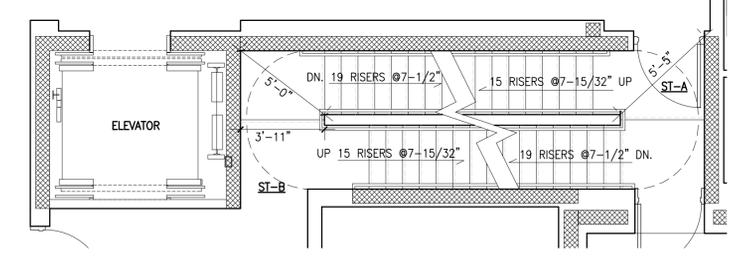
EGRESS STAIR @ 6TH FLOOR
SCALE: 1/4" = 1'-0"

5



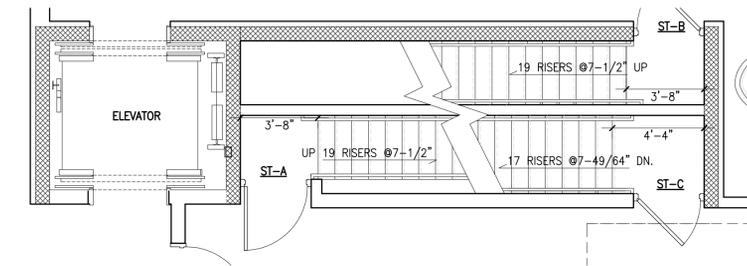
EGRESS STAIR @ 3RD - 5TH FLOOR
SCALE: 1/4" = 1'-0"

4



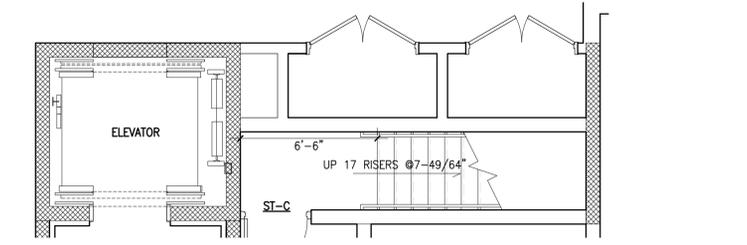
EGRESS STAIR @ 2ND FLOOR
SCALE: 1/4" = 1'-0"

3



EGRESS STAIR @ GROUND LEVEL
SCALE: 1/4" = 1'-0"

2



EGRESS STAIR @ CELLAR
SCALE: 1/4" = 1'-0"

1

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

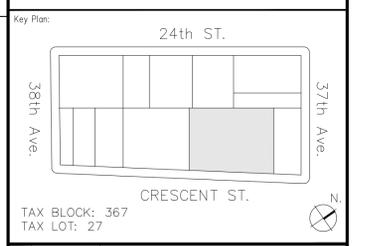
Architect:
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architecture interiors
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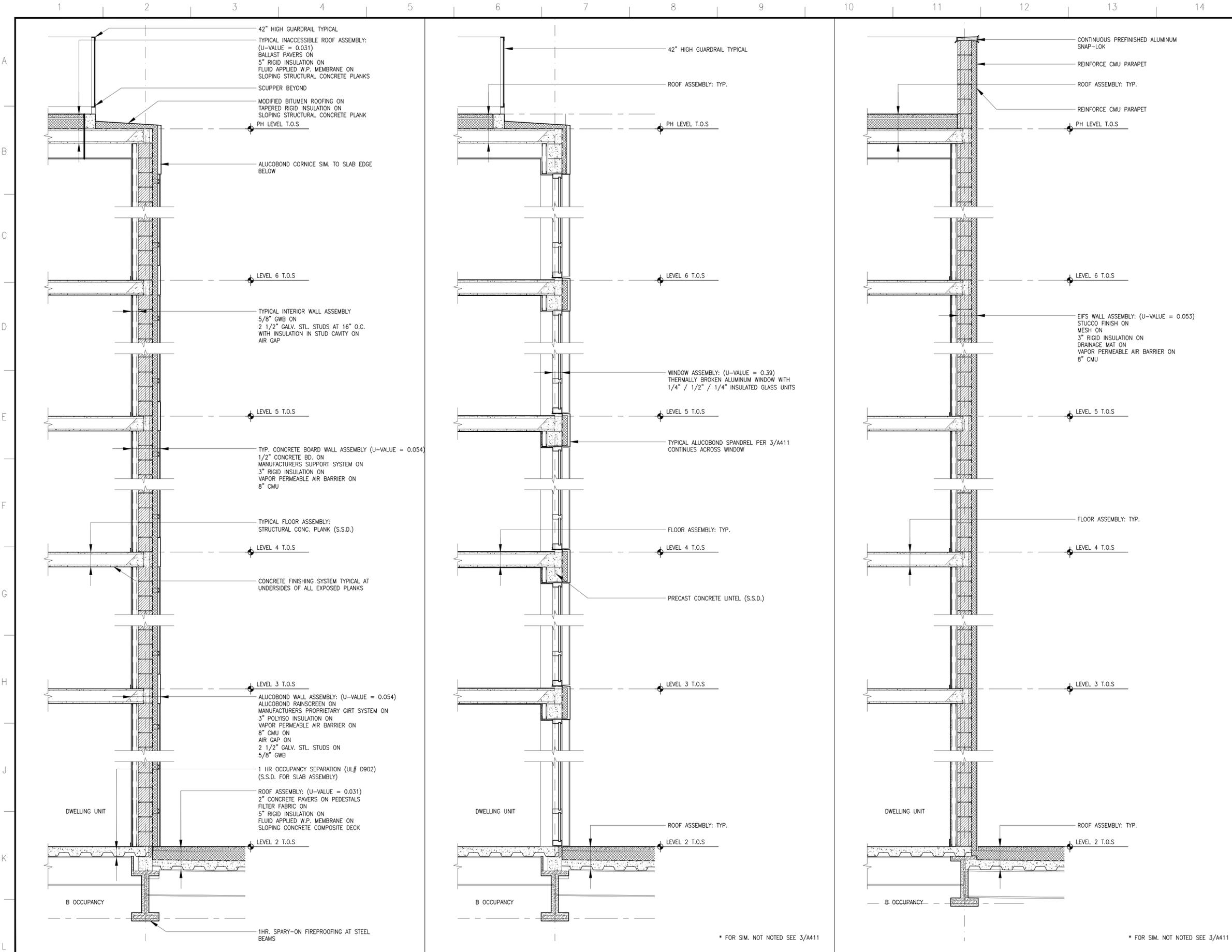


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PROJECT
37-10 CRESCENT ST.
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DRAWING TITLE
STAIR SECTION

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29 of 49



Client:
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Sagamore Crescent LLC

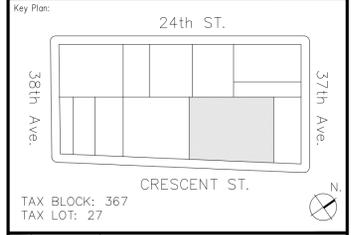
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DRAWING TITLE
WALL SECTIONS

DATE: 11.25.2014
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A-411.00
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 30 of 49

3 WALL SECTION - AT CONCRETE BOARD
 SCALE: 1/2"=1'-0"

2 WALL SECTION AT ALUMINUM WINDOW
 SCALE: 1/2"=1'-0"

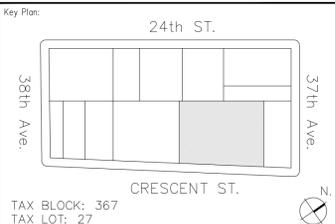
1 WALL SECTION AT EIFS
 SCALE: 1/2"=1'-0"

* FOR SIM. NOT NOTED SEE 3/A411

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

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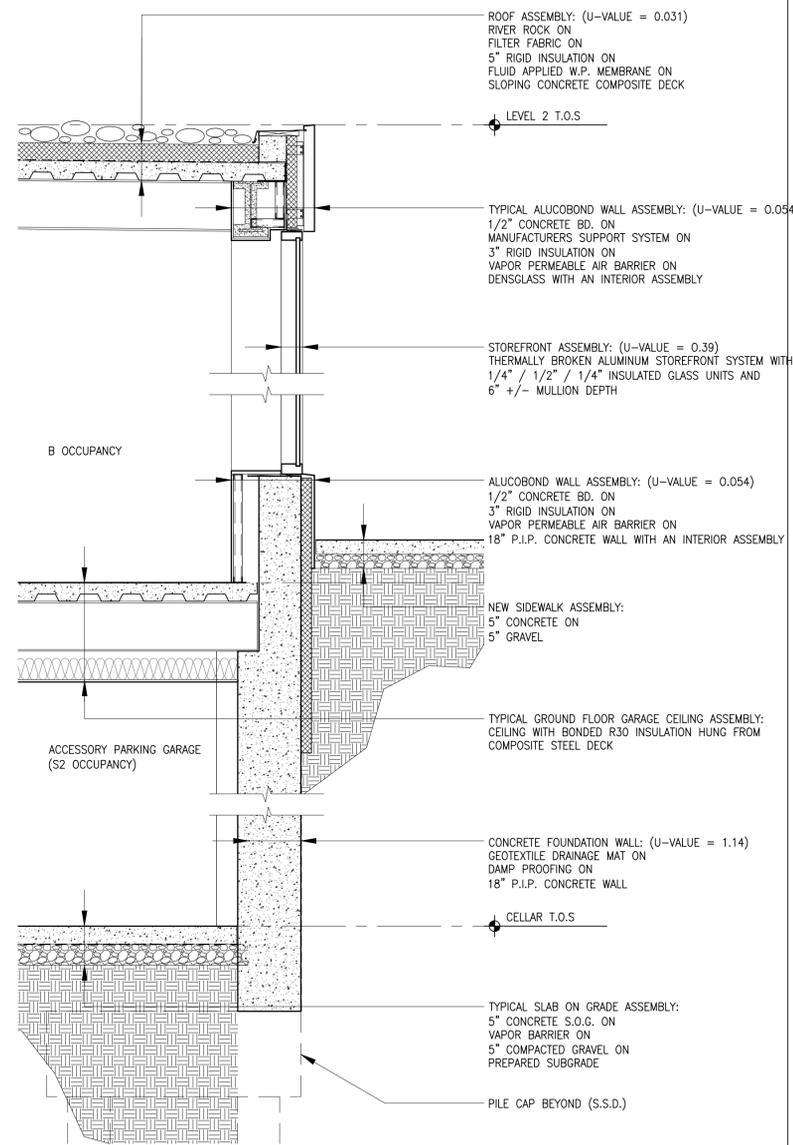


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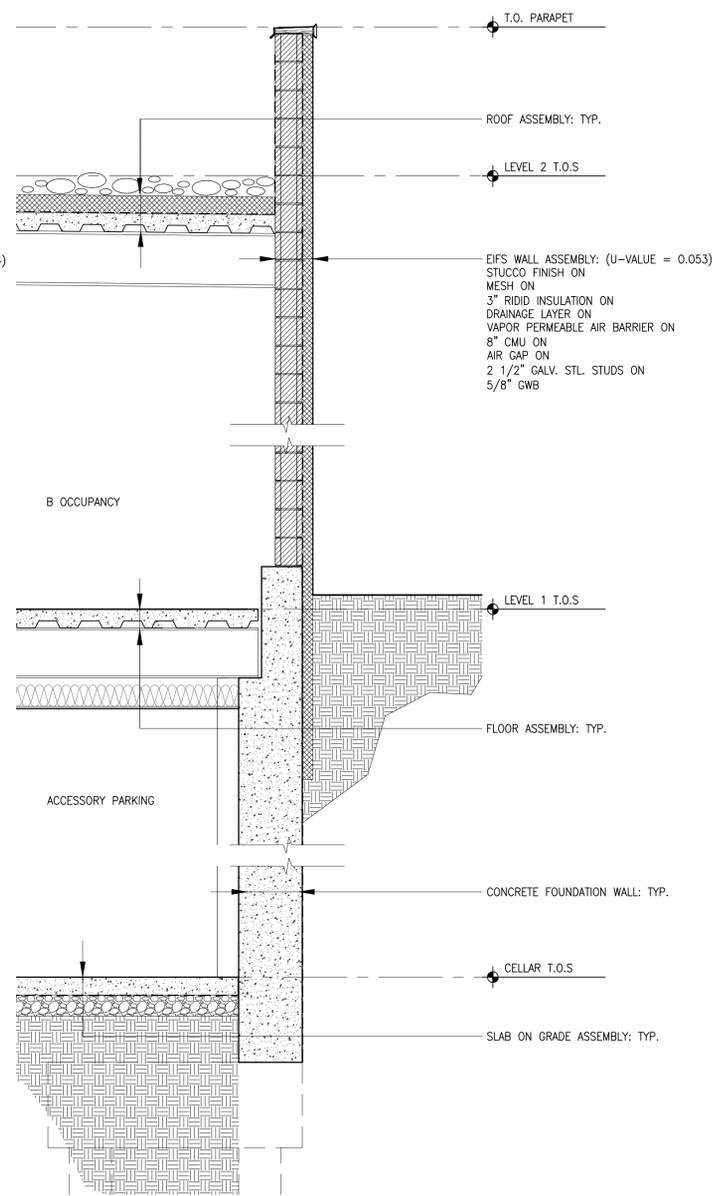
PROJECT
37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
11101

DRAWING TITLE
WALL SECTIONS

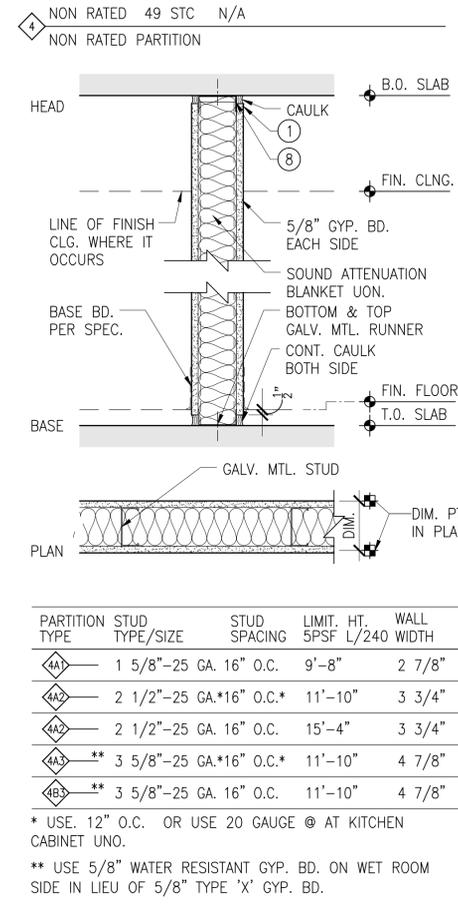
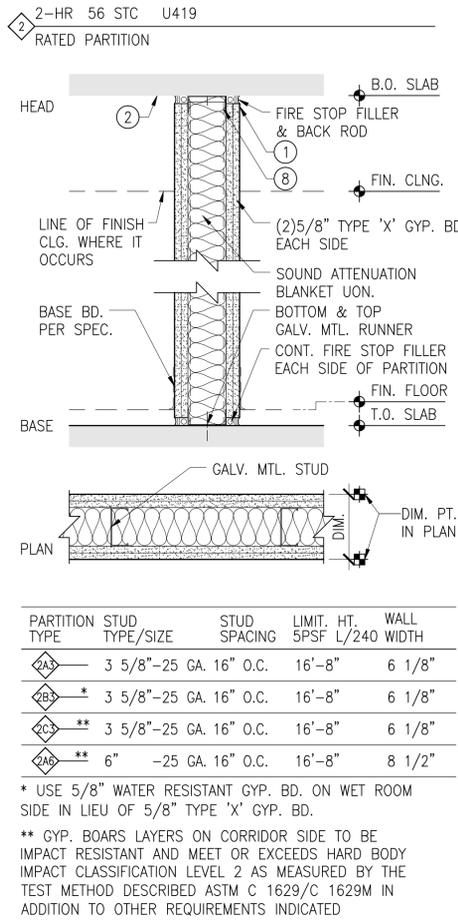
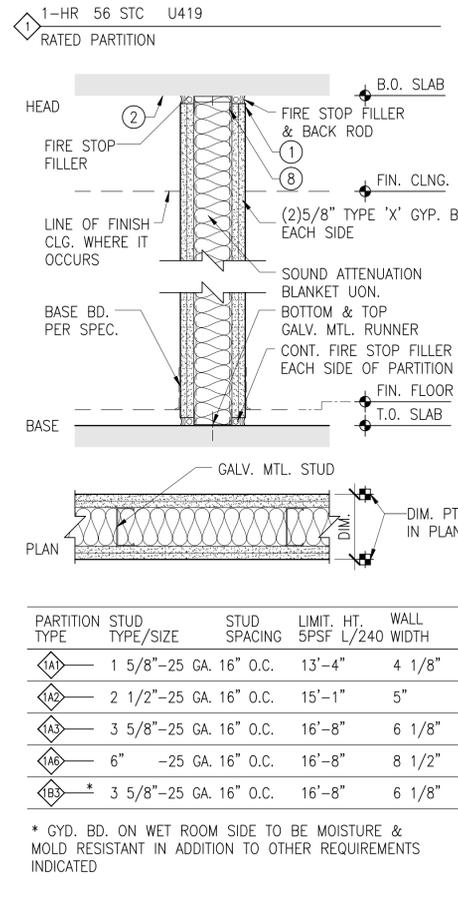
SEAL & SIGNATURE
DATE: 11.25.2014
PROJECT No: stein_37-10_47cres
DRAWING BY: FFA
CHK BY: FFA
DWG. No.:
A-412.00
CADD FILE No.:
31 of 49



2 WALL SECTION AT STOREFRONT AND CELLAR
SCALE: 1/2"=1'-0"



1 WALL SECTION AT EIFS WALL AND CELLAR
SCALE: 1/2"=1'-0"



PARTITION GEN. NOTES

- TYPICAL FLOOR PLAN DIMENSION ARE TO FINISH. PRIORITIZED PUBLIC, CODE RELATED SPACE UNLESS OTHERWISE NOTED.
- SEE FINISH SCHEDULE AND DETAIL FOR ALL SCHEDULED WALL FINISH.
- PROVIDE WATER RESISTANT GYP. BD. ALONG WITH VAPOR BARRIER AT INTERIOR OF ALL BATHROOM.
- PARTITION TYPES ARE DIAGRAMMATIC AND DO NOT REFLECT SPECIFIC CONDITION OF EACH PARTITION AT/ABOVE FINISH CEILING AT/BELOW FINISH FLOOR. FOR PARTITION CONSTRUCTED WITH COVE SEE SECTION AND COVE CEILING AND BASE DETAILS FOR COMPLETE DESCRIPTION OF WALL CONSTRUCTION.
- SOUND ATTENUATION FIBER BLANKET TO MATCH STUD SIZE UNLESS NOTED OTHERWISE.
- PROVIDE BLOCKING AT STAIR WELL AND BATH REFER TO ANSI-A117.1 RS4-6 WITH NYC MODIFICATION FOR GRAB BAR HEIGHT AND LOCATION IF APPLICABLE.
- INSTALL IN-WALL BLOCKING OR BACKER MATERIAL FOR WALL HUNG FIXTURE/CABINETS. REFER TO INTERIOR ELEVATION.
- STUD SIZES INDICATED IS MINIMUM CONSULT STUD MANUFACTURER PER PROJECT; USE HEAVIER GAUGE AS REQ'D.
- PARTITION THAT ARE REQUIRED TO EXTEND TO THE B.O. DECK ABOVE SHALL HAVE GYP. BD. CUT TO FIT WITHIN 1/4" MAX. TOLERANCE TO THE SHAPE OF DECK ABOVE. CONT. SEALED FOR THE FULL DEPTH OF GYP. BD.
- PENETRATION IN RATED PARTITION AND CONNECTION OF THE RATED PARTITION TO OTHER PARTITION OF WORK SHALL BE IN ACCORDANCE WITH MANUFACTURE'S RECOMMENDATION DETAILS AND IN COMPLIANCE WITH APPLICABLE TESTING AGENCY REQUIREMENTS.

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

Architect:
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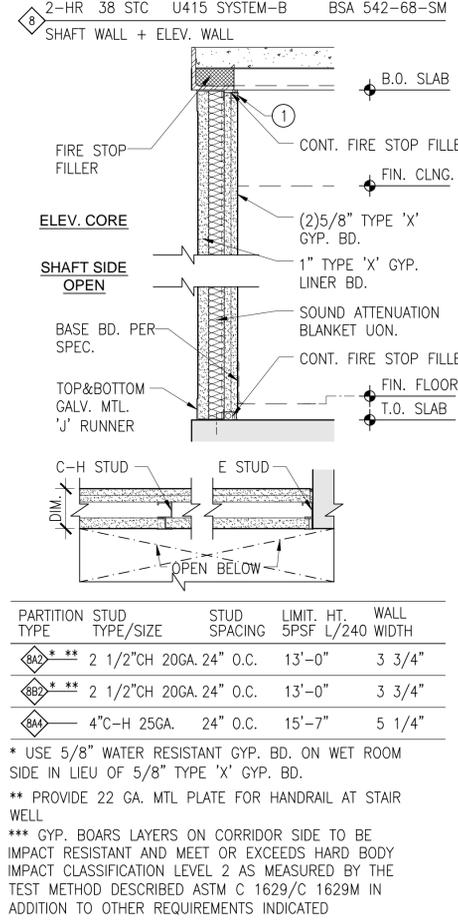
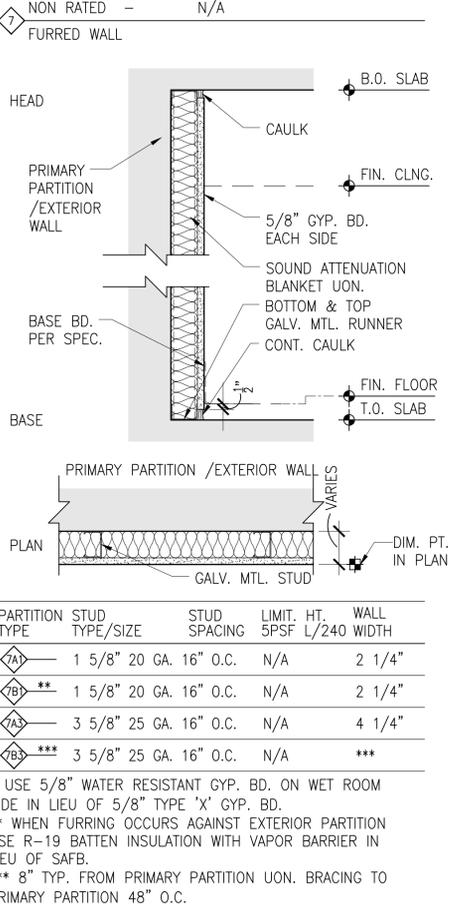
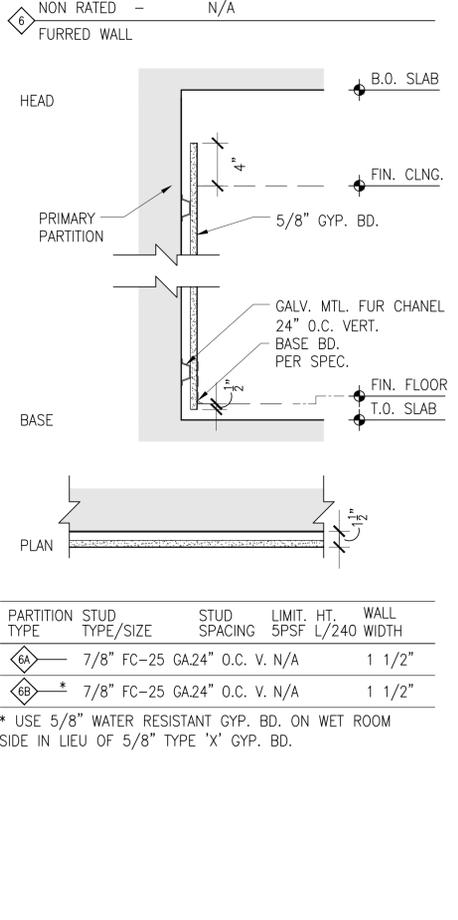
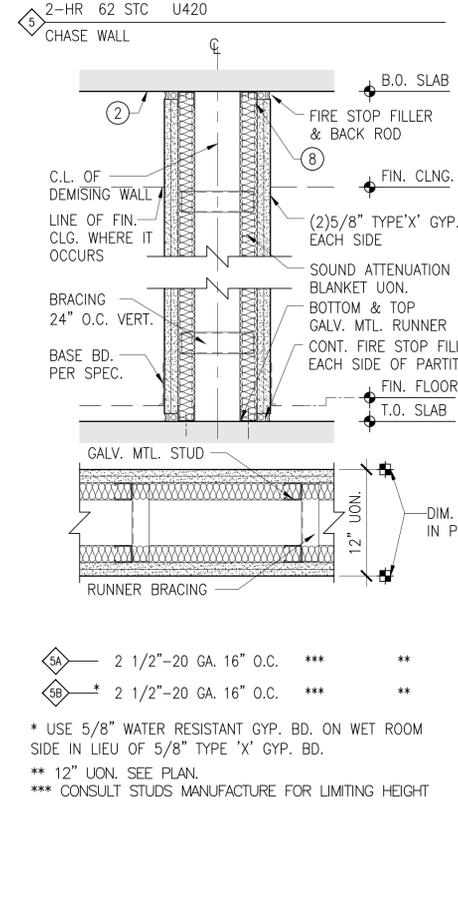
Consultants:
Owner:
37-10 Crescent St Owner, LLC
80 Eighth Ave, Suite 1010
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212-675-6953

Structural Engineer:
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Expeditior:
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Key Plan:
24th ST.
38th Ave.
37th Ave.
CRESCENT ST.
TAX BLOCK: 367
TAX LOT: 27



PARTITION KEY NOTES

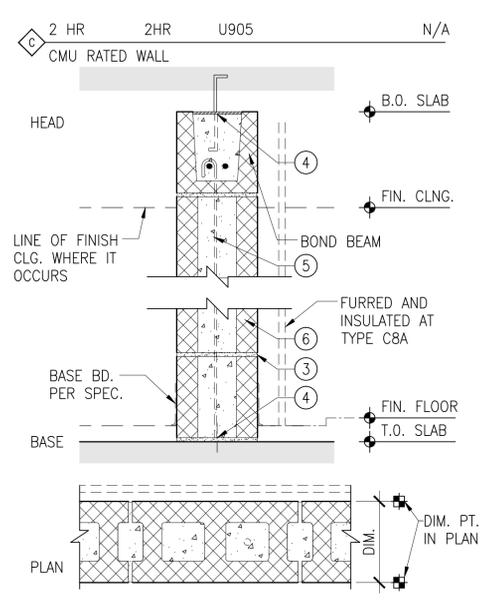
- METAL TRIM WHERE EDGE OF GYPSUM BOARD IS VISIBLE (I.E. EXPOSED CONC. SLAB CEILING)
- 22 GA. GALVANIZED SHEET METAL PLATE EXTEND "3" MIN. BEYOND EDGE OF PARTITION WHEN PARTITION IS RUNNING PERPENDICULAR TO METAL DECKING REFER TO STRUCTURAL DWGS.
- 3/8" FULL BED OF MORTAR
- ATTACHMENT AS REQ'D SEE STRUCTURAL DWGS.
- LOOSE MASONRY FILL - IF ALL CORE SPACES ARE FILLED WITH LOOSE DRY EXPANDED SLAG, EXPANDED CLAY OR SHALE (ROTARY KILN PROCESS), WATER REPELLANT VERMICULITE MASONRY FILL INSULATION, OR SILICONE TREATED PERLITE LOOSE FILL INSULATION ADD 2 HR TO CLASSIFICATION.
- RATED CONC. BLOCK CLASSIFICATION
D-2 2HR RATED
C-3 3HR RATED
B-4 4HR RATED
- JOINT COMPOUND: APPLIED UNIFORMLY TO BOTH SURFACES OF GYPSUM WALLBOARD LINER PANELS W/ A NOTCHED SPREADER, 1/4" HIGH BY 1/4 IN. WIDE SPACED 1" O.C.
- DEFLECTION TRACK AS REQ'D; UL 9079 TEST STD. FOR WALL ATTACHMENT AT TOP WITH ±1/2" DEFLECTION.

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PARTITION TYPES

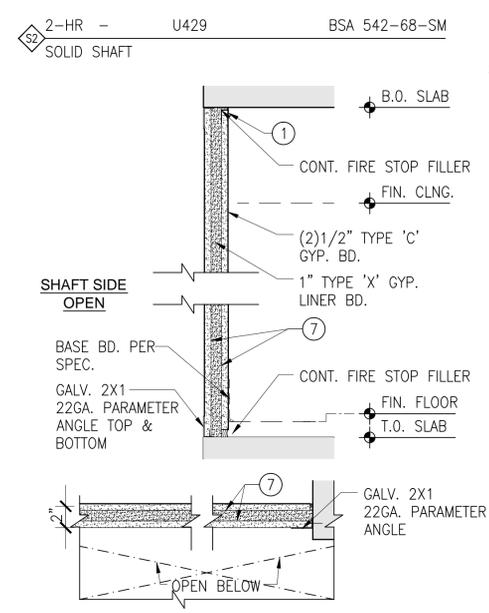
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PROJECT No: stein_37-10_47cres
DRAWING BY:
CHK BY:
DWS No:
A-600.00
CADD FILE No.: 32 of 49

1 2 3 4 5 6 7 8 9 10 11 12 13 14



PARTITION TYPE	STUD TYPE/SIZE	STUD SPACING	LIMIT. HT. 5PSF L/240	WALL WIDTH
C4	4" CMU	-	-	3-5/8"
C6	6" CMU	-	-	5-5/8"
C8	8" CMU	-	-	7-5/8"
C8A	8" CMU + 2" Z-STUD	-	-	SEE PLAN
C10	10" CMU	-	-	9-5/8"
C12	12" CMU	-	-	11-5/8"

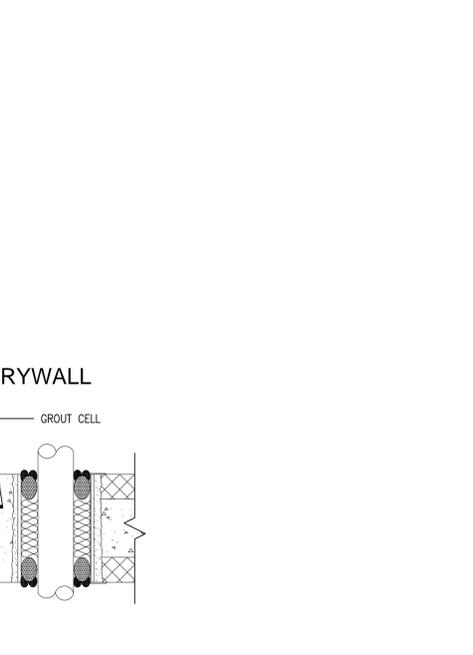
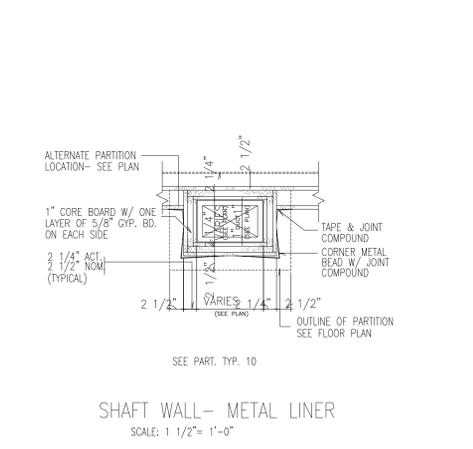
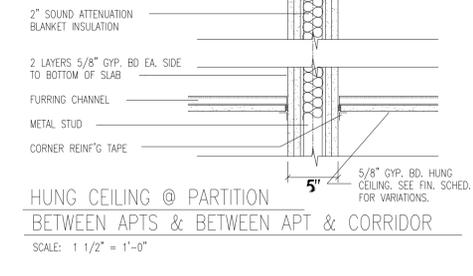
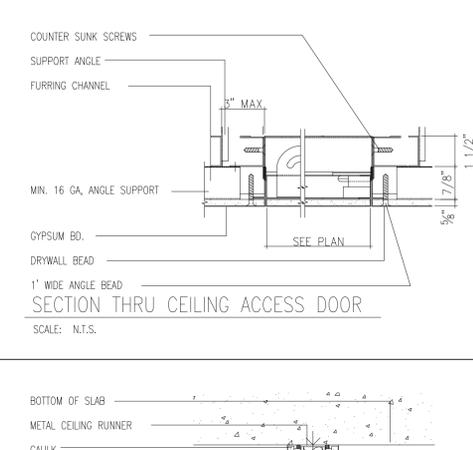
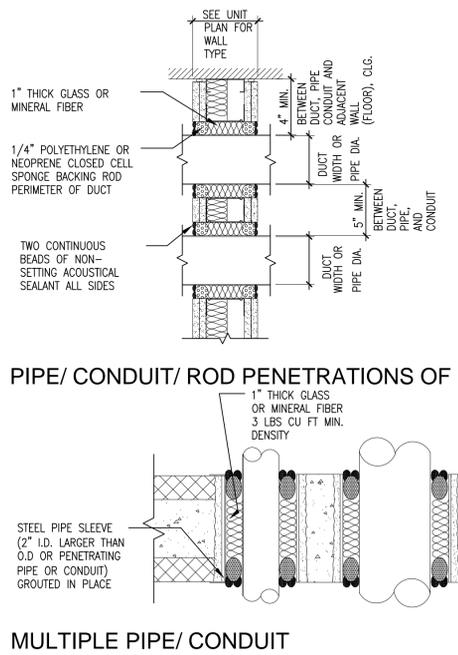
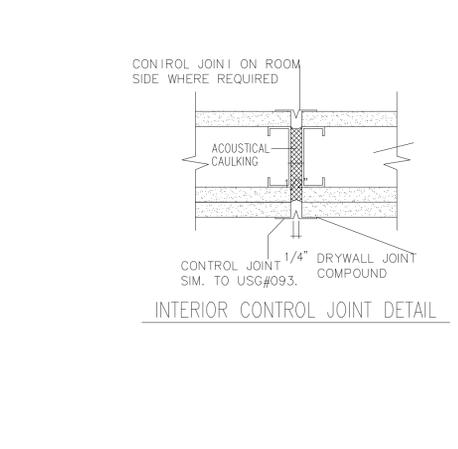
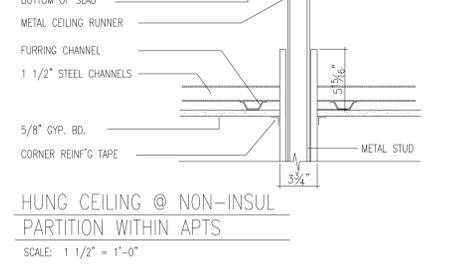
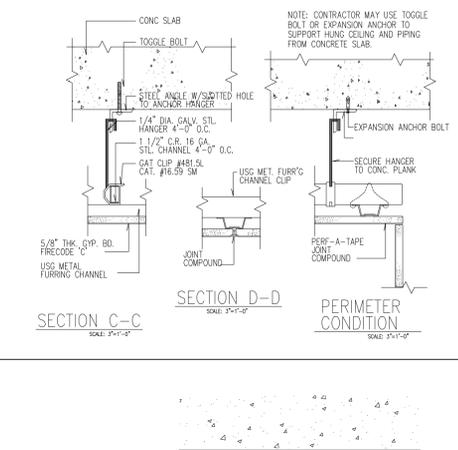
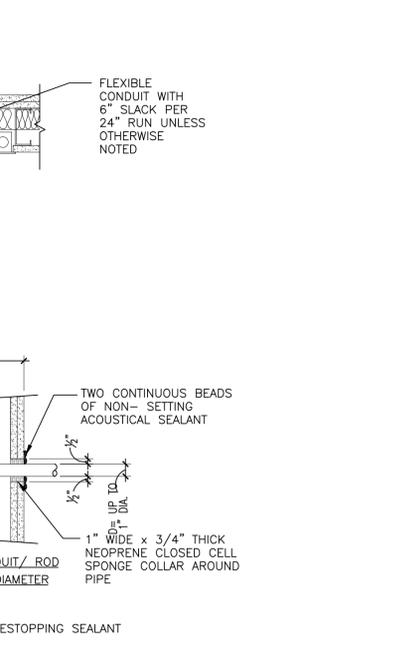
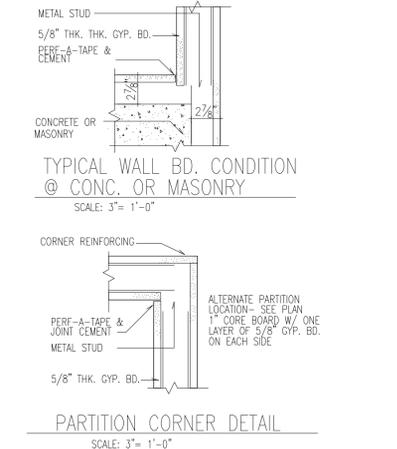
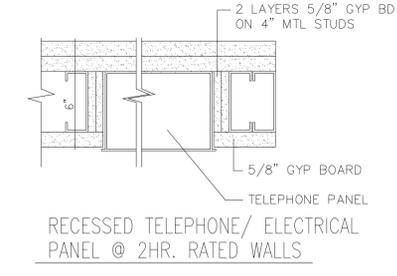
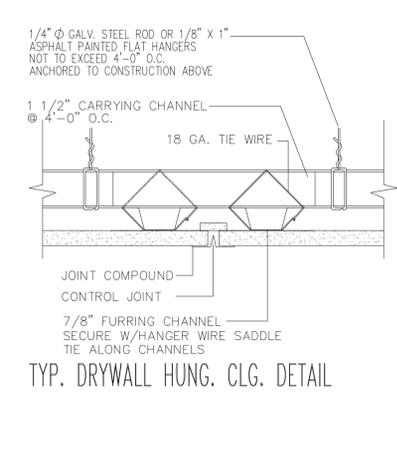
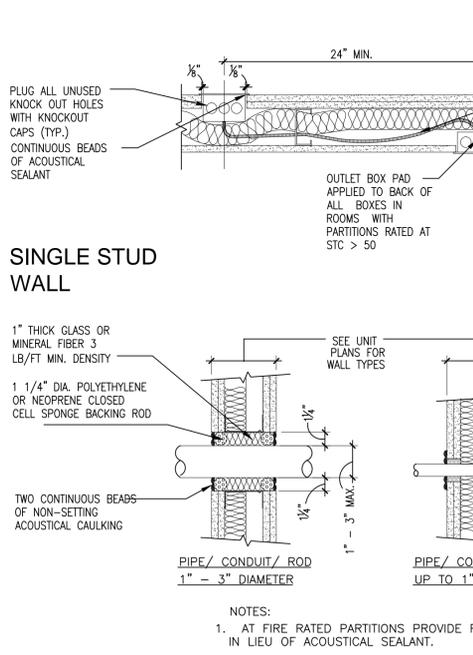
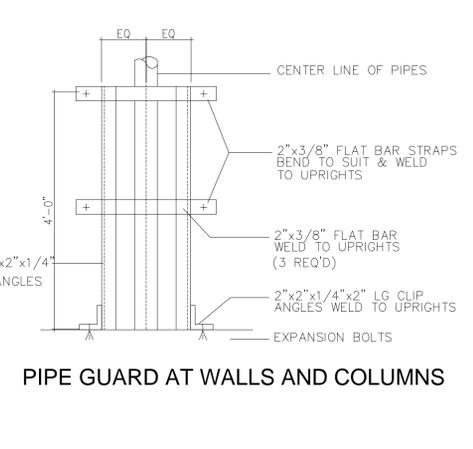
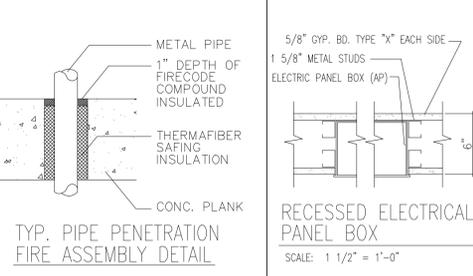
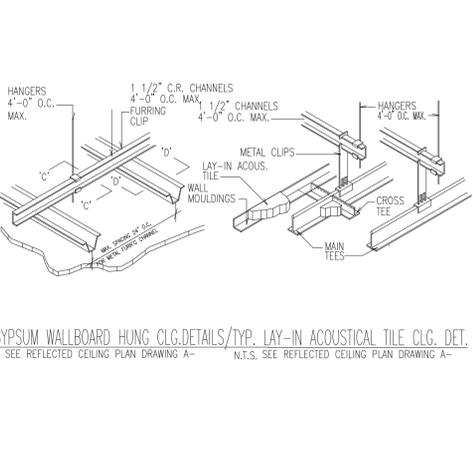
ALL FIRE RATED CMU MUST STAMPED "UL" LABEL.
* PROVIDE 2" Z-STUDS, 2" MINERAL WOOL, MOISTURE BARRIER AND 5/8" GYP. BD. ON INTERIOR FACE OF CMU.



PARTITION STUD TYPE	STUD TYPE/SIZE	STUD SPACING	LIMIT. HT. 5PSF L/240	WALL WIDTH
C2	**	-	-	2"

** PROVIDE 22 GA. MTL PLATE EACH SIDE FOR HANDRAIL AT STAIR

FOR PARTITION KEY NOTES REFER TO A-600



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38th Ave.
37th Ave.
CRESCENT ST.
TAX BLOCK: 367
TAX LOT: 27

01 11.25.2014 D.O.B. FILING SET
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LONG ISLAND CITY, NEW YORK
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DRAWING TITLE:
PARTITION TYPES & DETAILS

SEAL & SIGNATURE: _____ DATE: 11.25.2014
DRAWING BY: PROJECT No: stein_37-10_47cres
CHK BY: DWG. No: **A-601.00**
CADD FILE No: 33 of 49

	DOOR	LOCATION	DIMENSIONS			DOOR			FRAME			FIRE RATING	HDWR. SET	REMARKS
			W	H	THK.	TYPE	MAT.	FINISH	TYPE	MAT.	FINISH			
A	C01	VESTIBULE	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-09	
	C02	TELECOM	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-10	
	C03	STAIR	3'-0"	7'-10"	1-3/4"	E	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-05	
B	C04	CLOSET	(2) 1'-8"	7'-10"	1-3/4"	FF	HM	PAINT	5	HM	PAINT	-	HDWR-02A	
	C05	CLOSET	(2) 1'-8"	7'-10"	1-3/4"	FF	HM	PAINT	5	HM	PAINT	-	HDWR-02A	
C	C07	CORRIDOR	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-07	
	C08	MECHANICAL	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-07	
	C09	MECHANICAL	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-10	
D	C11	STORAGE	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-10	
	C12	WATER AND FIRE	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-07	
	C13	ELECTRICAL ROOM	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-07	
E	C14	BOILER	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-07	
	C15	GAS ROOM	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-05	
	DOOR	LOCATION	DIMENSIONS			DOOR			FRAME			FIRE RATING	HDWR. SET	REMARKS
			W	H	THK.	TYPE	MAT.	FINISH	TYPE	MAT.	FINISH			
F	100	CAR RAMP ENTRY	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-09	
	101	CAR RAMP ENTRY	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-10	
	102	EXIT PASSAGE	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-08	
	103	EXIT PASSAGE	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-08	
G	104	LOBBY	(2) 3'-0"	7'-10"	1-3/4"	GG	GL	-	10	-	-	-	HDWR-13A	
	105	LOBBY	(2) 3'-0"	7'-10"	1-3/4"	GG	GL	-	10	-	-	-	HDWR-13A	
H	106	GYM	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-07	
	107	BATHROOM	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-10	
	108	BIKE STORAGE	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	45 MIN	HDWR-10	
J	109	TRASH ROOM	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	180 MIN	HDWR-07	
	110	CORRIDOR	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-07	

	DOOR	LOCATION	DIMENSIONS			DOOR			FRAME			FIRE RATING	HDWR. SET	REMARKS
			W	H	THK.	TYPE	MAT.	FINISH	TYPE	MAT.	FINISH			
GROUND LEVEL	111	CORRIDOR	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	45 MIN	HDWR-07	
	112	EXIT PASSAGE	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-05	
	113	STAR	3'-0"	7'-10"	1-3/4"	E	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-05	
	114	STAR	3'-0"	7'-10"	1-3/4"	E	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-05	
	115	STAR	3'-0"	7'-10"	1-3/4"	E	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-05	
	116	BATHROOM	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-10	
	117	BATHROOM	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-10	
	DOOR	LOCATION	DIMENSIONS			DOOR			FRAME			FIRE RATING	HDWR. SET	REMARKS
			W	H	THK.	TYPE	MAT.	FINISH	TYPE	MAT.	FINISH			
RESIDENTIAL	R01	APT ENTRY	3'-0"	7'-10"	1-3/4"	A	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-01	STC 35 MIN. COORDINATE KEY W/OWNER. SMOKE DOOR
	R02	BEDROOM	3'-0"	7'-10"	1-3/4"	F	SC	PAINT	5	WD	PAINT	-	HDWR-03	
	R03	BATHROOM	3'-0"	7'-10"	1-3/4"	F	SC	PAINT	5	WD	PAINT	-	HDWR-04	
	R04	CLOSET	(2) 1'-10"	7'-10"	1-3/4"	FF	SC	PAINT	5	WD	PAINT	-	HDWR-04A	
	R05	BATHROOM	3'-0"	7'-10"	1-3/4"	S	SC	PAINT	5	WD	PAINT	-	HDWR-04A	
	R06	BALCONY	3'-0"	7'-10"	1-3/4"	G	AL/GL	-	10	AL	-	-	HDWR-16	
	R07	CLOSET	(2) 1'-8"	7'-10"	1-3/4"	FF	SC	PAINT	5	WD	PAINT	-	HDWR-04A	
	R08	CLOSET	2'-8"	7'-10"	1-3/4"	F	SC	PAINT	5	WD	PAINT	-	HDWR-04A	
CORRIDOR	H01	STAIR	3'-0"	7'-10"	1-3/4"	E	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-05	
	H02	TRASH ROOM	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-06	
	H04	CORRIDOR	3'-0"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-06	
	H05	TELECOM	2'-4"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-06	
	P01	STORAGE	2'-4"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	-	HDWR-06	
	P02	LAUNDRY	2'-4"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-06	
PENTHOUSE	P03	STAIR	3'-0"	7'-10"	1-3/4"	E	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-05	
	P04	PARTY ROOM	(2) 3'-0"	7'-10"	1-3/4"	GG	GL	AL	1	HM	PAINT	-	HDWR-06	
	P05	ROOF DECK	3'-0"	7'-10"	1-3/4"	E	GL	AL	1	HM	PAINT	90 MIN	HDWR-06	
	P06	BATHROOM	2'-4"	7'-10"	1-3/4"	F	HM	PAINT	1	HM	PAINT	90 MIN	HDWR-06	

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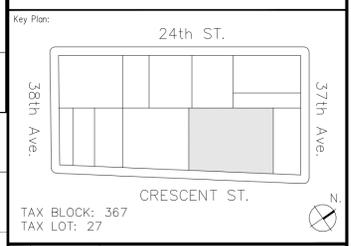
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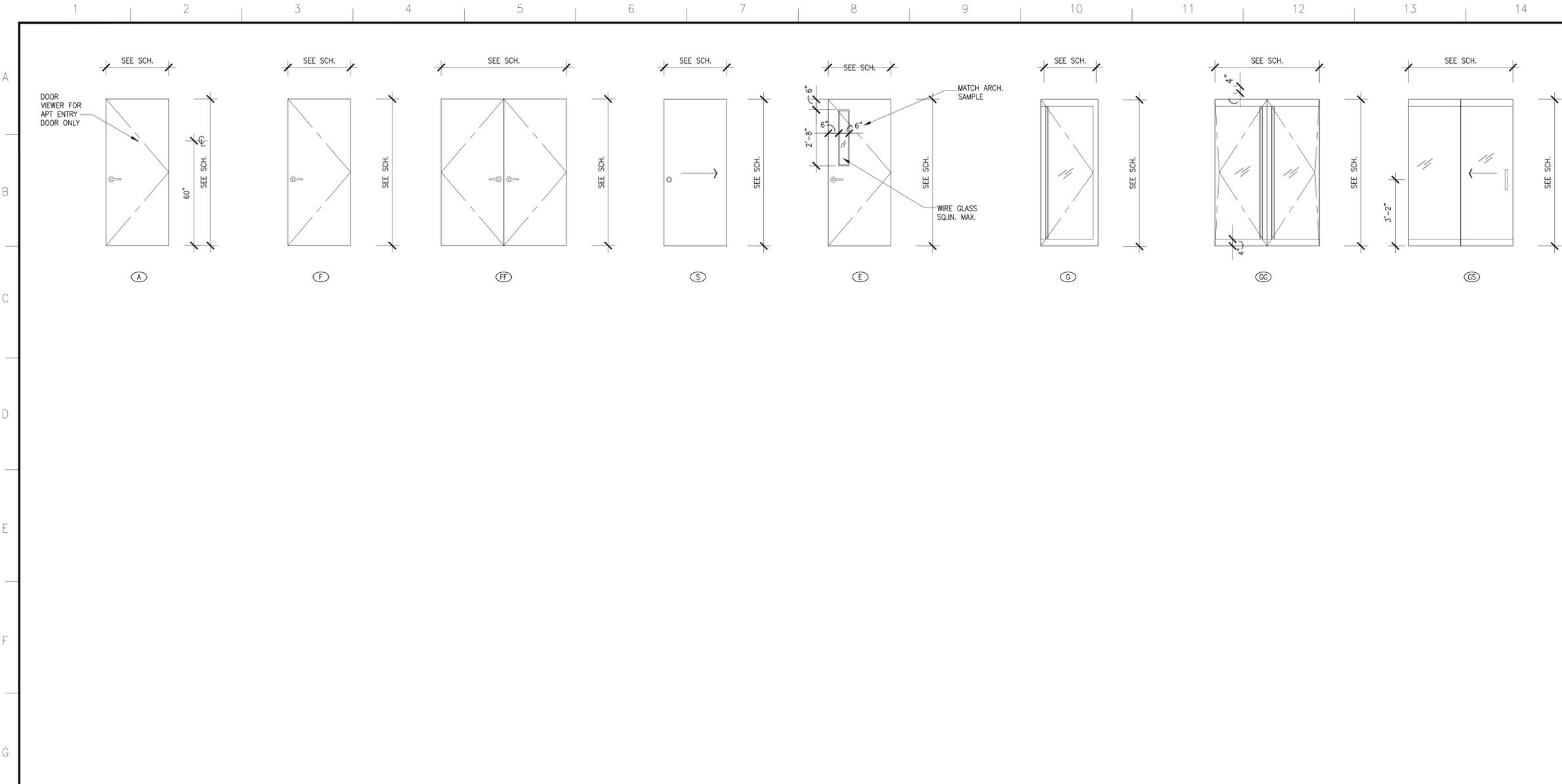


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37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
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DRAWING TITLE:
DOOR SCHEDULE

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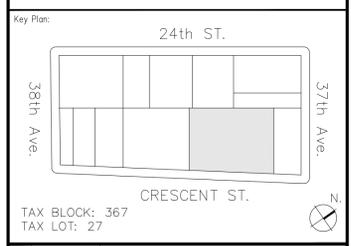
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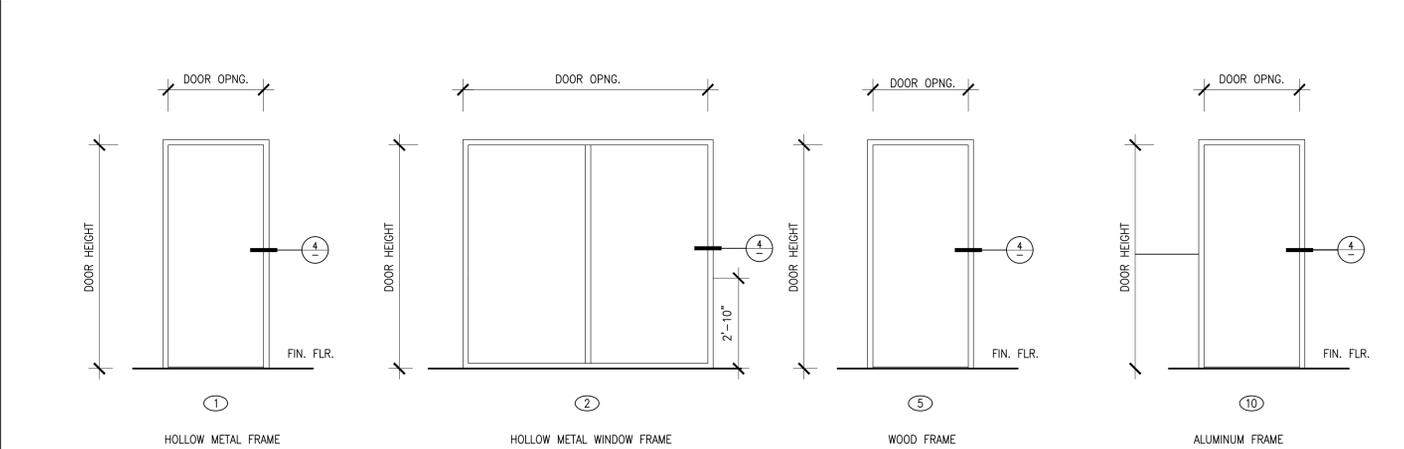
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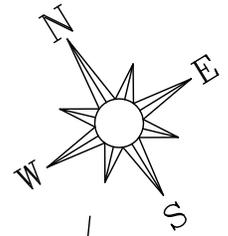
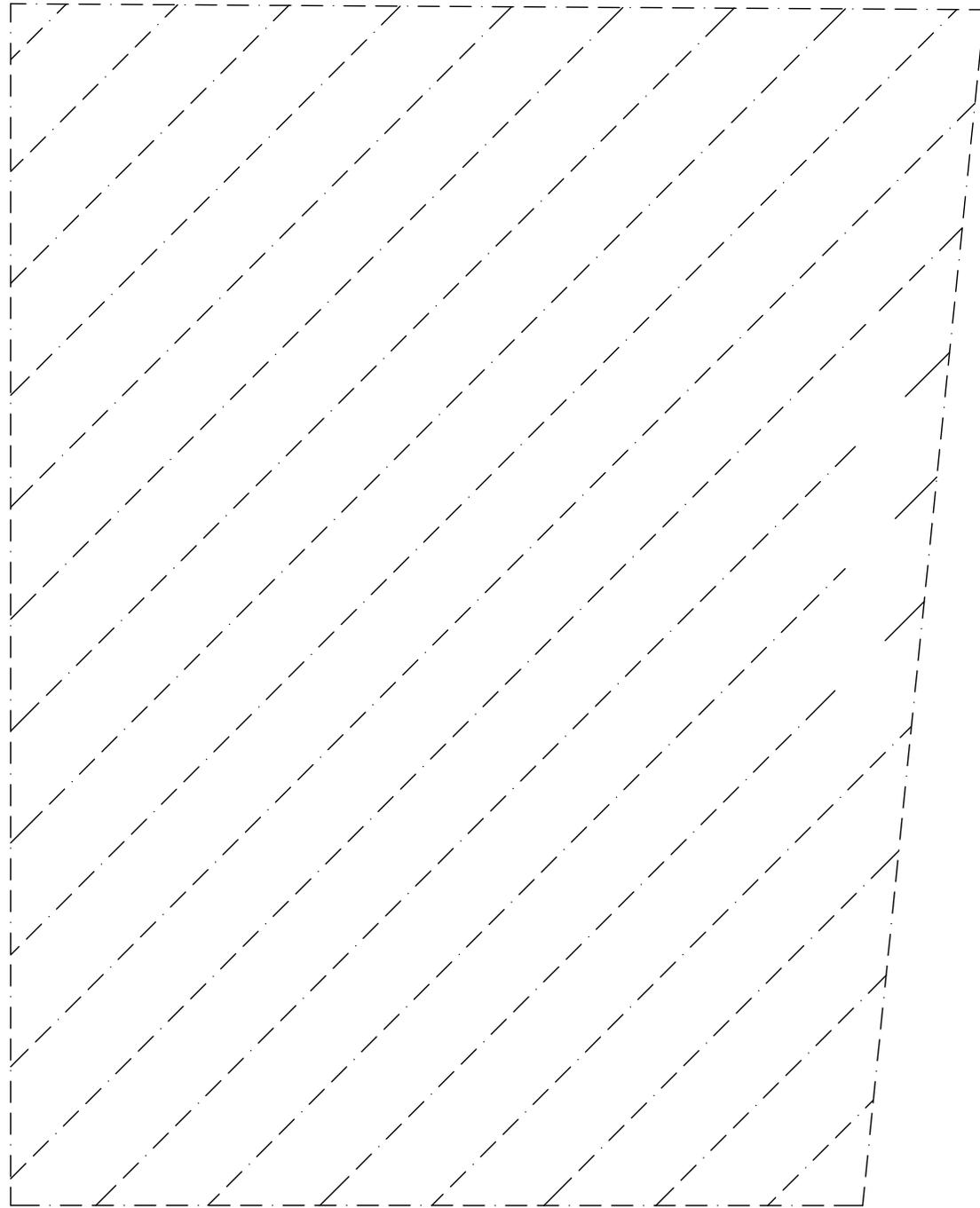
1 DOOR TYPES
 SCALE: NTS



NOTE:
 A. BACKSET SHALL BE 3-3/4" UNLESS SPECIFIED OTHERWISE.
 B. ALL DOORS SHALL HAVE DOOR SILENCER, COLOR TO MATCH FRAME.
 C. REFER TO PLANS FOR DOOR HANDING.
 D. ALL LOCK SET AND LATCH SET AND SADDLE TO BE ADA COMPLIANT.
 E. ALL RATED DOORS SHALL HAVE DOOR CLOSER AND DOOR BOTTOM SEAL.
 F. CONTRACTOR TO SUBMIT HARDWARE SHOP DRAWINGS FOR ARCHITECTS REVIEW AND APPROVAL.
 G. ALL LATCH SET AND LOCK SET TO BE MOUNTED AT 3'-2" A.F.F. TO CL. OF LEVER.
 H. ALL HINGES TO BE MOUNTED AT SAME DISTANCES A.F.F. AT UNIT INTERIOR DOORS.
 I. ALL CLOSERS TO BE COORDINATED TO BE ON ROOM SIDE OF DOOR.
 J. END PLATE, DOOR AND FRAME HARDWARE SHALL BE FREE OF MANUFACTURE'S MARKING EXCEPT UL LABEL.
 K. COORDINATE WITH INTERCOM, DOOR RELEASE ETC. CONSULT OWNER FOR REQUIREMENT. KEYWAY REQUIREMENT, SUBMIT SEQUENCE AND WIRE DIAGRAM FOR ARCHITECT APPROVAL.

2 FRAME TYPES
 SCALE: NTS

01	11.25.2014	D.O.B. FILING SET
NO. DATE:		ISSUE:
PROJECT		
37-10 CRESCENT ST.		
LONG ISLAND CITY, NEW YORK		
11101		
DRAWING TITLE		
DOOR TYPES		
SEAL & SIGNATURE	DATE: 11.25.2014	PROJECT No: stein_37-10_47cres
		DRAWING BY:
		CHK BY:
		DWG. No.:
		A-603.00
		CADD FILE No.:
		34 of 49



CRESCENT STREET

NOTES:
 1. THE ENTIRE SITE WILL BE EXCAVATED TO A DEPTH OF APPROXIMATELY 10-11 FEET BELOW GROUND SURFACE



Legend:



AREA OF PROPOSED EXCAVATION

--- SITE BOUNDARY

--- OFFICE SPACE BOUNDARY



**ATHENICA
 ENVIRONMENTAL
 SERVICES, INC.**
 Environmental Consultants

Site map:	37-10 CRESCENT STREET QUEENS, NY 11377
Figure: Title:	4 REMEDIAL ACTION WORK PLAN PROPOSED AREA OF EXCAVATION
Date:	September 22, 2014
Drawn by:	ALEJANDRO MOREJON
Checked by:	EZGI KARAYEL
Drawing Scale:	AS NOTED
Project No.:	14-133-1037

* FOR SIM. NOT NOTED SEE 3/A411

Client:
37-10 Crescent Street Owner LLC
Sagamore Crescent LLC

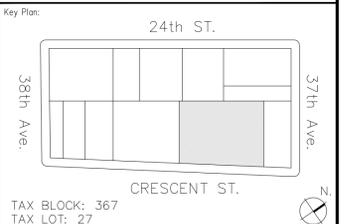
Architect:
FOGARTY FINGER
architecture | interiors
289 Hudson Street New York, NY 10013
t 212 966 7450 f 212 966 7444

Consultants:
Owner:
37-10 Crescent St Owner, LLC
80 Eighth Ave, Suite 1010
New York, New York 10011
212-675-6953

Structural Engineer:
Wexler and Associates
12 West 32nd Street
New York, NY 10001
Tel 212 643 1500

MEP Engineer:
Sideris Kefalas Engineers, PE
217-22 Northern Boulevard
Bayside, New York 11361
Tel 718 224 9091

Expeditor:
William Vitacco Associates LTD
299 Broadway Fifth Floor
New York, NY 10007
Tel 212 791 4578

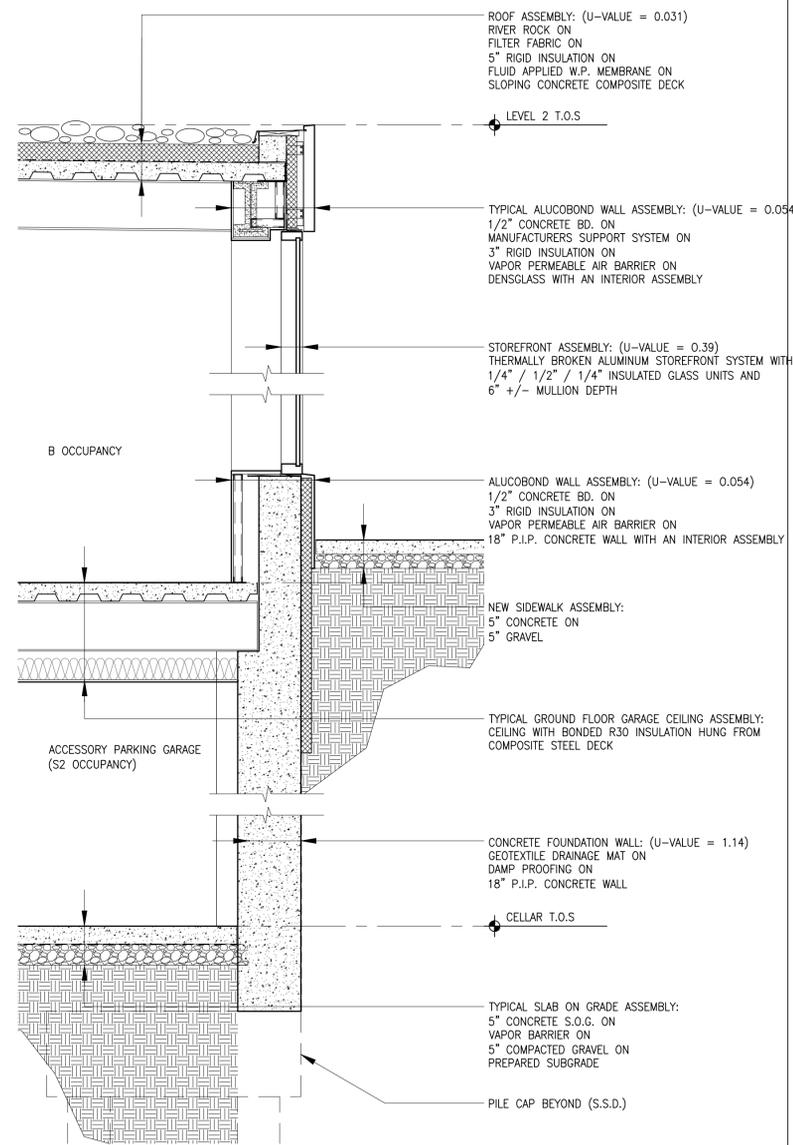


01 11.25.2014 D.O.B. FILING SET
NO. DATE: ISSUE:

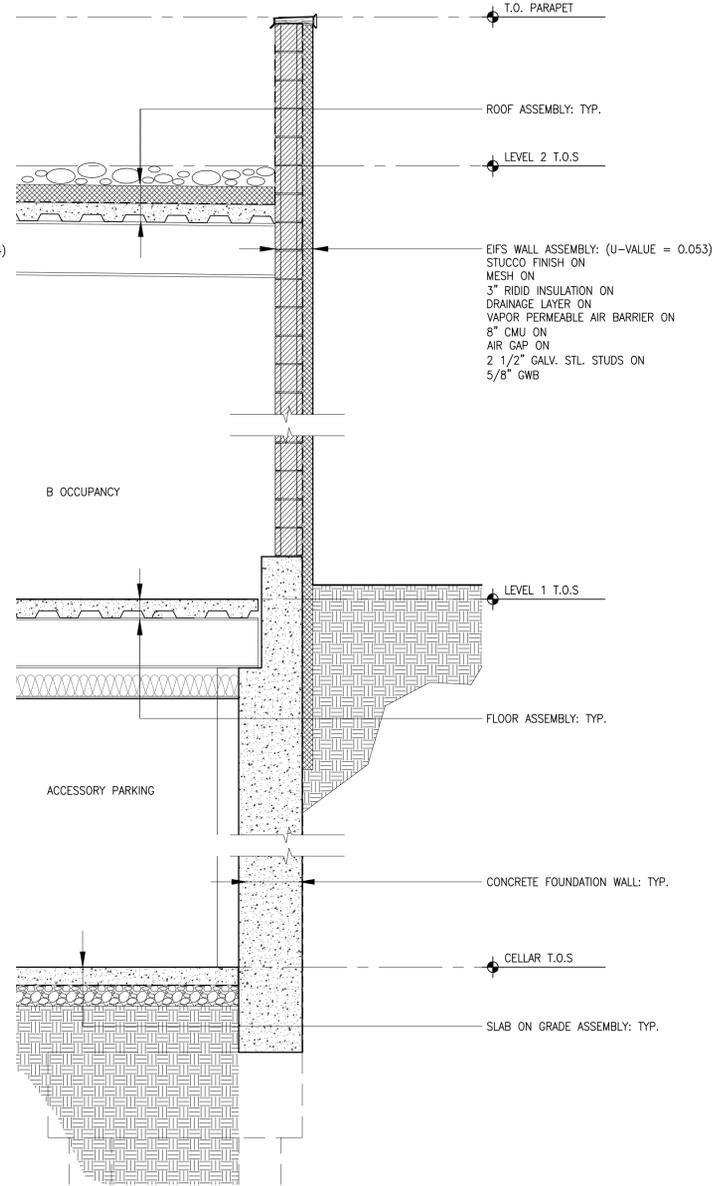
PROJECT
37-10 CRESCENT ST.
LONG ISLAND CITY, NEW YORK
11101

DRAWING TITLE
WALL SECTIONS

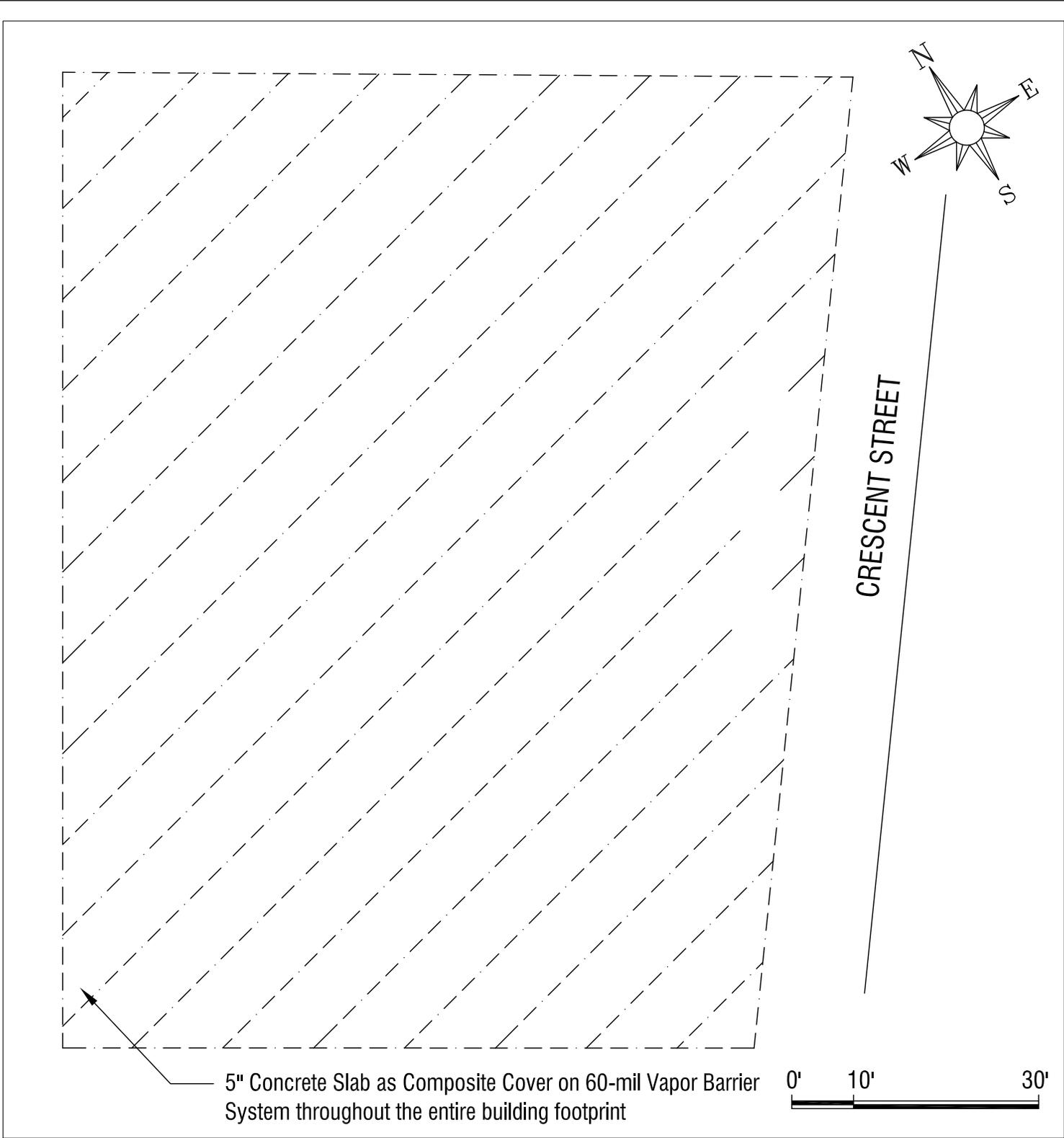
SEAL & SIGNATURE
DATE: 11.25.2014
PROJECT No: stein_37-10_47cres
DRAWING BY: FFA
CHK BY: FFA
DWG. No.:
A-412.00
CADD FILE No.:
31 of 49



2 WALL SECTION AT STOREFRONT AND CELLAR
SCALE: 1/2"=1'-0"

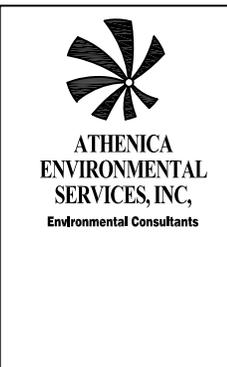


1 WALL SECTION AT EIFS WALL AND CELLAR
SCALE: 1/2"=1'-0"



Legend:

	AREA OF NEW BUILDING FOOTPRINT
	SITE BOUNDARY



Site map:	37-10 CRESCENT STREET QUEENS, NY 11377
Figure: Title:	7 REMEDIAL ACTION WORK PLAN COMPOSITE COVER AND VBS LOCATION
Date:	December 11, 2014
Drawn by:	ALEJANDRO MOREJON
Checked by:	EZGI KARAYEL
Drawing Scale:	AS NOTED
Project No.:	14-133-1037

TABLES

Table 1
Soil Cleanup Objectives (SCOs)
51-27 Queens Boulevard, Queens, New York

Contaminant	CAS Number	NYSDEC Part 375-6 SCOs for Unrestricted Use (ppm)
Volatile Organic Compounds		
1,1,1-Trichloroethane	71-55-6	0.68
1,1-Dichloroethane	75-34-3	0.27
1,1-Dichloroethene	75-35-4	0.33
1,2-Dichlorobenzene	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.02
cis-1,2-Dichloroethene	156-59-2	0.25
trans-1,2-Dichloroethene	156-60-5	0.19
1,3-Dichlorobenzene	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
Butylbenzene	104-51-8	12
Carbon tetrachloride	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene	100-41-4	1
Hexachlorobenzene	118-74-1	0.33
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether	1634-04-4	0.93
Methylene chloride	75-09-2	0.05
n-Propylbenzene	103-65-1	3.9
sec-Butylbenzene	135-98-8	11
tert-Butylbenzene	98-06-6	5.9
Tetrachloroethene	127-18-4	1.3
Toluene	108-88-3	0.7
Trichloroethene	79-01-6	0.47
1,2,4-Trimethylbenzene	95-63-6	3.6
1,3,5-Trimethylbenzene	108-67-8	8.4
Vinyl chloride	75-01-4	0.02
Xylene (mixed)	1330-20-7	0.26
Semivolatile Organic Compounds		
Acenaphthene	83-32-9	20
Acenaphthylene	208-96-8	100
Anthracene	120-12-7	100
Benz(a)anthracene	56-55-3	1
Benzo(a)pyrene	50-32-8	1
Benzo(b)fluoranthene	205-99-2	1
Benzo(g,h,i)perylene	191-24-2	100
Benzo(k)fluoranthene	207-08-9	0.8
Chrysene	218-01-9	1
Dibenz(a,h)anthracene	53-70-3	0.33
Fluoranthene	206-44-0	100
Fluorene	86-73-7	30
Ideno(1,2,3-cd)pyrene	193-39-5	0.5
m-Cresol	108-39-4	0.33
Naphthalene	91-20-3	12
o-Cresol	95-48-7	0.33
p-Cresol	106-44-5	0.33
Pentachlorophenol	87-86-5	0.8
Phenanthrene	85-01-8	100
Phenol	108-95-2	0.33
Pyrene	129-00-0	100

Table 1
Soil Cleanup Objectives (SCOs)
51-27 Queens Boulevard, Queens, New York

Contaminant	CAS Number	NYSDEC Part 375-6 SCOs for Unrestricted Use (ppm)
Pesticides/PCBs		
2,4,5-TP Acid (Silvex)	93-72-1	3.8
4,4'-DDE	72-55-9	0.0033
4,4'-DDT	50-29-9	0.0033
4,4'-DDD	72-54-8	0.0033
Aldrin	309-00-2	0.005
alpha-BHC	319-84-6	0.02
beta-BHC	319-85-7	0.036
Chlordane (alpha)	5103-71-9	0.094
delta-BHC	319-86-8	0.04
Dibenzofuran	132-64-9	7
Dieldrin	60-57-1	0.005
Endosulfan I	959-98-8	2.4
Endosulfan II	33213-65-9	2.4
Endosulfan sulfate	1031-07-8	2.4
Endrin	72-20-8	0.014
Heptachlor	76-44-8	0.042
Lindane	58-89-9	0.1
Polychlorinated biphenyls	1336-36-3	0.1
Metals		
Arsenic	7440-38-2	13
Barium	7440-39-3	350
Beryllium	7440-41-7	7.2
Cadmium	7440-43-9	2.5
Chromium hexavalent	18540-29-9	1
Chromium trivalent	16065-83-1	30
Copper	7440-50-8	50
Total Cyanide		27
Lead	7439-92-1	63
Manganese	7439-96-5	1600
Total Mercury		0.18
Nickel	7440-02-0	30
Selenium	7782-49-2	3.9
Silver	7440-22-4	2
Zinc	7440-66-6	109

APPENDICIES

APPENDIX 1

CITIZEN PARTICIPATION PLAN

The NYC Office of Environmental Remediation and 37-10 Crescent Street Owner, LLC have established this Citizen Participation Plan because the opportunity for citizen participation is an important component of the NYC Voluntary Cleanup Program. This Citizen Participation Plan describes how information about the project will be disseminated to the Community during the remedial process. As part of its obligations under the NYC VCP, 37-10 Crescent Street Owner, LLC will maintain a repository for project documents and provide public notice at specified times throughout the remedial program. This Plan also takes into account potential environmental justice concerns in the community that surrounds the project Site. Under this Citizen Participation Plan, project documents and work plans are made available to the public in a timely manner. Public comment on work plans is strongly encouraged during public comment periods. Work plans are not approved by the NYC Office of Environmental Remediation (OER) until public comment periods have expired and all comments are formally reviewed. An explanation of cleanup plans in the form of a public meeting or informational session is available upon request to OER's project manager assigned to this Site, Sarah Pong, who can be contacted about these issues or any others questions, comments or concerns that arise during the remedial process at (212) 442-8342.

Project Contact List. OER has established a Site Contact List for this project to provide public notices in the form of fact sheets to interested members of the Community. Communications will include updates on important information relating to the progress of the cleanup program at the Site as well as to request public comments on the cleanup plan. The Project Contact List includes owners and occupants of adjacent buildings and homes, principal administrators of nearby schools, hospitals and day care centers, the public water supplier that serves the area, established document repositories, the representative Community Board, City Council members, other elected representatives and any local Brownfield Opportunity Area (BOA) grantee organizations. Any member of the public or organization will be added to the Site Contact List on request. A copy of the Site Contact List is maintained by OER's project

manager. If you would like to be added to the Project Contact List, contact NYC OER at (212) 788-8841 or by email at brownfields@cityhall.nyc.gov.

Repositories. A document repository is maintained in the nearest public library that maintains evening and weekend hours. This document repository is intended to house, for community review, all principal documents generated during the cleanup program including Remedial Investigation plans and reports, Remedial Action work plans and reports, and all public notices and fact sheets produced during the lifetime of the remedial project. 37-10 Crescent Street Owner, LLC will inspect the repositories to ensure that they are fully populated with project information. The repository for this project is:

Queens Public Library – Long Island City Branch
37-44 21st Street, Long Island City, NY 11101
(718) 752-3700

Monday: 9:00am to 8:00pm
Tuesday: 2:00pm to 7:00pm
Wednesday: 11:00am to 7:00pm
Thursday: 11:00am to 7:00pm
Friday: 11:00am to 7:00pm
Saturday: 10:00am to 5:30pm
Sunday: Closed

Digital Documentation. NYC OER strongly encourages the use of digital documents in repositories as a means of minimizing paper use while also increasing convenience in access and ease of use.

Identify Issues of Public Concern. The major issues of concern to the public will be potential impacts of nuisance odors and dust during the disturbance of soil at the Site. This work will be performed in accordance with procedures that will be specified under a Remedial

Program and considers and takes preventive measures for exposure to future residents of the property and those on adjacent properties during construction. Detailed plans to monitor the potential for exposure including a CHASP and a CAMP are required components of the remedial program. Implementation of these plans will be under the direct oversight of the NYCOER.

Public Notice and Public Comment. Public notice to all members of the Project Contact List is required at three major steps during the performance of the cleanup program (listed below) and at other points that may be required by OER. Notices will include Fact Sheets with

descriptive project summaries, updates on recent and upcoming project activities, repository information, and important phone and email contact information. All notices will be prepared by 37-10 Crescent Owner LLC, reviewed and approved by OER prior to distribution and mailed by 37-10 Crescent Owner LLC. Public comment is solicited in public notices for all work plans developed under the NYC Voluntary Cleanup Program. Final review of all work plans by OER will consider all public comments. Approval will not be granted until the public comment period has been completed.

Citizen Participation Milestones. Public notice and public comment activities occur at several steps during a typical NYC VCP project. See flow chart on the following page, which identifies when during the NYC VCP public notices are issued: These steps include:

- **Public Notice of the availability of the Remedial Investigation Report and Remedial Action Work Plan and a 30-day public comment period on the Remedial Action Work Plan.**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the availability of the Remedial Investigation Report and Remedial Action Work Plan and the initiation of a 30-day public comment period on the Remedial Action Work Plan. The Fact Sheet summarizes the findings of the RIR and provides details of the RAWP. The public comment period will be extended an additional 15 days upon public request. A public meeting or informational session will be conducted by OER upon request.

- **Public Notice announcing the approval of the RAWP and the start of remediation**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the approval of the RAWP and the start of remediation.

- **Public Notice announcing the completion of remediation, designation of Institutional and Engineering Controls and issuance of the Notice of Completion**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the completion of remediation, providing a list of all Institutional and Engineering Controls implemented for to the Site and announcing the issuance of the Notice of Completion.

APPENDIX 2

SUSTAINABILITY STATEMENT

This Sustainability Statement documents sustainable activities and green remediation efforts planned under this remedial action.

Reuse of Clean, Recyclable Materials. Reuse of clean, locally-derived recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction.

An estimate of the quantity (in tons) of clean, non-virgin materials (reported by type of material) reused under this plan will be quantified and reported in the RAR.

Reduce Consumption of Virgin and Non-Renewable Resources. Reduced consumption of virgin and non-renewable resources lowers the overall environmental impact of the project on the region by conserving these resources.

An estimate of the quantity (in tons) of virgin and non-renewable resources, the use of which will be avoided under this plan, will be quantified and reported in the RAR.

Reduced Energy Consumption and Promotion of Greater Energy Efficiency. Reduced energy consumption lowers greenhouse gas emissions, improves local air quality, lessens in-city power generation requirements, can lower traffic congestion, and provides substantial cost savings.

Best efforts will be made to quantify energy efficiencies achieved during the remediation and will be reported in the Remedial Action Report (RAR). Where energy savings cannot be easily quantified, a gross indicator of the amount of energy saved or the means by which energy savings was achieved will be reported.

Conversion to Clean Fuels. Use of clean fuel improves NYC's air quality by reducing harmful emissions.

An estimate of the volume of clean fuels used during remedial activities will be quantified and reported in the RAR.

Recontamination Control. Recontamination after cleanup and redevelopment is completed undermines the value of work performed, may result in a property that is less protective of public health or the environment, and may necessitate additional cleanup work later or impede future redevelopment. Recontamination can arise from future releases that occur within the property or by influx of contamination from off-Site.

An estimate of the area of the Site that utilizes recontamination controls under this plan will be reported in the RAR in square feet.

Storm-water Retention. Storm-water retention improves water quality by lowering the rate of combined storm-water and sewer discharges to NYC's sewage treatment plants during periods of precipitation, and reduces the volume of untreated influent to local surface waters.

An estimate of the enhanced storm-water retention capability of the redevelopment project will be included in the RAR.

Linkage with Green Building. Green buildings provide a multitude of benefits to the city across a broad range of areas, such as reduction of energy consumption, conservation of resources, and reduction in toxic materials use.

The number of Green Buildings that are associated with this brownfield redevelopment property will be reported in the RAR. The total square footage of green building space created as a function of this brownfield redevelopment will be quantified for residential, commercial and industrial/manufacturing uses.

Paperless Brownfield Cleanup Program. 37-10 Crescent Street Owner, LLC is participating in OER's Paperless Brownfield Cleanup Program. Under this program, submission of electronic documents will replace submission of hard copies for the review of project documents, communications and milestone reports.

Low-Energy Project Management Program. 37-10 Crescent Street Owner, LLC is participating in OER's low-energy project management program. Under this program, whenever possible, meetings are held using remote communication technologies, such as videoconferencing and teleconferencing to reduce energy consumption and traffic congestion associated with personal transportation.

Trees and Plantings. Trees and other plantings provide habitat and add to NYC's environmental quality in a wide variety of ways. Native plant species and native habitat provide optimal support to local fauna, promote local biodiversity, and require less maintenance.

An estimate of the land area that will be vegetated, including the number of trees planted or preserved, will be reported in square feet in the RAR.

APPENDIX 3

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 RAR. Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of the Notice of Completion.

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 RAWP;
- 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 from Crescent Street directly to Queens Boulevard. 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 Enrollee 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 Queens, 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 Enrollee. 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 RAR.

The Remedial Action Report 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 RAR.

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 RAR. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the RAR. Hazardous wastes derived from on-Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

If disposal of soil/fill from this Site is proposed for unregulated disposal (i.e., clean soil removed for development purposes), including transport to a Part 360-16 Registration Facility, a formal request will be made for approval by OER with an associated plan compliant with 6NYCRR Part 360-16. This request and plan will include the location, volume and a description of the material to be recycled, including verification that the material is not impacted by site uses and that the material complies with receipt requirements for recycling under 6NYCRR Part 360. This material will be appropriately handled on-Site to prevent mixing with impacted material.

1.7 Materials Reuse On-Site

Soil and fill that is derived from the property that meets the soil cleanup objectives established in this plan may be reused on-Site. The soil cleanup objectives for on-Site reuse are listed in Table 1. 'Reuse on-Site' means material that is excavated during the remedy or development, does not leave the property, and is relocated within the same property and on comparable soil/fill material, and addressed pursuant to the NYC VCP agreement subject to Engineering and Institutional Controls. The PE/QEP will ensure that reused materials are segregated from other materials to be exported from the Site and that procedures defined for material reuse in this RAWP are followed. OER will be notified if soil will be reused on-Site.

Organic matter (wood, roots, stumps, etc.) or other waste derived from clearing and grubbing of the Site will not be buried on-Site. Soil or fill excavated from the site for grading or other purposes will not be reused within a cover soil layer or within landscaping berms.

1.8 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 SMP; 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 RAR.

This demarcation will constitute the top of the site management horizon. Materials within this horizon require adherence to special conditions during future invasive activities as defined in the Site Management Plan.

1.9 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 Table 1.

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 RAWP. The RAR 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 RAR. 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.

1.10 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.

1.11 Stormwater 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 RAWP (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 toe anchor will be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

1.12 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 TAL metals, TCL volatiles and semi-volatiles, TCL pesticides and PCBs, as appropriate.

1.13 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 Remedial Action Report.

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 Action 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.

APPENDIX 4

CONSTRUCTION HEALTH AND SAFETY PLAN

CONSTRUCTION HEALTH & SAFETY PLAN

37-10 CRESCENT STREET
QUEENS, NEW YORK

Prepared for:

37-10 Crescent Street Owner, LLC
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Prepared by:



ATHENICA ENVIRONMENTAL
SERVICES, INC.

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45-09 GREENPOINT AVENUE
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1.0 GLOSSARY OF TERMS

AHA:	Activity Hazard Analysis
BZ:	Breathing Zone
C:	Ceiling Limit
CNS	Central Nervous System
CTPV:	Coal tar pitch volatiles
CRZ:	Contamination Reduction Zone
CSP:	Construction Superintendent
CZ:	Clean Zone
dba:	Decibels Adjusted
ERCP:	Emergency Response and Contingency Plan
EZ:	Exclusion Zone
FDNY:	New York City Fire Department
GI:	Gastrointestinal
HSO:	Health & Safety Officer
IP:	Ionization Potential
Mg/m ³ :	Micrograms per cubic meter
MPH:	Miles per hour
NIOSH:	National Institute for Occupational Safety and Health
OSHA:	Occupational Health and Safety Administration

Owner:	Crescent Owners, LLC
PAHs:	Poly aromatic hydrocarbons
PEL:	Permissible Exposure Limit
PM:	Project Manager
PPE:	Personal Protective Equipment
PPM:	Parts per Million
PSM:	Project Safety Manager
SHASP:	Site-Specific Health and Safety Plan:
SITE:	37-10 Crescent Street, Queens, NY
STEL:	Short-term exposure limit (15 minutes)
SZ:	Support Zone
TLV:	Threshold Limit Value
TWA:	Time-weighted average (8 hours)
USEPA:	United States Environmental Protection Agency
VP:	Vapor Pressure at approximately 68 F° in mm Hg

2.0 INTRODUCTION

The Site is located at 37-10 Crescent Street in Long Island City section of Queens, New York and is identified as Block 367 and Lot 27 on the New York City Tax Map. The Site is 18,300-square feet and is bounded by a 6-story building currently under construction and a warehouse occupied by a commercial supply company to the north, an open parking lot to the south, a 2-story and a 7-story commercial buildings to the east, and a machine shop and commercial facility to the west. Figure 2-1 is a Site Location Map.

This Site-Specific Construction Health and Safety Plan (CHASP) has been developed by Athenica Environmental Services (“Athenica”) for specific activities associated with the construction of a new residential building at the Site.

This CHASP documents the policies and procedures which will protect workers from potential chemical hazards associated with the soils and/or fill at this Site. Other plans and documentation will establish the policies and procedures that will protect workers from potential physical hazards associated with traditional demolition and construction activities at the Site.

This plan assigns responsibilities, establishes standard operating procedures, and provides for contingencies that may arise during the disturbance of soil/fill at the Site. This CHASP was prepared by the general contractor’s Environmental Consultant, Athenica Environmental Services (Athenica). The general contractor and its subcontractors will be required to utilize this plan when working at the site.

Although this plan focuses on the specific work activities planned for this site, it must remain flexible because of the nature of this work. Conditions may change and unforeseen situations may arise that require modifications from the original plan. Therefore, Athenica only makes representations or warranties as to the adequacy of this CHASP for currently anticipated activities and conditions. This flexibility allows modification by authorized personnel, e.g. Project Manager, Project Safety Manager. All changes to procedures in this plan will be documented in writing using the form provided in Appendix B.

Refusal or failure to comply with this CHASP or violation of any safety procedures by field personnel and/or subcontractors may result in immediate removal from the Site following consultation with the Project Safety Manager (PSM) and the Project Manager (PM).

It is expected that this CHASP will be implemented at a multi-employer work site. Information and references within this plan shall in no way imply or alleviate any other Site contractor from their responsibility to comply with any and all applicable State or Federal statutes or regulations

regarding the completion of this project. It is the responsibility of each employer to communicate and coordinate work planning so as to prevent their work activities from becoming a potential hazard to other workers at the project site. Failure to communicate will not alter an employer's responsibilities or obligations for any resulting injuries to their employees.

2.1 SITE HISTORY

Based upon the review of the Phase I Environmental Site Assessment (ESA) Report prepared by Athenica in April 2014, a Site history was established. The Site consists of an 18,300 square-foot lot that is developed with a 1-story warehouse fronting Crescent Street. The Site was listed as a bowling alley in the current structure from its build date, circa 1958 until approximately 1970. From 1970 until at least 2006 the Site was designated as a manufacturing facility occupied by Continental Gourmet Company and Holfia Company Inc until 1991. In 1991, the Site was listed as occupied by L&H Vitamins Inc. and in 2005 by Commonwealth Worldwide. The current occupants, a limousine company, are listed at the Site since 2013.

Athenica performed the following scope of work as part of the Remedial Investigation:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Performed a GPR survey;
3. Installed eight (8) soil borings across the entire project Site, and collected seventeen (17) soil samples for chemical analysis from the soil borings to evaluate soil quality;
4. Installed three (3) groundwater monitoring wells throughout the Site to establish groundwater flow and collected three groundwater samples for chemical analysis to evaluate groundwater quality; and
5. Installed five (5) soil vapor probes across the entire project Site and collected five (5) samples for chemical analysis.

Based on the findings of the Remedial Investigation at the Site, VOCs, SVOCs, pesticides, PCBs, and metals were detected at slightly elevated concentrations. Slightly elevated levels of chlorinated solvents were detected in soil vapor underneath the Site.

2.2 SCOPE OF WORK

Although the construction of the new residential and commercial mix use building involves many different activities, only those activities associated with the disturbance and handling of urban fill are addressed in this CHASP.

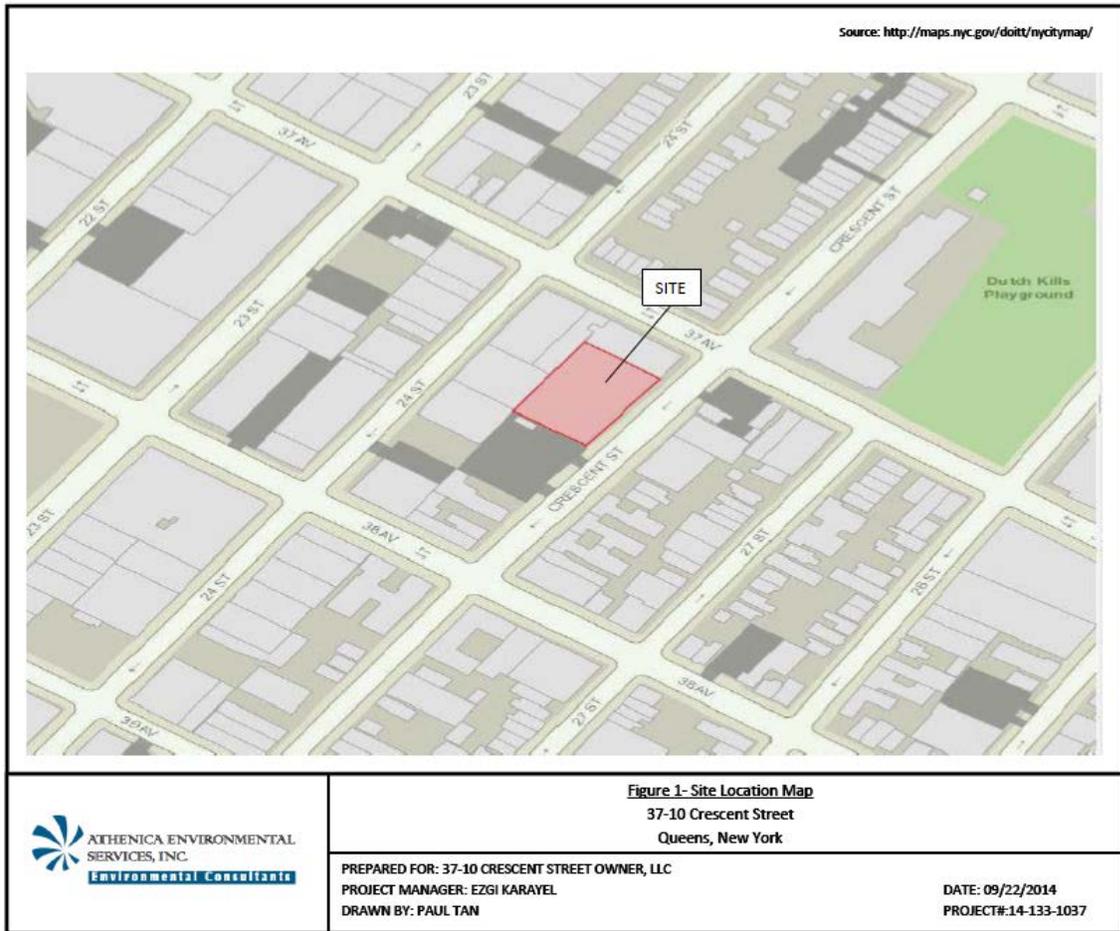
The principal tasks covered in this HASP include the following:

- Mobilization/demobilization,
- Sheeting and shoring,
- Excavation of urban fill and/or soil,
- Loading of urban fill into trucks for disposal,
- Installation of footings for new building, and
- Heavy equipment decontamination

Activity Hazard Analyses for these tasks are provided in Section 4.5.

This CHASP has been prepared and approved for the above scope of work. In order to remain approved, any changes to the scope of work will require amendment of the plan. The Site Health and Safety Amendment Documentation form (Appendix B) will be used for all revisions/amendments to this plan.

**FIGURE 2-1
SITE LOCATION MAP**



3.0 KEY PERSONNEL

The Project Manager (PM), Construction Superintendent (CS), Health & Safety Officer (HSO), and Project Safety Manager (PSM) all share responsibilities for formulating and enforcing health and safety requirements, and assuring that the CHASP is implemented as intended. This section outlines the responsibilities for each of these positions. Responsibilities for site employees and subcontractor personnel are also outlined in this section. The General Contractor and/or other authorized personnel may also be involved and identified in future CHASP documents, as appropriate.

3.1 PROJECT MANAGER (PM)

The PM has the overall responsibility for the project and to assure that the requirements of the contract are attained in a manner consistent with the CHASP requirements. The PM will coordinate with the CS and the HSO to assure that the work is completed in a manner consistent with the HASP. The PM will supervise the allocation of resources and staffing to implement specific aspects of the HASP and may delegate authority to expedite and facilitate any application of the program. This role will be filled by the General Contractor or Excavation Subcontractor. OER will be notified in the future who the PM will be for this project.

3.2 CONSTRUCTION SUPERINTENDENT (CS)

The CS is responsible for field implementation of the CHASP and Site Emergency Response and Contingency Plan and will act as the HSO in his/her absence. This role will be filled by the general contractor or primary subcontractor. OER will be notified in the future who the CS will be for this project.

Specific responsibilities for the CS include:

- Ensures that the CHASP is implemented;
- Ensures that field work is scheduled with adequate equipment to complete the job safely;
- Enforces site health and safety rules;
- Ensures that proper personal protective equipment is utilized;
- Ensures that the PSM is informed of project changes which require modifications to the CHASP;
- Ensures that the procedure modifications are implemented;
- Investigates incidents;
- Conducts the daily site safety briefing;
- Reports to PSM to provide summaries of field operations and progress; and

- Acts as Emergency Coordinator.

3.3 HEALTH AND SAFETY OFFICER (HSO)

The HSO is authorized to administer the HASP. The HSO's primary operational responsibilities include personal and environmental monitoring, selection and monitoring of personal protective equipment, assignment of protection levels, coordination/review of work permits and observation of work activities. The HSO is authorized to stop work when an imminent health or safety risk exists. The HSO will review the essential safety requirements with all on-site personnel and will facilitate the daily safety meetings. OER will be notified in the future who the HSO will be for this project.

Specific responsibilities for HSO performance include:

- Monitoring workers for signs of stress, such as cold stress, heat stress, and fatigue. Reevaluating site conditions on an on-going basis.
- Coordinating protective measures including engineering controls, work practices and personal protective equipment.
- Assisting the CS in the preparation, presentation and documentation of daily safety meetings.
- Conducting and preparing reports of daily safety inspections of work processes, site conditions, and equipment conditions. Discussing any necessary corrective actions with the CS and reviewing new procedures.
- Initiating revisions of the CHASP as necessary for new tasks or modifications of existing operations and submitting to the Project Safety Manager for approval (see Appendix B).
- Performing air monitoring as required by the CHASP.
- Assisting the PM and CS in incident investigations.
- Preparing permits for special operations, e.g., hot work, confined spaces, line breaking, etc.
- Maintaining site safety records.
- Conducting inspections of all fire extinguishers, first-aid kits and eye washes on a regular basis.
- Informing subcontractors of the elements of the CHASP.

3.4 PROJECT SAFETY MANAGER (PSM)

The Project Safety Manager (PSM) is responsible for developing/reviewing the CHASP and ensuring that it is complete and accurate. The PSM provides technical and administrative support

and will be available for consultation when required. If necessary, the PSM will direct modifications (Appendix B) to specific aspects of the HASP to adjust for on-site changes that affect safety. The HSO will coordinate with the PSM on necessary modifications to the HASP. The PSM may make periodic visits to the project site to review implementation of this HASP. This role is role will be filled by the General Contractor's representative.

3.5 EMPLOYEE SAFETY RESPONSIBILITIES

Each employee is responsible for personal safety as well as the safety of others in the work area and is expected to participate fully in the site safety and health program. Employees will use all equipment provided in a safe and responsible manner as directed by the CS. Employees shall report any hazardous conditions which might affect the health and safety of site personnel to the CS and/or HSO. To protect the health and safety of all personnel, site employees that knowingly disregard safety policies/procedures will be subject to removal.

Specific requirements include:

- Reading the CHASP and any amendments prior to the start of on-site work.
- Providing documentation of any applicable medical surveillance and training to the CS/HSO prior to the start of work.
- Attending the pre-entry briefing prior to beginning on-site work as well as other scheduled safety meetings.
- Asking any questions or reporting concerns regarding the content of the CHASP to the CS/HSO prior to the start of work.
- Reporting all potentially dangerous situations, incidents, injuries, and illnesses, regardless of their severity, to the CS/HSO.
- Complying with the requirements of this CHASP and the requests of the CS/HSO.

4.0 *ACTIVITY HAZARD ANALYSIS*

This section outlines the potential chemical and physical hazards which workers may be exposed to during work on this project. The assessment of chemical hazards in this section is based on the results provided on the Remedial Investigation by Athenica for the Site. This is a representative list of contaminants that have been identified through extensive soil and groundwater testing at this site.

4.1 CHEMICAL HAZARDS

Based on review of the Remedial Investigation, workers at this Site have the potential to be exposed to chemicals in soil including SVOCs (PAHs including benzo(a)anthracene and c), pesticides (4,4'-DDT), total PCBs and metals (barium, copper, lead and zinc) exceeding Unrestricted Use SCOs in shallow soil and tetrachloroethylene in soil vapor. All of which will be considered potential contaminants of concern.

Potential exposure to the contaminants of concern may occur during intrusive soil activities or where direct contact with the contaminated soil takes place. Lead and PAHs are primarily inhalation hazards and exposure can be minimized with simple dust control measures. A summary of hazard information is listed in Table 4-1.

**TABLE 4-1
 CHEMICAL DATA**

COMPOUND	ACGIH TLV	OSHA PEL	ROUTE OF EXPOSURE	SYMPTOMS OF EXPOSURE	TARGET ORGANS	PHYSICAL DATA
PAHs	0.2 mg/m ³	0.2 mg/m ³	Inhalation Ingestion Skin contact	Headache, nausea, vomiting, and diaphoresis	Genitourinary system, Hematopoietic system, GI Tract, Respiratory system, eyes, skin	Liquid, gas and solid, can be combustible
DDT	1.0 mg/m ³	1.0 mg/m ³	Inhalation Skin contact	Paresthesia of tongue, lips, face; tremors; apprehension, dizziness, fatigue, confusion, malaise; headaches; convulsions; paresis of hands; vomiting; eye, skin irritation;	CNS, kidneys, liver, skin, PNS	Combustible Solid
Barium	0.5 mg/m ³	0.5 mg/m ³	Inhalation Ingestion Skin contact	Irritant to skin	Eyes, skin, respiratory system, lungs, mucous membrane	Noncombustible Solid
Copper	1.0 mg/m ³	1.0 mg/m ³	Inhalation Ingestion Skin contact	Irritant to skin	Lungs, mucous membrane	Bluish lustrous metal, Noncombustible Solid
Lead	0.05 mg/m ³	0.1 mg/m ³	Inhalation Ingestion Skin contact	Weakness, lassitude, insomnia; facial pallor; eye irritation, anorexia, low-weight, malnutrition; constipation; abdominal pain; colic; hypertension, anemia; gingival lead line; tremors; paralysis of wrist, ankles; encephalopathy; neuropathy	GI Tract, CNS, kidneys, blood, gingival tissue	Noncombustible Solid
Zinc	5.0 mg/m ³	5.0 mg/m ³	Inhalation Ingestion Skin contact	Inflammation of eyes and skin; coughing;	Skin, eyes	Non-combustible solid, highly combustible powder

Abbreviations

ACGIH = American Conference of Governmental Industrial Hygienists
 C = Ceiling Unit
 CNS = Central Nervous System
 CVS = Cardiovascular System
 GI = Gastrointestinal
 TLV = Threshold Level Value

mg/m³ = milligrams per cubic meter
 OSHA = Occupational Safety and Health Administration
 PNS = Peripheral Nervous System
 ppm = parts per million
 PEL – Permissible Exposure Level

The following general symptoms may indicate exposure to a hazardous material. Personnel will be removed from the work site and provided immediate medical attention should any of the following symptoms occur:

- Dizziness or stupor
- Nausea, headaches, or cramps
- Irritation of the eyes, nose, or throat
- Euphoria
- Chest pains and coughing
- Rashes or burns

4.2 PHYSICAL HAZARDS

To minimize physical hazards, standard safety protocols will be followed at all times. Failure to follow safety protocols may result in removal of the employee from the site. All personnel shall be familiar with the physical hazards presented by each of the tasks they perform. Task specific hazard analyses are provided in Section 4.5. These hazard analyses shall be reviewed prior to beginning each task and periodically throughout the task. It must be noted that these activity hazard analyses are general in nature. It is the responsibility of the CS to revise and adapt them as necessary to reflect site-specific conditions.

The CS and HSO will observe the general work practices of each crew member and enforce safe procedures. Work areas will be inspected by the crew leaders, CS and HSO. All hazards will be corrected in a timely manner. A variety of physical hazards may be encountered during work activities at this site. Activity Hazard Analyses will be developed for each principal activity and will identify all major hazards to which employees may be exposed. Hard hats, safety glasses, and steel-toe safety boots are required in all work areas of the site. Site-specific hazards and all necessary precautions will be discussed at the daily safety meetings. The General Contractor's Safety Manual will be maintained at the project site as a reference document.

4.3 ENVIRONMENTAL HAZARDS

Environmental factors such as weather, wild animals, insects, and irritant plants may pose a hazard when performing outdoor tasks. The HSO and CS will take necessary actions to alleviate these hazards should they arise.

4.3.1 Heat Stress

The combination of warm ambient temperature and protective clothing increases the potential for heat stress. Heat stress disorders include:

- Heat rash
- Heat cramps
- Heat exhaustion
- Heat stroke

This information will be reviewed during safety meetings. Workers are encouraged to increase consumption of water and electrolyte-containing beverages, e.g. Gatorade™. Heat stress can be prevented by assuring an adequate work/rest schedule. Guidelines are presented below.

The CS and HSO will determine the specific work-rest schedule based on project specific conditions. In addition, workers are encouraged to take rests and report symptoms whenever they feel any adverse effects that may be heat-related. The frequency of breaks may need to be increased based on worker recommendation to the HSO and CS. The CS and HSO will determine the specific work-rest schedule based on project specific conditions. In addition, workers are encouraged to take rests and report symptoms whenever they feel any adverse effects that may be heat-related. The frequency of breaks may need to be increased based on worker recommendation to the HSO and CS.

Heat stress can be prevented by assuring an adequate work/rest schedule and adequate fluid consumption. A guide for work-rest schedules for various protection levels (defined in Section 5.0) is given below. The number of hours before a work-rest period is based on experience with similar work. The time periods should be considered maximum. It must also be remembered that individual physical variability and differences in physical work activities may require revisions to site plans. This table should be used as a guide. Professional judgment (evaluation of individual work load, ambient weather conditions, worker acclimatization and PPE levels) of the CS and HSO is necessary to assure a fully protective plan to prevent heat stress disorders.

GUIDELINES FOR WORK-REST PERIODS FOR VARIOUS PROTECTION LEVELS (A-D) NUMBER OF HOURS BEFORE REST PERIOD				
Temperature	Level D	Level C	Level B	Level A
90+ F*	2.0	1.5	1.0	0.5
87.5 F	2.5	2.0	1.5	1.0
82.5 F	3.0	2.5	2.0	1.5
77.5 F	3.5	3.0	2.5	1.5
72.5	4.0	3.5	2.5	1.5

**Work above 100 F will be reviewed with the Project Safety Manager to determine specific requirements.*

Alternately the work/rest schedule can be calculated based on heat stress monitoring results. Monitoring consists of taking the radial pulse of a worker for 30 seconds immediately after exiting the work area. The frequency of monitoring is described below.

If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by 1/3 and keep the rest period the same. If the heart rate still exceeds 110 beats per minute at the next rest period, increase the following rest period by 1/3. The initial rest period should be at least 5 minutes.

Body temperature, measured orally or through the ear canal, may also be monitored to assess heat stress. Workers should not be permitted to continue work when their body temperature exceeds 100.4 F (38C). Monitoring should be conducted at the beginning of each break period as noted above.

Monitoring for heat stress will begin when the ambient temperature reaches or exceeds 72.5 degrees Fahrenheit when wearing chemical protective clothing (Level C, B, A), or 80 degrees Fahrenheit for site activities performed with no chemical protective clothing (Level D). Monitoring should include pulse rate, weight loss, oral/ or ear canal temperature, signs and symptoms of heat stress and fluid intake.

An additional measure that can be employed to minimize heat stress is through the utilization of Heat Stress Relief Stations. A Heat Stress Relief Station (HSRS) is a location inside the exclusion zone where workers can partially remove their personal protective equipment, rest and take in fluids. Since the HSRS is established inside the exclusion zone, it is imperative that its use be closely monitored and controlled to ensure that workers do not ingest contamination during use.

The following is a detailed description of the Heat Stress Relief Station:

- Location- The HSRS should be located in an area of the exclusion zone where it will be predominantly upwind of site activities. This can typically be adjacent to the contamination reduction zone.
- Delineation- The HSRS must be separated from the exclusion zone by temporary fencing and must be labeled as “Heat Stress Relief Station”.
- Elements- The HSRS contains several elements:
 - A tarp or tent for shade;
 - A bench or chairs for workers to sit on;
 - A wash station;
 - A table for fluids, cups and clean personal protective equipment (PPE); and
 - A trash can for contaminated PPE.
- Set-Up- Proper set up of the HSRS is imperative its successful use.
 - In the Support Zone, prepare the water cooler with ice and water or Gatorade.

- The person bringing the items to the HSRS must don the appropriate PPE required for the Exclusion Zone.
- Bring the following items to the HSRS:
 - Cooler;
 - Clean disposable cups;
 - Disinfectant wipes;
 - A clean trash bag;
 - Surgical gloves; and
 - Duct tape.
- Ensure the wash station has clean water and paper towels for drying hands/face.
- Procedure for Use- In order for the HSRS to be effective, it must be properly used. It is imperative that workers decontaminate properly before drinking fluids so that ingestion of site contaminants does not take place. The following are the steps to properly use the HSRS:
 - Upon entering the HSRS:
 - If wearing a Tyvek, remove duct tape on wrists and unzip and tie around waist;
 - Remove your outer gloves and surgical gloves; set outer gloves aside and throw surgical gloves into trash;
 - Wash hands and/or face at Wash Station;
 - Use disinfectant wipe on hands;
 - Get drink and/or rest on bench/chair.
 - Before re-entering the Exclusion Zone:
 - Dispose of cups in trash;
 - Put on a clean pair of surgical gloves;
 - If wearing a Tyvek, pull up and rezip;
 - Re-apply duct tape to wrists;
 - Put on outer gloves.
- Monitoring- The CS and HSO are both responsible for monitoring the use of the Heat Stress Relief Station. The HSO should review the procedures for use of the HSRS with the workers before its use begins to ensure that everyone understands the parameters for proper use.

4.3.2 *Exposure to Cold*

With outdoor work in the winter months, the potential exists for hypothermia and frostbite. Several forms of cold stress as well as preventative measures are described in this section of the HASP.

4.3.2.1 *Cold Stress Conditions and Symptoms*

Typical cold stress conditions are included in the tables below, including symptoms and first aid precautions. If cold stress conditions develop, professional medical attention will be sought.

TABLE 4.3.2A COLD WEATHER INJURIES		
Cause	Symptoms	First Aid
Frostbite		
Freezing of tissue, normally due to exposure below 32°F	Numbness in affected area. Tingling, blistered, swollen or tender areas. Pale, yellowish waxy-looking skin.	Warm affected area with direct body heat. Consult with medical personnel ASAP. Do not thaw frozen area if treatment will be delayed. Do not massage or rub affected area. Do not wet area or rub with snow or ice.
Chilblain		
Repeated exposure of bare skin for prolonged periods to temperatures 20° to 60°F (for those not acclimated to cold weather).	Swollen, red skin. Tender, hot skin, usually accompanied by itching.	Warm affected area with direct body heat. Do not massage or rub. Do not wet area or rub with snow or ice. Do not expose affected area to open fire, stove or any other intense heat source.
Immersion Foot (Trench Foot)		
Prolonged exposure of the feet to wet conditions at temperatures between 32° to 50°F. Inactivity and damp socks (or tightly laced boots that impair circulation) speed onset and severity.	Cold numb feet may progress to hot with shooting pains. Swelling redness and bleeding.	Rewarm feet by exposing them to warm air. Evacuate victim to a medical facility. Do not massage, rub, moisten or expose affected area to extreme heat source.
Dehydration		
Depletion of body fluids.	Dizziness. Weakness.	Replace lost water. Water should be sipped not gulped. Get medical treatment.
Hypothermia		
Prolonged cold exposure and body heat loss. May occur at well above freezing, especially when a person is immersed in water.	Lack of shivering. Drowsiness, mental slowness, lack of coordination. Can progress to unconsciousness, irregular heartbeat and death.	Strip off clothing and wrap victim in blankets or a sleeping bag. Get victim to a heated location and medical treatment as soon as possible.

In cold weather, the potential for frostbite exists, especially in body extremities. Personnel will be instructed to pay particular attention to hands, feet, and any exposed skin when dressing. Personnel will be advised to obtain more clothing if they begin to experience loss of sensation due to cold exposure.

4.3.2.2 Monitoring and Preventative Actions

Typical cold stress monitoring procedures are included in the tables below, including temperatures to initiate monitoring, protective clothing uses and administrative practices to prevent or reduce the potential for cold stress related injury/illness. For weather conditions

below -43 °C or -45 °F with no wind and/or similar conditions (see Work/Warm-up Table) all work will cease.

TABLE 4.3.2B COLD STRESS PREVENTION*		
	Temperature	Preventative Action
1	<61°F	Use thermometer to measure ambient temperature.
2	<40°F	Cold weather protective clothing available; check core body temperature at breaks using oral or ear canal thermometer. Maintain core body temperature above 96.8°F to avoid hypothermia.
3	<30°F	Record ambient temperature and wind speed every 4 hours; compare to wind chill chart when below 19.4°F.
4	<19°F	Provide and use heated warming shelters for work breaks and when cold stress symptoms appear.
5	<10°F	Constant observation of workers, i.e. “buddy system”; rest in heated shelters (see work-rest schedule); dry clothing available for change-out; acclimate new workers.
6	<0°F/ >5 mph winds	Obtain medical certification for workers subject to hypothermia risk.

* Based on “2009 ACGIH Threshold Limit Values... for Physical Agents.”
 Note: refer to wind-chill and work-warmup charts in Table 4.3.2E

TABLE 4.3.2C COLD WEATHER CLOTHING REQUIREMENTS	
1	If wind chill is a factor at a work location, the cooling effect of the wind shall be reduced by shielding the work area or providing employees an outer windbreak layer garment.
2	Extremities, ears, toes, and nose shall be protected from extreme cold by protective clothing.
3	Employees performing light work whose clothing may become wet shall wear an outer layer of clothing which is impermeable to water.
4	Employees performing moderate to heavy work whose clothing may become wet shall wear an outer layer of clothing which is impermeable to water.
5	Outer garments must provide for ventilation to prevent wetting of inner clothing by sweat, or if not possible, a heated shelter for warming/drying clothing, or a change of clothing, shall be provided prior to returning to work in a cold environment.

Protective clothing greatly reduces the possibility of hypothermia in workers. However, personnel will be instructed to wear warm clothing and to stop work to obtain more clothing if they become too cold. Employees will also be advised to change into dry clothes if their clothing becomes wet from perspiration or from exposure to precipitation.

Employees will be instructed to use heated shelters on site, at regular intervals, depending upon the severity of ambient temperatures. Symptoms of cold stress, including heavy shivering, excessive fatigue, drowsiness, irritability, or euphoria necessitate immediate return to the shelter.

TABLE 4.3.2D COOLING POWER OF WIND ON EXPOSED FLESH EXPRESSED AS EQUIVALENT TEMPERATURE (under calm conditions)*												
Actual Temperature Reading (F)												
Estimated Wind Speed (in MPH)	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent Chill Temperature (F)											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind Speeds greater than 40 mph have little additional effect.)	Little Danger In < hr with dry skin. Maximum danger of false sense of security			Increasing Danger Danger of freezing of exposed flesh within one minute.				Great Danger Flesh may freeze within 30 seconds.				
Trench foot and immersion foot may occur at any point on this chart.												

*Developed by U.S. Army Research Institute of Environmental Medicine, Natick, MA. (Shaded area) Equivalent chill temperature requiring dry clothing to maintain core body temperature above 36 C (98.6 F) per cold stress TLV.

TABLE 4.3.2E TLV WORK/WARM-UP SCHEDULE FOR FOUR-HOUR SHIFT*											
Air Temperature – Sunny Sky		No Noticeable Wind		5 mph wind		10 mph wind		15 mph wind		20 mph wind	
C (appx.)	F (appx.)	Max. Work Period	No. of Breaks								
-26 to -28	-15 to -19	Normal	1	Normal	1	75 min	2	55 min	3	40 min	4
-29 to -31	-20 to -24	Normal	1	75 min	2	55 min	3	40 min	4	30 min	5
-32 to -34	-25 to -29	75 min	2	55 min	3	40 min	4	30 min	5	Non-Emergency work should	
-35 to -37	-30 to -34	55 min	3	40 min	4	30 min	5	Non-emergency work should		cease	
-38 to -39	-35 to -39	40 min	4	30 min	5	Non-emergency work should		cease		cease	
-40 to -42	-40 to -44	30 min	5	Non-emergency work should		cease		cease		cease	
< -43	< -45	Non-emergency work should		cease		cease		cease		cease	

* Adapted from Occupational Health and Safety Division, Saskatchewan Department of Labor

4.3.3 Biological Hazards

The contractor will be required to monitor and control insects, rodents, and other pests identified on site. Standing water will not be allowed on-site, in an effort to control insects. Pest control procedures used by the contractor will include bait, trap, spray, or other means to abate pest problems that develop on site during disruption activities.

4.3.4 *Noise*

Hearing protection is required for workers operating or working near heavy equipment, where the noise level is greater than 85 dbA (Time Weighted Average) as well as personnel working around heavy equipment. The HSO will determine the need and appropriate testing procedures, (i.e., sound level meter and/or dosimeter) for noise measurement. The provisions for noise protection for workers are presented in other safety-related documents for the Site.

4.4 VEHICLE AND HEAVY EQUIPMENT SAFETY

4.4.1 *Vehicle Safety*

Motor vehicle incidents are the number one cause of occupational fatalities, accounting for one in three deaths. The safety provisions for vehicle use at the Site are presented in other safety-related documents for the Site.

4.4.2 *Heavy Equipment Safety*

The use of backhoes, front-end loaders, etc. for excavation and other material handling equipment will present various physical hazards. The safety provisions for heavy equipment use at the Site are presented on other safety-related documents for the Site.

4.5 TASK-SPECIFIC ACTIVITY HAZARD ANALYSES (AHA)

This section of the HASP provides a breakdown of the hazards and control measures for each principal task. These Activity Hazard Analyses (AHAs) are general in nature and must be made project specific by the Construction Superintendent prior to each task. The AHAs will be field checked by the supervisor on an ongoing basis and revised as necessary. All revisions will be communicated to the work crew.

Project Identification 37-10 Crescent Street	Location Queens, NY	Estimated Dates March - June 2015
Phase of Work Mobilization/ Demobilization		Analysis Approved by Spiro Dongaris
TASKS	HAZARDS	CONTROL MEASURES
1. Mobilization and demobilization of equipment site tools, personnel. 2. Set up/remove staging and decontamination areas.	Slips/trips/falls	<ul style="list-style-type: none"> • Maintain alertness to slip/trip/fall hazards • Maintain good housekeeping • Walk, do not run • Wear footwear with soles that grip
	Manual lifting/ material handling	<ul style="list-style-type: none"> • Observe proper lifting techniques • Obey sensible lifting limits (50 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads
	Temperature extremes	<ul style="list-style-type: none"> • Drink plenty of fluids • Train personnel of signs/symptoms of cold/heat stress • Monitor air temperatures when extreme weather conditions are present • Stay in visual and verbal contact with your buddy
	Hand tool usage	<ul style="list-style-type: none"> • Daily inspections will be performed • Remove broken or damaged tools from service • Use the tool for its intended purpose • Use in accordance with manufacturer instructions.
	Biological hazards	<ul style="list-style-type: none"> • Be alert to the presence of biological hazards • Wear insect repellent • CS/HSO should be aware of on-site personnel with allergic reactions in insect bites and stings.

Project Identification 37-10 Crescent Street	Location Queens, NY	Estimated Dates March - June 2015
Phase of Work Trenching/Excavation		Analysis Approved by Spiro Dongaris
TASKS	HAZARDS	CONTROL MEASURES
1. Trenching and excavation. 2. Install shoring/ sheeting protective system.	Chemical hazards	<ul style="list-style-type: none"> Wear appropriate PPE per Section 5.1 Practice contamination avoidance Conduct real-time air monitoring per section 7.1.1 Follow proper decontamination procedures Wash hands/face before eating, drinking, smoking
	Cave-in	<ul style="list-style-type: none"> Do not allow entry into the trench unless approved protective system is in place and has been inspected by the competent person. Follow OSHA excavation regulations Place ladder or entry device every 25 feet of lateral travel
	Struck By/ Against Motor Vehicles/ Operating Equipment	<ul style="list-style-type: none"> Wear reflective warning vests when exposed to vehicular traffic Isolate potential equipment swing areas Make eye contact with vehicle operators before approaching/crossing high traffic areas Understand and review hand signals Use a spotter to direct equipment movement in high traffic areas Audible back-up alarms on equipment Operator inspects equipment daily for safety defects, including the braking system
	Slips/trips/falls	<ul style="list-style-type: none"> Clear walkways, work areas of equipment and tools Mark, identify, or barricade other obstructions Use barricades or fencing for trenches greater than 6 feet deep Maintain alertness to slip/trip/fall hazards Maintain good housekeeping Walk, do not run Wear footwear with soles that grip
	Electrical hazards	<ul style="list-style-type: none"> Maintain 10 foot minimum clearance to any overhead power lines Call for Utility mark out prior to digging

Project Identification 37-10 Crescent Street	Location Queens, NY	Estimated Dates March - June 2015
Phase of Work Trenching/Excavation		Analysis Approved by Spiro Dongaris
TASKS	HAZARDS	CONTROL MEASURES
1. Trenching and excavation. 2. Install shoring/ sheeting protective system.	Hand and power tool usage	<ul style="list-style-type: none"> • Daily inspections will be performed on tools and cords • Ensure all guards are in place • Remove broken or damaged tools from service • Use the tool for its intended purpose • Use in accordance with manufacturer instructions
	Noise	<ul style="list-style-type: none"> • Hearing protection mandatory at or above 85 dBA. • Instruct personnel how to properly wear hearing protective devices. • Disposable ear plugs or other hearing protection required while around noisy equipment.
	Manual lifting/ Material handling	<ul style="list-style-type: none"> • Observe proper lifting techniques • Obey sensible lifting limits (50 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads
	Temperature extremes.	<ul style="list-style-type: none"> • Drink plenty of fluids: • Train personnel of signs/symptoms of cold/heat stress; • Monitor air temperatures when extreme weather conditions are present; • Stay in visual and verbal contact with your buddy; and • Use procedures in Sections 3.3.1 and 3.3.2

Project Identification 37-10 Crescent Street	Location Queens, NY	Estimated Dates March - May 2015
Phase of Work Loading of Trucks		Analysis Approved by Spiro Dongaris
TASKS	HAZARDS	CONTROL MEASURES
1. Load trucks with contaminated soils. 2. Cover and clean trucks.	Chemical hazards	<ul style="list-style-type: none"> Wear appropriate PPE per Section 6.1 Practice contamination avoidance Conduct real-time air monitoring per section 8.1.1 Follow proper decontamination procedures Wash hands/face before eating, drinking, smoking
	Struck By/ Against Motor Vehicles/ Operating Equipment	<ul style="list-style-type: none"> Wear reflective warning vests when exposed to vehicular traffic Isolate potential equipment swing areas Make eye contact with vehicle operators before approaching/crossing high traffic areas Understand and review hand signals Use a spotter to direct equipment movement in high traffic areas Audible back-up alarms on equipment Operator inspects equipment daily for safety defects, including the braking system
	Slips/trips/falls	<ul style="list-style-type: none"> Maintain alertness to slip/trip/fall hazards Maintain good housekeeping Walk, do not run Wear footwear with soles that grip
	Manual lifting/ material handling	<ul style="list-style-type: none"> Observe proper lifting techniques Obey sensible lifting limits (50 lb. maximum per person manual lifting) Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads
	Temperature extremes	<ul style="list-style-type: none"> Drink plenty of fluids Train personnel of signs/symptoms of cold/heat stress Monitor air temperatures when extreme weather conditions are present Stay in visual and verbal contact with your buddy Use procedures in Sections 4.3.1 and 4.3.2
	Noise	<ul style="list-style-type: none"> Hearing protection mandatory at or above 85 dBA. Instruct personnel how to properly wear hearing protective devices. Disposable ear plugs or other hearing protection required while around noisy equipment.

Project Identification 37-10 Crescent Street	Location Queens, NY	Estimated Dates March - May 2015
Phase of Work Installation of Footers		Analysis Approved by Spiro Dongaris
TASKS	HAZARDS	CONTROL MEASURES
1. Build forms. 2. Pour concrete. 3. Remove forms.	Chemical hazards	<ul style="list-style-type: none"> Wear appropriate PPE per Section 6.1 Practice contamination avoidance Conduct real-time air monitoring per section 8.1.1 Follow proper decontamination procedures Wash hands/face before eating, drinking, smoking
	Struck By/ Against Motor Vehicles/ Operating Equipment	<ul style="list-style-type: none"> Wear reflective warning vests when exposed to vehicular traffic Isolate potential equipment swing areas Make eye contact with vehicle operators before approaching/crossing high traffic areas Understand and review hand signals Use a spotter to direct equipment movement in high traffic areas Audible back-up alarms on equipment Operator inspects equipment daily for safety defects, including the braking system
	Concrete pumper	<ul style="list-style-type: none"> Make sure nozzle man has eye contact with pump truck operator. Ensure steady control over nozzle
	Splashing concrete	<ul style="list-style-type: none"> Ensure eye protection is worn and other PPE as required by Section 6.1 A portable eyewash will be maintained in the work area
	Falls from heights	<ul style="list-style-type: none"> Fall protection is required over 6 feet when removing forms Use PFAS where needed OSHA required training before use of PFAS, scaffold or lift Competent person inspects PFAS and scaffold
	Sharp Objects	<ul style="list-style-type: none"> Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects being handled Maintain all hand and power tools in a safe condition Keep guards in place during use

Project Identification 37-10 Crescent Street	Location Queens, NY	Estimated Dates March - May 2015
Phase of Work Installation of Footers		Analysis Approved by Spiro Dongaris
TASKS	HAZARDS	CONTROL MEASURES
1. Build forms. 2. Pour concrete. 3. Remove forms.	Hand and power tool usage	<ul style="list-style-type: none"> • Daily inspections will be performed on tools and cords • Ensure all guards are in place • Remove broken or damaged tools from service • Use the tool for its intended purpose • Use in accordance with manufacturer instructions
	Noise	<ul style="list-style-type: none"> • Hearing protection mandatory at or above 85 dBA. • Instruct personnel how to properly wear hearing protective devices. • Disposable ear plugs or other hearing protection required while around noisy equipment.
	Manual lifting/ material handling	<ul style="list-style-type: none"> • Observe proper lifting techniques • Obey sensible lifting limits (50 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads
	Slips/trips/falls	<ul style="list-style-type: none"> • Maintain alertness to slip/trip/fall hazards • Maintain good housekeeping • Walk, do not run • Wear footwear with soles that grip
	Temperature extremes.	<ul style="list-style-type: none"> • Drink plenty of fluids; • Train personnel of signs/symptoms of cold/heat stress; • Monitor air temperatures when extreme weather conditions are present; • Stay in visual and verbal contact with your buddy; and • Use procedures in Sections 4.3.1 and 4.3.2

Project Identification 37-10 Crescent Street	Location Queens, NY	Estimated Dates March - May 2015
Phase of Work Heavy Equipment Decontamination		Analysis Approved by Spiro Dongaris
TASKS	HAZARDS	CONTROL MEASURES
1. Pressure wash or steam clean heavy equipment and vehicles.	Chemical hazards	<ul style="list-style-type: none"> Wear appropriate PPE per Section 6.1 Practice contamination avoidance Conduct real-time air monitoring per section 8.1.1 Follow proper decontamination procedures Wash hands/face before eating, drinking, smoking
	Struck By/ Against Motor Vehicles/ Operating Equipment	<ul style="list-style-type: none"> Wear reflective warning vests when exposed to vehicular traffic Isolate potential equipment swing areas Make eye contact with vehicle operators before approaching/crossing high traffic areas Understand and review hand signals Use a spotter to direct equipment movement in high traffic areas Audible back-up alarms on equipment Operator inspects equipment daily for safety defects, including the braking system
	Steam/heat/ splashing	<ul style="list-style-type: none"> Wear face shield + safety glasses Stay out of splash radius to minimize exposure Do not direct steam/spray at anyone
	Hand and power tool usage	<ul style="list-style-type: none"> Daily inspections will be performed on tools and cords Ensure all guards are in place Remove broken or damaged tools from service Use the tool for its intended purpose Use in accordance with manufacturer instructions
	Slips/trips/falls	<ul style="list-style-type: none"> Maintain alertness to slip/trip/fall hazards Maintain good housekeeping Walk, do not run Wear footwear with soles that grip
	Temperature extremes	<ul style="list-style-type: none"> Drink plenty of fluids Train personnel of signs/symptoms of cold/heat stress Monitor air temperatures when extreme weather conditions are present Stay in visual and verbal contact with your buddy Use procedures in Sections 4.3.1 and 4.3.2

5.0 *WORK AND SUPPORT AREAS*

To prevent migration of contamination from personnel and equipment, work areas will be clearly specified as designated below prior to beginning operations. Each work area will be clearly identified using signs or physical barriers.

5.1 EXCLUSION ZONE (EZ)

The EZ is the area suspected of contamination and presents the greatest potential for worker exposure. Personnel entering the area must wear the mandated level of protection for that area. In certain instances, different levels of protection will be required depending on the tasks and monitoring performed within that zone. The EZ for this project will include the excavation areas, any stockpiling/staging areas, and areas where disturbance of urban fill is likely occurring.

5.2 CONTAMINATION - REDUCTION ZONE (CRZ)

The CRZ or transition zone will be established between the EZ and support zone (SZ). In this area, personnel will begin the sequential decontamination process required to exit the EZ. To prevent off-site migration of contamination and for personnel accountability, all personnel will enter and exit the EZ through the CRZ. The CRZ for this project will be the access/egress routes to/from the EZ and the personnel and equipment decontamination stations.

5.3 SUPPORT ZONE (SZ)

The SZ serves as a clean, control area. Operational support facilities are located within the SZ. Normal work clothing and support equipment are appropriate in this zone. Contaminated equipment or clothing will not be allowed in the SZ. There will be a clearly marked controlled access point from the SZ into the CRZ and EZ that is monitored closely by the HSO and the CS to ensure proper safety protocols are followed. The SZ will be any office areas/trailers and the parking and visitor access ways to the project site.

5.4 SITE CONTROL LOG

A log of all personnel visiting, entering or working on the site shall be maintained in the main office location. The log will record the date, name, company or agency, and time entering or exiting the site.

No visitor will be allowed in the EZ without showing proof of training and compliance with applicable medical monitoring requirements. Visitors will supply their own protective equipment, including hard hat, boots and respiratory equipment, if required. Visitors will attend a site orientation given by the HSO and sign the HASP.

5.5 GENERAL

The following items are requirements to protect the health and safety of workers and will be discussed in the safety briefing prior to initiating work on the site.

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand to mouth transfer and ingestion of contamination is prohibited in the EZ and CRZs.
- Hands and face must be washed upon leaving the EZ and before eating, drinking, chewing gum or tobacco and smoking or other activities which may result in ingestion of contamination.
- During site operations, each worker will consider himself as a safety backup to his partner. All personnel will be aware of dangerous situations that may develop.
- Visual contact will be maintained between workers on site when performing hazardous duties.
- No personnel will be admitted to the site without the proper safety equipment, training, and medical surveillance certification.
- All personnel must comply with established safety procedures. Any site personnel, who do not comply with safety policy, as established by the HSO or the CS, will be dismissed from the site.
- Proper decontamination procedures must be followed before leaving the site.
- All site workers are authorized to stop work if they observe unsafe actions of workers or other unsafe conditions on site which may cause an imminent danger.
- All workers and visitors must sign in and out of the site.

6.0 *PROTECTIVE EQUIPMENT*

This section specifies the levels of personal protective equipment (PPE) which are or may be required for each principal activity performed at this site. All site personnel must be trained in the use of all PPE utilized.

6.1 ANTICIPATED PROTECTION LEVELS

The following protection levels have been established for the site work activities based on site information concerning the levels of contaminants and the scope of work. Results of site air monitoring and visual inspection of the work activities may indicate the need for changes in final PPE level(s). Changes in the initial PPE Levels prescribed in the Table below require completion of the HASP amendment form in Appendix B.

Task	Initial PPE Level	Upgrade/Downgrade PPE Level	Skin Protection	Respiratory Protection	Other PPE
General Support Zone Activities	Level D	—	Generally none	None	Hard-hat, Steel-toe work boots, safety glasses, safety vests. Leather work gloves as needed. Hearing protection when >85 dBA.
Mobilization/Demobilization	Level D	—	Generally none	None	Hard-hat, Steel-toe work boots, safety glasses, safety vests. Leather work gloves as needed. Hearing protection when >85 dBA.
Excavation, Loading of Trucks with Contaminated Soil/Fill, Equipment Decontamination	Level D		Generally none,	Initial: None (See Section 7)	Hard-hat, Steel-toe work boots, safety glasses, leather work gloves for material handling, hearing protection >85 dBA

6.2 PROTECTION LEVEL DESCRIPTIONS

This section lists the minimum requirements for each protection level. Modification to these requirements may have been noted in the Table shown above.

6.2.1 *Level D*

Level D consists of the following:

- Safety glasses with side shields
- Hard hat
- Steel-toed work boots
- Work clothing as prescribed by weather
- Leather work gloves when material handling

7.0 *DECONTAMINATION PROCEDURES*

This section describes the procedures necessary to ensure that both personnel and equipment are free from contamination when they leave the work site.

7.1 PERSONNEL DECONTAMINATION

Decontamination procedures will ensure that material which workers may have contacted in the EZ does not result in personal exposure and is not spread to clean areas of the site. This sequence describes the general decontamination procedures for Level D. The specific stages will vary depending on the site, the task, the protection level, etc. Dry decontamination may be used if there is insufficient space to support a full decontamination station as delineated with the steps below and approved by the HSO. The CS and the HSO will ensure that the decontamination procedures are adequate.

Level D Decontamination

1. Go to end of EZ
2. Cross into CRZ
3. Wash face and hands

7.1.1 *Suspected Contamination*

Any employee suspected of sustaining skin contact with chemical materials will first use the emergency shower. Following a thorough drenching, the worker will proceed to the decontamination area. Here the worker will remove clothing and don clean clothing. Medical attention will be provided as determined by the degree of injury.

7.1.2 *Personal Hygiene*

Personnel will wash hands, arms, neck and face, following decontamination and before any eating, smoking, or drinking.

7.2 EQUIPMENT DECONTAMINATION

Heavy equipment and other vehicles operated within the EZ will be decontaminated before being removed from the site. Workers operating the equipment/vehicles will move the equipment to a gross decontamination location near the exit of the EZ. Following gross decontamination the equipment/vehicle will be moved to the decontamination pad. Equipment decontamination will be performed on the pad until the equipment is visually clean. Following decontamination

activities equipment will be inspected by the HSO or CS prior to leaving the site. Once the equipment is inspected it will be removed from the site.

Heavy Equipment / Vehicle Decontamination

1. Equipment operator will move the heavy equipment / vehicle to a position near the EZ / CRZ interchange
2. Worker will use manual equipment (shovel, track spade) to remove gross contamination from tracks, bucket, dump box, and vehicle undercarriage (as required)
3. Following removal of gross decontamination equipment will be moved onto the decontamination pad and pressure washed / steam cleaned until equipment / vehicle is visually clean.
4. Equipment / vehicle decontaminated for removal from the site will be moved to a clean area for the HSO / CS inspection.
5. Once the equipment / vehicle is inspected and approved it will be removed from the site. Vehicles that fail inspection will be returned to the decontamination pad for further cleaning and re-inspected.

7.3 DISPOSAL OF WASTES

Wastes will be disposed according to applicable Local, State and Federal regulations.

7.4 DUST /EROSION CONTROL

The contractor will control dust and implement erosion control measures to be protective of nearby ecologically sensitive areas and sensitive receptors.

8.0 AIR MONITORING

Air monitoring will be conducted in order to characterize personnel exposures and fugitive emissions from site contaminants. Principal contaminants of concern are listed in Section 4.0 of this HASP. The target compounds selected for air monitoring purposes for this site include particulates. Results of air monitoring will be used to ensure the proper selection of protective clothing and equipment, including respiratory protection, to protect on-site personnel and off-site receptors from exposure to unacceptable levels of site contaminants. Descriptions of air monitoring strategies, procedures and equipment are provided below. Modification of this plan, including additional monitoring, may be considered as judged necessary by the PSM, in conjunction with the HSO.

8.1 WORK AREA AIR MONITORING

Work area air monitoring will include direct reading methods and personal exposure monitoring. Air monitoring will be conducted during soil/waste excavation, transportation, relocation and/or staging, and any other intrusive activities.

8.1.1 Direct Reading Air Monitoring

During active sifting operations, direct reading air monitoring will be performed to determine the potential for worker exposure to airborne hazards. A summary of air monitoring information is provided in section 8.1.5. Real-time air samples will be taken at least four times each 8-hour worker shift in the workers breathing zone (BZ).

8.1.2 Instrumentation

The following is a description of the air monitoring equipment to be used:

- MIE PDR-1000 Personal DataRAM, Dust trak or equivalent unit for real-time measuring particulates.

8.1.3 Use And Maintenance Of Survey Equipment

All personnel using field survey equipment must have training in its operation, limitations, and maintenance. Maintenance and internal or electronic calibration will be performed in accordance with manufacturer recommendations by individuals familiar with the devices before their use on site. Repairs, maintenance, and internal or electronic calibration of these devices will be recorded in an equipment maintenance logbook. The equipment maintenance logbook for each instrument will be kept in that instrument's case. For rented monitoring equipment, repairs and

maintenance will be conducted by the rental company. Daily calibration records will be documented on a log sheet found in Appendix D.

Air monitoring equipment will be calibrated before work begins. Only basic maintenance (such as changing batteries) will be performed by on-site personnel. Any additional maintenance or repairs will be performed by a trained service technician.

8.1.4 Air Monitoring Recordkeeping

The HSO will ensure that all air-monitoring data is recorded on a data sheet found in Appendix D. The PSM may periodically review this data.

8.1.5 Action Levels

During soil/waste excavation, transportation, relocation and/or staging or any intrusive activities, direct reading air monitoring will be performed in the EZ to determine exposure to workers. A summary of air monitoring information is provided in the table below.

Monitoring Device	Monitoring Location/ Personnel	Monitoring Frequency	Action Level	Action
pDr-1000 (Dust)	Soil excavation areas/laborers, technicians, equipment operators	Four times every 8-hour shift during soil disturbance activities	<5.0 mg/m ³ * ≥5.0 mg/m ³ *	Level D Stop work; notify PSM Implement dust suppression measures and resume work after dust levels are below action level

* Sustained levels in the breathing zone for 5 minutes

As indicated by the below calculations, the action level for PAHs, DDT and the metals of concern was selected based on the OSHA PEL for respirable dust, which was found to be lower than the calculated action levels for PAHs, DDT and barium, copper and zinc based on utilizing the highest concentrations of these contaminants found in soil.

- OSHA PEL for respirable dust: 5 mg/m³,
- Maximum concentration of PAHs found in soil is 1.48 ppm or 0.000148%.
 - 5.0 mg/m³ multiplied by 0.000148 = 0.00074 mg/m³
 - OSHA PEL for PAHs is 0.2 mg/m³
- Maximum concentration of DDT found in soil is 0.00482 ppm or 0.000000482%.
 - 5.0 mg/m³ multiplied by 0.000000482 = 0.00000241 mg/m³
 - OSHA PEL for DDT is 1.0 mg/m³
- Maximum concentration of Barium found in soil is 447ppm or 0.0447%.

- 5.0 mg/m^3 multiplied by $0.0447 = 0.2235 \text{ mg/m}^3$
- OSHA PEL for Barium is 0.5 mg/m^3
- Maximum concentration of Copper found in soils is 763ppm or 0.0763%
 - 5.0 mg/m^3 multiplied by $0.0763 = 0.3815 \text{ mg/m}^3$
 - OSHA PEL for Copper is 1.0 mg/m^3
- Maximum concentration of Lead found in soils is 1460ppm or 0.146%
 - 5.0 mg/m^3 multiplied by $0.146 = 0.73 \text{ mg/m}^3$
 - OSHA PEL for Lead is 0.05 mg/m^3
- Maximum concentration of Zinc found in the soils is 1460ppm or 0.146%
 - 5.0 mg/m^3 multiplied by $0.146 = 0.73 \text{ mg/m}^3$
 - OSHA PEL for Zinc is 5.0 mg/m^3

9.0 *EMERGENCY RESPONSE AND CONTINGENCY PLAN (ERCP)*

9.1 PRE-EMERGENCY PLANNING

Prior to engaging in construction/remediation activities at the site, the CS will plan for possible emergency situations and have adequate supplies and manpower to respond. In addition, site personnel will be briefed on proper emergency response procedures during the site orientation.

The following situations would warrant implementation of the emergency plan:

Fire/Explosion	<ul style="list-style-type: none"> • The potential for human injury exists. • Toxic fumes or vapors are released. • The fire could spread on site or off site and possibly ignite other flammable materials or cause heat-induced explosions. • The use of water and/or chemical fire suppressants could result in contaminated run-off. • An imminent danger of explosion exists.
Spill or Release of Hazardous Materials	<ul style="list-style-type: none"> • The spill could result in the release of flammable liquids or vapors, thus causing a fire or gas explosion hazard. • The spill could cause the release of toxic liquids or fumes in sufficient quantities or in a manner that is hazardous to or could endanger human health.
Natural Disaster	<ul style="list-style-type: none"> • A rain storm exceeds the flash flood level. • The facility is in a projected tornado path or a tornado has damaged facility property. • Severe wind gusts are forecasted or have occurred and have caused damage to the facility.
Medical Emergency	<ul style="list-style-type: none"> • Overexposure to hazardous materials. • Trauma injuries (broken bones, severe lacerations/ bleeding, burns). • Eye/skin contact with hazardous materials. • Medical Conditions e.g., loss of consciousness, heat stress (heat stroke), heart attack, respiratory failure, allergic reaction.

The following measures will be taken to assure the availability of adequate equipment and manpower resources:

- Sufficient equipment and materials will be kept on site and dedicated for emergencies only. The inventory will be replenished after each use.
- It will be the responsibility of the CS/HSO to brief on site personnel on anticipated hazards at the site. The CS/HSO shall also be responsible for anticipating and requesting equipment that will be needed for response activities.

Communications will be established prior to commencement of any activities at the remediation site. Communication will be established so that all responders on site have availability to all pertinent information to allow them to conduct their activities in a safe and healthful manner. A telephone will be available to summon assistance in an emergency.

Primary communication with local responders in the event of an emergency will be accomplished using commercial telephone lines.

9.2 EMERGENCY RECOGNITION AND PREVENTION

Because unrecognized hazards may result in emergency incidents, it will be the responsibility of the CS and Health & Safety Officer (HSO), through daily site inspections and employee feedback to recognize and identify hazards that are found at the site. These may include:

Chemical Hazards	<ul style="list-style-type: none"> • Materials at the site • Materials brought to the site
Physical Hazards	<ul style="list-style-type: none"> • Fire/explosion • Slip/trip/fall • Electrocution • Confined space • IDLH atmospheres • Excessive noise
Mechanical Hazards	<ul style="list-style-type: none"> • Heavy equipment • Stored energy system • Pinch points • Electrical equipment • Vehicle traffic
Environmental Hazards	<ul style="list-style-type: none"> • Electrical Storms • High winds • Heavy Rain/Snow • Heat Stress • Vehicle traffic

9.3 EMERGENCY TELEPHONE NUMBERS

Emergency telephone numbers can be found in Table 9-1. The emergency numbers will be posted in all site trailers.

Figure 9-1 is the Hospital Route Map with directions to the nearest hospital. Only in a non-emergency situation are personnel to be transported to the hospital by site representatives.

FIGURE 9-1

**TABLE 9-1
EMERGENCY TELEPHONE NUMBERS**

Emergency Medical Service.....	911
<u>Police</u> : New York City Police Department (NYPD).....	911
<u>Hospital</u> : Mt. Sinai, Queens Hospital.....	(718-932-1000)
<u>Fire</u> : New York City Fire Department (FDNY).....	911
New York City Office of Emergency Management.....	911
National Response Center.....	(800) 424-8802
Poison Control Center.....	(800) 222-1222
Chemtrec.....	(800) 262-8200
Center for Disease Control.....	(800) 311-3435
USEPA(Region II).....	(212) 637-5000
NYSDEC Emergency Spill Response.....	(800) 457-7362
Contractor Emergency Numbers.....	(718) 472-0830

DIRECTIONS AND HOSPITAL ROUTE MAP

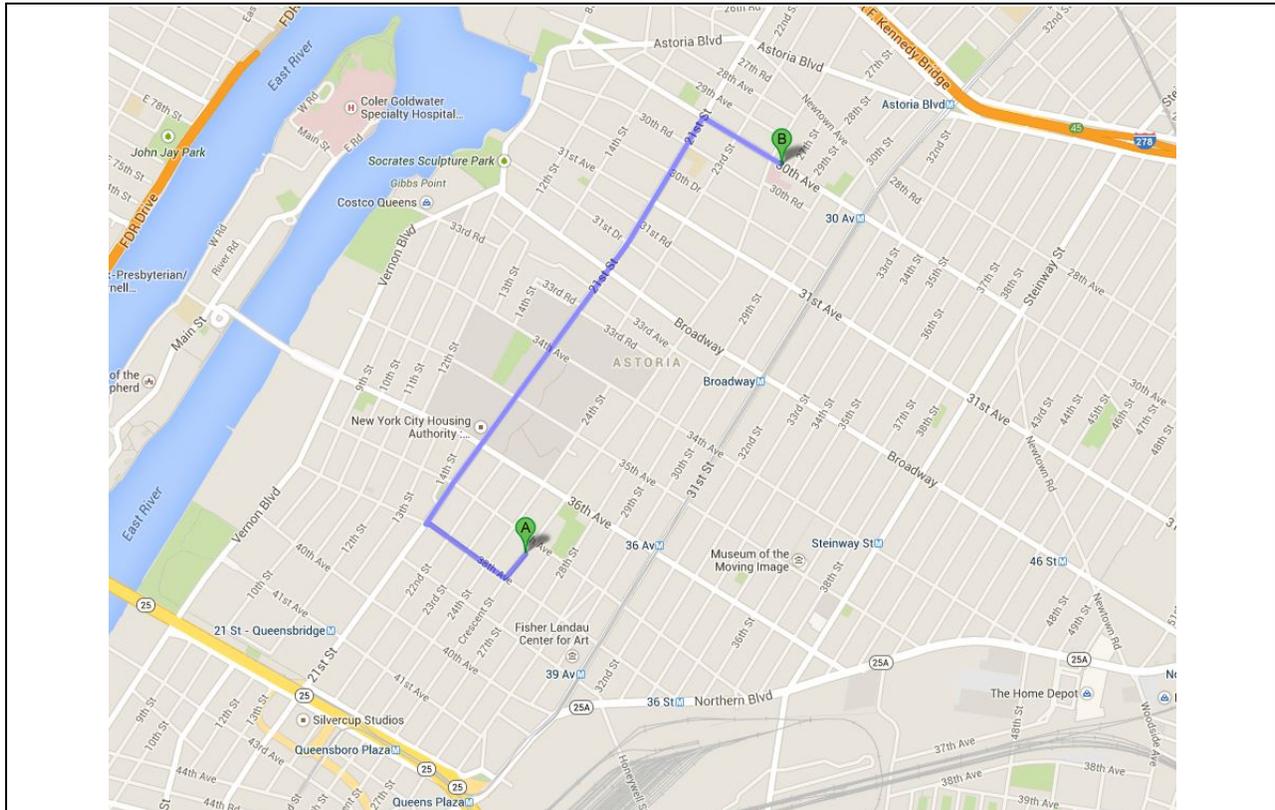
FIGURE 1 – HOSPITAL ROUTE PLAN(Mt. Sinai, Queens)

Site Location: 37-10 Crescent Street, Queens, New York 11101

Hospital Location: 25-10 30th Avenue, Long Island City, NY 11102

Information Line: 718-932-1000

	Steps	Maneuvers	Dist.
	1	Head South west on Crescent Street toward 38 th Avenue	354 ft
	2	Turn Right onto 38th Avenue	0.2 mi
	3	Turn Right onto 21st Street	1.0 mi
	4	Turn Right onto 30th Avenue	0.2 mi
	5	Follow signs to the Emergency Room	
Total Est. Time: 5 minutes		Total Est. Distance: 1.5 miles	



Once a hazard has been recognized, the CS and/or the HSO will take immediate action to prevent the hazard from becoming an emergency. This may be accomplished by the following:

- Daily safety meeting
- Task-specific training prior to commencement of activity
- Personal Protective Equipment (PPE) selection/use
- Written and approved permits for hot work, confined space
- Trenching/shoring procedure
- Air monitoring
- Following all standard operating procedures

9.4 PERSONNEL ROLES, LINES OF AUTHORITY, AND COMMUNICATIONS

This section of the ERCP describes the various roles, responsibilities, and communication procedures that will be followed by personnel involved in emergency responses.

The primary emergency coordinator for this site is the CS. In the event an emergency occurs and the emergency coordinator is not on site, the HSO will serve as the emergency coordinator until the CS arrives. The emergency coordinator will determine the nature of the emergency and take appropriate action as defined by this ERCP.

The emergency coordinator will implement the ERCP immediately as required. The decision to implement the plan will depend upon whether the actual incident threatens human health or the environment.

Immediately after being notified of an emergency incident, the emergency coordinator or his designee will evaluate the situation to determine the appropriate action.

9.4.1 Responsibilities and Duties

This section describes the responsibilities and duties assigned to the emergency coordinator.

It is recognized that the structure of the "Incident Command System" will change as additional response organizations are added. Personnel will follow procedures as directed by the fire department, LEPC, State and Federal Agencies as required.

9.4.2 On-Site Emergency Coordinator Duties

The on-site emergency coordinator is responsible for implementing and directing the emergency procedures. All emergency personnel and their communications will be coordinated through the emergency coordinator. Specific duties are as follows:

- Identify the source and character of the incident, type and quantity of any release. Assess possible hazards to human health or the environment that may result directly from the problem or its control.
- Discontinue operations in the vicinity of the incident if necessary to ensure that fires, explosions, or spills do not recur or spread to other parts of the site. While operations are dormant, monitor for leaks, pressure build-up, gas generation, or ruptures in valves, pipes, or other equipment, where safe and appropriate.
- Notify the Client Representative and local Emergency Response Teams if their help is necessary to control the incident. Table 9-1 provides telephone numbers for emergency assistance.
- Direct on-site personnel to control the incident until, if necessary, outside help arrives. Specifically: Ensure that the building or area where the incident occurred and the surrounding area are evacuated and shut off possible ignition sources, if safe and appropriate. The Emergency Response Coordinator is responsible for directing site personnel such that they avoid the area of the incident and leave emergency control procedures unobstructed.
- If fire or explosion is involved, notify local Fire Department.
- Have protected personnel, in appropriate PPE, on standby for rescue.

If the incident may threaten human health or the environment outside of the site, the emergency coordinator should immediately determine whether evacuation of area outside of the site may be necessary and, if so, notify the Police Department and the Office of Emergency Management.

When required, notify the National Response Center. The following information should be provided to the National Response Center:

- Name and telephone number
- Name and address of facility
- Time and type of incident
- Name and quantity of materials involved, if known
- Extent of injuries
- Possible hazards to human health or the environment outside of the facility.

The emergency telephone number for the National Response Center is 800-424-8802.

If hazardous waste has been released or produced through control of the incident, ensure that:

- Waste is collected and contained.

- Containers of waste are removed or isolated from the immediate site of the emergency.
- Treatment or storage of the recovered waste, contaminated soil or surface water, or any other material that results from the incident or its control is provided.
- Ensure that no waste that is incompatible with released material is treated or stored in the facility until cleanup procedures are completed.
- Ensure that all emergency equipment used is decontaminated, recharged, and fit for its intended use before operations are resumed.
- Notify the USEPA Regional Administrator that cleanup procedures have been completed and that all emergency equipment is fit for its intended use before resuming operations in the affected area of the facility. The USEPA Regional Administrator's telephone number is included in the Emergency Contacts.
- Record date, time, details of the incident, and submit a written report to the USEPA Regional Administrator. The report is due to the USEPA within 15 days of the incident.

9.5 SAFE DISTANCES AND PLACES OF REFUGE

The emergency coordinator for all activities will be the CS. No single recommendation can be made for evacuation or safe distances because of the wide variety of emergencies which could occur. Safe distances can only be determined at the time of an emergency based on a combination of site and incident-specific criteria. However, the following measures are established to serve as general guidelines.

In the event of minor hazardous materials releases (small spills of low toxicity), workers in the affected area will report initially to the contamination reduction zone. Small spills or leaks (generally less than 55 gallons) will require initial evacuation of at least 50 feet in all directions to allow for cleanup and to prevent exposure. After initial assessment of the extent of the release and potential hazards, the emergency coordinator or his designee will determine the specific boundaries for evacuation. Appropriate steps such as caution tape, rope, traffic cones, barricades, or personal monitors will be used to secure the boundaries.

If a major incident may threaten the health or safety of the surrounding community, the public will be informed and, if necessary, evacuated from the area. The emergency coordinator, or his designee will inform the proper agencies in the event that this is necessary. Telephone numbers are listed in Table 9-1.

Places of refuge will be established prior to the commencement of activities. These areas must be identified for the following incidents:

- Chemical release

- Fire/explosion
- Power loss
- Medical emergency
- Hazardous weather

In general, evacuation will be made to the site entrance, unless the emergency coordinator determines otherwise. It is the responsibility of the emergency coordinator to determine when it is necessary to evacuate personnel to off-site locations.

In the event of an emergency evacuation, all the employees will gather at the entrance to the site until a head count establishes that all are present and accounted for. No one is to leave the site without notifying the emergency coordinator.

9.6 EVACUATION ROUTES AND PROCEDURES

All emergencies require prompt and deliberate action. In the event of an emergency, it will be necessary to follow an established set of procedures. Such established procedures will be followed as closely as possible. However, in specific emergency situations, the emergency coordinator may deviate from the procedures to provide a more effective plan for bringing the situation under control. The emergency coordinator is responsible for determining which situations require site evacuation.

9.6.1 Evacuation Signals and Routes

Two-way radio communication or equivalent will be used to notify employees of the necessity to evacuate an area or building involved in a release/spill of a hazardous material. As necessary, each crew supervisor will have a two-way radio. Total site evacuation will be initiated only by the emergency coordinator, however, in his absence, decision to preserve the health and safety of employees will take precedence.

9.6.2 Evacuation Procedures

In the event evacuation is necessary the following actions will be taken:

- The emergency signal will be activated.
- No further entry of visitors, contractors, or trucks will be permitted. Vehicle traffic within the site will cease in order to allow safe exit of personnel and movement of emergency equipment.
- Shut off all machinery if safe to do so.

- ALL on-site personnel, visitors, and contractors in the support zone will assemble at the entrance to the site for a head count and await further instruction from the emergency coordinator.
- ALL persons in the exclusion zone and contamination reduction zone will be accounted for by their immediate crew leaders. Leaders will determine the safest exits for employees and will also choose an alternate exit if the first choice is inaccessible.
- During exit, the crew leader should try to keep the group together. Immediately upon exit, the crew leader will account for all employees in his crew.
- Upon completion of the head count, the crew leader will provide the information to the emergency coordinator.
- Contract personnel and visitors will also be accounted for.
- The names of emergency response team members involved will be reported to the emergency coordinator.
- A final tally of persons will be made by the emergency coordinator or designee. No attempt to find persons not accounted for will involve endangering lives of site personnel by re-entry into emergency areas.
- In all questions of accountability, immediate crew leaders will be held responsible for those persons reporting to them. Visitors will be the responsibility of those employees they are seeing. Contractors and truck drivers are the responsibility of the Construction Superintendent.
- Personnel will be assigned by the emergency coordinator to be available at the main gate to direct and brief emergency responders.
- Re-entry into the site will be made only after clearance is given by the emergency coordinator. At his direction, a signal or other notification will be given for re-entry into the facility.

9.7 EMERGENCY SPILL RESPONSE PROCEDURES AND EQUIPMENT

In the event of an emergency involving a hazardous material spill or release, the following general procedures will be used for rapid and safe response and control of the situation. Emergency contacts found in Table 9-1 provide a quick reference guide to follow in the event of a major spill.

9.7.1 Notification Procedures

If an employee discovers a chemical spill or process upset resulting in a vapor or material release, he or she will immediately notify the on-site emergency coordinator.

On-site Emergency Coordinator will obtain information pertaining to the following:

- The material spilled or released.
- Location of the release or spillage of hazardous material.
- An estimate of quantity released and the rate at which it is being released.
- The direction in which the spill, vapor or smoke release is heading.
- Any injuries involved.
- Fire and/or explosion or possibility of these events.
- The area and materials involved and the intensity of the fire or explosion.

This information will help the on-site emergency coordinator to assess the magnitude and potential seriousness of the spill or release.

9.7.2 Procedure for Containing/Collecting Spills

The initial response to any spill or discharge will be to protect human health and safety, and then the environment. Identification, containment, treatment, and disposal assessment will be the secondary response.

If for some reason a chemical spill is not contained within a dike or sump area, an area of isolation will be established around the spill. The size of the area will generally depend on the size of the spill and the materials involved. If the spill is large (greater than 55 gallons) and involves a tank or a pipeline rupture, an initial isolation of at least 100 ft. in all directions will be used. Small spills (less than or equal to 55 gallons) or leaks from a tank or pipe will require evacuation of at least 50 ft. in all directions to allow cleanup and repair and to prevent exposure. When any spill occurs, only those persons involved in overseeing or performing emergency operations will be allowed within the designated hazard area. If possible the area will be roped or otherwise blocked off.

If the spill results in the formation of a toxic vapor cloud (by reaction with surrounding materials or by outbreak of fire) and its release (due to high vapor pressures under ambient conditions), further evacuation will be necessary. In general an area at least 500 feet wide and 1,000 feet long will be evacuated downwind if volatile materials are spilled. (Consult the DOT Emergency Response Guide for isolation distances for listed hazardous materials.)

If an incident may threaten the health or safety of the surrounding community, the public will be informed and possibly evacuated from the area. The on-site emergency coordinator will inform the proper agencies in the event this is necessary. (Refer to Table 9-1)

As called for in regulations developed under the Comprehensive Environmental Response Compensation Liability Act of 1980 (Superfund), a spill of a pound or more of any hazardous material for which a reportable quantity has not been established and which is listed under the Solid Waste Disposal Act, Clean Air Act, Clean Water Act, or TSCA shall be reported.

Clean up personnel will take the following measures:

- Make sure all unnecessary persons are removed from the hazard area.
- Put on protective clothing and equipment.
- If a flammable material is involved, remove all ignition sources, and use spark and explosion proof equipment for recovery of material.
- Remove all surrounding materials that could be especially reactive with materials in the waste. Determine the major components in the waste at the time of the spill.
- If wastes reach a storm sewer, try to dam the outfall by using sand, earth, sandbags, etc. If this is done, pump this material out into a temporary holding tank or drums as soon as possible.
- Place all small quantities of recovered liquid wastes (55 gallons or less) and contaminated soil into drums for incineration or removal to an approved disposal site.
- Spray the spill area with foam, if available, if volatile emissions may occur.
- Apply appropriate spill control media (e.g. clay, sand, lime, etc.) to absorb discharged liquids.

For large spills, establish diking around leading edge of spill using booms, sand, clay or other appropriate material. If possible, use diaphragm pump to transfer discharged liquid to drums or holding tank.

9.7.3 *Emergency Response Equipment*

The following equipment will be staged in the support zone and throughout the site, as needed, to provide for safety and first aid during emergency responses.

- ABC-type fire extinguisher
- First-aid kit, industrial size
- Portable eyewash

9.7.4 *Emergency Spill Response Clean-Up Materials and Equipment*

A sufficient supply of appropriate emergency response clean-up and personal protective equipment will be available as needed.

The materials listed below may be kept on site for spill control, depending on the types of hazardous materials present on site. The majority of this material will be located in the support zone, in a supply trailer or storage area. Small amounts, as necessary, will be placed on pallets and located in the active work areas.

- Sand or clay to solidify/absorb liquid spills.
- * **Note: All contaminated soils, absorbent materials, solvents and other materials resulting from the clean-up of spilled or discharged substances shall be properly stored, labeled, and disposed of off-site.**

9.8 EMERGENCY CONTINGENCY PLAN

This section of the ERCP details the contingency measures the Site Contractor will take to prepare for and respond to fires, explosions, spills and releases of hazardous materials, hazardous weather, and medical emergencies.

9.9 MEDICAL EMERGENCY CONTINGENCY MEASURES

The procedures listed below will be used to respond to medical emergencies. A minimum of one First-Aid/CPR trained personnel should be available on site.

9.9.1 Response

The nearest workers will immediately assist a person who shows signs of medical distress or who is involved in an accident. The work crew supervisor will be summoned.

The work crew supervisor will immediately make radio contact with the on-site emergency coordinator to alert him of a medical emergency situation. The supervisor will advise the following information:

- Location of the victim at the work site
- Nature of the emergency
- Whether the victim is conscious
- Specific conditions contributing to the emergency, if known

The Emergency Coordinator will notify the Health & Safety Officer. The following actions will then be taken depending on the severity of the incident:

- *Life-Threatening Incident* – If an apparent life-threatening condition exists, the crew supervisor will inform the emergency coordinator by radio, and the local Emergency Response Services (EMS) will be immediately called. An on-site person will be

appointed who will meet the EMS and have him/her quickly taken to the victim. Any injury within the EZ will be evacuated by personnel to a clean area for treatment by EMS personnel. No one will be able to enter the EZ without showing proof of training, medical surveillance and site orientation.

- *Non Life-Threatening Incident* – If it is determined that no threat to life is present, the Health & Safety Officer will direct the injured person through decontamination procedures (see below) appropriate to the nature of the illness or accident. Appropriate first aid or medical attention will then be administered.
- * **Note: The area surrounding an accident site must not be disturbed until the scene has been cleared by the Health & Safety Officer.**

Any personnel requiring emergency medical attention will be evacuated from exclusion and contamination reduction zones if doing so would not endanger the life of the injured person or otherwise aggravate the injury. Personnel will not enter the area to attempt a rescue if their own lives would be threatened. The decision whether or not to decontaminate a victim prior to evacuation is based on the type and severity of the illness or injury and the nature of the contaminant. For some emergency victims, immediate decontamination may be an essential part of life-saving first aid. For others, decontamination may aggravate the injury or delay life-saving first aid. Decontamination will be performed if it does not interfere with essential treatment.

If decontamination can be performed, observe the following procedures:

- Wash external clothing and cut it away.

If decontamination cannot be performed, observe the following procedures:

- Wrap the victim in blankets or plastic to reduce contamination of other personnel.
- Alert emergency and off-site medical personnel to potential contamination, instruct them about specific decontamination procedures.
- Send site personnel familiar with the incident and chemical safety information, e.g. MSDS, with the affected person.

All injuries, no matter how small, will be reported to the HSO or the CS. An accident/injury/illness report will be completely and properly filled out and submitted to the Corporate Health and Safety Manager.

A list of emergency telephone numbers is given in Table 9.1.

9.9.2 Notification

The following personnel/agencies will be notified in the event of a medical emergency:

- Local Fire Department or EMS
- On-site Emergency Coordinator
- Workers in the affected areas
- Client Representative

9.10 FIRE CONTINGENCY MEASURES

Because flammable/combustible materials are present at this site, fire is an ever-present hazard. Safety personnel are not trained professional firefighters. Therefore, if there is any doubt that a fire can be quickly contained and extinguished, personnel will notify the emergency coordinator by radio and vacate the structure or area. The emergency coordinator will immediately notify the local Fire Department.

The following procedures will be used to prevent the possibility of fires and resulting injuries:

- Sources of ignition will be kept away from where flammable materials are handled or stored.
- The air will be monitored for explosivity before and during hot work and periodically where flammable materials are present. Hot work permits will be required for all such work.
- "No smoking" signs will be conspicuously posted in areas where flammable materials are present.
- Fire extinguishers will be placed in all areas where a fire hazard may exist.
- Before workers begin operations in an area the foreman will give instruction on egress procedures and assembly points. Egress routes will be posted in work areas and exit points clearly marked.

9.10.1 Response

The following procedures will be used in the event of a fire:

- Anyone who sees a fire will notify their supervisor who will then contact the Emergency Coordinator by radio. The emergency coordinator will activate the emergency air horns and contact the local Fire Department.

- When the emergency siren sounds, workers will disconnect electrical equipment in use (if possible) and proceed to the nearest fire exit.
- Work crews will be comprised of pairs of workers (buddy system) who join each other immediately after hearing the fire alarm and remain together throughout the emergency. Workers will assemble at a predetermined rally point for a head count.
- When a small fire has been extinguished by a worker, the emergency coordinator will be notified.

9.11 HAZARDOUS WEATHER CONTINGENCY MEASURES

Operations outside will not be started or continued when the following hazardous weather conditions are present:

- Lightning
- Heavy Rains/Snow
- High Winds

9.11.1 Response

- Excavation/soil stock piles will be covered with plastic liner.
- All equipment will be shut down and secured to prevent damage.
- Personnel will be moved to safe refuge. The emergency coordinator will determine when it is necessary to evacuate personnel to off-site locations and will coordinate efforts with fire, police and other agencies.

9.11.2 Notification

The emergency coordinator will be responsible for assessing hazardous weather conditions and notifying personnel of specific contingency measures. Notifications will include:

- Site workers and subcontractors
- Client Representative
- Local Emergency Management Agency

9.12 SPILL/RELEASE CONTINGENCY MEASURES

In the event of release or spill of a hazardous material the following measures will be taken:

9.12.1 Response

Any person observing a spill or release will act to remove and/or protect injured/contaminated persons from any life-threatening situation. First aid and/or decontamination procedures will be implemented as appropriate.

First aid will be administered to injured/contaminated personnel. All personnel will act to prevent any unsuspecting persons from coming in contact with spilled materials by alerting other nearby persons. Attempt to stop the spill at the source, if possible. Without taking unnecessary risks, personnel will attempt to stop the spill at the source. This may involve activities such as uprighting a drum, closing a valve or temporarily sealing a hole with a plug.

The emergency coordinator will be notified of the spill/release, including information on material spilled, quantity, personnel injuries and immediate life threatening hazards. Air monitoring will be implemented by the emergency coordinator and HSO to determine the potential impact on the surrounding community. Notification procedures will be followed to inform on-site personnel and off-site agencies. The emergency coordinator will make a rapid assessment of the spill/release and direct confinement, containment and control measures. Depending upon the nature of the spill, measures may include:

- Construction of a temporary containment berm utilizing on-site clay absorbent earth
- Digging a sump, installing a polyethylene liner and
- Diverting the spill material into the sump placing drums under the leak to collect the spilling material before it flows over the ground
- Transferring the material from its original container to another container

The emergency coordinator will notify the Client Representative of the spill and steps taken to institute clean-up. Emergency response personnel will clean-up all spills following the spill clean-up plan developed by the emergency coordinator. Supplies necessary to clean up a spill may include, but are not limited to:

- Shovel, rake
- Clay absorbent
- Polyethylene liner
- Personal safety equipment
- Steel drums
- Pumps and miscellaneous hand tools

The emergency coordinator will inspect the spill site to determine that the spill has been cleaned up to the satisfaction of the Client Representative. If necessary, soil, water or air samples may be taken and analyzed to demonstrate the effectiveness of the spill clean-up effort. The emergency coordinator will determine the cause of the spill and determine remedial steps to ensure that recurrence is prevented. The emergency coordinator will review the cause with the Client Representative and obtain his concurrence with the remedial action plan.

10.0 *TRAINING REQUIREMENTS*

All personnel entering the exclusion zone will be trained in the provisions of this site safety plan and be required to sign the CHASP Acknowledgment form in Appendix A.

10.1 SITE-SPECIFIC TRAINING ORIENTATION

Outlines of the orientation for site workers, subcontractor personnel and visitors are presented below:

CONTRACTOR WORKERS	VISITORS
<ul style="list-style-type: none"> • HASP sign off • Sign in/out procedures • Site background/characterization • Chain of command • Rules and regulations • Hours of work • Absences • Personal Protective Equipment/respirator fit test (if applicable) • Emergency Information <ul style="list-style-type: none"> • Emergency signal • Gathering point • Responsibilities/roles • Emergency phone numbers • Site Control/Work Zones • Hazards/AHAs • Air Monitoring Program • Forms, site-specific • Incident Reporting • Lead Awareness (Appendix C) 	<ul style="list-style-type: none"> • Sign in/out procedures • Site Background/ Characterization • Review of Site map • Work Zones in progress • Emergency plan/signals • Training/medical requirements • Zones/areas open to visitors

10.2 DAILY SAFETY MEETINGS

A safety meeting will be conducted by the CS and the HSO 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.

APPENDIX A

- *HEALTH AND SAFETY PLAN CERTIFICATION*
- *GENERAL/SUB-CONTRACTOR HEALTH & SAFETY PLAN ACKNOWLEDGEMENT*
- *NOTICE OF SAFETY VIOLATION*
- *PRE-JOB SAFETY CHECKLIST*

NOTICE OF SAFETY VIOLATION

TO: _____ (Name of Contractor/Subcontractor Supervisor)
FROM: _____ (Name of Owner/Contractor's Project Manager)
DATE: _____
SUBJECT: *Notice of Safety Violations*

The following Safety Violations were observed at the Name of Site/Project on Date.

1. _____
2. _____
3. _____
4. _____
5. _____

You are requested to take the necessary corrective action to alleviate these safety violations by _____ (Date).

Please notify _____ (Name of Contractor/Subcontractor's Project Manager) when you have completed this corrective action.

Thank you in advance for your cooperation in this effort.

**CONTRACTOR/SUBCONTRACTOR
PRE-JOB SAFETY CHECKLIST**

JOB: _____ **SUBCONTRACTOR:** _____
LOCATION: _____ **PROJECT NO.** _____

	<u>Yes</u>	<u>No</u>
1. Standard emergency signals fully understood?	<input type="checkbox"/>	<input type="checkbox"/>
2. Subcontractor responsibility in time of emergency understood?	<input type="checkbox"/>	<input type="checkbox"/>
3. Fire and ambulance telephone numbers known?	<input type="checkbox"/>	<input type="checkbox"/>
4. Areas for possible evacuation designated?	<input type="checkbox"/>	<input type="checkbox"/>
5. Special safety rules for the plant or area known?	<input type="checkbox"/>	<input type="checkbox"/>
6. Nature of Chemical or special hazards for area reviewed with safety officer?	<input type="checkbox"/>	<input type="checkbox"/>
7. Special safety equipment for the area of job known?	<input type="checkbox"/>	<input type="checkbox"/>
8. Safety shower and eye wash locations known?	<input type="checkbox"/>	<input type="checkbox"/>
9. Smoking area designated?	<input type="checkbox"/>	<input type="checkbox"/>
10. Have you been advised of potential hazards, protective Measures and availability of hazard information? e.g. Health & Safety Plan	<input type="checkbox"/>	<input type="checkbox"/>
11. Do you understand you are required to provide your employees with the information in (10) above?	<input type="checkbox"/>	<input type="checkbox"/>
12. Have you provided MSDSs to Athenica for any hazardous material you intend to bring on site?	<input type="checkbox"/>	<input type="checkbox"/>
13. Have you submitted training/medical certification records?	<input type="checkbox"/>	<input type="checkbox"/>
14. Are your subcontractors aware of the above rules?	<input type="checkbox"/>	<input type="checkbox"/>

Remarks: (Explain all No Answers) _____

Subcontractor's Supervisor

Date

Contractor's Project Manager

Date

Contractor's Project Supervisor

Date

Health & Safety Officer

Date

APPENDIX B

HEALTH AND SAFETY PLAN AMENDMENTS AND DOCUMENTATION FORM

**SITE-SPECIFIC HEALTH AND SAFETY PLAN
AMENDMENT DOCUMENTATION**

Project Name: _____ **Project No.:** _____

Amendment No.: _____ **Date:** _____

Amendment Revises: Page(s): _____ **Section(s):** _____

Task(s) Amendment Affects:* _____

**(Attach new/revised Job Safety Analyses)*

Reason For Amendment:

Amendment: *(Attach separate sheet(s) as necessary)*

Completed by: _____ **Approved by:** _____

**SITE-SPECIFIC HEALTH AND SAFETY PLAN
AMENDMENT DOCUMENTATION**

Project Name: _____ **Project No.:** _____

Amendment No.: _____ **Date:** _____

Amendment Revises: Page(s): _____ **Section(s):** _____

**SITE-SPECIFIC HEALTH AND SAFETY PLAN
AMENDMENT DOCUMENTATION**

Project Name: _____ **Project No.:** _____

Amendment No.: _____ **Date:** _____

Amendment Revises: Page: _____ **Section:** _____

Task(s) Amendment Affects:* _____

**(Attach new/revised Job Safety Analyses)*

Reason For Amendment:

Amendment: *(Attach separate sheet(s) as necessary)*

Completed by: _____ **Approved by:** _____

APPENDIX C

DAILY SAFETY REPORT FORM

AIR MONITORING FORMS

APPENDIX D

TAILGATE SAFETY MEETING FORM

Daily Safety Meeting Report

Project Name:

Location:

Date:

Today's Tasks/Activities:

Potential Chemical/Physical Hazards:

Personal Protective Equipment:

Attendees:

<hr/>	<hr/>

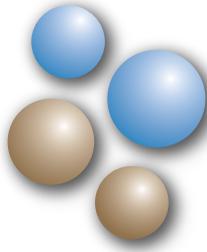
HSO: _____
(Signature)

Const. Supt: _____
(Signature)



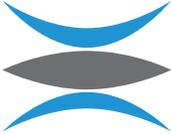
APPENDIX 5

VAPOR BARRIER MANUFACTURER SPECIFICATIONS AND COMPATIBILITY LETTER



Land ScienceTM
Technologies

A DIVISION OF REGENESIS, Inc.

 **Geo-Seal**[®]
Vapor Intrusion Barrier



www.landsciencetech.com



Geo-Seal® is an advanced composite gas vapor management technology (patent pending) designed to eliminate potential indoor air quality health risks associated with subsurface contaminant vapor intrusion.

Geo-Seal is an ideal gas vapor management technology designed for use on Brownfields or any type of environmentally impaired site, i.e. manufacturing facilities, dry cleaners, gasoline service stations, landfills, etc. **Geo-Seal** is placed between the foundation of the building and the soil pad to eliminate vapor exposure pathways and stop contaminated vapors from permeating through the slab. Vapor management systems incorporating both **Geo-Seal** vapor barrier and *Vapor-Vent* ventilation provide industry leading sub-foundation vapor mitigation technology. By deploying these systems developers ensure a healthy indoor environment while reducing the cost of site remediation and expediting site construction.

Triple-Layer Protection

The triple-layer system used in **Geo-Seal** provides maximum redundancy and protection against the formation of vapor pathways both during and after installation. Such pathways can result from chemically induced materials breakdown, punctures, and seam weaknesses resulting from poor detail work and/or application installation imperfections around penetrations. **Geo-Seal** also provides unmatched protection from a range of contaminant vapors including those from petroleum-based products and chlorinated hydrocarbons.

Field-Proven Technology

Geo-Seal is manufactured in partnership with E-Pro™ Systems which has over 20 years experience in the building products industry and a leading track record in barrier systems for vapor and waterproofing applications.

Geo-Seal[®]

Diagram

Diagram labels

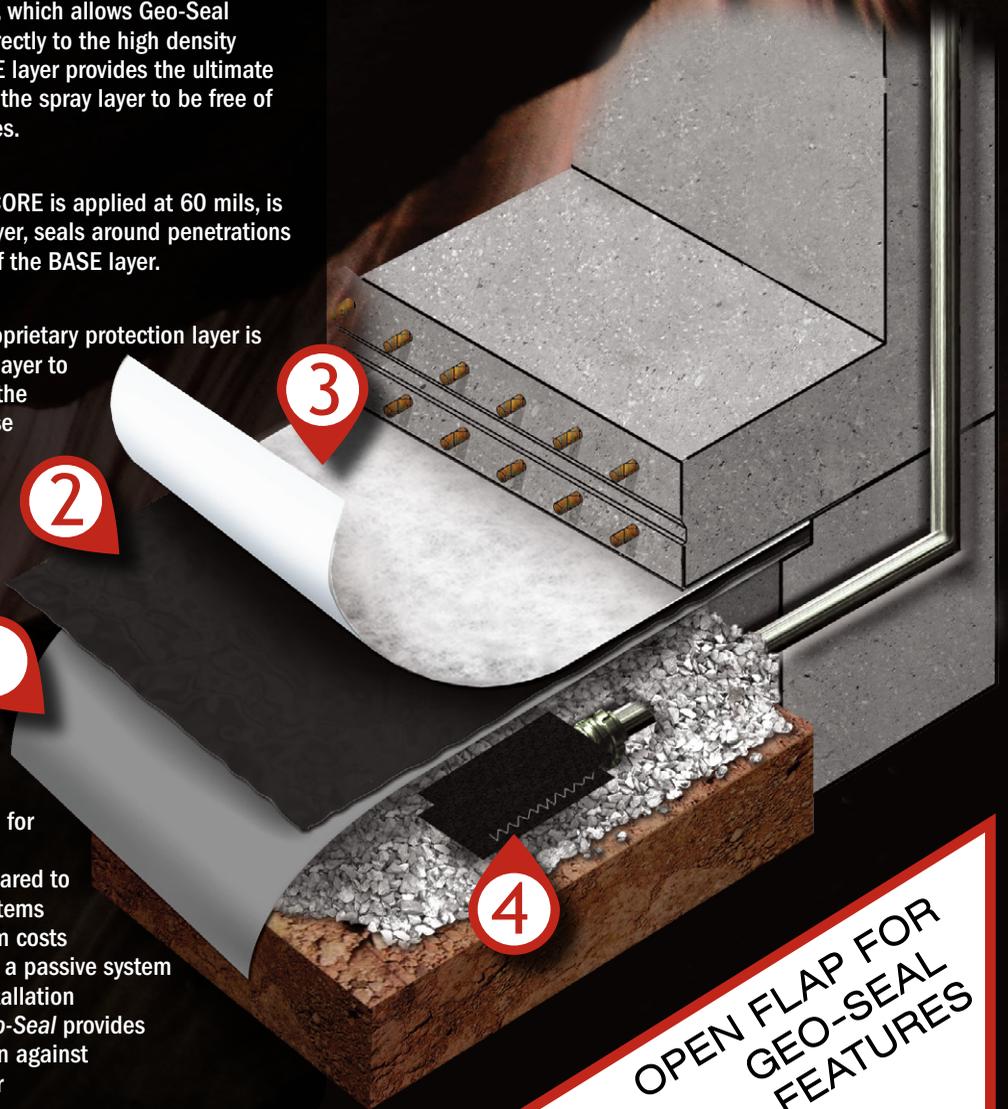
1 *Geo-Seal* BASE - The BASE layer is rolled out geotextile facing down, which allows *Geo-Seal* CORE to be applied directly to the high density polyethylene. The BASE layer provides the ultimate substrate and enables the spray layer to be free of shadowing and pinholes.

2 *Geo-Seal* CORE - The CORE is applied at 60 mils, is sprayed to the base layer, seals around penetrations and seals the seams of the BASE layer.

3 *Geo-Seal* BOND - A proprietary protection layer is placed over the CORE layer to enhance the curing of the membrane and increase puncture resistance.

4 Vapor-Vent:

- Eliminates the need for trenching
- Cost-effective compared to pipe and gravel systems
- Eliminates long-term costs when configured as a passive system
- Allows for rapid installation
- When used with *Geo-Seal* provides maximum protection against contaminated vapor



OPEN FLAP FOR
GEO-SEAL
FEATURES

Geo-Seal® Triple-Layer System

(2 Chemical Resistant Layers + 1 Spray Applied Core Layer)

Dual Chemical Resistant Layers

The **BASE** layer (bottom) and the **BOND** layer (top) are composed of a high-density polyethylene material bonded to a geo-textile on the out-facing side. High density polyethylene is known for chemical resistance, high tensile strength, excellent stress-crack resistance and for highly reliable subsurface containment. The geo-textile which is physically bonded to the chemical resistant layer accomplishes two goals; it allows the BOND layer to adhere to the slab, and provides a friction course between the BASE layer and the soil.

Spray Applied CORE Layer

The CORE layer is composed of a unique, elastic co-polymer modified asphaltic membrane which also provides additional protection against vapor transmission. This layer creates a highly-effective seal around slab penetrations and eliminates the need for mechanical fastening at termination points.

Chemical Resistance

The dual chemical resistant layers combined with the spray CORE form a barrier resistant to the most concentrated chemical pollutant vapors.

Enhanced Curing

Geo-Seal is “construction friendly” as the reduced curing time of the *Geo-Seal* CORE layer and the ability to apply it in cooler temperatures ensures quick installation and minimizes the impact on construction schedules.

Puncture Resistance

Geo-Seal forms a highly puncture resistant barrier that greatly reduces the chance of damage occurring after installation and prior to the placement of concrete.

Removing Contained Vapors

Vapor-Vent can be used in conjunction with *Geo-Seal* to alleviate the buildup of vapors beneath structures as a result of vapor barrier implementation. *Vapor-Vent* can be utilized as an active or passive ventilation system depending on the requirements of the design engineer.

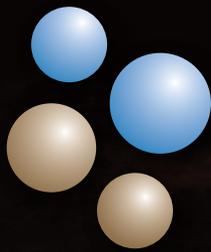
Certified Applicator Network

The application of *Geo-Seal* and *Vapor-Vent* can be performed by any one of many certified applicators throughout the country.

Service and Support

Geo-Seal representatives are available to provide job and site specific assistance. A local representative can ensure *Geo-Seal* and *Vapor-Vent* is installed as per the specification.

The logo for Geo-Seal, featuring a stylized blue and white symbol resembling a double-headed arrow or a pair of wings, followed by the text "Geo-Seal" in a bold, white, sans-serif font with a registered trademark symbol (®) to the right.



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Technologies

A DIVISION OF REGENESIS, Inc.

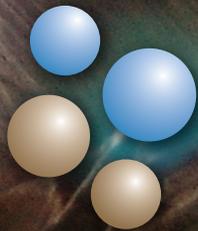
*Land Science Technologies (LST)*TM is dedicated to providing advanced technologies for sustainable land development. A goal of LST is to provide innovative and technically sound development solutions for underutilized environmentally impaired properties, commonly referred to as Brownfields.

LST's cost-effective, industry leading technologies offer engineering firms and real estate developers solutions to issues facing the development of Brownfields today. LST is a division of *Regenesi*s, Inc.**, a global leader in groundwater and soil remediation technologies since 1994.



REGENESIS

www.regenesis.com



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Land Science Technologies
1011 Calle Sombra
Suite 110
San Clemente, CA 92673
Ph. 949-481-8118
Fax. 949-366-8090
www.landsciencetech.com





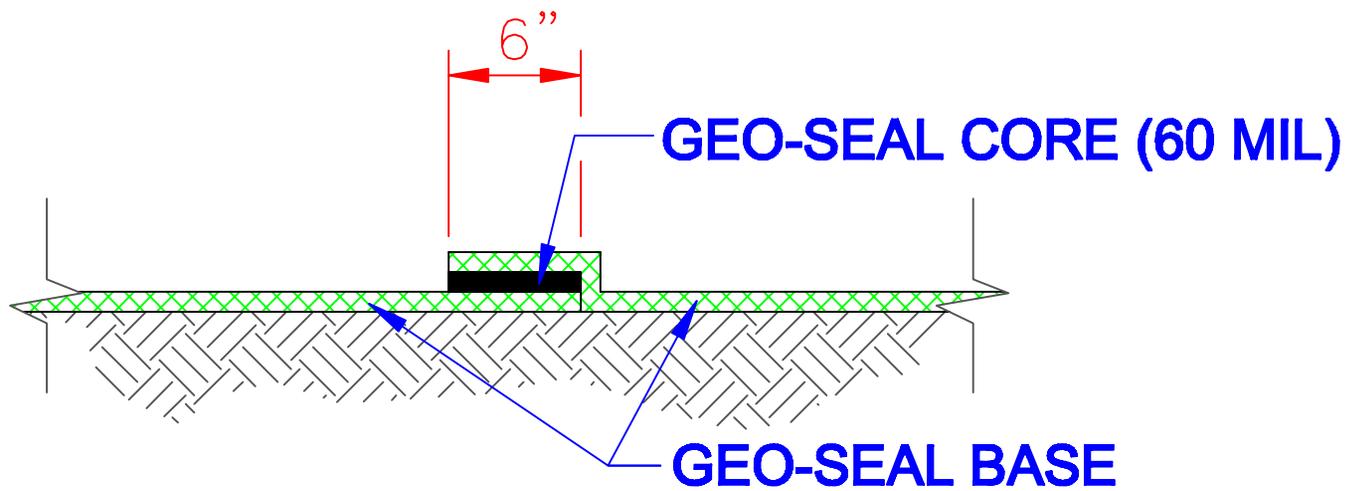
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949.366.8000 OFFICE**

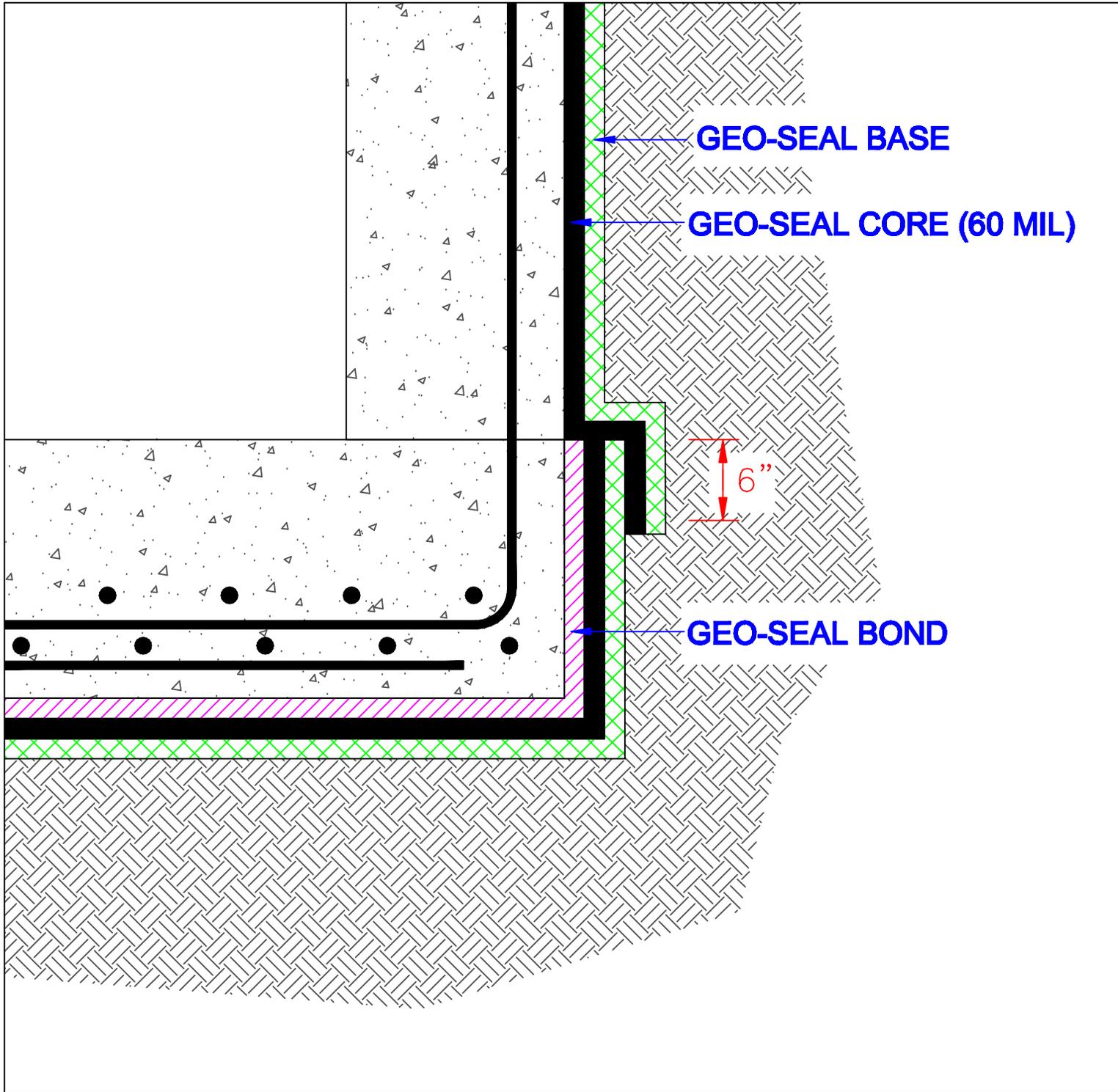


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App by
Date
Scale

**BASE OVERLAP
DETAIL**





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Advanced Vapor Management Technology

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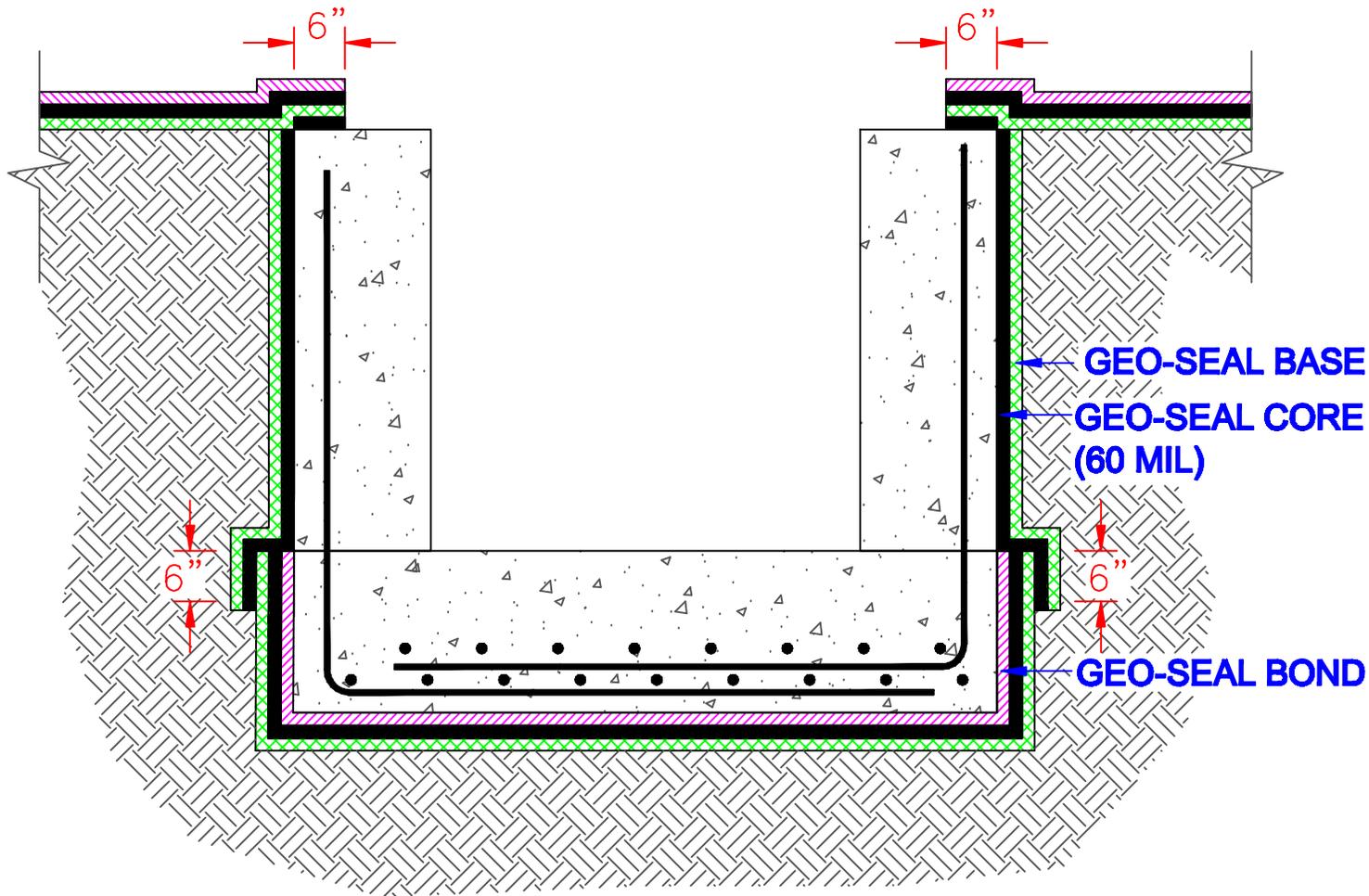
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**BELOW GRADE
OVERLAP DETAIL**



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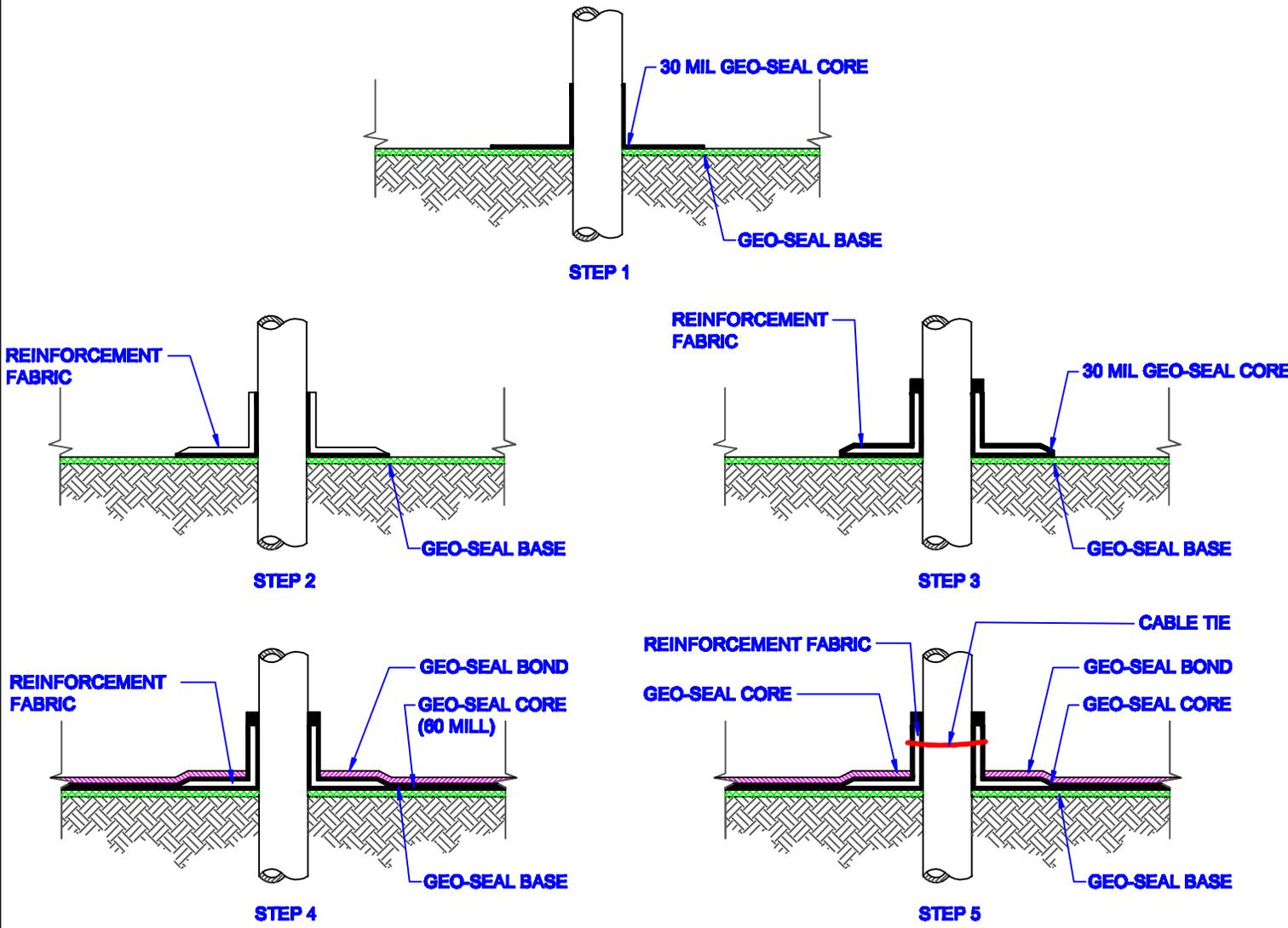
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**ELEVATOR PIT
DETAIL**



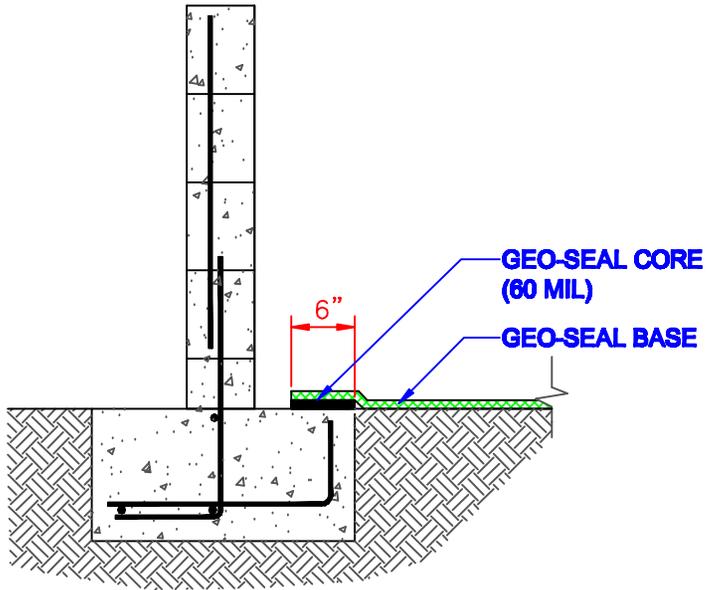
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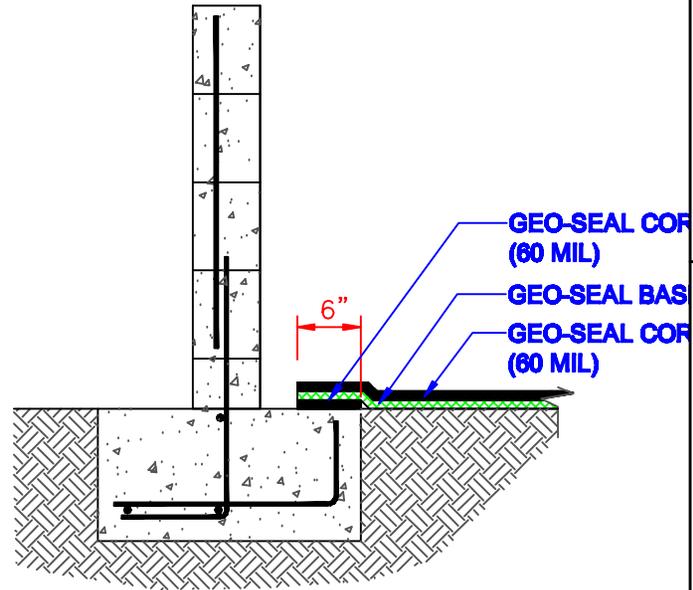
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**PENETRATION
SEQUENCE**

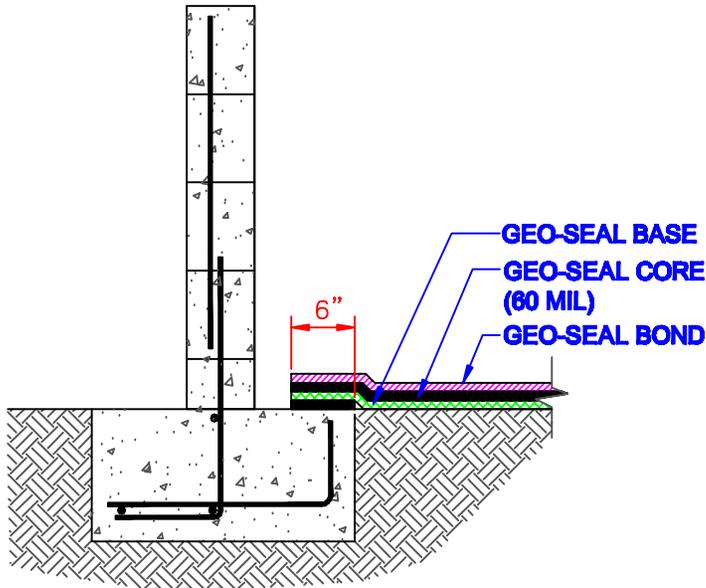
STEP 1



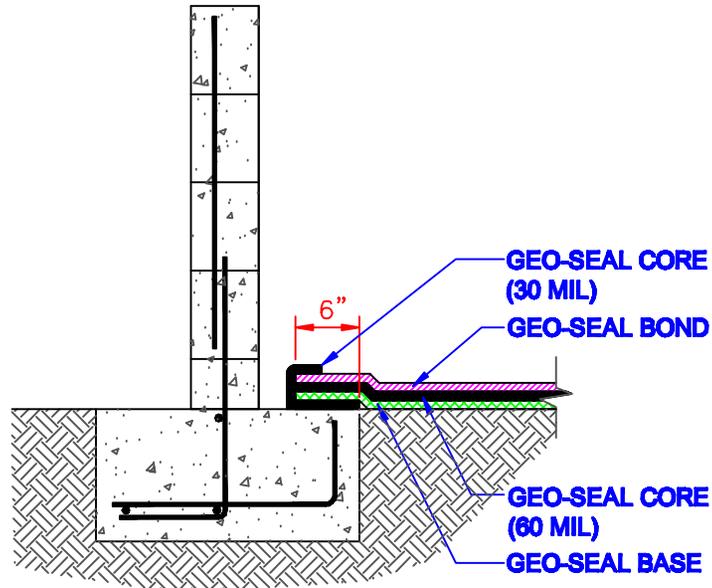
STEP 2



STEP 3



STEP 4



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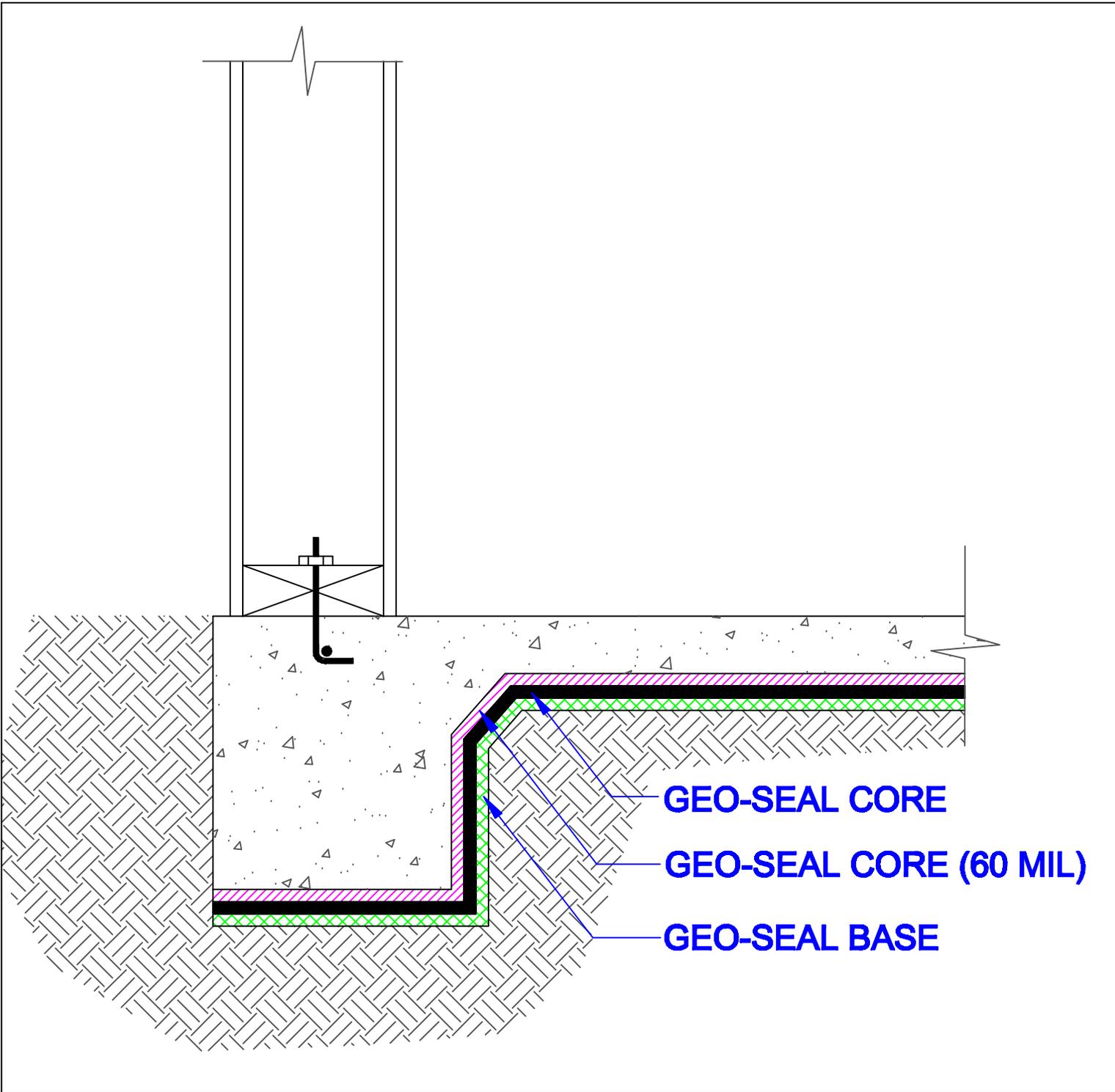
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**TERMINATION
SEQUENCE**



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**UNDER FOOTING
DETAIL**



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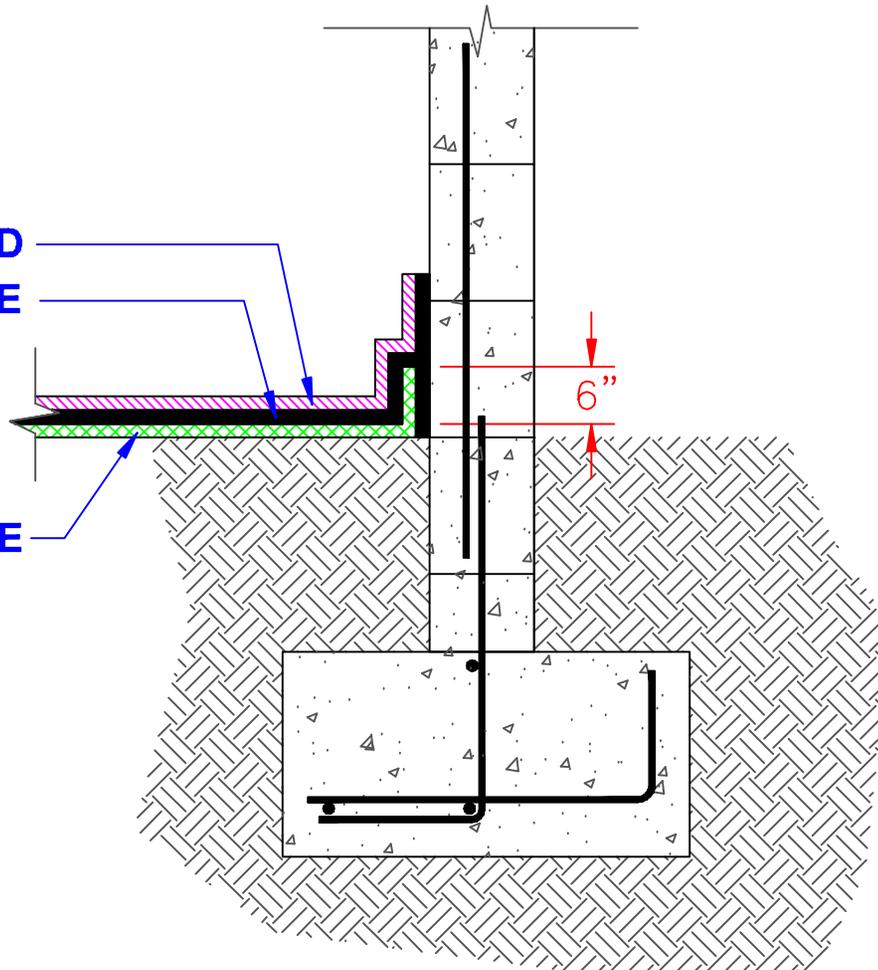
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**VERTICAL
TERMINATION DETAIL**

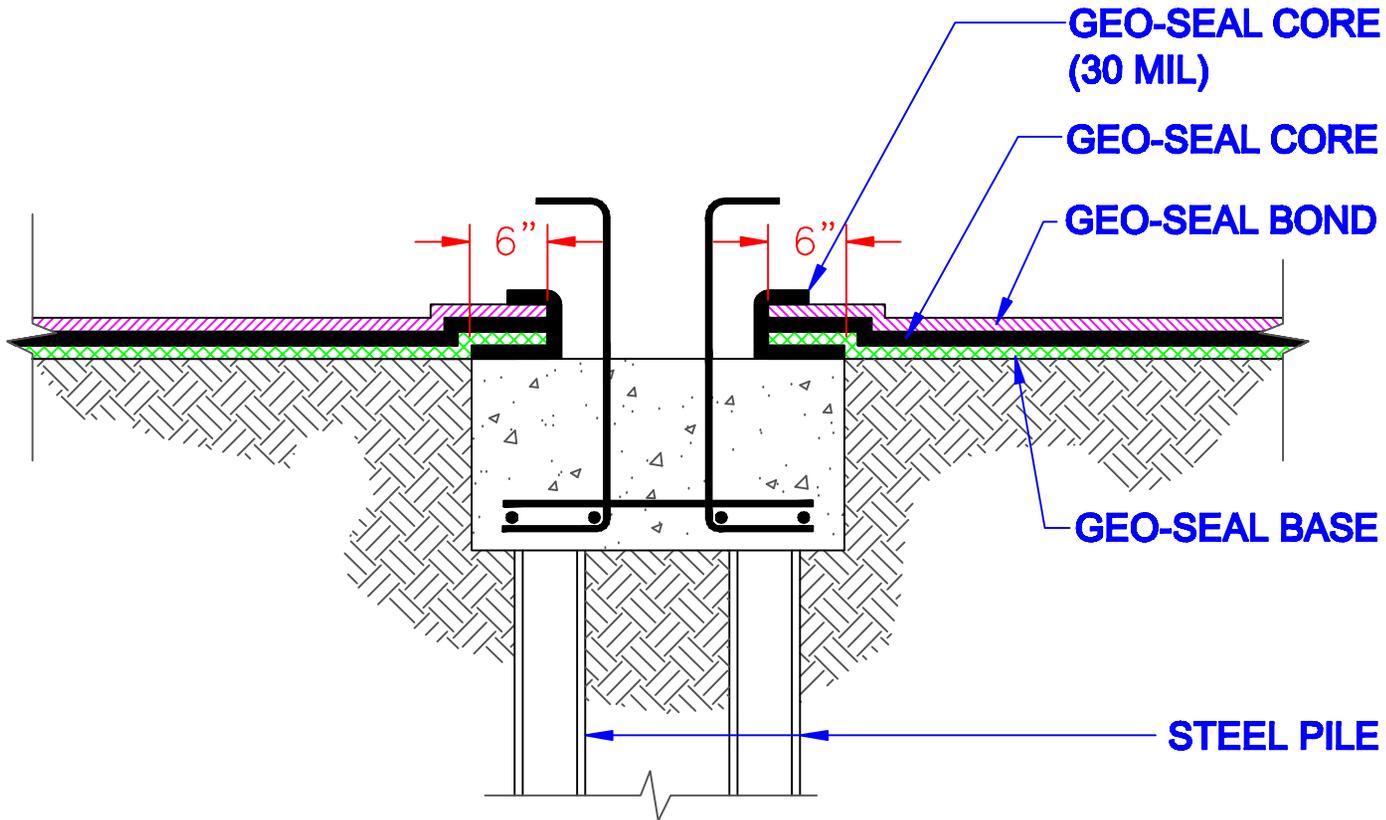
GEO-SEAL BOND
GEO-SEAL CORE
(60 MIL)

GEO-SEAL BASE





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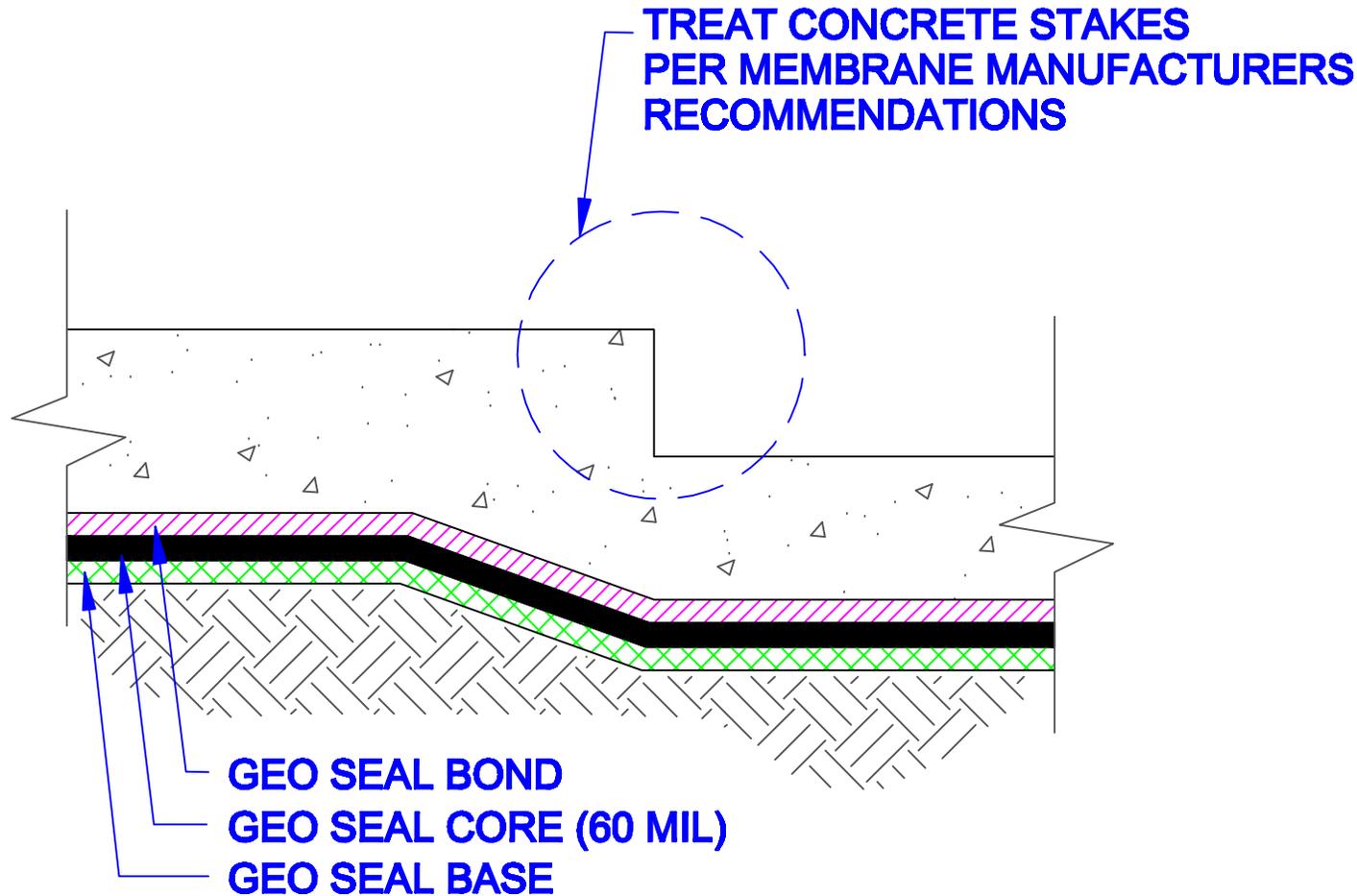
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PILE CAP DETAIL



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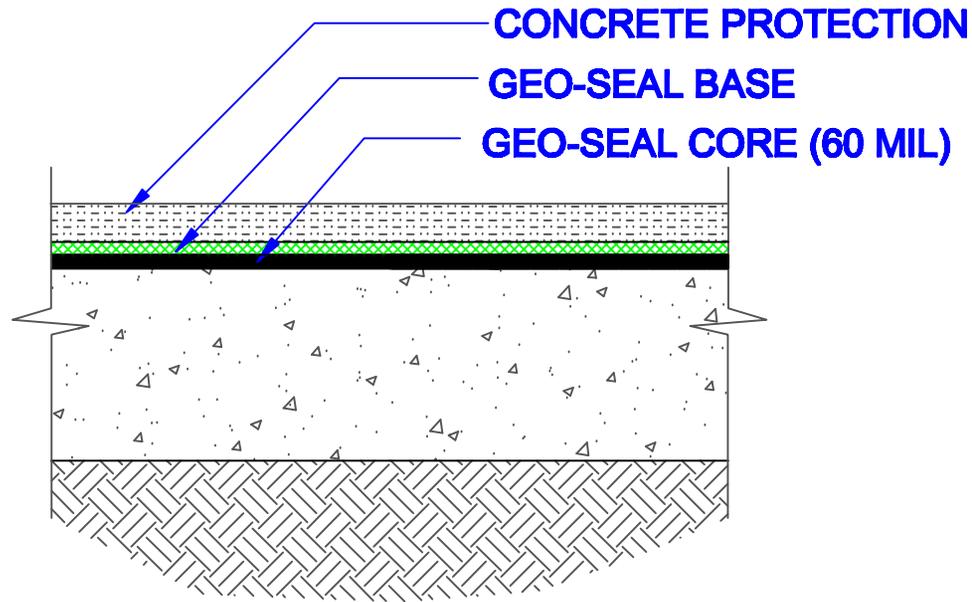
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**STEP SLAB
DETAIL**



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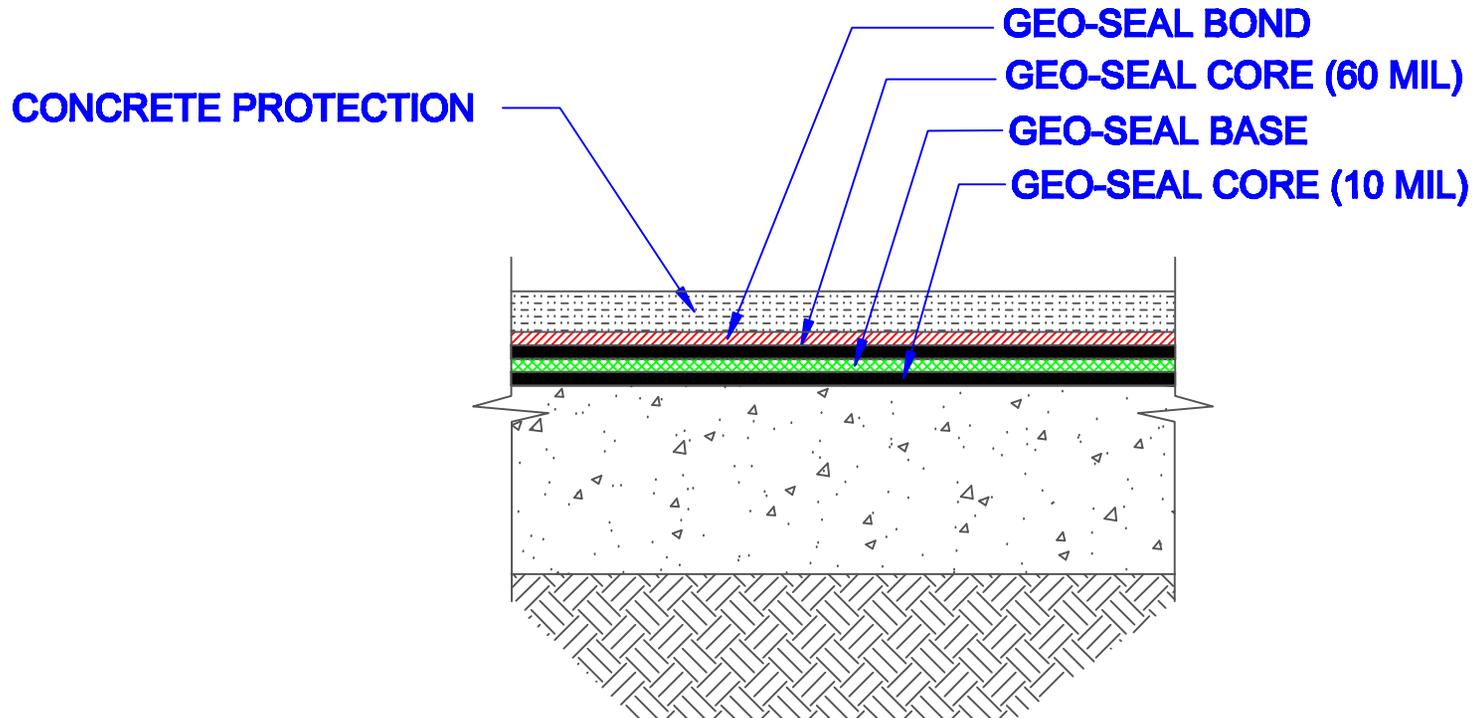
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**RETROFIT OVER
EXISTING SLAB
(OPTION 1)**



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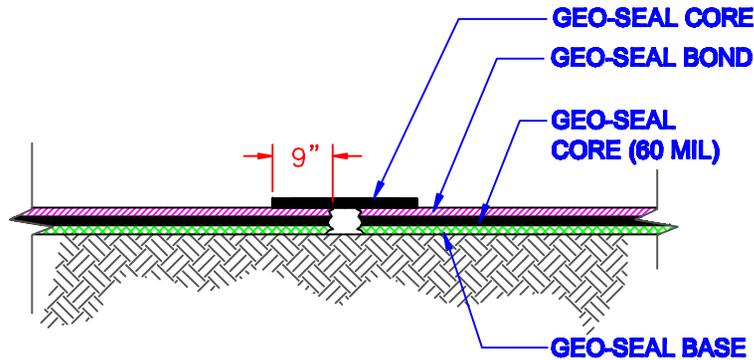
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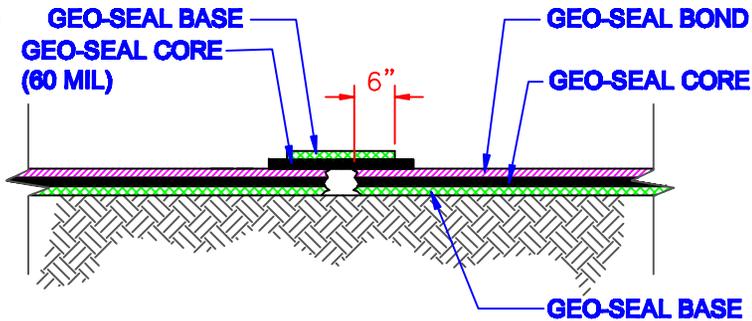
**RETROFIT OVER
EXISTING SLAB
(OPTION 2)**



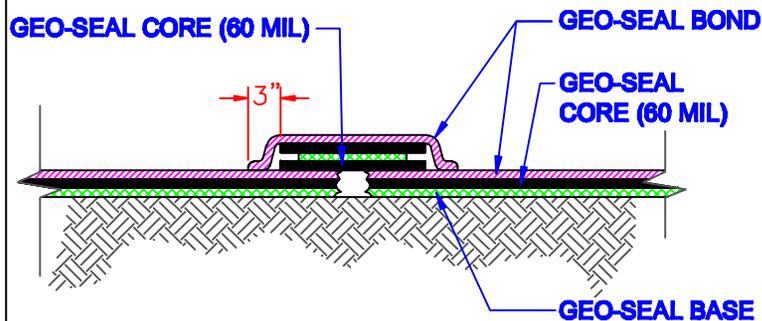
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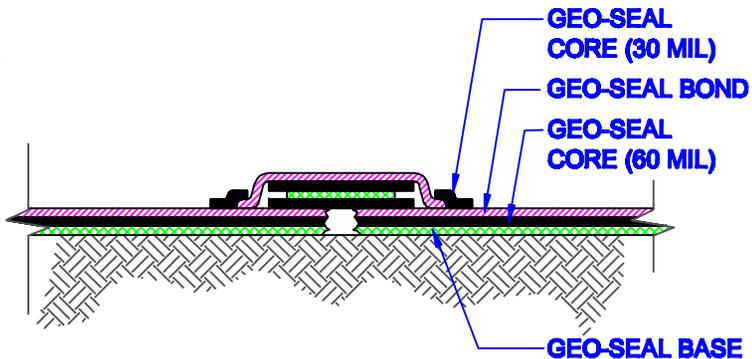
STEP 1



STEP 2



STEP 3



STEP 4



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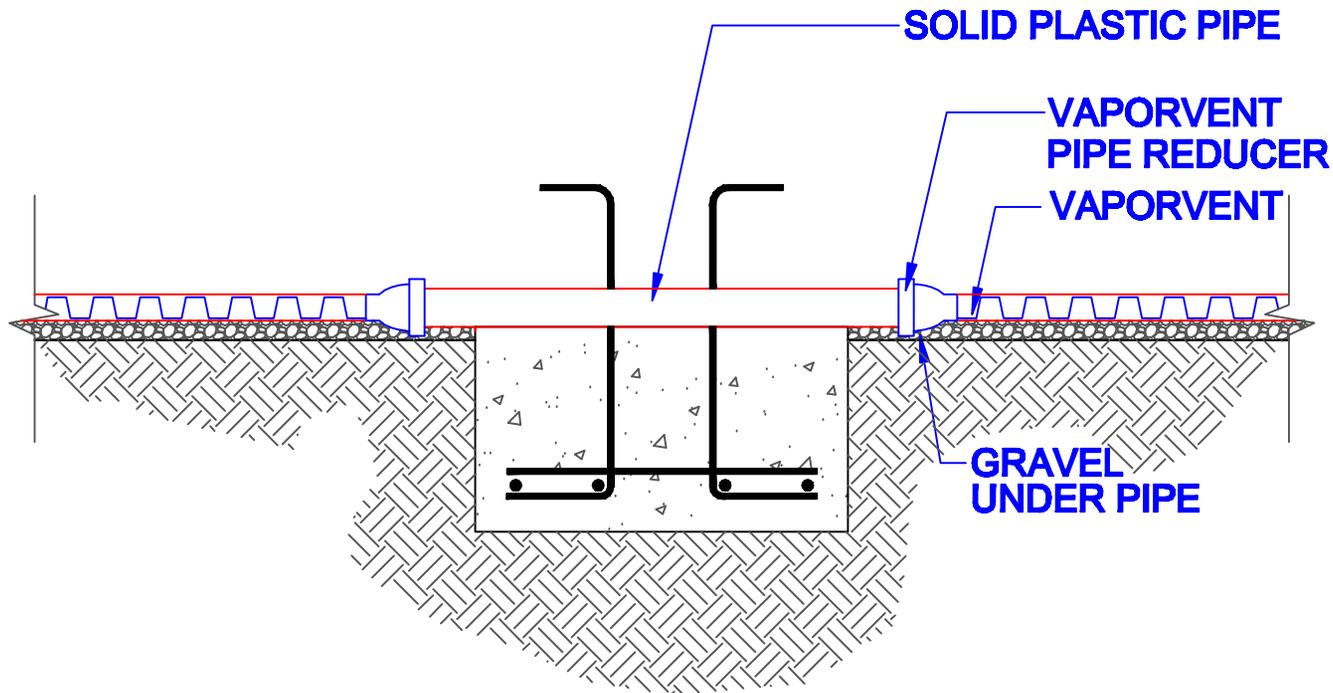
Date

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**REPAIR
SEQUENCE**



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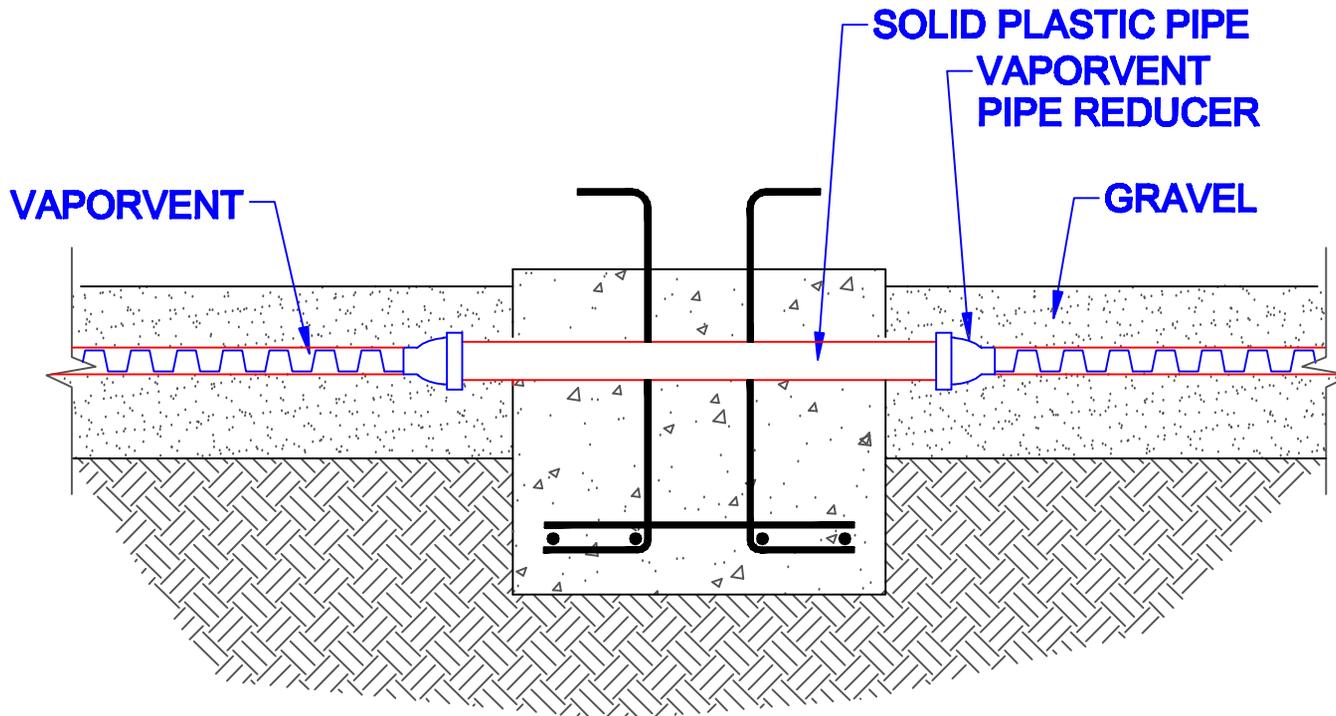
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**VAPORVENT
OVER FOOTING**



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**VAPOR VENT
OVER FOOTING**

GEO SEAL BOND
GEO SEAL CORE
GEO SEAL BASE

GRAVEL

VAPORVENT
PIPE REDUCER

6"

PIPE



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**VAPORVENT
VENT RISER**

Geo-Seal® Vapor Intrusion Barrier
02 56 19.13
Fluid-Applied Gas Barrier
Version 1.30

Note: If membrane will be subjected to hydrostatic pressure, please contact Land Science Technologies™ for proper recommendations.

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including general and supplementary conditions and Division 1 specification sections, apply to this section.

1.2 SUMMARY

- A. This section includes the following:
 - 1. Substrate preparation:
 - 2. Vapor intrusion barrier components:
 - 3. Seam sealer and accessories.
- B. Related Sections: The following sections contain requirements that relate to this section:
 - 1. Division 2 Section "Earthwork", "Pipe Materials", "Sub-drainage Systems", "Gas Collection Systems":
 - 2. Division 3 Section "Cast-in-Place Concrete" for concrete placement, curing, and finishing:
 - 3. Division 5 Section "Expansion Joint Cover Assemblies", for expansion-joint covers assemblies and installation.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Provide a vapor intrusion barrier system that prevents the passage of methane gas and/or volatile organic compound vapors and complies with physical requirements as demonstrated by testing performed by an independent testing agency of manufacturer's current vapor intrusion barrier formulations and system design.

1.4 SUBMITTALS

- A. Submit product data for each type of vapor intrusion barrier, including manufacturer's printed instructions for evaluating and preparing the substrate, technical data, and tested physical and performance properties.
- B. Project Data - Submit shop drawings showing extent of vapor intrusion barrier, including details for overlaps, flashing, penetrations, and other termination conditions.
- C. Samples – Submit representative samples of the following for approval:
 - 1. Vapor intrusion barrier components.
- D. Certified Installer Certificates – Submit certificates signed by manufacturer certifying that installers comply with requirements under the "Quality Assurance" article.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has been trained and certified in writing by the membrane manufacturer, Land Science Technologies™ for the installation of the Geo-Seal® System.
- B. Manufacturer Qualification: Obtain vapor intrusion barrier materials and system components from a single manufacturer source Land Science Technologies.
- C. Field Sample: Apply vapor intrusion barrier system field sample to 100 ft² (9.3 m²) of field area demonstrate application, detailing, thickness, texture, and standard of workmanship.
 - 1. Notify engineer or special inspector one week in advance of the dates and times when field sample will be prepared.
 - 2. If engineer or special inspector determines that field sample, does not meet requirements, reapply field sample until field sample is approved.
 - 3. Retain and maintain approved field sample during construction in an undisturbed condition as a standard for judging the completed methane and vapor intrusion barrier. An undamaged field sample may become part of the completed work.
- D. Pre-installation Conference: A pre-installation conference shall be held prior to application of the vapor intrusion barrier system to assure proper site and installation conditions, to include contractor, applicator, architect/engineer, other trades influenced by vapor intrusion barrier installation and special inspector (if any).

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to project site as specified by manufacturer labeled with manufacturer's name, product brand name and type, date of manufacture, shelf life, and directions for storing and mixing with other components.
- B. Store materials as specified by the manufacturer in a clean, dry, protected location and within the temperature range required by manufacturer. Protect stored materials from direct sunlight. If freezing temperatures are expected, necessary steps should be taken to prevent the freezing of the Geo-Seal CORE and Geo-Seal CORE Detail components.
- C. Remove and replace material that cannot be applied within its stated shelf life.

1.7 PROJECT CONDITIONS

- A. Protect all adjacent areas not to be installed on. Where necessary, apply masking to prevent staining of surfaces to remain exposed wherever membrane abuts to other finish surfaces.
- B. Perform work only when existing and forecasted weather conditions are within manufacturer's recommendations for the material and application method used.
- C. Minimum clearance of 24 inches is required for application of product. For areas with less than 24-inch clearance, the membrane may be applied by hand using Geo-Seal CORE Detail.
- D. Ambient temperature shall be within manufacturer's specifications. (Greater than +45°F/+7°C.) Consult manufacturer for the proper requirements when desiring to apply Geo-Seal CORE below 45°F/7°C.
- E. All plumbing, electrical, mechanical and structural items to be under or passing through the vapor intrusion barrier system shall be positively secured in their proper positions and appropriately protected prior to membrane application.
- F. Vapor intrusion barrier shall be installed before placement of fill material and reinforcing steel. When not possible, all exposed reinforcing steel shall be masked by general contractor prior to membrane application.
- G. Stakes used to secure the concrete forms **shall not penetrate** the vapor intrusion barrier system after it has been installed. If stakes need to puncture the vapor intrusion barrier system after it has been installed, the necessary repairs need to be made by a certified Geo-Seal applicator. To confirm the staking procedure is in agreement with the manufacturer's recommendation, contact Land Science Technologies.

1.8 WARRANTY

- A. General Warranty: The special warranty specified in this article shall not deprive the owner of other rights the owner may have under other provisions of the contract documents, and shall be in addition to, and run concurrent with, other warranties made by the contractor under requirements of the contract documents.
- B. Special Warranty: Submit a written warranty signed by vapor intrusion barrier manufacturer agreeing to repair or replace vapor intrusion barrier that does not meet requirements or that does not remain methane gas and/or volatile organic compound vapor tight within the specified warranty period. Warranty does not include failure of vapor intrusion barrier due to failure of substrate prepared and treated according to requirements or formation of new joints and cracks in the attached to structures that exceed 1/16 inch (1.58 mm) in width.
 - 1. Warranty Period: 1 year after date of substantial completion. Longer warranty periods are available upon request to the manufacturer.
- C. Labor and material warranties are available upon request to the manufacturer.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Geo-Seal; Land Science Technologies™, San Clemente, CA. (949) 481-8118
 - 1. Geo-Seal BASE sheet layer
 - 2. Geo-Seal CORE spray layer and Geo-Seal CORE Detail
 - 3. Geo-Seal BOND protection layer

2.2 VAPOR INTRUSION BARRIER SPRAY MATERIALS

- A. Fluid applied vapor intrusion barrier system – Geo-Seal CORE; a single course, high build, polymer modified, asphalt emulsion. Waterborne and spray applied at ambient temperatures. A nominal thickness of 60 dry mils, unless specified otherwise. Non-toxic and odorless. Geo-Seal CORE Detail has similar properties with greater viscosity and is roller or brush applied. Manufactured by Land Science Technologies.

B. Fluid applied vapor intrusion barrier physical properties.

Geo-Seal CORE – TYPICAL CURED PROPERTIES

Properties	Test Method	Results
Tensile Strength - CORE only	ASTM 412	32 psi
Tensile Strength - Geo-Seal System	ASTM 412	662 psi
Elongation	ASTM 412	4140%
Resistance to Decay	ASTM E 154 Section 13	4% Perm Loss
Accelerated Aging	ASTM G 23	No Effect
Moisture Vapor Transmission	ASTM E 96	.026 g/ft ² /hr
Hydrostatic Water Pressure	ASTM D 751	26 psi
Perm rating	ASTM E 96 (US Perms)	0.21
Methane transmission rate	ASTM D 1434	Passed
Adhesion to Concrete & Masonry	ASTM C 836 & ASTM C 704	11 lbf./inch
Hardness	ASTM C 836	80
Crack Bridging	ASTM C 836	No Cracking
Heat Aging	ASTM D 4068	Passed
Environmental Stress Cracking	ASTM D 1693	Passed
Oil Resistance	ASTM D543	Passed
Soil Burial	ASTM D 4068	Passed
Low Temp. Flexibility	ASTM C 836-00	No Cracking at –20°C
Resistance to Acids:		
Acetic		30%
Sulfuric and Hydrochloric		13%
Temperature Effect:		
Stable		248°F
Flexible		13°F

Geo-Seal CORE Detail – TYPICAL CURED PROPERTIES

Properties	Test Method	Results
Tensile Strength	ASTM 412	32 psi
Elongation	ASTM 412	3860%
Resistance to Decay	ASTM E 154 Section 13	9% Perm Loss
Accelerated Aging	ASTM G 23	No Effect
Moisture Vapor Transmission	ASTM E 96	.026 g/ft ² /hr
Hydrostatic Water Pressure	ASTM D 751	28 psi
Perm rating (US Perms)	ASTM E 96	0.17
Methane transmission rate	ASTM D 1434	Passed
Adhesion to Concrete & Masonry	ASTM C 836	7 lbf./inch
Hardness	ASTM C 836	85
Crack Bridging	ASTM C 836	No Cracking
Low Temp. Flexibility	ASTM C 836-00	No Cracking at –20°C
Resistance to Acids:		
Acetic		30%
Sulfuric and Hydrochloric		13%
Temperature Effect:		
Stable		248°F
Flexible		13°F

2.3 VAPOR INTRUSION BARRIER SHEET MATERIALS

- A. The Geo-Seal BASE layer and Geo-Seal BOND layer are chemically resistant sheets comprised of a 5 mil high density polyethylene sheet thermally bonded to a 3 ounce non woven geotextile.
- B. Sheet Course Usage
 1. As foundation base layer, use Geo-Seal BASE course and/or other base sheet as required or approved by the manufacturer.
 2. As top protective layer, use Geo-Seal BOND layer and/or other protection as required or approved by the manufacturer.

C. Geo-Seal BOND and Geo-Seal BASE physical properties.

Properties	Test Method	Results
Film Thickness		5 mil
Composite Thickness		18 mil
Water Vapor Permeability	ASTM E 96	0.214
Adhesion to Concrete	ASTM D 1970	9.2 lbs/inch ²
Dart Impact	ASTM D 1790	>1070 gms, method A 594 gms, method B
Puncture Properties Tear	ASTM B 2582 MD	11,290 gms
	ASTM B 2582 TD	13,150 gms

2.4 AXILLARY MATERIALS

- A. Sheet Flashing: 60-mil reinforced modified asphalt sheet good with double-sided adhesive.
- B. Reinforcing Strip: Manufacturer's recommended polypropylene and polyester fabric.
- C. Gas Venting Materials: Geo-Seal Vapor-Vent HD or Geo-Seal Vapor-Vent Poly, and associated fittings.
- D. Seam Detailing Sealant Mastic: Geo-Seal CORE Detail, a high or medium viscosity polymer modified water based asphalt material.
 - 1. Back Rod: Closed-cell polyethylene foam.

PART 3 – EXECUTION

3.1 AUXILIARY MATERIALS

- A. Examine substrates, areas, and conditions under which vapor intrusion barrier will be applied, with installer present, for compliance with requirements. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 SUBGRADE SURFACE PREPARATION

- A. Verify substrate is prepared according to manufacturer's recommendations. On a horizontal surface, the substrate should be free from material that can potentially puncture the vapor intrusion barrier. Additional protection or cushion layers might be required if the earth or gravel substrate contains too many jagged points and edges that could puncture one or more of the system components. Contact manufacturer to confirm substrate is within manufactures recommendations.
- B. Geo-Seal can accommodate a wide range of substrates, including but not limited to compacted earth, sand, aggregate, and mudslabs.
 - 1. Compacted Earth: Remove pieces of debris, gravel and/or any other material that can potentially puncture the Geo-Seal BASE. Remove any debris from substrate that can potentially puncture the Geo-Seal system prior to application.
 - 2. Sand: A sand subgrade requires no additional preparation, provided any material that can potentially puncture the Geo-Seal BASE layer is not present.
 - 3. Aggregate: Contact the manufacturer to ensure the aggregate layer will not be detrimental to the membrane. **The gravel layer must be compacted and rolled flat.** Ideally a ¾" minus gravel layer with rounded edges should be specified; however the Geo-Seal system can accommodate a wide variety of different substrates. Contact Land Science Technologies if there are questions regarding the compatibility of Geo-Seal and the utilized substrate. Exercise caution when specifying pea gravel under the membrane, if not compacted properly, pea gravel can become an unstable substrate.
 - 4. Mudslabs: The use of a mubslab under the Geo-Seal system is acceptable, contact Land Science Technologies for job specific requirements.
- C. Mask off adjoining surface not receiving the vapor intrusion barrier system to prevent the spillage or over spray affecting other construction.
- D. Earth, sand or gravel subgrades should be prepared and compacted to local building code requirements.

3.3 CONCRETE SURFACE PREPARATION

- A. Clean and prepare concrete surface to manufacturer's recommendations. In general, only apply the Geo-Seal CORE material to dry, clean and uniform substrates. Concrete surfaces must be a light trowel, light broom or equivalent finish. Remove fins, ridges and other projections and fill honeycomb, aggregate pockets, grout joints and tie holes, and other voids with hydraulic

cement or rapid-set grout. It is the applicator's responsibility to point out unacceptable substrate conditions to the general contractor and ensure the proper repairs are made.

- B. When applying the Geo-Seal CORE or Geo-Seal CORE Detail material to concrete it is important to not apply the product over standing water. Applying over standing water will result in the membrane not setting up properly on the substrate
- C. Surfaces may need to be wiped down or cleaned prior to application. This includes, but is not limited to, the removal of forming oils, concrete curing agents, dirt accumulation, and other debris. Contact form release agent manufacturer or concrete curing agent manufacturer for VOC content and proper methods for removing the respective agent.
- D. Applying the Geo-Seal CORE to "green" concrete is acceptable and can be advantageous in creating a superior bond to the concrete surface. To help reduce blistering, apply a primer coat of only the asphalt component of the Geo-Seal CORE system. Some blistering of the membrane will occur and may be more severe on walls exposed to direct sunlight. Blistering is normal and will subside over time. Using a needle nose depth gauge confirm that the specified mil thickness has been applied.

3.4 PREPARATIONS AND TREATMENT OF TERMINATIONS

- A. Prepare the substrate surface in accordance with Section 3.3 of this document. Concrete surfaces that are not a light trowel, light broom or equivalent finish, will need to be repaired.
- B. Terminations on horizontal and vertical surfaces should extend 6" onto the termination surface. Job specific conditions may prevent a 6" termination. In these conditions, contact manufacturer for recommendations.
- C. Apply 30 mils of Geo-Seal CORE to the terminating surface and then embed the Geo-Seal BASE layer by pressing it firmly into the Geo-Seal CORE layer. Next, apply 60 mils of Geo-Seal CORE to the BASE layer. When complete, apply the Geo-Seal BOND layer. After the placement of the Geo-Seal BOND layer is complete, apply a final 30 mil seal of the Geo-Seal CORE layer over the edge of the termination. For further clarification, refer to the termination detail provided by manufacturer.
- D. The stated termination process is appropriate for terminating the membrane onto exterior footings, pile caps, interior footings and grade beams. When terminating the membrane to stem walls or vertical surfaces the same process should be used.

3.5 PREPARATIONS AND TREATMENT OF PENETRATIONS

- A. All pipe penetrations should be securely in place prior to the installation of the Geo-Seal system. Any loose penetrations should be secured prior to Geo-Seal application, as loose penetrations could potentially exert pressure on the membrane and damage the membrane after installation.
- B. To properly seal around penetrations, cut a piece of the Geo-Seal BASE layer that will extend 6" beyond the outside perimeter of the penetration. Cut a hole in the Geo-Seal BASE layer just big enough to slide over the penetration, ensuring the Geo-Seal BASE layer fits snug against the penetration, this can be done by cutting an "X" no larger than the inside diameter of the penetration. There should not be a gap larger than a 1/8" between the Geo-Seal BASE layer and the penetration. Other methods can also be utilized, provided, there is not a gap larger than 1/8" between the Geo-Seal BASE layer and the penetration.
- C. Seal the Geo-Seal BASE layer using Geo-Seal CORE or Geo-Seal CORE Detail to the underlying Geo-Seal BASE layer.
- D. Apply one coat of Geo-Seal CORE Detail or Geo-Seal CORE spray to the Geo-Seal BASE layer and around the penetration at a thickness of 30 mils. Penetrations should be treated in a 6-inch radius around penetration and 3 inches onto penetrating object.
- E. Embed a fabric reinforcing strip after the first application of the Geo-Seal CORE spray or Geo-Seal CORE Detail material and then apply a second 30 mil coat over the embedded joint reinforcing strip ensuring its complete saturation of the embedded strip and tight seal around the penetration.
- F. After the placement of the Geo-Seal BOND layer, a cable tie should then be placed around the finished penetration. The cable tie should be snug, but not overly tight so as to slice into the finished seal.

OPTION: A final application of Geo-Seal CORE may be used to provide a finishing seal after the Geo-Seal BOND layer has been installed.

NOTE: Metal or other slick penetration surfaces may require treatment in order to achieve proper adhesion. For plastic pipes, sand paper may be used to achieve a profile, an emery cloth is more appropriate for metal surfaces. An emery cloth should also be used to remove any rust on metal surfaces.

3.6 GEO-SEAL BASE LAYER INSTALLATION

- A. Install the Geo-Seal BASE layer over substrate material in one direction with six-inch overlaps and the geotextile (fabric side) facing down.
- B. Secure the Geo-Seal BASE seams by applying 60 mils of Geo-Seal CORE between the 6" overlapped sheets with the geotextile side down.
- C. Visually verify there are no gaps/fish-mouths in seams.

- D. For best results, install an equal amount of Geo-Seal BASE and Geo-Seal CORE in one day. Leaving unsprayed Geo-Seal BASE overnight might allow excess moisture to collect on the Geo-Seal BASE. If excess moisture collects, it needs to be removed.

NOTE: In windy conditions it might be necessary to encapsulate the seam by spraying the Geo-Seal CORE layer over the completed Geo-Seal BASE seam.

3.7 GEO-SEAL CORE APPLICATION

- A. Set up spray equipment according to manufacturer's instructions.
- B. Mix and prepare materials according to manufacturer's instructions.
- C. The two catalyst nozzles (8001) should be adjusted to cross at about 18" from the end of the wand. This apex of catalyst and emulsion spray should then be less than 24" but greater than 12" from the desired surface when spraying. When properly sprayed the fan pattern of the catalyst should range between 65° and 80°.
- D. Adjust the amount of catalyst used based on the ambient air temperature and surface temperature of the substrate receiving the membrane. In hot weather use less catalyst as hot conditions will quickly "break" the emulsion and facilitate the curing of the membrane. In cold conditions and on vertical surfaces use more catalyst to "break" the emulsion quicker to expedite curing and set up time in cold conditions.
- E. To spray the Geo-Seal CORE layer, pull the trigger on the gun. A 42° fan pattern should form when properly sprayed. Apply one spray coat of Geo-Seal CORE to obtain a seamless membrane free from pinholes or shadows, with an average dry film thickness of 60 mils (1.52 mm).
- F. Apply the Geo-Seal CORE layer in a spray pattern that is perpendicular to the application surface. The concern when spraying at an angle is that an area might be missed. Using a perpendicular spray pattern will limit voids and thin spots, and will also create a uniform and consistent membrane.
- G. Verify film thickness of vapor intrusion barrier every 500 ft². (46.45 m²), for information regarding Geo-Seal quality control measures, refer to the quality control procedures in Section 3.9 of this specification.
- H. The membrane will generally cure in 24 to 48 hours. As a rule, when temperature decreases or humidity increases, the curing of the membrane will be prolonged. The membrane does not need to be fully cured prior the placement of the Geo-Seal BOND layer, provided mil thickness has been verified and a smoke test will be conducted.
- I. **Do not penetrate** membrane after it has been installed. If membrane is penetrated after the membrane is installed, it is the responsibility of the general contractor to notify the certified installer to make repairs.
- J. If applying to a vertical concrete wall, apply Geo-Seal CORE directly to concrete surface and use manufacturer's recommended protection material based on site specific conditions. If applying Geo-Seal against shoring, contact manufacturer for site specific installation instructions.

NOTE: Care should be taken to not trap moisture between the layers of the membrane. Trapping moisture may occur from applying a second coat prior to the membrane curing. Repairs and detailing may be done over the Geo-Seal CORE layer when not fully cured.

3.8 GEO-SEAL BOND PROTECTION COURSE INSTALLATION

- A. Install Geo-Seal BOND protection course perpendicular to the direction of the Geo-Seal BASE course with overlapped seams over nominally cured membrane no later than recommended by manufacturer and before starting subsequent construction operations.
- B. Sweep off any water that has collected on the surface of the Geo-Seal CORE layer, prior to the placement of the Geo-Seal BOND layer.
- C. Overlap and seam the Geo-Seal BOND layer in the same manner as the Geo-Seal BASE layer.
- D. To expedite the construction process, the Geo-Seal BOND layer can be placed over the Geo-Seal CORE immediately after the spray application is complete, provided the Geo-Seal CORE mil thickness has been verified.

3.9 QUALITY ASSURANCE

- A. The Geo-Seal system must be installed by a trained and certified installer approved by Land Science Technologies.
- B. For projects that will require a material or labor material warranty, Land Science Technologies will require a manufacturer's representative or certified 3rd party inspector to inspect and verify that the membrane has been installed per the manufacturer's recommendations.

The certified installer is responsible for contacting the inspector for inspection. Prior to application of the membrane, a notice period for inspection should be agreed upon between the applicator and inspector.

- C. The measurement tools listed below will help verify the thickness of the Geo-Seal CORE layer. As measurement verification experience is gained, these tools will help confirm thickness measurements that can be obtained by pressing one's fingers into the Geo-Seal CORE membrane.

To verify the mil thickness of the Geo-Seal CORE, the following measurement devices are required.

1. Mil reading caliper: Calipers are used to measure the thickness of coupon samples. To measure coupon samples correctly, the thickness of the Geo-Seal sheet layers (18 mils each) must be taken into account. Mark sample area for repair.
2. Wet mil thickness gauge: A wet mil thickness gauge may be used to quickly measure the mil thickness of the Geo-Seal CORE layer. The thickness of the Geo-Seal sheet layers do not factor into the mil thickness reading.

NOTE: When first using a wet mil thickness gauge on a project, collect coupon samples to verify the wet mil gauge thickness readings.
3. Needle nose digital depth gauge: A needle nose depth gauge should be used when measuring the Geo-Seal CORE thickness on vertical walls or in field measurements. Mark measurement area for repair.

To obtain a proper wet mil thickness reading, take into account the 5 to 10 percent shrinkage that will occur as the membrane fully cures. Not taking into account the thickness of the sheet layers, a freshly sprayed membrane should have a minimum wet thickness of 63 (5%) to 66 (10%) mils.

Methods on how to properly conduct Geo-Seal CORE thickness sampling can be obtained by reviewing literature prepared by Land Science Technologies.

- D. It should be noted that taking too many destructive samples can be detrimental to the membrane. Areas where coupon samples have been removed need to be marked for repair.
- E. Smoke Testing is highly recommended and is the ideal way to test the seal created around penetrations and terminations. Smoke Testing is conducted by pumping non-toxic smoke underneath the Geo-Seal vapor intrusion barrier and then repairing the areas where smoke appears. Refer to smoke testing protocol provided by Land Science Technologies. For projects that will require a material or labor material warranty, Land Science Technologies will require a smoke test.
- F. Visual inspections prior to placement of concrete, but after the installation of concrete reinforcing, is recommended to identify any punctures that may have occurred during the installation of rebar, post tension cables, etc. Punctures in the Geo-Seal system should be easy to identify due to the color contrasting layers of the system.