178-02 HILLSIDE AVENUE

QUEENS, NEW YORK

Remedial Action Work Plan

NYC VCP Project Number 15CVCP038Q
OER Project Number 14EHAN551Q
DEP Project Number 08DEPTECH280Q

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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 and Demolition
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
COC	Certificate of Completion
CQAP	Construction Quality Assurance Plan
CSOP	Contractors Site Operation Plan
DCR	Declaration of Covenants and Restrictions
ECs/ICs	Engineering Controls and Institutional Controls
ELAP	Environmental Laboratory Accreditation Program
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations Emergency Response
IRM	Interim Remedial Measure
MNA	Monitored Natural Attenuation
NOC	Notice of Completion
NYS DEC	New York State Department of Environmental Conservation
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York State Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
NYC VCP	New York City Voluntary Cleanup Program
NYCRR	New York Codes Rules and Regulations
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
PCBs	Polychlorinated Biphenyls
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
SSDS	Sub-Slab Depressurization System
SVOC	Semi-Volatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
USGS	United States Geological Survey
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VOC	Volatile Organic Compound

CERTIFICATION

I, James P. Cinelli, P.E., BCEE, am currently a registered professional engineer licensed by the State of New York. I performed professional engineering services and had primary direct responsibility for designing the remedial program for the 178-02 Hillside Avenue (178-02 Hillside Avenue 178-20 Hillside Avenue, and 88-16 179th Street) site, site number 15CVCP038Q. I certify to the following:

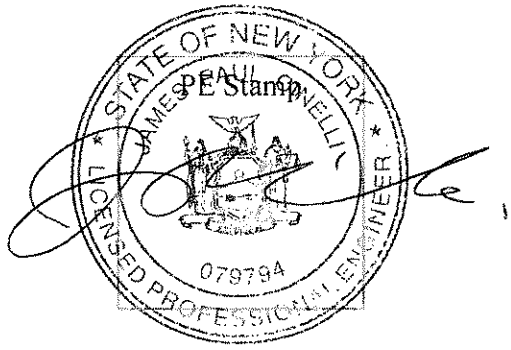
- I have reviewed this document and the Stipulation List, to which my signature and seal are affixed.
- Engineering Controls developed for this remedial action were designed by me or a person under my direct supervision and designed to achieve the goals established in this Remedial Action Work Plan for this site.
- The Engineering Controls to be constructed during this remedial action are accurately reflected in the text and drawings of the Remedial Action Work Plan and are of sufficient detail to enable proper construction.
- 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.

James P. Cinelli, P.E., BCEE
Name

079794-1
PE License Number

Signature

10/23/2015
Date



PE Stamp

CERTIFICATION

I, Andrew R. Fetterman, P.G., am a qualified Environmental Professional. I will have primary direct responsibility for implementation of the remedial program for the 178-02 Hillside Avenue (178-02 Hillside Avenue 178-20 Hillside Avenue, and 88-16 179th Street) site, site number 15CVCP038Q. I certify to the following:

- 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.

Andrew R. Fetterman, P.G.

QEP Name

QEP Signature

10/23/2015

Date

EXECUTIVE SUMMARY

Piermont Properties is working with the NYC Office of Environmental Remediation (OER) in the New York City Voluntary Cleanup Program to investigate and remediate a 35,000-square foot site located at 78-02 Hillside Avenue, 178-20 Hillside Avenue, and 88-16 179th Street in Queens, New York. 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 with applicable laws and regulations.

Site Location and Current Usage

The Site is located at 178-02 Hillside Avenue in the Jamaica section in Queens, New York and is identified as Block 9913 and Lot 25 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 35,000-square feet and is bounded by Hillside Avenue to the north, residential properties to the south, 179th Street to the east, and 178th Street to the west. A map of the site boundary is shown in Figure 2. Currently, the Site is used for parking and contains one small kiosk for the lot attendant.

Summary of Redevelopment Plan

The proposed future use of the Site will consist of mixed residential and commercial use. Layout plans and architect drawings of the proposed site development are provided in Appendix 1 and the proposed footprint of the basement is depicted on Figure 4. The current zoning designation is R7A/R4-1 with a C2-4 overlay (General Residential District with a Commercial Overlay). The proposed use is consistent with existing zoning for the property.

The redevelopment is proposed to be a single 8-story mixed-use building with a basement. The basement is proposed to include offices and commercial spaces, a mechanical area, storage, laundry, and a gym. The cellar will occupy the majority of the Site footprint with the exception of an approximately 4,926 square foot area along the northern and southern exteriors of the site. The first floor is proposed to include retail space and residential lobbies, a community facility lobby, and parking. The first floor will cover the entire Site footprint with the exception of a

paved at-grade outdoor area at the northwest side of the site and paved walkways. The second floor is anticipated to be parking. The remaining floors are anticipated to be residential. The basement slab of the building will require excavation to 15 feet below grade. Additional excavation will occur in an approximately 3,460 square foot area outside the cellar footprint at the north side of the Site to approximately 15 feet below grade for the overcut excavation at 1:1 slope. The remaining area outside the cellar footprint at the south side of the Site will be unexcavated. It is estimated that excavation of 451,110 cubic feet (16,707.7 cubic yards) of soil will be required for development of the full basement. No excavation below the water table is anticipated. The proposed basement footprint is depicted in Figure 4.

The northern facing extent of the building's basement (located along Hillside Avenue) will be set back 20 feet from the property line on the northwestern corner of the building, sloping southeastward to the building's northeastern corner, where the building is set back 15.5 feet from the property line. A 25 foot long section of the western facing extent of the building's basement (located along 178th Street) will be set back 13 feet from the property line. A 22 foot long section of the eastern facing extent of the building's basement (located along 179th Street) will be set back 15 feet from the property line. The basement is set back 7 to 7.5 feet along the southern property boundary; however, there is no setback planned for the at-grade composite cover. There are no setbacks from property boundaries planned for the remaining portions of the site building. These setbacks are in accordance zoning regulations, and the space between the building and the curb will be landscaped per district requirements.

Shallow soil at the site containing elevated PAHs and metals will be excavated and disposed off-site during site redevelopment.

Summary of Surrounding Property

The area surrounding the Site is mixed residential and commercial in use. Specifically, adjoining properties to the north across Hillside Avenue and west across 178th Street consist of mixed-use residential and commercial buildings, properties to the east across 179th Street include a Burger King and a residential building, and properties to the south are residences. According to OER's SPEED database, there are no hospitals located within 500 feet of the Site. Public School 95 is

located approximately 250 feet southeast of the Site and Bell Park Child Day Care Center is located approximately 250 feet northeast of the Site.

Summary of Past Site Uses and Areas of Concern

A two-story commercial building was previously located on the northeast portion of the Site. According to historical information, this building was demolished between 2008 and 2009. The remainder of the Site has been a parking lot as far back as the 1950s, when historical information identified in the Phase I ESA report identified smaller structures that appeared to have been residences.

The property is identified on the E-Designation database. Field activities at the subject site have been performed to obtain E Designation Program approval as per the requirements of the NYCDEP. Additionally, previous investigations identified one area of concern, as follows:

1. During a geophysical survey conducted in 2008 a magnetic anomaly was identified in the northwestern portion of the property and based upon its description, appears to be consistent with the configuration of a small underground tank which upon further investigation was determined to not exist.

Summary of Work Performed under the Remedial Investigation

Piermont Properties and others performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 14 soil borings across the entire project Site, and collected 26 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed 2 groundwater monitoring probes at the Site and collected 2 groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed 6 soil vapor probes at the Site and collected 7 soil vapor samples for chemical analysis (6 samples and 1 duplicate sample); and
5. Advanced test pits to investigate the potential presence of an underground tank.

Summary of Findings of Remedial Investigation

The RI performed at the subject site included the collection of soil samples, groundwater samples and soil vapor samples, and investigation of a subsurface anomaly. A Site Diagram depicting sampling locations is provided as Figure 3.

1. Elevation of the property ranges from 66 to 68 feet.
2. Depth to groundwater is approximately 74 feet bgs at the Site.
3. Based on local topography, groundwater is believed to flow from north to south beneath the Site.
4. Depth to bedrock at the site is unknown but estimated to be greater than 80 feet bgs based on the Subsurface Geology and Paleography of Queens County, Long Island, New York, U.S. Geological Survey Water-Resources Investigations 77-34 Open-file Report (February 1978).
5. Stratigraphy at the site, from the surface down, consists of 17 feet of sandy loam with pebble clasts including fill material observed at some locations at a depth of 7 feet bgs. The site is underlain by unconsolidated glacial drift of Upper Pleistocene age to an undetermined depth. The deepest soil boing was installed to a depth of approximately 80 feet bgs utilizing direct push technology. It should also be noted that no substantial clay strata were encountered during the soil boring and temporary groundwater monitoring probe installation activities.
6. Soil/fill samples collected were compared to New York State Department of Environmental Conservation (NYSDEC) Part 375 Table 375-6.8 Unrestricted Use and Restricted Residential Use Soil Cleanup Objectives (SCOs). No VOCs, pesticides, or PCBs were detected above Unrestricted Use SCOs. No SVOCs were detected above respective Unrestricted Use SCOs within the deep soil samples collected.

   Several SVOCs, specifically PAHs, were detected in shallow soil samples (surface to 2 feet bgs) at concentrations exceeding their respective Restricted Residential SCOs including benzo(a)anthracene (1,800 micrograms per kilogram (µg/Kg)), benzo(a)pyrene (1,900 µg/Kg), and benzo(b)fluoranthene (2,000 µg/Kg). Several metals were detected in

the soil samples, but none were detected at concentrations above Restricted Residential SCOs. Lead was detected in four shallow soil samples at concentration above the Unrestricted Use SCOs.

7. Laboratory analytical results from groundwater samples were compared to the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (GQS) for Class GA (drinking water). The analytical results indicated that no VOCs were detected above TOGs GQS in the sample collected from GP-1. Chloroform was detected in GP-4 but at a concentration below its respective groundwater quality standard. No concentrations of SVOCs, pesticides, or PCBs were detected in groundwater exceeding their respective laboratory reporting limits. Several metals (aluminum, antimony, arsenic, cadmium, chromium, iron, magnesium, nickel, and zinc) were detected at elevated concentrations. It should be noted that these sample results represent total metals analysis since the samples were not filtered prior to preservation, and therefore were likely subject to significant turbidity. Since the groundwater samples were not filtered, elevated total-metal concentrations are not likely representative of site groundwater quality conditions.

8. Soil vapor samples collected during the RI were compared to the New York State Department of Health (NYSDOH) Final Guidance on Soil Vapor Intrusion (October 2006) Matrix 1 and Matrix 2 values. Laboratory analytical results indicated petroleum-related VOCs and chlorinated VOCs were present at low concentrations. Petroleum-related VOCs (BTEX) were detected at a maximum concentration of 173 micrograms per cubic meter ($\mu g/m^3$). Overall the highest reported concentration was for trichlorofluoromethane (maximum of 580 $\mu g/m^3$). 1,1,1-trichloethane (1,1,1-TCA) was detected in all soil vapor samples at a maximum concentration of 4.6 $\mu g/m^3$. Carbon tetrachloride was detected in one soil vapor sample at 1.1 $\mu g/m^3$. Tetrachloroethylene (PCE) was detected in all soil vapor samples at a maximum concentration of 17 $\mu g/m^3$. Trichloroethylene (TCE) was detected in three of the soil vapor samples at a maximum concentration of 1.2 $\mu g/m^3$. The 1,1,1-TCA, carbon tetrachloride, PCE, and TCE concentrations were all below the monitoring level ranges established within the NYSDOH Final Guidance on Soil Vapor Intrusion.

Summary of the Remedial Action

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 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 dictated by disposal facility(s).
6. Excavation and removal of soil/fill exceeding Unrestricted Use (Track 1) SCOs. The entire footprint of the new building (86 % of property) will be excavated to approximately 15 feet below ground surface (bgs), with the exception of four elevator wells, which will be excavated to approximately 17.5 feet bgs, as depicted on Figure 4. In addition, soils in the location of the proposed overcut excavation at the northern portion of the site will be excavated at a 1:1 slope beginning at grade at the lot boundaries and terminating at the cellar boundary at 15 feet bgs. Additionally, a portion of one hot spot location, SB-3, located along the southwestern portion of the property which will not be excavated as part of development, will be excavated to remove impacted soils from the 0-2 feet bgs interval. The remaining hot spots identified during the soil boring investigation will be excavated as part of development. Approximately 29,100 tons of soil (including hotspots) will be excavated from the site and will be properly disposed at an appropriately licensed or permitted facility.

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 all USTs that are encountered during soil/fill removal actions.
10. Registration of tanks and reporting of any petroleum spills associated with USTs and appropriate closure of these petroleum spills in compliance with applicable local, State and Federal laws and regulations.
11. Transportation and off-Site disposal of all soil/fill material at licensed or 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.
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 acquisition of required permits and attainment of 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, and 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:

16. As part of development, construction of an engineered composite cover consisting of a 5-inch thick concrete building slab in the basement and at grade with an 6-inch clean granular sub-

base and 30-inch mat foundation beneath all building areas to prevent human exposure to residual soil/fill remaining under the Site.

17. As part of development, installation of a vapor barrier system consisting of vapor barrier beneath the building slab and outside of sub-grade foundation sidewalls to mitigate soil vapor migration into the building. The vapor barrier system will consist of a Yellow Guard 20-mil vapor barrier below the slab throughout the full building area and a Yellow Guard 20-mil vapor barrier outside all sub-grade foundation sidewalls. All welds, seams and penetrations will be properly sealed to prevent preferential pathways for vapor migration.
18. As part of new development, construction and operation of a grade-level and second-floor parking garage with high volume air exchange in conformance with NYC Building Code.
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; and
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 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 NYC Office of Environmental Remediation (OER) provides governmental oversight for the cleanup of contaminated property in NYC. This Remedial Action Work Plan ("cleanup plan") describes the findings of prior environmental studies, shows the location of identified 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.

Project Information:

- Site Name: 178-02 Hillside Avenue
- Site Address: 178-02 Hillside Avenue 178-20 Hillside Avenue, and 88-16 179th Street, Jamaica, New York 11432
- NYC Voluntary Cleanup Program Project Number: 15CVCP038Q

Project Contacts:

- OER Project Manager: Shana Holberton, 212-788-8841
- Site Project Manager: Andrew R. Fetterman, 610-375-9301
- Site Safety Officer: Andrew R. Fetterman, 610-375-9301
- Online Document Repository: http://www.nyc.gov/html/oer/html/repository/RQueens.shtml

Remedial Investigation and Cleanup Plan: Under the oversight of the NYC OER, a thorough 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 to 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 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.

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 RAWP are in compliance with applicable safety requirements of the United States Occupational Safety and Health Administration (OSHA). This RAWP includes many protective elements including those discussed below.

Site Safety Coordinator: This project has a designated Site safety coordinator to implement the CHASP. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator is identified at the beginning of this Community Protection Statement.

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 applicable NYC noise control standards. If you observe problems in these areas, please contact the onsite Project Manager or NYC Office of Environmental Remediation Project Manager listed on the first page of this Community Protection Statement document.

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.

Stormwater Management: To limit the potential for soil erosion and discharge, this cleanup plan has provisions for stormwater management. The main elements of the stormwater 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 will conform to requirements of the NYC Department of Buildings.

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 and provides project contact names and numbers, and a link to the document repository where 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 or the NYC Office of Environmental Remediation Project Manager listed on the first page of this Community Protection Statement document, 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, odor 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 applicable 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 the 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 the Remedial Action Report) that will be available for public review online. A link to the online document repository and the public library with Internet access nearest the Site are listed on the first page of this Community Protection Statement document

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 defined either in the property's deed or established through a city environmental designation registered with the Department of Buildings. 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 Project Background

Piermont Properties is working with the NYC Office of Environmental Remediation (OER) in the New York City Voluntary Cleanup Program and the "E" Designation Program to investigate and remediate a property located at 178-02 Hillside Avenue in the Jamaica 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, and complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

1.1 Site Location and Background

The Site is located at 178-02 Hillside Avenue, 178-20 Hillside Avenue in the Jamaica section in Queens, New York and is identified as Block 9913 and Lot 25 on the New York City Tax Map. Figure 1 shows the Site location. The Site is 35,000-square feet and is bounded by Hillside Avenue to the north, residential properties to the south, 179th Street to the east, and 178th Street to the west. A map of the site boundary is shown in Figure 2. Currently, the Site is used for parking and contains one small kiosk for the parking lot attendant.

1.2 Redevelopment Plan

The proposed future use of the Site will consist of mixed residential and commercial use. Layout plans and architect drawings of the proposed site development are provided in Appendix 1 and the proposed footprint of the basement is depicted on Figure 4. The current zoning designation is R7A/R4-1 with a C2-4 overlay (General Residential District with a Commercial Overlay). The proposed use is consistent with existing zoning for the property.

The redevelopment is proposed to be a single 8-story mixed-use building with a basement. The basement is proposed to include offices and commercial spaces, a mechanical area, storage, laundry, and a gym. The cellar will occupy the majority of the Site footprint with the exception

of an approximately 4,926 square foot area along the northern and southern exteriors of the site. The first floor is proposed to include retail space and residential lobbies, a community facility lobby, and parking. The first floor will cover the entire Site footprint with the exception of a paved at-grade outdoor area at the northwest side of the site and paved walkways. The second floor is anticipated to be parking. The remaining floors are anticipated to be residential. The basement slab of the building will require excavation to 15 feet below grade. Additional excavation will occur in an approximately 3,460 square foot area outside the cellar footprint at the north side of the Site to approximately 15 feet below grade for the overcut excavation at 1:1 slope. The remaining area outside the cellar footprint at the south side of the Site will be unexcavated. It is estimated that excavation of 451,110 cubic feet (16,707.7 cubic yards)of soil will be required for development of the full basement. No excavation below the water table is anticipated. The proposed basement footprint is depicted in Figure 4.

The northern facing extent of the building's basement (located along Hillside Avenue) will be set back 20 feet from the property line on the northwestern corner of the building, sloping southeastward to the building's northeastern corner, where the building is set back 15.5 feet from the property line. A 25 foot long section of the western facing extent of the building's basement (located along 178th Street) will be set back 13 feet from the property line. A 22 foot long section of the eastern facing extent of the building's basement (located along 179th Street) will be set back 15 feet from the property line. The basement is set back 7 to 7.5 feet along the southern property boundary; however, there is no setback planned for the at-grade composite cover. There are no setbacks from property boundaries planned for the remaining portions of the site building. These setbacks are in accordance with zoning regulations, and the space between the building and the curb will be landscaped per district requirements.

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

1.3 Description of Surrounding Property

The area surrounding the Site is mixed residential and commercial in use. Specifically, adjoining properties to the north across Hillside Avenue and west across 178th Street consist of mixed-use residential and commercial buildings, properties to the east across 179th Street include a Burger

King and a residential building, and properties to the south are residences. According to OER's SPEED database, there are no hospitals located within 500 feet of the Site. Public School 95 is located approximately 250 feet southeast of the Site and Bell Park Child Day Care Center is located approximately 250 feet northeast of the Site. Figure 2 shows the surrounding land usage.

1.4 Summary of Past Site Uses and Areas of Concern

A two-story commercial building was previously located on the northeast portion of the Site. According to historical information, this building was demolished between 2008 and 2009. The remainder of the Site has been a parking lot as early as during the 1950s, when historical information identified in the Phase I ESA report identified smaller structures that appeared to have been residences.

The property is identified on the E-Designation database. Field activities at the subject site have been performed to obtain E Designation Program approval as per the requirements of the NYCDEP. Additionally, previous investigations identified one area of concern, as follows:

During a geophysical survey conducted in 2008 a magnetic anomaly was identified in the northwestern portion of the property and based upon its description, appeared to be consistent with the configuration of a small underground tank. Liberty Environmental subsequently investigated this area by installing test pits and found no underground tanks.

1.5 Summary of Work Performed under the Remedial Investigation

Piermont Properties and others performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 14 soil borings across the entire project Site, and collected 26 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed 2 groundwater probes at the Site and collected 2 groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed 6 soil vapor probes at the Site and collected 7 soil vapor samples for chemical analysis (6 samples and 1 duplicate sample); and

5. Advanced test pits to investigate the potential presence of an underground tank.

1.6 Summary of Findings of Remedial Investigation

A remedial investigation was performed and the results are documented in a companion document called "Remedial Investigation Report, 178-02 Hillside Avenue", dated February 2015 (RIR). The RI performed at the subject site included the collection of soil samples, groundwater samples and soil vapor samples, and investigation of a subsurface anomaly. A Site Diagram indicating sampling locations is provided as Figure 3.

1. Elevation of the property ranges from 66 to 68 feet.
2. Depth to groundwater is approximately 74 feet at the Site.
3. Based on local topography groundwater is believed to flow from north to south beneath the Site.
4. Depth to bedrock at the site is unknown but estimated to be greater than 80 feet below ground surface based on the Subsurface Geology and Paleography of Queens County, Long Island, New York, U.S. Geological Survey Water-Resources Investigations 77-34 Open-file Report (February 1978).
5. The stratigraphy of the site, from the surface down, consists of 17 feet of sandy loam with pebble clasts with fill material observed at some locations to depths of up to 7 feet. The site is underlain by unconsolidated glacial drift of Upper Pleistocene age to an undetermined depth. The deepest soil boing was installed to a depth of approximately 80 feet below ground surface utilizing direct push technology. It should also be noted that no substantial clay strata were encountered during the soil boring and groundwater monitoring well installation activities.
6. Soil/fill samples collected were compared to New York State Department of Environmental Conservation (NYSDEC) Part 375 Table 375-6.8 Unrestricted Use and Restricted Residential Use Soil Cleanup Objectives (SCOs). No VOCs, pesticides, or PCBs were detected. No SVOCs were detected within the deep soil samples collected. Several SVOCs, specifically PAHs, were detected in shallow soil samples at concentrations exceeding their respective SCOs. The SVOCs

benzo(a)anthracene (1,800 micrograms per kilogram (µg/Kg), benzo(a)pyrene (1,900 µg/Kg), and benzo(b)fluoranthene (2,000 µg/Kg) exceeded Restricted Residential SCOs in SP-3 collected from zero to two feet bgs. Several metals were detected in the soil samples, but none were detected at concentrations above Restricted Residential SCOs. Lead was detected in three shallow soil samples at concentration above the Unrestricted Use SCOs.

7. Groundwater samples collected were compared to the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (GQS) for Class GA (drinking water). The samples revealed that VOCs were non-detect in the sample collected from GP-1 and that chloroform was present in GP-4 but at a concentration below its respective groundwater quality standards. No concentrations of SVOCs, pesticides, or PCBs were detected in groundwater exceeding their respective laboratory reporting limits. Several metals (aluminum, antimony, arsenic, cadmium, chromium, iron, magnesium, nickel, and zinc) were detected at elevated concentrations. It should be noted that the unfiltered groundwater samples were analyzed for total metals and not collected from properly installed permanent monitoring wells. As such, the samples were likely turbid, and the elevated total metals concentrations are not truly representative of site groundwater quality. This is further supported by the fact that metal concentrations detected in soils did not exceed applicable Residential Use SCOs. Since no elevated metals concentrations were detected in soil samples collected as part of the RI, dissolved metal exceedances in groundwater are not anticipated. It should also be noted that the total metals concentrations detected in site groundwater are likely the result of naturally occurring metals in subsurface soils and rock. Soil vapor samples collected during the RI were compared to the New York State Department of Health (NYSDOH) Final Guidance on Soil Vapor Intrusion (October 2006) Matrix 1 and Matrix 2 values. Samples indicated petroleum-related VOCs and chlorinated VOCs were present at low concentrations. Petroleum-related VOCs (BTEX) were detected at a maximum concentration of 173 micrograms per cubic meter (µg/m^3). Overall, the highest reported concentration for any VOC was for trichlorofluoromethane (maximum concentration of 580 µg/m^3). 1,1,1-trichloethane (1,1,1-TCA) was detected in all soil

vapor samples at a maximum concentration of 4.6 μg/m^3 . Carbon tetrachloride was detected in one soil vapor sample at 1.1 μg/m^3. Tetrachloroethylene (PCE) was detected in all soil vapor samples at a maximum concentration of 17 μg/m^3. Trichloroethylene (TCE) was detected in three of the soil vapor samples at a maximum concentration of 1.2 μg/m^3. The 1,1,1-TCA, carbon tetrachloride, PCE, and TCE concentrations were all below the monitoring level ranges established within the NYSDOH Final Guidance on Soil Vapor Intrusion.

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:

Soil

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

Groundwater

- Groundwater is 74 feet deep and will not be encountered during redevelopment.

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 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). Remedial alternatives are then developed and evaluated 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.

As required, a Track 1 Unrestricted Use scenario is evaluated for the remedial action. The following is a detailed description of the alternatives analyzed to address impacted media at the Site:

Alternative 1:

- Selection of NYSDEC 6NYCRR Part 375 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. Based on the results of the Remedial Investigation, it is expected that this alternative would be achieved by excavating soils to a minimum

depth of 2 feet bgs. The excavation area would encompass the majority of the western and southern portions of the Site to remove all suspect areas of historic fill material. Portions of the site that will not be excavated encompass 2,655 square feet, includinga 1,024 square foot section along the north-northwestern property boundary and a 1,631 square foot section along the southern property boundary. As part of development, soil beneath the remaining portions of the site will be removed to a depth of approximately 15 feet bgs (building footprint), 17.5 feet bgs (elevator wells), and between 0 and 15 feet bgs (1:1 slope in a proposed overcut excavation area at the northern portion of the Site). Additional excavation will need to occur in the areas of SP-3, which is partially located in an area that will not be excavated for development purposes, in order to achieve Track 1 Unrestricted Use SCOs. This location would need to be excavated to a minimum depth of 2 feet bgs. If soil/fill containing analytes at concentrations above Unrestricted Use SCOs is still present at the base of the excavation and in unexcavated areas after removal of all soil required for construction of the new building's cellar level is complete, additional excavation would be performed to ensure complete removal of soil/ fill that does not meet Track 1 Unrestricted Use SCOs.

- No Engineering or Institutional Controls are required for a Track 1 cleanup. As part of development, a vapor barrier would be installed to prevent potential exposures from soil vapor in the future.

Alternative 2:

- 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 end point sampling. As part of development, soil beneath most of the site will be removed to a depth of approximately 15 feet bgs (building footprint), 17.5 feet bgs (elevator wells), and between 0 and 15 feet bgs (1:1 slope in a proposed overcut excavation area at the northern portion of the Site). Portions of the site that will not be excavated encompass 2,655 square feet, including a 1,024 square foot section along the north-northwestern property boundary and a 1,631 square foot section along the southern property boundary.

. If soil/fill containing analytes at concentrations above Track 4 Site-specific SCOs is still present at the base of the excavation, additional excavation would be performed to meet Track 4 Site-Specific SCOs.

- Placement of a composite cover system (i.e. concrete building footprint and asphalt paving over the entire Site to prevent exposure to remaining soil/fill.

- Installation of a waterproofing/vapor barrier system beneath the building slab and along foundation side walls to prevent potential exposures from soil vapor.

- Establishment of use restrictions including prohibitions on the use of groundwater from the Site; prohibitions of restricted 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.

- The property will continue to be registered with an E-Designation at the NYC Buildings Department.

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 the environment by removing all soil/fill exceeding Track 1 Unrestricted Use SCO's and groundwater protection standards, thus eliminating potential for direct contact with contaminated soil/fill once construction is complete and eliminating the risk of contaminants leaching into groundwater.

Alternative 2 would achieve comparable protections of human health and the environment by excavation and removal of most of the historic fill at the Site and by ensuring that remaining soil/fill on-site meets Track 4 Site-Specific SCO's, as well as by placement of Institutional and Engineering Controls, including a composite cover system. The composite cover system would prevent direct contact with any remaining on-site soil/fill. Implementing Institutional Controls including a Site Management Plan and continuing the E-designation instituting a deed notice on the property would ensure that the composite cover system remains intact and protective of public health. Establishment of Track 4 Site-Specific SCO's 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, 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 installing a vapor barrier below the building slab and outside foundations walls below grade.

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 SCO's and Protection of Groundwater SCO's. Compliance with SCGs for soil vapor would also be achieved by installing a waterproofing/vapor barrier system below the basement slab of the new building and

continuing the vapor barrier outside of subgrade foundation walls, as part of development. In addition, the first and second floors of the building will contain a parking garage with high volume air exchange that conforms to the NYC Building Code.

Alternative 2 would achieve compliance with the remedial goals, chemical-specific SCG's and RAOs for soil through removal of soil to meet Track 4 Site-Specific SCO's. Compliance with SCG's for soil vapor would also be achieved by installing a waterproofing/vapor barrier system below the basement slab of the new building and continuing the vapor barrier outside of subgrade foundation walls. A Site Management Plan would ensure that these controls remained protective for the long term. In addition, the first and second floors of the building will contain a parking garage with high volume air exchange that conforms to the NYC Building Code.

Health and safety measures contained in the CHASP and Community Air Monitoring Plan (CAMP) will 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 short term effects during the remedial action on public health and the environment during implementation of the remedial action, including protection of the community, protection of onsite workers and environmental impacts. Both Alternative 1 and 2 have similar short-term effectiveness during their implementation, 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 since excavation of greater amounts of historical fill material would take place. However, focused attention to means and methods during a Track 1 removal action, including community air monitoring and appropriate truck routing, would minimize 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. Truck traffic will be routed on the most direct course using major thoroughfares where possible and flag persons will be used to protect pedestrians at Site entrances and exits.

The potential adverse impact to the community, workers and the environment for both alternatives would be minimized through implementation of control plans including a Construction Health and Safety Plan, a 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 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 Construction Health and Safety Plan (CHASP) would provide protection from on-Site contaminants by using 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 SCO's. Removal of on-Site contaminant sources will also prevent future groundwater contamination.

Alternative 2 would provide long-term effectiveness by removing most on-Site contamination and attaining Track 4 Site-Specific SCOs; installing a composite cover system across the Site; maintaining use restrictions; establishing an SMP to ensure long-term management of ICs and ECs; and maintaining registration as an E-designated property to memorialize these controls 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 restrictions continue to be in place and are functioning as they were intended, assuring that protections designed into the remedy continue to provide the instituting a restrictive declaration required level of protection.

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 will permanently eliminate the toxicity, mobility, and volume of contaminants from on-Site soil by removing all soil in excess of Track 1 Unrestricted Use SCO's.

Alternative 2 would remove most of the historic fill at the Site, and all remaining on-Site soil/fill beneath the new building will meet Track 4 Site-Specific SCO's.

Alternative 1 would remove a greater total mass of contaminants from the Site. The removal of soil to approximately 15 feet bgs for the new development in both scenarios would lessen the difference in contaminant mass removal 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 Alternatives 1 and 2 are readily available and have been proven to be effective in remediating the contaminants present on the Site. They use standard equipment and technologies that are well established in the industry. The reliability of each remedy is also high. There are no special 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 to extend to a depth of up to 2 feet bgs across the majority of the western portion of the Site during the RI, and the new building requires excavation of portions of the Site to a depth of approximately 15 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. Additional costs would include installation of additional shoring/underpinning, disposal of additional soil, and import of clean soil for backfill. The short term costs of Alternative 1 are likely higher based on the greater excavation quantities of impacted soil. However, long-term costs for Alternative 2 are likely higher than Alternative 1 based on implementation of a Site Management Plan as part of Alternative 2.

The remedial plan would couple the remedial action with the redevelopment of the Site, lowering total costs. The remedial plan will also consider the selection of the most appropriate disposal facilities to reduce transportation and disposal costs during cleanup and 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.
This RAWP will be subject to a public review under the NYC VCP and will provide the opportunity for detailed public input on the remedial alternatives and the selected remedy. This public comment will be considered by OER prior to approval of this plan. The Citizen Participation Plan for the project is provided in Appendix 2. Observations here will be supplemented by public comment received on the RAWP. Under both alternatives, the overall goals of the remedial program, to protect public health and the environment and eliminate potential contaminant exposures, have been broadly supported by citizens in NYC communities.

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.

The current, intended, and reasonably anticipated future land use of the Site and its surroundings are compatible with the selected remedy of soil remediation. The proposed future use of the Site includes a single 8-story mixed-use building with a basement. Following remediation, the Site will meet either Track 1 Unrestricted Use or Track 4 Site-Specific SCOs, both of which are protective of public health and the environment for its planned residential use. The proposed use is compliant with the property's zoning and is consistent with recent development patterns. The area surrounding the site is urban and consists of predominantly mixed residential and commercial buildings in zoning districts designated for commercial and residential uses. The development would remediate a vacant contaminated lot and provide a modern mixed-use building. The proposed development would clean up the property and make it safer, create new employment opportunities, living space and associated societal benefits to the community, and other economic benefits from land revitalization.

Temporary short-term project impacts are being mitigated through site management controls and truck traffic controls during remediation activities. Following remediation, the Site will meet either Track 1 Unrestricted Use SCOs or Track 4 Site-Specific SCOs, both of which are protective of public health and the environmental for its planned use.

The Site is not in close proximity to important cultural resources, including federal or state historic or heritage sites or Native American religious sites, natural resources, waterways, wildlife refuges, wetlands, or critical habitats of endangered or threatened species. The Site is located in an urban area and not in proximity to fish or wildlife and neither alternative would result in any potential exposure pathways of contaminant migration affecting fish or wildlife. The remedial action is also protective of groundwater natural resources. The Site does not lie in a Federal Emergency Management Agency (FEMA)-designated flood plain. Both alternatives are equally protective of natural resources and cultural resources. Improvements in the current

environmental condition of the property achieved by both alternatives considered in this plan are consistent with the City's goals for cleanup of contaminated land.

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.

While Alternative 2 would potentially result in lower energy usage based on slightly 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 for either alternative 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. The New York City Clean Soil Bank program is available for reuse of any clean native soils under either alternative. A complete list of green remedial activities considered as part of the NYC VCP is included in a Sustainability Statement.

4.0 Remedial Action

4.1 Summary of Preferred Remedial Action

The preferred remedial action alternative is Alternative 1, the Track 1 remedial action. The preferred remedial action achieves protection of public health and the environment for the intended use of the property. The preferred remedial action will achieve all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action 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:

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 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 dictated by disposal facility(s).
6. Excavation and removal of soil/fill exceeding Unrestricted Use (Track 1) SCOs. The entire footprint of the new building (86% of property) will be excavated to approximately 15 feet bgs, with the exception of four elevator wells, which will be excavated to approximately 17.5 feet bgs. In addition, soils in the location of the proposed overcut excavation at the northern portion of the site will be excavated at a 1:1 slope beginning at grade at the lot boundaries and terminating at the cellar boundary at 15 feet bgs. Additionally, a portion of one hot spot location, SB-3, located along the southwestern portion of the property which will not be excavated as part of development, will be excavated to remove impacted soils from the 0-2 feet bgs. Approximately 29,100 tons of soil (including hotspots) will be excavated from the site and will be properly disposed at an appropriately licensed or permitted facility.

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 all UST's that are encountered during soil/fill removal actions.
10. Registration of tanks and reporting of any petroleum spills associated with UST's and appropriate closure of these petroleum spills in compliance with applicable local, State and Federal laws and regulations.
11. Transportation and off-Site disposal of all soil/fill material at licensed or 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.
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 acquisition of required permits and attainment of 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, and 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:

1. As part of development, construction of an engineered composite cover consisting of a 5-inch thick concrete building slab in the basement and at grade with an 6-inch clean granular sub-

base and 30-inch mat foundation beneath all building areas to prevent human exposure to residual soil/fill remaining under the Site.

2. As part of development, installation of a vapor barrier system consisting of vapor barrier beneath the building slab and outside of sub-grade foundation sidewalls to mitigate soil vapor migration into the building. The vapor barrier system will consist of a Yellow Guard 20-mil vapor barrier below the slab throughout the full building area and a Yellow Guard 20-mil vapor barrier outside all sub-grade foundation sidewalls. All welds, seams and penetrations will be properly sealed to prevent preferential pathways for vapor migration.
3. As part of new development, construction and operation of a grade-level and second-floor parking garage with high volume air exchange in conformance with NYC Building Code.
4. 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; and
5. 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 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 Objectives and Soil/ Fill Management

Track 1 SCOs are proposed for this project and SCO's are defined in 6 NYCRR Part 375, Table 6.8(a) Track 1 Unrestricted Use. If Track 1 SCO's are not achieved, the Site Specific (Track 4) SCOs for this Site will include:

Contaminant	**Site-Specific SCO's**

Total SVOCs	100 ppm
Lead	800 ppm
Arsenic	23 ppm

Soil/Fill Excavation and Removal

The proposed development will require excavation of 15 feet for a new basement, 17.5 feet for four elevator wells, and between 0 and 15 feet for a overcut excavation at a 1:1 slope. The basement will be capped with a concrete slab. Remaining undeveloped portions of the site will be paved with concrete consisting of the at-grade building slab. The location of planned excavations is shown in Figure 4. The total quantity of soil/fill expected to be excavated and disposed off-Site is 29,100 tons. For each disposal facility to be used in the remedial action, a letter from the developer/QEP to the receiving facility requesting approval for disposal and a letter back to the developer/QEP providing approval for disposal will be submitted to OER prior to any transport and disposal of soil at a facility.

Disposal facilities will be reported to OER when they are identified and prior to the start of remedial action.

End-point Sampling

End-point samples will be analyzed for compounds and elements as described below utilizing the following methodology:

- 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 8081/8082.

New York State ELAP certified labs will be used for all end-point sample analyses. Labs performing end-point sample analyses will be reported in the RAR. The RAR will provide a tabular and map summary of all end-point sample results and will include all data including non-detects and applicable standards and/or guidance values.

Confirmation End-point Sampling

Removal actions for development purposes under this plan will be performed in conjunction with confirmation end-point soil sampling. Five confirmation samples will be collected from the base of the excavation at locations to be determined by OER. If Track 1 Unrestricted Use SCOs are pursued, samples will be analyzed for VOCs, SVOCs, pesticides, PCBs and metals according to analytical methods described above. To evaluate attainment of Track 4 Site-specific SCOs, analytes will include those for which SCOs have been developed, including SVOCs, lead and arsenic according to analytical methods described above.

Hotspot End-point Sampling

End-point samples will be collected from the sidewalls and base of excavation at two hotspot locations identified in the Remedial Investigation, according to the procedure listed below. As previously discussed, excavation for the cellar and the overcut excavation will remove the remaining soil which is known to exceed Track 1 Unrestricted Use SCOs. One hotspot, SB-3 (0-2') for SVOCs, is present outside of the excavation area at the south side of the Site. End-point samples will be analyzed for SCO trigger parameters. Proposed end-point sample locations are depicted on Figure 5.

For any hotspots identified during this remedial program, including any hotspots identified during the remedial action, hotspot removal actions will be performed to ensure that hotspots are fully removed and end-point samples will be collected at the following frequency:

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.

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 object of QA/QC procedures is to provide performance information with regard to accuracy, precision, sensitivity, representation, completeness, and comparability associated with the sampling and analysis and to achieve acceptance of the analytical protocol. Field QA/QC procedures will be used to document that samples are representative of actual conditions at the Site and identify possible cross-contamination from field activities or sample transit.

Field QA/QC will include the following procedures:

- Calibration of field equipment;
- Use of dedicated and/or disposal field sampling materials;
- Proper sample handling and preservation and,
- Completion of report logs.

Collected samples will be placed into laboratory-supplied bottleware, preserved as necessary according to analytical methods and submitted under chain-of-custody documentation to the analytical laboratory. Samples will be placed in coolers with ice to maintain a temperature of 4° C and shipped overnight or delivered directly to the analytical laboratory by courier service.

Laboratory QA/QC procedures and analyses will be used to demonstrate whether analytical results have been biased either by interfering compounds in the sample matrix, or by laboratory techniques that may have introduced systematic or random errors to the analytical process. QA/QC samples (field and trip blanks, duplicates, etc.) will be collected and analyzed at an ELAP-certified laboratory. QA/QC procedures completed for this investigation and will be documented in a final report for the property.

Import of Soils

Import of soils onto the property will be performed in conformance with the Soil/Materials Management Plan in Appendix 4. Imported soil will meet the lower of:

- Track 1 Unrestricted Use SCO's, and
- Groundwater Protection Standards in Part 375-6.8.

The estimated quantity of soil to be imported into the Site for backfill and cover soil is to be determined.

Reuse of Onsite Soils

Reuse of onsite soils already onsite will be performed in conformance with the Soil/Materials Management Plan in Appendix 4. The estimated quantity of soil to be reused on this project is to be determined. Reuse soils will meet the SCO's established for this project.

4.3 Engineering Controls

The excavation required for the proposed Site development will achieve Track 1 Unrestricted Use SCOs. Track 1 remedial actions do not require Engineering Controls. However, the construction elements below will be incorporated into the foundation design as part of the new 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:

(1) Composite Cover System; and
(2) Soil Vapor Barrier System

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

No composite cover system is planned at this time as the remediation goals for the Site include attainment of the Track 1 SCOs. However, an engineered, composite cover system will be built as part of new construction on the Site. This composite cover system would be comprised of the following:

- 5-inch reinforced concrete building slab in the basement;
- 5-inch reinforced concrete building slab at grade;
- 6-inch clean granular sub-base beneath all building areas; and,
- 30-inch foundation mat beneath all building areas.

Figure 6 (as well as plans included in Appendix 1) shows engineering diagrams showing the cross section design of each cover type. Location of cover types are included in the engineering diagrams Appendix 1.

Vapor Barrier System

As part of development, migration of soil vapor from onsite or offsite sources into the building will be mitigated with a combination of building slab and vapor barrier. The vapor barrier will consist of a Yellow Guard 20-mil vapor barrier, or equivalent. The vapor barrier will be installed prior to pouring the building's concrete slab. The vapor barrier will extend below the slab throughout the area occupied by the footprint of the new building (both below the cellar slab and the at-grade slab) and up the foundation sidewalls below grade in accordance with manufacturer specifications. All vapor barrier seams, penetrations, and repairs will be sealed either by the tape method or weld method, according to the manufacturer's recommendations and instructions. The project's Professional Engineer will have primary direct responsibility for overseeing the implementation of the vapor barrier.

The Vapor Barrier System is a permanent engineering control and will be inspected and its performance certified at specified intervals as required by this RAWP and the Site Management Plan. A Soil and Materials 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 vapor barrier system is disturbed after the remedial action is complete. Maintenance of these systems will be described in the Site Management Plan in the Remedial Action Report.

The vapor barrier will extend throughout the area occupied by the footprint of the new building and up the foundation sidewalls and will be installed in accordance with manufacturer specifications.

A plan view showing the location of the proposed vapor barrier system is provided in Appendix 1. Typical design sections for the vapor barrier on slab and sidewalls are provided in Figure 6 and product specification sheets are provided in Appendix 6. The Remedial Action Report will include as-built drawings and diagrams; manufacturer documentation; and photographs.

If Track 1 Unrestricted Use SCOs are not met, the Vapor Barrier System will be a permanent engineering control and will be inspected and its performance certified at specified intervals as required by this RAWP and the Site Management Plan. A Soil and Materials 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 vapor barrier system is disturbed after the remedial action is complete. Maintenance of these systems will be described in the Site Management Plan in the Remedial Action Report.

4.4 Institutional Controls

A Track 1 remedial action is proposed and Institutional Controls are not required. If a Track 1 remedial action is not achieved, Institutional Controls (IC's) will be incorporated in this remedial action to manage residual soil/fill and other media and render the Site protective of public health and the environment. These IC's define the program to operate, maintain, inspect and certify the performance of Engineering Controls and Institutional Controls on this property. Institutional

Controls would be implemented in accordance with a Site Management Plan included in the final Remedial Action Report (RAR). Institutional Controls would be:

- Continued registration of the E-Designation for the property. This RAWP includes a description of all ECs and ICs and summarizes the requirements of the SMP which will note that the property owner and property owner's successors and assigns must comply with the approved SMP;

- Submittal of a SMP in the RAR for approval by OER that provides procedures for appropriate operation, maintenance, inspection, and certification of ECs and IC's. 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(l)(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 mixed residential and commercial use and will not be used for a higher level of use without prior approval by OER.

4.5 Site Management Plan

A Track 1 remedial action is proposed and Site Management is not required. If a Track 1 remedial action is not achieved, Site Management will be required and will be the last phase of remediation. Site Management will begin 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 Voluntary Cleanup Agreement with OER. This includes a plan for: (1) implementation of EC's and ICs; (2) operation and maintenance of EC's; (3) inspection and certification of IC's and EC's.

Site management activities and EC/IC certification will be scheduled by OER on a periodic basis to be established in the RAR and 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 30 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.

Data and information reported in the Remedial Investigation Report (RIR) are sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA) for this project. 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 under current and future conditions 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 Contaminant Sources

Based on the results of the RIR, the contaminants of concern are:

Soil:

- SVOCs including benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene exceeded Restricted Residential Use SCOs.

- Metals including lead and zinc were detected above Unrestricted Use SCOs but were all below Restricted Residential Use SCOs.

Groundwater:

- Several metals were detected above their respective Groundwater Quality Standards (GQSs); however, the samples were analyzed for total metals, not collected from screened monitoring wells, and likely subject to significant turbidity. Metal concentrations detected in soils did not exceed applicable Restricted Residential Use SCOs and thus, metals are not considered contaminant of concerns.

Soil Vapor:

- Chlorinated VOCs were well below NYS DOH monitoring thresholds.

- Petroleum VOCs were detected at low concentrations.

Nature, Extent, Fate and Transport of Contaminants

SVOCs and metals are present in relatively shallow soils throughout the Site and are attributed to historic fill material beneath the Site. Based upon field observations and laboratory results from

soil samples collected during the Remedial Investigation, it is appears that contaminants are from historic fill material. The migration of the contamination to groundwater is not expected. The chlorinated VOCs detected in soil vapor were well below guidance issued by New York State DOH and were not found in any of the on-Site soil samples collected. Groundwater is approximately 74 feet deep and is not a media of concern based on depth and soil analytical results.

Soil: No VOCs, pesticides, or PCBs were detected in site soils. No SVOCs were detected within the deep soil samples collected. Several SVOCs, specifically PAHs, were detected within one shallow soil sample at concentrations exceeding their respective Restricted Residential Use SCOs. Several metals were detected in shallow soil samples at concentrations exceeding the Unrestricted Residential Use SCOs. Lead was detected in four shallow soil samples and zinc was detected in one shallow soil sample at concentrations exceeding their respective Unrestricted Use SCOs.

Groundwater: No SVOCs, pesticides, or PCBs were detected in groundwater exceeding their respective laboratory reporting limits. No VOCs were detected in GP-1. Chloroform was present in GP-4 but at a concentration below its respective GQS. Several metals (metals including aluminum, antimony, arsenic, cadmium, chromium, iron, magnesium, nickel, and zinc) were detected at concentrations exceeding their respective GQS. It should be noted that the unfiltered groundwater samples were not collected from screened monitoring wells and the elevated total metals were likely a result of significant turbidity. It is therefore concluded that the elevated metals (total) concentrations are not truly representative of site groundwater conditions and groundwater is not a media of concern.

Soil Vapor: Samples indicated petroleum-related VOCs and chlorinated VOCs were present at low concentrations. Tetrachloroethene (PCE) and 1,1,1-trichloroethane (TCA) were detected in seven samples (SVP-1 through SVP-6 and the duplicate sample). Trichloroethene (TCE) was detected in three samples (SVP-1, SVP-4, and SVP-6) and carbon tetrachloride was detected in one sample (SVP-1). The 1,1,1-TCA, carbon tetrachloride, PCE, and TCE concentrations were all below the monitoring level ranges established within the NYSDOH Final Guidance on Soil Vapor Intrusion.

Receptor Populations

On-Site Receptors: The site is currently used as a parking lot with a small kiosk and access to the Site is restricted by a perimeter fence. On-site receptors are limited to trespassers, site representatives and visitors granted access to the property. During construction, potential on-site receptors include construction workers, site representatives, and visitors. Under proposed future conditions, potential on-site receptors include adult and child building residents, workers and visitors.

Off-Site Receptors: Potential off-site receptors within a 500 foot radius of the Site include adult and child residents; commercial and construction workers; pedestrians; and trespassers based on the following land uses within 500 feet of the Site:

1. Commercial Businesses – existing and future
2. Residential Buildings – existing and future
3. Building Construction/ Renovation – existing and future
4. Pedestrians, Trespassers, Cyclists – existing and future
5. Schools – existing and future

Potential Routes of Exposure

Three potential primary routes exist by which chemicals can enter the body: ingestion, inhalation, and dermal absorption. Exposure can occur based on the following potential media:

- Ingestion of groundwater or fill/ soil;
- Inhalation of vapors or particulates; and
- Dermal absorption of groundwater or fill/ soil.

Potential Exposure Points

Current Conditions: The site is currently capped with asphalt there are no potential exposure pathways from ingestion, inhalation, or dermal absorption of soil/ fill. Groundwater is not exposed at the site. The site is served by the public water supply and groundwater is not used at the site for potable supply and there is no potential for exposure. Because the site is currently undeveloped, there is no potential for soil vapor to accumulate on site.

Construction/ Remediation Conditions: During the remedial action, onsite workers will come into direct contact with surface and subsurface soils as a result of on-site construction and excavation activities. On-site construction workers potentially could ingest, inhale or have dermal contact with exposed impacted soil and fill. Similarly, off-site receptors could be exposed to dust and vapors from on-site activities. Due to the depth of groundwater, direct contact with groundwater is not expected. During construction, on-site and off-site exposures to contaminated dust from on-site will be addressed through the Soil/Materials Management Plan, 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 1SCOs will be removed. The site will be fully capped, preventing potential direct exposure to soil and groundwater remaining in place, and engineering controls (vapor barrier) will prevent any potential exposure due to inhalation by preventing soil vapor intrusion. The site is served by the public water supply, and groundwater is not used at the site. There are no plausible off-site pathways for oral, inhalation, or dermal exposure to contaminants derived from the site.

Overall Human Health Exposure Assessment

There are potential complete exposure pathways for the current site condition. There are potential complete exposure pathways that require mitigation during implementation of the remedy. There are no complete exposure pathways under future conditions after the site is developed. This assessment takes into consideration the reasonably anticipated use of the Site, which includes a residential structure, site-wide surface cover, and a subsurface vapor barrier system for the building. Under current conditions, on-Site exposure pathways exist for those with access to the Site and trespassers. During remedial construction, on-site and off-site exposures to contaminated dust from historic fill material will be addressed through dust controls, and through the implementation of the Community Air Monitoring Program, the Soil/Materials Management Plan, and a Construction Health and Safety Plan. 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. There are no surface waters in proximity to the Site that could be impacted or threatened.

Environmental Media & Exposure Route	Human Exposure Assessment for Proposed Remedial Action
Direct contact with surface and subsurface soils	• There is not direct contact because all soils in excess of Track 1 SCO's will be removed from the site
Ingestion of groundwater	• The area is served by upstate public water supply and groundwater is not being used for potable water supply. Groundwater use for potable supply onsite is prohibited by municipal law.
Direct contact with groundwater	• All soils in excess of Track 1 SCO's and Groundwater Protection Standards will be removed from the site. Groundwater is not impacted by site conditions.
Direct contact with soil vapor	• Soil vapor is not impacted at the site • Contact with soil vapor will be prevented with a soil vapor barrier • Contact with soil vapor will be prevented with a soil vapor barrier and a high volume air exchange required by the Building Code for ventilation of the first- and second-floor parking garage.

5.0 Remedial Action Management

5.1 Project Organization and Oversight

Principal personnel who will participate in the remedial action include Site Safety Coordinator and Project Manager Andrew R. Fetterman, P.G. The Professional Engineer (PE) for this project

is James P. Cinelli, P.E., BCEE and Qualified Environmental Professionals (QEP) is Andrew R. Fetterman, P.G.

5.2 Site Security

Site access will be controlled by gated entrances to the fenced property.

5.3 Work Hours

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. The hours of operation will be conveyed to OER during the pre-construction meeting.

5.4 Construction Health and Safety Plan

The Health and Safety Plan is included in Appendix 5. The Site Safety Coordinator will be Andrew R. Fetterman, P.G. 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, such as 40-hour hazardous waste operator training and annual 8-hour refresher training. Site Safety Officer will be responsible for maintaining workers training records. Personnel entering any exclusion zone will be trained in the provisions of the HASP and will comply with all requirements of 29 CFR 1910.120. 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 bailing/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 incompliance with applicable laws and regulations including NYC Building Code to assure safety. Utility companies and other responsible authorities will be contacted to locate and mark the locations, and a copy of the Mark-Out 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

Dewatering is not anticipated during remediation and 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 pads 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 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 clean 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 excavated areas, 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, hay bales; 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. Stormwater 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 offsite areas may require characterization based on site conditions, at the discretion of OER. If onsite 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 within statutory defined timelines. 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 onsite or offsite 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 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 is shown on Figure 7.

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 business day. Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of excavation and other remedial 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 results noting all excursions. CAMP data may be reported;
- 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, and approved by, 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 with basis 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;
- Text description with thorough detail of all engineering and institutional controls (if Track 1 remedial action is not achieved)
- As-built drawings for all constructed remedial elements;
- Manifests for al soil or fill disposal;
- Photographic documentation of remedial work performed under this remedy;

- Site Management Plan (if Track 1 remedial action 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 (including all soil test results from the remedial investigation for soil that will remain on site) and all soil/fill waste 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 soil or fill material removed from the Site including a map showing the location of these excavations and hotspots, tanks or other contaminant source areas;
- Full accounting 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 remedial action is not achieved);
- The RAWP and Remedial Investigation Report will be included as appendices to the RAR; and,
- Reports and supporting material will be submitted in digital form and final PDF’s will include bookmarks for each appendix.

Remedial Action Report Certification

I, James P. Cinelli, P.E., BCEE , am currently a registered professional engineer licensed by the State of New York. I performed professional engineering services and had primary direct responsibility for implementation of the remedial program for the 178-02 Hillside Avenue (178-02 Hillside Avenue 178-20 Hillside Avenue, and 88-16 179th Street) site, site number 15CVCP038Q. I certify to the following:

- I have reviewed this document, to which my signature and seal are affixed.
- Engineering Controls implemented during this remedial action were designed by me or a person under my direct supervision and achieve the goals established in the Remedial Action Work Plan for this site.
- The Engineering Controls constructed during this remedial action were professionally observed by me or by a person under my direct supervision and (1) are consistent with the Engineering Control design established in the Remedial action Work Plan and (2) are accurately reflected in the text and drawings for as-built design reported in this Remedial Action Report.
- The OER-approved Remedial Action Work Plan dated [date] and Stipulations in a letter dated [date] 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.

James P. Cinelli, P.E., BCEE
Name

DRAFT
PE License Number

DRAFT
Signature

DRAFT
Date

PE Stamp

I, Andrew R. Fetterman, P.G., am a Qualified Environmental Professional. I had primary direct responsibility for implementation of the remedial program for the 178-02 Hillside Avenue (178-02 Hillside Avenue 178-20 Hillside Avenue, and 88-16 179th Street) site, site number 15CVCP038Q . I certify to the following:

- The OER-approved Remedial Action Work Plan dated _____ and Stipulations in a letter dated _____ were/was implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

Andrew R. Fetterman, P.G.
QEP Name

DRAFT
QEP Signature

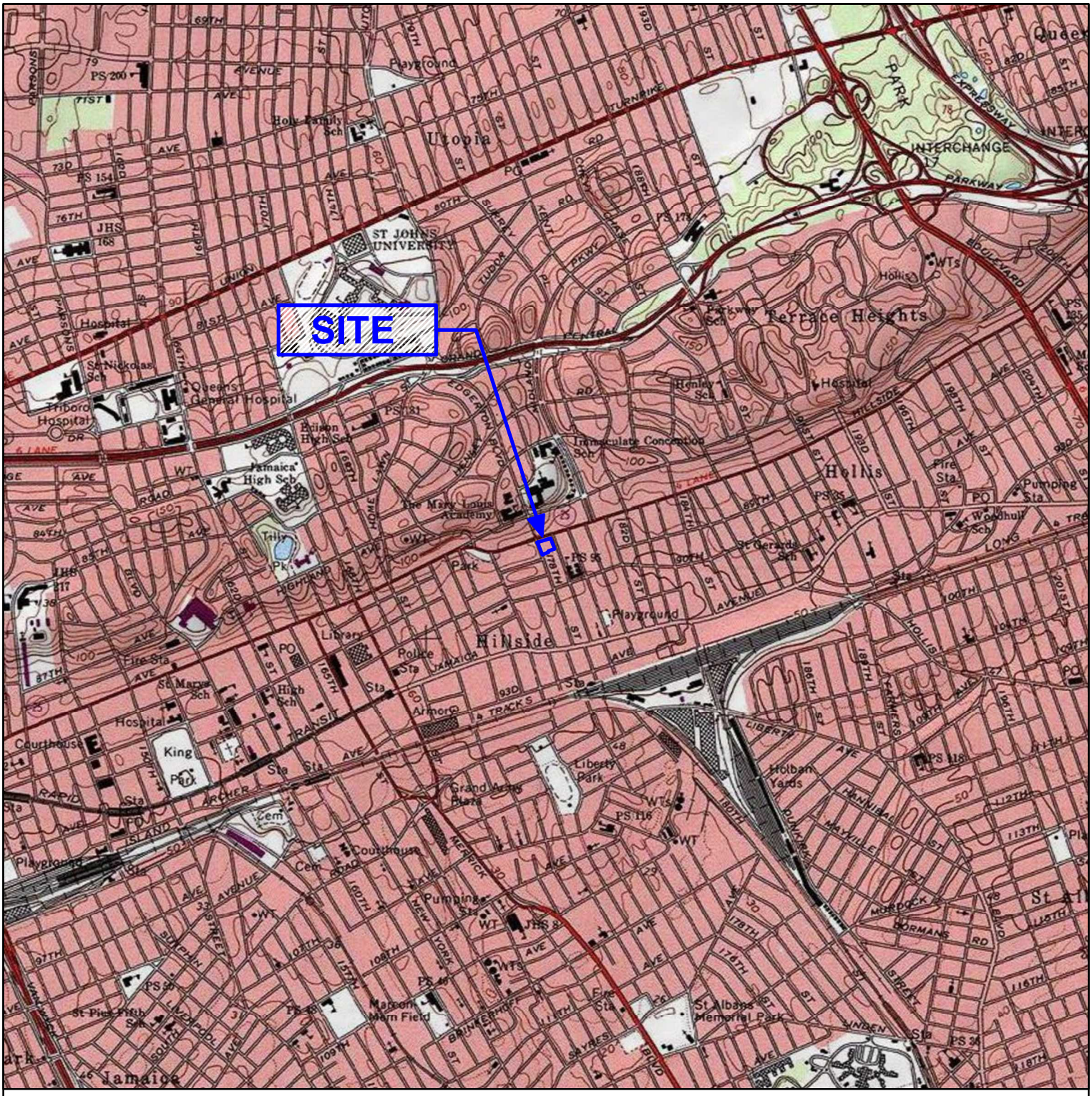
DRAFT
Date

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 six 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	0	-
Mobilization	2	1
Remedial Excavation	6	5
Demobilization	8	2
Submit Remedial Action Report	24	4

FIGURES



SOURCE: USA TOPO MAPS - COPYRIGHT © 2013 NATIONAL GEOGRAPHIC SOCIETY, i-cubed.
JAMAICA, NEW YORK 7.5-MINUTE QUADRANGLE.

SCALE: 1 " = 2,000 '

0 1,000 2,000 4,000'

N

Liberty Environmental, Inc.
131 Varick St. Suite 1022
New York, NY 10013
Phone: 212-255-0374
Fax: 212-242-3897
www.libertyenviro.com

Figure 1 - Site Location Map

178-02 Hillside Avenue
Borough of Queens, City of New York, New York

PROJECT NO.: 140219	REV: 0	PREPARED BY: EMC
DATE: JULY 30, 2014	SCALE: 1" = 2,000'	APPROVED BY: JPC

IMAGERY SOURCE: ESRI, USDA FSA, NAIP. PHOTO DATE: JUNE 22, 2013.

SCALE:1 " = 150 '

0 75 150 300'

N

Figure 2 - Site Boundary and Area Map

178-02 Hillside Avenue
Borough of Queens, City of New York, New York

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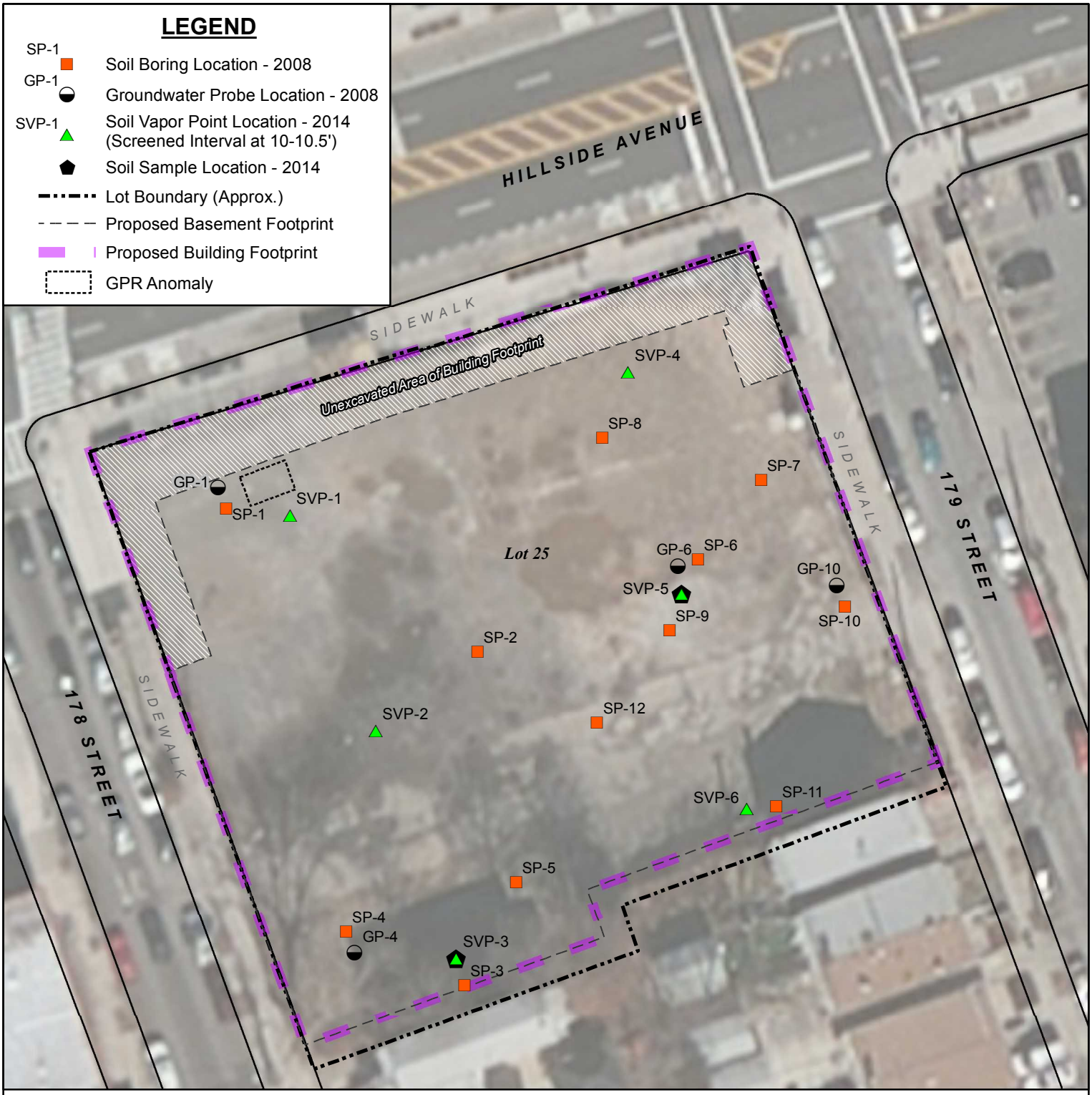
www.libertyenviro.com

PROJECT NO.: 140219	REV: 1	PREPARED BY: EMC
DATE: MAY 15, 2015	SCALE: 1" = 150'	APPROVED BY: JPC



NOTE: THIS DRAWING INTENDED FOR ILLUSTRATIVE PURPOSES ONLY, AS PART OF A SITE CHARACTERIZATION. NOT TO BE USED AS A BASIS FOR ENGINEERING OR DESIGN.
NOTE: LOTS 35 AND 41 WERE MERGED INTO LOT 25.
AERIAL IMAGERY: ESRI, MICROSOFT, US-NY-NEW YORK. AERIAL PHOTO DATE: MARCH 26, 2011.

SCALE:1 " = 40 '
0 20 40 80'

N

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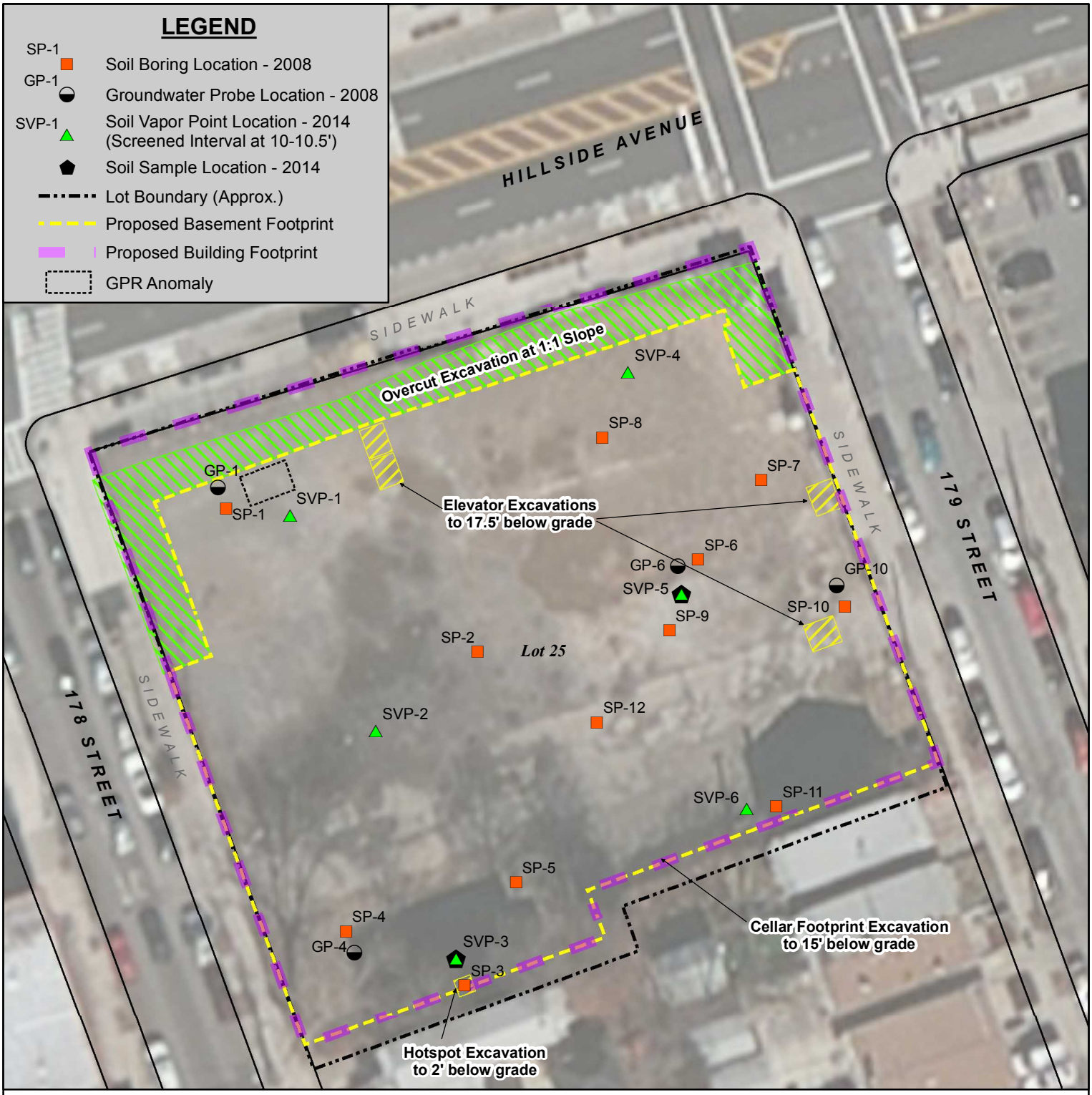
Figure 3 - Site Diagram

178-02 Hillside Avenue
Borough of Queens, City of New York, New York

PROJECT NO.: 140219	REV: 3	PREPARED BY: EMC
DATE: OCTOBER 14, 2015	SCALE: 1" = 40'	APPROVED BY: ARF



NOTE: THIS DRAWING INTENDED FOR ILLUSTRATIVE PURPOSES ONLY, AS PART OF A SITE CHARACTERIZATION. NOT TO BE USED AS A BASIS FOR ENGINEERING OR DESIGN.
NOTE: OVERCUT EXTENT IS BASED ON SHEET 3, *SOE AND EXCAVATION SECTIONS* OF THE ADG / STRATFORD / GSE STRUCTURAL PLANS DATED AUGUST 18, 2015.
NOTE: LOTS 35 AND 41 WERE MERGED INTO LOT 25.
AERIAL IMAGERY: ESRI, MICROSOFT, US-NY-NEW YORK. AERIAL PHOTO DATE: MARCH 26, 2011.

SCALE:1 " = 40 '
0 20 40 80'

N

Figure 4 - Site Excavation Diagram

178-02 Hillside Avenue
Borough of Queens, City of New York, New York

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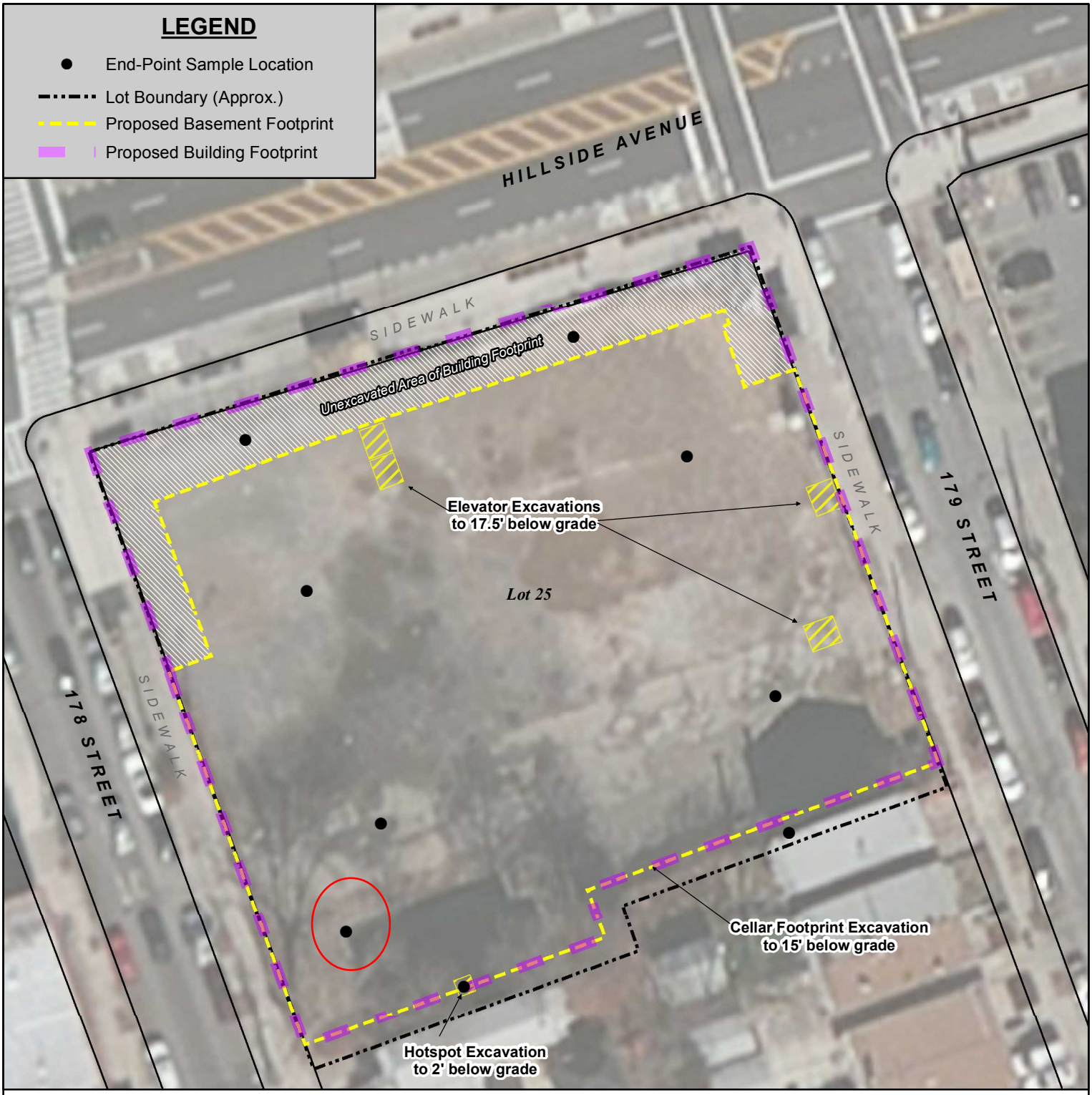
PROJECT NO.: 140219	REV: 2	PREPARED BY: EMC
DATE: OCTOBER 14, 2015	SCALE: 1" = 40'	APPROVED BY: ARF



NOTE: THIS DRAWING INTENDED FOR ILLUSTRATIVE PURPOSES ONLY, AS PART OF A SITE CHARACTERIZATION. NOT TO BE USED AS A BASIS FOR ENGINEERING OR DESIGN.
NOTE: LOTS 35 AND 41 WERE MERGED INTO LOT 25.
AERIAL IMAGERY: ESRI, MICROSOFT, US-NY-NEW YORK. AERIAL PHOTO DATE: MARCH 26, 2011.

SCALE:1 " = 40 '

0 20 40 80'

N

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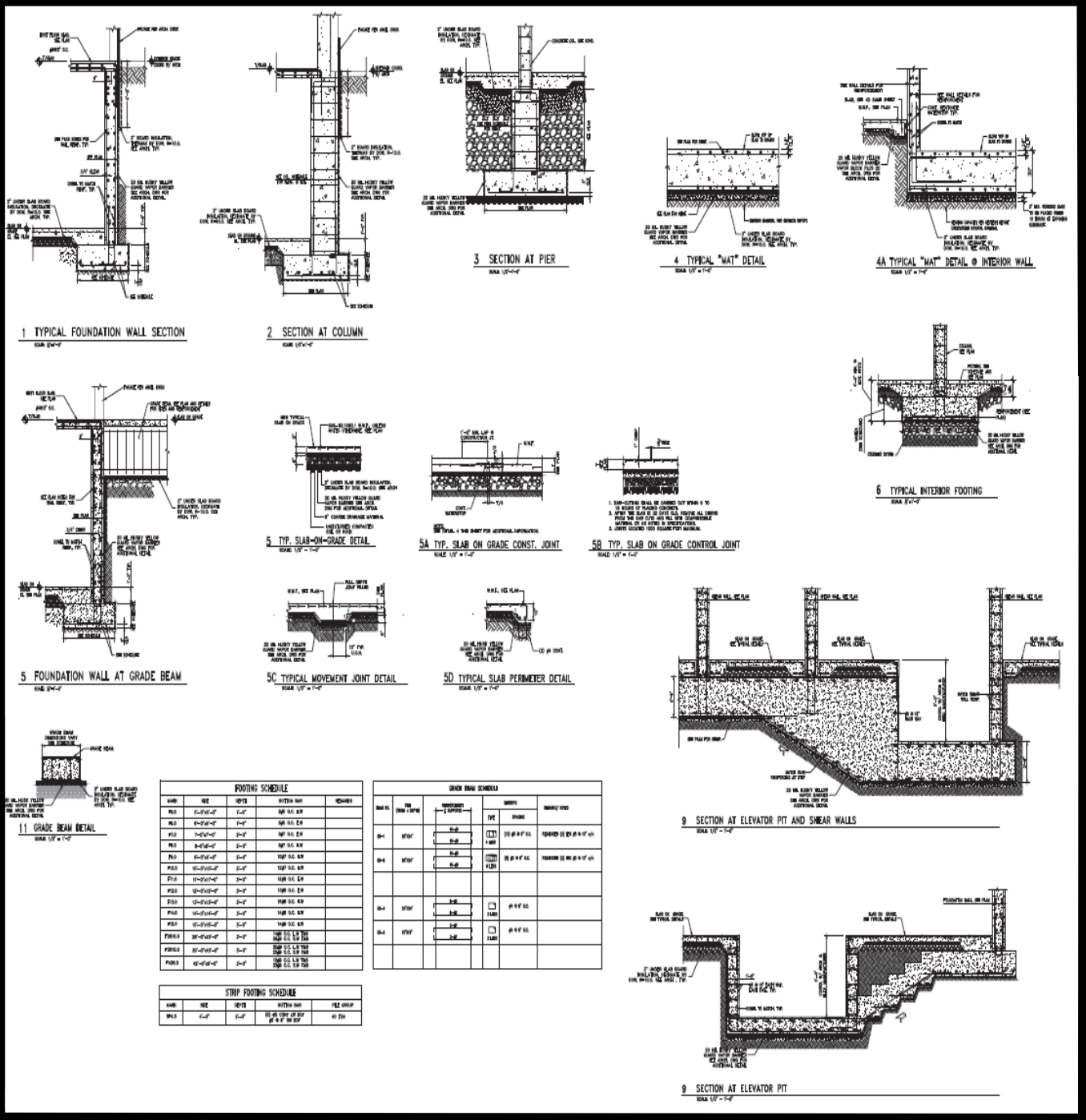
Figure 5 - Map of End-Point Sample Locations

178-02 Hillside Avenue
Borough of Queens, City of New York, New York

PROJECT NO.: 140219	REV: 2	PREPARED BY: EMC
DATE: OCTOBER 14, 2015	SCALE: 1" = 40'	APPROVED BY: ARF



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Phone: 212-255-0374
Fax: 212-242-3897
www.libertyenviro.com

Figure 6: Vapor Barrier/Waterproofing Membrane Diagrams

178-02 Hillside Avenue

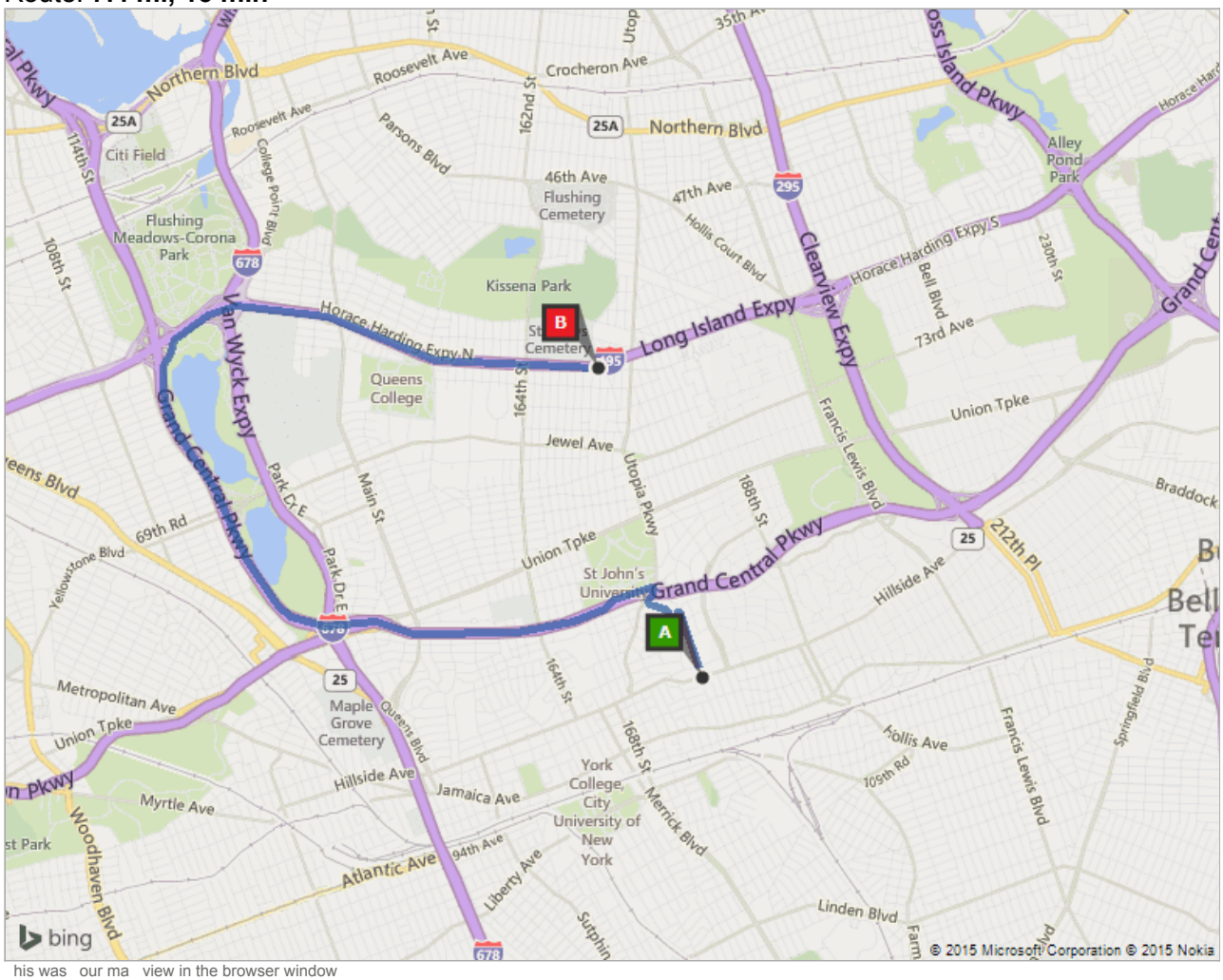
Borough of Queens

City of New York, New York

Liberty Project No. 140219 | October 22, 2015

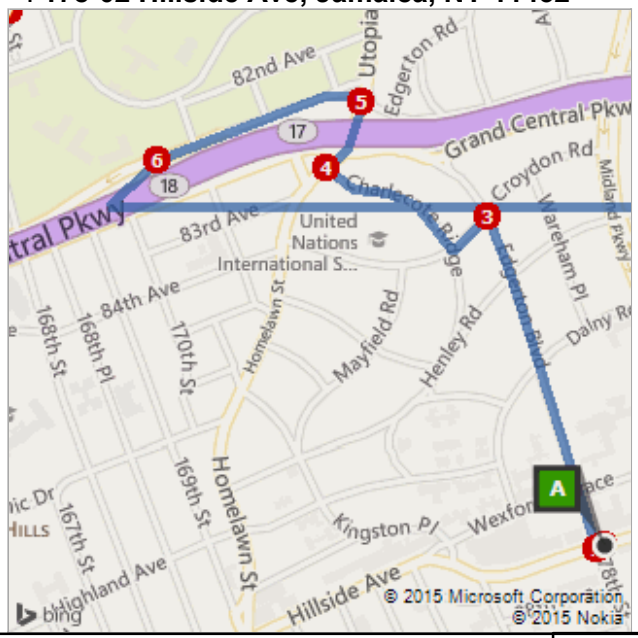
htt ://www.bin .com/ma s/ rint.as x?mkt=e -us&z=13&s=r&c =40.728355,-73.795081 ... 5 8 201

Route: **7.4 mi, 13 min**

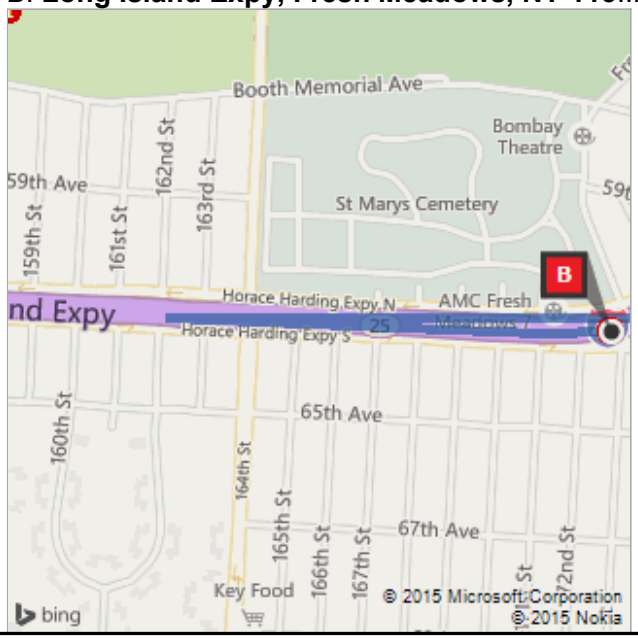


his was our ma view in the browser window

: **178-02 Hillside Ave, Jamaica, NY 11432**



B: **Long Island Expy, Fresh Meadows, NY 113...**



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50 N. Fifth St. 5th Floor
Reading, PA 19601
Phone: 610-375-9301
Fax: 610-375-9302
www.libertyenviro.com

Figure 7 - Map Showing Truck Route

178-02 Hillside Avenue

Borough of Queens, CIty of New York, New York

PROJECT NO. 140219	REV: 0	PREPARED BY: EMC
DATE: MAY 15, 2015	SCALE: NONE	APPROVED BY: ARF

TABLES

Table 1
Soil Analytical Data Summary - Pesticides and VOCs
178-02 Hillside Avenue, Queens, New York
Liberty Project No. 140219

178-02 Hillside Avenue Queens, New York																												
		SOIL																										
		Sample Identification (Sample Depth [feet])																										
Compound	CAS #	Unrestricted [1]	Restricted-Residential [2]	SP-1 (0-2')	SP-1 (14-16')	SP-2 (0-2')	SP-2 (14-17')	SP-3 (0-2')	SP-3 (14-16')	SP-4 (0-2')	SP-4 (12-15 1/2')	SP-5 (0-2')	SP-5 (14-16')	SP-6 (0-2')	SP-6 (14-17')	SP-7 (10-12')	SP-7(14-17')	SP-8 (10-12')	SP-8 (14-17')	SP-9 (0-2')	SP-9 (15-17')	SP-10 (0-2')	SP-10 (14-16')	SP-11 (0-2')	SP-11 (15-17')	SP-12 (0-2')	SP-12 (14-16')
		Date Collected		5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008
Pesticides		Pesticides in ug/kg		Pesticides in ug/kg																								
2,4,5-TP Acid (Silvex)	92-72-1	3,800	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4-DDE	72-55-9	3.3	8,900	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4-DDT	50-29-3	3.3	7,900	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4-DDD	72-54-8	3.3	13,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	309-00-2	5	97	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha-BHC	319-84-6	20	480	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
beta-BHC	319-85-7	36	360	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane (alpha)	5103-71-9	94	4,200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	319-86-8	40	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	60-57-1	5	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
endosulfan I	959-98-8	2,400	24,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	33213-65-9	2,400	24,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosofan sulfate	1031-07-8	2,400	24,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
endrin	72-20-8	14	11,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	76-44-8	42	2,100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18.5	19.4	18.5	19.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	132-64-9	7,000	59,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lindane	58-89-9	100	1,300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatiles		Volatiles in ug/kg		Volatiles in ug/kg																								
1,1,1-Trichloroethane	71-55-6	680	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1.1-Dichloroethane	75-34-3	270	26,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1.1-Dichloroethene	75-35-4	330	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	95-50-1	1,100	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	107-06-2	20	3,100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2,-Dichloroethene	156-59-2	250	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethaene	156-60-5	190	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	541-73-1	2,400	49,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dicholorbenzene	106-46-7	1,800	13,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dioxane	123-91-1	100	13,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	67-64-1	50	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	71-43-2	60	4,800	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Butylbenzene	104-51-8	12,000	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	56-23-5	760	2,400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorbenzene	108-90-7	1,100	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	67-66-3	370	49,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	100-41-4	1,000	41,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	118-74-1	330[3]	1,200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl ethyl ketone	78-93-3	120	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl tert-butyl ether	1634-04-4	930	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	75-09-2	50	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	103-65-1	3,900	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	135-98-8	11,000	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	98-06-6	5,900	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tertrachloroethene	127-18-4	1,300	19,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	108-88-3	700	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	79-01-6	470	21,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	95-63-6	3,600	52,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	108-67-8	8,400	52,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl chloride	75-01-4	20	900	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylene (mixed)	1330-20-7	260	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

1. Standards obtained from Table 375-6.8(a): Unrestricted Use Soil Cleanup Objectives for soils in a residential use setting, as set forth in subparagraph 375-1.8(g)(1)(i).

2. Standards obtained from Table 375-6.8(b): Restricted Use Soil Cleanup Objectives for soils in a restricted-residential use setting, as set forth in subparagraph 375-1.8(g)(2)(ii).

ND = that the compound was not detected above the listed analytical quantitation limit.

Yellow shading denotes exceedance of Restricted Residential UseStandard.

Bold type denotes exceedance of Unrestricted Use Standard

Table 1
Soil Analytical Data Summary - Metals, PCBs, and SVOCs
178-02 Hillside Avenue, Queens, New York
Liberty Project No. 140219

178-02 Hillside Avenue
Queens, New York

Compound	CAS #	SOIL Sample Identification (Sample Depth [feet])																											
		Unrestricted[1]	Restricted-Residential[2]	SP-1 (0-2')	SP-1 (14-16')	SP-2 (0-2')	SP-2 (14-17')	SP-3 (0-2')	SP-3 (14-16')	SP-4 (0-2')	SP-4 (12-15 1/2')	SP-5 (0-2')	SP-5 (14-16')	SP-6 (0-2')	SP-6 (14-17')	SP-7 (10-12')	SP-7(14-17')	SP-8 (10-12')	SP-8 (14-17')	SP-9 (0-2')	SP-9 (15-17')	SP-10 (0-2')	SP-10 (14-16')	SP-11 (0-2')	SP-11 (15-17')	SP-12 (0-2')	SP-12 (14-16')	SVP 3-4/5	SVP 5-3/5
		Date Collected		5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/22/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	5/23/2008	6/9/2014	6/9/2014
Metals		***Metals in mg/kg***		***Metals in mg/kg***																									
Aluminum	7429-90-5	NS	NS	6,700	6,680	13,500	4,800	3,340	4,410	13,800	5,080	12,700	2,370	6,560	3,900	6,810	9,140	5,500	6,180	6,280	6,900	8,690	7100	7500	6820	8990	4230	--	--
Antimony	7440-36-0	NS	NS	1.75	1.37	2.38	1.45	3.88	1.75	2.59	ND	2.75	ND	1.59	1.38	ND	1.38	ND	ND	1.36	1.71	1.58	1.22	1.44	1.15	1.49	1.54	--	--
Arsenic	7440-39-3	13	16	5.63	2.98	4.86	2.49	11	2.05	6.96	2.18	4.34	1.04	2.14	1.99	1.98	2.48	2.84	2.34	2.1	2.36	5.19	2.81	3.95	2.36	6.18	3.1	1.8	1.5
Barium	7440-39-3	350	400	65.1	41.6	48.1	33.2	46	33.1	110	31.8	37.7	29.6	41	31.2	62.4	147	35.2	41.8	57.7	79.1	67.4	57.9	36.9	43	80.3	36.8	22.1	34.4
Beryllium	7440-41-7	7.2	72	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	7440-43-9	2.5	4.3	0.78	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	ND	ND	ND	ND	ND	ND	ND
Calcium	7440-70-2	NS	NS	6,710	1,460	781	6,690	7,380	8,020	2,960	2,770	391	391	3690	635	16100	2130	1130	9260	1,430	18,900	13,700	4,910	8,010	6,140	18,600	559	--	--
Chromium, hexavalent	18540-29-9	1	110	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
chromium, trivalent	16065-83-1	30	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12.8	27.7
Total Chromium	7440-47-3	NS	NS	16.7	21.8	22.1	17.8	11.9	11.8	19.4	13.3	22.9	4.84	12.5	13.9	18.9	15.5	19.6	37.8	15.7	34.6	17.9	16.7	14.9	26.2	17.6	21.3	13.1	28
Cobalt	7440-48-4	NS	NS	7.52	7.92	7.44	6.24	4.9	5.76	6.5	5.96	3.31	3.31	8.67	5.31	7.55	8.7	8.63	6.37	7.5	7.3	7.56	6.01	7.22	6.52	7.63	11.7	--	--
Copper	7440-50-8	50	270	38.8	33.5	17	21	28.6	18.9	21.8	17.7	20.8	12.8	26.4	14	29.8	37.6	24.8	24.5	23.9	28.4	42.2	35.5	26.4	29.4	31.8	25.1	13.8	31.3
Total Cyanide	57-12-5	27	27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Iron	7439-89-6	NS	NS	13,700	14,600	16,200	11,100	11,600	10,200	16,500	9,230	6,230	6,230	15,700	11,300	15,100	15,600	18,500	15,900	14,600	15,000	19,400	14,100	13,000	14,100	15,300	20,700	--	--
Lead	7439-92-1	63	400	**112**	13	13	27.7	57.3	7.15	**84.8**	5.79	11.1	4.61	11.4	4.08	19.9	2.76	4.56	4.21	5.8	9.76	**73.3**	17.9	12.9	6.47	**94.1**	4.7	ND	ND
Magnesium	7439-95-4	NS	NS	2,890	2,400	2,490	3,790	1,560	1,870	1,470	1,470	794	794	2,290	1,260	3,690	4,660	1,720	2,520	2,170	3,210	2,680	2,060	2,830	2,940	3,130	1,310	--	--
Manganese	7439-96-5	1,600	2,000	277	378	237	242	132	277	506	220	218	189	510	305	307	222	441	334	652	561	352	323	239	288	300	386	292	310
Total Mercury	7439-97-6	0.18	0.81	ND	ND	ND	ND	0.16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	7440-02-0	30	310	21.9	22.4	11.6	17.7	11	15	12.7	13.6	14.2	9.75	15.1	14.4	25.1	10.9	15.1	17	18.3	19.4	16.4	14.4	15.4	17.3	18.7	16.9	15.8	25.9
Potassium	7440-09-07	NS	NS	462	644	476	464	528	449	502	502	358	358	542	410	1180	2730	7470	1030	929	1040	605	663	636	689	597	350	--	--
Selenium	7782-49-2	3.9	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	7440-22-4	2	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium	7440-23-5	NS	NS	198	165	44.1	143	92.1	88.6	107	107	20.7	20.7	79	61.3	160	98.2	92	174	100	265	156	168	151	302	125	14.1	--	--
Thallium	7440-28-0	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--
Vanadium	7440-62-2	NS	NS	24.1	21.1	32.6	14.8	14.9	17.3	16.8	16.8	6.93	6.93	22	17.7	25.1	26	37.5	27.1	20.2	24	27.6	22.4	25.8	22.3	26.3	54.3	--	--
Zinc	7440-66-6	109	10,000	87	35.4	36.4	57.4	96.2	24.7	60.4	20.7	29.8	13.7	31.8	21.9	35.6	39.4	30.1	58.7	29.7	30.5	**117**	64	32.2	26.4	87.9	24.1	13.4	20.3
PCBs		***PCBs in mg/kg***		***PCBs in mg/kg***																									
Aroclor 1016	12674-11-2	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--
Aroclor 1221	11104-28-2	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--
Aroclor 1232	11141-16-5	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--
Aroclor 1242	53469-21-9	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--
Aroclor 1248	12672-29-6	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--
Aroclor 1254	11097-69-1	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.052	0.049	ND	ND	0.029	ND	--	--
Aroclor 1260	11096-82-5	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.02	ND	ND	ND	ND	--	--
PCBs	1336-36-3	0.1	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--
Semivolatiles		***Semivolatiles in ug/kg***		***Semivolatiles in ug/kg***																									
2-Methylnaphthalene	91-57-6	NS	NS	ND	ND	ND	ND	ND	ND	ND	54,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--
Acenaphthene	83-32-9	20,000	100,000	ND	ND	ND	ND	220	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	208-96-8	100,000	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	120-12-7	100,000	100,000	ND	ND	ND	ND	2,600	ND	ND	7,200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	210	ND	210	ND	ND	ND
Benzo(a)anthracene	56-55-3	1,000	1,000	170	ND	ND	ND	**1,800**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	200	ND	ND	ND	ND	ND
Benzo(a)pyrene	50-32-8	1,000	1,000	310	ND	ND	ND	**1,900**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	310	ND	400	ND	ND	ND
Benzo(b)fluoranthene	205-99-2	1,000	1,000	340	ND	ND	ND	**2,000**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	380	ND	450	ND	ND	ND
Benzo(g,h,i)perylene	191-24-2	100,000	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)flourranthene	207-08-9	800	3,900	320	ND	ND	ND	**1,800**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	340	ND	420	ND	ND	ND
Chrysene	218-01-9	1,000	3,900	200	ND	ND	ND	**1,700**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	210	ND	270	ND	ND	ND
Dibenz(a,h)anthracene	53-70-3	330	330	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	206-44-03	100,000	100,000	240	ND	ND	ND	4,600	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	400	ND	450	ND	ND	ND
Fluorene	86-73-7	30,000	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	193-39-5	500	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m-Cresol	108-39-4	330	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	91-20-3	12,000	100,000	ND	ND	ND	ND	ND	ND	ND	11,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Cresol	95-48-7	330	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
p-Cresol	106-44-5	330	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	87-86-5	800	6,700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	85-01-8	100,000	100,000	ND	ND	ND	ND	3,200	ND	ND	8,100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	250	ND	250	ND	ND	ND
Phenol	108-95-2	330	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	129-00-0	100,000	100,000	230	ND	ND	ND	3,200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	320	ND	370	ND	ND	ND

Notes:

1. Standards obtained from Table 375-6.8(a): Unrestricted Use Soil Cleanup Objectives for soils in a residential use setting, as set forth in subparagraph 375-1.8(g)(1)(i).
2. Standards obtained from Table 375-6.8(b): Restricted Use Soil Cleanup Objectives for soils in a restricted-residential use setting, as set forth in subparagraph 375-1.8(g)(2)(i).

ND = that the compound was not detected above the listed analytical quantitation limit.

Yellow shading denotes exceedance of Restricted Residential Use Standard.

Green shading denotes exeedance of the Unrestricted Residential Use Standard.

Bold type denotes exceedance of Unrestricted Use Standard

Table 2
Groundwater Analytical Data Summary
Table 4A Water Organic Analytical Results from Hydro Tech Environmental Subsurface Investigation
178-02 Hillside Avenue, Queens, New York
Liberty Project No. 140219

Sample Identification	1	2	NYSDEC
Boring Number	GP-1	GP-4	TOGS 1.1.1
Sample Date	5/28/2008	5/27/2008	Groundwater
Sample Matrix	Water	Water	Quality
Units	ug/L	ug/L	Standard
Volatile Organic Compounds			
Chloroform	ND	6	7
Semivolatile Organic Compounds			
ND			
Pesticides			
ND			
PCBs			
ND			

NS…No Standard

ug/L…micrograms per Liter

ND…not detected

Shaded values represent concentration exceeding the GQS

This Table Lists Only Compounds Detected At Concentrations Exceeding Their Respective Method Detection Limi

Table 2
Groundwater Analytical Data Summary
Table 4B Water Inorganic Analytical Results from Hydro Tech Environmental Subsurface Investigation
178-02 Hillside Avenue, Queens, New York
Liberty Project No. 140219

Sample Identification	1	2	NYSDEC TOGS 1.1.1 Groundwater Quality Standard
Boring Number	GP-4	GP-1	
Sample Date	5/28/2008	5/27/2008	
Sample Matrix	Water Metals	Water Metals	
Units	ug/L	ug/L	
Aluminum	7,160	54,100	2,000
Antimony	10.7	114	6
Arsenic	74.9	22.9	50
Barium	328	1,260	2,000
Cadmium	ND	19.9	10
Calcium	62,100	155,000	NS
Chromium	447	5,010	100
Cobalt	79	ND	NS
Copper	2,180	5,470	NS
Iron	75,900	552,000	600
Lead	70.8	217	35,000
Magnesium	21,700	41,000	35,000
Manganese	4,460	14,700	NS
Mercury	ND	0.0003	1.4
Nickel	1,280	3,700	200
Potassium	7,840	39,600	NS
Silver	6.8	85.4	100
Sodium	163,000	159,000	SB
Vanadium	13.7	117	NS
Zinc	52,400	80,100	5,000

NS…No Standard

ug/L…micrograms per Liter

ND…not detected

Shaded values represent concentration exceeding the GQS

This Table Lists Only Compounds Detected At Concentrations Exceeding Their Respective Method Detect

Table 3
Soil Vapor Analytical Data Summary
178-02 Hillside Avenue, Queens, New York
Liberty Project No. 140219

Sample Identification			SVP-1	SVP-2	SVP-3A	SVP-4	SVP-5	SVP-6	Duplicate
Date			6/10/2014	6/10/2014	6/10/2014	6/10/2014	6/10/2014	6/10/2014	6/10/2014
Compound	CAS #	NYSDOH Air Guideline Values	Volatile Organic Compounds (in µg/m3)						
Acetone	**67-64-1**	NS	240	250	120	280	250	160	120
Benzene	**71-43-2**	NS	ND	ND	2.7	ND	ND	3.7	2.7
Bromodichloromethane	**75-27-4**	NS	ND	ND	ND	ND	ND	ND	ND
Bromoform	**75-25-2**	NS	ND	ND	ND	ND	ND	ND	ND
Bromomethane	**74-83-9**	NS	ND	ND	ND	ND	ND	ND	ND
2-Butanone	**78-93-3**	NS	21	15	8.6	17	18	19	9.8
Carbon disulfide	**75-15-0**	NS	ND	ND	2.9	16	4.6	15	3.3
Carbon Tetrachloride	**56-23-5**	5	ND	1.1	ND	ND	ND	ND	ND
Chlorobenzene	**108-90-7**	NS	ND	ND	ND	ND	ND	ND	ND
Chloroethane	**75-00-3**	NS	ND	ND	ND	ND	ND	ND	ND
Chloroform	**67-66-3**	NS	7.6	ND	ND	12	ND	ND	ND
Chloromethane	**74-87-3**	NS	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	**156-59-2**	NS	ND	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	**10061-01-5**	NS	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	**124-48-1**	NS	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	**95-50-1**	NS	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	**541-73-1**	NS	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	**95-50-1**	NS	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	**75-35-4**	NS	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	**75-34-3**	NS	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	**106-93-4**	NS	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	**107-06-2**	NS	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	**78-87-5**	NS	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	**100-41-4**	NS	15	11	9.8	14	12	12	10
2 Hexanone	**591-78-6**	NS	ND	ND	ND	ND	ND	ND	ND
Methyl t-Butyl Ether	**1634-04-4**	NS	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	**108-10-1**	NS	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	**75-09-2**	NS	ND	ND	ND	ND	ND	ND	ND
Styrene	**100-42-5**	NS	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	**127-18-4**	100	15	17	6.4	11	17	7.9	6.6
Toluene	**108-88-3**	NS	65	52	44	51	55	40	48
Total Xylenes	**1330-20-7**	NS	93	70	57	85	74	67	59
trans-1,2-Dichloroethene	**156-60-5**	NS	ND	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	**10061-02-6**	NS	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	**79-01-6**	5	0.88	ND	ND	0.81	ND	1.2	ND
Trichlorfluoromethane	**75-69-4**	NS	88	110	4.9	580	280	ND	4.8
1,1,2,2-Tetrachloroethane	**79-34-5**	NS	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	**71-55-6**	100	6.4	6.4	4.0	7.4	7.6	5.5	4.5
1,1,2-Trichloroethane	**79-00-5**	NS	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	**76-13-1**	NS	ND	ND	ND	ND	ND	ND	ND
Vinyl Acetate	**108-05-4**	NS	ND	ND	ND	ND	ND	ND	ND

Notes:

1. Values derived from Table 3.3 volatile chemicals and their decision matrices from the NYSDOH Soil Vapor Intrusion Guidance.
Values in bold and yellow shading exceed applicable air critera set forth in the NYSDOH Soil Vapor Intrusion Guidance
ND = Non-Detect
NS = No Standard

APPENDIX 6:

MANUFACTURER SPECIFICATIONS FOR WATERPROOFING/VAPOR BARRIER

APPENDIX 1

PROPOSED DEVELOPMENT PLANS

APPENDIX 2

CITIZEN PARTICIPATION PLAN

The NYC Office of Environmental Remediation and Piermont Properties 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, Piermont Properties 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, Ms. Shana Holberton, who can be contacted about these issues or any others questions, comments or concerns that arise during the remedial process at (212) 788-8841.

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 online. Internet access to view OER's document repositories is available at public libraries. 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. The library nearest the Site is:

Queens Library

89-11 Merrick Boulevard

Jamaica, NY 11432

(718) 990-0700

Monday, Wednesday, and Thursday 9:00am-9:00pm

Tuesday 1pm-9pm

Friday and Saturday 9am-7pm

Sunday 12pm-5pm

Digital Documentation: NYC OER requires the use of digital documents in our repository as a means of minimizing paper use while also increasing convenience in access and ease of use.

Issues of Public Concern: The major issues of concern to the public include potential impacts of nuisance odors and dust during disturbance soils impacted with historic fill at the site. These activities 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 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 reviewed and approved by OER prior to distribution and mailed by the Enrollee. 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. 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 3

SUSTAINABILITY STATEMENT

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

Reuse of Clean, Recyclable Materials and Reduced Consumption of Non-Renewable Resources: 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.

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.

Stormwater Retention: Stormwater retention improves water quality by lowering the rate of combined stormwater 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 stormwater 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 Voluntary Cleanup Program: Piermont Properties is participating in OER's Paperless Voluntary 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: Piermont Properties 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 4

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 final remedial report. Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of final signoff by OER.

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 described in the remedial report. 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 New York City 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 final remedial report.

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 final remedial report.

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 final remedial report. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the final remedial report. 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 (SCOs) established in this plan may be reused on-Site. The SCOs for on-Site reuse are listed in Section 4.2 of this cleanup plan. '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 land with comparable levels of contaminants in soil/fill material, compliant with applicable laws and regulations, 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 remedial plan are followed. The expected location for placement of reused material is shown in Section 4.2.

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 Section 4.2. Imported soils will not exceed groundwater protection standards established in Part 375. Imported soils for Track 1 remedial action projects will not exceed Track 1 SCO's. 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 remedial plan. The final remedial report 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.
- All material will be subject to source screening and chemical 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 final remedial report. 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 stormwater pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this remedial plan (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 for Unknown Contamination Sources

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 this remedial plan.

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 this remedial plan.

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 5

CONSTRUCTION HEALTH AND SAFETY PLAN

APPENDIX 1

PROPOSED DEVELOPMENT PLANS

178-02 HILLSIDE AVE QUEENS, NY 11432

NEW BUILDING

GENERAL NOTES

1. ALL CONTRACTORS AND SUBCONTRACTORS SHALL OBTAIN ALL REQUIRED PERMITS BEFORE THE START OF WORK AND SHALL OBTAIN ALL REQUIRED APPROVALS UPON COMPLETION.
2. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, CODES, AND REGULATIONS AND ANY PUBLIC AUTHORITY BEARING ON THE PERFORMANCE OF THE WORK AND SECURE ANY REQUIRED CERTIFICATES OF INSPECTION, TESTING, OR APPROVAL.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. ALL NECESSARY SIGNS SHALL BE POSTED WARNING AGAINST DANGERS.
4. THE CONTRACTOR SHALL PURCHASE AND MAINTAIN SUCH INSURANCE AS WILL PROTECT HIM FROM CLAIMS WHICH MAY ARISE OUT OF OR RESULT FROM THE CONTRACTOR'S OPERATIONS UNDER THE CONTRACT.
5. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND ARCHITECT FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES ARISING OUT OF OR RESULTING FROM THE PERFORMANCE OF THE WORK.
6. ALL CONTRACTORS AND SUBCONTRACTORS SHALL VERIFY CONDITIONS AND DIMENSIONS AT THE SITE AND SHALL INFORM THE ARCHITECT OF ANY AND ALL ERRORS, OMISSIONS, AND CLARIFICATIONS BEFORE THE START OF THE WORK.
7. ANY DEVIATION BETWEEN THE DIMENSIONS FURNISHED ON THE DRAWINGS AND ACTUAL FIELD DIMENSIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL THE CUTTING, FITTING, AND PATCHING THAT MAY BE REQUIRED TO COMPLETE WORK OR TO MAKE ITS SEVERAL PARTS FIT TOGETHER CORRECTLY.
10. ALL WORK SHALL BE PERFORMED BY SKILLED TRADESMEN AND SHALL BE PERFORMED IN A WORKMANLIKE MANNER IN ACCORDANCE WITH GENERALLY ACCEPTED STANDARDS.
11. ALL EQUIPMENT PROVIDED BY THE CONTRACTOR OR THE OWNER SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
12. WHERE THE CODE PRESCRIBES THE USE OF A PARTICULAR MATERIAL AND ALTERNATE MATERIALS ARE TO BE SUBSTITUTED, IT SHALL BE SHOWN TO BE EQUIVALENT TO THE SPECIFIED MATERIAL TO THE SATISFACTION OF THE COMMISSIONER OF BUILDINGS.
13. ALL ELECTRICAL WIRING AND CIRCUITRY SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. ELECTRICAL WORK SHALL COMPLY WITH NATIONAL AND LOCAL ELECTRICAL CODES, AND THE REQUIREMENTS OF THE LOCAL UTILITY COMPANY.
14. THE CONTRACTOR WARRANTS TO THE TENANT THAT ALL WORK WILL BE OF THE BEST QUALITY, FREE FROM FAULTS AND DEFECTS. ALL WORK SHALL BE GUARANTEED FOR ONE YEAR STARTING WITH THE DATE OF FINAL PAYMENT. DURING THE TIME THE CONTRACTOR SHALL MAKE GOOD ANY DEFECTS IN THE WORK.

HOUSING MAINTENANCE NOTES

THE FOLLOWING REPRESENTS A SUMMARY OF APPLICABLE PROVISIONS AND REQUIREMENTS OF THE HOUSING MAINTENANCE CODE IN EFFECT AS OF THE DATE OF THIS FILING.

SUBCHAPTER II

27-2012 THE OCCUPANT OF A DWELLING SHALL MAINTAIN IT IN A CLEAN AND SANITARY CONDITION.
27-2013 THE BUILDING OWNER SHALL MAINTAIN WALLS AND CEILINGS IN PUBLIC AREAS WITH PAINT OR WALLPAPER. THE BUILDING OWNER SHALL KEEP RECORDS OF SUCH MAINTENANCE.
27-2014 WINDOW FRAMES AND SASHES SHALL BE PAINTED WITH ONE COAT OF EXTERIOR PAINT EVERY FIVE YEARS. THIS PROVISION SHALL NOT APPLY TO ALUMINUM OR OTHER CORROSION-RESISTANT WINDOWS.
27-2015 COURTS AND SHAFTS WHICH DO NOT OPEN DIRECTLY ONTO A STREET SHALL BE WHITEWASHED, AND SHALL BE MAINTAINED IN A CLEAN AND PAINTED CONDITION.
27-2018 THE BUILDING OWNER SHALL KEEP THE PREMISES FREE FROM RODENTS AND OTHER INFESTATIONS OF INSECTS OR PESTS.
27-2021 THE BUILDING OWNER SHALL PROVIDE AND MAINTAIN APPROVED FACILITIES FOR COLLECTION OF WASTES. COLLECTED WASTE SHALL BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF AGENCIES HAVING JURISDICTION.
27-2024 THE BUILDING OWNER SHALL MAINTAIN AN ADEQUATE SUPPLY OF PURE AND WHOLESOME WATER TO EACH DWELLING UNIT.
27-2026 THE BUILDING OWNER SHALL PROPERLY MAINTAIN THE PLUMBING AND DRAINAGE SYSTEM.
27-2027 ROOFS, TERRACES, YARDS, AND OTHER OPEN AREAS SHALL BE PROPERLY PITCHED AND DRAINED TO CARRY STORM WATER INTO THE STREET STORM WATER DRAIN.
27-2028 EACH DWELLING UNIT SHALL BE PROVIDED WITH HEAT FROM A CENTRAL HEATING SYSTEM AT THE MINIMUM TEMPERATURE AND FOR THE HOURS AND DURATION SPECIFIED IN THIS ARTICLE.
27-2029 THE BUILDING TEMPERATURE SHALL BE MAINTAINED IN ACCORDANCE WITH THIS SECTION.
27-2031 HOT WATER SHALL BE SUPPLIED TO EACH UNIT AT A MINIMUM TEMPERATURE OF 120 DEGREES BETWEEN THE HOURS OF SIX A.M. AND MIDNIGHT.
27-2037 EVERY DWELLING UNIT SHALL BE EQUIPPED WITH ELECTRIC LIGHTING.
27-2038 PUBLIC HALLS AND STAIRWAYS SHALL BE EQUIPPED WITH ELECTRIC LIGHTING IN COMPLIANCE WITH THE REQUIREMENTS OF THIS SECTION. LIGHTING SHALL CONSIST OF 25 WATTS INCANDESCENT LIGHTING OR 4 WATTS COOL WHITE FLUORESCENT LIGHTING PER 25 SQUARE FEET OF FLOOR AREA.
27-2040 LIGHTING SHALL BE PROVIDED OUTSIDE THE BUILDING ENTRANCE IN COMPLIANCE WITH THIS SECTION.
27-2041 ENTRANCE DOORS SHALL BE PROVIDED WITH PEEPHOLES.
27-2042 THE ELEVATOR SHALL BE EQUIPPED WITH A MIRROR FOR SECURITY PURPOSES.
27-2043 EACH DWELLING UNIT ENTRANCE DOOR SHALL BE EQUIPPED WITH A CHAIN DOOR GUARD AND KEY LOCK WITH A KEY-OPERATED DEAD-BOLT.
27-2045 EACH DWELLING UNIT SHALL BE EQUIPPED WITH ONE OR MORE APPROVED SMOKE DETECTORS IN COMPLIANCE WITH THIS SECTION AND OTHER APPLICABLE CODES AND REGULATIONS.
27-2047 THE BUILDING SHALL BE PROVIDED WITH APPROVED MAILBOXES.
27-2048 EACH FLOOR SHALL BE POSTED WITH A SIGN WHICH STATES THE NUMBER OF THE FLOOR.
27-2049 STREET NUMBERS SHALL BE POSTED.
27-2050 SPRINKLERS SHALL BE MAINTAINED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION.

SUBCHAPTER III

ARTICLE 1 LIGHTING AND VENTILATION OF DWELLING UNITS SHALL COMPLY WITH THIS ARTICLE AND WITH ALL OTHER APPLICABLE CODES AND REGULATIONS.
ARTICLE 2 SANITARY FACILITIES WATER CLOSETS SHALL BE LOCATED AND CONSTRUCTED IN COMPLIANCE WITH THIS ARTICLE AND WITH ALL OTHER APPLICABLE CODES AND REGULATIONS.
ARTICLE 3 KITCHENS AND KITCHENETTES
27-2070 EVERY DWELLING UNIT SHALL BE PROVIDED WITH A KITCHEN OR KITCHENETTE EQUIPPED WITH A SINK AND COOKING RANGE.
27-2071 EVERY KITCHEN OR KITCHENETTE SHALL BE PROVIDED WITH LIGHTING AND VENTILATION COMPLYING WITH THIS SECTION AND WITH ALL OTHER APPLICABLE CODES AND REGULATIONS.
ARTICLE 4 MINIMUM ROOM SIZES AND OCCUPANCY OF DWELLING UNITS SHALL COMPLY WITH THIS ARTICLE AND WITH ALL OTHER APPLICABLE CODES AND REGULATIONS.

SUBCHAPTER IV

ARTICLE 2 THE BUILDING OWNER SHALL REGISTER THE BUILDING WITH CITY AGENCIES AS REQUIRED BY THIS ARTICLE PRIOR TO OBTAINING A CERTIFICATE OF OCCUPANCY

1.

SEPARATE APPLICATIONS

WORK TYPE	DOB JOB NUMBER
EXCAVATION	
STRUCTURAL	
FOUNDATION	
MECHANICAL	
PLUMBING	
SPRINKLER	
STANDPIPE	
FIRE ALARM	
BUILDER PAVEMENT PLAN	
CURB CUT	

LIST OF DRAWINGS

G-001.00	PLOT PLAN, LEGEND, GENERAL NOTES
G-002.00	A.D.A NOTES AND DIAGRAMS
G-003.00	WALL PARTITIONS
Z-001.00	ZONING ANALYSIS
Z-002.00	ZONING ANALYSIS
Z-003.00	ZONING AREAS
Z-004.00	ZONING DEDUCTIONS
Z-005.00	ZONING ANALYSIS
A-100.00	CELLAR FLOOR PLANS
A-101.00	GROUND FLOOR PLANS
A-102.00	SECOND FLOOR PLAN
A-103.00	THIRD FLOOR PLAN
A-104.00	TYPICAL FLOOR PLAN
A-105.00	SEVENTH FLOOR PLAN
A-106.00	EIGHTH FLOOR PLAN
A-107.00	ROOF PLAN
A-200.00	SECTION A-A
A-201.00	SECTION B-B
A-202.00	SECTION C-C
A-300.00	NORTH ELEVATION
A-301.00	EAST ELEVATION
A-302.00	SOUTH ELEVATION
A-303.00	WEST ELEVATION
A-400.00	RCP-CELLAR
A-401.00	RCP-GROUND FLOOR
A-402.00	RCP-SECOND FLOOR
A-403.00	RCP-THIRD FLOOR
A-404.00	RCP- FOURTH TO SIXTH
A-405.00	RCP- SEVENTH TO EIGHTH
A-500.00	INTERIOR ELEVATIONS
A-501.00	INTERIOR ELEVATIONS
A-600.00	DETAILS
A-601.00	DETAILS
A-700.00	SCHEDULES
A-701.00	SCHEDULES

CONTROL INSPECTIONS

* PROVIDED BY SEPARATE ENGINEERS

STRUCTURAL STEEL - WELDING	BC 1704.3.1
STRUCTURAL STEEL - HIGH STRENGTH BOLTING	BC 1704.3.3
STRUCTURAL STEEL - ERECTION AND BOLTING	BC 1704.3.2
STRUCTURAL COLD FORMED STEEL	BC 1704.3.4
STRUCTURAL SAFETY - STRUCTURAL STABILITY	BC 1704.19
CONCRETE - CAST IN PLACE	BC 1704.4
MASONRY	BC 1704.5
MECHANICAL SYSTEMS	BC 1704.16
EXCAVATIONS - SHEETING, SHORING AND BRACING	BC1704.20.2
SPRINKLER SYSTEMS	BC 1704.23
STANDPIPE SYSTEMS	BC 1704.24
FIRE-RESISTANT PENETRATIONS AND JOINTS	BC 1704.27
SPRAYED FIRE RESISTANT MATERIALS	BC 1704.5
CONCRETE DESIGN MIX	BC 1905.3 / BC 1913.5
CONCRETE SAMPLING AND TESTING	BC 1905.6 / BC 1913.10
ENERGY CODE COMPLIANCE INSPECTIONS	BC 110.3.5
FIRE-RESISTANCE RATED CONSTRUCTION	BC 110.3.4
SOIL - SITE PREPARATION	BC 1704.7.1

BUILDING DEPT. NOTES

1. ALL WORK SHALL COMPLY WITH THE RULES AND REGULATIONS OF THE CITY OF NEW YORK, THE STATE OF NEW YORK AND ALL OTHER AUTHORITIES HAVING JURISDICTION.
2. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND APPROVALS REQUIRED BY NEW YORK LAW PRIOR TO START OF WORK.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ARRANGING AND PAYING FOR ALL CONTROLLED INSPECTIONS REQUIRED BY LAW AND FOR ARRANGING ALL CONSTRUCTION PLUMBING, ELECTRICAL OR OTHER INSPECTIONS RELATED TO THE PROPOSED WORK. A PROPOSED SCHEDULE OF THESE INSPECTIONS SHALL BE INCLUDED IN THE PROPOSED WORK SCHEDULE. CONTRACTOR SHALL PROVIDE INSPECTION SIGN-OFFS TO OWNER AND ARCHITECT.
4. ALL MATERIALS AND CONSTRUCTION TO BE INCORPORATED IN THE WORK SHALL BE IN STRICT ACCORDANCE WITH THE LATEST EDITIONS OF THE ASTM SPECIFICATIONS APPLICABLE AND SHALL CONFORM TO THE STANDARDS AND RECOMMENDATIONS OF THE VARIOUS TRADE INSTITUTES (A.C.I., A.I.C., ETC.) WHERE APPLICABLE. ALL MATERIALS INCORPORATED INTO THE WORK SHALL BE NEW.
5. CONSTRUCTION SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, RULES AND REGULATIONS PERTAINING TO LABOR, MATERIALS AND INSTALLATIONS.
6. PRIOR TO THE START OF WORK CONTRACTOR SHALL PROVIDE CERTIFICATE OF INSURANCE IN AN AMOUNT TO SATISFY NEW YORK CITY AND STATE LAW AND THE PROPERTY OWNER, NAMING THE BUILDING OWNER, THE BUILDING MANAGEMENT, THE ARCHITECT AND OTHER PARTIES AS THEY REQUIRE AS ADDITIONAL INSURED.
7. ALL PLUMBING, ELECTRICAL, HEATING AND OTHER SUB-CONTRACT WORK SHALL BE PERFORMED BY LICENSED SUBCONTRACTORS WHOSE INSURANCE SHALL BE COVERED UNDER THE CONTRACTOR'S POLICY.
8. A WORK PERMIT FROM THE DEPARTMENT OF BUILDINGS SHALL BE ACQUIRED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
9. ALL STRUCTURAL WORK TO BE FILED UNDER SEPARATE APPLICATION.
10. ALL ELECTRICAL WORK TO BE FILED UNDER SEPARATE APPLICATION AT THE B.E.C.
11. MECHANICAL/HVAC WORK TO BE FILED UNDER SEPARATE APPLICATION.

SMOKE /CARBON MONOXIDE DETECTOR NOTES (LL7/04)

1. AS PER LOCAL LAW 7/04COMBINATION SMOKE & CARBON MONOXIDE DETECTORS SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF BEDROOMS DETECTORS INSTALLED TO PROTECT A SLEEPING AREA SHALL BE LOCATED OUTSIDE THE BEDROOM BUT IN THE IMMEDIATE VICINITY OF THE SLEEPING AREA.
2. EACH DETECTOR SHALL HAVE AN INTEGRAL TEST MEANS TO PERMIT THE OCCUPANT TO CHECK THAT IT IS OPERATIONAL, WITH A CONTINUOUS POWER DISPLAY INDICATOR LIGHT.
3. DETECTOR SHALL BE LOCATED ON OR NEAR THE CEILING, AND WITHIN FIFTEEN FEET OF ALL ROOMS USED FOR SLEEPING PURPOSES.
4. IF CEILING MOUNTED, THE CLOSEST EDGE OF THE DETECTOR SHALL BE A MIN. OF FOUR INCHES FROM ANY WALL. IF WALL MOUNTED, THE CLOSEST EDGE OF THE DETECTOR SHALL BE A MIN. OF FOUR INCHES AND A MAX. OF TWELVE INCHES FROM THE CEILING.
5. ALL AS PER R.S. 17-14 AND LL#7/2004.

TENANT PROTECTION NOTE 2014

1. EGRESS: AT ALL TIMES IN THE COURSE OF CONSTRUCTION PROVISIONS SHALL BE MADE FOR ADEQUATE EGRESS AS REQUIRED BY THIS CODE AND THE TENANT PROTECTION PLAN SHALL IDENTIFY THE EGRESS THAT WILL BE PROVIDED. REQUIRED EGRESS SHALL NOT BE OBSTRUCTED AT ANY TIME EXCEPT WHERE APPROVED BY THE COMMISSIONER.
2. FIRE SAFETY: ALL NECESSARY LAWS AND CONTROLS, INCLUDING THOSE WITH RESPECT TO OCCUPIED DWELLINGS, AS WELL AS ADDITIONAL SAFETY MEASURES NECESSITATED BY THE CONSTRUCTION SHALL BE STRICTLY OBSERVED.
3. HEALTH REQUIREMENTS: SPECIFICATION OF METHODS TO BE USED FOR CONTROL OF DUST, DISPOSAL OF CONSTRUCTION DEBRIS, PEST CONTROL AND MAINTENANCE OF SANITARY FACILITIES, AND LIMITATION OF NOISE TO ACCEPTABLE LEVELS SHALL BE INCLUDED.

3.1. THERE SHALL BE INCLUDED A STATEMENT OF COMPLIANCE WITH APPLICABLE PROVISIONS OF LAW RELATING TO LEAD AND ASBESTOS

4. COMPLIANCE WITH HOUSING STANDARDS: THE REQUIREMENTS OF THE NEW YORK CITY HOUSING MAINTENANCE CODE, AND, WHERE APPLICABLE, THE NEW YORK STATE MULTIPLE DWELLING LAW SHALL BE STRICTLY OBSERVED.
5. STRUCTURAL SAFETY: NO STRUCTURAL WORK SHALL BE DONE THE MAY ENDANGER THE OCCUPANTS.
6. NOISE RESTRICTIONS: WHERE HOURS OF THE DAY OR HOURS OF THE WEEK IN WHICH CONSTRUCTION WORK MAY BE UNDERTAKEN ARE LIMITED PURSUANT TI THE NEW YORK CITY NOISE CONTROL CODE, SUCH LIMITATIONS SHALL BE STATED.

ABBREVIATIONS

& AND
@ AT
\# POUND OR NUMBER

ABV. ABOVE
ACOUS. ACOUSTICAL
ADDL. ADDITIONAL
AFF. ABOVE FINISH FLOOR
ALUM. ALUMINUM
APPROX. APPROXIMATE
A.C.T. ACOUSTICAL CEILING TILE
AVE. AVENUE

BLDG. BUILDING
BOT. BOTTOM

CAB CABINET
C/C CENTER TO CENTER
CER. CERAMIC
C.F. CUBIC FEET
CFM. CUBIC FEET PER MINUTE
C.J. CONTROL JOINT
C.L. CENTER LINE
CLG. CEILING
C.M.U. CONCRETE MASONRY UNIT
COL. COLUMN
CONC. CONCRETE
CONST. CONSTRUCTION
COORD. COORDINATE
CPT. CARPET (ED)
CPU. CENTRAL PROCESSING UNIT
CRT. CATHOID RAY TUBE
CT. CERAMIC TILE

DEMO. DEMOLISH
DEPT. DEPARTMENT
DET. DETAIL
DF. DRINKING FOUNTAIN
DIA. DIAMETER

& AND
@ AT
\# POUND OR NUMBER

ABV. ABOVE
ACOUS. ACOUSTICAL
ADDL. ADDITIONAL
AFF. ABOVE FINISH FLOOR
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CT. CERAMIC TILE

DEMO. DEMOLISH
DEPT. DEPARTMENT
DET. DETAIL
DF. DRINKING FOUNTAIN
DIA. DIAMETER

I/C INTERCOM
IN. INCH (ES)
INCAND. INCANDESCENT
INSUL. INSULATION

LAM. LAMINATE (D)
LAV. LAVATORY
LB. POUND
LH. LEFT HAND
LT.WT. LIGHT WEIGHT

MAX. MAXIMUM
MECH. MECHANICAL
MED. MEDICAL
MFG. MANUFACTURE (R) (D)
MIN. MINIMUM
MISC. MISCELLANEOUS
MTD. MOUNTED, MOUNTING

N.A. NOT APPLICABLE
NIC. NOT IN CONTRACT
NO. NUMBER
NOM. NOMINAL
NRC. NOISE REDUCTION COEFFICIENT
NTS. NOT TO SCALE

O.C. ON CENTER
OPP. OPPOSITE

PL. PLASTIC LAMINATE
PREFAB. PREFABRICATE (D)
PREP. PREPARATION
PSI. POUNDS PER SQUARE INCH
PSF. POUNDS PER SQUARE FOOT
PT'D. PAINTED
PTN. PARTITION
PVC. POLYVINYL CHLORIDE
QT. QUARRY TILE

RAD. RADIUS
REC. RECESS (ED)
REINF. REINFORCED
RELOC. RELOCATED
REQ'D. REQUIRED
REV. REVISION
RM. ROOM

S.C. SOLID CORE
SCH. SCHEDULE
SEC. SECTION
SF. SQUARE FEET
SHT. SHEET
SIM. SIMILAR
SPEC. SPECIFICATION, SPECIFIED
SQ. SQUARE
SQ. YD. SQUARE YARD
STD. STANDARD
STL. STEEL
STOR. STORAGE
STRUCT. STRUCTURAL
SURF. SURFACE MOUNT (ED)
SUSP. SUSPENDED

TEL. TELEPHONE
THK. THICK (NESS)
T.O.S. TOP OF SLAB
TYP. TYPICAL

UON. UNLESS OTHERWISE NOTED

VB. VINYL BASE
VCT. VINYL COMPOSITION TILE
VDT. VIDEO DISPLAY TERMINAL
VERT. VERTICAL
VWC. VINYL WALL COVERING

W/ WITH
WD. WOOD
W/O WITHOUT

AERIAL MAP

BUILDING DEPT. NOTES

178-02 HILLSIDE AVENUE

QUEENS	
BLOCK	9913
LOT	25
ZONE	R7/R4-1/C2-4
MAP	14D

GENERAL CONDITIONS:

GENERAL CONDITIONS AND STANDARD DOCUMENTS OF THE AMERICAN INSTITUTE OF ARCHITECTS CAN BE INCLUDED IN THIS CONTRACT UPON THE REQUEST OF THE OWNER. COPIES OF THESE DOCUMENTS AND ALL OTHER REFERENCED MATERIALS ARE AVAILABLE FROM THE ARCHITECT UPON REQUEST. CONSULT THE PROVISIONS OF THE GENERAL CONDITIONS IN DETAIL FOR APPLICABLE INFORMATION AS THEY HAVE IMPORTANT LEGAL CONSEQUENCES.

LAWS, ORDINANCES AND PERMITS:

THE CONTRACTOR(S) SHALL GIVE ALL NOTICES AND COMPLY WITH ALL APPLICABLE FEDERAL, STATE, MUNICIPAL AND IRC CODES, LAWS, RULES, ORDINANCES AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY BEARING ON THE PERFORMANCE OF THE WORK. THE CONTRACTOR(S) SHALL SECURE AND PAY FOR THE BUILDING PERMIT AND FOR ALL OTHER PERMITS, AGENCY FEES, LICENSES, CERTIFICATES OF INSPECTION AND APPROVAL NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK.

QUALITY OF WORK:

ALL WORK SHALL BE WITH ACCEPTED TRADE PRACTICE, AND ALL MATERIALS SHALL BE OF THE PROPER GRADE FOR THEIR PURPOSE. THE CONTRACTOR IS RESPONSIBLE TO NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR NON-CONFORMITIES IN THE DOCUMENTS AND TO BEAR ALL COSTS ARISING FROM RECTIFYING WORK PERFORMED CONTRARY TO LAW OR BEST PRACTICE. SUBSTITUTIONS FOR SPECIFIED PRODUCTS SHALL ONLY BE APPROVED IN WRITING AND MUST BE COORDINATED WITH ADJACENT MATERIALS.

WARRANTY:

THE CONTRACTOR GUARANTEES THAT ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE OF GOOD QUALITY USING NEW MATERIALS AND EQUIPMENT UNLESS OTHERWISE STATED. ANY WORK FOUND TO BE DEFECTIVE OR NOT IN ACCORDANCE THE CONTRACT DOCUMENTS WITHIN ONE (1) YEAR OF OWNER ACCEPTANCE SHALL BE PROMPTLY CORRECTED BY THE CONTRACTOR. ANY CORRESPONDING DAMAGE CAUSED DURING THIS REPAIR WORK SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

PROTECTION OF PERSONS AND PROPERTY:

THE CONTRACTOR SHALL COMPLY WITH ALL LAWS, CODES AND ORDINANCES NECESSARY TO ADEQUATELY PROTECT ALL PERSONS AND PROPERTY ASSOCIATED WITH THIS CONTRACT FROM INJURY, DAMAGE OR LOSS. HE SHALL INSTALL AND MAINTAIN ALL REASONABLE SAFEGUARDS, NOTICES, BARRIERS, SCAFFOLDING, LADDERS AND PRECAUTIONS REQUIRED TO PROVIDE THIS PROTECTION.

INSURANCE:

THE CONTRACTOR SHALL PROVIDE THE OWNER WITH CERTIFICATES OF INSURANCE AT ADEQUATE AMOUNTS OF LIABILITY, PROPERTY DAMAGE AND WORKMEN'S COMPENSATION AS REQUIRED BY LOCAL CODES AND ACCEPTED PRACTICE. THE OWNER WILL PROVIDE THEFT, VANDALISM, MALICIOUS MISCHIEF AND FIRE INSURANCE ON 100% OF INSURABLE VALUE OF THE STRUCTURE. THE OWNER'S INSURANCE WILL NOT DUPLICATE COVERAGE OF THE CONTRACTOR'S TOOLS AND EQUIPMENT.

PROJECT COORDINATION:

THE CONTRACTOR(S) SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH OTHER TRADES, INCLUDING WORK OR ITEMS SUPPLIED UNDER SEPARATE CONTRACT(S) BY THE OWNER. HE SHALL BE RESPONSIBLE FOR PROPERLY LAYING OUT THE LINES, LEVELS, GRADES AND MEASUREMENTS FOR FIGURES SHOWN ON THE DRAWINGS AND REPORT ERRORS OR INACCURACIES TO THE ARCHITECT BEFORE COMMENCING WORK.

TEMPORARY FACILITIES:

FURNISH ALL LABOR AND MATERIALS REQUIRED FOR THE INSTALLATION OF TEMPORARY CONNECTIONS TO UTILITIES, SERVICES AND CONTROLS AS SPECIFIED. INSTALL THESE CONNECTIONS IN MANNER AND LOCATION(S) ACCEPTABLE TO THE OWNER, ARCHITECT AND LOCAL AUTHORITIES. MAINTAIN THESE FACILITIES AND RESTORE THE SERVICE AND SOURCES OF SUPPLY TO PROPER OPERATING CONDITIONS WHEN THE TEMPORARY CONNECTIONS ARE NO LONGER REQUIRED.

PROTECTIONS:

PROVIDE TEMPORARY BARRICADES AND OTHER FORMS OF PROTECTION TO OWNER'S PERSONNEL AND GENERAL PUBLIC FROM INJURY DUE TO SELECTIVE DEMOLITION WORK.

PROVIDE PROTECTIVE MEASURES AS REQUIRED TO PROVIDE FREE AND SAFE PASSAGE OF OWNER'S PERSONNEL AND GENERAL PUBLIC TO OCCUPIED PORTIONS OF THE BUILDING.

PROVIDE INTERIOR AND EXTERIOR SHORING, BRACING OR SUPPORT TO PREVENT MOVEMENT, SETTLEMENT OR COLLAPSE OF STRUCTURE OR ELEMENT TO BE DEMOLISHED AND ADJACENT FACILITIES OR WORK TO REMAIN.

PROTECT FROM DAMAGE EXISTING FINISH WORK THAT IS TO REMAIN IN PLACE AND BECOMES EXPOSED DURING DEMOLITIONS OPERATIONS.

PROTECT FLOORS WITH SUITABLE COVERINGS WHEN NECESSARY.

CONSTRUCT TEMPORARY INSULATED, DUST-PROOF PARTITIONS WHERE REQUIRED TO SEPARATE AREAS WHERE NOISY OR EXTENSIVELY DIRTY OR DUSTY OPERATIONS ARE PERFORMED. EQUIP PARTITIONS WITH DUST-PROOF DOORS AND SECURITY LOCKS.

PROVIDE TEMPORARY WEATHER PROTECTION DURING INTERVAL BETWEEN DEMOLITION AND REMOVAL OF EXISTING CONSTRUCTION ON EXTERIOR SURFACES AND INSTALLATION OF NEW CONSTRUCTION TO ENSURE THAT NO WATER LEAKAGE OR DAMAGE OCCURS TO STRUCTURE OR INTERIOR AREAS OF EXISTING BUILDING.

REMOVE PROTECTIONS AT COMPLETION OF WORK.

TRAFFIC: CONDUCT SELECTED DEMOLITION OPERATIONS AND DEBRIS REMOVAL TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS AND OTHER ADJACENT OCCUPIED OR USED FACILITIES.

SUPERINTENDENT: THE CONTRACTOR SHALL EMPLOY A COMPETENT SUPERINTENDENT AND NECESSARY ASSISTANTS WHO SHALL BE IN ATTENDANCE AT THE PROJECT DURING THE PROGRESS OF THE WORK. THE SUPERINTENDENT SHALL REPRESENT THE CONTRACTOR AND ALL COMMUNICATIONS GIVEN TO THE SUPERINTENDENT SHALL BE AS BINDING AS IF GIVEN TO THE CONTRACTOR. IMPORTANT COMMUNICATIONS SHALL BE CONFIRMED IN WRITING. OTHER COMMUNICATIONS SHALL BE CONFIRMED ON WRITTEN REQUEST IN EACH CASE.

FEES, PERMITS AND NOTICES:
UNLESS OTHERWISE PROVIDED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL SECURE AND PAY FOR THE BUILDING PERMIT AND FOR ALL OTHER PERMITS AND GOVERNMENTAL FEES, LICENSES AND INSPECTIONS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK WHICH ARE CUSTOMARILY SECURED AFTER EXECUTION OF THE CONTRACT AND WHICH ARE LEGALLY REQUIRED AT THE TIME THE BIDS ARE RECEIVED.

THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY BEARING ON THE PERFORMANCE OF THE WORK.

IF THE CONTRACTOR PERFORMS ANY WORK KNOWING IT TO BE CONTRARY TO SUCH LAWS, ORDINANCES, RULES AND REGULATIONS, AND WITHOUT SUCH NOTICE TO THE ARCHITECT, HE SHALL ASSUME FULL RESPONSIBILITY AND SHALL BEAR ALL COSTS ATTRIBUTABLE THERETO.

PROGRESS SCHEDULE:

THE CONTRACTOR, IMMEDIATELY AFTER BEING AWARDED THE CONTRACT, SHALL PREPARE AND SUBMIT FOR THE OWNER'S AND ARCHITECT'S INFORMATION AN ESTIMATED PROGRESS SCHEDULE FOR THE WORK. THE PROGRESS SCHEDULE SHALL BE RELATED TO THE ENTIRE PROJECT TO THE EXTENT REQUIRED BY THE CONTRACT DOCUMENTS, AND SHALL PROVIDE FOR EXPEDITIOUS AND PRACTICABLE EXECUTION OF WORK.

DOCUMENTS AND SAMPLES AT THE SITE:

THE CONTRACTOR SHALL MAINTAIN AT THE SITE FOR THE OWNER ONE RECORD COPY OF ALL DRAWINGS, SPECIFICATIONS, ADDENDA, CHANGE ORDERS AND OTHER MODIFICATIONS, IN GOOD ORDER AND MARKED CURRENTLY TO RECORD ALL CHANGES MADE DURING CONSTRUCTION AND APPROVED SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. THESE SHALL BE AVAILABLE TO THE ARCHITECT AND SHALL BE DELIVERED TO HIM FOR THE OWNER UPON COMPLETION OF THE WORK.

USE OF SITE:

THE CONTRACTOR SHALL CONFINE OPERATIONS AT THE SITE TO AREAS PERMITTED BY LAW, ORDINANCES, PERMITS AND THE CONTRACT DOCUMENTS AND SHALL NOT UNREASONABLY ENCUMBER THE SITE WITH ANY MATERIALS OR EQUIPMENT.

ALTERNATES:

THE CONTRACTOR SHALL COORDINATE AND MODIFY ADJACENT WORK AS NECESSARY TO ENSURE FULL INTEGRATION OF EACH ALTERNATE INTO THE PROJECT. BIDDERS FOR GENERAL CONSTRUCTION SHALL STATE THE AMOUNT TO BE ADDED OR DEDUCTED FROM THE BASE BID FOR THE FOLLOWING ALTERNATES:

SCOPE OF WORK:

APPLICATION FILED HEREIN FOR THE CONSTRUCTION OF A NEW BUILDING.

CLEAN UP:

THE PREMISES AND THE JOB SITE SHALL BE MAINTAINED IN A REASONABLY NEAT AND ORDERLY CONDITION. REMOVE ACCUMULATED TRASH, WASTE AND REFUSE RESULTING FROM EACH DAY'S WORK. PRIOR TO OWNER ACCEPTANCE, CLEAN OR RECLINE THE WORK IN ORDER TO PROVIDE "BROOM CLEAN" CONDITION. REMOVE STAINS, DIRT AND FINGERPRINTS FROM WINDOWS DOORS WALLS FLOORS, CEILINGS, FIXTURES AND EQUIPMENT. POLISH HARDWARE AND REMOVE LABELS AND PROTECTIVE COVERINGS AS REQUIRED.

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, N.Y. 11432

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
5	DOB FILING SET	6/1/2015

ARCHITECT:

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New York, New York, 10018
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ENGINEER/ CONSULTANT:

ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

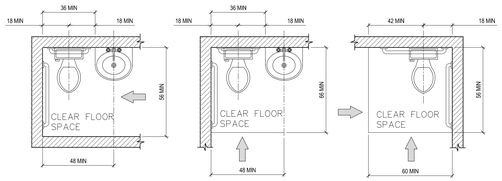
GENERAL NOTES, SITE PLAN

DWG NO:

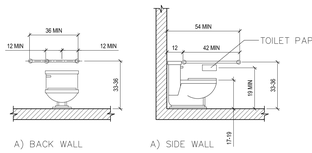
G-001.00

1 of 35

DOB JOB NUMBER



01 CLEAR FLOOR SPACE AT WATER CLOSETS
SCALE: N.T.S.



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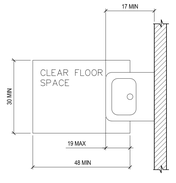

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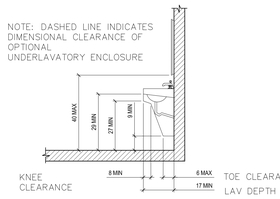

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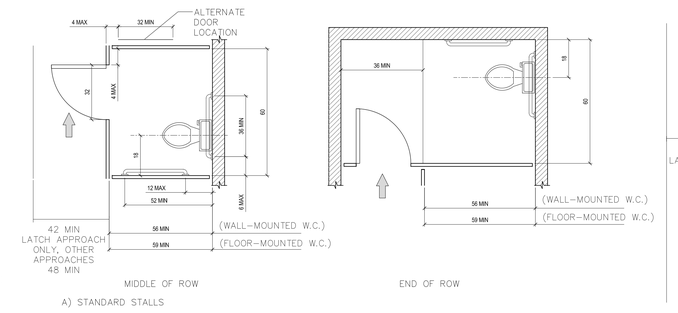

05 TOILET STALLS
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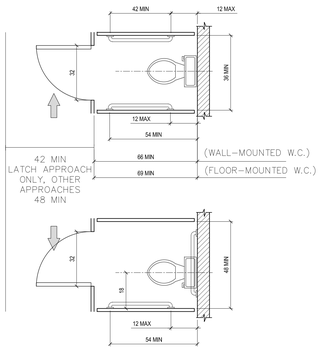

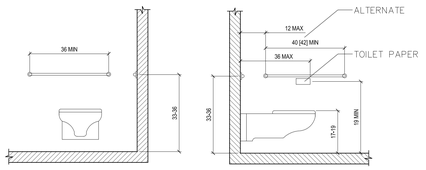

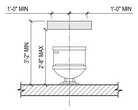

06 HD.2 REINFORCED AREAS FOR GRAB BARS
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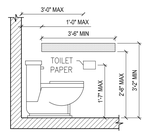

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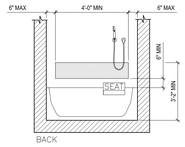

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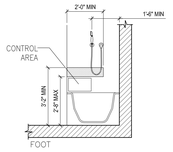
SCALE: NTS



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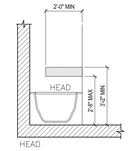

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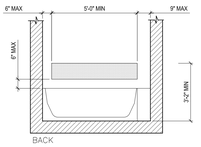

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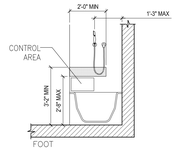

12 HD.2 SECTION WITH SEAT AT HEAD OF TUB
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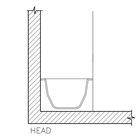

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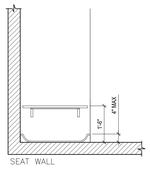

14 HD.2 SECTION SHOWING 36" X 36" STALL
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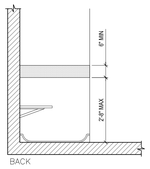

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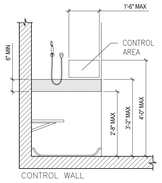

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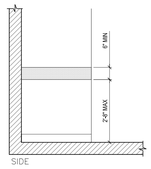

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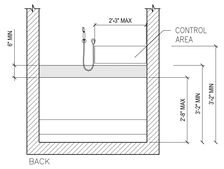

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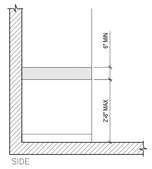

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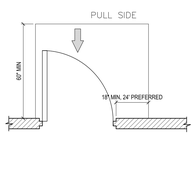
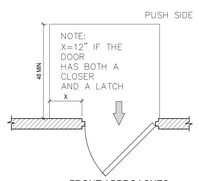


08 FRONT APPROACHES SWINGING DOORS
SCALE: NTS



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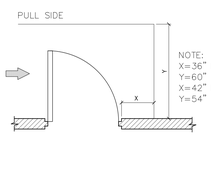

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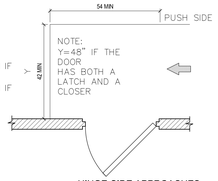

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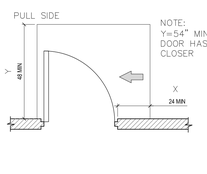

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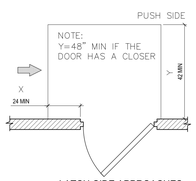
SCALE: NTS



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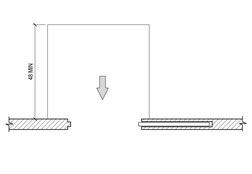

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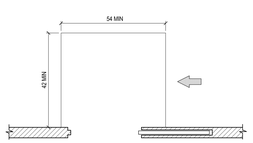
SCALE: NTS



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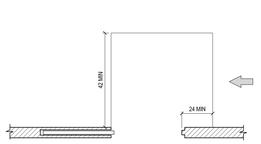

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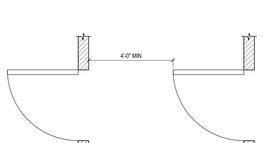
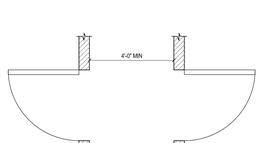


16 MANEUVERING CLEARANCES AT DOORS - TWO HINGED DOORS IN SERIES
SCALE: NTS



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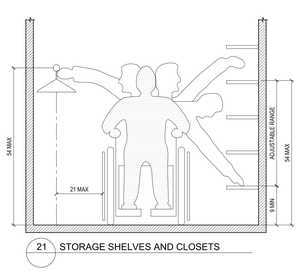
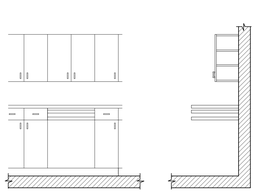
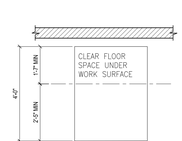


21 STORAGE SHELVES AND CLOSETS



18 KITCHEN CABINETS AND BASE REMOVED AND HEIGHT ALTERNATIVES
SCALE: NTS



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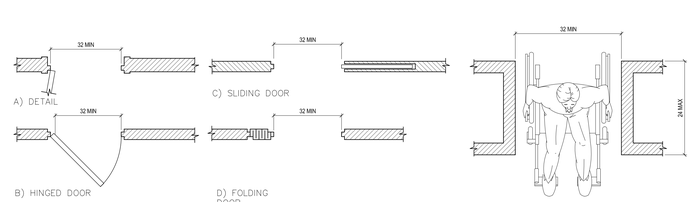

20 CLEAR DOORWAY WIDTH AND DEPTH
SCALE: N.T.S.

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, N.Y. 11432

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
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DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

A.D.A. DIAGRAMS

DWG NO:

G-002.00

2 of 35

DOB JOB NUMBER

PARTITION TYPES

0 — NON RATED INTERIOR PARTITION

SEE NOTES:

PARTITIONS TO BE AS FOLLOWS:

0.1 (1) LAYER OF 5/8" GYP. BD. ON EACH SIDE OF 2 1/2" MTL. STUDS @ 16" O.C. [MAX HEIGHT 10'-9"]

0.2 (1) LAYER OF 5/8" GYP. BD. ON EACH SIDE OF 3 5/8" MTL. STUDS @ 16" O.C. [MAX HEIGHT 13'-6"]

0.3 (1) LAYER OF 5/8" GYP. BD. ON EACH SIDE OF 4" MTL. STUDS @ 16" O.C. TYPICAL PARTITION @ ELECTRICAL PANEL [MAX HEIGHT 14'-3"]

0.4 (1) LAYER OF 5/8" GYP. BD. ON EACH SIDE OF 6" MTL. STUDS @ 16" O.C. TYPICAL PARTITION @ KITCHEN PLUMBING [MAX HEIGHT 15'-0"]

NOTE:
INTERIOR PARTITIONS ONLY. (STUDS 12" O.C. @ KITCHEN CABINETS AND @ ELECTRIC PANEL TYPICAL)

1 — 1 HR 39 STC - BSA #301-60-SM INTERIOR PARTITION

SEE NOTES:

PARTITIONS TO BE AS FOLLOWS:

1.1 (1) LAYER OF 5/8" FIRECODE GYP. BD. ON EACH SIDE OF 1 5/8" MTL. STUDS @ 16" O.C. [MAX HEIGHT 9'-0"]

1.2 (1) LAYER OF 5/8" FIRECODE GYP. BD. ON EACH SIDE OF 2 1/2" MTL. STUDS @ 16" O.C. [MAX HEIGHT 12'-0"]

1.3 (1) LAYER OF 5/8" FIRECODE GYP. BD. ON EACH SIDE OF 3 5/8" MTL. STUDS @ 16" O.C. [MAX HEIGHT 16'-0"]

NOTE:
INTERIOR PARTITIONS ONLY. (STUDS 12" O.C. @ KITCHEN CABINETS AND @ ELECTRIC PANEL TYPICAL)

2 — 2 HR 39 STC - BSA #301-60-SM INTERIOR PARTITION

SEE NOTES:

PARTITIONS TO BE AS FOLLOWS:

2.1 (2) LAYERS OF 5/8" FIRECODE GYP. BD. ON EACH SIDE OF 1 5/8" MTL. STUDS @ 16" O.C. [MAX HEIGHT 9'-0"]

2.2 (2) LAYERS OF 5/8" FIRECODE GYP. BD. ON EACH SIDE OF 2 1/2" MTL. STUDS @ 16" O.C. [MAX HEIGHT 12'-0"]

2.3 (2) LAYERS OF 5/8" FIRECODE GYP. BD. ON EACH SIDE OF 3 5/8" MTL. STUDS @ 16" O.C. [MAX HEIGHT 16'-0"]

NOTE:
INTERIOR PARTITIONS ONLY. (STUDS 12" O.C. @ KITCHEN CABINETS AND @ ELECTRIC PANEL TYPICAL)

3 — 50 STC - BSA #453-73-SM UNBALANCED DRYWALL PARTITION SYSTEM

SEE NOTES:

PARTITIONS TO BE AS FOLLOWS:

3 (2) LAYERS OF 5/8" GYP. BD. TYP. "X" ON EACH SIDE OF 3 5/8" MTL. STUDS @ 16" O.C. WITH 3" THERMAFIBER SAFB SOUND ATTENUATION BLANKET BETWEEN STUDS [MAX HEIGHT 9'-0"] AND BRACED AT 1/2 AND 2/3 OF STUD HEIGHTS.

NOTE:
PARTITIONS BETWEEN PUBLIC HALLS / APARTMENTS & APARTMENTS. (STUDS 12" O.C. @ KITCHEN CABINETS AND @ ELECTRIC PANEL TYPICAL)

4 — 2 HR 51 STC - BSA #43-77-SM LOAD BEARING AND NON LOAD BEARING PARTITION ASSEMBLY

SEE NOTES:

PARTITIONS TO BE AS FOLLOWS:

4 (2) LAYERS OF 5/8" GYP. BD. TYP. "X" ON EACH SIDE OF 3 5/8" MTL. STUDS @ 16" O.C. WITH 3" THERMAFIBER SAFB SOUND ATTENUATION BLANKET BETWEEN STUDS [MAX HEIGHT 9'-0"] AND BRACED AT 1/2 AND 2/3 OF STUD HEIGHTS.

NOTE:
PARTITIONS BETWEEN PUBLIC HALLS / APARTMENTS & APARTMENTS. (STUDS 12" O.C. @ KITCHEN CABINETS AND @ ELECTRIC PANEL TYPICAL)

5 — 1 HR 45 STC - BSA #173-77-SM PIPE CHASE WITHIN APARTMENT

SEE NOTES:

PIPE CHASE TO BE AS FOLLOWS:

5.1 (1) LAYER OF 5/8" GYP. BD. ON 1 5/8" MTL. STUDS @ 16" O.C. &
(1) LAYER OF 5/8" GYP. BD. ON 1 5/8" MTL. STUDS @ 16" O.C.
(OPPOSITE SIDE) [MAX HEIGHT 11'-6"]

5.2 (1) LAYER OF 5/8" GYP. BD. ON 2 1/2" MTL. STUDS @ 16" O.C. &
(1) LAYER OF 5/8" GYP. BD. ON 2 1/2" MTL. STUDS @ 16" O.C.
(OPPOSITE SIDE) [MAX HEIGHT 15'-6"]

5.3 (1) LAYER OF 5/8" GYP. BD. ON 3 5/8" MTL. STUDS @ 16" O.C. &
(1) LAYER OF 5/8" GYP. BD. ON 3 5/8" MTL. STUDS @ 16" O.C.
(OPPOSITE SIDE) [MAX HEIGHT 19'-3"]

NOTE:
PIPE CHASES WITHIN THE APARTMENT ONLY
(ALL METAL STUDS TO BE STAGGERED FROM OPPOSITE SIDE)

6 — 1 HR 52 STC - BSA #173-77-SM PIPE CHASE WITHIN APARTMENT

SEE NOTES:

PIPE CHASE TO BE AS FOLLOWS:

6.1 (1) LAYER OF 5/8" GYP. BD. ON 1 5/8" MTL. STUDS @ 24" O.C. &
(1) LAYER OF 5/8" GYP. BD. ON 1 5/8" MTL. STUDS @ 24" O.C.
(OPPOSITE SIDE) [MAX HEIGHT 11'-6"]

6.2 (1) LAYER OF 5/8" GYP. BD. ON 2 1/2" MTL. STUDS @ 24" O.C. &
(1) LAYER OF 5/8" GYP. BD. ON 2 1/2" MTL. STUDS @ 24" O.C. &
(OPPOSITE SIDE) [MAX HEIGHT 15'-6"]

6.3 (1) LAYER OF 5/8" GYP. BD. ON 3 5/8" MTL. STUDS @ 24" O.C.
(OPPOSITE SIDE) [MAX HEIGHT 19'-3"]

NOTE:
PIPE CHASES WITHIN THE APARTMENT ONLY
(ALL METAL STUDS TO BE STAGGERED FROM OPPOSITE SIDE)

7 — 2 HR 57 STC - BSA #173-77-SM PIPE CHASE BETWEEN PUBLIC HALL & APT. / APT. & APT.

SEE NOTES:

PIPE CHASE TO BE AS FOLLOWS:

7.1 (2) LAYERS OF 5/8" GYP. BD. ON 1 5/8" MTL. STUDS @ 24" O.C. &
(2) LAYERS OF 5/8" GYP. BD. ON 1 5/8" MTL. STUDS @ 24" O.C. (OPPOSITE SIDE) WITH 3-1/2" THERMAFIBER SAFB SOUND ATTENUATION BLANKET BETWEEN STUDS [MAX HEIGHT 11'-6"]

7.2 (2) LAYERS OF 5/8" GYP. BD. ON 2 1/2" MTL. STUDS @ 24" O.C. &
(2) LAYERS OF 5/8" GYP. BD. ON 2 1/2" MTL. STUDS @ 24" O.C.
(OPPOSITE SIDE) WITH 3-1/2" THERMAFIBER SAFB SOUND ATTENUATION BLANKET BETWEEN STUDS [MAX HEIGHT 15'-6"]

NOTE:
ALL METAL STUDS TO BE STAGGERED FROM OPPOSITE SIDE

8 — 2 HR 51 STC - BSA #354-76-SM CAVITY SHAFTWALL @ ELEVATORS

SEE NOTES:

SHAFT WALL TO BE AS FOLLOWS:

8.1 (2) LAYERS OF 5/8" GYP. BD. TYPE "X" ON CORRIDOR SIDE & 1" GYP. BD. LINER PANEL ON SHAFT SIDE OF 2 1/2" C-H MTL. STUDS @ 24" O.C. WITH 1-1/2" THERMAFIBER SAFB SOUND ATTENUATION BLANKET BETWEEN STUDS [MAX HEIGHT 10'-5" BASED ON 7.5 PSF WIND LOAD]

8.2 (2) LAYERS OF 5/8" GYP. BD. TYPE "X" ON CORRIDOR SIDE & 1" GYP. BD. LINER PANEL ON SHAFT SIDE OF 4" C-H MTL. STUDS @ 24" O.C. WITH 2" THERMAFIBER SAFB SOUND ATTENUATION BLANKET BETWEEN STUDS [MAX HEIGHT 13'-10" BASED ON 7.5 PSF WIND LOAD]

NOTE:
1- GYP. PANEL CAN'T BE ATTACHED BY SCREWS TO VERTICLE STUDS TYP.
2- PROVIDE EXTRA LAYER OF 5/8" GWB. ON 1 5/8" MTL. STUDS @ 24" O.C. @ ELEVATOR ALCOVE WHEN ELECTRICAL BOXES ARE NEEDED (SEE INTERIOR DESIGN DRAWINGS)

9 — 2 HR - BSA #542-68-SM TWO-HOUR FIRERATED NON COMBUSTIBLE ASSEMBLIES APPROVED EQUVALENT TO MASONRY

SEE NOTES:

SHAFT WALL TO BE AS FOLLOWS:

9.1 (1) LAYER OF 5/8" GYP. BD. FIRECODE TYPE "X" ON EACH SIDE OF CH STUD & 1" GYP. BD. LINER PANEL ISERTED INTO OPENINGS OF H SECTION OF 2 1/2" C-H MTL. STUDS @ 24" O.C. WITH 1-1/2" THERMAFIBER SAFB SOUND ATTENUATION BLANKET BETWEEN STUDS [MAX HEIGHT 10'-5" BASED ON 7.5 PSF WIND LOAD]

9.2 (1) LAYER OF 5/8" GYP. BD. FIRECODE TYPE "X" ON EACH SIDE OF CH STUD & 1" GYP. BD. LINER PANEL ISERTED INTO OPENINGS OF H SECTION OF 4" C-H MTL. STUDS @ 24" O.C. WITH 1-1/2" THERMAFIBER SAFB SOUND ATTENUATION BLANKET BETWEEN STUDS [MAX HEIGHT 13'-10" BASED ON 7.5 PSF WIND LOAD]

NOTE:
1- GYP. PANEL CAN'T BE ATTACHED BY SCREWS TO VERTICLE STUDS TYP.
2- PROVIDE EXTRA LAYER OF 5/8" GWB. ON 1 5/8" MTL. STUDS @ 24" O.C. @ ELEVATOR ALCOVE WHEN ELECTRICAL BOXES ARE NEEDED (SEE INTERIOR DESIGN DRAWINGS)

10 — 2 HR - BSA #542-68-SM TWO-HOUR FIRERATED NON COMBUSTIBLE ASSEMBLIES APPROVED EQUVALENT TO MASONRY

SEE NOTES:

SHAFT WALL TO BE AS FOLLOWS:

10.1 2" WIDE 24 GA. "J" RUNNER TRACKS SECURED AT TOP AND BOTTOM, 2" 24 GA. STEEL "H" STUDS @ 24" O.C. FITTED WITHIN
T & B RUNNER TRACKS, (2) LAYERS 1" LINER PANELS 24" WIDE
SET WITHIN STEEL "H" STUDS; "J" RUNNER OR REGULAR "C"
STUDS FRICTION FITED WITHIN T & B RUNNER TRACKS AT TERMINALS (JAMBS); (2) LAYERS SHEETROCK 1/2" FIRECODE "C"
PANELS ON ONE SIDE OR ONE LAYER EACH SIDE AS AN ALTERNATE.

NOTE:
1- GYP. PANEL CAN'T BE ATTACHED BY SCREWS TO VERTICLE STUDS TYP.
2- PROVIDE EXTRA LAYER OF 5/8" GWB. ON 1 5/8" MTL. STUDS @ 24" O.C. @ ELEVATOR ALCOVE WHEN ELECTRICAL BOXES ARE NEEDED (SEE INTERIOR DESIGN DRAWINGS)

11 — 2 HR - BSA #542-68-SM TWO-HOUR FIRERATED NON COMBUSTIBLE ASSEMBLIES APPROVED EQUVALENT TO MASONRY

SEE NOTES:

PARTITIONS TO BE AS FOLLOWS:

11 2 1/2", 25 GA. MTL. STUDS @ 24" O.C. FRICTION FITTED INTO
T & B STEEL 2 1/2" RUNNER TRUCKS; DOUBLE LAYER 1/2" SHEETROCK FIRECODE "C" (TYPE X GYPSUM WALL BOARD)
PANELS SECURED TO EA. SIDE OF METAL STUDS; A 24 GA. 36"X48" STEEL SHEET SECURED BETWEEN GYPSUM PANELS 18" ABOVE FLOOR LINE.

NOTE:
INTERIOR PARTITIONS ONLY. (STUDS 12" O.C. @ KITCHEN CABINETS AND @ ELECTRIC PANEL TYPICAL)

12 — 3 HR THREE-HOUR FIRERATED MASONRY CONSTRUCTION

SEE NOTES:

PARTITIONS TO BE AS FOLLOWS:

NOTE:
SEE STRUCTURAL PLANS FOR CONNECTION DETAILS.

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, N.Y. 11432

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
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PROFESSIONAL STAMP/ SIGNATURE

REGISTERED ARCHITECT CHRISTOPHER CARRANO 025077 STATE OF NEW YORK

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

WALL PARTITION TYPES

DWG NO:

G-003.00

DOB JOB NUMBER

Project	178-02 Hillside Avenue Jamaica, NY
Block	9913 Map 14d
Lot	25, 35, 41
Zoning	R7A (84.4%) R4-1 (15.6%) C2-4 Commercial Overlay
Lot Size	35,670 sf (As per Architectural Survey) Area under R7A district 30,172 sf Area under R41 district 5,498 sf

The property is partially located in Special Downtown Jamaica District and will be developed pursuant to the Quality Housing Program as a non inclusionary housing. The portion of R7A/ C2-4 district is located in the Special Downtown Jamaica District while the R4-1 is located outside of the Special Downtown Jamaica District

23-03, 26-41 Street tree planting shall be provided every 25ft of street frontage

23-12 Permitted obstruction in open space
(c) Balconies as per ZR 23-13

23-132 Balconies
(a) Max projection 7ft from the plane surface
(d) Unenclosed except parapets not exceeding 3'-8" or railings not less than 50% open and not exceeding 4'-6"
(e) Located at or higher than 3rd floor or at least 20ft above curb level
(f) Max aggregate width of 50% from plane surface it projects

115-20 Special bulk regulation
115-21(b) The maximum floor area for any zoning lot containing a residential use shall not exceed the floor area ratio of 3.45
115-21(a) The building will not be developed according to the inclusionary housing program
115-21(b) The maximum floor area permitted for the development in the R7A portion will be 3.45 x lot

The development consists of multiple tax lots. Portions of the tax lots are located in an R7A/C2-4 district and portions are located in R4-1 district

77-02 Whenever a zoning lot is divided by a boundary between two or more district and such zoning lot did not exist on December 15, 1961 each portion of such zoning lot shall be regulated by all the provisions applicable to the district in which such portion of the zoning lot is located
Area under R7A district 30,172 sf
Area under R4-1 district 5,498 sf

23-144 The maximum permitted residential floor area ratio shall be as set forth in section 23-952

RESIDENTIAL FLOOR AREA

23-952 Maximum permitted residential floor area in R7A district is 3.45 x lot
3.45 x 30,172 = 104,093.40 sf

	Use	Area	Deduction (see Z-004 for detail)	Total
Cellar		19,923 sf		19,923 sf
Ground	Residential Lobby	1,663 sf	802 sf	861 sf
Second	Stair and Elevator Core	559 SF		559 sf
Third	Residential	18,400 sf	2,516 sf	15,884 sf
Fourth	Residential	18,400 sf	1,780 sf	16,620 sf
Fifth	Residential	18,400 sf	1,780 sf	16,620 sf
Sixth	Residential	18,400 sf	1,780 sf	16,620 sf
Seventh	Residential	15,742 sf	1,658 sf	14,084 sf
Eight	Residential	15,742 sf	1,658 sf	14,084 sf
TOTAL		107,306 sf	11,974 sf	95,332 sf

Proposed residential floor area in R7A district	**95,332 sf**	**<**	**104,093.40 sf**

23-141 The maximum permitted residential floor area in R4-1 sistrict is 0.75 x lot
0.75 x 5,498 = 4,123.50 sf

There is no floor area proposed to be developed under R4-1 district

COMMERCIAL FLOOR AREA

33-121 The maximum permitted commercial floor area in C2-4 district in residential R7A district is 2.0 x lot
2.0 x 30,172 = 60,344.00 sf

	Use	Area	Deduction (see Z-004 for detail)	Total
Ground	Commercial Space	10,406 sf	285 SF	10,121 sf

Proposed commercial floor area in C2-4 district	**10,121 sf**	**<**	**60,344.00 sf**

COMMUNITY FACILITY FLOOR AREA

33-121 The maximum permitted community facility floor area in R7A district is 4.0 x lot
4.0 x 30,172 = 120,688 sf

	Use	Area	Deduction (see Z-004 for detail)	Total
Cellar	Community Facility	19,923 sf		19,923 sf
Ground	Comm. Facility Lobby	526 sf		526 sf

Proposed community facility area in R7A district	**526 sf**	**<**	**120,688 sf**

TOTAL FLOOR AREA

115-211 (b) The maximum floor area ratio for any zoning lot containing a residential use shall not exceed 3.45 x lot
3.45 x 30,172 = 104,093.40 sf

Proposed floor area
Residential use 95,332 sf
Commercial use 10,121 sf
Commnity Facility use 526 sf
Total 105,979 sf

Proposed total floor area	**105,979 sf**	**<**	**120,688 sf**

LOT COVERAGE

77-26 Each maximum percent of lot coverage shall be multiplied by the lot area of the portion of the zoning lot which such percent of lot coverage applies
Area under R7A district within 100ft of corner 20,077 sf
Area under R7A district beoyond 100ft of corner 10,095 sf
Area under R4-1 district 5,498 sf

23-145 Lot coverage for corner lot in R7A district is 80% x lot
0.80 x 20,077 = 16,061.60 sf

Proposed lot coverage in area within 100ft of corner	**15,365 sf**	**<**	**16,062 sf**

Lot coverage for interior lot cr through lot in R7A district is 65% x lot
0.65 x 10,095 = 6,561.75 sf

Proposed lot coverage in area beyond 100ft of corner	**3,037 sf**	**<**	**6,562 sf**

23-141 Open space in R4-1 is govern by yard requirements

There is no proposed building in R4-1 district

DENSITY

77-25 The maximum number of dwelling units on the zoning lot shall equal the sum of the maximum number of dwelling units permitted for each portion of the zoning lot. However, in R4-1 district no more than one or two dwelling units may be provided

23-22 Maximum number of dwelling unit in R7A district is max residential floor area / 680
95,552 / 680 = 140 units

Proposed number of dwelling unit in R7A district	**127**	**<**	**140**

Maximum number of dwelling unit in R4-1 district is one or two dwelling units

There is no building proposed in this district

RESIDENTIAL LOT REQUIREMENTS

23-44 Permitted obstruction in required yard or rear yard equivalents
Awnings or sun device
Balconies
Fences 4ft at front and 6ft on side lot line
Parking spaces for automobile or bicycles, off street, open, accessory
Terraces or porches

23-32 Minimum lot width 18 ft
Minimum lot area 1,700 sf

Proposed lot width	**200 ft**	**<**	**18 ft**
Proposed lot area	**35,670 sf**	**<**	**1,700 sf**

23-45 Minimum required front yard in R7A district none

There is no front yard proposed under R7A district

Minimum required front yard in R4-1 district 10 ft

There is no building proposed in this district

23-462(c) Minimum required side yards in R7A none

There is no side yard proposed under R7A district

23-461 Minimum required side yard in R4-1 district 8 ft

There is no building proposed in this district

23-47 Minimum required rear yards: 30ft
23-541 Required rear yard within 100 ft of corners none

There is no rear yard proposed within 100ft of corners

23-53, 23-532 Required rear yard in through lots beyond 100ft of corners
(a) An open area with minim.um depth of 60ft, midway between the two street lines

Proposed 60ft open area is provided midway between 178th street and 179th street

COMMERCIAL LOT REQUIREMENTS

33-25 Minimum required side yards none

There are no side yards proposed in the C2-4 district

33-23 Permitted obstruction in required rear yard or rear yard equivalents
Parking spaces for automobile and bicycles, off-street, open, accessory
Any building or portion of building not exceeding one story or 23 ft above curb
Parking spaces for automobile or bicycles, off street, accessory not exceeding 23 ft above curb level

33-26 Minimum required rear yard in C2-4 district 20 ft
33-261 Required rear yards beyond .00ft of street line 20 ft
33-283 Required rear yards on through lots.
Portion of building not exceeding one story or 23ft height is permitted obstruction in rear yard

There are no rear yards proposed in the C2-4 district

HEIGHT AND SETBACK

23-62 Permitted obstructions above maximum height
Balconies
Dormers
Elevator or stair bulkheads (including shafts and vestibules)
Parapet walls
Skylights

23-621(c)(1) Dormer is permitted to project above permitted max base height
(1) The aggregate width of dormer at the base height 60% x width of street wall.
Street wall at 178th Street 0.6 x 125.30 = 75.18 ft
Street wall at Hillside Avenue 0.6 x 200.16 = 120.1 ft
Steet wall at 179th Street 0.6 x 117.50 = 70.5 ft

For every foot above maximum base height, the aggregate width shall be decreased by 1 %. Projected height above max base height is 15 ft

Reduction of dormer at 15ft zbove max base height = max dormer width at base height - (15% x street wall)
Street wall at 178th Street 75.18 - (0.15 x 125.30) = 56.385 ft
Street wall at Hillside Avenue 120.096 - (0.15 x 120.1) = 102.081 ft
Street wall at 179th Street 70.5 - (0.15 x 117.50) = 52.875 ft

RESIDENTIAL HEIGHT AND SETBACK

23-63 Street wall location shall be no closer to the street line
23-633 (b)(1) Setback to be provided at least 10 ft fronting wide street
15 ft fronting narrow street
Minimum base height 40 ft
Maximum base height 65 ft
Maximum building height 80 ft

Proposed base height	**61'-1"**	**<**	**65'-0"**
Proposed building height	**80'-0"**	**=**	**80'-0"**

COMMERCIAL HEIGHT AND SETBACK

33-42 Permitted obstruction
Awnings

35-24 Minimum base height 40 ft
Maximum base height 65 ft
Maximum building height 80 ft

Proposed base height	**61'-1"**	**<**	**65'-0"**
Proposed building height	**80'-0"**	**=**	**80'-0"**

SPECIAL BULK REGULATIONS

115-235 Transition Area
Portion of buildings within 25 ft of an adjacent zoning in R4 district shall not exceed 35 ft in height
Open area not higher than curb level shall be provided within 8ft of such adjacent zoning lot. Open area may be used for parking

Height of building within 25 ft of adjacent R4-1 district	**23'-5" ft**	**<**	**35 sf**

115-51 Parking and loading regulations
Reduced requirement under section 36-342 and Waiver under 34-344 shall not apply

OFF STREET PARKING

77-321 The percentage requirements for accessory off-street parking for residences applicable to each portion of the zoning lot shall be multiplied by the percentage of the total lot area of the zoning lot to which each such requirement applies.
Such off-street parking spaces may be located anywhere on the zoning lot without regard to district boundaries

RESIDENTIAL PARKING

25-23 Minimum required parking in R7A is 50% x number of dwelling unit
0.5 x 127 = 64 parking spaces

Proposed number of parking spaces in R7A district	**94**	**<**	**64**

COMMERCIAL PARKING

36-21 Required parking space for commercial use in C2-4 district for use group 6 is 1 per 1000 sf
10,121/ 1,000 = 10.121 parking spaces

Proposed commercial parking spaces	**35**	**<**	**10**

COMMUNITY FACILITY PARKING

36-21 Required parking spaces for ambulatory diagnostic health care facilities in use group 4 is 1 per 1000 sf
18,726/ 1,000 = 18.726 parking spaces

Proposed community facility parking spaces	**19**	**<**	**19**

ADDITIONAL REQUIREMENT FOR PARKING

25-63, 36-53 Entrances and exits of group parking shall be located not less than 50ft from intersection

Proposed entrances and exits at 178th street	**150 ft**	**>**	**50 ft**
Proposed entrances and exits at 179th street	**135 ft**	**>**	**50 ft**

25-631(e), 36-532 Max width of curb cut: 22 ft

Proposed curb cut width	**22 ft**	**=**	**22 ft**

25-64(c) Restriction on use of open space for parking is not applicable for Quality Housing buildings
25-65, 36-55 Open off street parking shall be surfaced with asphaltic ot portland cement
25-66, 36-56(a)(2) Open off street parking shall have a wall or barrier or fence max to 8ft high above finished grade
25-72, 36-62 No off street loading berth is required within the first 25,000 sf of commercial uses in R7 district

RESIDENTIAL BICYCLE PARKING

25-811 Required bicycle parking
For use group 2 1 per 2 DU
127 / 2 = 64 Parking spaces

Proposed bicycle parking	**64**	**=**	**64**

COMMERCIAL BICYCLE PARKING

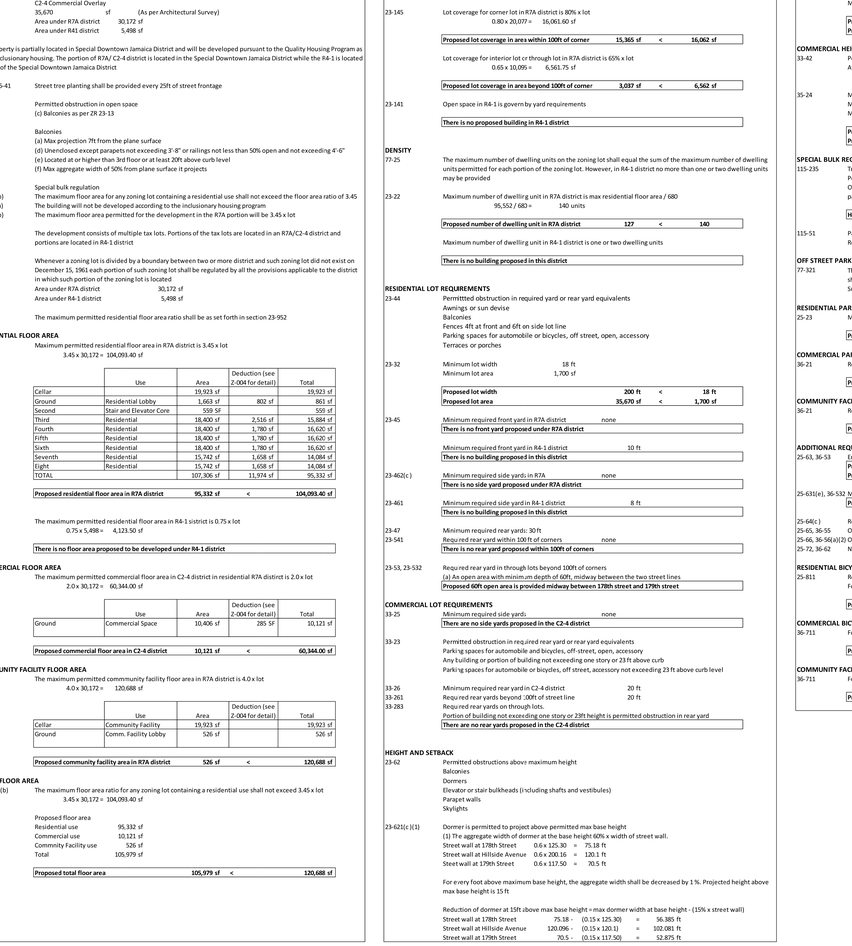
36-711 For Commercial spaces use group 6 is 1 per 10,000 sf
10,121 / 10,000 = 1 parking space

Proposed bicycle parking	**2**	**=**	**1**

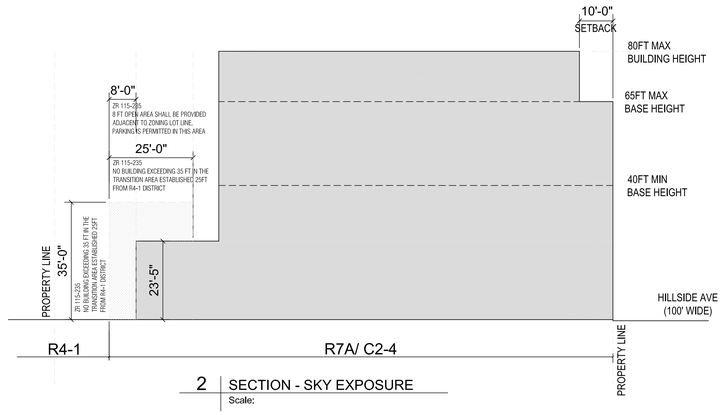
COMMUNITY FACILITY PARKING

36-711 For Community Facility use group 4 is 1 per 10,000
18,726/ 10,000 = 2 parking spaces

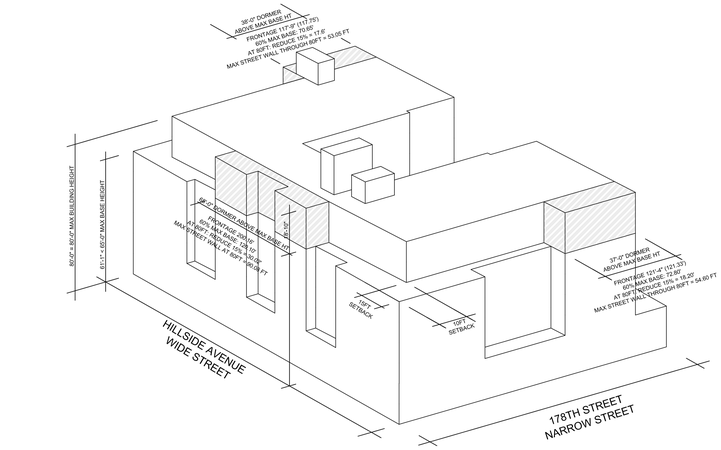
Proposed bicycle parking	**2**	**=**	**2**



1 SITE PLAN - LOT COVERAGE
Scale:



2 SECTION - SKY EXPOSURE
Scale:



3 SECTION - SKY EXPOSURE
Scale:

USE GROUP (BC 302)	
OCCUPANCY	USE GROUP
COMMERCIAL RETAIL	M (BC 309)
COMMUNITY FACILITY	B (BC 304)
RESIDENTIAL	R-2 (BC 310)

AREA AND HEIGHT LIMITATIONS (BC 503, TABLE 503)		
OCCUPANCY GROUP		CONSTRUCTION TYPE
		IB
R-2	AREA	UNLIMITED
	HEIGHT	UNLIMITED

FIRE SEPARATION OF OCCUPANCIES (BC 508, TABLE 508.4)	
OCCUPANCY GROUP	RATING (HRS)
R TO R	FIRE SEPARATION WALLS BETWEEN DWELLING UNITS IN THE SAME BUILDING SHALL BE AT LEAST 1 HOUR (BC 402.2)
	FIRE SEPARATION FLOORS BETWEEN DWELLING UNITS IN THE SAME BUILDING SHALL BE AT LEAST 1 HOUR (BC 712.3)
R TO M	AT LEAST 1 HOUR FOR SPRINKLERED BUILDING
R TO B	AT LEAST 1 HOUR FOR SPRINKLERED BUILDING
M TO B	AT LEAST 1 HOUR FOR SPRINKLERED BUILDING

SPACES WITH ONE EXIT (TITLE 28 - CHAPTER 10 - TABLE 1015.1)	
OCCUPANCY GROUP CLASSIFICATION	MAX. OCCUPANT LOAD
B, M	74
R	20

EXITS AND ACCESS TRAVEL DISTANCE (TITLE 28 - CHAPTER 10 - TABLE 1016.1)	
OCCUPANCY	MAX DISTANCE WITH SPRINKLER COVERAGE (FEET)
M	200
B	300
R	200

INTERIOR CORRIDOR FIRE RESISTANCE RATING (TITLE 28 - CHAPTER 10 - TABLE 1018.1.1)		
OCCUPANCY GROUP CLASSIFICATION	OCCUPANCY LOAD	MIN RATING WITH SPRINKLER COVERAGE (HOUR)
B, M	> 30	0
R	> 10	0

FIRE RESISTANCE RATING - TYPE IB (TABLE 601)	
OCCUPANCY GROUP	RATING (HRS)
NONBEARING EXTERIOR WALLS	0 HOUR FOR DISTANCE OVER 30FT (TABLE 602)
NONBEARING INTERIOR WALLS	0 HOUR
FLOOR CONSTRUCTION	1 HOUR (BC 712.3)
ROOF CONSTRUCTION	1 HOUR

INTERIOR WALL AND CEILING FINISH REQUIREMENTS IN R OCCUPANCY IN SPRINKLERED BUILDING (TABLE 803.1)			
OCCUPANCY GROUP	EXITS ENCLOSURE	CORRIDORS	ROOMS & ENCLOSED SPACES
R-2	B (FLAME SPREAD 26-75)	B (FLAME SPREAD 26-75)	C (FLAME SPREAD 76-200)

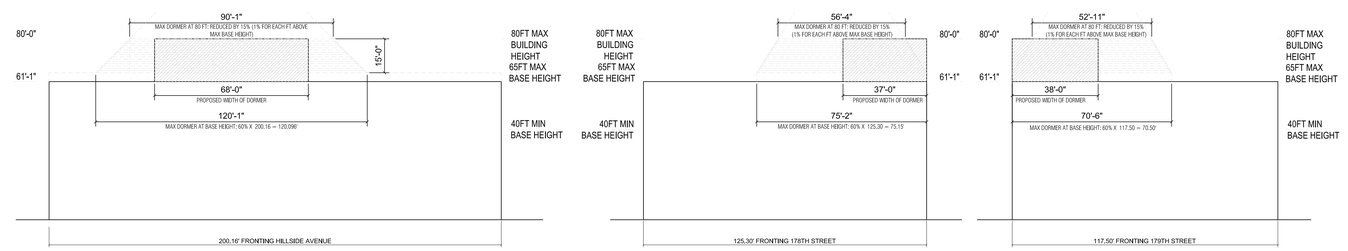
MAXIMUM FLOOR AREA ALLOWANCE PER OCCUPANT (TITLE 28 - CHAPTER 10 - TABLE 1004.1.1)	
OCCUPANCY	FLOOR AREA PER OCCUPANT (SQ.FT.)
BUSINESS AREA	100 GROSS
MERCANTILE	30 GROSS (GRADE FLOOR AREA)
RESIDENTIAL	200 GROSS

PUBLIC CORRIDOR FIRE RESISTANCE RATING (TITLE 28 - CHAPTER 10 - TABLE 1018.1.2)	
OCCUPANCY GROUP CLASSIFICATION	MIN RATING WITH SPRINKLER COVERAGE (HOUR)
M	1
B	1
R (NONCOMBUSTIBLE)	1

EGRESS WIDTH (TITLE 28 - CHAPTER 10 - BC 1005)	
EGRESS MEANS	CAPACITY (INCHES PER OCCUPANT)
STAIRWAYS	0.3
OTHER EGRESS	0.2

MAXIMUM RISER HEIGHT AND MINIMUM TREAD WIDTH (TITLE 28 - CHAPTER 10 - BC1009)	
MAX. RISER HEIGHT (IN.)	MIN TREAD WIDTH
7 3/4"	9 1/2" PLUS NOSING

ZR 23-621 (C)(1)
DORMER IS PERMITTED OBSTRUCTION UNDER THE FOLLOWING CONDITIONS:
1. MAX WIDTH AT MAX BASE HEIGHT IS 60% OF WIDTH OF STREET WALL
2. EACH FOOT ABOVE MAX BASE HEIGHT, AGGREGATE WIDTH OF DORMER REDUCED BY 1%



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6	DOB PLAN EXAMINATION	8/3/2015
7	DOB PLAN EXAMINATION	8/19/2015

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phone: 201-546-0000
fax: 201-484-8540
E-mail:gs@schellengineering.com

ENGINEER/ CONSULTANT:

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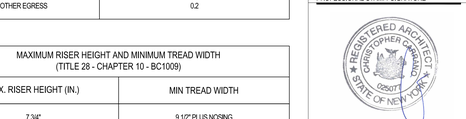

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DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

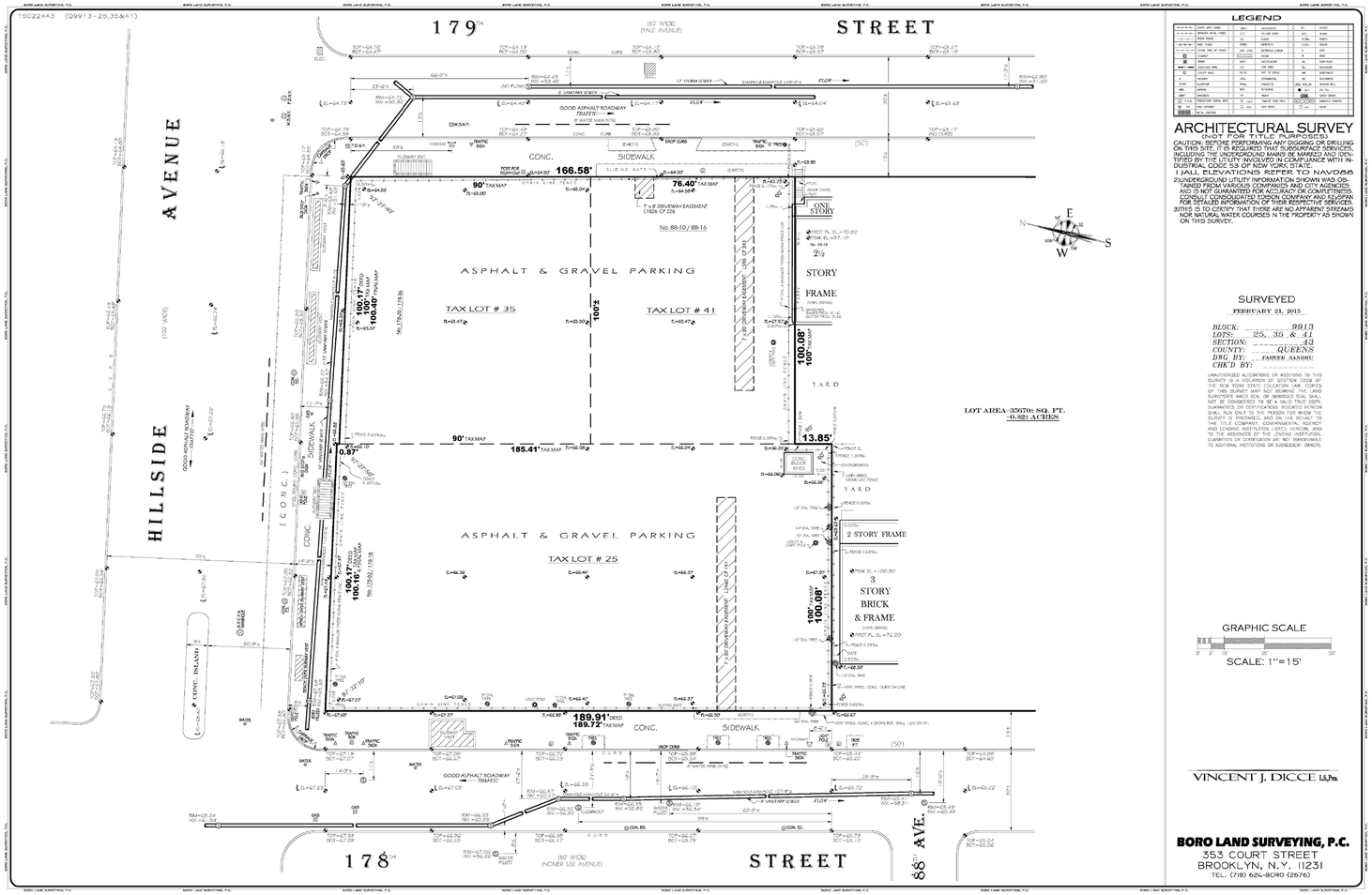
ZONING
ANALYSIS

DWG NO:

Z-001.00

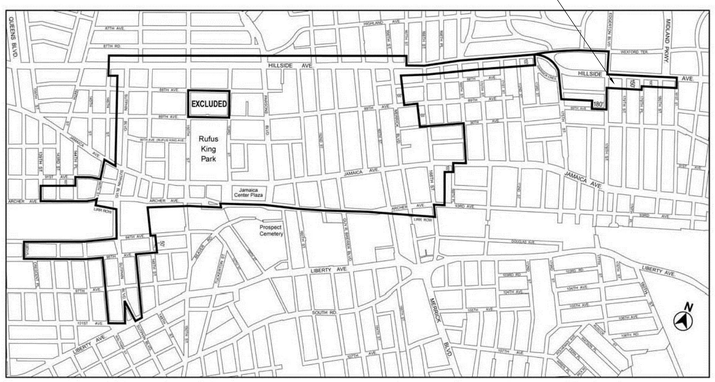
4 of 35

DOB JOB NUMBER

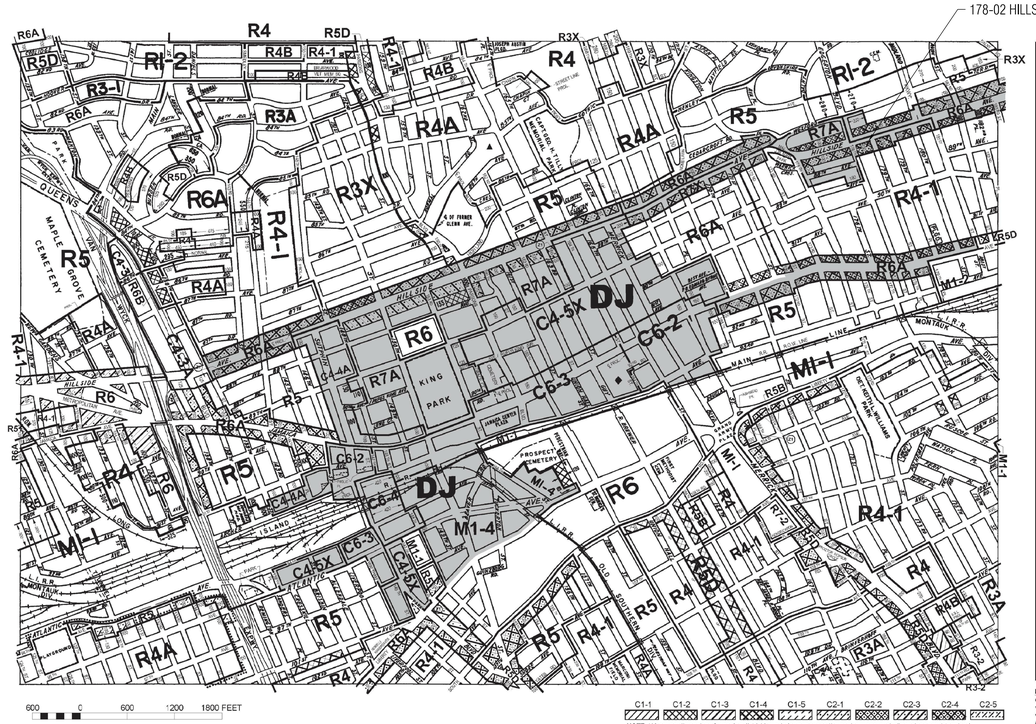


1 | ARCHITECTURAL SURVEY
Scale:

2 | TAX MAP
Scale:



3 | APPENDIX F
Scale:



4 | ZONING MAP - 14D
Scale:

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
5	DOB FILING SET	6/1/2015
6	DOB PLAN EXAMINATION	8/3/2015
7	DOB PLAN EXAMINATION	8/19/2015

ARCHITECT:

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PROFESSIONAL STAMP/ SIGNATURE

REGISTERED ARCHITECT CHRISTOPHER GARGANO 029317 STATE OF NEW YORK

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DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CG/MN

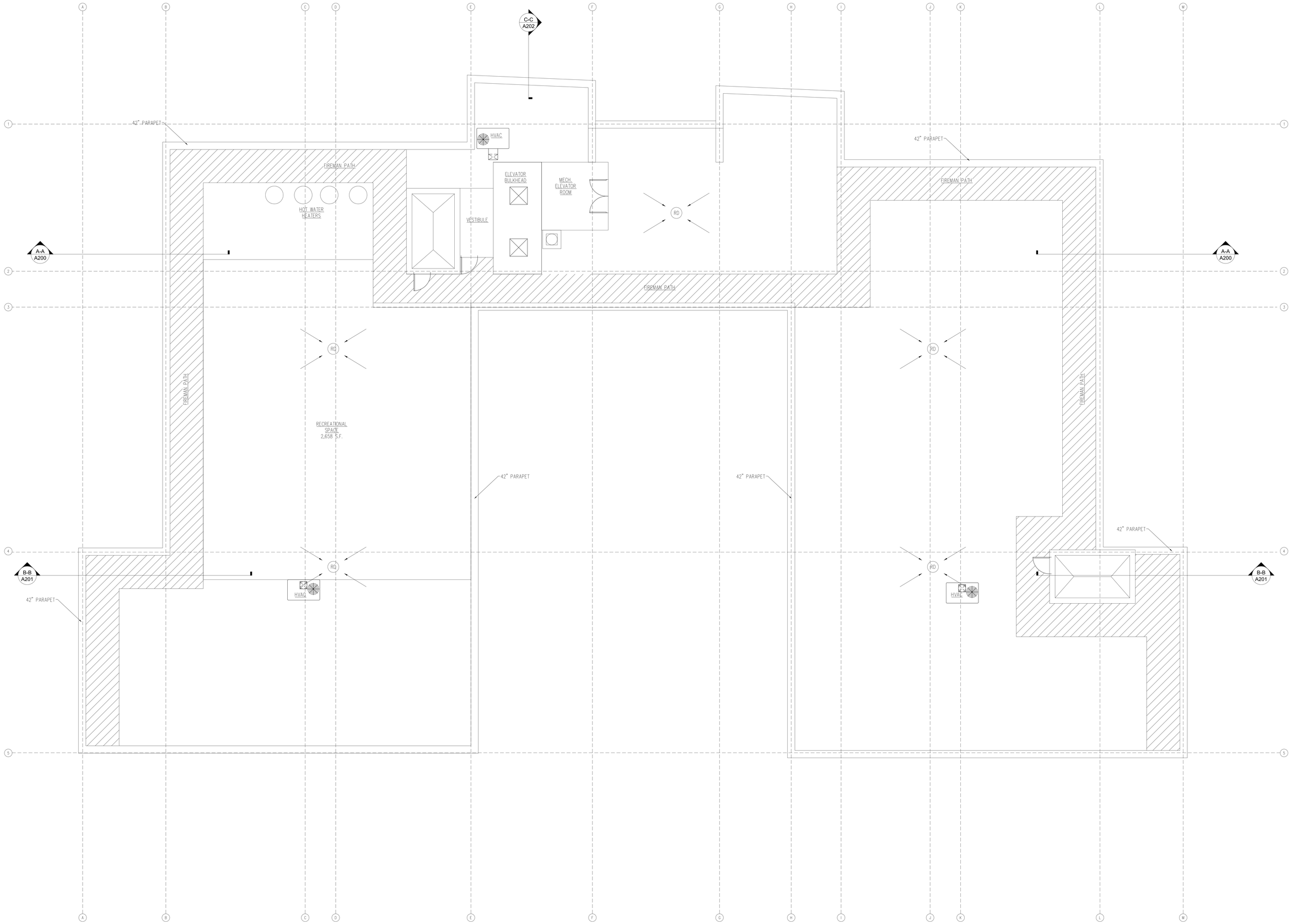
TITLE

ZONING ANALYSIS

DWG NO:

Z-002.00
4of 35

DOB JOB NUMBER



1 ROOF PLAN
A-108 Scale: 3/16" = 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
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3	INITIAL REVIEW	4/20/2015
4	COMMISSIONER REVIEW	5/19/2015
5	DOB FILING SET	6/1/2015

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ENGINEER/ CONSULTANT:

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DATE:	02-09-2015
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CHK BY:	CC/MN

TITLE

ROOF PLAN

DWG NO:

A-108.00

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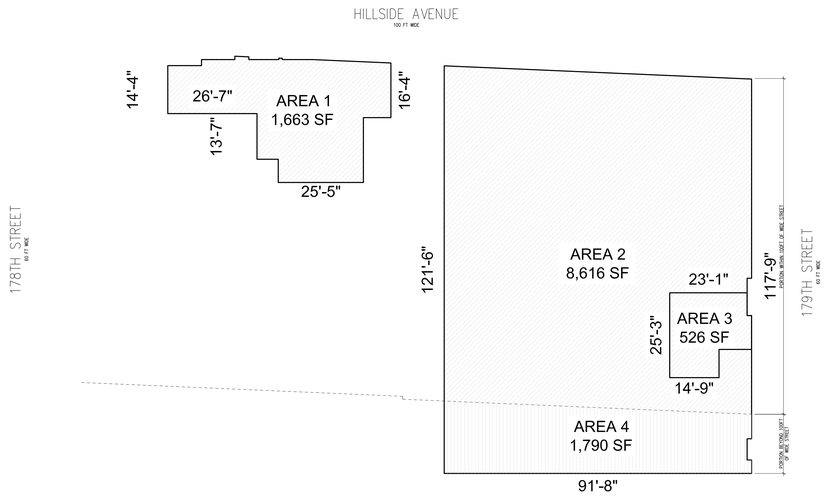
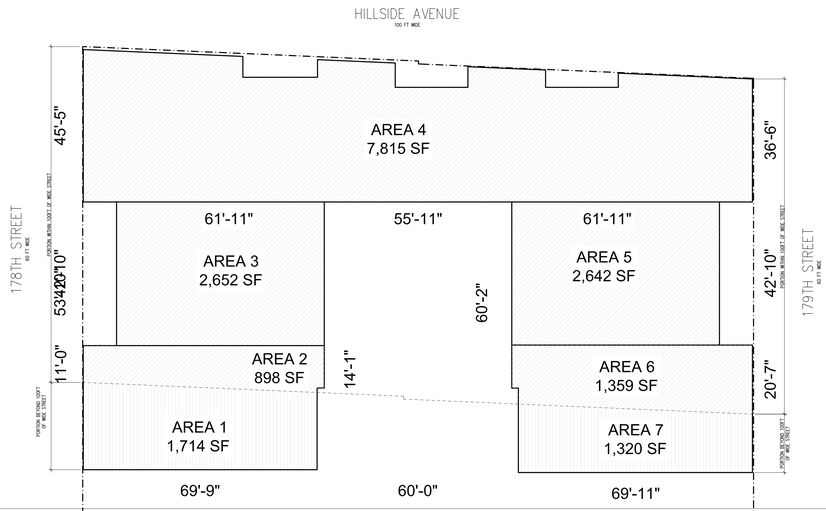
DOB JOB NUMBER

GROUND FLOOR



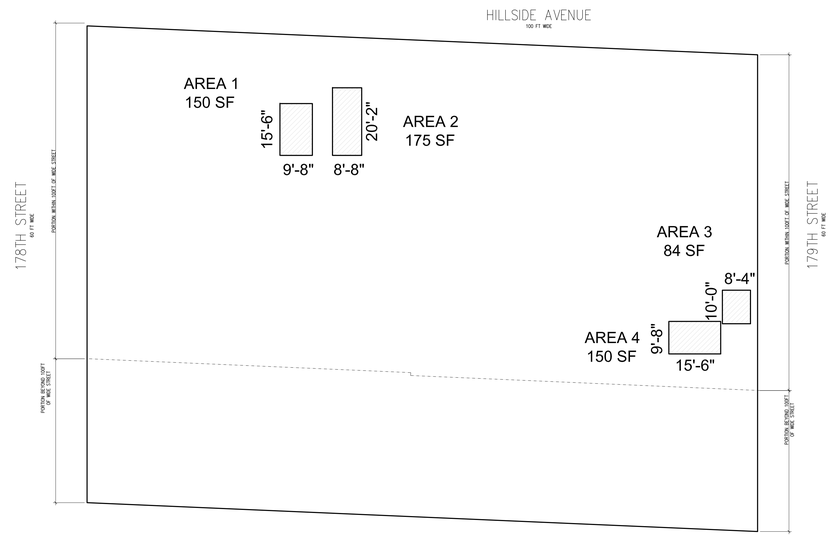
AREA CALCULATION	
AREA 1	1,663 SF
AREA 2	8,616 SF
AREA 3	526 SF
AREA 4	1,790 SF
TOTAL	12,595 SF
AREA IN R7A WITHIN 100FT OF WIDE STREET	
AREA 1 + 2 + 3	
1,663 + 8,616 + 526	10,805 SF
AREA IN R7A BEYOND 100FT OF WIDE STREET	
AREA 4	
	1,790 SF

THIRD TO SIXTH FLOOR



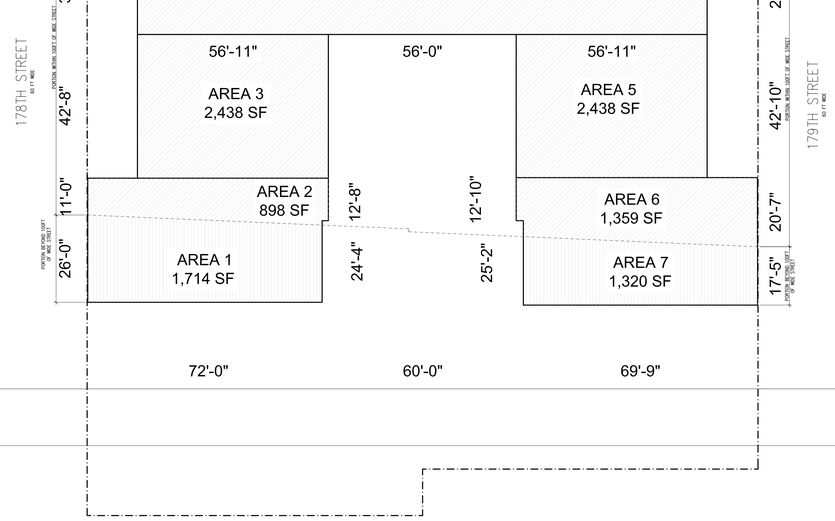
AREA CALCULATION	
AREA 1	1,714 SF
AREA 2	898 SF
AREA 3	2,652 SF
AREA 4	7,815 SF
AREA 5	2,642 SF
AREA 6	1,359 SF
AREA 7	1,320 SF
TOTAL	18,400 SF
AREA IN R7A WITHIN 100FT OF WIDE STREET	
AREA 2 + 3 + 4 + 5 + 6	
898 + 2,652 + 7,815 + 2,642 + 1,359	15,366 SF
AREA IN R7A BEYOND 100FT OF WIDE STREET	
AREA 1 + 7	
1,714 + 1,320	3,034 SF

SECOND FLOOR



AREA CALCULATION	
AREA 1	150 SF
AREA 2	175 SF
AREA 3	84 SF
AREA 4	150 SF
TOTAL	559 SF
AREA IN R7A WITHIN 100FT OF WIDE STREET	
AREA 1 + 2 + 3 + 4	
150 + 175 + 84 + 150	559 SF
AREA IN R7A BEYOND 100FT OF WIDE STREET	
NONE	

SEVENTH AND EIGHTH FLOOR



AREA CALCULATION	
AREA 1	1,714 SF
AREA 2	898 SF
AREA 3	2,438 SF
AREA 4	5,575 SF
AREA 5	2,438 SF
AREA 6	1,359 SF
AREA 7	1,320 SF
TOTAL	15,742 SF
AREA IN R7A BEYOND 100FT OF WIDE STREET	
AREA 2 + 3 + 4 + 5 + 6	
898 + 2,438 + 5,575 + 2,438 + 1,359	12,708 SF
AREA IN R7A BEYOND 100FT OF WIDE STREET	
AREA 1 + 7	
1,714 + 1,320	3,034 SF

ZR 12-10 DEFINITION

FLOOR AREA INCLUDES:
(B) ELEVATOR SHAFTS OR STAIRWELLS AT EACH FLOOR
(G) ANY FLOOR SPACE USED FOR DWELLING PURPOSES, NO MATTER WHERE LOCATED WITHIN A BUILDING, WHEN NOT EXCLUDED

PROJECT/ CLIENT:

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ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/SJ
CHK BY:	CC/MN

TITLE

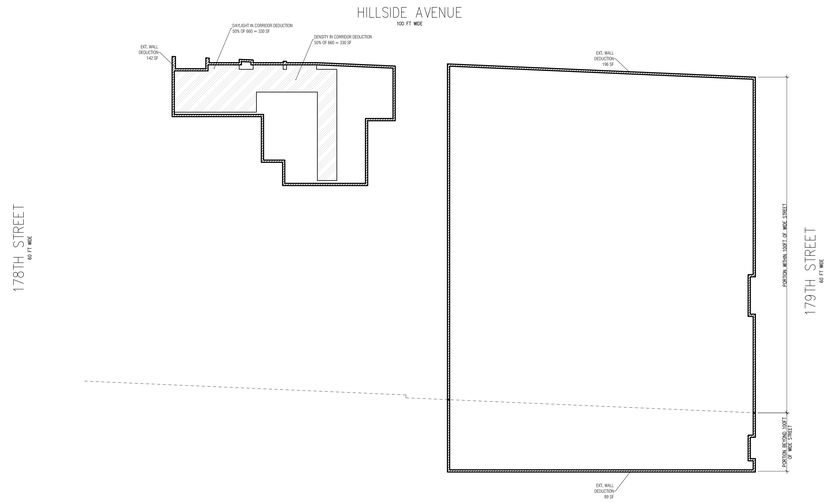
ZONING
ANALYSIS

DWG NO:

Z-003.00

DOB JOB NUMBER

GROUND FLOOR



DEDUCTION AREA

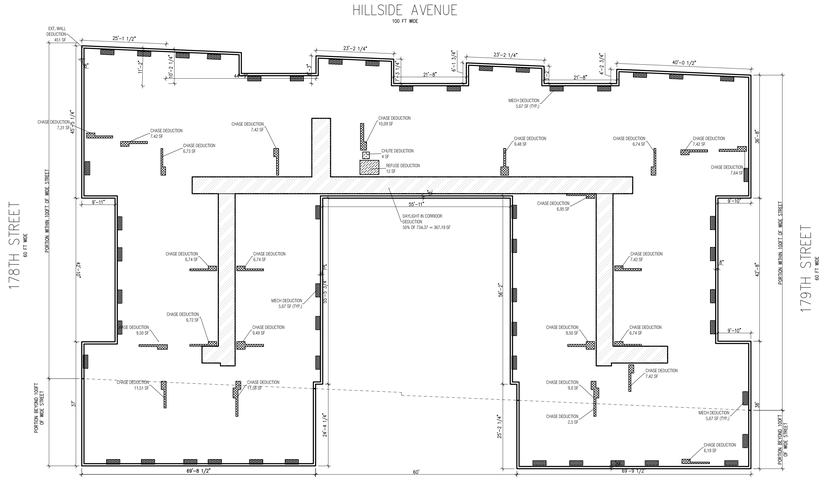
AREA IN R7A WITHIN 100FT OF WIDE STREET

CHASE	
EXT. WALL	338 SF
CORRIDOR	DAYLIGHT 330 SF DENSITY 330 SF
REFUSE	
CHUTE	
TOTAL	998 SF

AREA IN R7A BEYOND 100FT OF WIDE STREET

CHASE	
EXT. WALL	89 SF
TOTAL	89 SF

FOURTH TO SIXTH FLOOR



DEDUCTION AREA

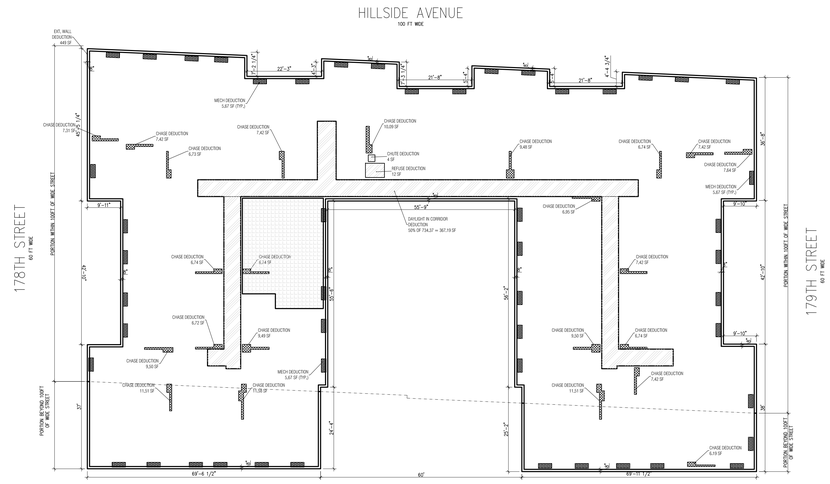
AREA IN R7A WITHIN 100FT OF WIDE STREET

CHASE	156 SF
EXT. WALL	451 SF
CORRIDOR	692 SF
REFUSE	12 SF
CHUTE	4 SF
MECH	284 SF
TOTAL	1,599 SF

AREA IN R7A BEYOND 100FT OF WIDE STREET

CHASE	32 SF
EXT. WALL	149 SF
TOTAL	181 SF

THIRD FLOOR



DEDUCTION AREA

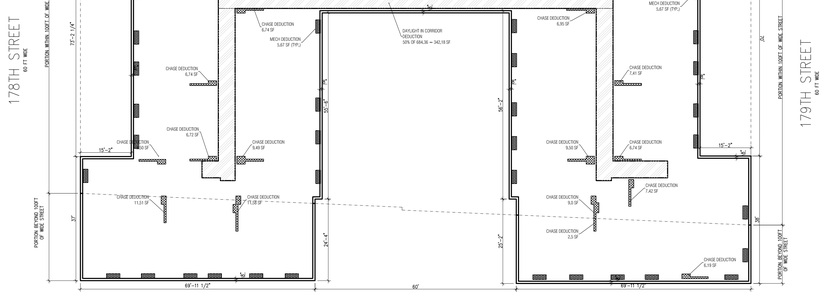
AREA IN R7A WITHIN 100FT OF WIDE STREET

CHASE	156 SF
EXT. WALL	449 SF
CORRIDOR	692 SF
REFUSE	12 SF
CHUTE	4 SF
REC ROOM	750 SF
MECH	272 SF
TOTAL	2,335 SF

AREA IN R7A BEYOND 100FT OF WIDE STREET

CHASE	32 SF
EXT. WALL	149 SF
TOTAL	181 SF

SEVENTH AND EIGHTH FLOOR



DEDUCTION AREA

AREA IN R7A WITHIN 100FT OF WIDE STREET

CHASE	133 SF
EXT. WALL	392 SF
CORRIDOR	692 SF
REFUSE	12 SF
CHUTE	4 SF
MECH	244 SF
TOTAL	1,477 SF

AREA IN R7A BEYOND 100FT OF WIDE STREET

CHASE	32 SF
EXT. WALL	149 SF
TOTAL	181 SF

ZR 12-10 DEFINITION

FLOOR AREA EXCLUDES:
(1) CELLAR SPACE
(2) ELEVATOR OR STAIR BULKHEADS
(5) OPEN OR ROOFED TERRACES, BREEZE WAYS OR PORCHED MAX 50% ENCLOSED
(6) PARKING SPACES
(8) MECHANCIAL EQUIPMENT
(10) EXTERIOR BALCONIES
(12) EXTERIOR WALL THICKNESS UP TO 8 INCHES

ZR 28-23 REFUSE STORAGE AND DISPOSAL

12 SQUARE FEET OF REFUSE ROOM SHALL BE EXCLUDED FROM THE DEFINITION OF FLOOR AREA

ZR 28-25 DAYLIGHT IN CORRIDORS

FIFTY (50) PERCENT OF THE SQUARE FOOTAGE OF CORRIDOR MAY BE EXCLUDED FROM THE DEFINITION OF FLOOR AREA IF A WINDOW WITH A CLEAR, NON TINTED, GLAZED AREA AT LEAST 20 SQUARE FEET IS PROVIDED IN SUCH CORRIDOR

ZR 28-31 REQUIRED RECREATION SPACE

FLOOR AREA OF INDOOR RECREATION SPACE NOT EXCEEDING 3.3% OF RESIDENTIAL SHALL BE EXCLUDED FROM THE DEFINITION OF FLOOR AREA

ZR 28-41 DENSITY PER CORRIDOR

FIFTY (50) PERCENT OF SQUARE FEET OF CORRIDOR SERVING 11 DWELLING UNITS ON SUCH STORY MAY BE EXCLUDED FROM THE DEFINITION OF FLOOR AREA

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5	DOB FILING SET	6/1/2015
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ARCHITECT:

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ENGINEER/ CONSULTANT:

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STATE OF NEW YORK

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/EJ
CHK BY:	CC/MN

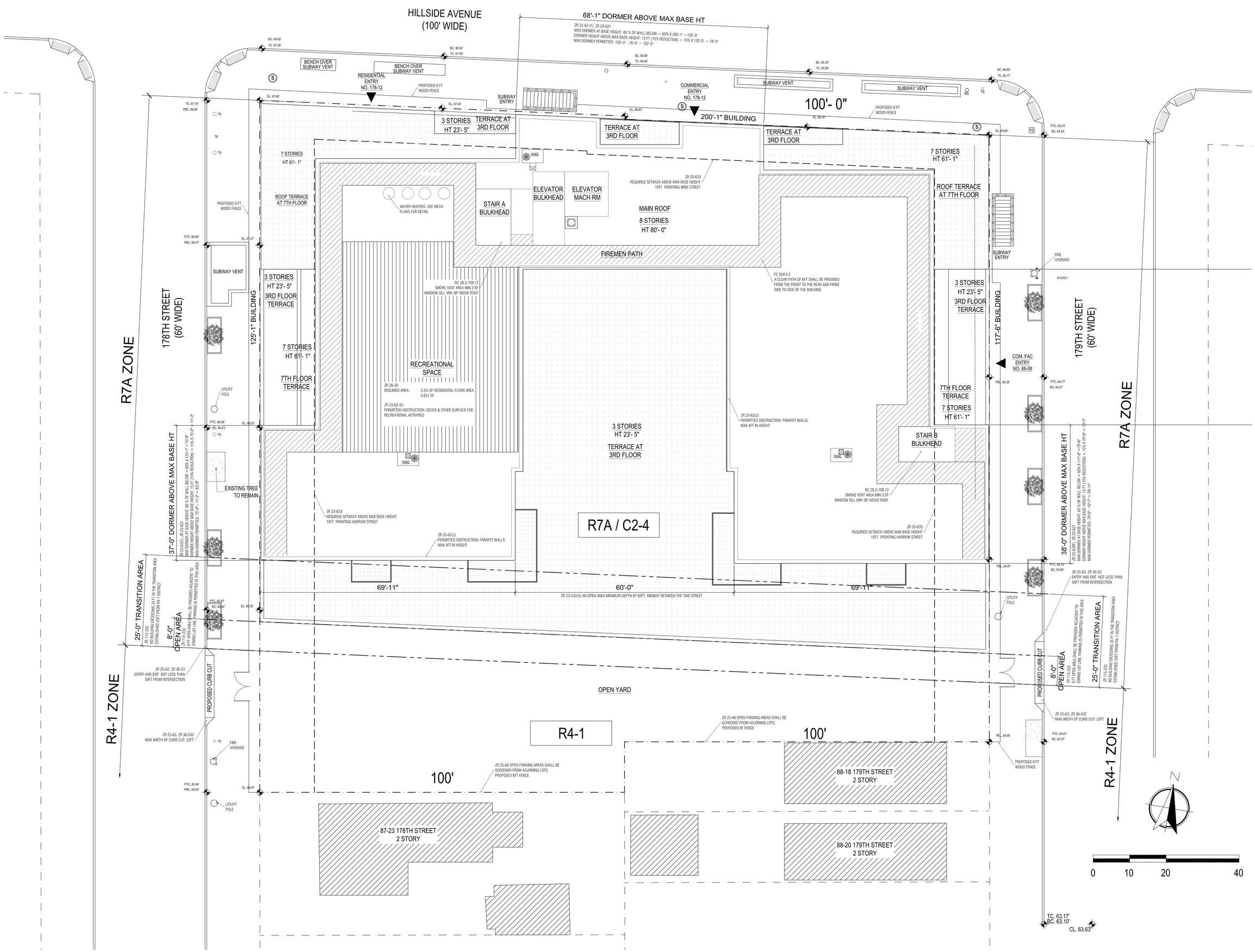
TITLE

ZONING ANALYSIS

DWG NO:

Z-004.00

DOB JOB NUMBER



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CHK BY:	CC/MN

TITLE

ZONING ANALYSIS

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Z-005.00

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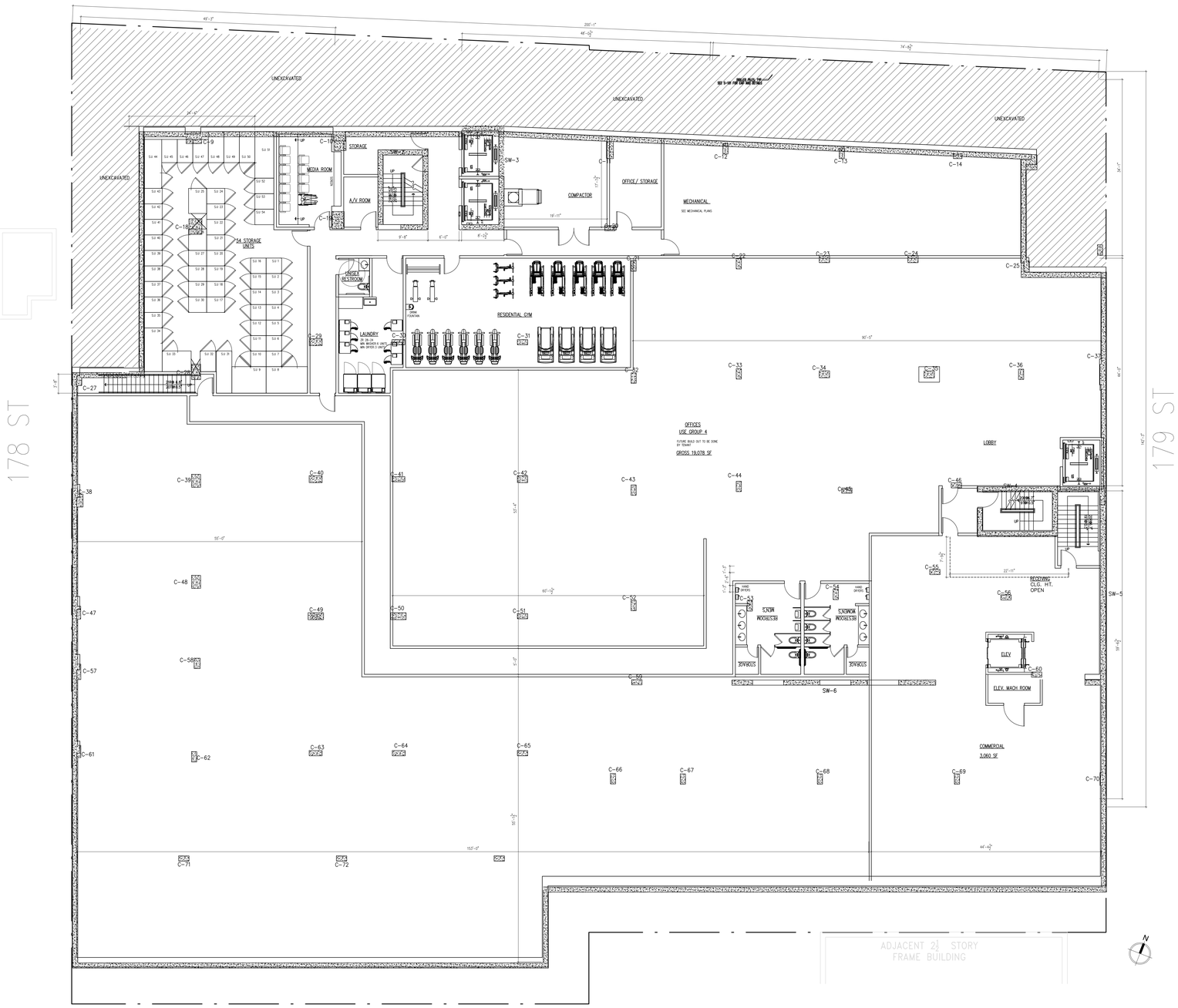
DOB JOB NUMBER



1 | CELLAR FLOOR PLAN
A-100 | Scale: 1/8" = 1'-0"

NOTE: SEE SOE PLANS
FOR ADDITIONAL SUPPORT
OF EXCAVATION DETAIL

PROJECT/ CLIENT:

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DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

CELLAR
FLOOR PLAN

DWG NO:

A100.00

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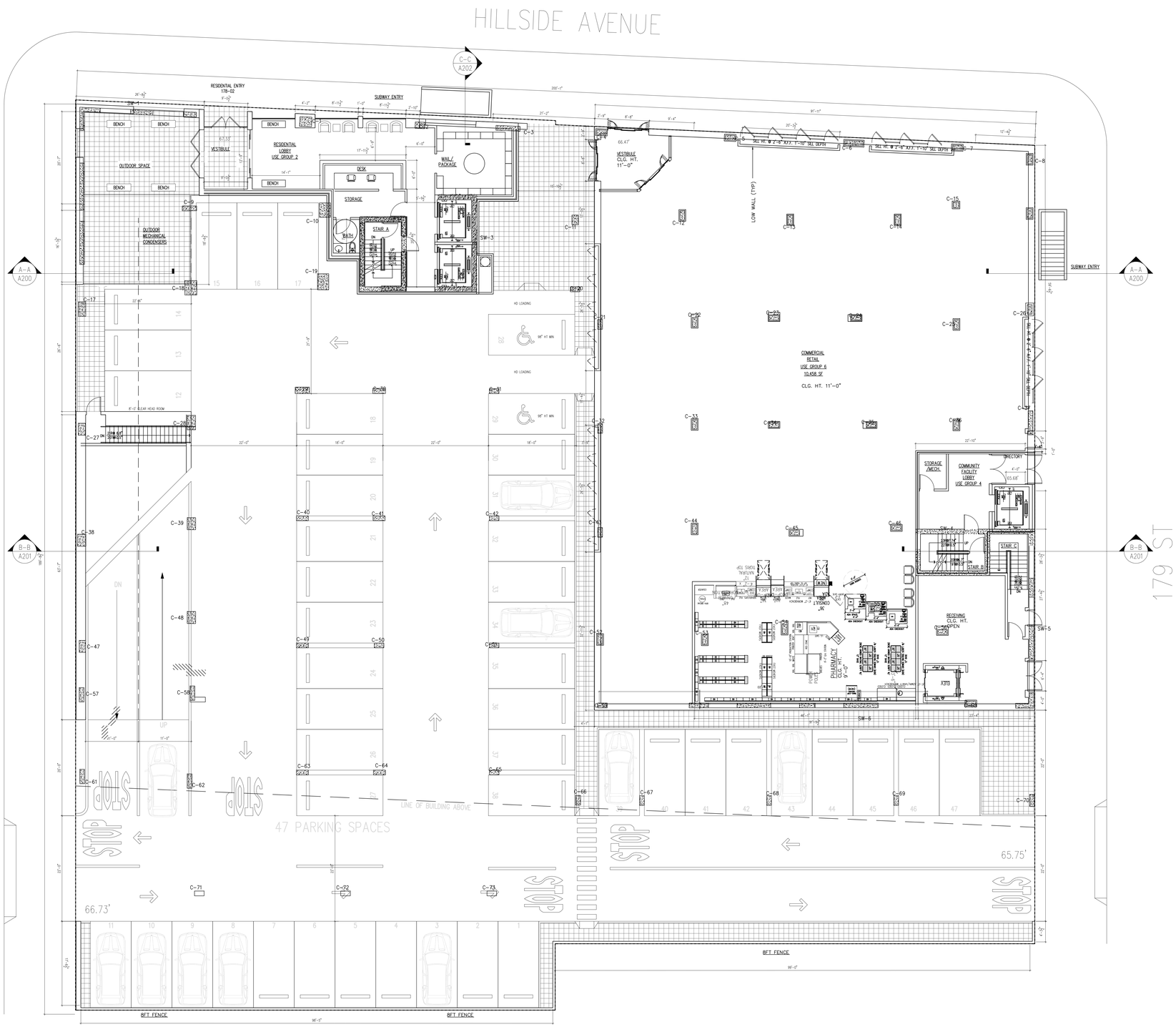
DOB JOB NUMBER



1 GROUND FLOOR PLAN
A-101 Scale: 1/8" = 1'-0"

PROJECT/ CLIENT:

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Queens, New York

ISSUE	DESCRIPTION	DATE
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REGISTERED ARCHITECT
CHRISTOPHER CARRANO
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STATE OF NEW YORK

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
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CHK BY:	CC/MN

TITLE

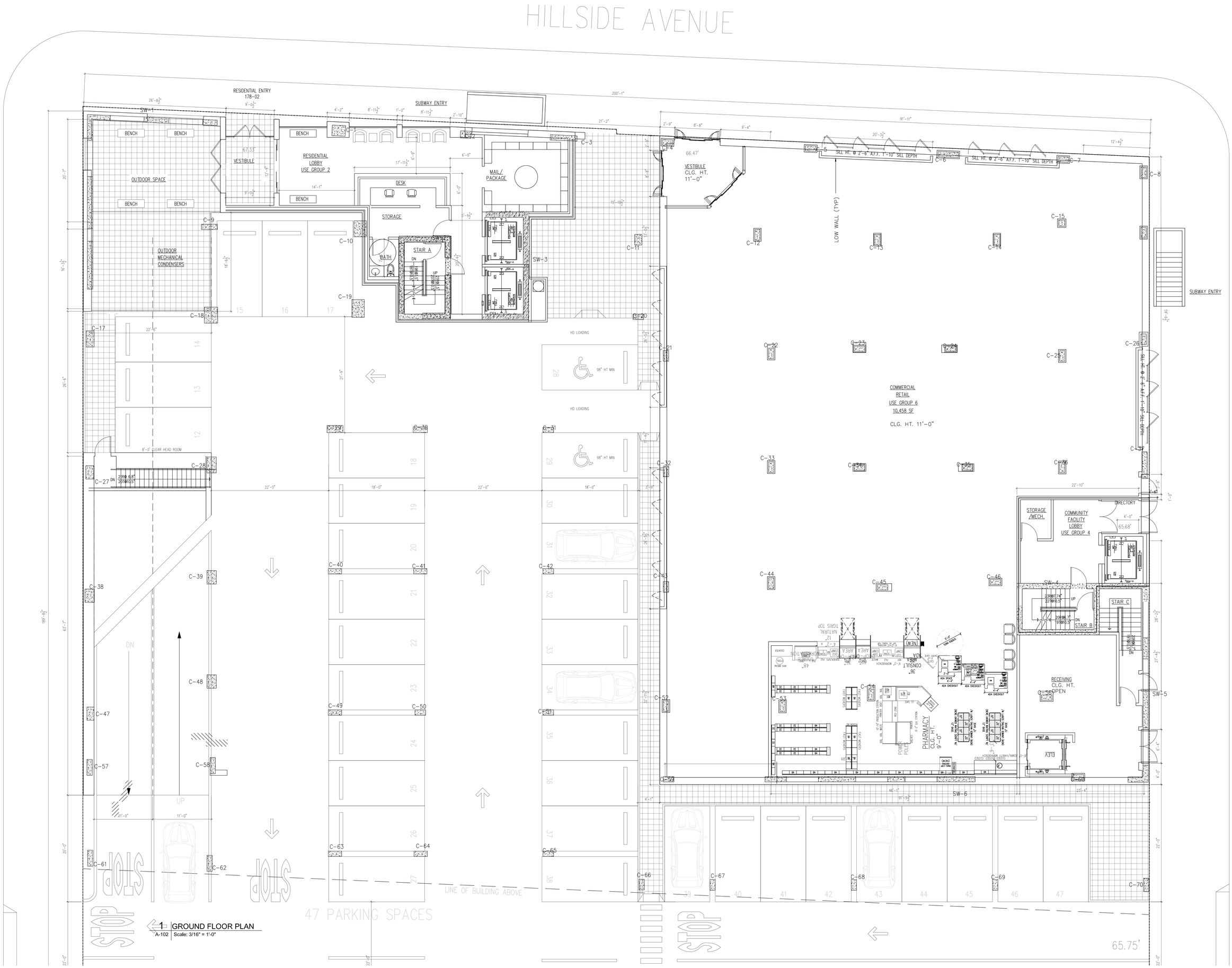
GROUND
FLOOR PLAN

DWG NO:

A-101.00

10 of 35

DOB JOB NUMBER



1 GROUND FLOOR PLAN
A-102 Scale: 3/16" = 1'-0"

PROJECT/ CLIENT:

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ENGINEER/ CONSULTANT:

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REGISTERED ARCHITECT CHRISTOPHER CARRANO 02507 STATE OF NEW YORK

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

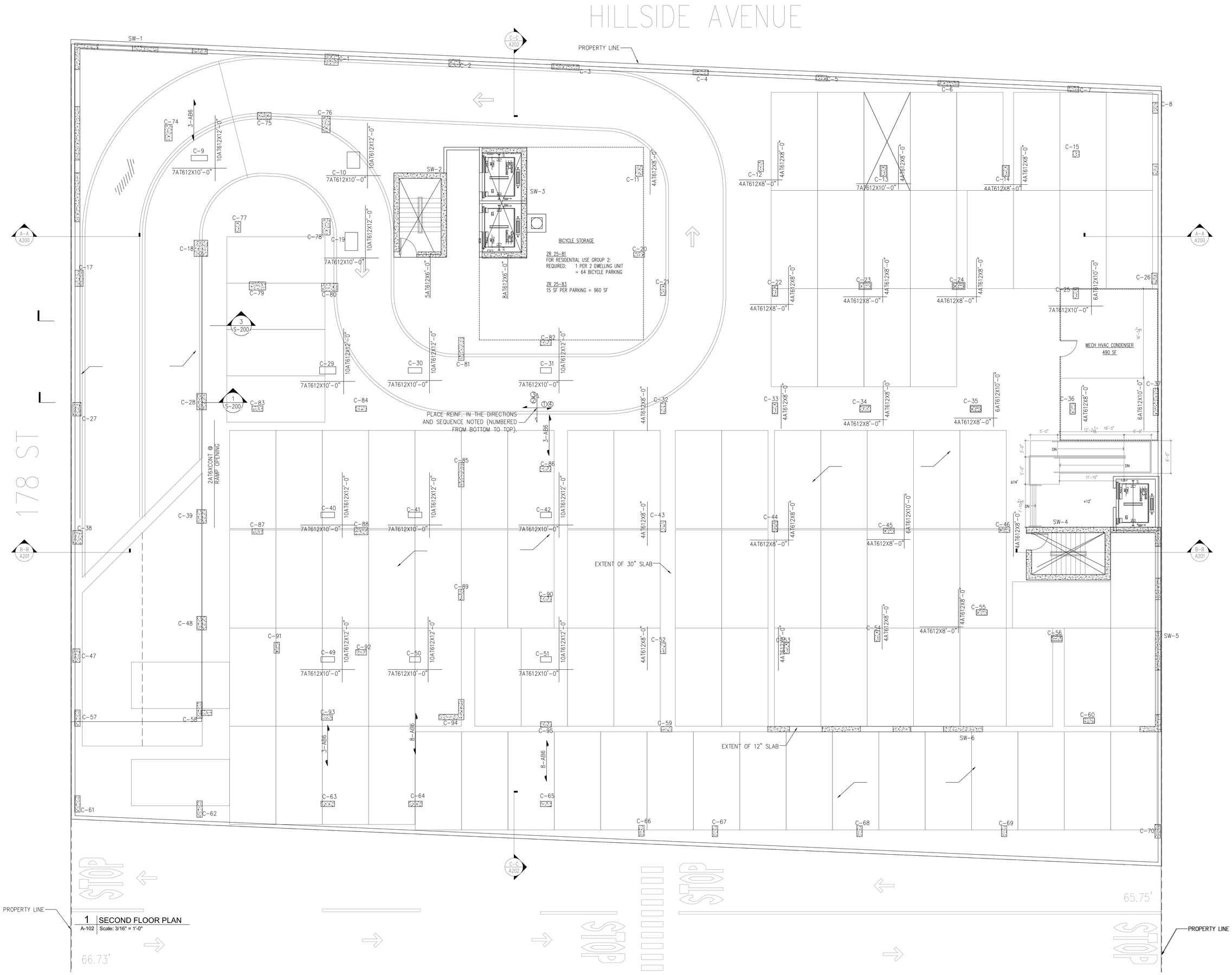
GROUND FLOOR PLAN

DWG NO:

A-102.00

10 of 35

DOB JOB NUMBER



1 SECOND FLOOR PLAN
A-102 Scale: 3/16" = 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
5	DOB FILING SET	6/1/2015
6	DOB PLAN EXAMINATION	6/3/2015
7	DOB PLAN EXAMINATION	6/19/2015

ARCHITECT:

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ENGINEER/ CONSULTANT:

ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

REGISTERED ARCHITECT
CHRISTOPHER CARRAMO
025077
STATE OF NEW YORK

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

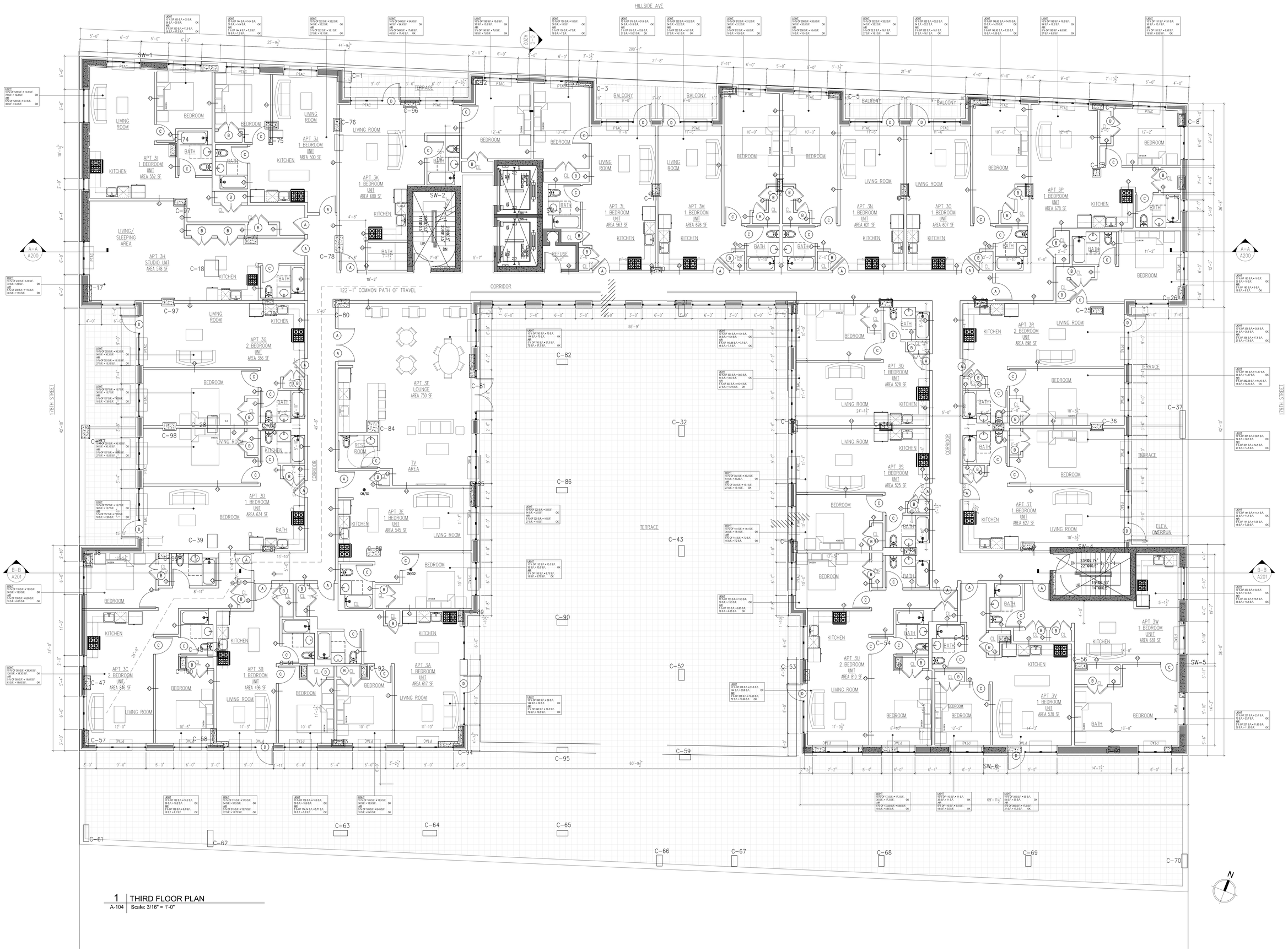
SECOND
FLOOR PLAN

DWG NO:

A-103.00

11 of 35

DOB JOB NUMBER



1 THIRD FLOOR PLAN
A-104 Scale: 3/16" = 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
5	DOB FILING SET	6/1/2015
6	DOB PLAN EXAMINATION	6/3/2015
7	DOB PLAN EXAMINATION	8/19/2015

ARCHITECT:

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ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

REGISTERED ARCHITECT CHRISTOPHER CARRANO 025077 STATE OF NEW YORK

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

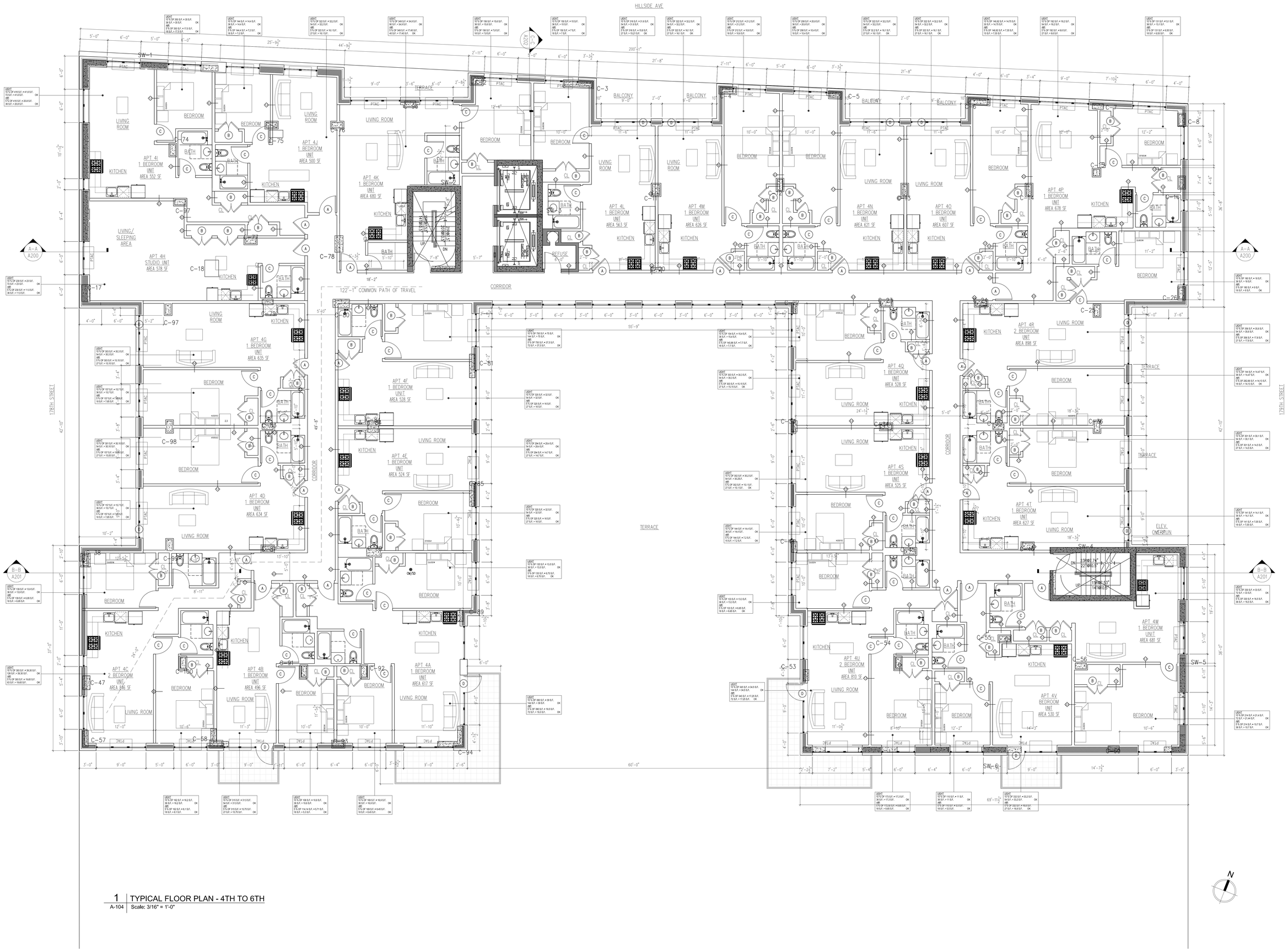
TITLE

THIRD
FLOOR PLAN

DWG NO:

A-104.00

DOB JOB NUMBER



1 | TYPICAL FLOOR PLAN - 4TH TO 6TH
A-104 | Scale: 3/16" = 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
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6	DOB PLAN EXAMINATION	6/3/2015
7	DOB PLAN EXAMINATION	8/19/2015

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ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

REGISTERED ARCHITECT
CHRISTOPHER CARRANO
025077
STATE OF NEW YORK

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

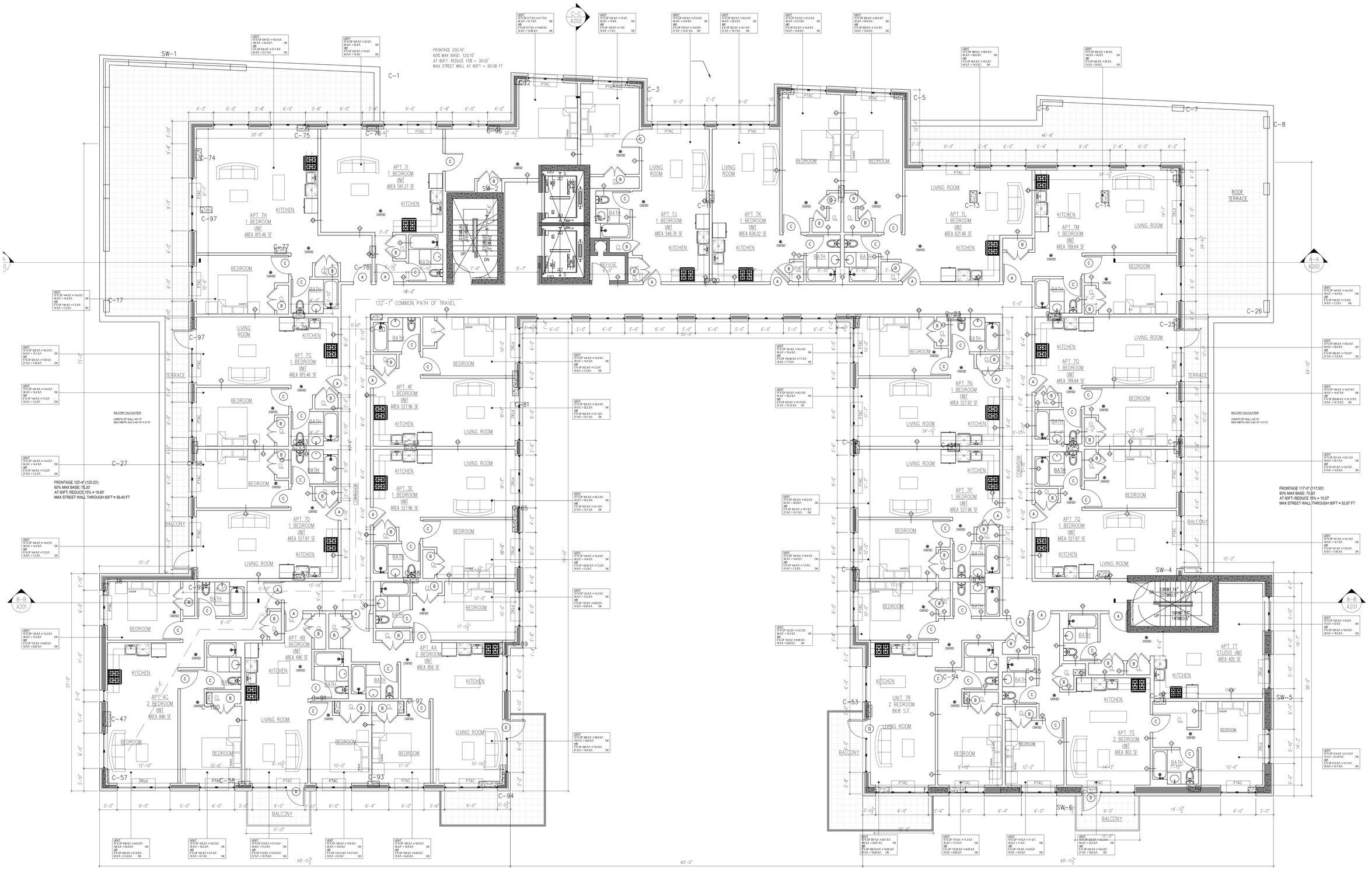
TYPICAL
FLOOR PLAN
4TH TO 6TH

DWG NO:

A-105.00

13 of 35

DOB JOB NUMBER



1 | SEVENTH FLOOR PLAN
A-106 | Scale: 3/16" = 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
5	DOB FILING SET	6/1/2015
6	DOB PLAN EXAMINATION	8/3/2015
7	DOB PLAN EXAMINATION	9/19/2015

ARCHITECT:

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OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

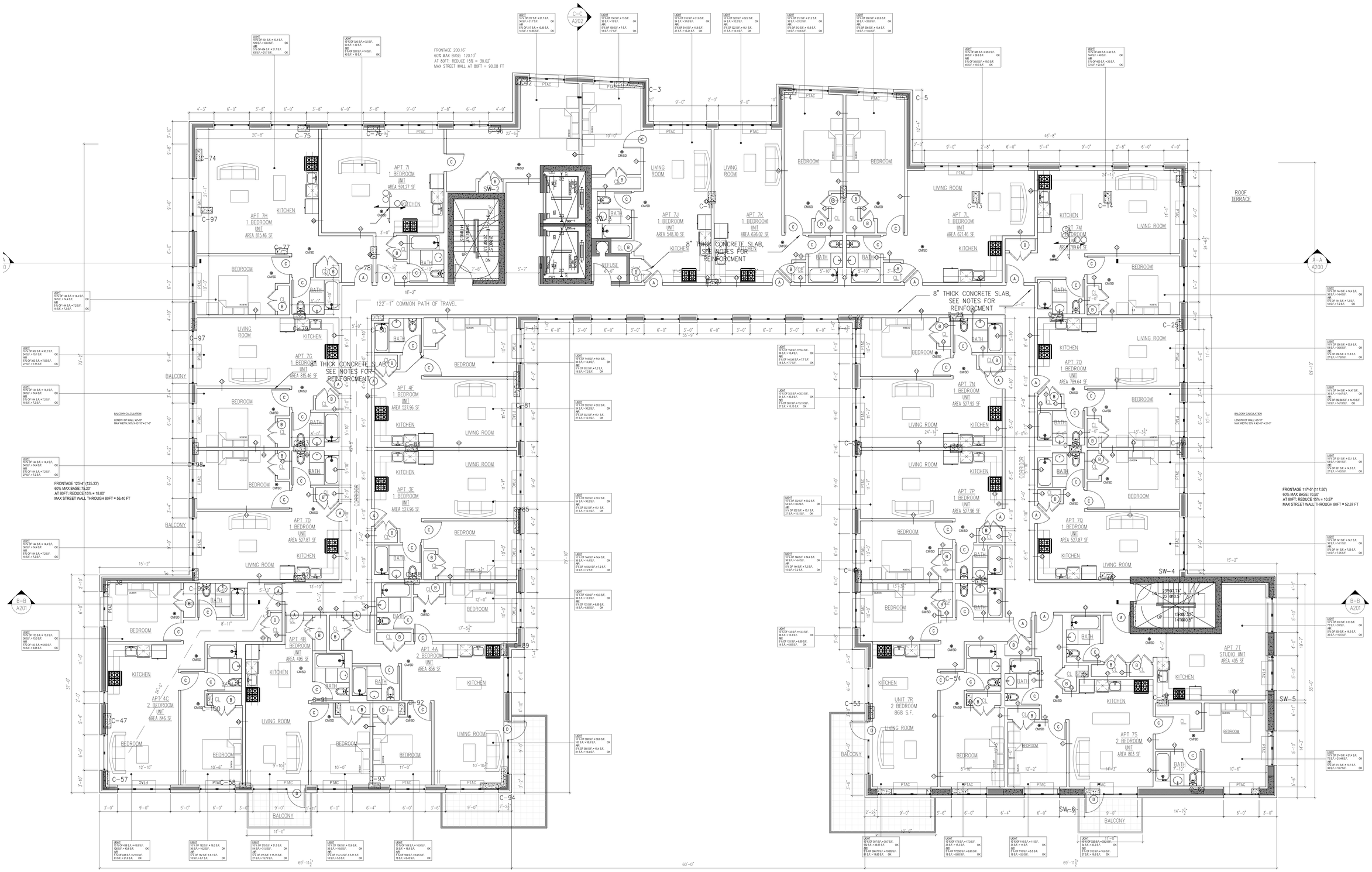
SEVENTH
FLOOR PLAN

DWG NO:

A106.00

15 of 35

DOB JOB NUMBER



1 EIGHTH FLOOR PLAN
A-106 Scale: 3/16" = 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
5	DOB FILING SET	6/1/2015
6	DOB PLAN EXAMINATION	8/3/2015
7	DOB PLAN EXAMINATION	8/19/2015

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ENGINEER/ CONSULTANT:

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OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

EIGHTH
FLOOR PLAN

DWG NO:

A107.00

16 of 35

DOB JOB NUMBER

1 SECTION A-A
A-200 Scale: 3/16"= 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
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3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
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6	DOB PLAN EXAMINATION	6/3/2015
7	DOB PLAN EXAMINATION	8/19/2015

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DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

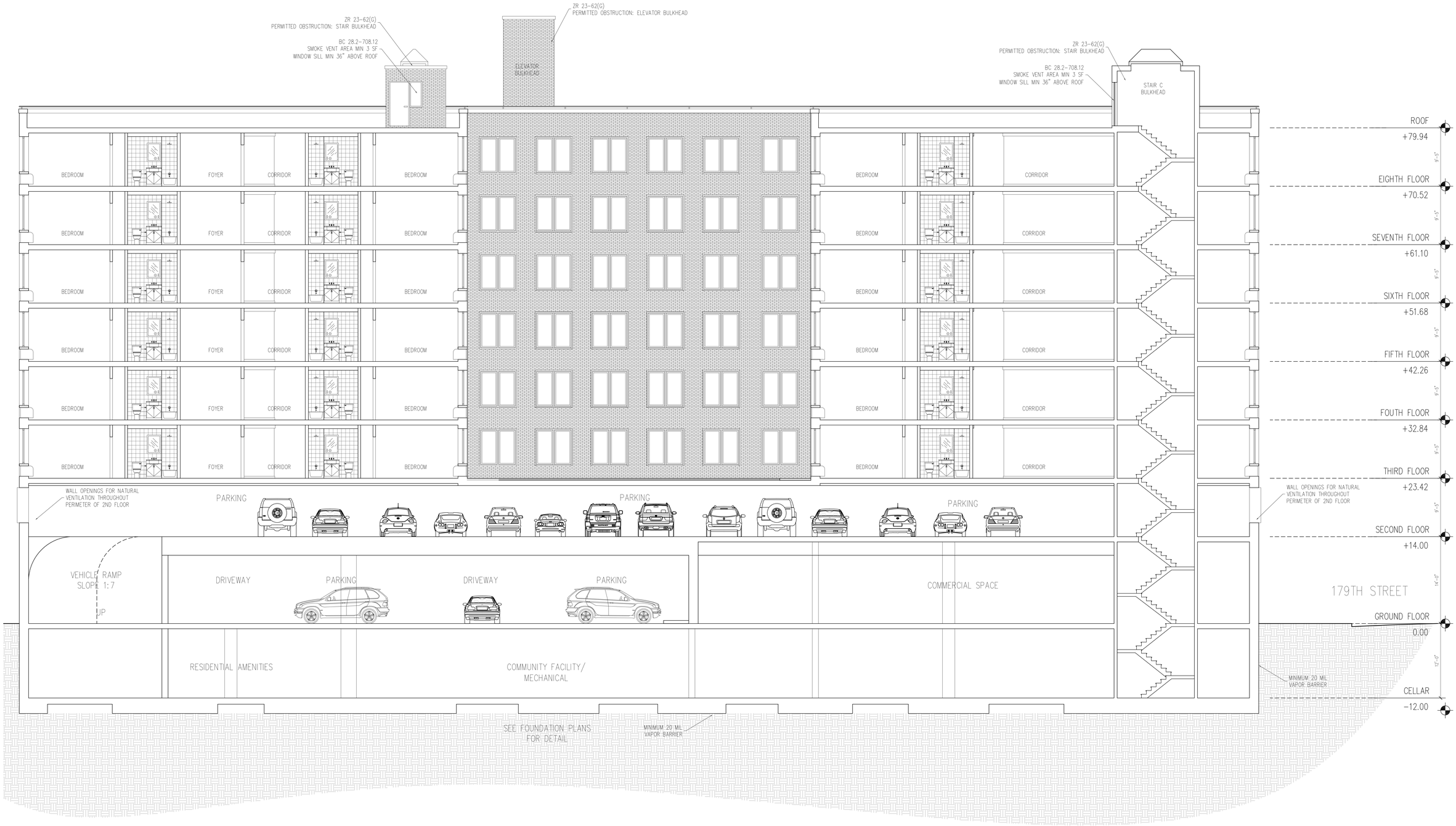
SECTION A-A

DWG NO:

A-200.00

17of 35

DOB JOB NUMBER



1 SECTION B-B
A-201 Scale: 3/16"= 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
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6	DOB PLAN EXAMINATION	6/3/2015
7	DOB PLAN EXAMINATION	6/19/2015

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ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

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DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

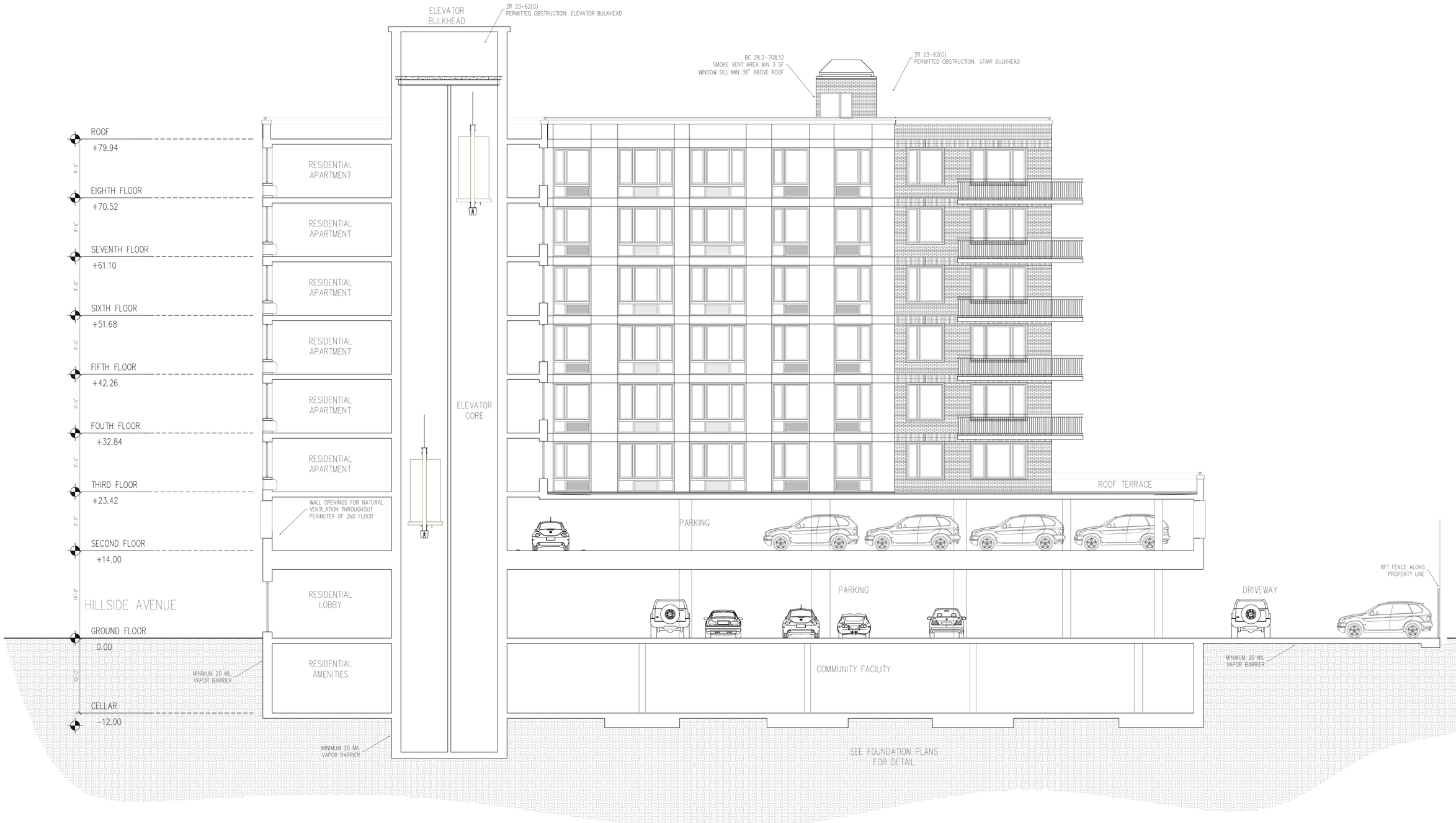
TITLE

SECTION B-B

DWG NO:

A-201.00
18of 35

DOB JOB NUMBER



1 SECTION C-C
A-202 Scale: 3/16"= 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
5	DOB FILING SET	6/1/2015
6	DOB PLAN EXAMINATION	6/3/2015
7	DOB PLAN EXAMINATION	6/19/2015

ARCHITECT:

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ENGINEER/ CONSULTANT:

ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

SECTION C-C

DWG NO:

A-202.00

19 of 35

DOB JOB NUMBER

1 | NORTH ELEVATION
A-300 | Scale: 3/16"= 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/18/2015
5	DOB FILING SET	6/1/2015

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ENGINEER/ CONSULTANT:

ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

NORTH ELEVATION

DWG NO:

A300.00

DOB JOB NUMBER

1 | EAST ELEVATION
A-301 | Scale: 3/16"= 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
5	DOB FILING SET	6/1/2015

ARCHITECT:

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OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

EAST ELEVATION

DWG NO:

A301.00

21 of 35

DOB JOB NUMBER

1 SOUTH ELEVATION
A-302 Scale: 3/16"= 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
5	DOB FILING SET	6/1/2015

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ENGINEER/ CONSULTANT:

ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

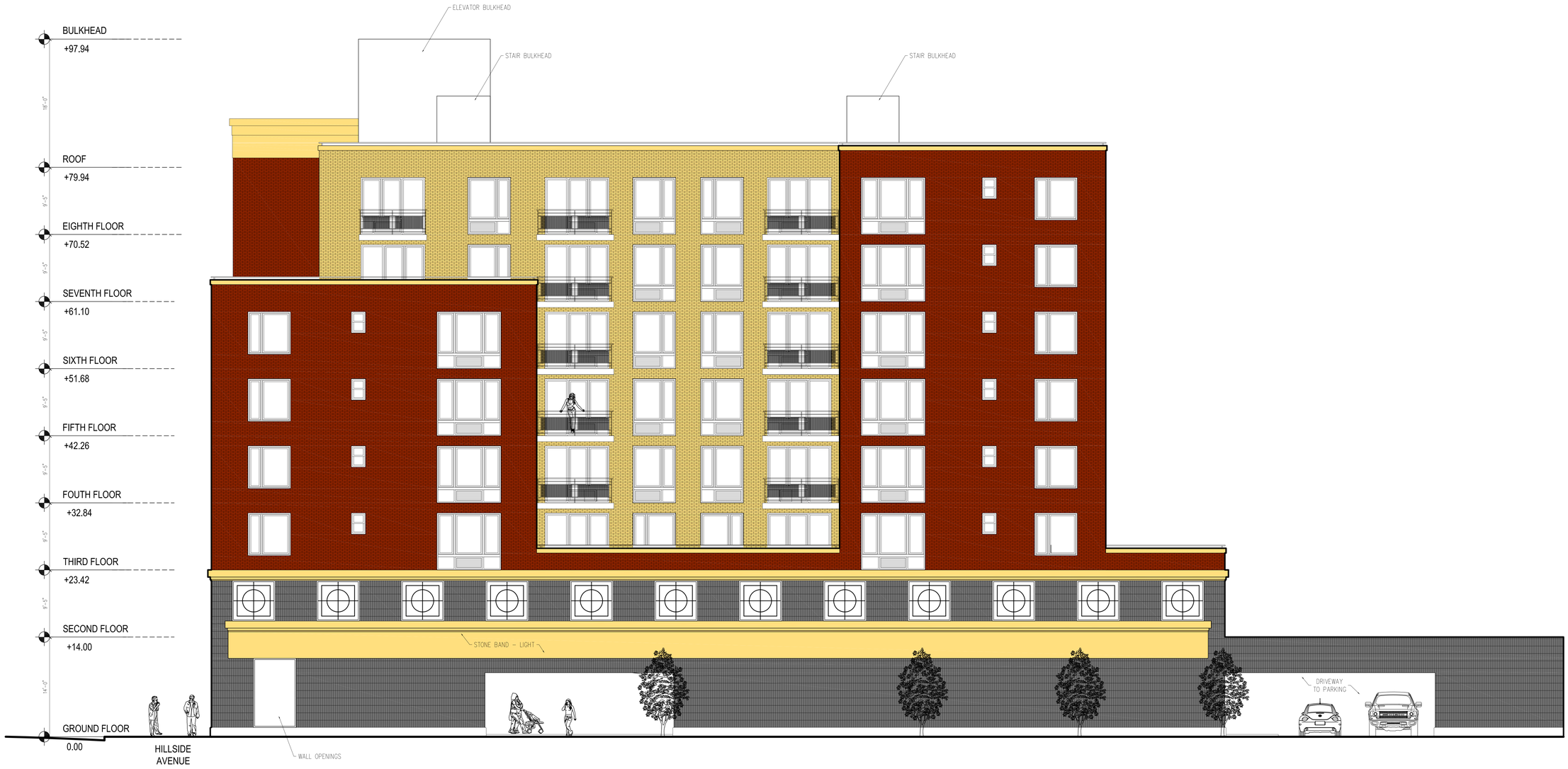
TITLE

SOUTH ELEVATION

DWG NO:

A302.00

DOB JOB NUMBER



1 | WEST ELEVATION
A-303 | Scale: 3/16"= 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/18/2015
5	DOB FILING SET	6/1/2015

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ENGINEER/ CONSULTANT:

ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

WEST ELEVATION

DWG NO:

A303.00
23 of 35

DOB JOB NUMBER

HILLSIDE AVENUE

178 ST

179 ST

LAUNDRY

ZR 28-24
MIN WASHER: 6 UNITS
MIN DRYER: 6 UNITS

47 STORAGE UNITS

STORAGE

UP

DN

RESIDENTIAL GYM

COMPACTOR

MECHANICAL

SEE MECHANICAL PLANS FOR DETAIL

OFFICES
16,998 SF

OFFICES
7,827 SF

MEN'S RESTROOM

WOMEN'S

HAND DRYER

HAND DRYER

STORAGE

STORAGE

USE GROUP 4

RECEIVING
CLG. HT.
OPEN

COMMERCIAL
3,059 SF

SW-4

SW-6

UNEXCAVATED

REFLECTED CEILING LEGEND

- NEW CARBON MONOXIDE / SMOKE DETECTOR
- CEILING MOUNTED LIGHT FIXTURE
- PENDANT LIGHT FIXTURE
- RECESSED DOWNLIGHT

~ ALL NEW LIGHTING FIXTURES TO BE SELECTED AND PROVIDED BY OWNER AND INSTALLED BY A LICENSED ELECTRICIAN.

CEILING NOTES:

RATED FLOOR ASSEMBLY SHALL BE COMPLETED AT ALL LOCATIONS INCLUDING WHERE CONCEALED BY DROPPED CEILINGS OR OTHER CONSTRUCTION. ALL PENETRATIONS OF FLOOR CONSTRUCTION SHALL BE FIRESTOPPED.

1 | RCP- CELLAR
A-400 | Scale: 3/16" = 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	5/30/2015
4	COMMISSIONER REVIEW	5/19/2015
5	DOB FILING SET	6/1/2015

ARCHITECT:

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New York, New York, 10018
(P) 212.777.6880
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ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

REGISTERED ARCHITECT CHRISTOPHER GIANNINI 029077 STATE OF NEW YORK

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/EJ
CHK BY:	CC/MN

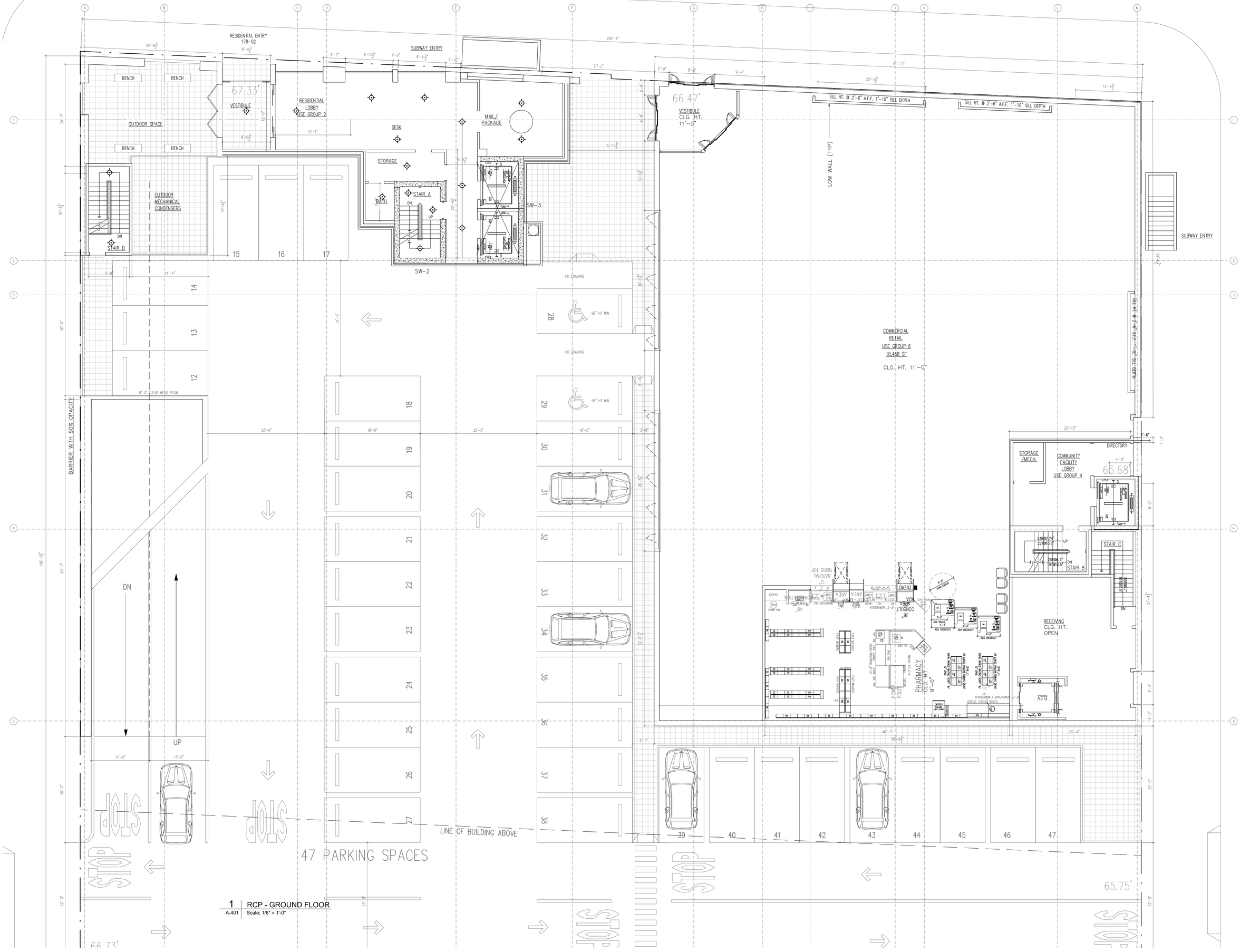
TITLE

RCP-
CELLAR

DWG NO:

A-400.00
24 of 35

DOB JOB NUMBER



1 | A-401 | RCP - GROUND FLOOR
Scale: 1/8" = 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
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ENGINEER/ CONSULTANT:

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OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

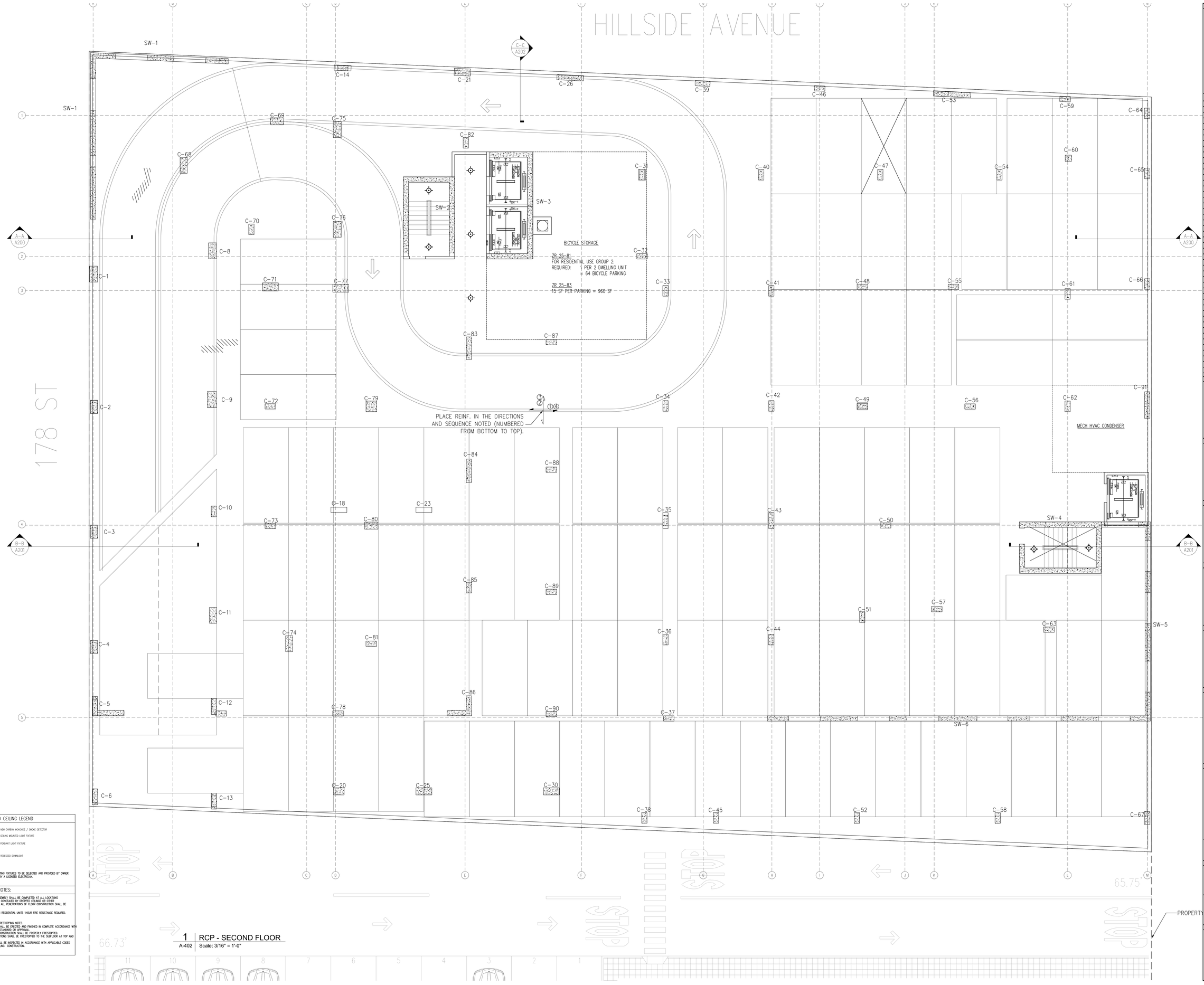
TITLE:

RCP-
GROUND FLOOR

DWG NO:

A-401.00
25 of 35

DOB JOB NUMBER



1 | RCP - SECOND FLOOR
A-402 | Scale: 3/16" = 1'-0"

REFLECTED CEILING LEGEND

- NEW CARBON MONOXIDE / SMOKE DETECTOR
- CEILING MOUNTED LIGHT FIXTURE
- PENDANT LIGHT FIXTURE
- RECESSED DOWNLIGHT

– ALL NEW LIGHTING FIXTURES TO BE SELECTED AND PROVIDED BY OWNER AND INSTALLED BY A LICENSED ELECTRICIAN.

CEILING NOTES:

RATED FLOOR ASSEMBLY SHALL BE COMPLETED AT ALL LOCATIONS INCLUDING WHERE CONCEALED BY DROPPED CEILINGS OR OTHER CONSTRUCTION. ALL PENETRATIONS OF FLOOR CONSTRUCTION SHALL BE FIRESTOPPED.

CEILINGS BETWEEN RESIDENTIAL UNITS THOUR FIRE RESISTANCE REQUIRED.

PARTITION AND FIRESTOPPING NOTES
ALL PARTITIONS SHALL BE ERECTED AND FINISHED IN COMPLETE ACCORDANCE WITH THE REFERENCED STANDARD OR APPROVAL.
ALL FIRE-RATED CONSTRUCTION SHALL BE PROPERLY FIRESTOPPED.
FIRE-RATED PARTITIONS SHALL BE FIRESTOPPED TO THE SUBFLOOR AT TOP AND BOTTOM.
FIRESTOPPING SHALL BE INSPECTED IN ACCORDANCE WITH APPLICABLE CODES PRIOR TO CONCEALING CONSTRUCTION.

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
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5	DOB FILING SET	6/1/2015

ARCHITECT:

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REGISTERED ARCHITECT
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STATE OF NEW YORK

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
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DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

RCP-
SECOND FLOOR

DWG NO:

A-402.00

26 of 35

DOB JOB NUMBER

REFLECTED CEILING LEGEND

- CMSD — NEW CARBON MONOXIDE / SMOKE DETECTOR
- CEILING MOUNTED LIGHT FIXTURE
- PENDANT LIGHT FIXTURE
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1 | RCP - THIRD FLOOR
A-403 | Scale: 3/16" = 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
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DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

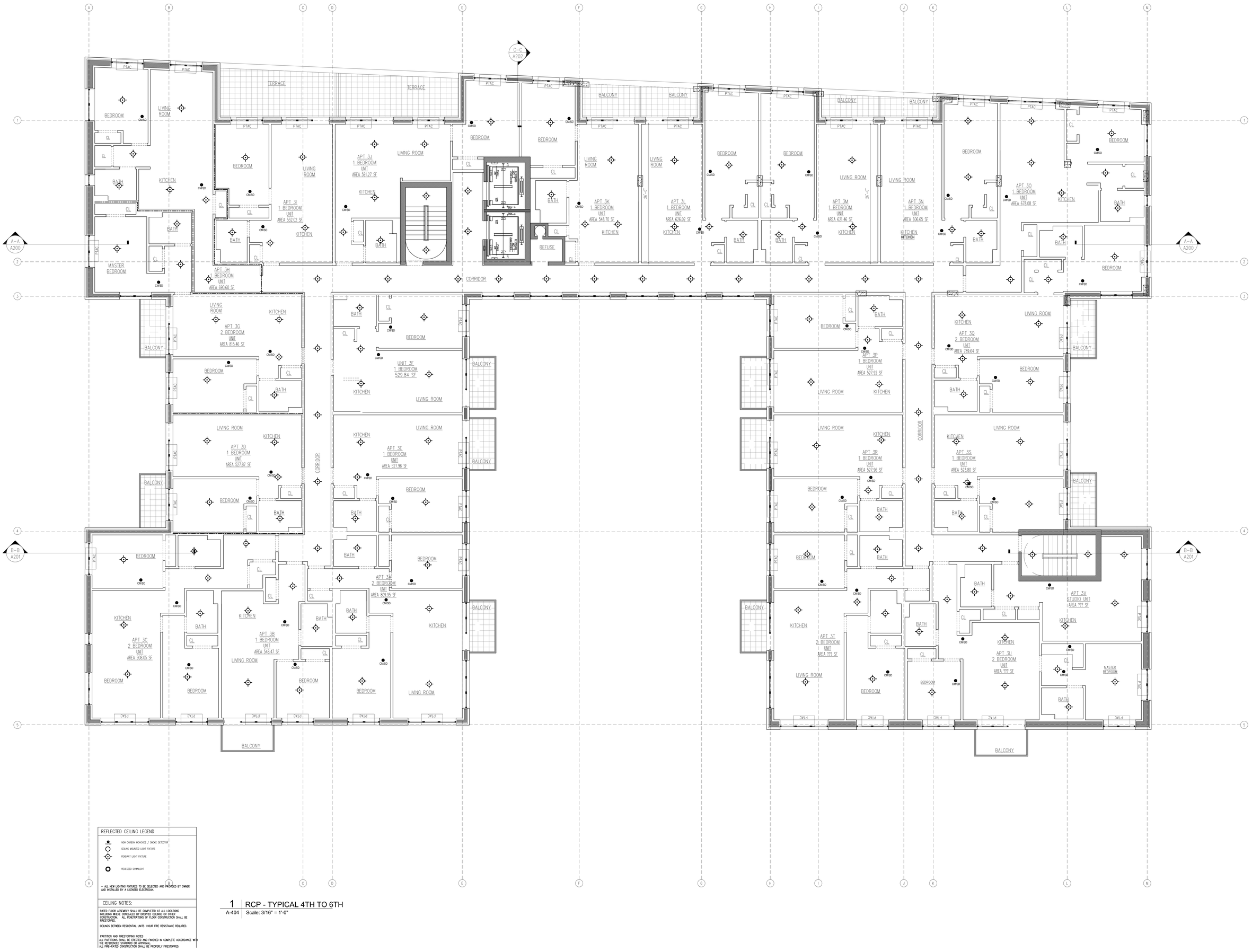
TITLE

RCP-
THIRD FLOOR

DWG NO:

A-403.00
27 of 35

DOB JOB NUMBER



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- PENDANT LIGHT FIXTURE
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1 | A-404 — RCP - TYPICAL 4TH TO 6TH
Scale: 3/16" = 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

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ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/EJ
CHK BY:	CG/MN

TITLE

RCP-
TYPICAL
4TH TO 6TH

DWG NO:

A-404.00
28 of 35

DOB JOB NUMBER

REFLECTED CEILING LEGEND

- CMSD — NEW CARBON MONOXIDE / SMOKE DETECTOR
- CEILING MOUNTED LIGHT FIXTURE
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1 | A-405 — RCP - SEVENTH TO EIGHTH
Scale: 3/16" = 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	5/27/2015
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3	INITIAL REVIEW	6/30/2015
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OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/IU
CHK BY:	CC/MN

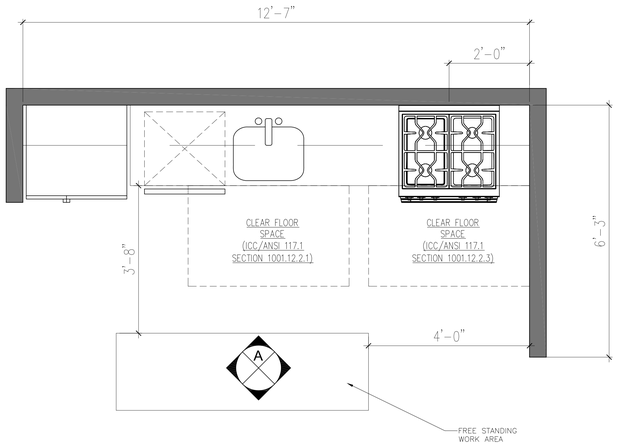
TITLE

RCP -
SEVENTH TO EIGHTH FLOOR

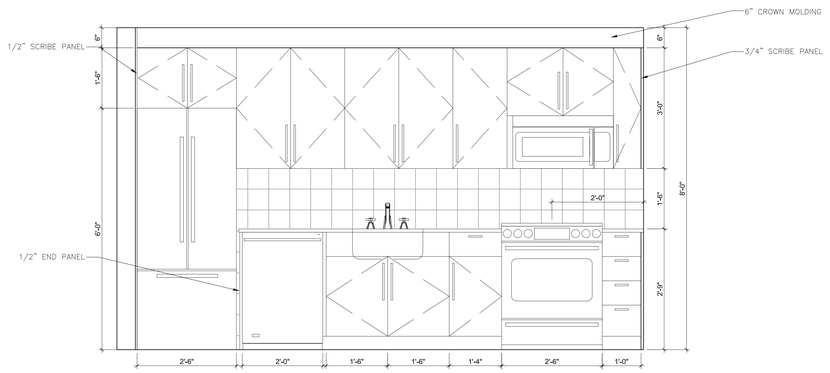
DWG NO:

A-405.00
29 of 35

DOB JOB NUMBER

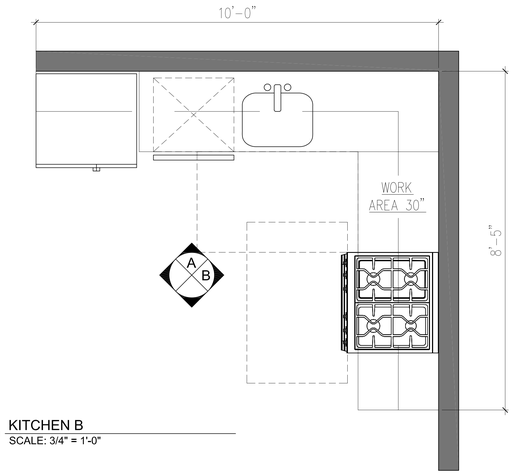


1 KITCHEN A
SCALE: 3/4" = 1'-0"

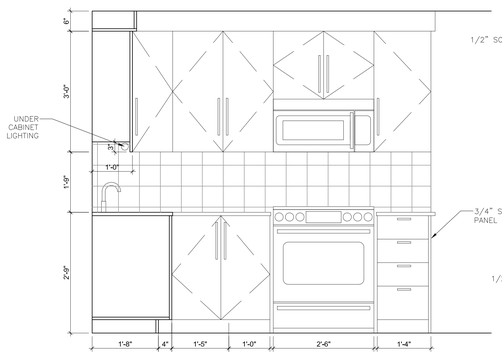


A PROPOSED KITCHEN ELEVATION
SCALE: ½" = 1'-0"

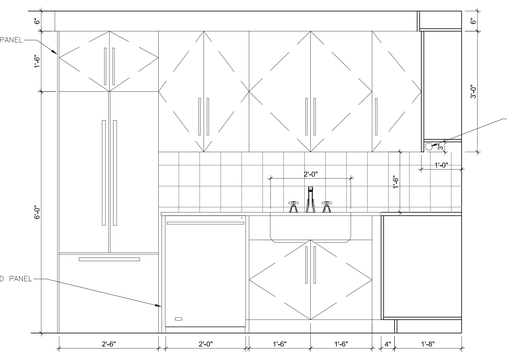
KITCHEN SPECIFICATIONS	
TILE	DAL TILE TO BE DETERMINED (8"X8")
COUNTERS	FORMICA LAMINATE 2493-53, STONE DUST, MATTE FINISH
CABINETS	WHITE THERMOFOIL W/RAISED PANEL, MATCHING TOE PLATE, BRUSHED CHROME OR BRUSHED STEEL KNOB
SINK	MOEN EXCALIBUR #22868 (25"X22"X8" SELF RIMMING STAINLESS STEEL, U-CHANNEL WITH CLIPS)
FAUCET	MOEN #67315C (PULLOUT SPRAY, SWIVEL SPOUT, 1/2" CONNECTIONS
REFRIGERATOR	WHIRLPOOL ET18NXFW, 18 CUBIC FOOT FROST FREE, WHITE ON WHITE 65-1/2" HEIGHT, 29-1/2" WIDTH, 31-1/8" DEPTH INCLUDING HANDLE, 58-1/8" DEPTH W/DOOR SWING
GAS RANGE	WHIRLPOOL SF377PEGQ, SELF CLEANING, SEALED BURNERS, CLOCK/BACKSPLASH, WHITE ON WHITE 36" HEIGHT TO COOKTOP, 46-7/9" HEIGHT W/BACKSPLASH, 29-7/8" WIDTH, 27-1/8" DEPTH WITH HANDLE, 25" DEPTH W/O HANDLE
DISHWASHER	WHIRLPOOL DU810DWGQ, 3 CYCLES, 5 OPTIONS, WHITE ON WHITE (34" HEIGHT), 23-7/8" WIDTH, 24"DEPTH)
MICROWAVE	WHIRLPOOL MH613OXEQ, 1.1 CUBIC FOOT OVER RANGE W/INTEGRATED HOOD, WHITE ON WHITE 16" HEIGHT, 29-78" WIDTH, 13-78" DEPTH
LIGHT FIXTURE	ARTCRAFT COMPLIMENTS AC2352BN (15") CLOSE TO CEILING, MARBLED GLASS ARC



2 KITCHEN B
SCALE: 3/4" = 1'-0"

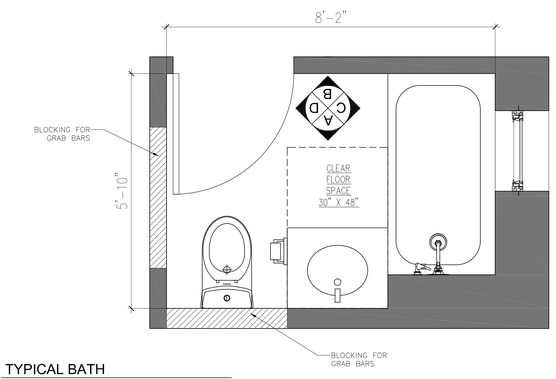


A PROPOSED KITCHEN ELEVATION
SCALE: ½" = 1'-0"

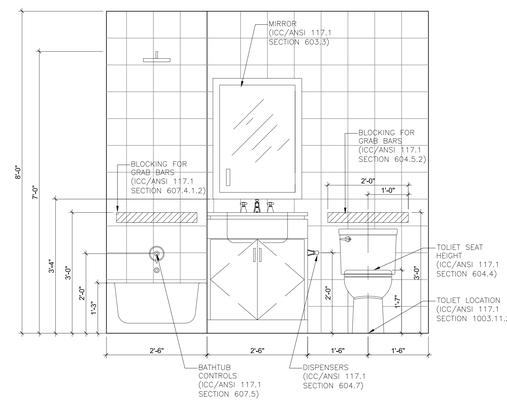


B PROPOSED KITCHEN ELEVATION
SCALE: ½" = 1'-0"

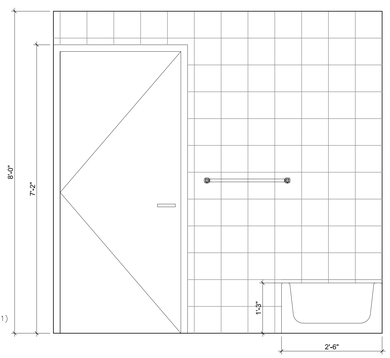
BATHROOM SPECIFICATIONS	
LAVATORY	KOHLER "DROP-IN-SINK" K2202-4 BROOKLINE COUNTERTP LAVATORY- 19" DIAMETER, VITREOUS CHINA, SELF RIMMING LAVATORY WITH 4"
LAVATORY FAUCET	CHROME, MOEN MONTICELLO #4550 + MOEN 97557 HANDLE INSERT (METAL WASTE, 1/2" CONNECTIONS, 4" CENTERS)
WATER CLOSET	KOHLER K3422-0 WELLWORTH TOILET-ELONGATED BOWL, WHITE, FLOOR OUTLET WITH WHITE PAINTED WOODEN TOILET SEAT
BATHTUB	CRANE 2-176X AZTEC, 5' RECESSED BATH (60"X30), WHITE (ENAMELED STEEL TUB W/ACID RESISTING PORCELAIN FINISH, SLOPPED BACK AND SLIP RESISTANT BOTTOM)
BATHTUB FAUCET/SHOWER VALVE	MOEN CHATEAU SERIES 62370W/TRIM #TL182 (POSITEMP ROUGH IN VALVE W/STOPS, 4 PORT CYCLING VALVE, MOENFLO SHOWER HEAD, ARM FLANGE, WITH SPECIAL IPS DIVERTER SPOUT)
FLOOR TILE	DAL TILE WHITE HEXAGON, UNGLAZED CERAMINC MOSAIC
WALL TILE (AT SHOWER, TO CEILING)	DAL WHITE SUBWAY TILE 3"X6", WITH BLACK SUBWAY TILE BORDER (2"X6" PART WAY UP WALL AND ALONG SIDE EDGES
VANITY CABINET	28" WHITE THERMOFOIL WITH RAISED PANEL AND APRON, BRUSHED CHROME KNOB
VANITY TOP	30" LAMINATE/MICA W/180 DEGREE BULLNOSE TOP, FORMICA 2493-53, STONE DUST, MATTE FINISH
MEDICINE CABINET	54" WIDTH, 36" HIGH, TRI-VU MEDICINE CHEST- 8" DEEP WITH PLEXIGLASS DIFFUSSER; ADJUSTABLE SHELVES; SURFACE MOUNT
TOWEL RACKS	VOGUE, 24", 2 PER BATHROOM, #5465, CHROME FINISH
TOILET PAPER HOLDER	VOGUE #5152, CHROME FINISH



3 TYPICAL BATH
SCALE: 3/4" = 1'-0"



A PROPOSED KITCHEN ELEVATION
SCALE: 3/4" = 1'-0"



B PROPOSED KITCHEN ELEVATION
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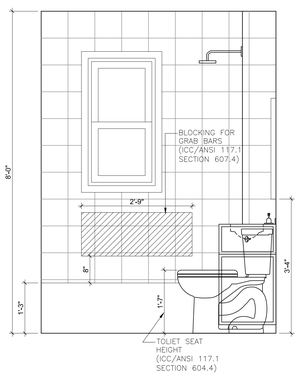
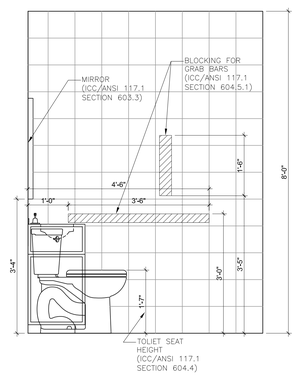


C PROPOSED KITCHEN ELEVATION
SCALE: 3/4" = 1'-0"



D PROPOSED KITCHEN ELEVATION
SCALE: 3/4" = 1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
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PROJECT NO:	4437
DRAWING BY:	MN/IU
CHK BY:	CC/MN

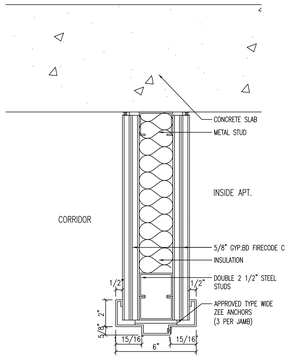
TITLE

INTERIOR ELEVATIONS - KITCHENS AND BATHROOMS

DWG NO:

A-500.00

DOB JOB NUMBER



HM DOOR HEADER
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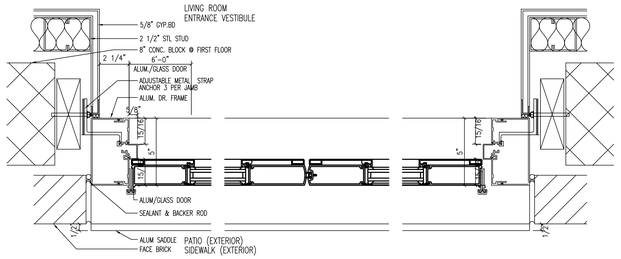

ALUM JAMB ENTRANCE
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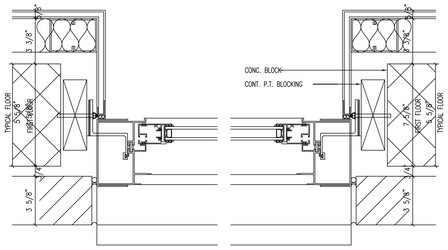

ALUM. WINDOW JAMB @ FIRST FLOOR
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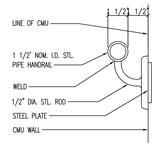
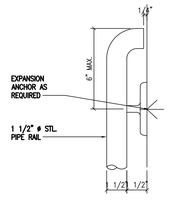
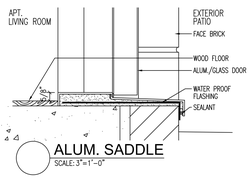


HANDRAIL DETL.
SCALE: 3"=1'-0"



HANDRAIL PLAN DETL.
SCALE: 3"=1'-0"



ALUM. SADDLE
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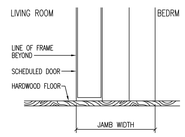

SADDLE
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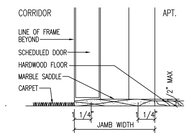

MARBLE SADDLE
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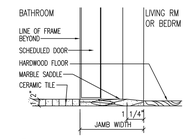

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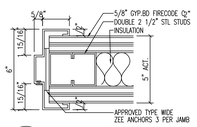

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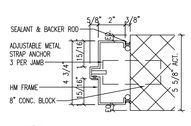

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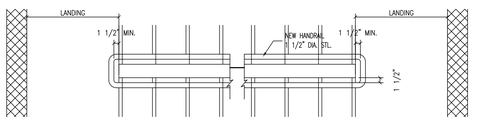
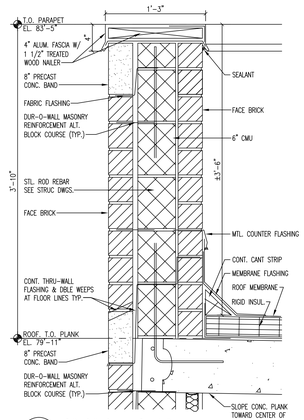
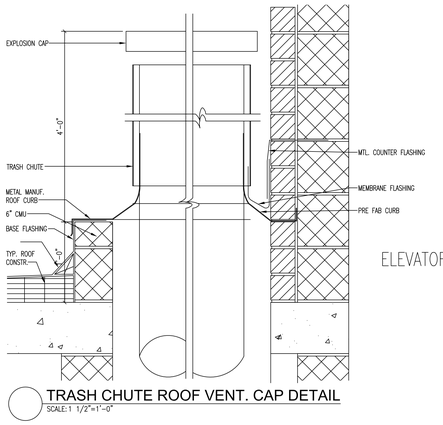


TYPICAL RAILING DETAIL -PLAN
SCALE: 3/4"=1'-0"

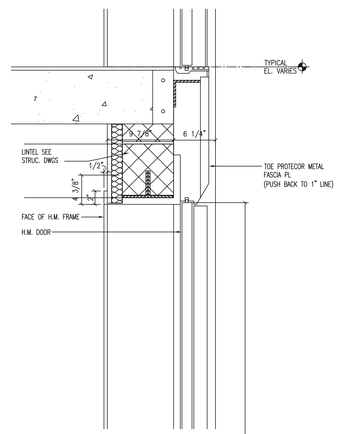


PARAPET DETAIL
SCALE: 1 1/2"=1'-0"



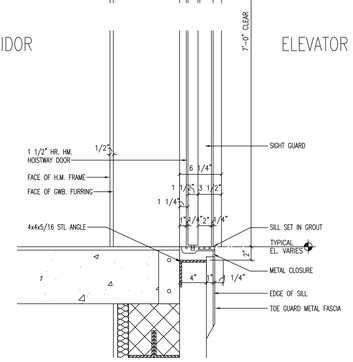
TRASH CHUTE ROOF VENT. CAP DETAIL
SCALE: 1 1/2"=1'-0"

ELEVATOR SHAFT

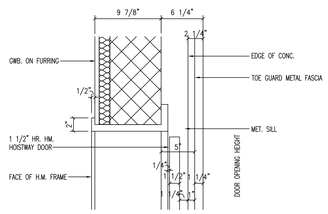


CORRIDOR

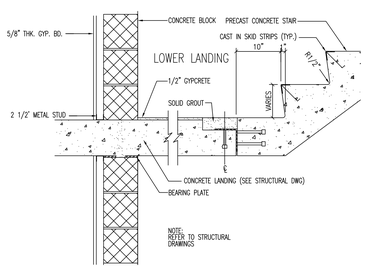
ELEVATOR SHAFT



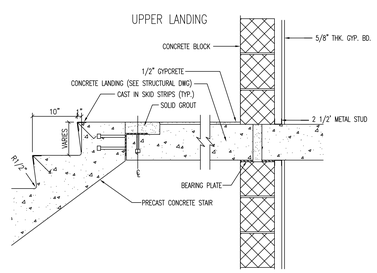
DETAIL- SILL
SCALE: 1 1/2"=1'-0"

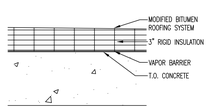


DETAIL- JAMB
SCALE: 1 1/2"=1'-0"

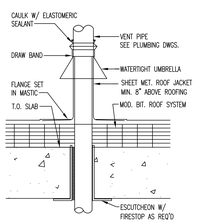


STAIR DETAIL
SCALE: 1"=1'-0"

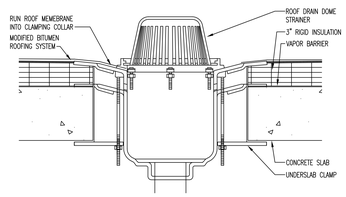




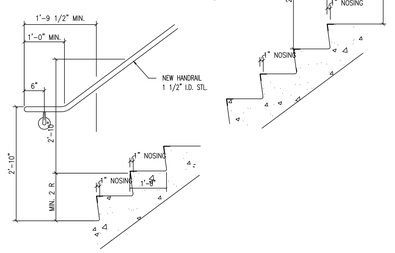
TYP. ROOF CONSTRUCTION
SCALE: 1 1/2"=1'-0"



ROOF VENT DETAIL
SCALE: 1 1/2"=1'-0"



ROOF DRAIN DETAIL
SCALE: 1 1/2"=1'-0"



TYPICAL RAILING DETAIL -ELEVATION
SCALE: 3/4"=1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, N.Y. 11432

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/18/2015
5	DOB FILING SET	6/1/2015

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REGISTERED ARCHITECT — CHRISTOPHER CANDELA — 025077 — STATE OF NEW YORK

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

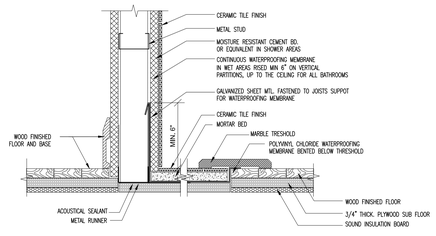
TITLE

DETAILS

DWG NO:

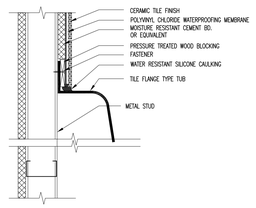
A-600.00

DOB JOB NUMBER



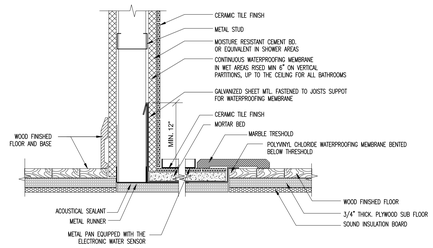
WET OVER DRY DETAIL @ WATERPROOFING MEMBRANE 6" UP ON VERTICAL WALLS

SCALE: NTS



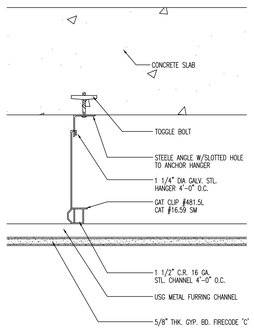
DETAIL & TILE FLANGE TUB

SCALE: NTS



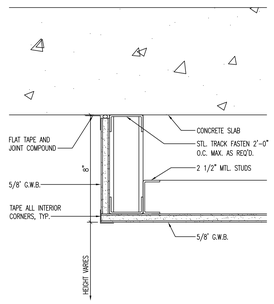
WATERPROOFING MEMBRANE 12" UP ON VERTICAL WALLS @ WASHER-DRYER CLOSET

SCALE: NTS



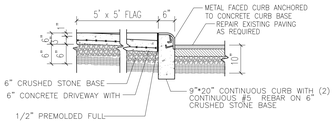
DRYWALL CEILING DETAIL

SCALE: 3"=1'-0"



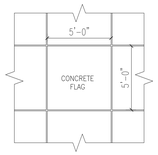
TYP. SOFFIT DETAIL

SCALE: 3"=1'-0"



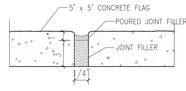
METAL FACEDCONC. CURB DETAIL AS PER D.O.T. STD H-1044

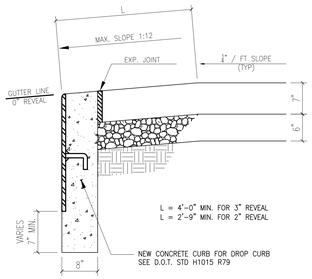
SCALE 1" =1'-0"



CONC. SIDEWALK FLAG

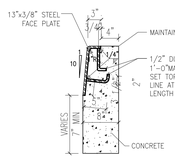
SCALE 1" =1'-0"





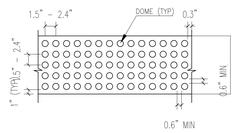
PEDESTRIAN RAMP

SCALE 1" =1'-0"



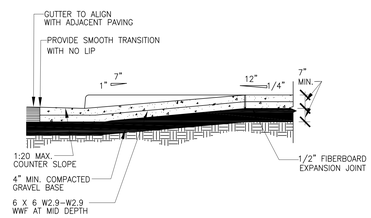
METAL FACING DETAIL OF CONC. CURB AS PER D.O.T. STD H-1010 R79

SCALE 1" =1'-0"



DETECTABLE WARNING SURFACE DOME SPACING

SCALE 1" =1'-0"

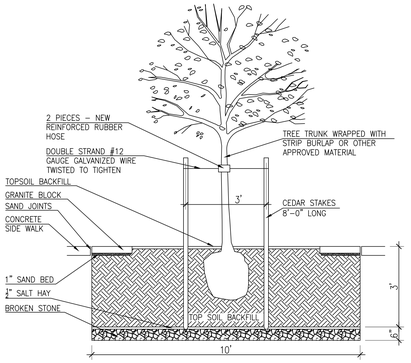


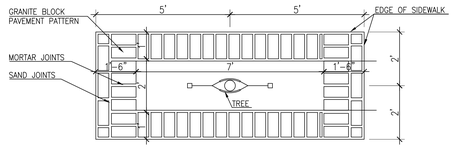
CURB CUT

N.T.S.

FENCE DETAIL

N.T.S.





TREE PLANTING, STAKIN GAND TREE PIT PAVEMENT DETAILS FOR SIDEWALK AREAS AS PER D.O.T. STD H-1046

SCALE 1/2" =1'-0"

TREE NOTE:

TREES SHALL BE OF AT LEAST 3" CAUPER AT TIME OF PLANTING. FINAL LOCATION TO BE DETERMINED BY PARKS AND RECREATION. ALL STREET TREES SHALL BE PLANTED, MAINTAINED AND REPLACED WHEN NECESSARY WITH THE APPROVAL OF, AND IN ACCORDANCE WITH THE STANDARDS OF, THE DEPARTMENT OF PARKS AND RECREATION AND THE DEPARTMENT OF TRANSPORTATION.

SPACING REQUIREMENTS (AS NYC DPR)

- DO NOT PLANT IN FRONT OF BUILDING ENTRANCES IN ORDER TO PERMIT EASY ACCESS BY THE FIRE DEPARTMENT.
- DO NOT PLANT WITHIN BUS STOPS.
- DO NOT PLANT DIRECTLY OVER DEP WATER MAINS LESS THAN 20 INCHES IN DIAMETER.
- MINIMUM HORIZONTAL DISTANCE FROM DEP WATER MAIN TO TREE TRUNK IS 6 FEET.
- MINIMUM DISTANCE BETWEEN TREES (TRUNK TO TRUNK) SHALL BE 20" TO 30", DEPENDING UPON THE TREE SPECIES AND OTHER LOCAL CONDITIONS.
- MINIMUM DISTANCE FROM A STREETLIGHT TO THE TREE TRUNK IS 25 FEET (THIS MAY VARY WITH TREE SPECIES).
- MINIMUM DISTANCE FROM A STOP SIGN TO THE TREE TRUNK IS 30 FEET.
- MINIMUM DISTANCE FROM OTHER TRAFFIC SIGNS TO THE TREE TRUNK IS 6 FEET.
- SUGGESTED DISTANCE FROM A PARKING METER BACK TO TREE TRUNK SHALL BE NO MORE THAN 5 FEET, TO ALLOW FOR THE SWING OF CAR DOORS.
- MINIMUM DISTANCE FROM A GAS OR WATER VALVE TO THE EDGE OF THE PIT IS 2 FEET.
- MINIMUM DISTANCE FROM AN OIL FILL PIPE TO THE EDGE OF THE PIT IS 4 FEET.
- MINIMUM DISTANCE FROM THE EDGE OF A COAL CHUTE TO THE EDGE OF THE PIT IS 2 FEET.
- MINIMUM DISTANCE FROM A FIRE HYDRANT TO THE EDGE OF THE PIT IS 3 FEET.
- MINIMUM DISTANCE FROM A CURB CUT OR DRIVEWAY TO THE EDGE OF THE PIT IS 2 FEET AND TO THE TREE TRUNK IS 7 FEET.
- MINIMUM DISTANCE FROM THE CORNER OF A STREET INTERSECTION TO THE TREE TRUNK IS 40 FEET.
- MINIMUM DISTANCE FROM THE EDGE OF THE PIT TO ANY OPPOSITE OBSTRUCTION (BUILDING WALL, STOOP, RAILING, PROPERTY LINE ETC) IS FROM 4 TO 6 FEET, DEPENDING UPON LOCAL CONDITIONS AND THE AMOUNT OF SIDEWALK TRAFFIC.
- ALL TREE PITS MUST BE CONTIGUOUS TO THE STREET CURB (EXCEPT AS NOTED BELOW, OR WITH THE PERMISSION OF THE AGENCY REPRESENTATIVE).
- TREES MAY BE PLANTED ON EITHER SIDE OF SIDEWALKS (IF ANY EXIST) IN LAWN AREAS WHERE THERE IS SUFFICIENT ROOM BETWEEN THE PROPERTY LINE AND THE STREET CURB.

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, N.Y. 11432

ISSUE	DESCRIPTION	DATE
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ARCHITECT:

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PROFESSIONAL STAMP/ SIGNATURE

REGISTERED ARCHITECT CHRISTOPHER CAMERON DATE 025077 STATE OF NEW YORK

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

DETAILS

DWG NO:

A601.00

33 of 35

DOB JOB NUMBER

DOOR TYPES

A	B	C	D	E	F	G
SOLID CORE METAL DOOR FLUSH - HINGED	SOLID CORE WOOD DOOR - FLUSH - HINGED	HOLLOW CORE WOOD DOOR - FLUSH - HINGED	HOLLOW CORE WOOD DOOR - FLUSH - DOUBLE HINGED	HOLLOW CORE METAL DOOR - FLUSH - SLIDING	STOREFRONT METAL DOOR - FLUSH - HINGED	STOREFRONT METAL DOOR - FLUSH - HINGED

DOOR AND FRAME SCHEDULE

DOOR								FRAME							
NO.	LOCATION	DOOR TYPE	SIZE			MATERIAL	FINISH	MATERIAL	FINISH	DETAIL			RATING (MINS)	HARDWARE	REMARKS
			HEIGHT	WIDTH	THICK					JAMB	HEAD	SILL			
A1	APT.3A - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A2	APT.3B - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A3	APT.3C - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A4	APT.3D - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A5	APT.3E - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A6	3F - LOUNGE	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A7	APT.3G - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A8	APT.3H - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A9	APT.3I - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A10	APT.3J - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A11	APT.3K - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A12	APT.3L - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A13	APT.3M - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A14	APT.3N - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A15	APT.3O - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A16	APT.3P - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A17	APT.3Q - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A18	APT.3R - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A19	APT.3S - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A20	APT.3T - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A21	APT.3U - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A22	APT.3V - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A23	APT.4A - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A24	APT.4B - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A25	APT.4C - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A26	APT.4D - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A27	APT.4E - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A28	APT.4F - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A29	APT.4G - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A30	APT.4H - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A31	APT.4I - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A32	APT.4J - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A33	APT.4K - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A34	APT.4L - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A35	APT.4M - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A36	APT.4N - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A37	APT.4O - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A38	APT.4P - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A39	APT.4Q - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A40	APT.4R - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A41	APT.4S - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A42	APT.4T - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A43	APT.4U - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A44	APT.4V - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A45	APT.5A - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A46	APT.5B - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A47	APT.5C - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A48	APT.5D - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A49	APT.5E - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A50	APT.5F - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A51	APT.5G - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A52	APT.5H - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A53	APT.5I - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A54	APT.5J - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A55	APT.5K - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A56	APT.5L - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A57	APT.5M - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A58	APT.5N - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A59	APT.5O - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A60	APT.5P - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A61	APT.5Q - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A62	APT.5R - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A63	APT.5S - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A64	APT.5T - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A65	APT.5U - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A66	APT.5V - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A67	APT.6A - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A68	APT.6B - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A69	APT.6C - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A70	APT.6D - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A71	APT.6E - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A72	APT.6F - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A73	APT.6G - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A74	APT.6H - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A75	APT.6I - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A76	APT.6J - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A77	APT.6K - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A78	APT.6L - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A79	APT.6M - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A80	APT.6N - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A81	APT.6O - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A82	APT.6P - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A83	APT.6Q - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A84	APT.6R - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A85	APT.6S - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A86	APT.6T - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A87	APT.6U - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A88	APT.6V - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A89	APT.7A - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A90	APT.7B - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A91	APT.7C - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A92	APT.7D - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A93	APT.7E - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A94	APT.7F - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A95	APT.7G - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A96	APT.7H - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A97	APT.7I - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A98	APT.7J - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A99	APT.7K - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A100	APT.7L - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A101	APT.7M - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A102	APT.7N - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A103	APT.7O - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A104	APT.7P - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A105	APT.7Q - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A106	APT.7R - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A107	APT.7S - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A108	APT.7T - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A109	APT.8A - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A110	APT.8B - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A111	APT.8C - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A112	APT.8D - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	

NOTE: VERIFY ALL SITE CONDITION & HEIGHTS. PROVIDE ALLOWANCE FOR EXTERIOR FLAT STOCK EXTERIOR TRIM TO MATCH EXISTING. PROVIDE ALLOWANCE TO RE-TRIM ALL INTERIORS

DOOR AND FRAME SCHEDULE - CONTINUED

DOOR								FRAME							
NO.	LOCATION	DOOR TYPE	SIZE			MATERIAL	FINISH	MATERIAL	FINISH	DETAIL			RATING (MINS)	HARDWARE	REMARKS
			HEIGHT	WIDTH	THICK					JAMB	HEAD	SILL			
A113	APT.8E - ENTRY	A	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A114	APT.8F - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A115	APT.8G - ENTRY	A	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A116	APT.8H - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A117	APT.8I - ENTRY	A	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A118	APT.8J - ENTRY	A	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A119	APT.8K - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A120	APT.8L - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A121	APT.8M - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A122	APT.8N - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A123	APT.8O - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A124	APT.8P - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A125	APT.8Q - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A126	APT.8R - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A127	APT.8S - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
A128	APT.8T - ENTRY	A	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B1	APT.3A - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B2	APT.3A - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B3	APT.3B - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B4	APT.3C - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B5	APT.3C - BEDROOM 2	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B6	APT.3D - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B7	APT.3E - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B8	APT.3G - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B9	APT.3G - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B10	APT.3H - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B11	APT.3I - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B12	APT.3J - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B13	APT.3K - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B14	APT.3L - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B15	APT.3M - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B16	APT.3N - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL						
B17	APT.3O - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL						
B18	APT.3P - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B19	APT.3Q - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B20	APT.3Q - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B21	APT.3R - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B22	APT.3S - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B23	APT.3T - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B24	APT.3T - BEDROOM 2	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B25	APT.3U - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B26	APT.3U - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B27	APT.4A - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B28	APT.4A - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B29	APT.4B - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B30	APT.4C - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B31	APT.4C - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B32	APT.4D - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B33	APT.4E - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B34	APT.4G - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B35	APT.4G - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B36	APT.4H - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B37	APT.4I - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B38	APT.4J - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B39	APT.4K - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B40	APT.4L - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B42	APT.4M - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B43	APT.4N - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B44	APT.4O - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B45	APT.4P - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B46	APT.4Q - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B47	APT.4Q - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B48	APT.4R - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B49	APT.4S - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B50	APT.4T - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B51	APT.4T - BEDROOM 2	B	7'-0"	3'-0"		METAL		METAL	METAL						
B52	APT.4U - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL						
B53	APT.4U - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B54	APT.5A - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B55	APT.5A - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B56	APT.5B - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B57	APT.5C - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B58	APT.5C - BEDROOM 2	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B59	APT.5D - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B60	APT.5E - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B61	APT.5G - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B62	APT.5G - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B63	APT.5H - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B64	APT.5I - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B65	APT.5J - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B66	APT.5K - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B67	APT.5L - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B68	APT.5M - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B69	APT.5N - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B70	APT.5O - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B71	APT.5P - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B72	APT.5Q - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B73	APT.5Q - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B74	APT.5R - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B75	APT.5S - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B76	APT.5T - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B77	APT.5T - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B78	APT.5U - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B79	APT.5U - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B80	APT.6A - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B81	APT.6A - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B82	APT.6B - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B83	APT.6C - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B83	APT.6C - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B83	APT.6D - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL						
B84	APT.6E - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL						
B85	APT.6G - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL						
B86	APT.6G - BEDROOM 2	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B87	APT.6H - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B88	APT.6I - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B89	APT.6J - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B90	APT.6K - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B91	APT.6L - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B92	APT.6M - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B93	APT.6N - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B94	APT.6O - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B95	APT.6P - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B96	APT.6Q - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B97	APT.6Q - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B98	APT.6R - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B99	APT.6S - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B100	APT.6T - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B101	APT.6T - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B102	APT.6U - BEDROOM 1	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B103	APT.6U - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B104	APT.7A - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B105	APT.7A - BEDROOM 2	B	7'-0"	3'-0"	1 3/4"	METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	
B106	APT.7B - BEDROOM 1	B	7'-0"	3'-0"		METAL		METAL	METAL				1-1/2 HR FIRE RATED	SELF-CLOSING MECHANISM	

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
5	DOB FILING SET	6/1/2015

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STATE OF NEW YORK

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

DOOR SCHEDULES

DWG NO:

A - 700.00

34 of 35

DOB JOB NUMBER

NEW WINDOW SCHEDULE:

	A	B	C	D
SIZE	5'-0" x 6'-0" x 3"	5'-0" x 9'-0" x 3"	5'-0" x 9'-0"" x 3" WITH 3'-0" X 7'-0" GLASS DOOR	2'-0" x 3'-0" x 3"
MATERIAL	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM
SILL	EXISTING	EXISTING	EXISTING	EXISTING
GLAZING	CLEAR GLAZING	CLEAR GLAZING	CLEAR GLAZING	CLEAR GLAZING
LOCATION	AS INDICATED	AS INDICATED	AS INDICATED	AS INDICATED

WINDOW SCHEDULE

ID TAG	TYPE	WINDOW						HARDWARE SET	EGRESS	REMARKS
		ROUGH OPENING WIDTH X HEIGHT	AREA FOR LIGHT	AREA FOR AIR	AREA FOR AIR	MATERIAL	SILL HEIGHT			
001	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	7' - 0 5/8"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
002	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	7' - 0 5/8"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
003	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	3' - 4 3/4"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
004	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
005	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	PROVIDE LOUVER AIR INTAKE WITH SCREEN
006	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	PROVIDE LOUVER AIR INTAKE WITH SCREEN
007	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 11 15/16"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
008	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	4' - 8 1/2"	5' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
009	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	4' - 8 1/2"	5' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
010	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
011	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
012	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	4' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
013	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	4' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
014	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	4' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
015	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	PROVIDE LOUVER AIR INTAKE WITH SCREEN
016	B		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	PROVIDE LOUVER AIR INTAKE WITH SCREEN
017	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	PROVIDE LOUVER AIR INTAKE WITH SCREEN
018	A									
019	D				WHITE FACTORY FIN,	5' - 0"	6' - 11"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
020	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
021	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
022	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
023	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
024	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
025	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
026	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
027	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
028	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
029	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
030	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
031	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
032	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
033	B		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
034	B		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
035	C									
036	A				WHITE FACTORY FIN,	5' - 0"	6' - 11"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
037	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
038	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
039	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
040	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
041	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
042	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
043	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
044	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
045	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
046	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
047	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
048	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
049	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
050	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
051	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
052	C									
053	B				WHITE FACTORY FIN,	5' - 0"	6' - 11"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
054	B		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
055	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
056	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
057	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
058	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
059	B		WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
060	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
061	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
062	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
063	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
064	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
065	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
066	C		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
067	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
068	A		WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
069	D									
070	A									

WINDOW SCHEDULE

ID TAG	TYPE	WINDOW						HARDWARE SET	EGRESS	REMARKS
		ROUGH OPENING WIDTH X HEIGHT	AREA FOR LIGHT	AREA FOR AIR	AREA FOR AIR	MATERIAL	SILL HEIGHT			
					WHITE FACTORY FIN,	5' - 0"	6' - 11"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
					WHITE FACTORY FIN,	5' - 0"	6' - 11"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
					WHITE FACTORY FIN,	5' - 0"	6' - 11"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
					WHITE FACTORY FIN,	5' - 0"	6' - 11"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	(2) 2' - 11 15/16"	4' - 0"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	2' - 11 15/16"	CLASSIC SERIES WHITE FINISH		EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME
			WOOD	WHITE VINYL	WHITE FACTORY FIN,	2' - 7 1/2"	3' - 4 13/16"	CLASSIC SERIES WHITE FINISH	YES	EXTENSION JAMB AS REQUIRED BY SITE CONDITION, CONVENTIONAL INSECT SCREEN WITH WHITE FRAME

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR COORDINATION	4/09/2015
3	INITIAL REVIEW	4/30/2015
4	COMMISSIONER REVIEW	5/19/2015
5	DOB FILING SET	6/1/2015

ARCHITECT:

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ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

REGISTERED ARCHITECT ★ CHRISTOPHER CARRANO 025077 ★ STATE OF NEW YORK

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

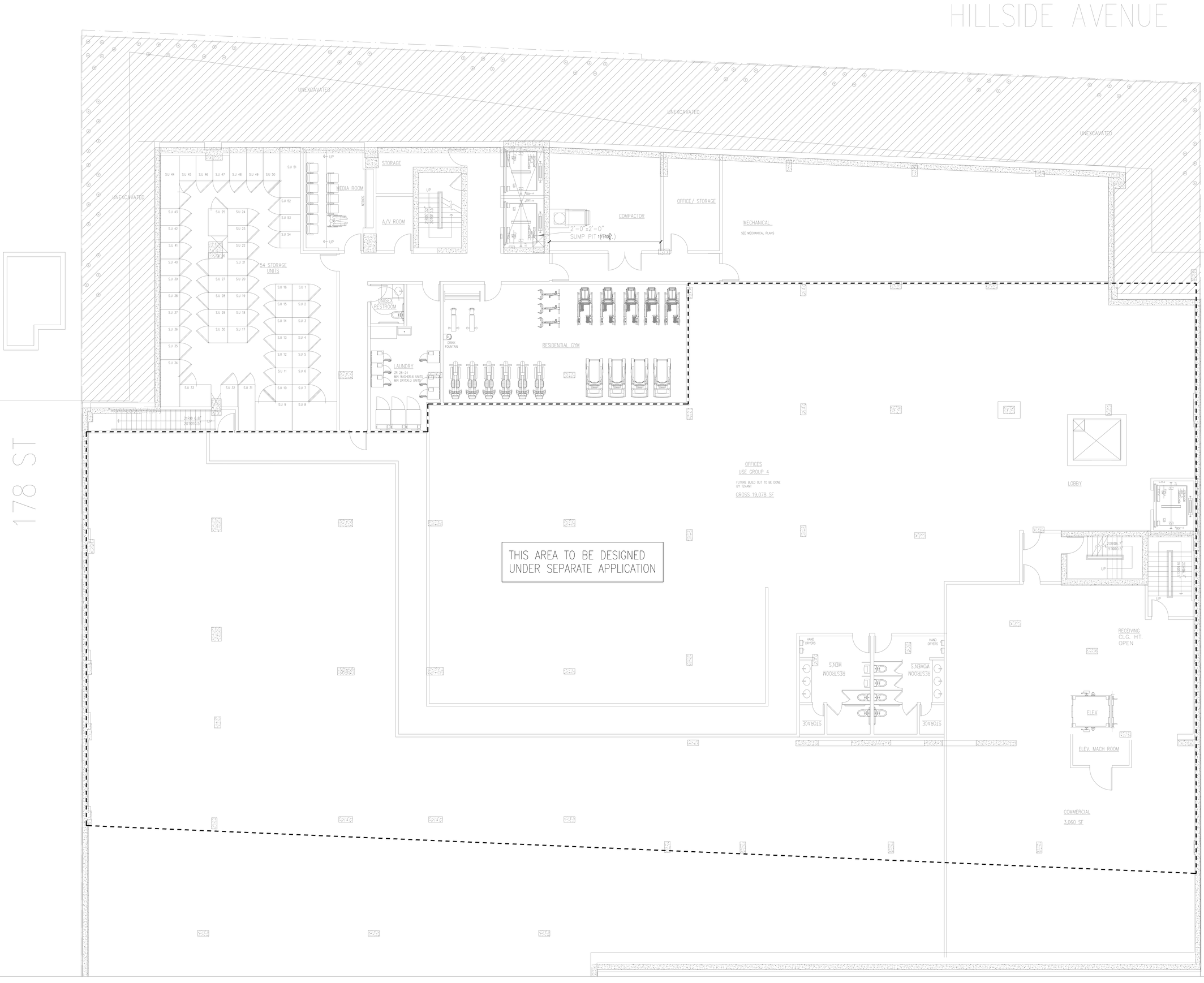
WINDOW SCHEDULES

DWG NO:

A - 701.00

35 of 35

DOB JOB NUMBER



PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR PROGRESS	4/27/2015
3	FOR PROGRESS	5/09/2015
4	COMMISSIONER REVIEW	5/19/2015

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PROFESSIONAL STAMP/ SIGNATURE

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

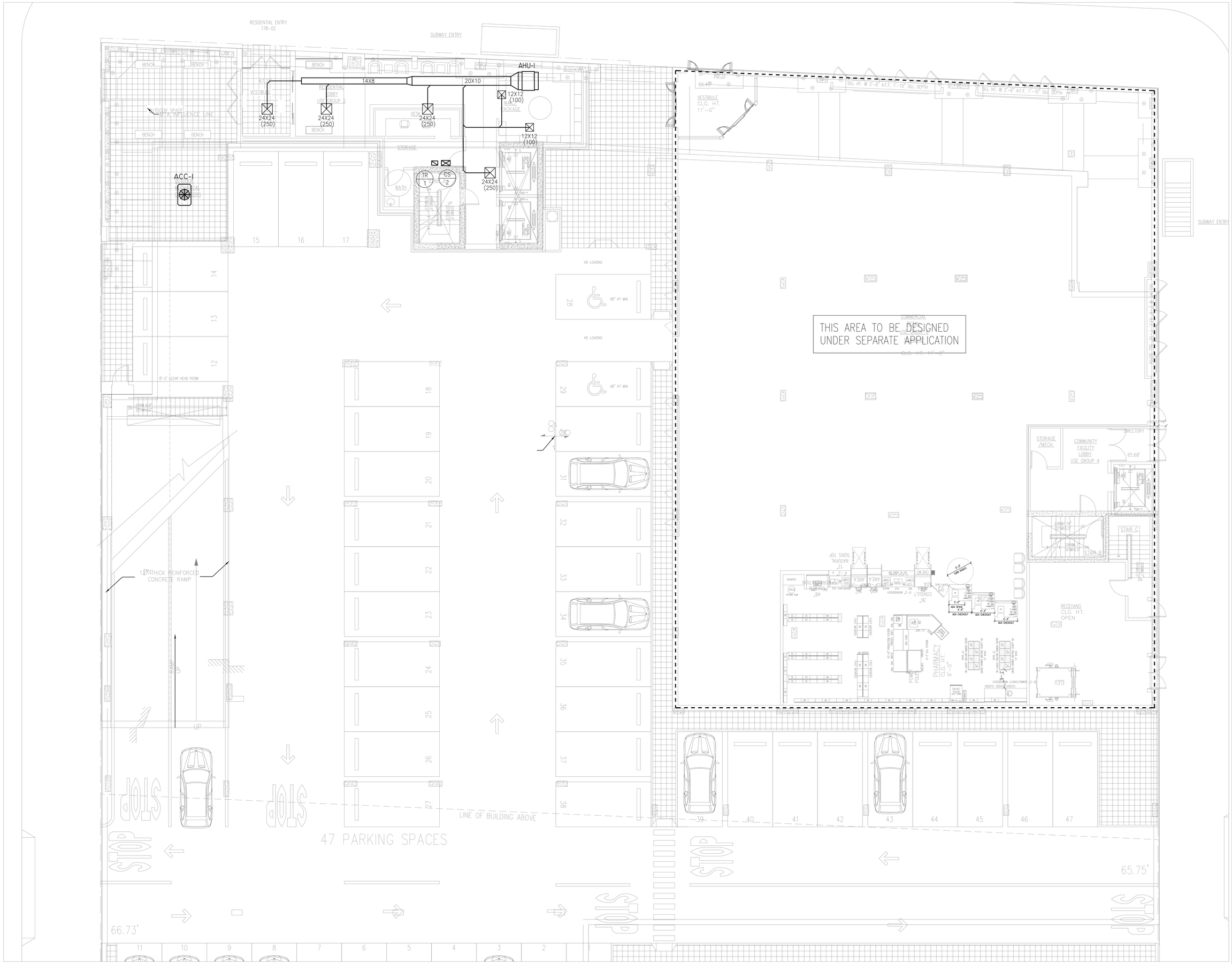
CELLAR
MECHANICAL PLAN

DWG NO:

M-100.00

1 of 31

DOB JOB NUMBER



PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR PROGRESS	4/27/2015
3	FOR PROGRESS	5/09/2015
4	COMMISSIONER REVIEW	5/19/2015

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PROFESSIONAL STAMP/ SIGNATURE

STATE OF NEW YORK
JOSE SOLIS
079185
LICENSED PROFESSIONAL ENGINEER

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

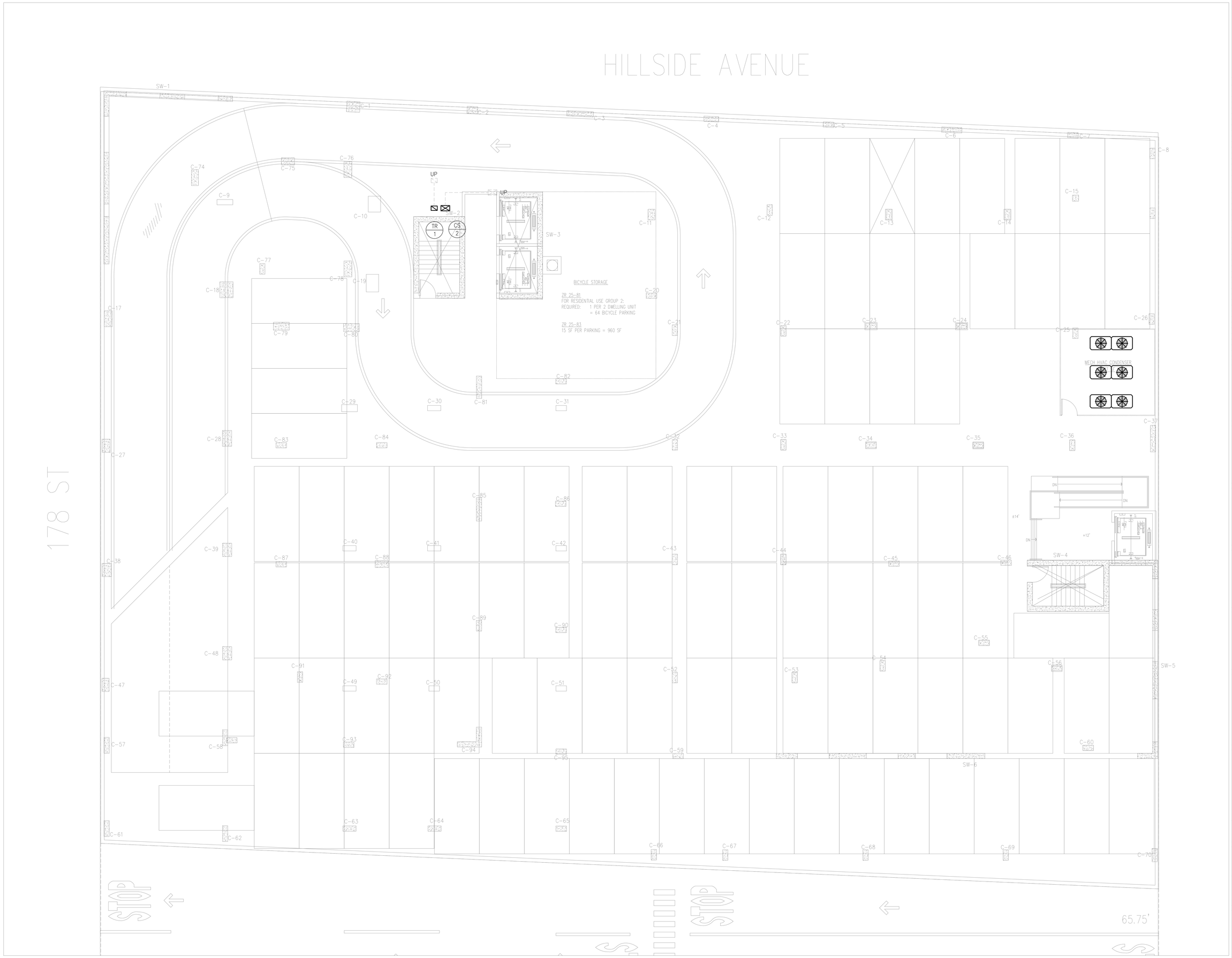
GROUND FLOOR
MECHANICAL PLAN

DWG NO:

M-101.00

2 of 31

DOB JOB NUMBER



PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR PROGRESS	4/27/2015
3	FOR PROGRESS	5/09/2015
4	COMMISSIONER REVIEW	5/19/2015

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ENGINEER/ CONSULTANT:

ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

STATE OF NEW YORK
GEORGE SCHELL
79188
LICENSED PROFESSIONAL ENGINEER

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

SECOND FLOOR
MECHANICAL PLAN

DWG NO:

M-102.00

3 of 31

DOB JOB NUMBER

DRAWING NOTES:

1. NOT USED
2. FURNISH AND INSTALL COMBINATION EXHAUST GRILLE AND FIRE DAMPER, ALDES MODEL CER-FEA-II, 6X6 SLEEVE, 4" REGULATOR, 7.5X7.5 GRILLE FACE
3. OFFSET AT 6TH FLOOR CEILING, INSTALL FIRE-RATED ENCLOSURE AROUND DUCT AS PER DETAIL ON ARCHITECTURAL DRAWINGS.
4. NATURAL VENTILATION PROVIDED IN ACCORDANCE WITH NYC MECHANICAL CODE SECTION 402 AND NYC BUILDING CODE 1203.4.1.3. WINDOW SHALL BE A MINIMUM OF 3 SQUARE FEET, WITH 50% OPENABLE AREA, AND AT LEAST 5% OF THE FLOOR AREA.
5. FURNISH AND INSTALL WALL MOUNTED ELECTRIC HEATER IN BATHROOM, RUNTAL MODEL EB3-208D, 208-1-60 VOLTS, 440 WATTS, INTEGRAL THERMOSTAT
6. PIPING TO RUN IN CEILING OF FLOOR BELOW DUE TO DOOR

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR PROGRESS	4/27/2015
3	FOR PROGRESS	5/09/2015
4	COMMISSIONER REVIEW	5/19/2015

ARCHITECT:

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ENGINEER/ CONSULTANT:

ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

STATE OF NEW YORK · GEORGE SCHELL · 079188 · LICENSED PROFESSIONAL ENGINEER

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DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

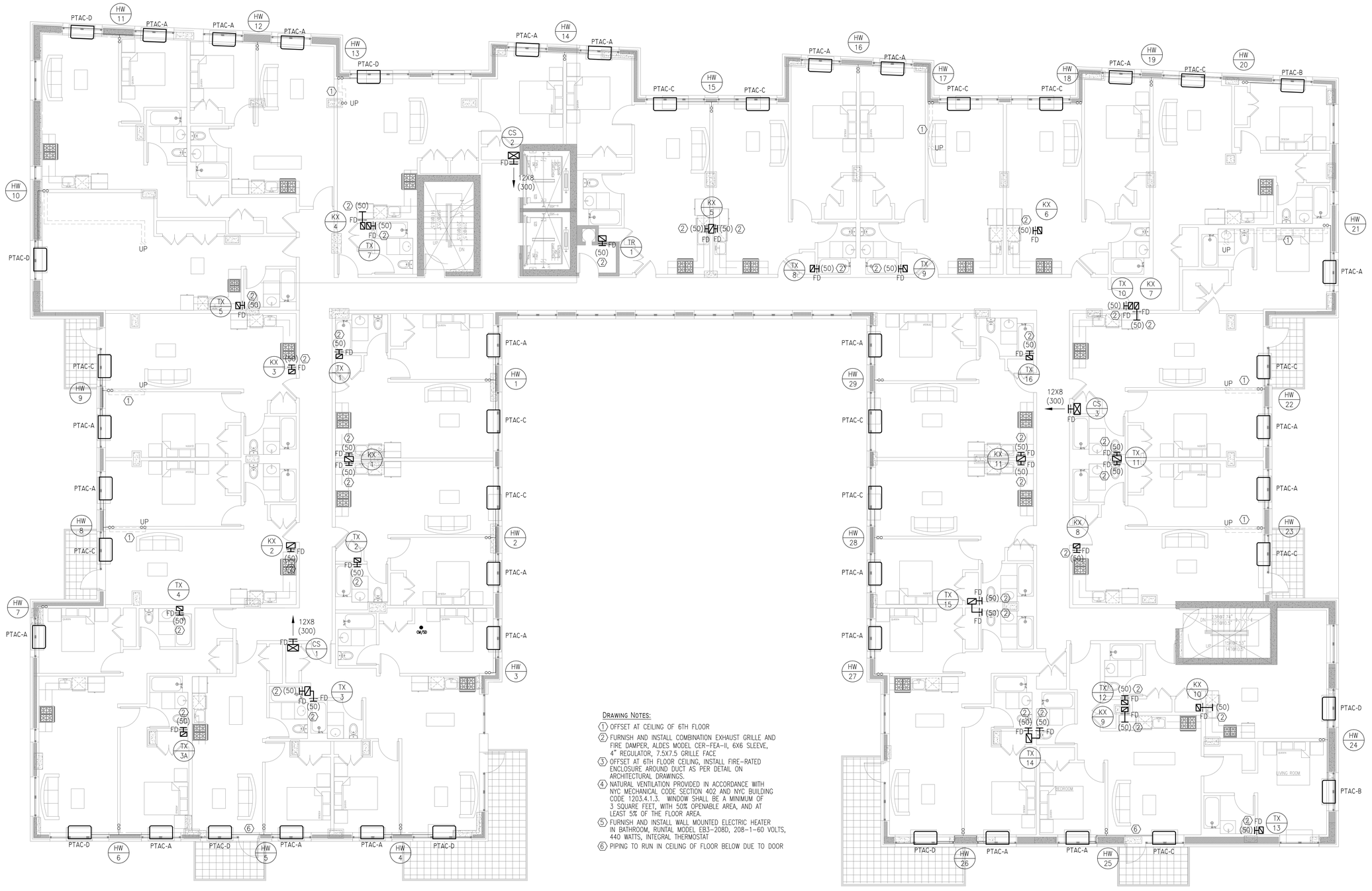
THIRD FLOOR
MECHANICAL PLAN

DWG NO:

M-103.00

4 of 31

DOB JOB NUMBER



DRAWING NOTES:

1. OFFSET AT CEILING OF 6TH FLOOR
2. FURNISH AND INSTALL COMBINATION EXHAUST GRILLE AND FIRE DAMPER, ALDES MODEL CER-FEA-II, 6X6 SLEEVE, 4" REGULATOR, 7.5X7.5 GRILLE FACE
3. OFFSET AT 6TH FLOOR CEILING, INSTALL FIRE-RATED ENCLOSURE AROUND DUCT AS PER DETAIL ON ARCHITECTURAL DRAWINGS.
4. NATURAL VENTILATION PROVIDED IN ACCORDANCE WITH NYC MECHANICAL CODE SECTION 402 AND NYC BUILDING CODE 1203.4.1.3. WINDOW SHALL BE A MINIMUM OF 3 SQUARE FEET, WITH 50% OPENABLE AREA, AND AT LEAST 5% OF THE FLOOR AREA.
5. FURNISH AND INSTALL WALL MOUNTED ELECTRIC HEATER IN BATHROOM, RUNTAL MODEL EB3-208D, 208-1-60 VOLTS, 440 WATTS, INTEGRAL THERMOSTAT
6. PIPING TO RUN IN CEILING OF FLOOR BELOW DUE TO DOOR

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR PROGRESS	4/27/2015
3	FOR PROGRESS	5/09/2015
4	COMMISSIONER REVIEW	5/19/2015

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GEORGE SCHELL
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LICENSED PROFESSIONAL ENGINEER

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

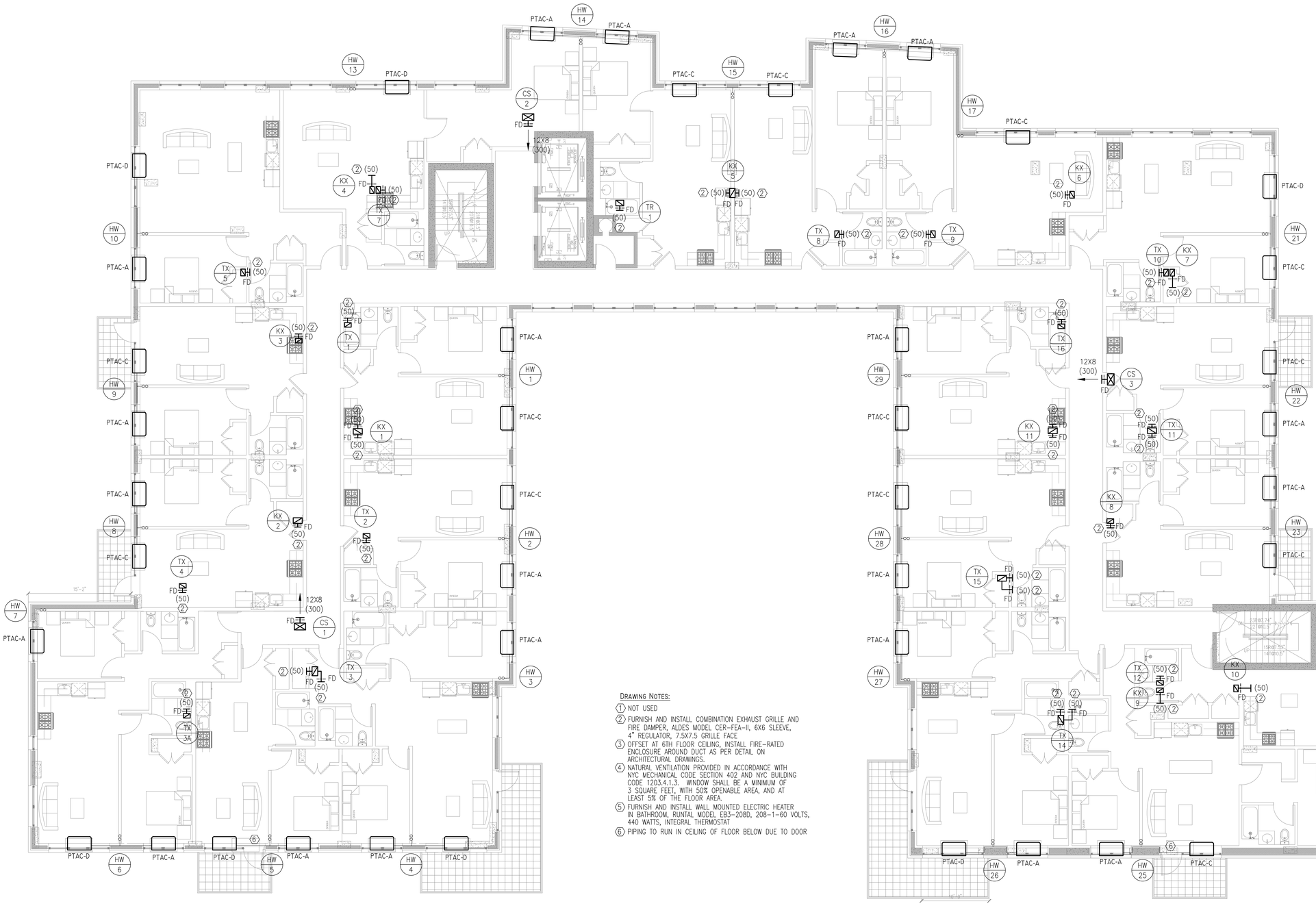
FOURTH THRU SIXTH
FLOOR MECHANICAL PLAN

DWG NO:

M-104.00

5 of 31

DOB JOB NUMBER



DRAWING NOTES:

1. NOT USED
2. FURNISH AND INSTALL COMBINATION EXHAUST GRILLE AND FIRE DAMPER, ALDES MODEL CER-FEA-II, 6X6 SLEEVE, 4" REGULATOR, 7.5X7.5 GRILLE FACE
3. OFFSET AT 6TH FLOOR CEILING, INSTALL FIRE-RATED ENCLOSURE AROUND DUCT AS PER DETAIL ON ARCHITECTURAL DRAWINGS.
4. NATURAL VENTILATION PROVIDED IN ACCORDANCE WITH NYC MECHANICAL CODE SECTION 402 AND NYC BUILDING CODE 1203.4.1.3. WINDOW SHALL BE A MINIMUM OF 3 SQUARE FEET, WITH 50% OPENABLE AREA, AND AT LEAST 5% OF THE FLOOR AREA.
5. FURNISH AND INSTALL WALL MOUNTED ELECTRIC HEATER IN BATHROOM, RUNTAL MODEL EB3-208D, 208-1-60 VOLTS, 440 WATTS, INTEGRAL THERMOSTAT
6. PIPING TO RUN IN CEILING OF FLOOR BELOW DUE TO DOOR

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR PROGRESS	4/27/2015
3	FOR PROGRESS	5/09/2015
4	COMMISSIONER REVIEW	5/19/2015

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ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

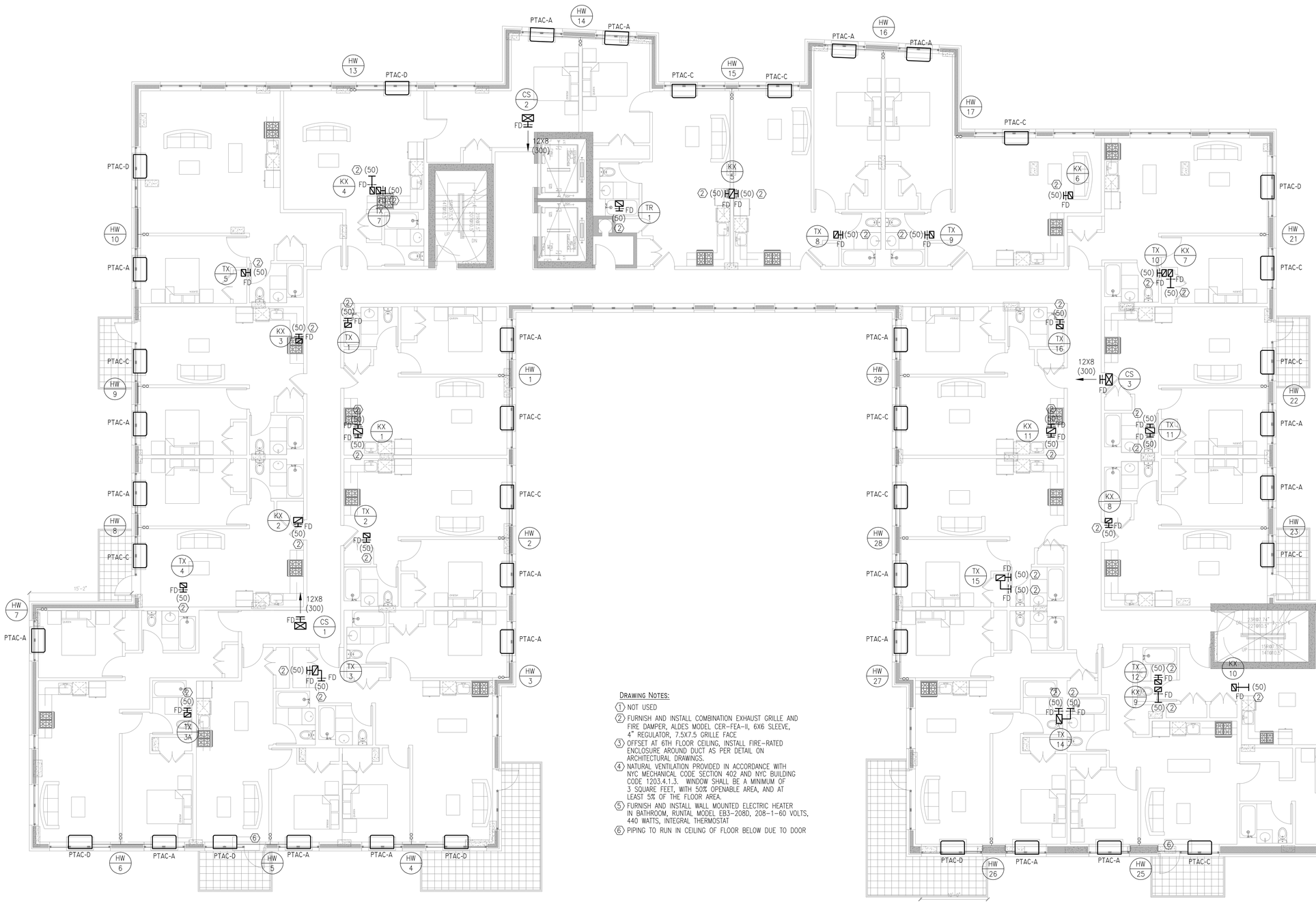
SEVENTH FLOOR
MECHANICAL PLAN

DWG NO:

M-105.00

6 of 31

DOB JOB NUMBER



DRAWING NOTES:

1. NOT USED
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PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR PROGRESS	4/27/2015
3	FOR PROGRESS	5/09/2015
4	COMMISSIONER REVIEW	5/19/2015

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ENGINEER/ CONSULTANT:

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OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CO/MN

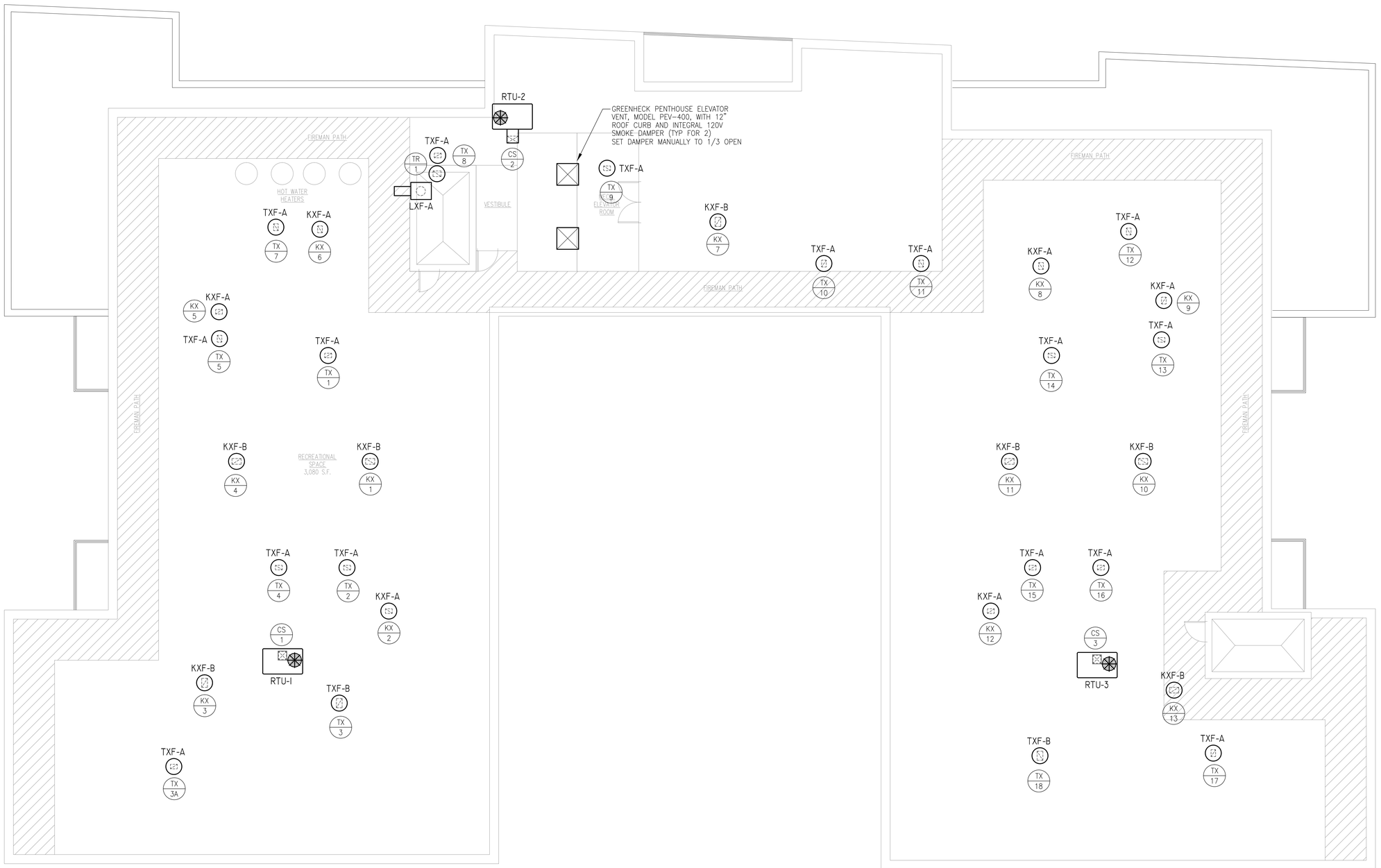
TITLE

EIGHTH FLOOR
MECHANICAL PLAN

DWG NO:

M-106.00

DOB JOB NUMBER



PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
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3	FOR PROGRESS	5/09/2015
4	COMMISSIONER REVIEW	5/19/2015

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DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

ROOF
MECHANICAL PLAN

DWG NO:

M-107.00

8 of 31

DOB JOB NUMBER

FAN SCHEDULE (GREENHECK OR EQUAL)

UNIT NO.		TXF-A KXF-A	TXF-B KXF-B	LXF-A	GXF-1	EF-1		
SERVICE		TOILET/KITCHEN EXHAUST	TOILET/KITCHEN EXHAUST	LAUNDRY EXHAUST	GARAGE EXHAUST	TRASH EXHAUST		
LOCATION		ROOF	ROOF	ROOF	COURTYARD	ROOF		
MANUFACTURER		GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK		
MODEL NO.		GB-101HP-4	GB-091-4	CUE-101-VG	BSQ-240-20	GB-091-4		
TYPE		ROOF CENTRIFUGAL	ROOF CENTRIFUGAL	ROOF UPBLAST	INLINE CENTRIFUGAL	ROOF CENTRIFUGAL		
CFM		300	600	900	7,500	600		
SP IN. W.G.		0.5	0.5	0.4	0.5	0.5		
RPM		1258	1243	1328	870	1243		
MOTOR	TYPE	ODP	ODP	ODP	ODP	ODP		
	HP OR WATTS	1/4	1/4	1/4	2	1/4		
	RPM	1750	1750	1750	1750	1750		
	VOLTS/PH/Hz	120-1-60	120-1-60	120-1-60	208-3-60	120-1-60		
STARTER	TYPE	–	–	–	–	–		
	NEMA	–	–	–	–	–		
WEIGHT (LBS)		51	56	55	415	56		
OPTIONS		ⒶⒹⓀ	ⒶⒹⓀ	ⒶⒹⓀ	ⒶⒻⓁ	ⒶⒹⒼ		

REMARKS: 1. OPTIONS AND ACCESSORIES:
- Ⓐ DISCONNECT SWITCH
- Ⓑ RAINPROOF DISCONNECT SWITCH (NEMA 3R)
- Ⓒ WALL COLLAR/HOUSING
- Ⓓ GRAVITY DAMPER
- Ⓔ WEATHERHOOD
- Ⓕ VIBRATION ISOLATORS
- Ⓖ BACKDRAFT DAMPER
- Ⓗ ROOF CURB
- Ⓙ BIRDSCREEN
- Ⓚ VARIABLE SPEED DRIVE
- Ⓛ CEILING RADIATION DAMPER
- Ⓜ WALL CAP TERMINATION

2. ALL LAUNDRY EXHAUST FANS SHALL BE PROVIDED WITH VAR-GREEN MOTOR AND GREENVENT SYSTEM COMPONENTS INCLUDING PRESSURE TAP, PRESSURE TRANSDUCER AND CONTROLLER. INSTALL GREENVENT SYSTEM AS PER MANUFACTURER'S INSTRUCTIONS.
3. SEE FLOOR PLANS FOR ADDITIONAL NOTES ON DRYER VENTING SYSTEM INSTALLATION AND OPERATION.
4. TOILET EXHAUST AND KITCHEN EXHAUST FANS SHALL BE CONNECTED TO GENERATOR STANDBY POWER, SEE ELECTRICAL DRAWINGS.

PACKAGED ROOFTOP UNIT SCHEDULE (GOODMAN OR EQUAL)

UNIT NO.		RTU-1,2,3		
SERVICE		CORRIDORS		
NOMINAL TONS		5		
SUPPLY FAN	CFM (MIN/MAX)	1800		
	EXTERNAL S.P. IN W.G.	0.5		
	RPM	–		
	HP	1.0		
HEATING SECTION	MIN GAS PRESSURE	4.5"		
	GAS INPUT/OUTPUT (MBH)	120/96		
	ENT°G/LVG AIR °F	35-65		
COOLING SECTION	TOTAL CAPACITY (MBH)	62.3		
	SENSIBLE CAPACITY (MBH)	48.1		
	ENT°G AIR °F	80/67		
ELECTRICAL DATA	VOLTS/PH/Hz	208-3-60		
	MCA	29.5		
	MOD	45		
MANUFACTURER		TRANE		
MODEL NO.		YSC060E3EZ		
WEIGHT (LBS)		826		
SEER		13.0		
DIMENSIONS		69.88" x 44.25" x 36.25"		

REMARKS: 1. RTU-1,2,3 TO BE PROVIDED WITH THE FOLLOWING OPTIONS:
- A. 14" ROOF CURB
- B. CONVENIENCE OUTLET
- C. DISCONNECT SWITCH
- D. MOTORIZED OUTSIDE AIR DAMPER
- E. GAS-FIRED HEATING SECTION
- F. LOW AMBIENT KIT
- G. MODULATING GAS CONTROL
- H. ENTHALPY ECONOMIZER

2. ALL ASSOCIATED DELIVERY COSTS INCLUDING RIGGING SHALL BE INCLUDED IN CONTRACTOR'S PRICE.
3. CONTRACTOR SHALL COORDINATE WITH LOCAL WEATHER DATA TO ENSURE INTAKE AND DISCHARGE FOR ALL ROOF MOUNTED EQUIPMENT IS CLEAR OF SEASONAL SNOW ACCUMULATION OR DRIFTS.

VENTILATION INDEX

ROOM	AREA (SF)	OCCUPANCY CLASSIFICATION	OCCUPANCY LOAD	VENTILATION RATE	VENTILATION AIR (REQUIRED)	VENTILATION AIR (DESIGN)	COMPLIANCE
LOWER GARAGE	8,300	ENCLOSED PARKING GARAGE	–	1.5 CFM/SF	12,500 CFM	12,500 CFM	YES
UPPER GARAGE	8,000	ENCLOSED PARKING GARAGE	–	1.5 CFM/SF	12,000 CFM	12,500 CFM	YES
TYPICAL CORRIDOR	450	PUBLIC SPACES CORRIDORS	–	0.05 CFM/SF	45 CFM	70 CFM	YES

REMARKS: 1. BASED ON TABLE 403.3 OF NYC MECHANICAL CODE

AIR HANDLING UNIT SCHEDULE

UNIT DESIGNATION		AHU-1, AHU-2		
LOCATION		SEE PLANS		
MANUFACTURER		MITSUBISHI		
MODEL NUMBER		PEFY-48NMAU-E		
UNIT WEIGHT, LBS.		93		
NET CAPACITY	EAT °F DB/WB	80/67		
	COOLING CAPACITY (MBH)	48.0		
	HEATING CAPACITY (MBH)	54.0		
FAN DATA	CFM (HI/MED/LO)	1412/1201/989		
	EXT. S.P., IN. WG	0.3		
	TYPE	–		
	MOTOR WATTS	–		
FILTER SECTION	TYPE	WASHABLE		
	NO./SIZE	–		
ELECTRICAL DATA	VOLTS/PH/HZ	208/1/60		
	FLA	–		
	MCA	3.41		
	MFS	15		
PIPING CONNECTIONS	LOW PRESS REFRIG	5/8		
	HIGH PRESS REFRIG	3/8		
	DRAIN	1-1/4		
REMARKS:				

PACKAGED AIR CONDITIONING UNIT (BASED ON MAGIC-PAK)

UNIT DESIGNATION		AC-A	AC-B	AC-C	AC-D
SERVICE		APARTMENTS	APARTMENTS	APARTMENTS	APARTMENTS
LOCATION		SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
MANUFACTURER		MAGIC PAK	MAGIC PAK	MAGIC PAK	MAGIC PAK
MODEL NUMBER		60MGE4-09-18	60MGE4-09-24	60MGE4-09-30	60MGE4-09-36
COOLING CAPACITY	EAT °F DB/WB	80/67	80/67	80/67	80/67
	TOTAL MBH	17.6	22.8	27.6	35.0
	SENSIBLE MBH	13.0	17.5	22.1	25.2
FAN DATA	AIR FLOW, CFM	490	700	820	950
	EXT. S.P., IN. WG	0.5	0.5	0.5	0.5
	MOTOR HP	1/4	1/4	1/3	1/3
HEATING CAPACITY	EAT °F DB	70	70	70	70
	INPUT MBH	60.0	60.0	60.0	60.0
	OUTPUT MBH	48.0	48.0	48.0	48.0
ELECTRICAL DATA	VOLTS/PH/HZ	208-1-60	208-1-60	208-1-60	208-1-60
	FLA/MCA	15	20	22	26
	OPD	20	30	30	35
WEIGHT		280	290	305	350

REMARKS: 1. AIR HANDLING UNIT OPTIONS AND ACCESSORIES:
- A. BUILT IN CONDENSATE PUMP
- B. FILTER
- C. WALL MOUNTED DIGITAL PROGRAMMABLE THERMOSTAT (HONEYWELL MODEL TL8230A)
- D. POWER WIRING THRU CONDENSING UNIT.
- E. 3-SPEED FAN MOTOR

ELECTRIC UNIT HEATER SCHEDULE (QMARK OR EQUAL)

UNIT		EH-A	EH-B	EH-C	EH-D	EH-E	EH-F
SERVICE		SEE PLANS	SEE PLANS	VESTIBULE	SEE PLANS	SEE PLANS	SEE PLANS
LOCATION		SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
TYPE		HORIZONTAL	HORIZONTAL	CABINET	KICKSPACE	BASEBOARD	WALL MTD
FAN	CFM	350	350	250	–	–	–
	EXTERNAL S.P., IN W.G.	–	–	–	–	–	–
	RPM	1600	–	–	–	–	–
	HP	1/100	1/100	1/20	1/20	–	–
ELECTRIC COIL	WATTS	3000	5000	3000	1125	250 W/FT	1500
	AMPS	14.3	24.0	15.0	9.4	–	12.5
FILTER	TYPE	–	–	–	–	–	–
	NO. & SIZE	–	–	–	–	–	–
ELECTRICAL DATA	VOLTS/PH/Hz	208-1-60	208-1-60	208-1-60	120-1-60	120-1-60	120-1-60
MANUFACTURER		QMARK	QMARK	QMARK	QMARK	QMARK	QMARK
MODEL NO.		MUH-0381	MUH05-81	CU93503201	QTS1100	2515W	CWH1201DSAG
OPTIONS		ⒶⒹⒾⒸ	ⒶⒷⒹⒸ	ⒶⒷⒹⒸ	ⒶⒷ	ⒶⒷ	ⒶⒷ

REMARKS: 1. OPTIONS AND ACCESSORIES:
- Ⓐ INTEGRAL DISCONNECT SWITCH
- Ⓑ INTEGRAL THERMOSTAT
- Ⓒ WALL MOUNTED THERMOSTAT
- Ⓓ MOUNTING BRACKETS
- Ⓔ 24V CONTROL TRANSFORMER

AIR COOLED HEAT PUMP SCHEDULE

UNIT DESIGNATION		ACC-1		
MANUFACTURER		MITSUBISHI		
MODEL NUMBER		PUHY-HP96TJMU-A		
CAPACITY	NOMINAL TONS	8		
	COOLING CAPACITY (MBH)	96.0		
	HEATING CAPACITY (MBH)	108.0		
CONDENSER FAN DATA	AIR FLOW, CFM	7950		
	OUTDOOR AIR D.B.	95 deg F		
	TYPE	PROPELLER		
	MOTOR HP	–		
UNIT WEIGHT, LBS		486		
EER/IEER		11.3/15.7		
ELECTRICAL DATA	VOLTS/PH/HZ	208/3/60		
	FLA	–		
	MCA	71.0		
	MFS	75		
REMARKS:				

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Queens, New York

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4	COMMISSIONER REVIEW	5/19/2015

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STATE OF NEW YORK · GEORGE SCHELL · 079185 · LICENSED PROFESSIONAL ENGINEER

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CHK BY:	CC/MN

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MECHANICAL SCHEDULES

DWG NO:

M-200.00

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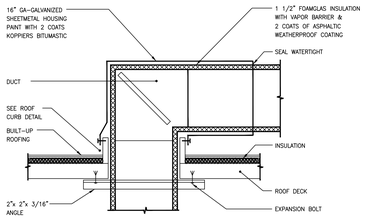
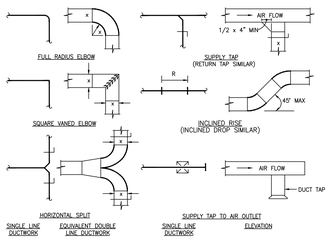
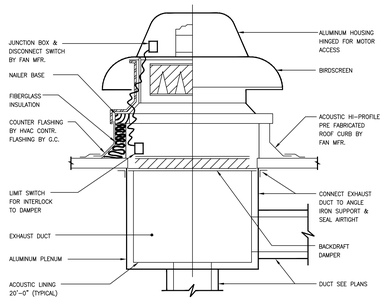


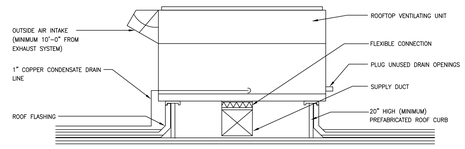
INSULATED DUCT PENETRATION THRU ROOF



TYPICAL SUPPLY OR EXHAUST DUCT CONNECTION



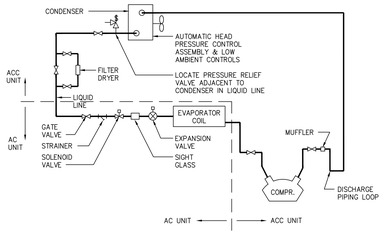
ROOF EXHAUST FAN INSTALLATION



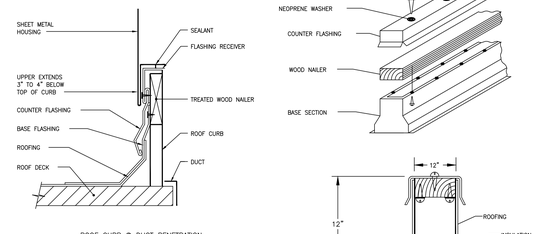
NOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL ALL ROOF CURBS.
2. CONTRACTOR SHALL PAY FOR ALL ROOF OPENINGS. CONTRACTOR SHALL PERFORM ALL WORK REQUIRED TO PROVIDE ROOF OPENINGS.
3. CONTRACTOR SHALL FURNISH, INSTALL AND/OR PAY FOR ALL SUPPLEMENTARY STRUCTURAL SUPPORTS REQUIRED TO FURNISH AND INSTALLED ROOF MOUNTED EQUIPMENT.
4. CONTRACTOR TO RUN CONDENSATE DRAIN LINE TO NEAREST ROOF DRAIN WITH USE OF PROPER ROOF SUPPORTS, ADEQUATE DRAINAGE.
5. ALL PREFABRICATED ROOF CURBS SHALL BE A MINIMUM OF 12" ABOVE FINISHED ROOF.
6. CONTRACTOR SHALL COORDINATE AND RETAIN THE BUILDING APPROVED ROOF CONTRACTOR TO MAINTAIN INTEGRITY OF ROOF AND WARRANTY.

ROOFTOP HVAC UNIT INSTALLATION



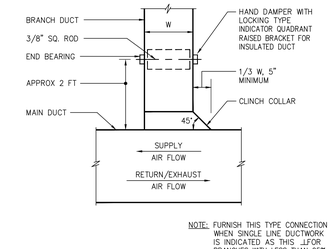
REFRIGERATION CONNECTION



ROOF CURB @ DUCT PENETRATION

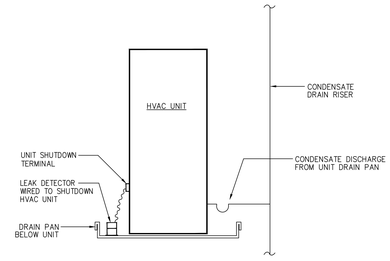
ROOF CURB DETAIL

N.T.S.



NOTE: FURNISH THIS TYPE CONNECTION WHEN SINGLE LINE DUCTWORK IS INDICATED AS THIS ⊥FOR BRANCHES WITH LESS THAN 25% OF THE TOTAL AIR FLOW

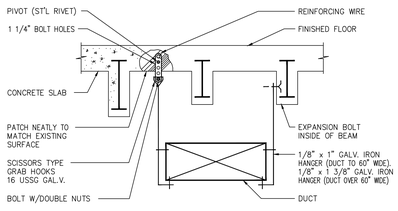
RECTANGULAR DUCT WITH VOLUME DAMPER



NOTES:

1. EACH HVAC UNIT SHALL BE PROVIDED WITH A 3/4" PVC CONDENSATE DRAIN CONNECTION WITH P-TRAP, PIPED TO CONDENSATE RISER.
2. CONTRACTOR SHALL PROVIDE AN AUXILIARY DRAIN PAN BELOW EACH FURNACE. PAN SHALL BE PROVIDED WITH A LEAK DETECTOR WIRED TO SHUT DOWN UNIT.
3. CONDENSATE PIPING MATERIALS, DRAIN PAN SIZE AND MATERIALS, METHOD OF DISPOSAL AND SECONDARY DRAINAGE SHALL BE IN ACCORDANCE WITH INTERNATIONAL MECHANICAL CODE SECTION 307.

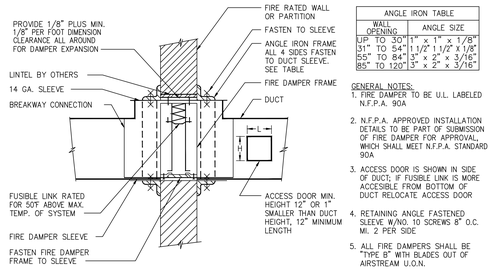
HVAC UNIT CONDENSATE DETAIL



NOTES:

1. ON DUCTS OVER 48" WIDE, HANGERS SHALL TURN UNDER AND FASTEN TO BOTTOM OF DUCT WHEN CROSS-SECTION AREA EXCEEDS 8 SQ. FT. DUCT SHALL BE BRACED BY ANGLES ON ALL FOUR SIDES.
2. CUTTING AND PATCHING SHALL BE LIMITED TO SMALLEST AMOUNT NECESSARY FOR PROPER INSTALLATION OF WORK.

DUCT SUPPORT FROM EXISTING CONCRETE SLAB

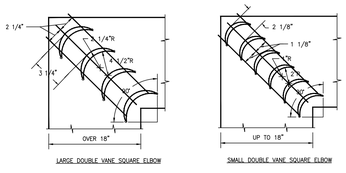


ANGLE IRON TABLE	
WALL OPENING	ANGLE SIZE
UP TO 30"	1" x 1" x 1/8"
31" TO 54"	1 1/2" 1 1/2" x 1/8"
55" TO 84"	3" x 2" x 3/16"
85" TO 120"	3" x 2" x 3/16"

GENERAL NOTES:

1. FIRE DAMPER TO BE U.L. LABELED N.F.P.A. 90A
2. N.F.P.A. APPROVED INSTALLATION DETAILS TO BE PART OF SUBMISSION OF FIRE DAMPER FOR APPROVAL, WHICH SHALL MEET N.F.P.A. STANDARD 90A
3. ACCESS DOOR IS SHOWN IN SIDE OF DUCT; IF FUSIBLE LINK IS MORE ACCESIBLE FROM BOTTOM OF DUCT RELOCATE ACCESS DOOR
4. RETAINING ANGLE FASTENED SLEEVE W/NO. 10 SCREWS 8" O.C. MI. 2 PER SIDE
5. ALL FIRE DAMPERS SHALL BE "TYPE B" WITH BLADES OUT OF AIRSTREAM U.O.N.

RECTANGULAR FIRE DAMPER INSTALLATION



STANDARD DOUBLE VANED ELBOWS

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M-300.00

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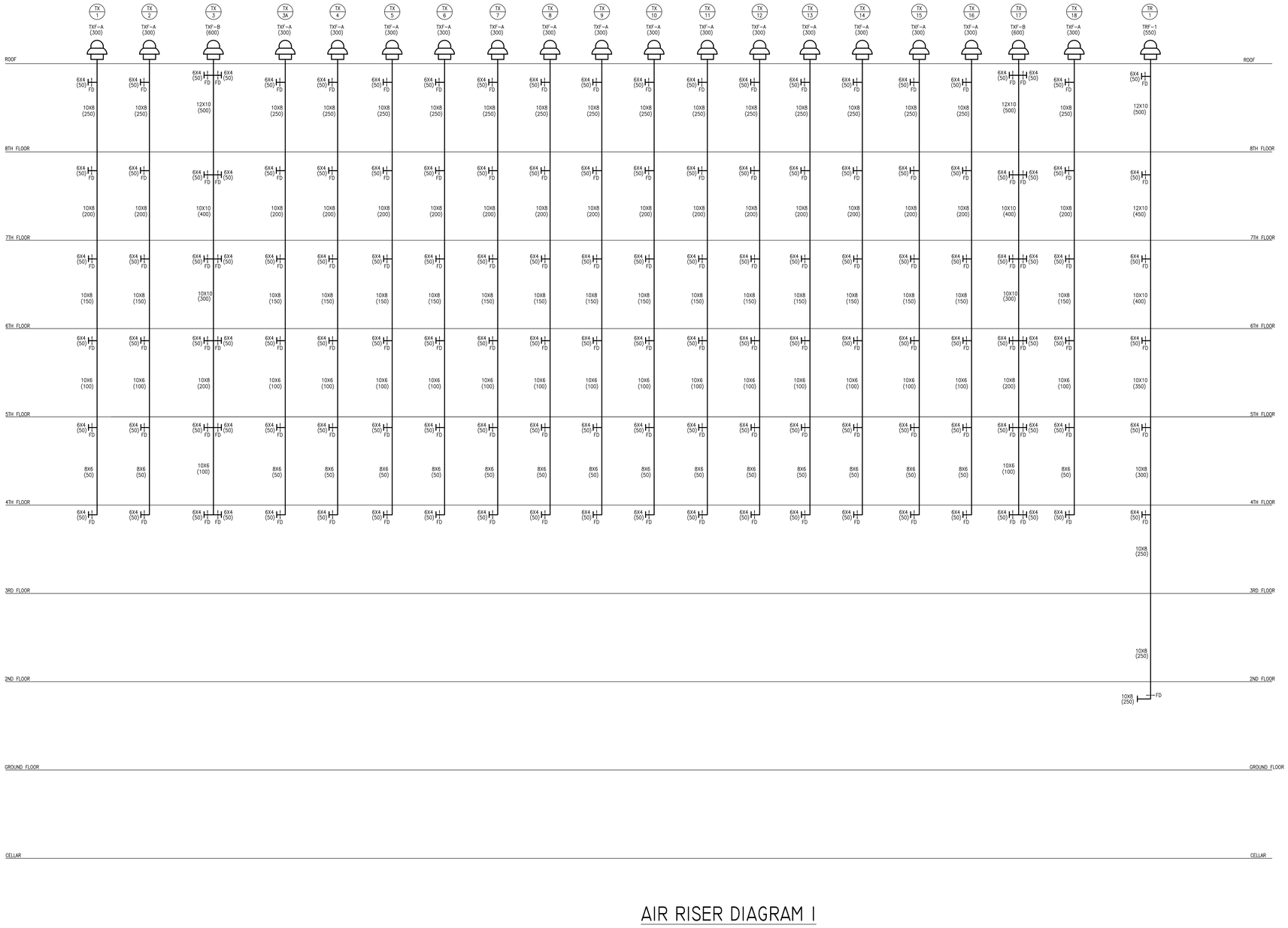

AIR RISER DIAGRAM 1

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CHK BY:	CC/MN

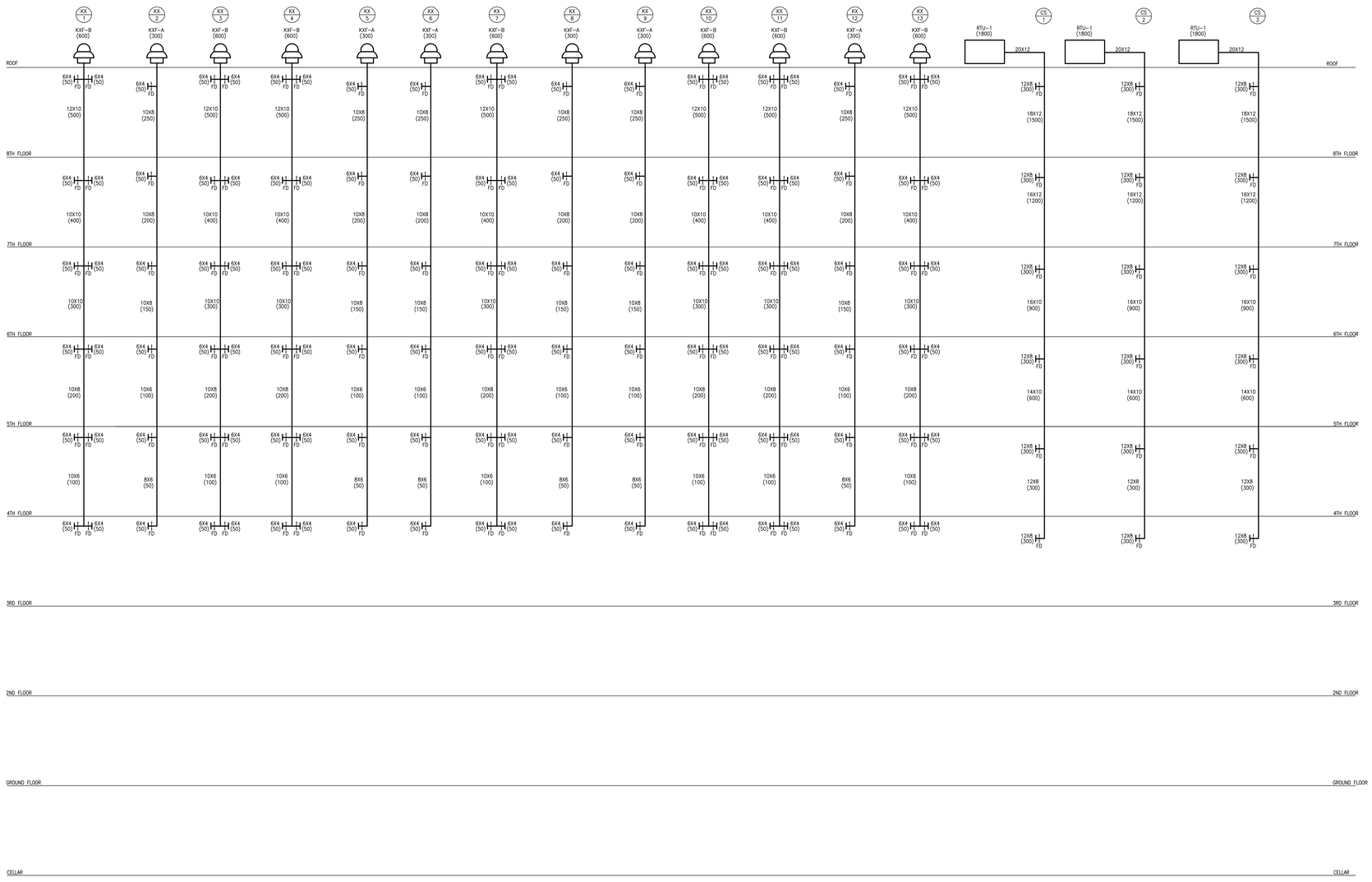
TITLE

AIR RISER
DIAGRAM 1

DWG NO:

M-400.00

DOB JOB NUMBER



AIR RISER DIAGRAM 2

PROJECT/ CLIENT:

178-02 Hillside Avenue
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TITLE

AIR RISER
DIAGRAM 2

DWG NO:

M-401.00

DOB JOB NUMBER

MECHANICAL NOTES:

A. GENERAL

1. CONTRACTOR WILL BE HELD RESPONSIBLE TO HAVE VISITED AND EXAMINED THE PREMISES PRIOR TO SUBMITTING HIS PROPOSAL IN ORDER TO UNDERSTAND THE EXISTING CONDITIONS RELATED TO HIS WORK.
2. WORK IN THIS BUILDING SHALL BE DONE WHEN AND AS DIRECTED AND SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO ITS OCCUPANTS. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO AVOID INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES.
3. MATERIALS, DOCUMENTATION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS, LOCAL CODES AND AS SPECIFIED.
4. DUCTWORK AND PIPING SHOWN IS DIAGRAMMATIC AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. CONTRACTOR SHALL ALLOW IN HIS PRICE THE ROUTING OF DUCTWORK AND PIPING TO AVOID OBSTRUCTIONS. EXACT RELOCATIONS ARE SUBJECT TO APPROVAL.
5. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE PERFORMANCE OF THE WORK. EXISTING CONDITIONS ARE NOT COMPLETELY DETAILED ON THE DRAWINGS. CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALLOWANCE FOR SUCH REMOVALS AND RELOCATIONS.
6. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIALS, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.
7. FIREPROOFING AND INSULATION DISTURBED BY NEW CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION.
8. SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OF SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING.
9. SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NON-COMBUSTIBLE MATERIAL.
10. EXACT LOCATIONS OF ALL WALL MOUNTED THERMOSTATS, FAN SWITCHES, ALARM PANELS, ETC., SHALL BE SUBJECT TO ARCHITECT'S APPROVAL.

B. EQUIPMENT

1. INVESTIGATE PATH THROUGH WHICH EQUIPMENT WILL BE MOVED. EQUIPMENT SHALL BE BROKEN DOWN IN SECTIONS AS NEEDED FOR MOVING THROUGH BUILDING SPACES. ASCERTAIN FROM BUILDING MANAGEMENT WHAT TIMES OF DAY EQUIPMENT MAY BE MOVED.
2. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED IN FULL COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
3. INSTALL EQUIPMENT AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE REQUIRED TO ACCOMPLISH THIS.
4. CHANGES IN ARCHITECTURAL, STRUCTURAL, ELECTRICAL, MECHANICAL AND PLUMBING REQUIREMENTS FOR SUBSTITUTED EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE BIDDER WISHING TO MAKE THE SUBSTITUTION. THIS SHALL INCLUDE THE COST OF ANY REDESIGN BY THE EFFECTED DESIGNERS. ANY ADDITIONAL COST INCURRED BY THE EFFECTED SUBCONTRACTORS SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR AND NOT THE OWNER.

C. DUCTWORK

1. FOR EXACT LOCATIONS OF CEILING DIFFUSERS AND REGISTERS, COORDINATE WITH REFLECTED CEILING PLANS PREPARED BY ARCHITECT.
2. IF DUCTWORK CONFLICTS WITH PIPING, STEEL, LIGHT FIXTURES, ETC., DUCTWORK SHALL BE SET UP AND DOWN.
3. ALL DUCT SPLITS AND TAKE-OFFS SHALL BE PROVIDED WITH VOLUME DAMPERS. SPLITTER DAMPERS AND AIR EXTRACTORS ARE NOT ACCEPTABLE.
4. ALL DUCT OPENINGS NOT IN USE SHALL BE BLANKED OFF AIR TIGHT WITH SHEET METAL PATCH SECURED WITH SHEET METAL SCREWS AND 3M SEALER.
5. SEALANT SHALL BE APPLIED TO LONGITUDINAL SEAMS IN THE SHOP DURING FABRICATION. FIELD APPLY SEALANT TO TRANSVERSE SEAMS AND CONNECTIONS TO BRANCH WORK AND AIR OUTLETS.
6. RADIUS ELBOWS SHALL BE USED IN ALL DUCT OFFSETS (HORIZONTAL OR VERTICAL). MITERED ELBOWS WITHOUT TURNING VANES ARE NOT ACCEPTABLE.
7. ALL ACTIVE OPEN END DUCTWORK SHALL BE PROVIDED WITH WIRE MESH SCREEN.
8. VOLUME DAMPERS IN BRANCH DUCTS SHALL BE LOCATED AS FAR AS POSSIBLE FROM AIR OUTLET OR INLET IN ORDER TO REDUCE NOISE AND TURBULENCE.
9. CHECK AND SET FIRE DAMPERS OPEN AND REPLACE ANY DEFECTIVE FUSIBLE LINKS.

SYMBOL LIST

- SINGLE LINE DUCTWORK, NEW
- DOUBLE LINE DUCTWORK, NEW
- SINGLE LINE DUCTWORK, EXISTING
- DOUBLE LINE DUCTWORK, EXISTING
- SINGLE LINE DUCTWORK, DEMO
- DOUBLE LINE DUCTWORK, DEMO
- ACOUSTIC LINING
- DUCT UNDER PRESSURE (SUPPLY AIR OR FAN DISCHARGE)
- DUCT UNDER NEGATIVE PRESSURE (RETURN OR EXHAUST)
- VOLUME DAMPER
- CABLE OPERATED DAMPER
- FD/AD — FIRE DAMPER AND ACCESS DOOR
- FLEXIBLE DUCTWORK
- (XXX) — SQUARE CEILING DIFFUSER, 4-WAY THROW, XXX = CFM
- CEILING RETURN GRILLE
- THERMOSTAT
- HUMIDISTAT
- POINT OF CONNECTION
- POINT OF DISCONNECTION

ABBREVIATIONS

ACC	AIR-COOLED CONDENSING UNIT
AC	AIR-CONDITIONING UNIT
AD	ACCESS DOOR
AHU	AIR-HANDLING UNIT
AL	ACOUSTICAL LINING
BTUH	BTU PER HOUR
CFM	CUBIC FEET PER MINUTE
COD	CABLE OPERATED DAMPER
CP	CONDENSATE PUMP
CD	CEILING DIFFUSER
CG	CEILING GRILLE
DB	DRY BULB TEMPERATURE
E	EXISTING
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
°F, DEG F	DEGREES FAHRENHEIT
FC	FLEXIBLE CONNECTION
FD	FIRE DAMPER
FLA	FULL LOAD AMPERE
GC	GENERAL CONTRACTOR
HP	HORSEPOWER
LAT	LEAVING AIR TEMPERATURE
MBH	THOUSAND BTUH
MCA	MINIMUM CIRCUIT AMPACITY
MFS	MAXIMUM FUSE SIZE
N	NEW
R	RELOCATE
RPM	REVOLUTIONS PER MINUTE
SP	STATIC PRESSURE
TRD	TRANSFER DUCT
TX	TOILET EXHAUST
VD	VOLUME DAMPER
WB	WET BULB TEMPERATURE
WMS	WIRE MESH SCREEN

BUILDING DEPARTMENT NOTES

1. ALL WORK SHALL COMPLY WITH THE APPLICABLE SECTIONS OF THE BUILDING CODE, CITY OF NEW YORK, EFFECTIVE JULY 1, 2008 AND ALL AMENDMENTS TO DATE, MATERIALS AND EQUIPMENT SUBJECT TO CONTROLLED INSPECTION.
2. MECHANICAL VENTILATION AIR CONDITIONING AND REFRIGERATION: INSPECTION AND TESTS OF THE REQUIRED VENTILATION SYSTEMS AS PER C26-1303.2 NOISE CONTROL AS PER C26-1208.0.
3. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC., SHALL COMPLY WITH THE FOLLOWING CODE REFERENCE.
4. DUCT CONSTRUCTION AND SUPPLY INTAKES, EXHAUST AND RELIEFS FILTERS.
5. NOISE CRITERIA LEVELS AND TEST PROCEDURE FOR SOUND POWER LEVELS.
6. ELECTRIC WIRING EQUIPMENT, FIRE CONTROL AND CONTROLS MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON.
7. 70 DEGREE F WHEN 5 DEGREE OUTSIDE (WITH 15 MPH WIND) OR AS INDICATED ON VENTILATION INDEX.
8. REFER TO ARCHITECTURAL DRAWING FOR FIRE RATED WALL LOCATIONS AND RATED CONSTRUCTION.
9. THE VENTILATION INDEX FOR ALL AREAS COMPLIES WITH THE MINIMUM CODE REQUIREMENTS (TABLE 403.3 OF THE NEW YORK CITY MECHANICAL CODE). ALL CALCULATIONS OF THE VENTILATION INDEX ARE MADE WITHOUT TAKING ANY CREDIT FOR EXTERIOR WINDOWS AND/OR OPENINGS IN AIR CONDITIONED AREAS.
10. UPON COMPLETION OF THIS VENTILATION SYSTEM, A TEST SHALL BE CONDUCTED IN THE PRESENCE OF AND DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR HAVING NOT LESS THAN FIVE (5) YEARS OF EXPERIENCE SUPERVISING INSTALLATION OF VENTILATING SYSTEMS. THE TEST SHALL SHOW COMPLIANCE WITH THE CODE REQUIREMENTS FOR VENTILATION AND THE PROPER FUNCTIONING OF ALL OPERATING DEVICES BEFORE THE SYSTEM IS APPROVED. THE LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT WHO CONDUCTS THE TESTS SHALL FILE A CERTIFICATE AS TO WHETHER THE SYSTEM COMPLIES WITH THE APPLICABLE LAWS. HE SHALL ALSO FILE WITH THE CERTIFICATION, A REPORT OF THE TEST, THE TEST AND REPORT SHALL BE MADE IN A MANNER SATISFACTORY TO THE SUPERINTENDENT. A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE SYSTEM WILL BE EPT IN CONTINUOUS OPERATION AT ALL TIMES DURING NORMAL OCCUPANCY OF THE STRUCTURE AS PROVIDED IN THE APPLICABLE SECTIONS OF THE CODE. BASE BUILDING PLANS ARE FILED FOR SINGLE TENANT OCCUPANCY. ALL TENANT PLANS WILL BE FILED UNDER SEPARATE APPLICATIONS.
11. DETAIL OF DUCT SUPPORTS SHALL BE IN ACCORDANCE WITH PARAGRAPH 319 OF RS-13-1. UNLESS OTHERWISE NOTED, ALL DUCTS SHALL BE CONSTRUCTED OF GALVANIZED IRON. SEE DETAIL FOR METHOD USED FOR HANGING DUCT.
12. ALL VENTILATING AND HANGING DUCTWORK, BOTH HIGH AND LOW VELOCITY, TO BE CONSTRUCTED IN ACCORDANCE WITH THE DUCT MANUALS OF NACNA, LATEST EDITION.
13. ALL FIRE DAMPERS SHALL BE APPROVED BY THE NEW YORK CITY BOARD OF STANDARDS AND APPEALS AND SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH THE STANDARDS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS (NBFU PAMPHLETS 90A AND 90B). FIRE DAMPERS SHALL BE AIR BALANCE AND TESTING CO., B.S.A. CATALOG NO. 100-6-SM OR IF DIFFERENT MANUFACTURED, NUMBER SHALL BE FILED AT THE COMPLETION OF THE INSTALLATION.

ENERGY CODE NOTES

1. ALL WORK SHALL COMPLY WITH THE APPLICABLE SECTIONS OF THE NEW YORK CITY ENERGY CONSERVATION CODE, INCLUDING 2010 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE (ECCCNYS), LOCAL LAW 85 (2009), LOCAL LAW 48 (2010), AND LOCAL LAW 1 (2011).
2. OUTDOOR AIR INTAKES AND EXHAUST OPENINGS (ECCCNYS 502.4.4). STAIR AND ELEVATOR SHAFT VENTS AND OTHER OUTDOOR AIR INTAKES AND EXHAUST OPENINGS INTEGRAL TO THE BUILDING ENVELOPE SHALL BE EQUIPPED WITH NOT LESS THAN A CLASS I MOTORIZED, LEAKAGE-RATED DAMPER WITH A MAXIMUM LEAKAGE RATE OF 4 CFM PER SQUARE FOOT AT 1.0 INCH WATER GAUGE WHEN TESTED IN ACCORDANCE WITH AMCA 500D.
3. CALCULATION OF HEATING AND COOLING LOAD (ECCCNYS 503.2.1). DESIGN LOADS SHALL BE DETERMINED IN ACCORDANCE WITH PROCEDURES DESCRIBED IN ASHRAE/ACCA 183. HEATING AND COOLING LOADS SHALL BE ADJUSTED TO ACCOUNT FOR LOAD REDUCTIONS THAT ARE ACHIEVED WHEN ENERGY RECOVERY SYSTEMS ARE UTILIZED INT THE HVAC SYSTEM IN ACCORDANCE WITH THE ASHRAE HVAC "SYSTEMS AND EQUIPMENT HANDBOOK". ALTERNATELY, DESIGN LOADS SHALL BE DETERMINED BY AN APPROVED EQUIVALENT COMPUTATION PROCEDURE USING THE DESIGN PARAMETERS SPECIFIED IN CHAPTER 3 OF ECCCNYS.
4. HVAC EQUIPMENT PERFORMANCE REQUIREMENTS (ECCCNYS 503.2.3). ALL EQUIPMENT SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS OF TABLES LISTED IN THIS SECTION. SEE HVAC EQUIPMENT SCHEDULES FOR RATINGS OF SPECIFIC EQUIPMENT.
5. SHUTOFF DAMPER CONTROLS (ECCCNYS 503.2.4.4). BOTH OUTDOOR AIR SUPPLY AND EXHAUST DUCTS SHALL BE EQUIPPED WITH MOTORIZED DAMPERS THAT WILL AUTOMATICALLY SHUT WHEN THE SYSTEMS OR SPACES SERVED ARE NOT IN USE. (EXCEPTIONS: (1) GRAVITY DAMPERS SHALL BE PERMITTED IN BUILDINGS LESS THAT 3 STORIES IN HEIGHT. (2) GRAVITY DAMPERS SHALL BE PERMITTED FOR OUTSIDE AIR INTAKES OR EXHAUST AIRFLOWS OF 300 CFM OR LESS.
6. DUCT AND PLENUM INSULATION AND SEALING (ECCCNYS 503.2.7). ALL SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH A MINIMUM OF R-5 INSULATION WHEN LOCATED IN UNCONDITIONED SPACS AND WITH A MINIMUM OF R-8 INSULATION WHEN LOCATED OUTSIDE THE BUILDING. WHEN LOCATED WITHIN A BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED OR EXEMPT SPACES BY A MINIMUM OF R-8 INSULATION.
7. ALL DUCTS, AIR HANDLERS AND FILTER BOXES SHALL BE SEALED. JOINTS AND SEAMS SHALL COMPLY WITH SECTION 603.9 OF THE NEW YORK CITY MECHANICAL CODE.
8. PIPING INSULATION (ECCCNYS 503.2.8). ALL PIPING SERVING AS PART OF A HEATING OR COOLING SYSTEM SHALL BE THERMALLY INSULATED IN ACCORDANCE WITH TABLE 503.2.8.
9. MANUALS (ECCCNYS 503.2.9.3). THE MECHANICAL CONTRACTOR SHALL PROVIDE AND OPERATING AND MAINTENANCE MANUAL TO THE BUILDING OWNER. THE MANUAL SHALL INCLUDE AT LEAST THE FOLLOWING:
   A. EQUIPMENT CAPACITY AND REQUIRED MAINTENANCE ACTIONS
   B. EQUIPMENT OPERATION AND MAINTENANCE MANUALS
   C. HVAC SYSTEM CONTROL MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SEQUENCE DESCRIPTIONS. DESIRED OR FIELD-DETERMINED SET POINTS SHALL BE PERMANENTLY RECORDED ON CONTROL DRAWINGS, AT CONTROL DEVICES OR, FOR DIGITAL CONTROL SYSTEM, IN PROGRAMMING COMMENTS.
   D. A COMPLETE NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE.

MECHANICAL SPECIFICATIONS

SECTION 1 – GENERAL

A. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL, EQUIPMENT, ETC., AND PERFORM ALL OPERATIONS FOR THE WORK DELINEATED IN THE CONTRACT DRAWINGS FOR THE INSTALLATION OF A COMPLETE HVAC SYSTEM. THE ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL CODES, NEW JERSEY HEALTH DEPARTMENT AND AUTHORITIES HAVING JURISDICTION.

B. THE MECHANICAL CONTRACTOR SHALL BE A LICENSED, AUTHORIZED INSTALLER OF HVAC SYSTEMS AND SHALL HAVE HAD A MINIMUM OF FIVE YEARS EXPERIENCE IN THE INSTALLATION OF HVAC SYSTEMS IN THE TOWNSHIP OF WEST WINDSOR.

C. BEFORE SUBMITTING HIS BID, THE MECHANICAL CONTRACTOR SHALL REVIEW THE PLANS AND SHALL FULLY FAMILIARIZE HIMSELF WITH THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. CONTRACTOR SHALL PERFORM THIS PRIOR TO SUBMITTING HIS PROPOSAL. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.

D. UPON REVIEW OF MECHANICAL DRAWINGS PRIOR TO SUBMITTING HIS PROPOSAL, THE MECHANICAL CONTRACTOR SHALL INFORM ARCHITECT AND/OR ENGINEER OF ANY DISCREPANCIES OR REQUEST CLARIFICATION IN WRITING, IF NECESSARY, CONCERNING THE INTENT OF THE PLANS AND SPECIFICATIONS TO PROVIDE A COMPLETE HVAC INSTALLATION. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS SHOULD SUCH PROCEDURE NOT BE FOLLOWED.

E. THE SCHEDULING OF THE HVAC WORK SHALL BE COORDINATED WITH THE ARCHITECT, WITH OTHER CONTRACTORS AND WITH THE CLIENT.

F. DUCTWORK AND EQUIPMENT LOCATIONS ARE SHOWN DIAGRAMMATICALLY. EXACT LOCATIONS ARE TO BE DETERMINED UTILIZING ARCHITECT'S DIMENSIONED DRAWINGS AS A BASE POINT AND BY REVIEWING ARCHITECT'S DRAWINGS. CONTRACTOR SHALL MAKE ALL NECESSARY ADJUSTMENTS.

G. WORK SHALL INCLUDE ALL HVAC WORK FURNISHED AND INSTALLED AS INDICATED ON THE PLANS AND AS SPECIFIED HEREIN.

H. THE MECHANICAL CONTRACTOR SHALL FILE ALL REQUIRED DRAWINGS AND SPECIFICATIONS WITH THE BUILDING DEPARTMENT AND BE RESPONSIBLE FOR OBTAINING FINAL APPROVAL FROM ALL AUTHORITIES HAVING JURISDICTION.

I. THE MECHANICAL SYSTEM SHALL BE INSPECTED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF ALL CODES AND AUTHORITIES HAVING JURISDICTION

J. ARRANGE FOR INSPECTION AND TESTS OF ANY AND ALL PARTS OF THE WORK AS REQUIRED BY AUTHORITIES HAVING JURISDICTION AND PAY ALL CHARGES FOR SAME.

SECTION 2 – DUCTWORK

A. GENERAL
1. ALL DUCTWORK, REGISTER BOXES, DAMPERS, AND ALL AUXILIARY WORK AND PRODUCTS OF ANY KIND NECESSARY TO MAKE THE VARIOUS AIR CONDITIONING AND VENTILATING SYSTEMS OF THE BUILDING COMPLETE AND READY FOR SATISFACTORY OPERATION, SHALL BE FURNISHED AND INSTALLED.
2. CONSTRUCT DUCTWORK AND CASINGS AND SUPPORTS OF GALVANIZED STEEL OR ALUMINUM IN ACCORDANCE WITH THE APPROPRIATE STANDARDS OF THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION.
3. ALL DUCTWORK INDICATED ON DRAWINGS IS SCHEMATIC. THEREFORE, SUBMIT CHANGES IN DUCT SIZE AND LOCATION IF NECESSARY TO CONFORM TO FIELD CONDITIONS.
4. DIMENSIONS GIVEN ON DRAWINGS OF ALL ACOUSTICALLY LINED DUCTS SHALL BE CLEAR INSIDE DIMENSION. FOR EXAMPLE: INCREASE SHEET METAL DUCT SIZE BY 2" IN EACH DIRECTION TO ACCOMMODATE 1" OF ACOUSTIC LINING.
5. WHERE HANGER RODS FOR DUCTS, PIPING, OR EQUIPMENT MUST PIERCE DUCTS, PROVIDE CLOSURE PLATES FITTED AROUND THE ROD AND RIVETED OR WELDED TO THE DUCT. USE DUCT COMPOUND TO MAKE AN AIRTIGHT SEAL.
6. ALL DUCT MAINS AND BRANCHES UPSTREAM OF VARIABLE AIR VOLUME BOXES SHALL BE CONSTRUCTED AS 4" STATIC PRESSURE CLASS IN ACCORDANCE WITH THE CURRENT STANDARDS ESTABLISHED BY SMACNA. ALL OTHER DUCTWORK SHALL BE CONSTRUCTED AS 2" STATIC PRESSURE CLASS.
7. CONSTRUCT VOLUME DAMPERS OF 16 GAUGE GALVANIZED STEEL WITH HEMMED EDGES. IN DUCTS OVER 15" IN DEPTH USE MULTIPLE OPPOSED BLADE TYPE, GANG OPERATED. OPERATING LEVERS TO BE INDICATING TYPE WITH LOCKING QUADRANTS, VENTFABRIC #555 OR #560. SEE PART (E) OF THIS SECTION FOR ADDITIONAL REQUIREMENTS.
8. TURNING VANES: GALVANIZED STEEL DOUBLE VANES IN A GALVANIZED STEEL FRAME.
9. ALL GALVANIZED DUCTWORK SHALL BE HUNG WITH GALVANIZED HANGERS IN ACCORDANCE WITH SMACNA, ASHRAE, AND BOCA CODE REQUIREMENTS.
10. PROVIDE SUPPORTS AND FASTENINGS ADEQUATE TO INSURE PERMANENT STABILITY AND TO EFFECTIVELY RESIST ALL APPLIED LOADS. FASTEN HANGERS AND SUPPORTS BY CLIPS FASTENED TO STRUCTURE BY EXPANSION ANCHORS OR THROUGH-BOLTED. WHERE REQUIRED, PROVIDE SUPPLEMENTARY STEEL ANGLES OR CHANNELS.
11. DO NOT HANG OR SUPPORT ONE DUCT FROM ANOTHER.
12. EXTEND STRAP HANGERS ALONG BOTTOM OF THE DUCT. FASTEN TO THE DUCT BOTTOM BY BOLTS OR RIVETS AND TO THE SIDE BY BOLTS OR RIVETS WITH ONE FASTENER PER FOOT OR LESS OF DUCT HEIGHT.
13. USE BOLTED OR WELDED STRUCTURAL ANGLE IRON FRAMES TO SUPPORT RECTANGULAR DUCTWORK AND ASSOCIATED EQUIPMENT FROM FLOOR OR ROOFS.
14. USE GASKETED TYPE JOINT WHEN DISSIMILAR METALS ARE JOINED.
15. SEALANT SHALL BE APPLIED TO SUPPLY DUCTS, CONDENSER AIR INTAKE AND DISCHARGE DUCTS, AND EXHAUST DUCTS. ALL LONGITUDINAL SEAMS SHALL BE SEALED WITH 3M RED DUCT SEALANT IN THE SHEET METAL SHOP DURING FABRICATION. ALL TRANSVERSE JOINTS SHALL BE SEALED WITH 3M RED DUCT SEALANT. CONNECTIONS FROM BRANCH DUCT TO DIFFUSER COLLARS SHALL BE SEALED AT DUCT AND AT DIFFUSER.
16. SUPPORT VERTICAL DUCTS AT EACH STORY BY ANGLES BOLTED OR WELDED TO THE TWO LARGEST DUCT SIDES.
17. FLEXIBLE CONNECTIONS OF VINYL COATED WOVEN NYLON/POLYESTER BLEND FABRIC TO PREVENT THE TRANSMISSION OF VIBRATION THROUGH THE DUCTS SHALL BE INSTALLED ON BOTH THE SUPPLY AND RETURN SIDES OF ALL FANS, AIR CONDITIONING, AND VENTILATION UNITS, APPROXIMATELY WHERE SHOWN ON THE DRAWINGS. CLOTH USED FOR FLEXIBLE CONNECTIONS SHALL BE "VENTGLAS" AS MANUFACTURED BY VENTFABRICS, INC., DURO DYNE EXCELON FABRIC OR AS APPROVED. FLEXIBLE CONNECTION SHALL BE A MINIMUM OF 10" LONG AND FITTED TO PROVIDE AN AIRTIGHT CONNECTION. PROVIDE GASKETS ON CLASS II AND CLASS III FAN COLLAR.
18. SCREENS ON OPEN END DUCT: PROVIDE #16 U.S.S. 3/4" WIRE MESH SCREEN OVER EACH AIR OPENING IN HUNG CEILING EXCEPT WHERE PROVIDED WITH GRILLE OR REGISTER BACK.

B. LOW PRESSURE STEEL DUCTWORK
1. ALL DUCTWORK SHOWN IS CLASSIFIED AS LOW PRESSURE UNLESS OTHERWISE NOTED.
2. SHEET METAL GAUGES, TRANSVERSE JOINT TYPE AND SPACING, REINFORCING TYPE AND SPACING, IN ACCORDANCE WITH THE LATEST ASHRAE AND SMACNA SCHEDULES FOR LOW PRESSURE DUCTWORK, EXCEPT NO DUCTWORK LESS THAN 24 GAUGE. LONGITUDINAL SEAMS PITTSBURGH LOCK. SEAL TRANSVERSE JOINTS WITH NON-HARDENING SEALANT (3M "RED"). LONGITUDINAL SEAMS SHALL BE SEALED IN THE SHOP DURING FABRICATION.
3. DUCTS EXPOSED IN OCCUPIED AREAS, OTHER THAN MECHANICAL AND FAN ROOMS FABRICATED WITH HEMMED "S" SLIPS. REINFORCE JOINTS OF DUCTS OVER 30" WIDE WITH FLAT BARS OR FLAT BARS AND 3/8" RODS FOR DUCTS OVER 54" WIDE. TOP JOINT WITH BAR SKIP UNDER 31" WIDTH AND REINFORCED BAR SKIP FOR 31" AND LARGER IN WIDTH.
4. CROSS BREAK OR BEAD EACH DUCT SECTION ON FOUR SIDES OF DUCTS OVER 17" IN LARGEST DIMENSION. INSTALL 3/8" STAY RODS IN DUCTS OVER 72" AT EACH TRANSVERSE JOINT. SPACING BETWEEN RODS OR RODS AND SIDE OF DUCT SHALL NOT EXCEED 48".
5. TURNING VANES AS DETAILED ON DRAWINGS AND TO CONFORM TO SMACNA STANDARDS INSTALLED WITH FIRST VANE TIGHT IN OUTSIDE CORNER AND LAST VANE NO LESS THAN ONE VANE SPACE FROM THROAT OR INSIDE CORNER. SECURE BOTH SIDES OF RUNNERS TO TOP AND BOTTOM OF DUCT AT BOTH ENDS, AND 6" ON CENTER WITH SHEET METAL SCREWS OR RIVETS.

C. INSULATION:
1. INSULATION SHALL BE APPLIED TO ALL SUPPLY AIR DUCTWORK AND DUCTWORK EXPOSED TO OUTDOOR CONDITIONS.
2. SUPPLY DUCTWORK INSULATION THICKNESS MAY BE REDUCED ON LINED DUCTWORK BY AN AMOUNT EQUAL TO THE LINING THICKNESS.
3. INSULATION SHALL BE INSTALLED AFTER PRESSURE TESTS ARE COMPLETED AND ACCEPTED.
4. FIRE RESISTANCE RATING:
   A) ALL INSULATION, VAPORS BARRIERS, ADHESIVES, MASTICS AND RELATED MATERIAL SHALL BE OF NON COMBUSTIBLE MATERIALS TO MEET CODE, AND WITH UL FLAME SPREAD RATING OF 25 MAXIMUM AND SMOKE DEVELOPED RATING OF 50 MAXIMUM.
   B) ADHESIVES AND MASTICS RATINGS SHALL BE BASED ON TEST OF BULK MATERIAL TO MEET CODE, AND A MAXIMUM BURNING IN ACCORDANCE WITH RS14-11, ASTM-E84 TEST METHODS.
5. MANUFACTURERS:
   A) INSULATION MANUFACTURERS: JOHNS-MANVILLE, OWENS-CORNING, GUSTIN BACON, ARMSTRONG, OR AS APPROVED.
   B) ADHESIVE MANUFACTURERS: BENJAMIN FOSTER, INSUL-COUSTIC, MINNESOTA MINING, TUFF-BOND, ZESTON, OR AS APPROVED.
6. THERMAL RESISTANCE "R" RATING: MINIMUM INSULATION THICKNESS SPECIFIED HEREIN IS BASED ON R RATING OF 3.5 PER INCH OF THICKNESS ON A FLAT SURFACE AT A MEAN TEMPERATURE OF 75°F. THE MINIMUM INSULATION THICKNESS SHALL BE INCREASED FOR MATERIALS HAVING R RATING LESS THAN 4.0, OR MAY BE REDUCED FOR MATERIALS HAVING GREATER 4.0 IN ACCORDANCE WITH ENERGY CODE DETERMINATIONS. MINIMUM DENSITY 4 LBS. PER CUBIC FOOT.
7. CONCEALED DUCTS: FLEXIBLE FIBROUS GLASS INSULATION, 1½" THICK, 3/4 LB. MINIMUM DENSITY WITH REINFORCED ALUMINUM FOIL-FACED FLAME RESISTANT VAPOR BARRIER FACTORY APPLIED SIMILAR TO JOHNS-MANVILLE "MICROLITE" FSK. MAY BE USED FOR CIRCULAR DUCTS IN EXPOSED AREAS. RIGID INSULATION AS SPECIFIED BELOW MAY BE USED FOR CONCEALED DUCTS. WRAP INSULATION TIGHTLY ON DUCT BUT NOT EXCESSIVELY COMPRESSED AT CORNERS. ADHERE TO DUCT WITH 2/3 AVERAGE OF BF-85-20 ADHESIVE IN 4" WIDE BANDS, 8" ON CENTERS. FASTEN ALL JOINTS AND SEAMS WITH FLARE TYPE STAPLES ON 4" CENTERS. SEAL ALL PUNCTURES OF VAPOR BARRIER WITH PRESSURE SENSITIVE TAPE MATCHING FACING MATERIAL. SUPPORT INSULATION ON THE BOTTOM SIDE OF DUCTS OVER 24 INCHES WITH WELD PINS AND SPEED WASHERS APPROXIMATELY 18" ON CENTERS.
8. EXPOSED DUCTS & PLENUMS: RIGID BOARD FIBROUS GLASS INSULATION, 1-1/2 INCH THICKNESS, 6 LB. MINIMUM DENSITY WITH ALUMINUM FOIL-FACED FLAME RESISTANT VAPOR BARRIER FACTORY APPLIED, SIMILAR TO OWENS-CORNING TYPE ED-75. FACING PINNED AND TAPED IN PLACE. ADHERE TO DUCTS WITH WELD PINS AND SPEED WASHERS AT A MAXIMUM OF 12 INCH CENTERS. MINIMUM OF TWO ROWS OF PINS PER SIDE. SEAL ALL JOINTS WITH 4 INCH WIDE ASJ BUTTSTRIPS ADHERED WITH BF-85-20 ADHESIVE.

D. ACOUSTIC LINING
1. GENERAL: ACOUSTICAL INSULATION ADHESIVE, MASTICS AND RELATED MATERIAL SHALL BE OF NON-COMBUSTIBLE MATERIALS TO MEET CODE AND WITH UL FLAME SPREAD RATING OF 25 MAXIMUM AND SMOKE DEVELOPED RATING OF 50 MAXIMUM.
2. PROVIDE INTERNAL DUCT INSULATION FOR A MINIMUM OF 15 FEET UPSTREAM AND DOWNSTREAM OF AIR HANDLERS AND FANS, AND WHERE INDICATED ON THE DRAWINGS. APPLY INSULATION ON ALL INTERIOR SURFACES.
3. APPLY INSULATION WITH FACED SURFACE EXPOSED TO THE AIR STREAM. FASTEN INSULATION TO INTERIOR OF DUCTS AND CASINGS WITH WELDED PIN OR CLIP FASTENERS. SPACE FASTENERS A MAXIMUM OF 18" ON CENTER IN THE LONGITUDINAL DIRECTION AND 12" ON CENTER IN THE TRANSVERSE DIRECTION, IN ACCORDANCE WITH SMACNA STANDARDS. CAULK BUTTING EDGES TO FORM A SMOOTH SURFACE WITH NO RAW EDGES EXPOSED. PROVIDE METAL NOSING ON ALL LEADING EDGES.
4. INSULATION THICKNESS: 1 INCH UNLESS OTHERWISE NOTED.
5. LINE DUCTWORK WITH 1½ POUND DENSITY FLEXIBLE FIBROUS GLASS BLANKET WITH A NON-ERODING INTERIOR SURFACE.
6. THE DUCT LINING COATING SHALL NOT SUPPORT THE GROWTH OF FUNGUS OR BACTERIA IN ACCORDANCE WITH ASTM C1071 AND ASTM G21 AND G22.
7. SCHULLER MANVILLE PERMACOTE LINACOUSTIC.

E. VOLUME DAMPERS
1. PROVIDE ADJUSTABLE DAMPERS NECESSARY FOR PROPER CONTROL AND BALANCING OF AIR DISTRIBUTION. FURNISH DAMPERS IN ALL BRANCHES, WITH OPERATING LEVERS READILY ACCESSIBLE. NO DAMPER GREATER THAN 48" LONG. FOR GREATER LENGTHS, PROVIDE DAMPERS IN EQUAL SECTIONS AS REQUIRED.
2. DAMPER SHALL BE CONSTRUCTED AS SAME MATERIAL AS DUCTWORK, EXCEPT AS OTHERWISE SPECIFIED. RIGID CONSTRUCTION, FREE OF ALL RATTLING AND VIBRATION, WITH EDGES CRIMPED OR CREASED FOR STIFFNESS.
3. ALL DAMPERS SHALL HAVE THROUGH RODS, NOT LESS THAN 3/8" DIAMETER FASTENED TO BLADE WITH 2 OR MORE YOKES WITH SET SCREWS, WITH STEEL WASHER AT EACH END OF DAMPER ROD.
4. DAMPER BLADES ARE TO BE TWO GAUGE NUMBERS HEAVIER THAN DUCTWORK IN WHICH THEY ARE TO BE INSTALLED; 18 GAUGE AND LIGHTER SHALL HAVE BOTH EDGES DOUBLE HEMMED. BLADES LONGER THAN 35" SHALL HAVE "V" CREASE IN MIDDLE TO RECEIVE DAMPER ROD.
5. DAMPERS SHALL HAVE THROUGH ROD AXLES WITH 14 GAUGE BEARING PLATE AT ONE END, AND QUADRANT AND LEVER WITH LOCK SCREW AT THE OTHER END.
6. ON INSULATED DUCTWORK, MOUNT QUADRANT METAL SADDLES FINISHING FLUSH WITH INSULATING SURFACE.
7. DAMPERS LESS THAN 16" HIGH CAN BE SINGLE BLADE; 16" AND DEEPER SHALL BE MULTI-BLADE. SPLITTER DAMPERS ARE NOT ACCEPTABLE FOR AIR BALANCE, VOLUME DAMPERS SHALL BE USED.
8. PROVIDE TELEFLEX CABLES FOR REMOTE DAMPER OPERATION AS REQUIRED.
9. DAMPERS UTILIZED FOR TIGHT SHUTOFF SHALL NOT PERMIT LEAKAGE IN EXCESS OF 1% VOLUME WITH A PRESSURE DIFFERENTIAL OF 6" W. G.
10. MULTI-BLADE DAMPERS: OPPOSED BLADE TYPE, AND SHALL COMPLY WITH REQUIREMENTS FOR SINGLE BLADE DAMPERS. ALL DAMPER RODS, LINKED TOGETHER TO OPERATE AS A UNIT.
11. ALL BRANCH DUCTS SERVING AIR OUTLETS SHALL BE PROVIDED WITH VOLUME DAMPERS. DAMPERS SHALL BE LOCATED AS FAR AS POSSIBLE FROM AIR OUTLET TO REDUCE NOISE AND TURBULENCE.
12. ADDITIONAL DAMPERS SHALL BE INSTALLED IN LOCATIONS SHOWN ON THE DRAWINGS.

F. ACCESS DOORS
1. WHEREVER NECESSARY IN DUCTWORK, CASINGS OR SHEET METAL PARTITIONS, PROVIDE SUITABLE ACCESS DOORS AND FRAMES TO PERMIT INSPECTIONS, OPERATION AND MAINTENANCE OF CONTROLS, FIRE DAMPERS, FILTERS, BEARINGS, TRAPS, OR OTHER APPARATUS CONCEALED BEHIND THE SHEET METAL WORK. ALL SUCH DOORS SHALL BE OF DOUBLE CONSTRUCTION OF NOT LESS THAN NO. 20 GAUGE SHEET METAL, AND SHALL HAVE SPONGE RUBBER GASKETS AROUND THE ENTIRE PERIMETER. DOORS IN INSULATED DUCTS OR INSULATED CASINGS SHALL HAVE RIGID FIBERGLASS INSULATION BETWEEN THE METAL PANELS.
2. ACCESS DOORS IN SHEET METAL DUCTS SHALL BE HUNG ON HEAVY FLAT HINGES AND SHALL BE SECURED IN THE CLOSED POSITION BY MEANS OF CAST ZINC CLINCHING TYPE LATCHES. WHERE SPACE CONDITIONS PRECLUDE HINGES, USE FOUR (4) HEAVY DUTY WINDOW TYPE LATCHES. DOORS IN DUCTWORK SHALL, IN GENERAL, BE NO SMALLER THAN 18" BY 18", EXCEPT FOR ACCESS DOORS TO FIRE DAMPERS WHICH MAY BE LARGER DEPENDING ON SIZE OF FIRE DAMPER AND NEED TO SERVICE THE FUSIBLE LINKS.
3. IN NO CASE SHALL ACCESS TO ANY ITEMS OR EQUIPMENT REQUIRING INSPECTIONS, ADJUSTMENTS, OR SERVICING REQUIRE THE REMOVAL OF NUTS, BOLTS, SCREWS, WING NUTS, WEDGES, OR ANY OTHER SCREWED OR LOOSED DEVICE.
4. ACCESS DOORS SHALL BE PROVIDED WHERE NEEDED FOR EXISTING COMPONENTS OF SYSTEMS AS WELL AS ALL NEW COMPONENTS ADDED UNDER THIS CONTRACT WHETHER OR NOT SHOWN ON THE PLANS.

G. AIR BALANCING
1. AIR BALANCING FIRM OR REPRESENTATIVE MUST BE QUALIFIED AND SUBMIT EVIDENCE BEFORE ENGAGEMENT.
2. UPON COMPLETION OF THE AIR SYSTEM INSTALLATION, AIR BALANCER SHALL EXAMINE AIR MOVERS, RETURN SYSTEM AND SUPPLY SYSTEM FOR OPEN AIR WAYS AND NORMAL OPERATING CONDITIONS. PERFORM AIR SYSTEM BALANCE IN ACCORDANCE WITH THE STANDARDS OF AMERICAN AIR BALANCE COUNCIL UNDER THE WITNESS OF OWNER'S REPRESENTATIVE.
3. PROVIDE NEW FIXED SHEAVE AND BELTS OR MAKE ADJUSTMENTS, AS REQUIRED, TO ACHIEVE DESIGN BALANCE POINTS FOR EACH UNIT.
4. SUBMIT AIR BALANCE REPORTS, INCLUDING DESIGN AND ACTUAL QUANTITIES FOR EACH PRODUCT, INCLUDING FANS, AIR OUTLETS, ETC. STATIC PRESSURE READINGS AT VARIOUS POINTS IN AND AROUND AC EQUIPMENT SHALL BE SHOWN ON SCHEMATIC DIAGRAM OF SYSTEM.
5. AIR BALANCE AND ADJUSTMENTS SHALL BE PROVIDED UNTIL ACCEPTABLE TO THE OWNER'S REPRESENTATIVE.
6. CONTACT BUILDING MANAGEMENT TO SCHEDULE BALANCING PROCEDURES.
7. BALANCE ALL SUPPLY, RETURN AND EXHAUST SYSTEMS TO THE QUANTITIES INDICATED ON THE DRAWINGS WITH THE FOLLOWING TOLERANCES:
   A) FANS – DESIGN VOLUME PLUS 5%
   B) LEAKAGE – 5% MAXIMUM
   C) OUTLETS – DESIGN VOLUME PLUS OR MINUS 5%

PROJECT/ CLIENT:

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8. TAKE PITOT TRAVERSE READINGS OF MAIN DUCTS AT SHAFT CONNECTIONS AND AIR HANDLER OR AC UNIT DISCHARGE. RECORD STATIC PRESSURE AT TIME OF READING. READINGS SHALL BE TAKEN AFTER FINAL BALANCING AND SHALL INCLUDE SKETCH INDICATING READING LOCATIONS.
9. ADD VOLUME DAMPERS AS REQUIRED FOR FINAL BALANCING.
10. RECORD OUTDOOR AIR QUANTITIES FOR MINIMUM OA AND MAXIMUM OA CONDITIONS.
11. RECORD EXHAUST FAN CFM, INLET STATIC PRESSURE, DISCHARGE STATIC, VOLTS AND AMPS.
12. RECORD AC UNIT CFM, STATIC PRESSURES, VOLTS, AMPS ON EVAPORATOR SECTION AND CONDENSER SECTION AS APPLICABLE.
13. CONTRACTOR TO PERFORM NECESSARY COMFORT BALANCING AFTER MOVE-IN.
14. CONTRACTOR SHALL FIELD ADJUST AIR PATTERN DEFLECTORS AT AIR OUTLETS IF NECESSARY TO OBTAIN DESIRABLE AIR DISTRIBUTION AND DRAFT-FREE ENVIRONMENT.

G. FLEXIBLE DUCTWORK

1. INSULATED LOW PRESSURE TYPE, GENFLEX TYPE LPS-181, OR APPROVED EQUAL, WITH POSITIVE INTERIOR AIR SEAL WHICH SHALL PROHIBIT INSULATION FIBER EROSION. FACTORY INSULATED WITH 1" THICKNESS OF 1 LB. DENSITY FIBERGLASS INSULATION SHEATHED IN CLASS I VAPOR BARRIER, UL 181 LABELED, AND MEET LATEST UL CLASS 1 FIRE HAZARD CLASSIFICATION OF NFPA BULLETIN 90-A. USE FOR CONNECTION BETWEEN AIR SUPPLY DUCT TO AIR OUTLETS AND OTHER INDICATED LOCATIONS. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. FLEXIBLE DUCT TO BE INSTALLED IN A FULLY EXTENDED CONDITION FREE OF SAGS AND KINKS, USING MINIMUM LENGTH REQUIRED TO MAKE CONNECTIONS. LENGTHS SHALL IN NO CASE EXCEED 10 FEET UNLESS INDICATED ON THE DRAWINGS. JOINTS AND/OR CONNECTIONS MADE BY THOROUGHLY COATING INTERIOR OF DUCT TO A DEPTH OF 2" WITH HIGH PRESSURE DUCT SEALER AND SECURING IN PLACE OVER SHEET METAL COLLAR WITH GENFLEX MODEL QC, OR APPROVED EQUAL.

H. AIR OUTLETS

1. FACTORY FINISH NEW AIR OUTLETS WITH SEMI-GLOSS BAKED ENAMEL IN A COLOR APPROVED BY THE ARCHITECT. PAINT VISIBLE DAMPERS AND ACCESSORIES FLAT BLACK.
2. PROVIDE EQUALIZING DEFLECTORS AND AN OPPOSED BLADE DAMPER AT EACH DIFFUSER.
3. LOUVER FACE CEILING DIFFUSERS: SQUARE AS SHOWN ON THE PLANS, SURFACE MOUNTED, MULTIPLE FLARED DISCHARGE MEMBERS SQUARE INLET NECK. TITUS TDC.
4. SIDEWALL GRILLES: STEEL DOUBLE DEFLECTION INDIVIDUALLY ADJUSTABLE CONTOURED BLADES WITH FRONT BLADES PARALLEL TO SHORT DIMENSION. 1¼" STEEL BORDER FLANGE WITH COUNTERSUNK SCREW HOLES AND WELDED CORNERS. OPPOSED BLADE DAMPERS SHALL BE CONSTRUCTED OF STEEL AND OPERABLE FROM THE FACE OF THE REGISTER BY SCREW DRIVER. TITUS MODEL 301RL.
5. RETURN AND EXHAUST GRILLES: STEEL, 1-1/4" FLAT MARGIN WITH FIXED 3/4" BAR SPACING AT 45 DEGREES ANGLE. FIXED FACE LOUVERS SHALL BE PARALLEL TO THE LONG DIMENSION OF GRILLE. COLOR AS APPROVED BY ARCHITECT. TITUS 23RL. FURNISH OPPOSED BLADE DAMPERS FOR RETURN GRILLES. PROVIDE LIGHT SHIELDS AT EACH CG EXPOSED TO CEILING PLENUM (NON-DUCTED).

SECTION 3 – PIPING

A. Pipe, Fittings and Hangers

1. General: Provide piping work in accordance with the Contract Documents. Uninsulated piping in exposed areas shall be cleaned and painted with rust-proof primer. Finish coat shall be applied in ANSI Standard color or as selected by Owner.
2. Except as modified by local governing codes and the Contract Documents, comply with the applicable provisions and recommendations of ANSI, ASTM, ASME and AWS.
3. Copper Piping: Silver braze joints for condenser/chilled water service. Soldered joints with 95-5 tin/antimony solder for coil condensate and drains.
4. Refrigerant Piping: Brazed joints.
5. Piping Materials:

Service	Size	Material	Type	Weight	PSIG
Refrigerant	To 2-1/2"	Copper, B88	Rigid or Soft	Type K or L	250
Coil Condensate	All	Copper, B88	Rigid	Type L	125
Hot Water	To 2-1/2"	Copper, B88	Rigid	Type K	300

6. Pipe Unions: Cast iron or bronze body, screwed, ground joint, brass seats; 300 psig for pipe 2" and smaller.
7. Pipe Flanges: ANSI B 16.5 and ASTM A-181 welding neck. Use on welded pipe for unions and at valves. Facing on flange shall match facing on equipment (flat or raised face). Studs shall be of carbon steel. Flanges shall be of the same pressure rating as the fittings and valves in each service category.
8. Piping Installation: Piping shall be installed in neat workmanlike manner with multiple pipes run in parallel banks which are properly pitched and routed parallel and perpendicular to building features. Valves, strainers and gauges and other appurtenances shall be readily accessible for service. Coordinate with other trades and relocate items as needed for final coordinated assembly.
9. Pipe Sleeves:
   a. Provide for all pipes passing through floors, walls, partitions, concrete beams and girders and sleeves, types as scheduled below, of adequate diameter to allow a minimum of 3/4" clear all around between sleeve and pipe. When piping is required to be insulated, insulation shall pass continuously through the sleeve with 1/2" clearance between insulation and sleeve.
   b. Non-Fire Rated Walls & Floor Penetrations: Sleeves shall be Pipe Shields, Inc. "Adjust-To Crete", or approved equal, 24 gauge minimum galvanized sheet metal as scheduled below. "Adjust-To Crete" figure No. used for reference:
      Drywall #11
      Concrete or masonry walls & concrete beams #100
      Concrete floors#10
      Concrete floors with metal underdeck (tack weld to deck) #2
   c. Fire Rated Wall & Floor Penetrations: All pipes penetrating fire walls and floors shall be encased in adjustable or fixed length metal cans, minimum 24 gauge, sized for maximum 1/2" spacing between insulation and can. Insulation shall consist of 360 waterproof calcium silicate insert sized to extend to a minimum of 1" beyond wall or floor penetration. Calcium silicate insert shall be same thickness as the adjoining pipe insulation. Spacing between insulation and can shall be packed on either end with double neoprene coated rope positively fastened or mineral wool with metal escutcheon. Work shall be in compliance with New York City Code Section 27-343 (b) and (c) for penetration of rated wall construction. Refer to the architectural drawings for all fire rated wall locations.
10. Floor and Ceiling Escutcheons:
    On all exposed pipes passing through floors, walls, partitions, plaster furring, etc., provide 1" split-type steel plates. In finished rooms, plates shall be nickel-plated; in unfinished rooms, plates shall be prime coated. Plates shall be similar to Grinnell No. 10.
11. Hangers, Anchors and Concrete Inserts:
    a. Furnish and install suitable and substantial hangers, anchors, inserts and supports for all piping as specified herein, and as required. Submit locations for all supports and hangers. All figure numbers indicated herein are Grinnell Co. or as approved.
    b. Horizontal copper piping shall be supported in accordance with the following schedule:

Pipe Size	Rod Diameter	Maximum Hanger Spacing
1" & smaller	3/8"	6'
1-1/4" to 2"	3/8"	9'

    c. No piping shall be hung from other piping, service, or ceiling hangers. In no case shall hangers be supported by means of vertical expansion bolts. Hangers for piping which supports in-line pumps shall be provided with vibration isolators to minimize vibration transmission to building structure.
    d. Furnish and install approved roller supports, floor stands, wall brackets, etc. for all lines running near the floor or near walls, which can be properly supported or suspended by the floors or the walls. Pipe lines near walls may also be hung by hangers carried from approved wall brackets at a higher level than the pipe. Grinnell Co. pipe rolls Fig. 181, and wall brackets Fig. 195.
    e. Hangers shall be heavy construction suitable for the size of pipe to be supported. Hangers for pipes up to and including 5" shall be adjustable wrought Clevis type. Hangers for any trapeze assembly shall consist of two rods and cross-bar with pipe roll complete with adjustable sockets and nuts. Where hanger rods extend below 7 feet A.F.F., they shall be protected from causing head injuries or replaced with Clevis hangers. Clevis hangers Fig. 260, ring hangers Fig. C1-97.
    f. Piping secured to strut channels (Kindorf, Unistrut, etc.) shall be clamped with cushioned clamp assembly similar to Hydra-Zorb cushion clamps (Jarett Industries, Inc., NJ 201-539-4410). Clamp assemblies shall allow pipe and tube sizes to be intermixed on variable centers as needed to conserve space and to allow for addition or removal of tube or pipe without unclamping other elements.
    Cushions shall be of resilient material; resistant to oils, hydraulic fluids, grease, fuels, common solvents, salt solutions, dilute bases and mineral acids; and not degrade at operating temperatures of 250?F. Cushions shall perform the additional function of providing a thermal break between the pipe and the metal clamp.

B. Pipe System Pressure Test

1. Test all piping except drainage connections, including valves, fittings and joints hydrostatically at a pressure equal to at least 1-1/2 times the working pressure, but no less than 200 psig for a minimum of four (4) hours. Blank off or remove elements or equipment which may be damaged by the pressure. Open but do not
2. Repair leaks in accordance with the following procedures. In each case, a retest shall be necessary after repairs are made.
   a. Soldered/Brazed joints: Remove solder/brazing alloy and reapply with proper flux.
   b. Flanged/Grooved end Joints: Check to determine that all bolts are uniformly tightened with the required torque. If leak persists, depressurize the line, remove gasket, examine flange/grooved end faces, and insert new gasket.
   c. Threaded Joints: Tighten joint to a reasonable torque. If leak continues replace pipe and/or fittings. Do not use pipe dope or cement to stop pipe leaks.
   d. Leaks in Material: Leaks located in pipe material shall require the replacement of that section of pipe.

C. Insulation

1. Fire Resistance Rating:
   a. All insulation, vapor barriers, adhesives, mastics and related material shall be of non combustible materials to meet Code, and with UL flame spread rating of 25 maximum and smoke developed rating of 50 maximum.
   b. Adhesives and mastics ratings shall be based on test of bulk material to meet Code, and a maximum burning in accordance with RS14-11, ASTM-E84 Test Methods.
2. Manufacturers:
   a. Insulation Manufacturers: Johns-Manville, Owens-Corning, Gustin Bacon, Armstrong, or as approved.
   b. Adhesive Manufacturers: Benjamin Foster, Insul-Coustic, Minnesota Mining, Tuff-Bond, Zeston or as approved.
3. Thermal Resistance "R" Rating: Minimum insulation thickness specified herein are based on R rating of 4.0 per inch of thickness on a flat surface at a mean temperature of 75oF. The minimum insulation thickness shall be increased for materials having R rating less than 4.0, or may be reduced for materials having greater 4.0 in accordance with Energy Code determinations. Minimum density 4 lbs. per cubic foot.
4. Fibrous glass insulation shall be used for all piping work except where otherwise specified. Pipe covering shall be sectional molded fibrous glass, snap on installation, with all-service jacket meeting flame resistance ratings of the Code, UL, and NFPA. Blanket fibrous materials shall be used for fittings and valves.
5. Minimum Thickness (Based on R=4.0 per inch Rating)

System	Pipe Size	Minimum Thickness
Coil Condensate	1" & less	1/2"
	Above 1"	1"
Refrigerant (Indoors)	All Sizes	1"
Hot Water	1-1/2" & less	1"
	Above 1-1/2"	2"

6. Outdoor Refrigerant Pipe Insulation: Flexible elastomeric closed-cell Armstrong Armaflex insulation with flame spread rating of 25 or less or approved equal. Exposed Armaflex insulation shall be finished with two coats of Armstrong Armaflex Finish or approved equal.

Pipe Insulation Thickness	Line Temperatures		
Pipe Size	Above 50°F	38°F	0°F
3/8" to 1-1/8"	3/8"	1/2"	3/4"
1-1/8" to 2-5/8"	3/8"	1/2"	1"
Over 2-5/8"	1/2"	3/4"	1"

SECTION 4 – CONTROLS

A. GENERAL:
1. STANDARDS: EXCEPT AS MODIFIED BY LOCAL GOVERNING CODES AND THE CONTRACT DOCUMENTS, COMPLY WITH THE PROVISIONS AND RECOMMENDATIONS OF UL, ASME, ASTM, ASHRAE, NBFU, NEC AND NFPA.
2. CONTROLS CONTRACTOR: WORK INCLUDED UNDER THIS SECTION SHALL BE PROVIDED BY A QUALIFIED TEMPERATURE CONTROLS INSTALLER WITH A MINIMUM OF FIVE YEARS EXPERIENCE.

B. COMPONENTS:
1. THE AUTOMATIC CONTROL SYSTEM SHALL BE COMPLETE WITH ALL NECESSARY SOURCES OF ELECTRICITY, SENSORS, CONTROLLERS, RELAYS, SWITCHES, TRANSFORMERS, GAUGES AND INTERCONNECTING WIRING TO CONTROL THE SYSTEM IN ACCORDANCE WITH THE SEQUENCES SPECIFIED.
2. INCLUDE THE DESIGN OF ALL NECESSARY MOTOR CONTROL AND INTERLOCK WIRING TO ACHIEVE THE REQUIRED SEQUENCE OF OPERATION. MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL CONTROL WIRING PER CONTROLS CONTRACTOR DRAWINGS. CONTROL WIRING SHALL BE INSTALLED IN EMT CONDUIT IN EXPOSED AREAS, EQUIPMENT ROOMS AND STUB-UPS IN PARTITIONS. IN CONCEALED SPACES SUCH AS HUNG CEILINGS, CONTROL WIRING (UNDER 100 VOLTS) CAN BE PLENUM RATED CABLE WITHOUT EMT CONDUIT.
3. WALL THERMOSTATS SHALL BE OF THE CONCEALED ADJUSTMENT TYPE WITH CONCEALED INDICATORS. UNLESS OTHERWISE NOTED, INSTALL WALL MOUNTED THERMOSTATS 5'-0" ABOVE THE FLOOR MEASURED TO THE CENTERLINE OF THE INSTRUMENT. OBTAIN ARCHITECTS APPROVAL OF EXACT MOUNTING LOCATION PRIOR TO INSTALLATION.
4. WHERE THERMOSTATS PROVIDE CONTROL FOR BOTH HEATING AND COOLING WITH AUTOMATIC CHANGEOVER, A 5 DEG F DEADBAND SHALL BE UTILIZED BETWEEN THE HEATING/COOLING SETPOINTS TO AVOID SETPOINT OVERLAP.
5. PROVISIONS SHALL BE MADE FOR OFF-HOUR CONTROLS IN ZONES OR AREAS THAT ARE NOT CONTINUOUSLY OPERATED. PROVIDE THE FOLLOWING:
   a. THERMOSTAT SETBACK CAPABILITY (55 DEG HEATING MODE, 85 DEG COOLING MODE)
   b. AUTOMATIC TIMECLOCK OF PROGRAMMABLE CONTROLS CAPABLE OF STARTING AND STOPPING THE ON SEPARATE DAILY SCHEDULES.
   c. CONTROLS SHALL BE CAPABLE OF OPERATING FOR AT LEAST 10 HOURS DURING A LOSS OF POWER.
   d. MANUAL OVERRIDE THAT ALLOWS FOR TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS, OR OCCUPANCY SENSOR

C. PROVIDE TO OWNER A COPY OF THE AS-INSTALLED CONTROL SYSTEM FOR EACH MECHANICAL SYSTEM MOUNTED ON 1/2" MASONITE AND COVERED WITH HEAT BONDED CLEAR PLASTIC LAMINATE OR OTHER ACCEPTABLE PERMANENT WALL MOUNTED FORM. INSTRUCT OWNER ON HOW TO OPERATE SYSTEMS.

D. MOUNT SURFACE MOUNTED CONTROL DEVICES ON BRACKETS TO CLEAR THE FINAL FINISHED SURFACE OF INSULATION AS NEEDED. INSTALL CONTROL VALVES HORIZONTALLY WITH THE POWER UNIT UP. INSTALL CONTROLS SO THAT ADJUSTMENTS AND CALIBRATIONS CAN BE READILY MADE. CALIBRATE CONTROLS AS REQUIRED AFTER INSTALLATION.

E. CONCEAL CONTROL CONDUIT AND TUBING IN ALL SPACES EXCEPT IN THE MECHANICAL EQUIPMENT ROOMS AND IN UNFINISHED SPACES. INSTALL IN PARALLEL BANKS WITH ALL CHANGES IN DIRECTIONS MADE AT 90 DEGREE ANGLES.

F. SUBMIT SHOP DRAWINGS AS PREPARED BY AUTOMATIC TEMPERATURE CONTROL MANUFACTURER. WIRING DIAGRAMS SHALL BE SUBMITTED EXPEDITIOUSLY TO ALLOW REASONABLE INSTALLATION TIME. SUBMITTALS SHALL INCLUDE:
1. SEQUENCE OF OPERATION AND FLOW DIAGRAMS FOR ALL CONTROL SYSTEMS
2. EQUIPMENT CATALOG AND PERFORMANCE DATA FOR COMPONENTS
3. WIRING DIAGRAMS

G. SEQUENCE OF OPERATION

1. PTAC UNITS
   a) COOLING MODE
      i) UNITS SHALL BE STARTED AND STOPPED FROM UNIT MOUNTED THERMOSTAT
      ii) COMPRESSORS SHALL BE CYCLED IN RESPONSE TO ROOM TEMPERATURE AS SENSED FROM THE UNIT'S THERMOSTAT.
   b) HEATING MODE
      i) UNITS SHALL BE STARTED AND STOPPED FROM UNIT MOUNTED THERMOSTAT
      ii) HOT WATER VALVE SHALL BE OPENED/CLOSED IN RESPONSE TO ROOM TEMPERATURE AS SENSED FROM THE UNIT'S THERMOSTAT.
2. AIR COOLED VRF SYSTEM
   a) AIR HANDLING UNITS
      i) EACH AIR HANDLING UNIT SHALL BE CONTROLLED AND OPERATED VIA A WALL MOUNTED DIGITAL PROGRAMMABLE THERMOSTAT AS SUPPLIED BY THE MANUFACTURER.
      ii) WHEN IN COOLING MODE, THE BRANCH CIRCUIT CONTROLLER SUPPLIES REFRIGERANT TO THE UNIT TO MAINTAIN THE COOLING SETPOINT TEMPERATURE.
      iii) WHEN IN HEATING MODE, THE BRANCH CIRCUIT CONTROLLER SUPPLIES REFRIGERANT TO THE UNIT TO MAINTAIN THE HEATING SETPOINT TEMPERATURE.
   b) HEAT RECOVERY UNIT AND BRANCH CIRCUIT CONTROLLER
      i) UPON A CALL FOR COOLING AS SIGNALLED BY THE BRANCH CIRCUIT CONTROLLER, THE HEAT RECOVERY UNIT SHALL MODULATE COMPRESSOR OPERATION AS REQUIRED.
      ii) UPON A CALL FOR HEATING AS SIGNALLED BY THE BRANCH CIRCUIT CONTROLLER, THE HEAT RECOVERY UNIT SHALL SWITCH TO HEAT ABSORPTION MODE AND MODULATE COMPRESSOR OPERATION AS REQUIRED.
   c) THE SYSTEM SHALL BE PROVIDED WITH SETPOINT OVERLAP CONTROLS AS PER SECTION 4.B.4 ABOVE.
   d) THE SYSTEM SHALL BE PROVIDED WITH OFF-HOURS CONTROL AS PER SECTION 4.B.5 ABOVE.
3. ROOFTOP AC UNITS
   a) COOLING MODE
      i) UNITS COMPRESSORS SHALL CYCLE ON/OFF IN RESPONSE TO WALL MOUNTED THERMOSTAT TO MAINTAIN SPACE COOLING SETPOINT OF 75 DEG F (OCCUPIED MODE), OR 85 DEG F. (UNOCCUPIED MODE). SETPOINT IS ADJUSTABLE AS PER OWNER.
      ii) WHEN OUTDOOR AIR DROPS BELOW 60 DEG F (ADJUSTABLE), COMPRESSORS SHALL BE DE-ENERGIZED AND UNIT SHALL OPERATE IN FREE-COOLING MODE.
      iii) WHEN OUTDOOR AIR DROPS BELOW 55 DEG F (ADJUSTABLE), COMPRESSORS SHALL BE DE-ENERGIZED AND GAS-FIRED HEATING SECTION SHALL MODULATE TO MAINTAN A SUPPLY AIR TEMPERTURE OF 55 DEG F (ADJUSTABLE)
      iv) WHEN SPACE RELATIVE HUMIDITY LEVEL EXCEEDS 60%, HOT GAS REHEAT SHALL MODULATE TO DEHUMIDIFY THE SUPPLY AIR.
      v) SUPPLY FAN SHALL RUN CONTINUOUSLY ON MAXIMUM SETTING WHILE IN OCCUPIED MODE.
   b) HEATING MODE
      i) IN OCCUPIED MODE, WHEN SPACE TEMPERATURE FALLS BELOW 70 DEG F (ADJUSTABLE), GAS-FIRED HEATING SECTION SHALL MODULATE TO INCREASE SUPPLY AIR TEMPERATURE TO 90 DEG F (ADJUSTABLE).
      ii) IN UNOCCUPIED MODE, WHEN SPACE TEMPERATURE FALLS BELOW 55 DEG F (ADJUSTABLE), SUPPLY FAN SHALL MODULATE TO MINIMUM SETTING AND GAS-FIRED HEATING SECTION SHALL MODULATE TO MAINTAIN A SUPPLY AIR SETPOINT OF 90 DEG F (ADJUSTABLE).
   c) THE SYSTEM SHALL BE PROVIDED WITH SETPOINT OVERLAP CONTROLS AS PER SECTION 4.B.4 ABOVE.
   d) THE SYSTEM SHALL BE PROVIDED WITH OFF-HOURS CONTROL AS PER SECTION 4.B.5 ABOVE.

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2	FOR PROGRESS	4/27/2015
3	FOR PROGRESS	5/19/2015
4	COMMISSIONER REVIEW	5/19/2015

ARCHITECT:

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DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

MECHANICAL NOTES
AND SPECIFICATIONS 2

DWG NO:

M-501.00

DOB JOB NUMBER

HILLSIDE AVENUE

178 ST

179 ST

6" SPRINKLER SERVICE, COORDINATE WITH CIVIL ENGINEER'S DRAWINGS

4" DOMESTIC WATER SERVICE, COORDINATE WITH CIVIL ENGINEER'S DRAWINGS

6" GAS SERVICE, COORDINATE WITH CON EDISON AND INSTALL AS PER UTILITY COMPANY REQUIREMENTS

(152) UTILITY COMPANY GAS METERS, (150) APARTMENT METERS, (1) COMMERCIAL METER AND (1) HOUSE METER, ARRANGE IN THREE ROWS: TWO OF 22, AND ONE ROW OF 21

10" STORM

6" FIRE

4" DOMESTIC WATER

3" V UP

4" GAS UP
4" CW UP
1-1/4" HW UP
3/4" HWR UP

WSH WSH WSH WSH WSH WSH WSH WSH WSH WSH

DR DR DR DR DR DR DR

FD

UNEXCAVATED

C.2

3" X (50) 1" GAS TO APARTMENTS

2" UP

6" HOUSE TRAP

10" STORM HOUSE TRAP

SP-1

SP-2

SUMP PUMP

PROVIDE SUMP PUMP AT BASE OF ELEVATOR PIT, SEE DETAIL ON DRAWING P302

2" UP

MECHANICAL

SEE MECHANICAL PLANS

4" UP TO CVS

MEDIA ROOM

A/V ROOM

45 STORAGE UNITS

LAUNDRY

2R 28-24
MIN WASHER:6 UNITS
MIN DRYER:3 UNITS

DRINK FOUNTAIN

RESIDENTIAL GYM

OFFICE/ STORAGE

ZRB 6.5T
2070R/10.5T

THIS AREA TO BE DESIGNED UNDER SEPARATE APPLICATION

OFFICES
USE GROUP 4

FUTURE BUILD OUT TO BE DONE BY TENANT

GROSS 18,726 SF

4"S DN

1" CW TO OFFICES FUTURE USE

1" CW TO FUTURE USE

HAND DRYERS

MEN'S RESTROOM

WOMEN'S RESTROOM

STORAGE

STORAGE

LOBBY

RECEIVING
CLG. HT.
OPEN

A313

COMMERCIAL
3,060 SF

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
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STATE OF NEW YORK
LICENSED PROFESSIONAL ENGINEER
079188

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
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DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

CELLAR
PLUMBING PLAN

DWG NO:

P-100.00

15 of 31

DOB JOB NUMBER

RESIDENTIAL ENTRY
178-02

SUBWAY ENTRY

SW-1

BENCH

RESIDENTIAL LOBBY USE GROUP 2

VESTIBULE

OUTDOOR SPACE

DESK

MAIL / PACKAGE

STORAGE

3" V UP

4" GAS DN
4" CW DN
2" HW DN
3/4" HWR DN

4" GAS UP
4" CW UP
3" HW UP
3/4" HWR UP

BATH

16"ø DRYER EXHAUST UP/DN

OUTDOOR MECHANICAL CONDENSERS

TR 1

CS 2

LAV

WC

SW-2

SW-3

HD LOADING

98" HT MIN

4" SAN FOR CVS FUTURE USE

THIS AREA TO BE DESIGNED UNDER SEPARATE APPLICATION

COMMERCIAL

CLG. HT. 11'-0"

VESTIBULE CLG. HT. 11'-0"

LOW WALL (TYP.)

SILL HT. @ 2'-6" A.F.F. 1'-10" SILL DEPTH

SUBWAY ENTRY

8'-0" CLEAR HEAD ROOM

RAMP UP

UP

DN

STOP

47 PARKING SPACES

LINE OF BUILDING ABOVE

FOUNDATION WALL BELOW, TYP.

66.73'

65.75'

PROPERTY LINE

STORAGE /MECH.

COMMUNITY FACILITY LOBBY USE GROUP 4

DIRECTORY

65.68'

STAIR C

STAIR B

SW-4

SW-5

SW-6

RECEIVING C-BOLG. HT. OPEN

PHARMACY CLG. HT. 9'-0"

ADA CHECKOUT

ELEV.

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE | DESCRIPTION | DATE

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STATE OF NEW YORK
GEORGE SCHELL
079185
LICENSED PROFESSIONAL ENGINEER

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

GROUND FLOOR PLUMBING PLAN

DWG NO:

P-101.00

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DOB JOB NUMBER

HILLSIDE AVENUE

178 STREET

3" V UP

4" GAS UP/DN
4" CW UP/DN
2" HW UP/DN
3/4" HWR UP/DN

16"ø DRYER EXHAUST UP/DN

(4) 1" GAS (TYP. FOR 1)

(6) 1" GAS (TYP. FOR 9)

RESIDENTIAL USE GROUP R-2
COVERED 1 PER 2 DWELLING UNITS
= 74 BICYCLE PARKING
15 SF PER PARKING = 1960 SF

PLACE REINF. IN THE DIRECTIONS AND SEQUENCE NOTED (NUMBERED FROM BOTTOM TO TOP).

(4) 1" GAS (TYP. FOR 1)

(6) 1" GAS (TYP. FOR 11)

MECH HVAC CONDENSER

TRENCH DRAIN

5" STORM HOUSE TRAP

Stop

Stop

65.75'

PROPERTY LINE

PROJECT/ CLIENT:

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Queens, New York

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DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CO/MN

TITLE

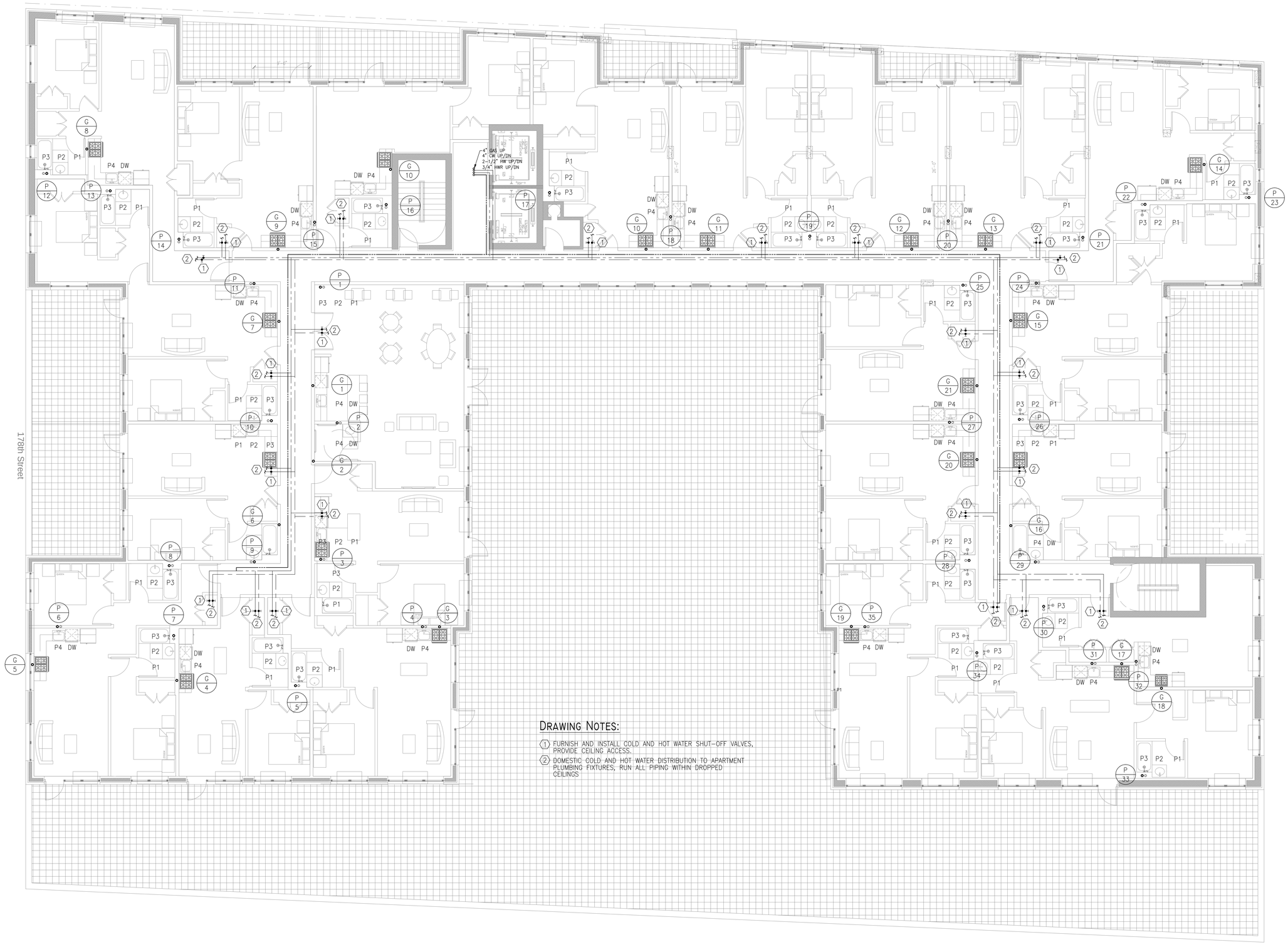
SECOND FLOOR
PLUMBING PLAN

DWG NO:

P-102.00

17 of 31

DOB JOB NUMBER



DRAWING NOTES:

1. FURNISH AND INSTALL COLD AND HOT WATER SHUT-OFF VALVES, PROVIDE CEILING ACCESS.
2. DOMESTIC COLD AND HOT WATER DISTRIBUTION TO APARTMENT PLUMBING FIXTURES, RUN ALL PIPING WITHIN DROPPED CEILINGS

PROJECT/ CLIENT:

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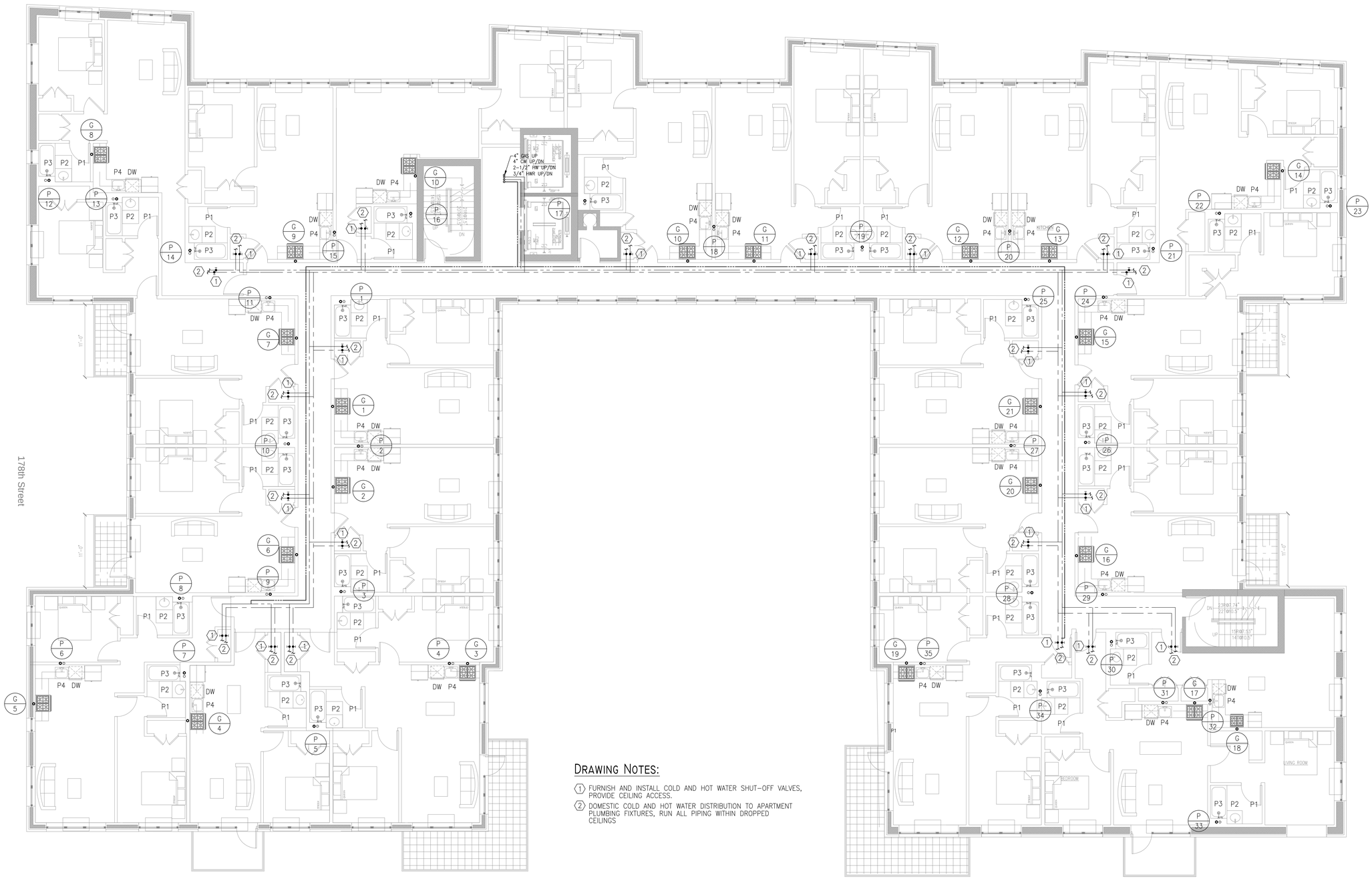
TITLE

THIRD FLOOR
PLUMBING PLAN

DWG NO:

P-103.00

DOB JOB NUMBER



DRAWING NOTES:

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TITLE

FOURTH THRU SIXTH
FLOOR PLUMBING PLAN

DWG NO:

P-104.00

19 of 31

DOB JOB NUMBER

DRAWING NOTES:

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SEVENTH FLOOR
PLUMBING PLAN

DWG NO:

P-105.00

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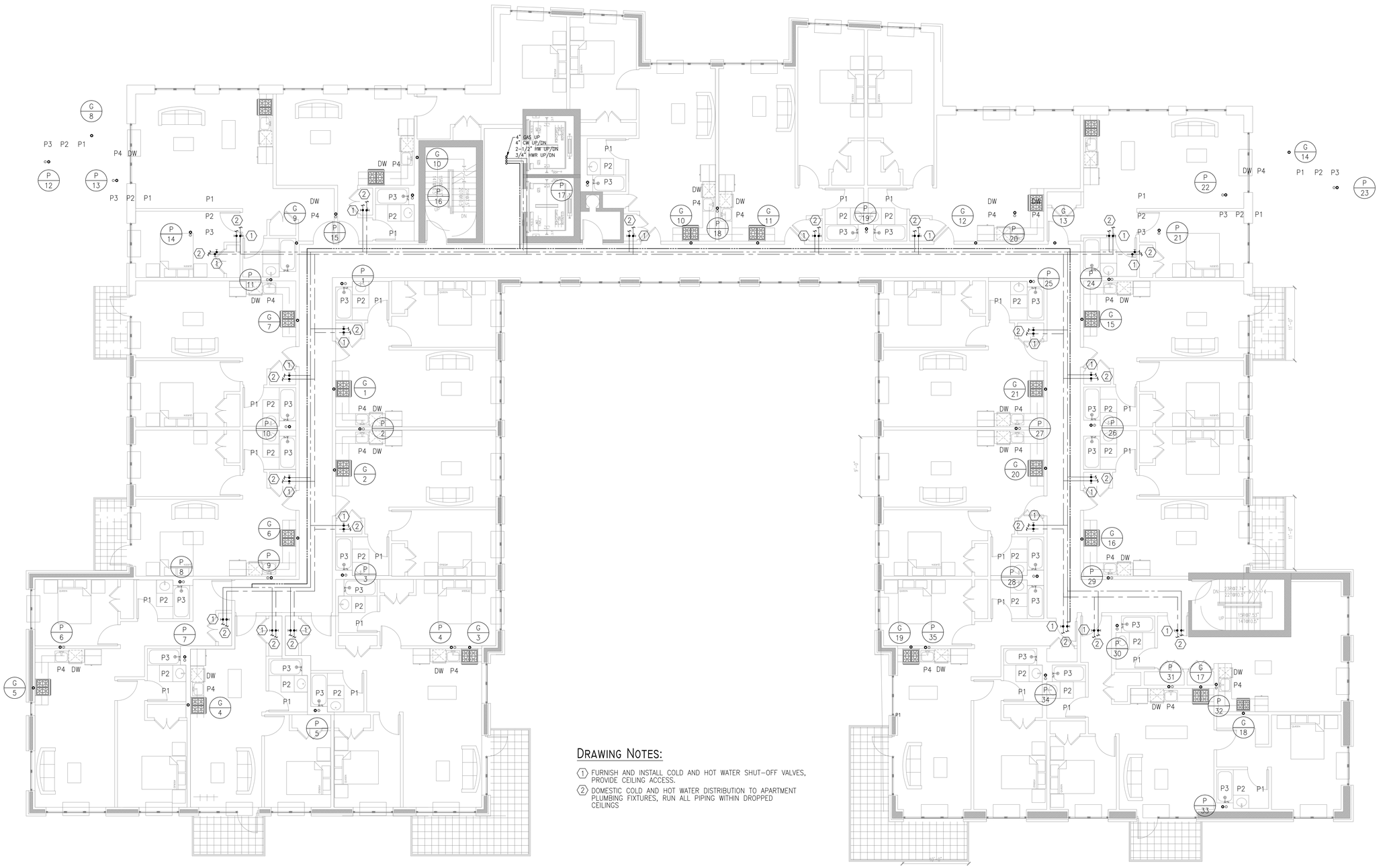
DOB JOB NUMBER



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2. DOMESTIC COLD AND HOT WATER DISTRIBUTION TO APARTMENT PLUMBING FIXTURES, RUN ALL PIPING WITHIN DROPPED CEILINGS

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DATE:	02-09-2015
PROJECT NO:	4437
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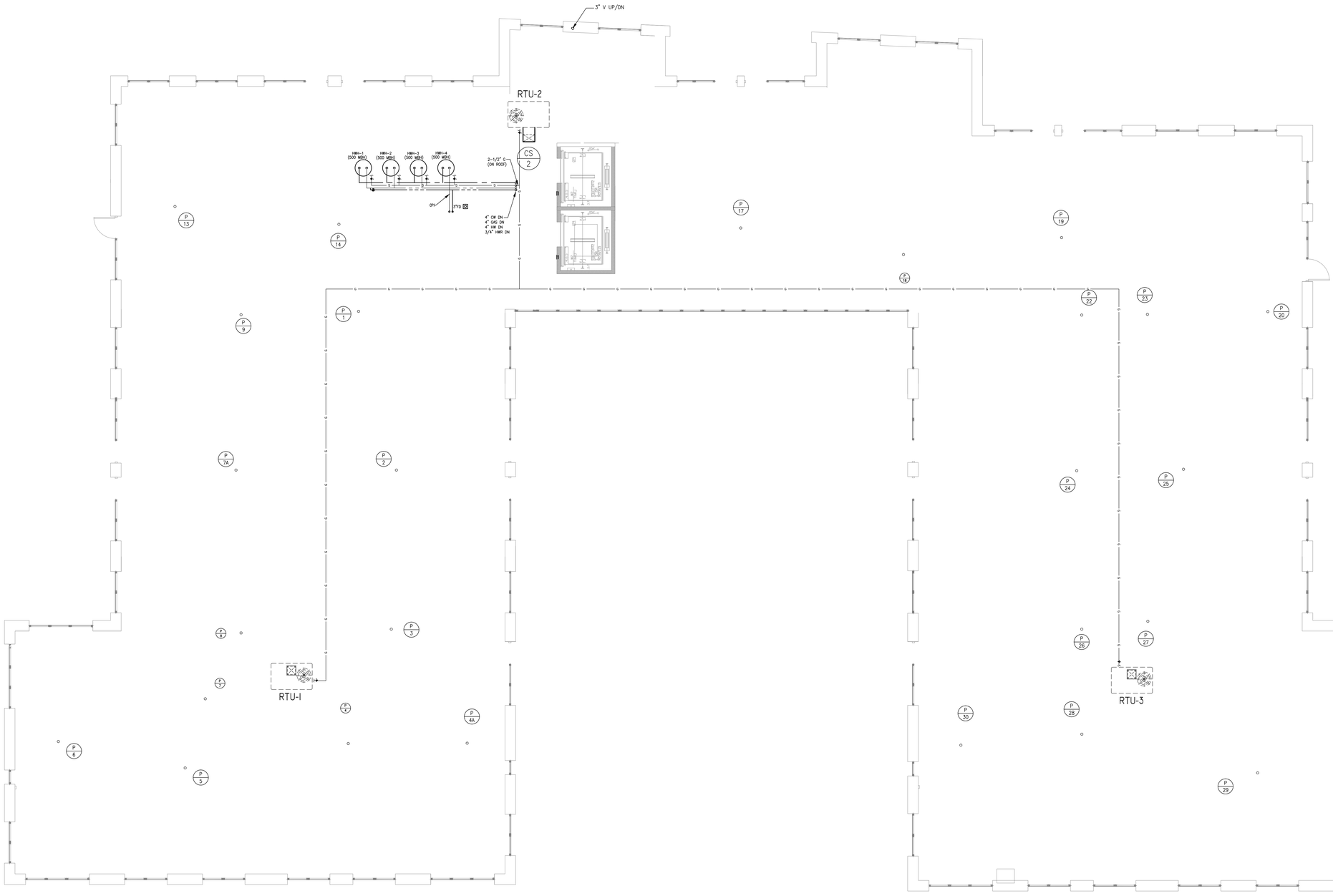
TITLE

EIGHTH FLOOR
PLUMBING PLAN

DWG NO:

P-106.00

DOB JOB NUMBER



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DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

ROOF
PLUMBING PLAN

DWG NO:

P-107.00

DOB JOB NUMBER

GENERAL PLUMBING NOTES:

1. ALL MATERIAL INDICATED AND IMPLIED ON THESE DRAWINGS SHALL BE NEW UNLESS OTHERWISE NOTED.
2. PIPE LOCATIONS ARE DIAGRAMMATIC. ALL PIPING TO BE RUN CONCEALED IN FINISHED SPACES UNLESS NOTED OTHERWISE.
3. ALL PLUMBING WORK TO MEET BOCA NATIONAL BUILDING AND INTERNATIONAL MECHANICAL AND FUEL GAS CODES, NATIONAL STANDARD PLUMBING CODE (NEW YORK CITY BUILDING CODE) AND ALL LOCAL RULES AND REGULATIONS.
4. UNLESS OTHERWISE NOTED, SLOPE OF DRAINAGE SYSTEM TO BE 1/8" PER FOOT OF RUN FOR PIPE OVER 3"(2-1/2"); 1/4" PER FOOT FOR PIPE 3"(2-1/2") AND SMALLER.
5. SANITARY LINES TO BE HUBLESS CAST IRON PIPE ABOVE GROUND, AND S.W. CAST IRON BELOW GRADE.
6. VENT LINES TO BE HUBLESS CAST IRON, GALVANIZED STEEL, COPPER.
7. VENT PENETRATIONS THROUGH ROOF TO BE FLASHED.
8. WATER LINES TO BE COPPER: TYPE L-INTERIOR, TYPE K-EXTERIOR, TYPE K-SOFT BELOW FLOOR. COMPRESSED AIR, VACUUM AND NITROGEN PIPE TO BE COPPER TYPE L.
9. WATER LINES TO BE INSULATED: HOT AND COLD WATER ALL SIZES 1/2" FIBERGLASS WITH CANVAS JACKET. PROVIDE COLD WATER PIPING WITH VAPOR RETARDANT BARRIER. (COLD WATER ALL SIZES 3/8" RUBATEX; 1/2" HOT WATER – 1/2" FIBERGLASS W/CANVAS JACKET; HOT WATER LARGER THAN 1/2" – 3/4" FIBERGLASS W/CANVAS JACKET) (COLD WATER ALL SIZES AND 1/2" HOT WATER – 1/2" FIBERGLASS W/CANVAS JACKET; HW LARGER THAN 1/2" – 1" FIBERGLASS W/CANVAS JACKET). INTERIOR STORM DRAINS TO BE INSULATED SAME AS COLD WATER PIPING. SEE SPECIFICATIONS FOR DETAILED INSULATION SPEC.
10. COVER ALL COPPER PIPING BELOW SLAB WITH "ARMAFLEX" TYPE INSULATION.
11. ALL PLUMBING FIXTURES AND EQUIPMENT, EXCEPT BATHTUBS AND SHOWERS, TO HAVE SHUT-OFF VALVES.
12. ALL BRANCH LINES TO HAVE SHUT-OFF VALVES.
13. ALL SHUT-OFF VALVES TO BE ACCESSIBLE. PROVIDE ACCESS DOORS WHERE NECESSARY.
14. VERIFY EXACT LOCATION OF ALL EXISTING UTILITIES.
15. COORDINATE WORK WITH ALL OTHER TRADES, OWNER AND MANUFACTURER'S RECOMMENDATIONS.
16. IF WATER PRESSURE EXCEEDS 80 LBS., WATER PRESSURE REDUCING VALVE SHALL BE INSTALLED IN WATER MAIN AFTER METER.
17. PROVIDE DIELECTRIC FITTINGS BETWEEN DISSIMILAR MATERIALS.
18. LEAD-FREE SOLDER TO BE USED ON DOMESTIC WATER PIPING JOINTS.
19. PLUMBER IS RESPONSIBLE FOR ALL LOW VOLTAGE WIRING FOR EQUIPMENT INSTALLED UNDER HIS CONTRACT. ELECTRICIAN IS RESPONSIBLE FOR POWER WIRING ONLY.
20. ANY DAMAGED INSULATION ON ANY EXISTING PIPING TO BE REUSED WITHIN THE AREA UNDER CONSTRUCTION SHALL BE REPAIRED WITH THE SAME TYPE OF INSULATION AS EXISTING. (EXCEPT ASBESTOS).
21. FILING OF PERMIT FOR PLUMBING WORK FOR THIS SPACE AS WELL AS PAYMENT OF ALL APPLICABLE FEES, AND PREPARATION OF ALL DRAWINGS REQUIRED FOR FILING PLANS AND PERMITS (WITH NYC DEPARTMENT OF BUILDINGS) IS INCLUDED. COPIES OF ALL EXECUTED PERMITS AND DRAWINGS SHALL BE FORWARDED TO ENGINEER FOR RECORD.
22. CONTRACTOR'S PRICE SHALL INCLUDE ALL HANGERS, INSERTS, TESTING, TOOLS, SUPERVISION, LABOR, COORDINATION, MATERIALS, EQUIPMENT, REMOVALS, CAPPING, PATCHING, DISPOSAL, AND OTHER NECESSARY ITEMS TO PROVIDE THE PLUMBING INSTALLATION.
23. MINOR DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION, OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE ENGINEER SHALL BE INCLUDED IN THE WORK AS IF IT WERE SPECIFIED OR INDICATED ON THE DRAWINGS.
24. BEFORE SUBMITTING BID, CONTRACTOR SHALL CONDUCT AN ON-SITE INSPECTION TO VERIFY CONDITIONS. ALL WORK SHOWN IS A SCHEMATIC REPRESENTATION OF DESIGN INTENT. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED AND SHALL BE PROVIDED AT NO ADDITIONAL COST. ANY MAJOR DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER.
25. CONTRACTOR SHALL VERIFY ALL INDICATED CONDITIONS BEFORE STARTING WORK AND REPORT ANY DISCREPANCIES TO THE ENGINEER. THE DRAWINGS REFLECT CONDITIONS REASONABLY INTERPRETED FROM THE EXISTING VISIBLE CONDITIONS, OR FROM DRAWINGS AND INFORMATION FURNISHED BY THE OWNER, BUT CANNOT BE GUARANTEED BY THE ENGINEER.
26. CONTRACTOR SHALL COORDINATE ALL WORK PROCEDURES WITH REQUIREMENTS OF ARCHITECT, ENGINEER, OWNER, CONSTRUCTION MANAGER, BUILDING MANAGEMENT, NEIGHBORHOOD ASSOCIATION, AND/OR LOCAL AUTHORITIES.
27. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UNION AND EQUAL OPPORTUNITY STANDARDS OR REQUIREMENTS WHERE APPLICABLE.
28. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING AND NEW CONDITIONS AND MATERIALS WITHIN THE PROPOSED CONSTRUCTION AREA. ANY DAMAGE CAUSED BY, OR DURING THE EXECUTION OF THE WORK IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED TO THE ENGINEER'S SATISFACTION.
29. EQUIPMENT, MATERIALS AND WORKMANSHIP FURNISHED UNDER THIS CONTRACT SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR FROM THE DATE OF COMPLETION OF THE PROJECT. THE CONTRACTOR SHALL KEEP THE WORK IN GOOD REPAIR FOR ONE YEAR AFTER THE DATE OF FINAL APPROVAL. THE CONTRACTOR SHALL AT HIS OWN EXPENSE, CORRECT AND REPAIR PROMPTLY ANY AND ALL BREAKS, FAILURES OR WEAR DUE TO FAULTY MATERIALS, WORKMANSHIP OR EQUIPMENT AND ALL SETTLEMENTS OF SURFACE THAT MAY OCCUR DURING THAT PERIOD.
30. USE EXISTING CONNECTIONS AT MAINS WHERE AVAILABLE FOR NEW BRANCH PIPING. LOCATE ALL RISERS AND PIPING BEFORE CONSTRUCTION COMMENCES AND TAKE CARE NOT TO DAMAGE SAME. ANY DAMAGE OCCURRING TO THE EXISTING PIPING WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
31. LOCATE ALL FIXTURES AS PER FINAL ARCHITECTURAL DRAWINGS AND OWNER'S DIRECTION.
32. ALL PIPING RUN IN CEILING TO BE RUN TIGHT TO STRUCTURE ABOVE.
33. CONTRACTOR SHALL VERIFY THAT FLOOR CONSTRUCTION WILL ALLOW RUNNING OF SANITARY PIPING IN FLOOR AS SHOWN.
34. ALL HAND FIXTURES AND FIXTURES REQUIRING VACUUM BREAKERS TO BE EQUIPPED WITH INTEGRAL VACUUM BREAKERS. FINISH TO MATCH FIXTURE; SEE FIXTURE SCHEDULE PROVIDED BY ARCHITECT.
35. ANY PENETRATION THROUGH FIRE RATED PARTITIONS, FLOORS OR CEILINGS, SHALL BE STEEL SLEEVED AND SEALED WITH 3M BRAND U.L. RATED FIRE BARRIER CAULK OR APPROVED EQUAL.
36. THE FOLLOWING SHALL BE PROVIDED WITH SEISMIC RESTRAINTS AS REQUIRED BY THE INTERNATIONAL BUILDING CODE (NEW YORK EDITION), SECTION 1621.3: ALL EQUIPMENT AND MACHINERY, ALL NEW PIPING 2-1/2" AND LARGER (1-1/4" AND LARGER IN BOILER/MECHANICAL ROOMS) WITH HANGERS GREATER THAN 12" IN LENGTH FROM THE TOP OF PIPE TO STRUCTURE. SEISMIC USE GROUP I (II, III) AND SEISMIC SITE CLASS D (C,B) SHALL BE USED FOR SEISMIC DESIGN CRITERIA, AS PROVIDED BY THE OWNER'S REPRESENTATIVE.
37. THIS CONTRACTOR IS RESPONSIBLE FOR ALL PAINTING ASSOCIATED WITH CUTTING AND PATCHING. ALL PAINTING IN AREAS WITH COMPLETE FINISH RENOVATIONS TO BE BY GENERAL CONTRACTOR.
38. CONTRACTOR IS RESPONSIBLE FOR PATCHING AND REPAIRING OF FLOORS, WALLS AND CEILINGS DAMAGED AS A RESULT OF THE PLUMBING INSTALLATION TO MATCH EXISTING OR NEW FINISHES AS REQUIRED.
39. ALL PIPING SHALL BE STENCILED TO IDENTIFY THEIR SERVICE AND DIRECTION OF FLOW. STENCILS SHALL HAVE PRESSURE SENSITIVE ADHESIVE BACKING.
40. WHEN THE WATER PIPING SYSTEM IS COMPLETE, THOROUGHLY FLUSH ALL DIRT, SEDIMENT, SOLDER, ETC., OUT OF THE SYSTEM, REMOVING ALL STRAINERS, VALVE STEM SEATS, ETC., REQUIRED TO ACCOMPLISH THE FLUSHING.
    A. REFILL ENTIRE POTABLE HOT AND COLD WATER SUPPLY SYSTEM WITH CHLORINE SOLUTION (HTH OLIN CHEMICAL CORP.) AT A STRENGTH TO MEET MINIMUM STANDARDS OF THE DEPARTMENT OF HEALTH, AND FOR A PERIOD OF RETENTION AS STIPULATED.
    B. THOROUGHLY FLUSH PIPING SYSTEM WITH FRESH WATER IMMEDIATELY PRIOR TO FINAL ACCEPTANCE.
41. REVIEW OF SHOP DRAWINGS BY ENGINEER SHALL BE LIMITED TO ONE REVIEW, AND A SECOND REVIEW OF ANY REQUIRED RESUBMITTED DATA. IF ENGINEER IS REQUIRED TO RETURN SHOP DRAWINGS FOR A THIRD (OR MORE) SUBMITTAL AND REVIEW, CONTRACTOR IS LIABLE FOR PAYING ENGINEER FOR TIME SPENT ON SUBSEQUENT REVIEWS AS PER THE ENGINEER'S STANDARD HOURLY RATE SCHEDULE.
42. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS FOR INSTALLATION, CONNECTION, EXTENSION OR MODIFICATIONS TO ALL UTILITY SERVICES WITH RESPECTIVE PROVIDERS.
43. INSTALL SLEEVES FOR ALL PIPES WHICH PASS THROUGH WALLS, FLOORS AND CEILINGS. WHERE PIPES ARE TO BE INSULATED, THE SLEEVE SHALL BE LARGE ENOUGH TO ACCOMMODATE INSULATION. SLEEVES SHALL BE FLUSH WITH FINISHED SURFACES AT BOTH ENDS. ON FINISHED SURFACES IN EXPOSED AREAS PROVIDE ESCUTCHEONS COMPATIBLE WITH FINISH. UNDERGROUND SLEEVES SHALL BE CAULKED AND WATERPROOFED WITH LEAD.
44. PROVIDE UNIONS IN ALL PIPING CONNECTIONS TO EQUIPMENT.
45. PROVIDE PIPE ANCHORS, GUIDES, AND EXPANSION JOINTS OR LOOPS IN ALL H.W. AND H.W.C. MAIN SUPPLY PIPING AND SEGMENTS OF SUCH PIPE THAT EXCEED 30'-0" IN LENGTH.
46. ALL PIPING INSTALLED ON THE ROOF SHALL BE SUPPORTED BY PILLOW BLOCK PIPE STANDS AS MANUFACTURED BY MIRO INDUSTRIES OR APPROVED EQUAL.
47. SAFETY ASPECTS OF THE WORK ARE EXCLUSIVELY THE RESPONSIBILITY OF THE CONTRACTOR.
48. ALL MANNER OF DERRICKS, MACHINERY, SCAFFOLDING, AND TOOLS OF EVERY DESCRIPTION REQUIRED FOR THE PROPER EXECUTION OF THE WORK SHALL BE PROVIDED AND MAINTAINED BY THE CONTRACTOR. THESE FACILITIES SHALL BE FURNISHED IN ACCORDANCE WITH ALL SAFETY CODES. CONTRACTOR SHALL REMOVE THEM PROMPTLY FROM THE SITE WHEN THEY ARE NO LONGER REQUIRED. RIGGING AND HOISTING IS ALSO THE RESPONSIBILITY OF THE CONTRACTOR. THE CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY, AND HOLD THE DESIGN PROFESSIONAL FROM ANY AND ALL LIABILITY, REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.
49. RECORD AS-BUILT DRAWINGS SHALL BE SUPPLIED AFTER COMPLETION OF THE WORK SHOWING ANY ALTERATIONS, ADDITIONS AND/OR DELETIONS TO THE SYSTEM INSTALLED.
50. IF AN ARCHITECT IS THE PRIME PROFESSIONAL ON THE PROJECT, REFERENCES TO "ENGINEER" SHALL APPLY TO ARCHITECT.

PLUMBING SYMBOLS

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
DOMESTIC COLD WATER PIPING		GAS COCK (SHUT-OFF VALVE)	
DOMESTIC HOT WATER PIPING		GAS PRESSURE REGULATOR	
DOMESTIC HOT WATER RETURN SYSTEM		BALANCING AND SHUT-OFF VALVES	
NATURAL GAS PIPING	G	PIPE DOWN	
DRAINAGE PIPING (ABOVE GRADE)	DR	PIPE UP	
DRAINAGE PIPING (BELOW GRADE)	DR	FLOW ARROW	
VENT PIPING		HOSE BIBB ELEV. (FROST PROOF WHERE NOTED "F.P.")	HB-1
FLOOR DRAIN (FD-1)	FD-1	HOSE BIBB PLAN (FROST PROOF WHERE NOTED "F.P.")	HB-1
GATE VALVE		PITCH DIRECTION OF PIPE	
GLOBE VALVE		THERMOMETER	
CHECK VALVE		PRESSURE GAUGE	
BALL VALVE		NATURAL GAS METER	G
MIXING VALVE	WHA	DOMESTIC WATER METER	W
WATER HAMMER ARRESTER		REDUCED PRESSURE BACKFLOW DEVICE	

PLUMBING ABBREVIATIONS

ABBR.	DEFINITION	ABBR.	DEFINITION
AFF	ABOVE FINISHED FLOOR	IN	INCH
APPROX	APPROXIMATE	KC	KITCHEN CONTRACTOR
ARCH	ARCHITECTURAL	KHz	KILOHERTZ
&	AND	Kw	KILOWATT
@	AT		
		LBS	POUNDS
BFF	BELOW FINISHED FLOOR	LF	LINEAR FEET
BFP	BACKFLOW PREVENTER		
BLDG	BUILDING	MAX	MAXIMUM
		MBH	THOUSAND BTU PER HOUR
CLG	CEILING	MFR	MANUFACTURER
CO	CLEANOUT	MIN	MINIMUM
CODP	CLEANOUT W/DECK PLATE		
COG	CLEANOUT TO GRADE	#, NO.	NUMBER
CONN	CONNECTION	NTS	NOT TO SCALE
CONT	CONTINUATION		
CW	COLD WATER	PC	PLUMBING CONTRACTOR
		PD	PRESSURE DROP
°F	DEGREES FAHRENHEIT	%	PERCENT
DR	DRAIN	Ph	PHASE
DIA, ø	DIAMETER	PLBG	PLUMBING
DET	DETAIL	PSIG	POUND PER SQUARE INCH (GAUGE)
DN	DOWN		
DWG	DRAWING	QTY	QUANTITY
DWH	DOMESTIC WATER HEATER		
		RD	ROOF DRAIN
EQUIP	EQUIPMENT	RM	ROOM
EA	EACH	REQ	REQUIRED
EC	ELECTRICAL CONTRACTOR		
ELEC	ELECTRICAL	SAN., S.	SANITARY
EL, ELEV	ELEVATION	SQ FT	SQUARE FOOT
EXIST, (E)	EXISTING	SPEC	SPECIFICATIONS
		SRV	SAFETY RELIEF VALVE
F	FAHRENHEIT	SHT	SHEET
FAI	FRESH AIR INTAKE	SYS	SYSTEM
FD	FLOOR DRAIN		
FL	FLOOR	TEMP, TF	TEMPERATURE
		TYP	TYPICAL
G	NATURAL GAS		
GAL	GALLON	UP TR	UP THRU ROOF
GC	GENERAL CONTRACTOR		
GPM	GALLONS PER MINUTE	V/PH/Hz	VOLTS/PHASE/FREQUENCY (HERTZ)
GPH	GALLONS PER HOUR	VTR	VENT THRU ROOF
HW	HOT WATER	W	WASTE
HWR	HOT WATER RECIRCULATING	WCO	WALL CLEANOUT
HTG	HEATING	WM	WATER METER
HTR	HEATER	WHA	WATER HAMMER ARRESTER
Hz	HERTZ (FREQUENCY)	W/	WITH

NOTE: ALL SYMBOLS AND ABBREVIATIONS LISTED HEREIN ARE INTENDED FOR GENERALREFERENCE ONLY THEREFORE NOT ALL ITEMS ARE ACTUALLY IMPLICATED ON THESE DOCUMENTS.

FIXTURE CONNECTION SCHEDULE

FIXTURE TYPE	FIXTURE NO	SERVICE CONNECTION S	V	CW	HW	REMARKS
WATER CLOSET						
FLOOR MOUNTED	P-1	4"	2"	1/2"		AMERICAN STANDARD , CADET M#2498.012, 1.6 GPF, 16" AFF
FLOOR MOUNTED	P-1A	4"	2"	1/2"		ADA
LAVATORY						
COUTER TOP	P-2	1 1/2"	1 1/2"	1/2"	1/2"	AMERICAN STANDARD , AQUALYN M#0476.028, 1.6 GPF, 17" AFF
WALL MOUNTED	P-2A	1 1/2"	1 1/2"	1/2"	1/2"	
TUB						
BATH TUB-3	P-3	2"	2"	1/2"	1/2"	AMERICAN STANDARD, PRNCETON M#2390.2012CH, W/SHOWER VALVE
						FAUCET M#2000.502, BARRIER FREE
KITCHEN SINK						
COUNTER TOP	P-4A	2"	2"	1/2"	1/2"	SINGLE-COMPARTMENT SINK, MOEN M# 22126
					1/2"	PROVIDE 1/2" H.W. & 1-1/2" SAN.
						TO DISHWASHER, 1/2" C.W. TO REF.
						ICE MAKER & 3/4" G. TO RANGE
CLOTHES						
WASHER	P-5	2"	2"	1/2"	1/2"	-
FLOOR DRAIN	P-9	3"	2"			ZURN M# 507
ROOF DRAIN	P-10	3"				ZURN
PARK.DECK DRAIN	P-11	4"				ZURN
HOSE BIBBS						
WALL HUNG	P-6A				3/4"	NON-FREEZE "J.R. SMITH" NO. 5509QT

COORDINATE WITH ARCHITECTURAL PLANS AND SPECIFICATION FOR FIXTURE TYPE AND MOUNTING HEIGHT

HOT WATER HEATER SCHEDULE

NO.	STORAGE GALLONS	RECOVERY GPH	TEMP. RISE °F	INPUT BTU/HR	ELECTRICAL V-ø-Hz	MANUF./MODEL	REMARKS
HWH-1,2,3,4	119	640	90	499,900	120/1/60	A.O. SMITH-BTH 500A	

SUMP PUMP SCHEDULE

TAG	GPM	HD FT.	RPM	LOCATION	MFR.	MODEL	SIZE	ELECTRICAL HP	ELECTRICAL V-ø-Hz	COMMENTS
SP-1,2	10	15	1750	ELEVATOR PIT	STANCOR-INC	SP-50	2"	1/2	115-1-60	OIL-MINDER PUMP WITH CONTROLER & REMOTE ALARM PANEL

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CHK BY:	CO/MN

TITLE

PLUMBING NOTES
AND SCHEDULES

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P-200.00

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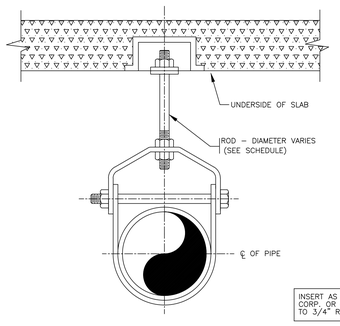
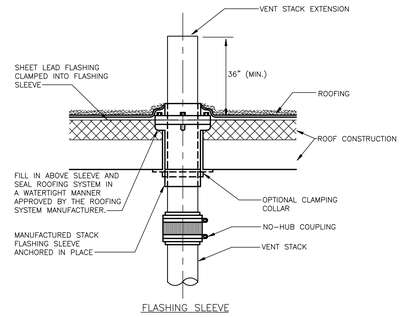


PIPE SIZE IN	PIPE ROD IN
1/2 – 2	3/8
2 1/2 – 3	1/2
4 – 5	5/8
6	3/4
8 – 12	7/8

INSERT AS MFG. BY F & S MANUFACTURING CORP. OR APPROVED EQUAL FIG. N. 80A–3/8" TO 3/4" ROD FIG. N. 80B–7/8" DIA. ROD

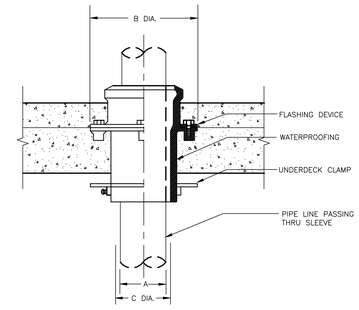
CLEVIS HANGER DETAIL
NOT TO SCALE



FLASHING SLEEVE

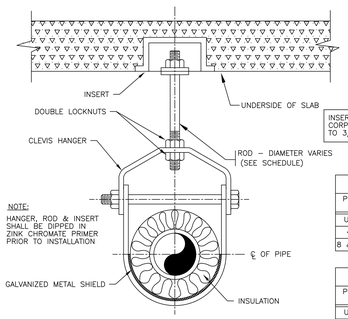
NOTE:
FINAL VENT STACK OUTLET LOCATION TO BE 15 FEET (MIN.) AWAY FROM ANY OUTSIDE VENTILATION AIR INTAKE LOCATION, 10 FEET (MIN.) FROM ANY WALL OR STRUCTURE AND 3 (MIN.) FEET ABOVE STRUCTURE.

VENT THRU ROOF
NOT TO SCALE



A	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12
B	5	5	5	6 3/4	6 3/4	6 3/4	7 1/2	7 1/2	8 1/2	9 1/2	10 1/2	13 1/2	15 1/2	17 1/2
C	1 1/8	1 5/16	1 9/16	1 15/16	2 1/8	2 7/8	3 1/8	3 7/8	4 7/8	5 7/8	6 7/8	9	11 1/8	13 1/8

STACK OR WALL SLEEVE
NOT TO SCALE



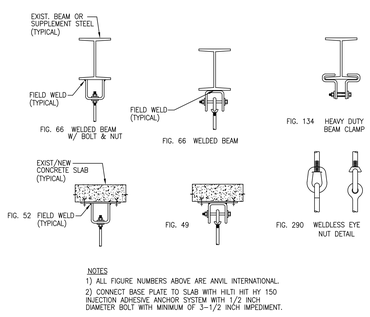
PIPE SIZE IN	PIPE ROD IN
1/2 – 2	3/8
2 1/2 – 3	1/2
4 – 5	5/8
6	3/4
8 – 12	7/8

INSERT AS MFG. BY F & S MANUFACTURING CORP. OR APPROVED EQUAL FIG. N. 80A–3/8" TO 3/4" ROD FIG. N. 80B–7/8" DIA. ROD

WITH INCOMPRESSIBLE INSULATING BLOCK AT HANGER		
PIPE SIZE IN	SHIELD LENGTH IN	SHIELD THICKNESS USSG
UP TO 3	6	18
4 TO 6	8	16
8 & LARGER	12	16

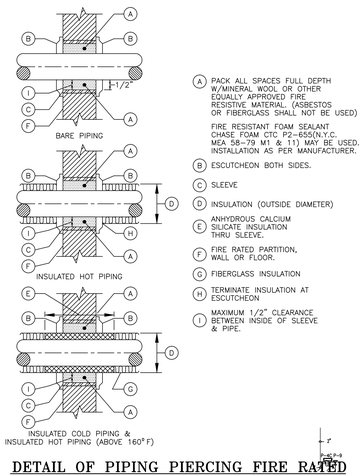
WITHOUT INCOMPRESSIBLE INSULATING BLOCK AT HANGER		
PIPE SIZE IN	SHIELD LENGTH IN	SHIELD THICKNESS USSG
UP TO 3	12	18
4	15	16
5	18	16
6	21	16
8 & LARGER	24	14

TYPICAL INSULATED PIPE SUPPORT
NOT TO SCALE



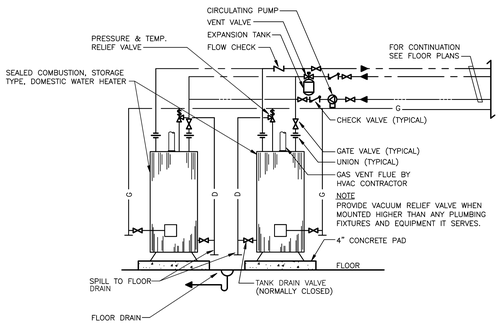
NOTES
1) ALL FIGURE NUMBERS ABOVE ARE ANVIL INTERNATIONAL.
2) CONNECT BASE PLATE TO SLAB WITH HILTI HIT HY 150 INJECTION ADHESIVE ANCHOR SYSTEM WITH 1/2 INCH DIAMETER BOLT WITH MINIMUM OF 3-1/2 INCH IMPEDIMENT.

ACCEPTABLE ATTACHMENT TO STRUCTURE DETAIL
NOT TO SCALE

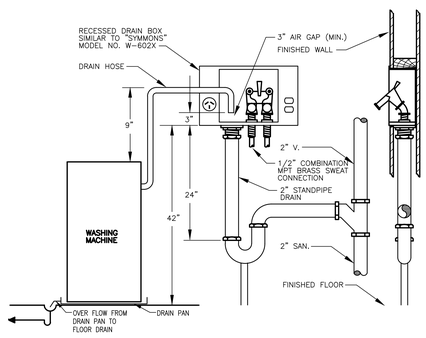


- (A) PACK ALL SPACES FULL DEPTH W/MINERAL WOOL OR OTHER EQUALLY APPROVED FIRE RESISTIVE MATERIAL. (ASBESTOS OR FIBERGLASS SHALL NOT BE USED)
  FIRE RESISTANT FOAM SEALANT CHASE FOAM CTC P2-655(N.Y.C. MEA 58-79 M1 & 11) MAY BE USED. INSTALLATION AS PER MANUFACTURER.
- (B) ESCUTCHEON BOTH SIDES.
- (C) SLEEVE
- (D) INSULATION (OUTSIDE DIAMETER)
- (E) ANHYDROUS CALCIUM SILICATE INSULATION THRU SLEEVE.
- (F) FIRE RATED PARTITION, WALL OR FLOOR.
- (G) FIBERGLASS INSULATION
- (H) TERMINATE INSULATION AT ESCUTCHEON
- (I) MAXIMUM 1/2" CLEARANCE BETWEEN INSIDE OF SLEEVE & PIPE.

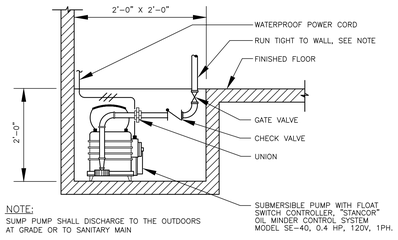
DETAIL OF PIPING PIERCING FIRE RATED PARTITIONS, WALLS & FLOORS.
NOT TO SCALE



GAS-FIRED DOMESTIC WATER HEATER WITH CIRCULATING PUMP
NOT TO SCALE



WASHING MACHINE SUPPLY & DRAIN UNIT
NOT TO SCALE



NOTE:
SUMP PUMP SHALL DISCHARGE TO THE OUTDOORS AT GRADE OR TO SANITARY MAIN

SUMP PUMP IN SHAFT
NOT TO SCALE

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DETAILS

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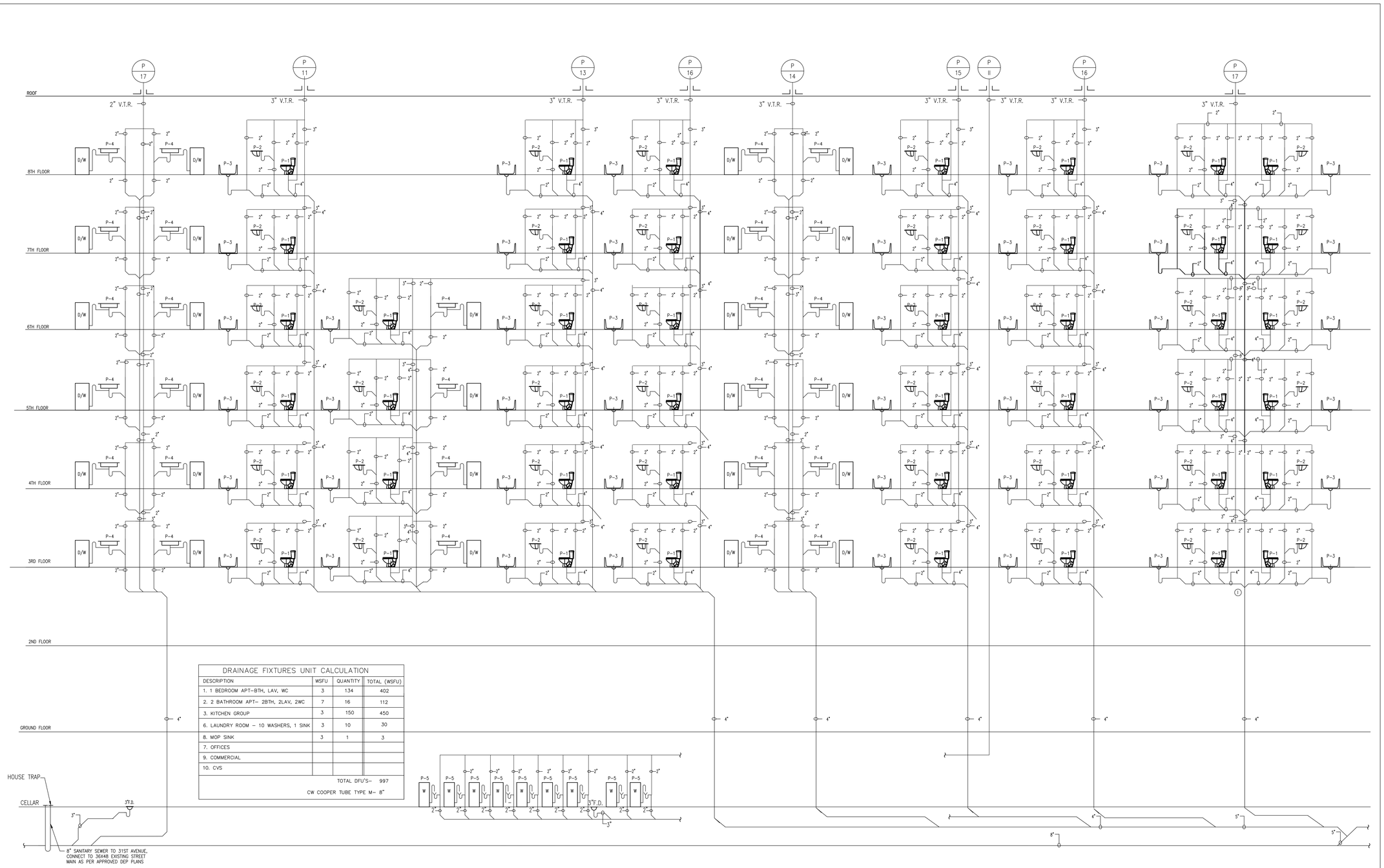

DRAINAGE FIXTURES UNIT CALCULATION

DESCRIPTION	WSFU	QUANTITY	TOTAL (WSFU)
1. 1 BEDROOM APT–BTH, LAV, WC	3	134	402
2. 2 BATHROOM APT– 2BTH, 2LAV, 2WC	7	16	112
3. KITCHEN GROUP	3	150	450
6. LAUNDRY ROOM – 10 WASHERS, 1 SINK	3	10	30
8. MOP SINK	3	1	3
7. OFFICES			
9. COMMERCIAL			
10. CVS			
		TOTAL DFU'S=	997
		CW COOPER TUBE TYPE M=	8"

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DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/SJ
CHK BY:	CC/MN

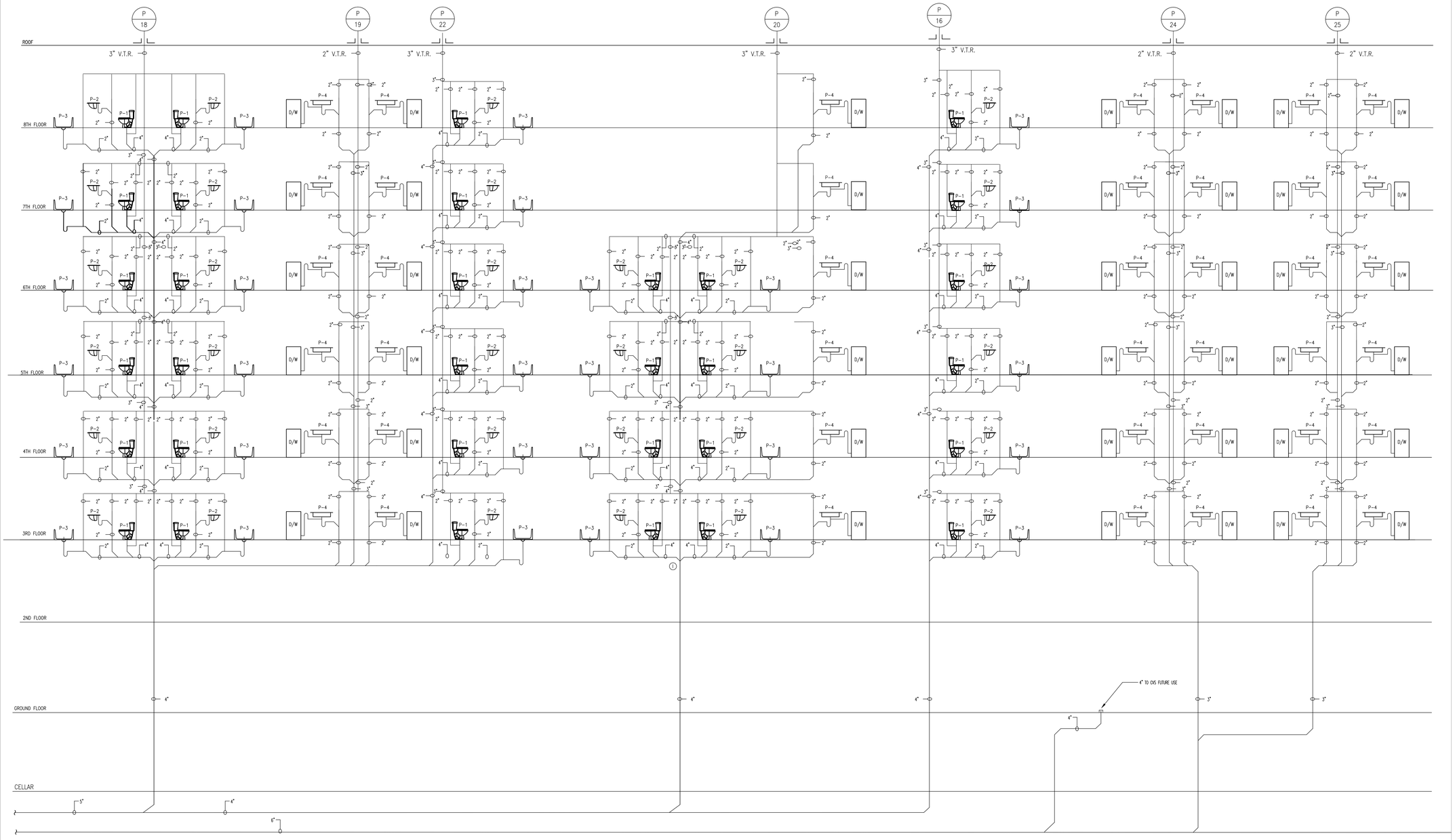
TITLE

SANITARY RISER
DIAGRAM 1

DWG NO:

P-400.00

DOB JOB NUMBER



PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR PROGRESS	4/27/2015
3	FOR PROGRESS	5/09/2015
4	COMMISSIONER REVIEW	5/19/2015

ARCHITECT:

ADG Architecture & Design P.C.
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TITLE

SANITARY RISER
DIAGRAM 2

DWG NO:

P-401.00

DOB JOB NUMBER

PROJECT/ CLIENT:

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Queens, New York

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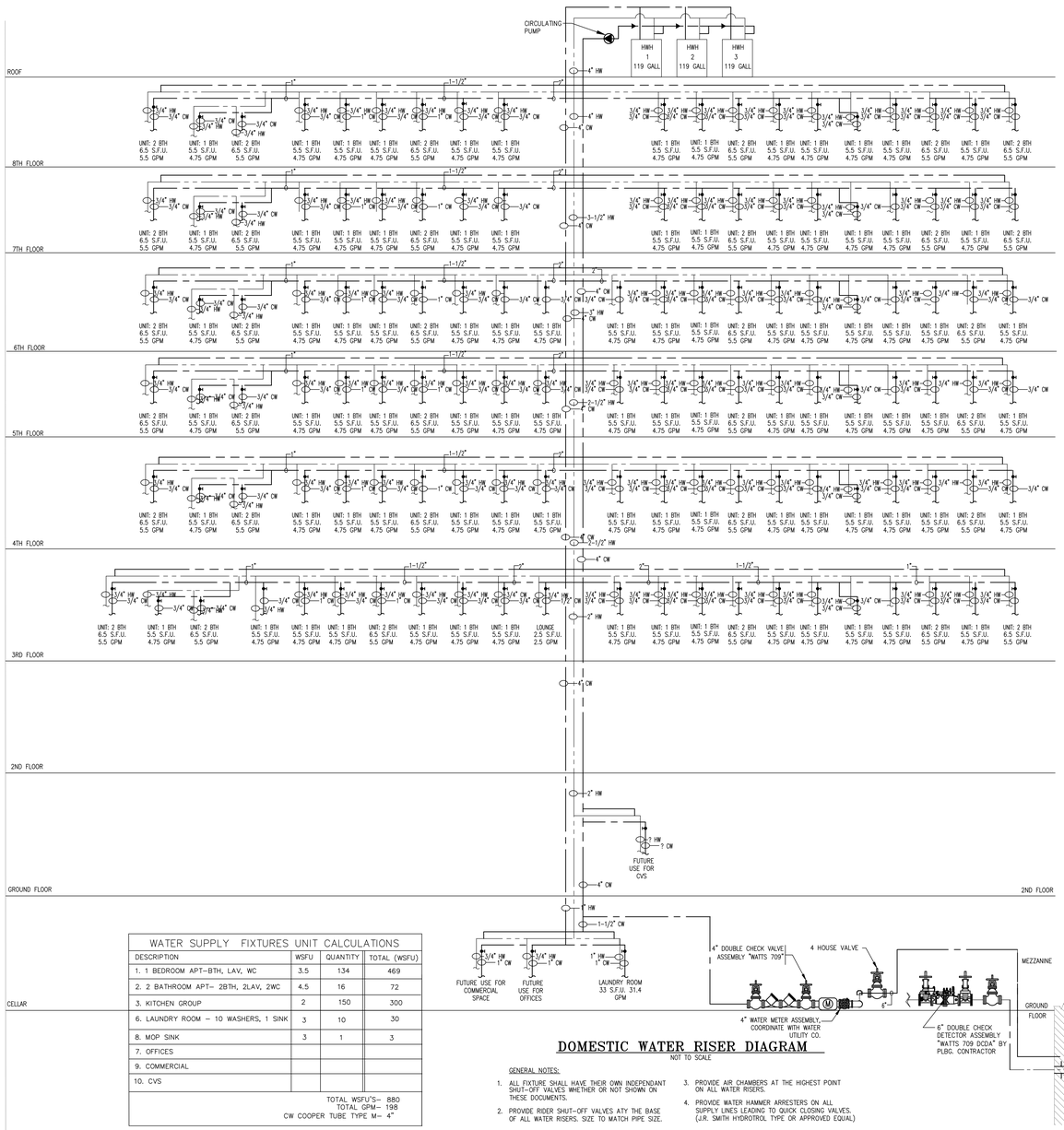
TITLE

SANITARY RISER
DIAGRAM 3

DWG NO:

P-402.00

DOB JOB NUMBER



DOMESTIC WATER RISER DIAGRAM

NOT TO SCALE

WATER SUPPLY FIXTURES UNIT CALCULATIONS			
DESCRIPTION	WSFU	QUANTITY	TOTAL (WSFU)
1. 1 BEDROOM APT–BTH, LAV, WC	3.5	134	469
2. 2 BATHROOM APT– 2BTH, 2LAV, 2WC	4.5	16	72
3. KITCHEN GROUP	2	150	300
6. LAUNDRY ROOM – 10 WASHERS, 1 SINK	3	10	30
8. MOP SINK	3	1	3
7. OFFICES			
9. COMMERCIAL			
10. CVS			
TOTAL WSFU'S– 880 TOTAL GPM– 198 CW COOPER TUBE TYPE M– 4"			

GENERAL NOTES:

1. ALL FIXTURE SHALL HAVE THEIR OWN INDEPENDANT SHUT–OFF VALVES WHETHER OR NOT SHOWN ON THESE DOCUMENTS.
2. PROVIDE RIDER SHUT–OFF VALVES ATY THE BASE OF ALL WATER RISERS. SIZE TO MATCH PIPE SIZE.
3. PROVIDE AIR CHAMBERS AT THE HIGHEST POINT ON ALL WATER RISERS.
4. PROVIDE WATER HAMMER ARRESTERS ON ALL SUPPLY LINES LEADING TO QUICK CLOSING VALVES. (J.R. SMITH HYDROTROL TYPE OR APPROVED EQUAL)

PROJECT/ CLIENT:

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TITLE

DOMESTIC WATER RISER DIAGRAM

DWG NO:

P-403.00

DOB JOB NUMBER

GAS RISER DIAGRAM

NOT TO SCALE

GAS PIPE SIZING 402.4(2):

1. PIPE LENGTH = 500 FT
2. INLET PRESSURE = LESS THAN 2 PSI
3. PRESSURE DROP = 0.5 INCH WATER COLUMN
4. SPECIFIC GRAVITY = 0.6

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TITLE

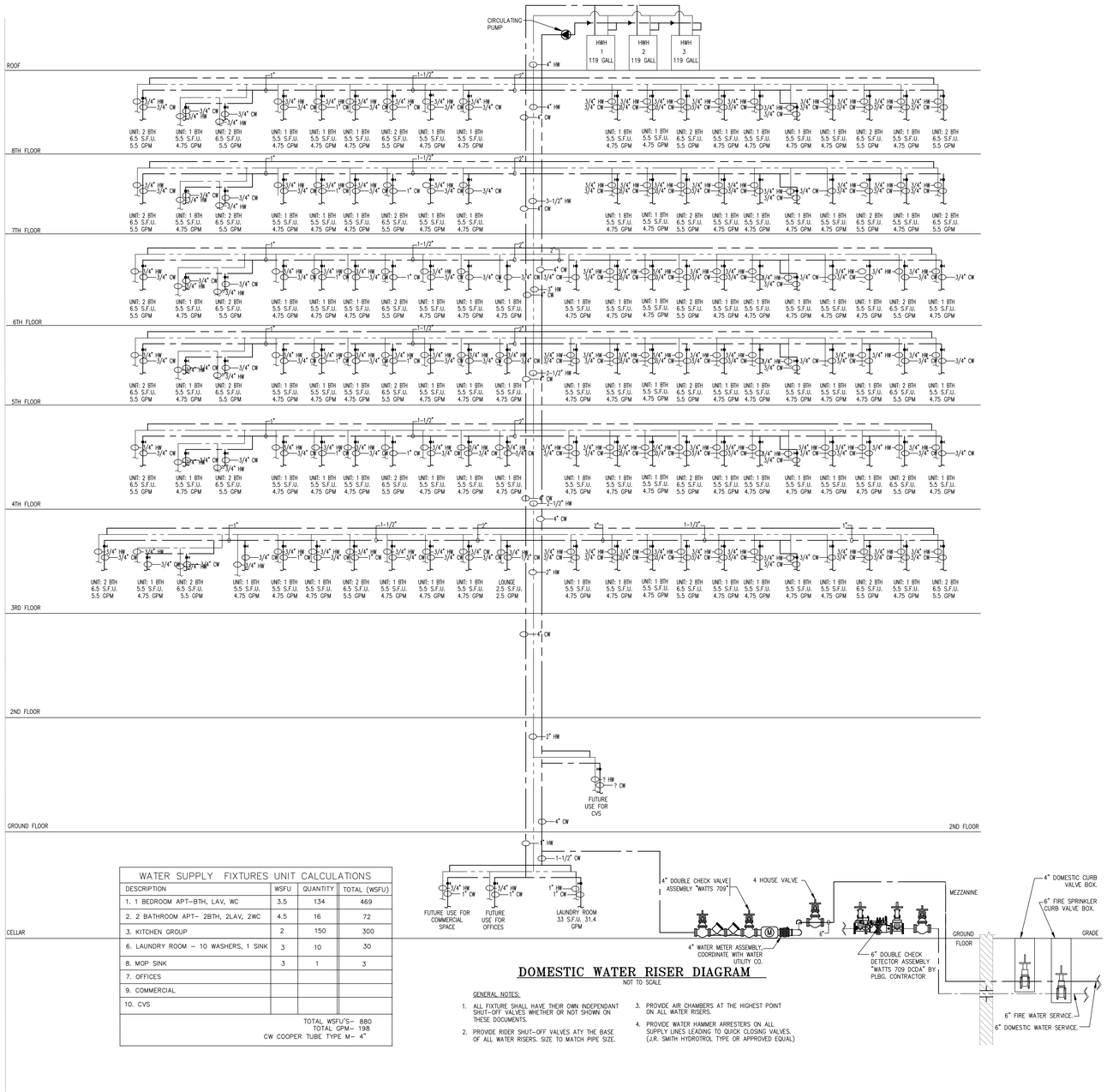
GAS RISER
DIAGRAM

DWG NO:

P-404.00

29 of 31

DOB JOB NUMBER



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TOTAL WSFU'S– 880
TOTAL GPM– 198
CW COOPER TUBE TYPE M– 4"

DOMESTIC WATER RISER DIAGRAM

NOT TO SCALE

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TITLE

DOMESTIC WATER RISER DIAGRAM

DWG NO:

P-405.00

DOB JOB NUMBER

PLUMBING SPECIFICATIONS

PART I – GENERAL

1.01 DESCRIPTION

A. THE PLUMBING CONTRACTOR SHALL BE A LICENSED INSTALLER OF PLUMBING SYSTEMS IN THE CITY OF NEW YORK.

B. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK CITY BUILDING CODE OF THE LATEST EDITION.

C. THE ARCHITECT'S SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

1.02 VERIFYING CONDITIONS

A. EXAMINE ALL DRAWINGS COVERING THE WORK OF THIS SECTION AND REFER TO HOME OTHER DRAWINGS, INCLUDING ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS, WHICH MAY AFFECT THE WORK OF THIS SECTION OR REQUIRE COORDINATION BY SAME.

B. BEFORE STARTING ANY WORK, EXAMINE AND THOROUGHLY CHECK DRAWINGS, DIMENSIONS, SPECIFICATIONS, AND ADJOINING OR UNDERLYING CONDITIONS IN WHICH THE WORK OF THIS SECTION IS TO BE PERFORMED.

C. REPORT, IN WRITING, TO THE ARCHITECT ANY AND ALL CONDITIONS WHICH MAY INTERFERE WITH OR OTHERWISE AFFECT OR PREVENT THE PROPER EXECUTION AND COMPLETION OF THE WORK OF THIS SECTION. DO NOT COMMENCE WORK UNTIL ANY AND ALL SUCH CONDITIONS HAVE BEEN CORRECTED BY THE TRADE OR TRADES RESPONSIBLE.

D. FAILURE TO NOTIFY THE ARCHITECT OF UNSATISFACTORY CONDITIONS WILL BE CONSTRUED AS AN ACCEPTANCE OF ALL CONDITIONS.

E. THE EXECUTION OF THE WORK OF THIS SECTION CONSTITUTES ACCEPTANCE OF THE BASE OR ADJOINING WORK AND OTHER CONDITIONS AS BEING SATISFACTORY IN EVERY RESPECT AND LATER CLAIMS OF DEFECTS IN SUCH CASES WILL NOT BE ALLOWED.

F. THE DRAWINGS INDICATE AND THE SPECIFICATIONS DESCRIBE THE GENERAL ARRANGEMENT AND THE APPROXIMATE LOCATION OF EQUIPMENT, FIXTURES, PIPING, ETC. EXACT LOCATIONS MAY BE ADJUSTED IN THE FIELD TO SUIT EXISTING CONDITIONS.

G. THE CONTRACTOR SHALL, WITHOUT EXTRA COST TO THE OWNER, MAKE ALL REASONABLE MODIFICATIONS IN THE WORK AS MAY BE REQUIRED TO PREVENT CONFLICT WITH THE WORK OF OTHER TRADES, OR FOR THE PROPER INSTALLATION OF THE WORK.

1.03 SHOP DRAWINGS AND SAMPLES

A. SUBMIT SHOP DRAWINGS AND SAMPLES WITH ALL DETAILS AND INFORMATION, AS REQUIRED FOR THE WORK OF THIS SECTION AND IN ACCORDANCE WITH GENERAL CONDITIONS OR AS REQUESTED BY THE ARCHITECT OR ENGINEER.

B. SUBMIT FOR APPROVAL; SAMPLES OF MATERIALS, AFFIDAVITS, CERTIFICATES, ETC., AS REQUIRED BY THE GENERAL CONDITIONS OR AS REQUESTED BY THE ARCHITECT OR ENGINEER.

C. SUBMIT FOR APPROVAL SHOP DRAWINGS AND CATALOG CUTS OF THE FOLLOWING:

1. PLUMBING FIXTURES AND EQUIPMENT
2. VALVES
3. PIPE AND FITTINGS
4. HANGERS
5. INSULATION
6. WATER HEATER
7. VACUUM BREAKERS
8. PIPING LAYOUT
9. GREASE INTERCEPTORS
10. BACKFLOW PREVENTION DEVICES.

1.04 AS-BUILT DRAWINGS

A. PREPARE AND SUBMIT "AS-BUILT" DRAWINGS AT THE COMPLETION OF THE PROJECT.

1.05 TESTS

A. THE PLUMBING SYSTEMS SHALL BE INSPECTED AND TESTED IN ACCORDANCE WITH REQUIREMENTS OF THE BOCA NATIONAL BUILDING CODE 1996.

1.06 CLEANING

A. ALL PIPING, FIXTURES, EQUIPMENT, ETC., INSTALLED UNDER THIS CONTRACT SHALL BE THOROUGHLY CLEANED AND PROTECTED DURING CONSTRUCTION AND PUT INTO FIRST-CLASS OPERATING CONDITION BEFORE BEING OFFERED FOR ACCEPTANCE.

B. UPON COMPLETION OF ALL WORK, THE PLUMBING CONTRACTOR SHALL THOROUGHLY CLEAN ALL PLUMBING FIXTURES, SINKS AND TRIM AND LEAVE ALL ITEMS READY FOR USE BY THE OWNER. ALL FLOOR DRAINS SHALL BE CLEANED AND MANUFACTURERS PROTECTIVE COVERINGS SHALL BE REMOVED.

1.07 LAWS, ORDINANCES, ETC.

A. THE WORK OF THIS CONTRACTOR MUST COMPLY WITH ALL LOCAL LAWS, ORDINANCES AND RULES. THIS CONTRACTOR MUST HAVE THE NECESSARY INSPECTIONS MADE BY THESE AUTHORITIES, PAY ALL THE REQUIRED FEES, AND FURNISH THE OWNER WITH CERTIFICATES OF APPROVAL BEFORE FINAL PAYMENT ON THIS CONTRACT IS MADE. HE SHALL APPLY, PAY FOR, AND OBTAIN ALL PERMITS.

1.08 SUPERVISION

A. THIS CONTRACTOR SHALL HAVE A COMPETENT FOREMAN IN RESPONSIBLE CHARGE OF THE WORK WHO SHALL BE ON THE SITE DURING THE INSTALLATION OF THE MATERIAL FURNISHED UNDER THIS SPECIFICATION UNTIL SAME HAS BEEN PUT IN COMPLETE OPERATIVE CONDITION AND ACCEPTED BY THE OWNER.

1.09 CUTTING AND PATCHING

A. THIS CONTRACTOR SHALL DO ALL CUTTING AND PATCHING FOR PLUMBING WORK AND SHALL COORDINATE SAME WITH ALL OTHER TRADES. ALL CUTTING SHALL BE SUBJECT TO TRADE REGULATIONS. NO CUTTING OF STRUCTURAL MEMBERS SHALL BE DONE WITHOUT THE APPROVAL OF THE ARCHITECT.

PART 2 – MATERIAL

2.01 GENERAL

A. THE PLUMBING SYSTEMS SHALL BE COMPLETE WITH ALL PIPES, FITTINGS, TRAPS, VALVES, HANGERS AND SUPPORTS, INSULATION, ETC. AND ALL OTHER ITEMS NECESSARY FOR COMPLETE, SATISFACTORY OPERATING AND APPROVED TYPE SYSTEM.

B. ALL PIPE FITTINGS, VALVES, FIXTURES, HANGERS, SUPPORTS INSULATION, ETC. SHALL CONFORM TO THE REQUIREMENTS OF THE NEW YORK CITY BUILDING CODE.

2.02 SANITARY WASTE AND VENT PIPE AND FITTINGS

A. ALL ABOVE GROUND SOIL, WASTE, AND VENT PIPING SHALL BE "NO-HUB" SERVICE WEIGHT CAST IRON PIPE AND FITTINGS EXCEPT AS NOTED OTHERWISE.

B. ALL JOINTS AND CONNECTIONS SHALL BE ASSEMBLED BY MEANS OF SEALING SLEEVES AND STAINLESS STEEL CLAMPS AND SHIELD ASSEMBLIES.

C. PIPE AND FITTINGS SHALL BE CENTRAL FOUNDRY COMPANY, TYLER PIPE COMPANY, EAST PENN FOUNDRY OR APPROVED EQUAL.

D. EXPOSED PIPE AT FIXTURES TO BE CHROME PLATED.

2.03 SANITARY WASTE, VENT & STORM PIPE & FITTINGS – UNDERGROUND AND WHERE INDICATED

A. ALL UNDERGROUND SOIL, WASTE, VENT AND LEADER PIPING SHALL BE APPROVED HUB AND SPIGOT EXTRA HEAVY CAST IRON SOIL PIPE AND FITTINGS.

B. ALL JOINTS AND CONNECTION SHALL BE MADE BY THE USE OF DOUBLE-SEAL NEOPRENE CAST IRON SOIL PIPE GASKETS, ALABAMA PIPE COMPANY "DUAL-TITE" OR APPROVED EQUAL.

C. PIPE AND FITTINGS SHALL BE CENTRAL FOUNDRY COMPANY, ALABAMA PIPE COMPANY, EAST PENN FOUNDRY, OR APPROVED OTHER.

2.04 COLD WATER AND HOT WATER PIPE AND FITTINGS

A. DOMESTIC COLD WATER, HOT WATER AND HOT WATER CIRCULATION PIPE SHALL BE:

1. PIPING WITH DIAMETER UP TO 4": TYPE "L", HARD DRAWN, COPPER TUBING WITH WROUGHT BRONZE FITTINGS FOR 150 POUND WATER WORKING PRESSURE AND WITH JOINTS OF 95-5 (TIN-ANTIMONY) SOLDER. NO SOLDER CONTAINING LEAD IS PERMITTED.

2. PIPING WITH DIAMETER 5" AND LARGER: GALVANIZED STEEL PIPE, SCHEDULE 40 WITH MAKER'S NAME TOILED INTO EACH LENGTH. FITTINGS – THREADED, GALVANIZED MALLEABLE IRON WITH FLAT BAND STEAM PATTERN.

B. ALL SUPPLIES THROUGH WALLS TO FIXTURES SHALL BE 85% RED BRASS WITH THREADED BRASS FITTINGS. ALL EXPOSED PIPING IN FINISHED SPACES SHALL BE CHROME PLATED 85% RED BRASS.

2.05 NATURAL GAS PIPE AND FITTINGS

A. GAS PIPING INSIDE THE BUILDING SHALL BE STANDARD WEIGHT (SCHEDULE 40) BLACK STEEL PIPE, OUTSIDE THE BUILDING SHALL BE EXTRA HEAVY, SCHEDULE 80 BLACK STEEL PIPE. GAS CONTROL, VENT AND RELIEF PIPING SHALL BE EXTRA HEAVY, SCHEDULE 80 BLACK STEEL PIPE. STEEL PIPE SHALL BE SEAMLESS TYPE S AND SHALL BE MADE IN ACCORDANCE WITH THE CURRENT EDITION OF THE ASTM A53, GRADE B SPECIFICATIONS.

1. IN NO CASE SHALL ANY GAS PIPE BE LESS THAN 3/4". THE SIZES OF PIPE INDICATE NOMINAL PIPE SIZE.

2. GAS DISTRIBUTION PIPING FOR SYSTEMS OPERATING AT 1/2 PSIG OR LESS SHALL BE IN ACCORDANCE WITH NEW YORK CITY DEPARTMENT OF BUILDINGS REQUIREMENTS AND ANSI Z223.1-1974 (NFPA-54), NATIONAL FUEL CODE (AS MODIFIED BY THE NEW YORK CITY BUILDING CODE).

3. GAS DISTRIBUTION PIPING SYSTEMS HAVING A GAS PRESSURE ABOVE 1/2 PSIG SHALL CONFORM TO ANSI B31.2-1968, FUEL GAS PIPING AND REQUIREMENTS OF THE NEW YORK CITY DEPARTMENT OF BUILDINGS.

4. MATERIALS USED IN GAS SERVICE AND METER PIPING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS AS SPECIFIED BY THE GAS UTILITY COMPANY PROVIDING THE SERVICES, AND OF THE NEW YORK CITY DEPARTMENT OF BUILDINGS.

5. PIPING JOINTS FOR GAS DISTRIBUTION PIPING:

A. PIPING AT 1/2 PSIG (14" W.C.) AND LESS:

1) 4" AND SMALLER.....SCREWED
2) OVER 4".....WELDED

B. PIPING OVER 1/2 PSIG (14" W.C.) TO AND INCLUDING 3 PSIG:

1) UNDER 4" .....SCREWED
2) 4" AND LARGER.....WELDED

C. PIPING OVER 3 PSIG:

1) ALL PIPING .....WELDED

6. ALL WELDED GAS DISTRIBUTION PIPING SHALL BE SUBJECT TO CONTROLLED INSPECTION.

7. ALL GAS DISTRIBUTION AND METER PIPING OVER 3 PSIG SHALL BE BUTT WELDED, SUBJECT TO CONTROLLED INSPECTION AND ALL WELDS SHALL BE RADIOGRAPHED.

B. FITTINGS

1. FITTINGS FOR SCREWED GAS PIPING SHALL BE 150 LBS. BLACK MALLEABLE IRON FITTINGS, CONFORMING TO ASTM SPECIFICATIONS A-197, LATEST EDITION.

2. COMPRESSION TYPE FITTINGS AND STEEL WELDING FITTINGS SHALL BE AS SPECIFIED AND APPROVED BY THE GAS COMPANY.

3. STEEL BUTT WELDING FITTINGS SHALL CONFORM TO ANSI B16.9 REQUIREMENTS.

4. FITTING FOR CONTROL, VENT AND RELIEF PIPING SHALL BE 300 LB. BLACK MALLEABLE IRON SCREWED FITTINGS CONFORMING TO ASTM SPECIFICATION A-197, LATEST EDITION.

C. FLANGES

1. ALL FLANGES SHALL BE STEEL AND COMPATIBLE IN TYPE AND PRESSURE RATINGS WITH MATING FLANGE AND SHALL COMPLY WITH ANSI B16.5.

2. FLANGES SHALL BE WELDING NECK OR THREADED END. SLIP ON FLANGES ARE NOT PERMITTED.

3. WHERE 150 POUND STEEL FLANGES ARE BOLTED TO CLASS 125 CAST IRON FLANGES, THE RAISED FACE ON THE STEEL FLANGE SHALL BE REMOVED.

D. GASKETS

1. GASKETS SHALL BE COMPATIBLE WITH THE GAS SERVICE ON WHICH THEY ARE USED, WITHOUT CHANGE TO THEIR CHEMICAL OR PHYSICAL PROPERTIES.

2. GASKET SHALL BE BLUE-GARD COMPRESSED ASBESTOS FREE GASKETS, STYLE 3000 OR GYLON GASKETING STYLE 3500, COLOR: FAWN WITH BLUE BRAND BOTH AS MANUFAC. BY GARLOCK INC.

3. GASKETS OF METAL OR METAL-JACKETED ASBESTOS, ALUMINUM O-RINGS AND SPIRAL WOUND METAL GASKETS, OR OTHER MATERIALS, IF APPROVED BY UTILITY COMPANY MAY BE USED.

4. FULL FACE GASKETS SHALL BE USED WITH ALL BRONZE AND CASTIRON FLANGES.

2.06 EXPANSION JOINTS AND ANCHORS

A. PROPER PROVISIONS SHALL BE MADE FOR EXPANSION AND CONTRACTION OF ALL PIPES AND THE PIPING SHALL BE ARRANGED WITH ALL NECESSARY PIPE EXPANSION LOOPS AND SWING JOINTS.

B. MAINS AND BRANCHES MUST BE SO INSTALLED WITH SWING CONNECTIONS SO AS TO PERMIT FREE EXPANSION OF PIPING.

2.07 HANGERS AND SUPPORTS

A. FURNISH ALL NECESSARY HANGERS, SUPPORTS, INSERTS, CLAMPS, ETC. AS REQUIRED. ALL HANGERS AND SUPPORTS SHALL BE OF HEAVY CONSTRUCTION AND SUITABLE FOR THE SIZE OF PIPE TO BE SUPPORTED. ALL INSERTS AND HANGERS SHALL BE INSTALLED TO CLEAR WORK OF OTHER TRADES.

B. ALL HORIZONTAL CAST IRON PIPING SHALL BE SUPPORTED ON FIVE (5) FOOT CENTERS AND AT ALL JOINTS. ALL HORIZONTAL SCREWED PIPING SHALL BE SUPPORTED BY HANGERS SPACED NOT OVER TEN (10) FEET APART. ALL BRANCHES SHALL HAVE SEPARATE HANGERS. HANGERS SHALL BE CLEVIS TYPE, CONSTRUCTED OF HEAVY BAR STEEL STOCK, WITH PROPER SIZE SUSPENSION ROD AND LOCKNUTS. WHERE PIPING IS SUPPORTED FROM THE FLOOR, PROVIDE ADJUSTABLE PIPE SADDLE SUPPORT WITH U-BOLT.

C. WHERE PIPES ARE TO BE INSULATED, THE HANGERS SHALL BE OF AMPLE SIZE TO PROVIDE FOR THE COVERING SPECIFIED AND BE PROVIDED WITH GALVANIZED STEEL INSULATION SHIELDS.

D. ALL HANGERS, RODS, BEAM CLAMPS, ETC. SHALL BE SHOP ZINC COATED.

E. ALL HORIZONTAL COPPER TUBING SHALL BE SUPPORTED BY HANGERS NOT OVER SIX (6) FEET APART FOR PIPING 1-1/4 INCH AND SMALLER AND NOT OVER TEN (10) FEET APART FOR PIPING 1-1/2 INCH AND LARGER. ALLO BRANCHES SHALL HAVE SEPARATE HANGERS. HANGERS SHALL BE CLEVIS TYPE WITH COPPER BOTTOM SUPPORT. IF CHANNEL OR ANGLE IRON TRAPEZE HANGERS ARE USED, THE SPACE ON HANGERS FOR THE COPPER TUBING SHALL BE WRAPPED WITH LEAD SHIELDS TO ISOLATE TUBING.

F. IN AREAS OF STEEL CONSTRUCTION, PIPE HANGERS SHALL BE SUPPORTED BY BEAM CLAMPS. COORDINATE WITH ENGINEER FOR MAXIMUM LOADING. BEAM CLAMPS SHALL BE STEEL WITH BOLT, NUT AND SOCKET THREADED FOR ROD CONNECTION AND SHALL BE F & S MANUFACTURING COMPANY FIG. #45, CENTRAL IRON, GRINNELL COMPANY, OR APPROVED EQUAL.

2.08 INSULATION

A. COVER ALL HOT WATER AND HOT WATER RECIRCULATION PIPE WITH 1" THICK AND ALL COLD WATER PIPE WITH 1" THICK MANVILLE MICRO-LOK AP-T PLUS FIBERGLASS INSULATION. FITTINGS AND VALVES SHALL BE INSULATED WITH MANVILLE ZESTON 2000 PVC INSULAT-ED FITTING COVERS. INSTALL ALL INSULATION AS PER MANUFACTURERS RECOMMENDATIONS. ALL INSULATION MATERIAL SHALL COMPLY WITH ECCCNYS SECTION 504.5 REQUIREMENTS FOR INSULATION HAVING A CONDUCTIVITY (k) RATING NOT EXCEEDING 0.27

2.09 VALVES

A. STOP VALVES, EXCEPT FIXTURE STOPS, ON HOT AND COLD WATER LINES 2 IN. AND SMALLER SHALL BE FULL PORT 400 LB. NON-SHOCK BRONZE BALL VALVES, NIBCO T-595-Y FOR THREADED CONNECTIONS, AND NIBCO S-595-Y FOR COPPER TO COPPER, OR APPROVED OTHER.

B. GLOBE VALVES UP TO AND INCLUDING 3 IN. SHALL BE SCREW-OVER BONNET, COMPOSITION DISC, BRASS, NIBCO T-211 FOR THREADED CONNECTIONS AND S-211 FO SOLDER CONNECTIONS, OR APPROVED OTHER.

C. CHECK VALVES SHALL BE OF THE SWING-TYPE, SIZES UP TO AND INCLUDING 3 IN. SHALL BE ALL BRASS, 125 LB. S.W.P., NIBCO T-413 FOR THREADED CONNECTIONS & NIBCO S-413 FOR SOLDER CONNECTIONS OR APPROVED OTHER.

2.10 VALVE TAGS AND CHART

A. EACH VALVE, EXCEPT VALVES AT FIXTURES, SHALL HAVE A 2 INCH DIAMETER BRASS TAG WITH 1 INCH HIGH NUMERAL STAMPED THEREON, SECURED TO THE VALVE BY MEANS OF BRASS'S HOOK OR BRASS CHAIN. EACH SYSTEM TO HAVE A LETTER DESIGNATION IDENTIFING SOURCE AS WELL.

B. THE CONTRACTOR SHALL FURNISH AN APPROVED, NEATLY DRAWN VALVE CHART, PROPERLY FRAMED, SHOWING THE USE AND LOCATION OF EACH VALVE THAT IS TAGGED.

2.11 SHOCK ARRESTORS

A. SHOCK ARRESTORS SHALL BE JONESPEC MODEL #55000 SERIES OR APPROVED EQUAL.

2.12 BACKFLOW PREVENTION DEVICES

A. VACUUM BREAKER (TYPE"A") – CAST BRASS C.P. IF EXPOSED TO PUBLIC VIEW SIMILAR TO WATTS NO. 288A. (NOT SUBJECT TO CONSTANT PRESSURE.)

B. VACUUM BREAKER (TYPE"B") – CAST BRASS C.P. IF EXPOSED TO PUBLIC VIEW SIMILAR TO WATTS NO. 909-S.

C. VACUUM BREAKER (TYPE"C") – CAST BRASS C.P. IF EX-POSED TO PUBLIC VIEW SIMILAR TO WATTS NO. 800MCQT. (CONSTANT PRESSURE V.B.)

D. VACUUM BREAKER (TYPE"D") – CAST BRASS C.P. IF EXPOSED TO PUBLIC VIEW SIMILAR TO WATTS NO. N9C. (CONSTANT PRESSURE V.B.)

2.13 CONNECTION TO MISC. EQUIPMENT

A. PROVIDE ALL NECESSARY PIPE, FITTINGS, VALVES, ETC. EXCEPT AS OTHERWISE SPECIFIED AND MAKE ALL FINAL PLUMBING PIPING CONNECTIONS, INCLUDING WASTE, VENT, HOT AND COLD WATER, ETC., TO ALL EQUIPMENT REQUIRING SAME, FURNISHED "UNDER ANOTHER SECTION OF THE SPECIFICATIONS".

B. KITCHEN EQUIPMENT CONTRACTOR WILL PROVIDE, FOR INSTALLATION BY THE PLUMBING CONTRACTOR, ALL FAUCETS, OVERFLOW AND DRAIN ASSEMBLIES, VACUUM BREAKERS EXCEPT AS HEREIN SPECIFIED, COFFEE STATION WATER FILTERS, BOOSTER HEATER.

2.14 DRAINS

A. IN GENERAL DRAINS SHALL BE JOSAM, ZURN, SMITH OR APPROVED EQUAL.

B. UNLESS OTHERWISE NOTED DRAINS SHALL BE DUCO COATED, CAST IRON, DOUBLE DRAINAGE PATTERNS, HUB AND SPIGOT, UNLESS OTHERWISE NOTED. DRAINS SHALL BE EQUIPMENT TO THE FIGURE NUMBERS SHOWN AND OF SIZE REQUIRED.

C. FLOOR DRAINS SHALL BE JAY R. SMITH FIG. NO. 2005-A WITH SEDIMENT BUCKET, UNDER DECK CLAMP AND 8" DIAMETER NICKEL BRONZE TOP, WITH NO-HUB OUTLET CONNECTION.

D. INDIRECT WASTE FLOOR DRAINS SHALL BE J.R. SMITH FIG. NO. 33510-F11-B WITH 8" ROUND TOP, AND SEDIMENT BUCKET.

E. FLOOR SINK SHALL BE JAY R. SMITH FIG. 3430-13 PORCELAIN ENAMELED INDIRECT WASTE FLOOR DRAIN WITH 3/4 ACID RESISTANT PORCELAIN ENAMELED GRATING WITH FLASHING FLANGE AND BOTTOM DOME STRAINER. SET RIM 1" ABOVE FINISHED FLOOR.

F. FUNNEL FLOOR SHALL BE J.R. SMITH FIG. 3510-F11-B WITH F-37 7" ANTI SPLASH RIM AND SEDIMENT BUCKET. SET ANTI-SPLAS RIM FLUSH WITH THE FINISH FLOOR.

2.15 GUARANTEE

A. THIS CONTRACTOR SHALL GUARANTEE FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE BY THE OWNERS, ALL MATERIALS, APPARATUS AND WORKMANSHIP WHETHER FURNISHED BY HIMSELF OR BY HIS SUBCONTRACTORS AND HE SHALL REPLACE OR REPAIR IN A MANNER APPROVED BY THE ARCHITECTS, WITHOUT COST TO THE OWNER, ANY PARTS OR PARTS OF THE WORK WHICH MAY PROVE DEFECTIVE OR UNSATISFACTORY WITHIN THE PERIOD OF THE GUARANTEE.

B. WHERE SPECIAL GUARANTEES COVERING INSTALLATION, OPERATION OR PERFORMANCE OF ANY SYSTEMS OR APPLIANCES FURNISHED UNDER THIS CONTRACTOR ARE REQUIRED, THE FULL RESPONSIBILITY FOR THE FULFILLMENT OF SUCH GUARANTEES MUST BE ASSUMED BY THE CONTRACTOR, WHO SHALL OBTAIN WRITTEN GUARANTEES, IN TRIPLICATE, WHICH SHALL BE FILED WITH THE ARCHITECT BEFORE FINAL ACCEPTANCE.

C. CONTRACTOR WILL BE RESPONSIBLE FOR ALL LEAKS IN ALL PIPES FOR A PERIOD OF ONE YEAR FROM THE DATE OF COMPLETION OF WORK UNDER THIS CONTRACT. CONTRACTOR SHALL REPAIR AT NO COST TO THE OWNER, ALL SUCH LEAKS WHICH OCCUR AFTER COMPLETION OF THIS CONTRACT UPON 24 HOURS NOTICE THEREOF BY THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR. LEAKS WHICH OCCUR PRIOR TO THE COMPLETION OF THIS CONTRACT SHALL BE REPAIRED AT ONCE. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED BY SUCH LEAKS AND THE REPAIR THEREOF AND WILL REIMBURSE THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR FOR ALL EXPENSE INCURRED THEREBY.

D. DISINFECTION

THE POTABLE WATER SYSTEM SHALL BE DISINFECTED PRIOR TO USE BY A METHOD OF DISINFECTION IN ACCORDANCE WITH THE NATIONAL PLUMBING CODE CHAPTER 10 PARAGRAPH-10.9. THE POTABLE WATER PURITY TEST RESULT FROM A NEW JERSEY CERTIFIED TESTER SHALL BE SUBMITTED FOR ENGINEER'S REVIEW AND APPROVAL.

2.17 HOSE BIBBS

A. HOSE BIBBS SHALL BE CHICAGO FAUCET CO., NO. 293-6, POLISHED CHROME, OR APPROVED OTHER, WITH WATTS REGULATOR CO. NO BAC, 3/4" HOSE END VACUUM BREAKER.

2.18 HOT WATER CIRCULATOR

A. PROVIDE, WHERE INDICATED ON THE DRAWINGS, BELL AND GOSSETT, OR APPROVED OTHER, ALL BRONZE IN-THE-LINE CIRCULATOR, DIRECT CONNECTED TO 1/6HP, 100 V, SINGLE PHASE, 60 HERTZ MOTOR. PUMP SHALL BE SERIES SC-75 CAPABLE OF CIRCULATING 5 GALLONS PER MINUTE AT 8 FOOT OF HEAD PRESSURE.

B. CIRCULATING PUMP SHALL BE CONTROLLED BY MEANS OF AN IMMERSION TYPE AQUASTAT WITH VISIBLE SCALE AND DETACHABLE WELL, WHICH SHALL BE INSTALLED IN THE CIRCULATING LINE NEAR THE SUCTION INLET OF THE PUMP. THE AQUASTAT SHALL OPERATE ON 110 VOLTS AND SHALL BE SO DESIGNATED AND CONNECTED THAT THE CIRCULATING MOTOR WILL START AND STOP WITHIN THE TEMPERATURE RANGES OF 135 DEGREES F. TO 140 DEGREES F. THE AQUASTAT SHALL BE GUARANTEED TO OPERATE WITHIN A MAXIMUM RANGE OF PLUS OR MINUS 2 DEGREE F OF THE SETTING.

C. PROVIDE SUITABLE "HAND-OFF-AUTOMATIC" SWITCH TO NEMA 1 ENCLOSURE MOUNTED ADJACENT TO CIRCULATOR.

2.19 PRESSURE REDUCING VALVE (DOMESTIC WATER)

A. SIZE 1/2" – 2-1/2" THREADED BRONZE BODY CONSTRUCTION RENEWABLE STAINLESS STEEL SEAT. HIGH TEMPERATURE RESISTING DIAPHRAGM, SPRING CAGE CONSTRUCTION AND STRAINER. WATTS NO. 223S OR APPROVED EQUAL. SEE DRAWINGS FOR PSI SETTINGS.

2.20 FIRE SERVICE

A. SOURCE OF WATER SUPPLY FOR SPRINKLER SYSTEM: PROVIDE AUTOMATIC WATER SUPPLY SERVICE FOR SPRINKLER SYSTEM AS INDICATED ON PLANS.

1.) SINGLE (SEPARATE) FIRE WATER SERVICES: AT LEAST ONE AUTOMATIC SOURCE OF WATER SUPPLY SHALL BE PROVIDED FOR SPRINKLERS INSTALLED IN RESIDENTIAL OCCUPANCIES UP TO AND INCLUDING SIX STORIES OR SEVENTY FIVE FEET IN HEIGHT.

2.) THE DIRECT CONNECTION OF SPRINKLERS TO THE CITY WATER MAIN SHALL BE ACCEPTABLE AS AN AUTOMATIC WATER SUPPLY, PROVIDED THE MAIN IS CAPABLE OF MAINTAINING A PRESSURE OF AT LEAST FIFTEEN PSIG AT THE TOP OF THE HIGHEST SPRINKLER RISER, WITH FIVE HUNDRED GPM OF WATER FLOWING FROM A TWO AND ONE-HALF INCH HYDRANT OUTLET LOCATED AT THE STREET LEVEL WITHIN TWO HUNDRED FIFTY FEET OF THE BUILDING.

3.) PROVIDE A SEPARATE FIRE WATER SERVICE FOR SPRINKLER SYSTEM FROM THE STREET WITH CONTROL VALVE IN FLUSH MOUNTED SIDEWALK BOX, CHECK AND O.S & Y. VALVES, BACKFLOW PREVENTION DEVICE, ETC., AS INDICATED ON DRAWINGS INCLUDING EXCAVATION, BACKFILLING, REPAIRING SIDEWALK, METER, ETC.

2.15 PLUMBING FIXTURES AND EQUIPMENT

A. PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL ALL PLUMBING FIXTURES AND APPLIANCES, UNLESS OTHERWISE NOTED, AND MAKE ALL FINAL CONNECTIONS AS REQUIRED.

B. REFER TO ARCHITECTURAL PLANS AND/OR SPECIFICATIONS FOR EXACT PLUMBING FIXTURE TYPE, MAKE AND MOUNTING HEIGHTS.

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4	COMMISSIONER REVIEW	5/19/2015

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TITLE

PLUMBING SPECIFICATIONS

DWG NO:

P-500.00

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DOB JOB NUMBER

HILLSIDE AVENUE

178 ST

179 ST

47 STORAGE UNITS

STORAGE

LAUNDRY

RESIDENTIAL GYM

COMPACTOR

MECHANICAL

OFFICES
16,998 SF

OFFICES
7,827 SF

THIS AREA TO BE DESIGNED
UNDER SEPARATE APPLICATION

HAND DRYER

MEN'S RESTROOM

WOMEN'S RESTROOM

HAND DRYER

USE GROUP 4

RECEIVING
CLG. HT.
OPEN

COMMERCIAL
3,059 SF

UNEXCAVATED

C-62

6" FIRE SERVICE

4"SP DRY UP

3"SP UP

4" SP LINE FOR OFFICES FUTURE USE

2" INSPECTOR TEST DRAIN UP
6"SP UP WITH 2-1/2" F.H.V

FHV

UNDER LANDING

4"SP UP

4"SP DRY UP

6"SP UP WITH 2-1/2" F.H.V

2" INSPECTOR TEST DRAIN UP

FHV

2-1/2" SP LINE FOR COMMERCIAL FUTURE USE

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TITLE

CELLAR
SPRINKLER PLAN

DWG NO:

SP-100.00

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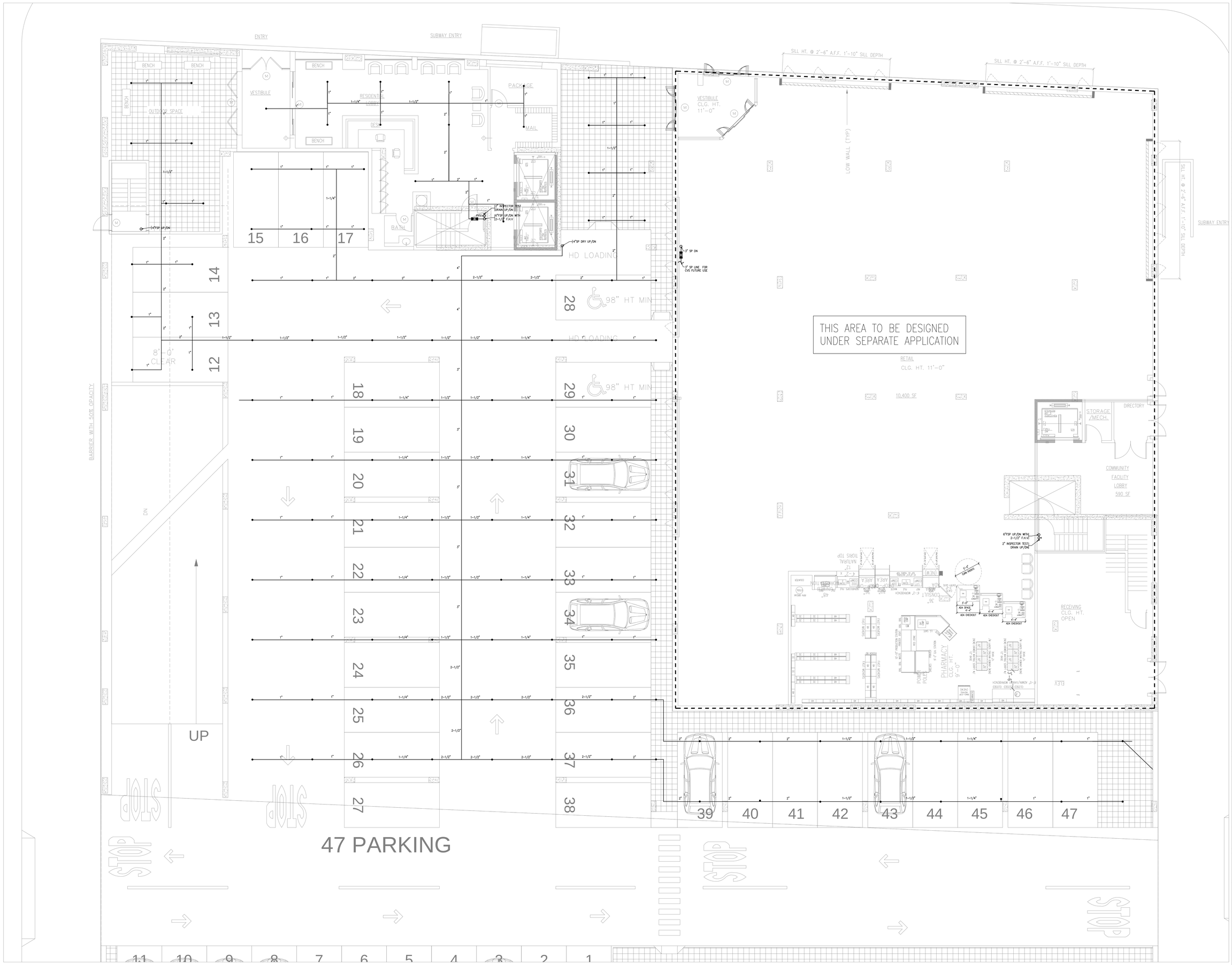
DOB JOB NUMBER



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GROUND FLOOR
SPRINKLER PLAN

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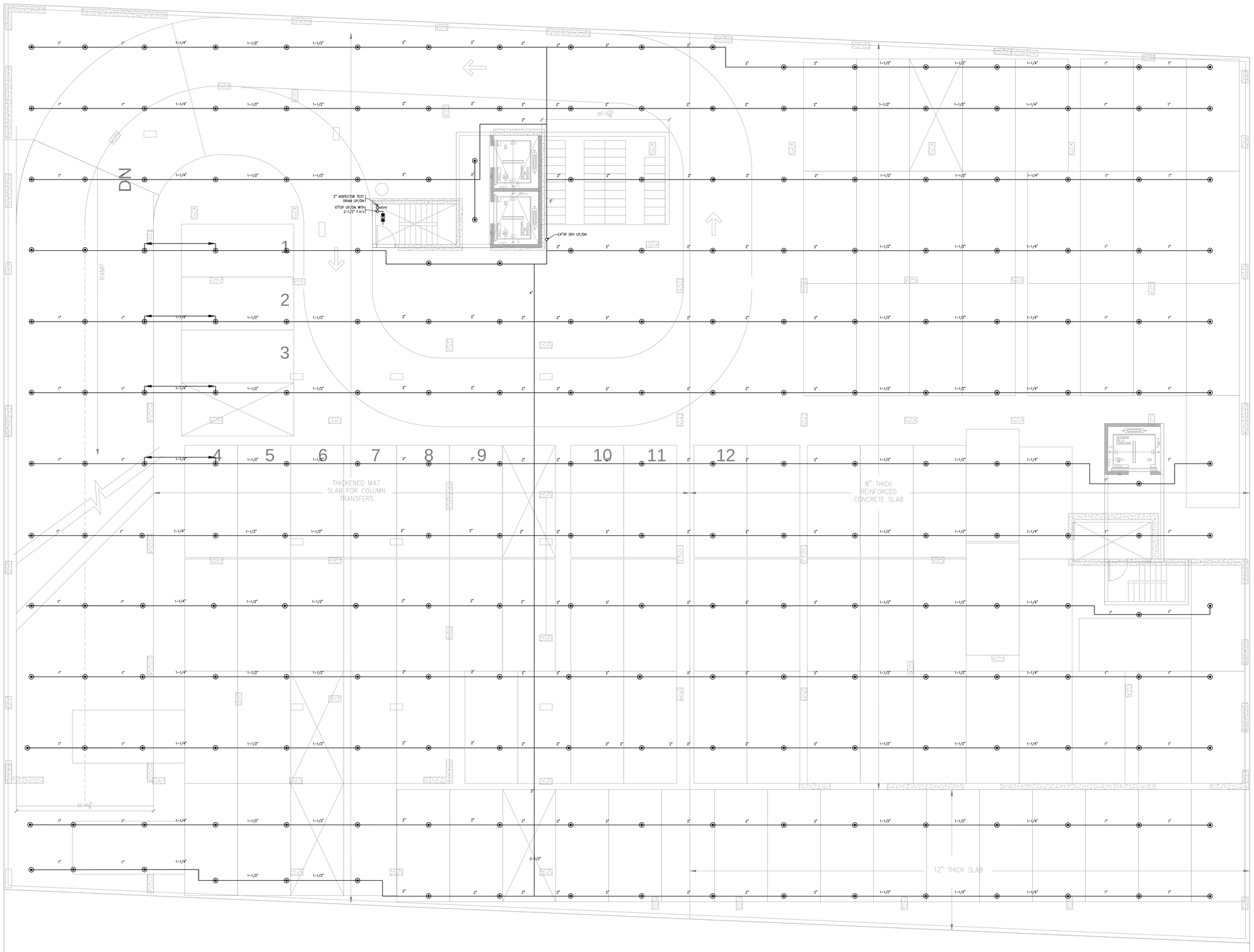
DOB JOB NUMBER

HILLSIDE AVENUE

178 ST



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SECOND FLOOR
SPRINKLER PLAN

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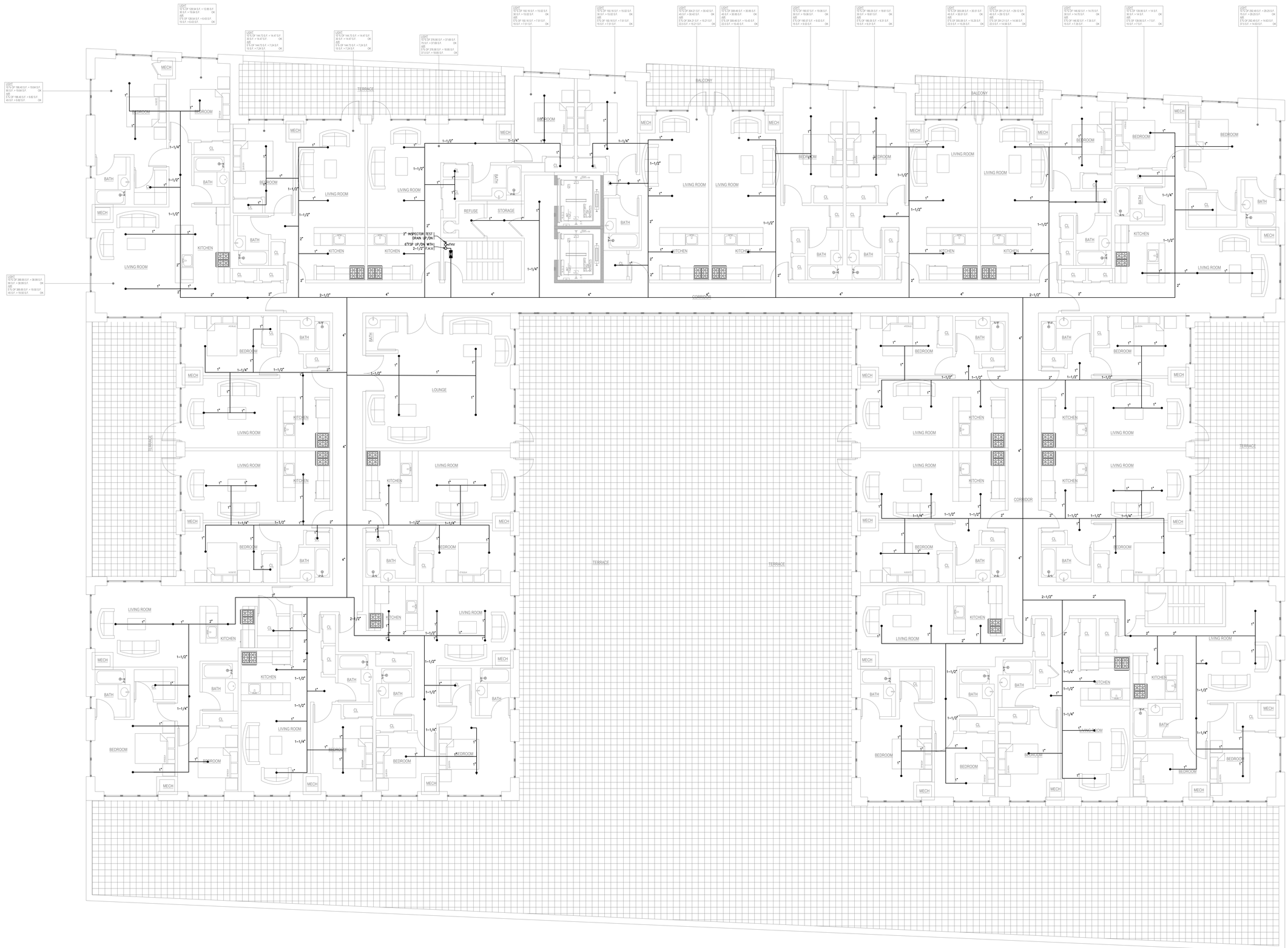

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THIRD FLOOR
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SP-103.00

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TITLE

FOURTH THRU SIXTH
FLOOR SPRINKLER PLAN

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TITLE

SEVENTH FLOOR
SPRINKLER PLAN

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TITLE

EIGHTH FLOOR
SPRINKLER PLAN

DWG NO:

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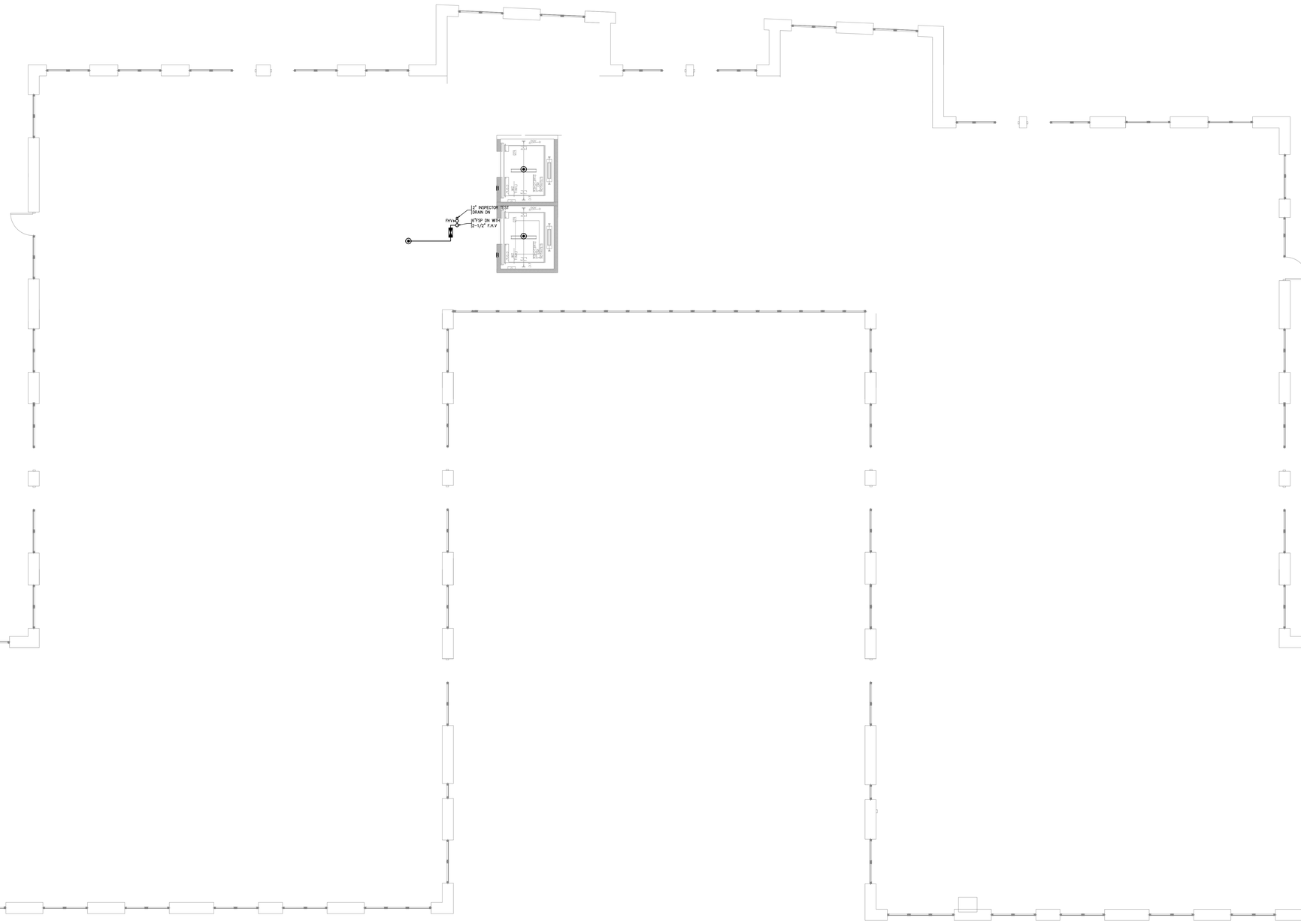

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CHK BY:	CC/MN

TITLE

ROOF
SPRINKLER PLAN

DWG NO:

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DOB JOB NUMBER

NEW YORK CITY SPRINKLER NOTES

REFERENCES: BUILDING CODE, 2008 EDITION
NFPA–13, 2002 EDITION AS MODIFIED BY THE
BUILDING CODE APPENDIX Q, SECTION BC Q102

1. THE INSTALLATION COMPONENTS, SPACING, LOCATION, CLEARANCES, POSITION AND TYPE OF SYSTEMS SHALL CONFORM TO APPENDIX Q BC Q102 AND BC 903.
2. AS PER PARAGRAPH BC 903.2 AND CHAPTER 6 OF APPENDIX Q SECTION BC Q102 ONLY APPROVED MATERIALS WILL BE USED.
3. DIRECT CONNECTION OF SPRINKLERS TO THE PUBLIC WATER SYSTEM SHALL CONFORM TO APPENDIX Q BC Q102 SECTIONS 15.1.1(d), 15.1.8 & 15.2.1.
4. SPRINKLERS WILL BE PROTECTED AGAINST FREEZING AND INJURY AS PER SECTIONS 6.2.8 AND 8.15.3 OF APPENDIX Q BC Q102.
5. INSPECTION AND TESTS OF SPRINKLER SYSTEM SHALL BE CONDUCTED AS SPECIFIED IN BC 901.5 AND APPENDIX Q SECTION BC Q102 CHAPTER 16.
6. THE OCCUPANCY OF THE AREAS TO BE SPRINKLERED IN ACCORDANCE WITH CHAPTER 5 OF APPENDIX Q SECTION BC Q102 SHALL BE THOSE SPECIFIED ON THE PLANS.
7. WATER SUPPLY TEST PIPES AND GAUGES PROVIDED AS SPECIFIED IN SECTION 8.16.3 AND 8.16.4 OF APPENDIX Q BC Q102.
8. PIPING SPECIFICATIONS, SYSTEM TEST PIPES, PROTECTION AGAINST CORROSION, DAMAGE, FITTINGS, VALVES, HANGERS, SPRINKLERS, GUARDS AND SHIELDS SHALL BE IN ACCORDANCE WITH CHAPTERS 6 AND 9 OF APPENDIX Q SECTION BC Q102.
9. STOCK OF EXTRA SPRINKLERS WILL BE FURNISHED AS PER SECTION 6.2.9 OF APPENDIX Q BC Q102 (REQUIRED FOR EACH TEMPERATURE RATING).
10. SPRINKLER ALARMS IN ACCORDANCE WITH SECTION 8.16.1 OF APPENDIX Q BC Q102.
11. SPACING, LOCATION AND POSITION OF SPRINKLERS WILL BE IN ACCORDANCE WITH CHAPTER 8 OF APPENDIX Q SECTION BC Q102.
12. ALL BLIND SPACES EXCEEDING 6 IN. IN WIDTH OR DEPTH WHICH CONTAIN COMBUSTIBLE MATERIALS WILL BE SPRINKLERED.
13. ALL PIPING PASSING THROUGH RATED CONSTRUCTION WILL COMPLY WITH BC 712.
14. THERE IS NO PILED HIGH STORAGE AS DEFINED IN SECTION 3.3.12 OF APPENDIX Q BC Q102.
15. DISTANCE OF SPRINKLERS FROM HEAT SOURCES SHALL BE IN ACCORDANCE WITH TABLES 8.3.2.5(A), (B), AND (C) OF APPENDIX Q BC Q102.
16. AS PER SECTION BC 903.1.2 PROVIDE DEPARTMENT OF ENVIRONMENTAL PROTECTION WATER SUPPLY LETTER WITH FLOW TEST DATA IF THERE IS DIRECT CONNECTION TO THE STREET WATER SUPPLY.
17. ALL PIPES PASSING THROUGH FOUNDATION WALLS TO BE PROTECTED AS PROVIDED BY SECTION PC 305.5 OF THE PLUMBING CODE.
18. THIS APPLICATION IS NOT FILED AS A RESULT OF ACTIONS BY THE FIRE COMMISSIONER AS AUTHORIZED BY THE BUILDING DEPARTMENT TO MODIFY THE CERTIFICATE OF OCCUPANCY NOR IS SUCH ACTION PENDING.
19. ALL VALVES SHALL BE IDENTIFIED AS REQUIRED BY SECTION 6.7.4 OF APPENDIX Q BC Q102.
20. DRAINAGE TO CONFORM TO SECTION 8.15.2 OF APPENDIX Q BC Q102.
21. A ONE PIECE REDUCING FITTING OF GOOD DESIGN SHALL BE USED WHEREVER A CHANGE IS MADE IN THE SIZE OF PIPE AS PER SECTION 6.4.6 OF APPENDIX Q BC Q102.
22. ALL VALVES ON CONNECTIONS TO WATER SUPPLIES AND IN SUPPLY TO SPRINKLERS SHALL BE APPROVED OS&Y OR APPROVED INDICATOR TYPE.
23. DRAIN VALVES AND TEST VALVES SHALL BE APPROVED TYPE AS PER SECTION 6.7 OF APPENDIX Q BC Q102.
24. HANGERS SHALL BE OF A TYPE APPROVED FOR USE WITH THE PIPE OR TUBE INVOLVED, SPRINKLER PIPING SHALL BE SUPPORTED BY WROUGHT IRON U–TYPE OR APPROVED ADJUSTABLE HANGERS AS PER CHAPTER 9 OF APPENDIX Q SECTION BC Q102.
25. PROVISIONS SHALL BE MADE TO FACILITATE FLUSHING SYSTEM PIPING BY PROVIDING FLUSHING CONNECTIONS CONSISTING OF A CAPPED NIPPLE 4" LONG ON THE END OF THE CROSS MAIN AS PER SECTION 8.14.16 OF APPENDIX Q BC Q102.
26. SPRINKLERS SHALL BE OF APPROVED TYPE AS PER SECTION 8.3 OF APPENDIX Q BC Q102.
27. TEMPERATURE RATING SHALL COMPLY WITH SECTION 8.3.2 OF APPENDIX Q BC Q102.
28. PROVIDE 18" MINIMUM CLEAR TO BELOW SPRINKLER DEFLECTOR AS PER SECTION 8.5.6.4 OF APPENDIX Q BC Q102.
29. SPACING AND LOCATION OF SPRINKLERS SHALL COMPLY WITH SECTION 8.5 OF APPENDIX Q BC Q102.
30. SPRINKLER SYSTEM COMPLIES WITH NFPA 13, 2002 AS MODIFIED BY THE NEW YORK CITY BUILDING CODE, APPENDIX Q SECTION BC Q102.
31. SOURCES OF WATER SUPPLY FOR SPRINKLER SYSTEMS AS PER CHAPTER 15 OF APPENDIX Q SECTION BC Q102.
32. PIPE SCHEDULES SHALL BE IN ACCORDANCE WITH SECTION 14.5 OF APPENDIX Q BC Q102.
33. AUTOMATIC INTERLOCK CUTOFF SWITCH FOR VENTILATION WILL CONFORM TO CHAPTER 6 OF THE MECHANICAL CODE (APPLICABLE ONLY IF THERE IS AN AIR SYSTEM UTILIZING RECIRCULATED AIR AND REQUIRING A THERMOSTATIC DEVICE).
34. HYDRAULICALLY DESIGNED SPRINKLER SYSTEMS SHALL BE IN ACCORDANCE WITH CHAPTER 14 OF APPENDIX Q SECTION BC Q102.
35. MINIMUM BRANCH PIPE SIZE TO BE ONE INCH (1").
36. THIS APPLICATION IS MADE ONLY FOR WORK INDICATED ON THE SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

FIRE PROTECTION LEGEND

SYMBOLS

FSP	FIRE STANDPIPE PIPING
F	FIRE SERVICE PIPING
	SPRINKLER PIPING
DR	DRAIN PIPING
	FIRE DEPARTMENT SIAMESE CONNECTION
	FIRE HOSE VALVE
	ELBOW TURNED DOWN
	ELBOW TURN UP / CONN. TO VERTICAL LINE
	CHECK VALVE W/AUTO BALL DRIP
	OS&Y (OUTSIDE SCREW & YOKE) VALVE
	GATE/GLOBE VALVE
	CHECK VALVE
	AUTOMATIC BALL DRIP
	PUMP
TS	VALVE WITH TAMPER SWITCH (TS)
	CONTROL VALVE WITH TAMPER & WATER FLOW SWITCHES PRESSURE GAUGE AND TEST DRAIN ASSEMBLY
DP	DRY–PIPE VALVE ASSEMBLY
X	DRY VALVE ASSEMBLY

ABBREVIATIONS

ABD	AUTOMATIC BALL DRIP
AC	ALARM CHECK VALVE
AFF	ABOVE FINISHED FLOOR
BOP	BOTTOM OF PIPE
CFM	CUBIC FEET PER MINUTE
CV	CHECK VALVE
DIA	DIAMETER
DP	DRY–PIPE
DR	DRAIN
DN	DOWN (PENETRATES FLOOR SLAB)
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
FHV	FIRE HOSE VALVE
FHVC	FIRE HOSE VALVE CABINET
AHR	AUXILIARY FIRE HOSE
FD	FLOOR DRAIN
FL	FLOOR
FSP	FIRE STANDPIPE
FT	FEET
GV	GATE VALVE
GAL.	GALLONS
GPM	GALLONS PER MINUTE
IN.	INCH
NTS	NOT TO SCALE
OS&Y	OUTSIDE SCREW & YOKE GATE VALVE
PSI	POUNDS PER SQUARE INCH (GAUGE)
PRV	PRESSURE REGULATING VALVE
SPKR, SP	SPRINKLER
TOP	TOP OF PIPE
TS	TAMPER SWITCH
WFS	WATER FLOW SWITCH

SPRINKLER DRAWING LIST

SP–101	CELLAR SPRINKLER PLAN
SP–102	GROUND FLOOR SPRINKLER PLAN
SP–103	2ND FLOOR SPRINKLER PLAN
SP–104	3RD THRU 6TH FLOOR SPRINKLER PLAN
SP–105	7TH FLOOR SPRINKLER PLAN
SP–106	8TH FLOOR SPRINKLER PLAN
SP–107	ROOF SPRINKLER PLAN
SP–108	EMR LEVEL SPRINKLER PLAN
SP–200	SPRINKLER NOTES AND SYMBOLS
SP–300	SPRINKLER RISER DIAGRAM
SP–400	SPRINKLER DETAILS
SP–500	SPRINKLER SPECIFICATIONS

SEISMIC RESTRAINT NOTES

1. THE PLUMBING CONTRACTOR SHALL PROVIDE SEISMIC RESTRAINING SYSTEMS FOR PLUMBING EQUIPMENT AND PIPING. SEISMIC RESTRAINING SYSTEMS SHALL COMPLY WITH THE LATEST EDITION OF THE NEW YORK CITY BUILDING CODE AND ALL APPLICABLE SECTIONS OF THE CONSTRUCTION SPECIFICATION.
2. PROVIDE CONCRETE INERTIA BASE FOR PUMPS 5 HP AND LARGER AND NEOPRENE ISOLATORS FOR SMALLER PUMPS.
3. SEISMICALLY RESTRAIN THE FOLLOWING PIPING:
   A. ALL PIPING LOCATED IN MECHANICAL ROOMS THAT IS 1–1/4" AND LARGER
   B. ALL OTHER PIPING 2–1/2" AND LARGER.
4. TRANSVERSE PIPING RESTRAINTS SHALL BE AT 40 FT MAXIMUM SPACING FOR ALL PIPE SIZES.
5. LONGITUDINAL RESTRAINTS SHALL BE AT 80 FT MAXIMUM SPACING FOR ALL PIPE SIZES.

NEW YORK CITY FIRE STANDPIPE NOTES

REFERENCE: BUILDING CODE, 2008 EDITION, CHAPTER 9
NFPA–14, 2003 EDITION AS MODIFIED BY BUILDING CODE APPENDIX Q, BC Q105.

1. FIRE STANDPIPE PERMIT AND PLAN SHALL COMPLY WITH THE CHAPTER 9 IN ITS ENTIRETY, INCLUDING APPENDIX Q BC Q105.
2. ALL MATERIAL DEVICES AND EQUIPMENT SHALL COMPLY WITH CHAPTER 4 OF APPENDIX Q BC Q105.
3. THE SYSTEM AND EQUIPMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FULL REQUIREMENTS OF THE BUILDING CODE CHAPTER 9 AND APPENDIX Q BC Q105.
4. MINIMUM WATER SUPPLY SHALL COMPLY WITH BC CHAPTER 9 AND APPENDIX Q BC Q105.
5. INSPECTION AND VALVES TESTS SHALL COMPLY WITH SECTION 907.19.
6. PIPE AND FITTINGS SHALL COMPLY WITH SECTIONS 4.2 AND 4.3 OF APPENDIX Q BC Q105.
7. HOSE STATION SHALL COMPLY WITH SECTION 7.3.2.2 OF APPENDIX Q BC Q105 AND BC 905.
8. HOSE SHALL COMPLY WITH SECTION 4.6 OF APPENDIX Q BC Q105.
9. HOSE RACKS AND HOSE CABINET SHALL COMPLY WITH SECTION 4.6 OF APPENDIX Q BC Q105.
10. NOZZLE SHALL COMPLY WITH APPENDIX Q BC Q105 SECTION A.7.8.
11. MANIFOLD SHALL COMPLY WITH APPENDIX Q BC Q105 SECTION 7.3.2.2.
12. RISER CONTROL VALVES SHALL COMPLY WITH APPENDIX Q BC Q105 SECTION 6.2.2.
13. RISER LOCATION, NUMBER AND SIZE SHALL COMPLY WITH CHAPTER 9 AND APPENDIX Q BC Q105.
14. PRESSURE REDUCING VALVE SHALL COMPLY WITH SECTION 7.8 AND 7.2 OF APPENDIX Q BC Q105.
15. COMBINATION FIRE STANDPIPES AND SIAMESE SPRINKLER SYSTEMS SHALL BE PAINTED YELLOW AND COMPLY WITH APPENDIX Q BC Q105 SECTION 4.8.2.1.
16. SIAMESE CONNECTIONS SHALL COMPLY WITH BC Q105 SECTION 4.8.2.2 AND SHALL BE LOCATED NO MORE THAN 300 FEET APART.
17. STANDPIPES SHALL BE MARKED AND PAINTED RED.
18. PROTECTION OF THE SYSTEMS SHALL COMPLY WITH APPENDIX Q BC Q105 SECTION 6.1.2.3.
19. IF AT ANY TIME FLOOR SPACE IS DIVIDED, ADDITIONAL STANDPIPE PROTECTION SHALL BE PROVIDED.
20. FIRE STANDPIPE STANDARDS FOR INSTALLATION SHALL COMPLY WITH CHAPTER 9 AND APPENDIX Q BC Q105.
21. ELEVATOR SERVICE: AN ELEVATOR WILL BE MAINTAINED AT ALL TIMES FOR USE OF THE FIRE DEPARTMENT, AS PER BC 3003.3.
22. VOICE COMMUNICATION SYSTEMS AND FIRE COMMAND STATIONS SHALL COMPLY WITH BC 907.2.
23. WATER SUPPLY SHALL COMPLY WITH APPENDIX Q BC Q102 CHAPTER 11.
24. STATEMENT AS TO AVAILABLE PRESSURE IN STREET MAIN FOR THIS LOCATION WILL BE FURNISHED WITH THIS APPLICATION.

FIRE PROTECTION NOT

1. EACH BIDDER SHALL VISIT THE SITE AND BECOME INFORM CONDITION OF THE PREMISES AND THE EXTENT AND CHA REQUIRED. NO ADDITIONAL COMPENSATION WILL BE APPR FIELD CONDITIONS.
2. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF PROVIDED WITH SPRINKLER PROTECTION AND LOCATE EXI WITHIN AREA THAT REQUIRE ADDITIONAL SPRINKLER PROT DUCTS DUE TO INTERFERENCE OF NORMAL SPRAY PATTE HEADS LOCATED AT UNDERSIDE OF FLOOR SLAB ABOVE.
3. SPRINKLER INSTALLATIONS SHALL BE COMPLETE WITH ALL PIPES, BRANCHES, TESTS, DRAINS AT LOW POINTS IN SY
4. ALL PIPING AND EQUIPMENT SHALL BE SUBSTANTIALLY SU THE BUILDING STRUCTURE. HANGERS AND SUPPORTS SH APPROVED FOR USE IN SPRINKLER SYSTEM.
   A. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT HANGER RODS IN REQUIRED LOCATIONS, PROVIDE AD FRAMING AS REQUIRED AND APPROVED.
   B. NO SPRINKLER PIPING SHALL BE HUNG FROM THE PI TRADES OR DUCTWORK. HANGERS SHALL BE OF HE SUITABLE FOR THE SIZE OF PIPE TO BE SUPPORTED
5. ALL AREAS OF THE BUILDING SHALL BE SPRINKLERED.
6. ALL FIRE PROTECTION WORK SHALL MEET NEW YORK CITY REQUIREMENTS, FIRE MARSHALL AND ALL AUTHORITIES HA
7. SPRINKLER SYSTEM MUST BE HYDRAULICALLY CALCULATED THE FOLLOWING:

   OFFICE AREAS, CORRIDORS, LOBBY & TOILET ROOMS

HAZARD:	LIGHT
MAX. AREA PER SPRINKLER:	225 SQ. FT.
DESIGN DENSITY:	0.10 GPM / SQ. FT.
DESIGN AREA:	1,500 SQ. FT.

   STORAGE ROOMS AND MECHANICAL ROOMS

HAZARD:	ORDINARY GROUP 1
MAX. AREA PER SPRINKLER:	130 SQ. FT.
DESIGN DENSITY:	0.15 GPM / SQ. FT.
DESIGN AREA:	1,500 SQ. FT.

   RETAIL AREAS

HAZARD:	ORDINARY GROUP 2
MAX. AREA PER SPRINKLER:	130 SQ. FT.
DESIGN DENSITY:	0.20 GPM / SQ. FT.
DESIGN AREA:	1,500 SQ. FT.

8. COORDINATE ALL FIRE PROTECTION WORK WITH ARCHITECT CEILING PLANS AND OTHER TRADES.
9. ALL NEW DROP NIPPLES SHALL BE 1" UNLESS OTHERWIS
10. NEW SPRINKLER PIPING TO BE INSTALLED SHALL BE A M
11. SPRINKLER CONTRACTOR SHALL SUBMIT HIS SHOP DRAWI CALCULATIONS TO THE ENGINEER OR ARCHITECT FOR APP PERFORMING THE WORK.
12. SPRINKLER CONTRACTOR SHALL OBTAIN SPRINKLER PERM DRAWING WITH THE LOCAL AUTHORITY HAVING JURISDICTIO NECESSARY FILLING FEES.
13. SPRINKLER CONTRACTOR SHALL SUBMIT AS–BUILT DRAWI CALCULATIONS TO THE ENGINEER OR ARCHITECT PRIOR T
14. SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR PR HYDRAULIC CALCULATIONS OF THE SPRINKLER SYSTEM BA CONDITIONS. SPRINKLER CONTRACTOR IS ALSO RESPONSI PROFESSIONAL ENGINEER SIGN AND SEAL THE HYDRAULIC SPRINKLER INSTALLATION DRAWINGS AND TO SUBMIT TO T BUILDING (DOB) FOR PERMIT, FINAL APPROVAL AND SIGN

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR PROGRESS	4/27/2015
3	FOR PROGRESS	5/09/2015
4	COMMISSIONER REVIEW	5/19/2015

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PROFESSIONAL STAMP/ SIGNATURE

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

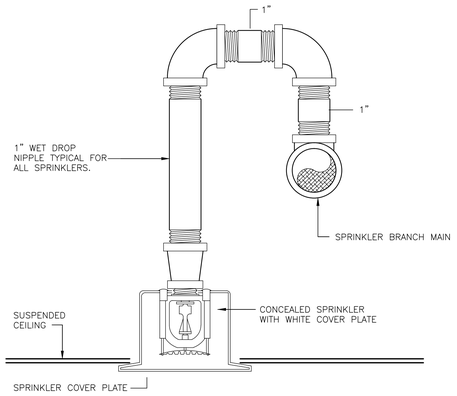
TITLE

SPRINKLER NOTES
AND SYMBOLS

DWG NO:

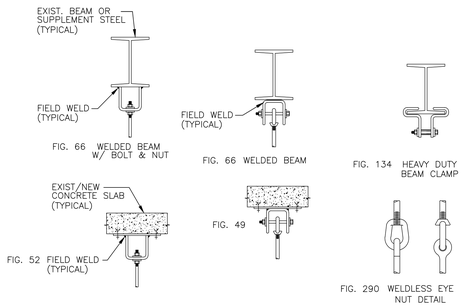
SP-200.00
9 of 12

DOB JOB NUMBER



TYPICAL CONCEALED SPRINKLERS

NOT TO SCALE



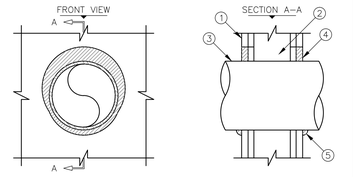
NOTES:

1) ALL FIGURE NUMBERS ABOVE ARE ANVIL INTERNATIONAL.
2) CONNECT BASE PLATE TO SLAB WITH HILTI HIT HY 150 INJECTION ADHESIVE ANCHOR SYSTEM WITH 1/2 INCH DIAMETER BOLT WITH MINIMUM OF 3-1/2 INCH IMPEDIMENT.

ACCEPTABLE ATTACHMENT TO STRUCTURE DETAIL

NOT TO SCALE

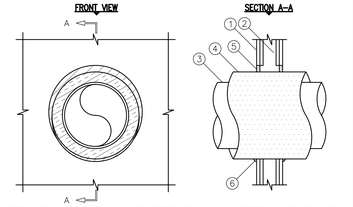
UL/cUL SYSTEM NO. W-L-1054
METAL PIPE THROUGH GYPSUM WALL ASSEMBLY
F-RATING = 1 AND 2-HR.
T-RATING = 0-HR.
L-RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L-RATING AT 400°F = 4 CFM/SQ. FT.



1. GYPSUM WALL ASSEMBLY (UL/ULC CLASSIFIED U300 OR U400 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (0-HR. SHOWN).
2. (NOT SHOWN). WOOD STUDS TO CONSIST OF NOMINAL 2" x 4" LUMBER. STEEL STUDS TO BE MINIMUM 2-1/2" WIDE.
3. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
   A. MAXIMUM 30" DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
   B. MAXIMUM 30" DIAMETER CAST IRON PIPE.
   C. MAXIMUM 6" NOMINAL DIAMETER COPPER PIPE.
   D. MAXIMUM 6" NOMINAL DIAMETER STEEL CONDUIT.
   E. MAXIMUM 4" NOMINAL DIAMETER EMT.
4. MINIMUM 5/8" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT.
5. MINIMUM 1/2" BEAD HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT AT POINT OF CONTACT.

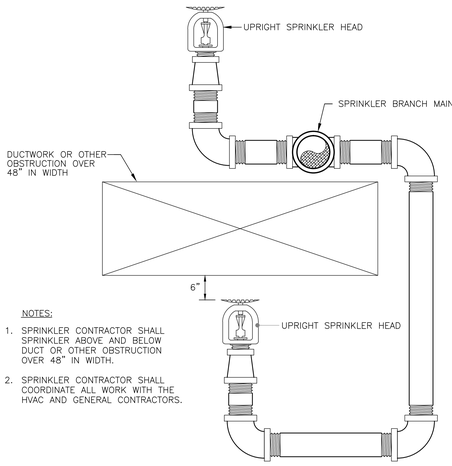
NOTES : 1. MAXIMUM DIAMETER OF OPENING :
A. 32-1/4" FOR STEEL STUD WALLS.
B. 14-1/2" FOR WOOD STUD WALLS.
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 2-1/4".
3. PIPE MAY BE INSTALLED WITH CONTINUOUS POINT OF CONTACT.
4. PIPE MAY BE INSTALLED AT AN ANGLE NOT GREATER THAN 45° FROM PERPENDICULAR.

UL/cUL SYSTEM NO. W-L-5029
INSULATED METAL PIPE THROUGH GYPSUM WALL ASSEMBLY
F-RATING = 1-HR. OR 2-HR.
T-RATING = 1/2-HR, 3/4-HR, 1-HR. OR 1-3/4-HR. (SEE UL FIRE RESISTANCE DIRECTORY)
L-RATING AT AMBIENT = 4 CFM/SQ. FT.
L-RATING AT 400°F = LESS THAN 1 CFM/SQ. FT.



1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U300 OR U400 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN).
2. (NOT SHOWN) WOOD STUDS TO CONSIST OF NOMINAL 2" x 4" LUMBER. STEEL STUDS TO BE MINIMUM 2-1/2" WIDE.
3. PENETRATING ITEM TO BE ONE OF THE FOLLOWING:
   A. MAXIMUM 12" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
   B. MAXIMUM 12" NOMINAL DIAMETER CAST OR DUCTILE IRON PIPE.
   C. MAXIMUM 6" NOMINAL DIAMETER COPPER PIPE OR TUBING.
4. NOMINAL 1", 1-1/2" OR 2" THICK GLASS-FIBER PIPE INSULATION OR MAXIMUM 2" THICK CALCIUM SILICATE PIPE INSULATION (SEE NOTE NO. 3 BELOW).
5. MINIMUM 5/8" DEPTH HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT.
6. MINIMUM 1/2" BEAD HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT AT POINT OF CONTACT.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 18".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1-7/8".
3. WHEN CALCIUM SILICATE PIPE INSULATION IS USED, SECURE INSULATION TO PIPE WITH STAINLESS STEEL BANDS OR MINIMUM 8 AWG STAINLESS STEEL WIRE AT MAXIMUM 12" O.C.

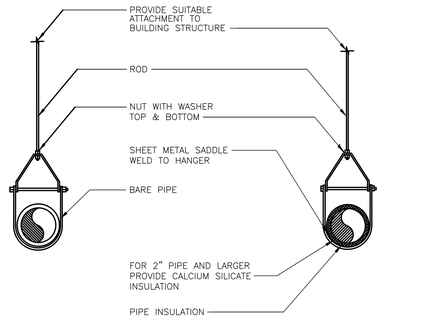


NOTES:

1. SPRINKLER CONTRACTOR SHALL SPRINKLER ABOVE AND BELOW DUCT OR OTHER OBSTRUCTION OVER 48" IN WIDTH.
2. SPRINKLER CONTRACTOR SHALL COORDINATE ALL WORK WITH THE HVAC AND GENERAL CONTRACTORS.

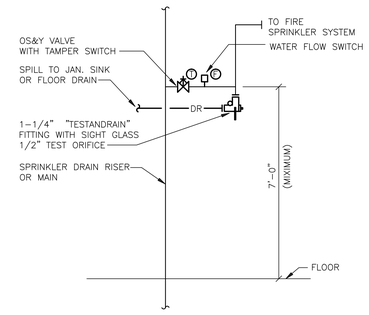
TYPICAL SPRINKLER HEAD INSTALLATION ABOVE AND BELOW DUCT

NOT TO SCALE



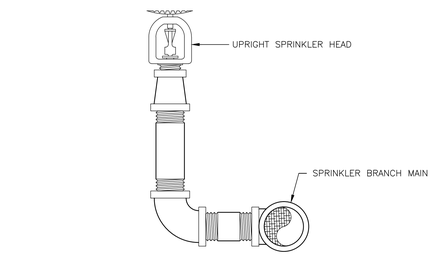
TYPICAL HANGING DETAIL

NOT TO SCALE



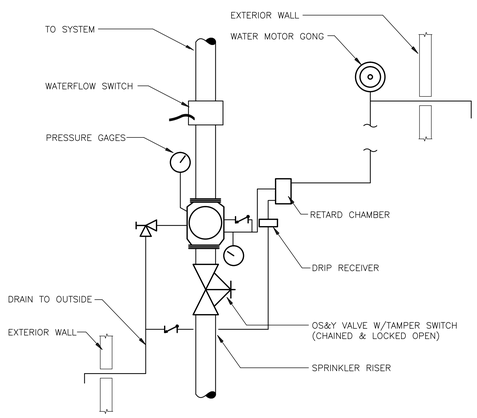
SPRINKLER FLOOR CONTROL VALVE WITH TESTANDRAIN ASSEMBLY

NOT TO SCALE



TYPICAL UPRIGHT SPRINKLERS

NOT TO SCALE



ALARM CHECK VALVE ASSEMBLY

NOT TO SCALE

SPRINKLER SYMBOL & ABBREVIATIONS

SP	SPRINKLER PIPING
SP	EXISTING SPRINKLER PIPING
	POINT OF NEW CONNECTION
	POINT OF DISCONNECT
	REMOVE EXISTING PIPE
	PIPE UP
	PIPE DOWN
	FLOW DIRECTION
	CAPPED PIPE
UH	UPRIGHT TYPE SPRINKLER HEAD
●	CONCEALED TYPE SPRINKLER HEAD
FC	FLUSH CONNECTION
FD	FLOOR DRAIN
TYP	TYPICAL
SP	SPRINKLER
RPPC	REPLACE EXISTING PIPE
● N	NEW CONCEALED SPRINKLER HEAD
UH R	UPRIGHT SPRINKLER HEAD TO BE RELOCATED
UH D	UPRIGHT SPRINKLER HEAD TO BE DEMOLISHED

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4	COMMISSIONER REVIEW	5/19/2015

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OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	02-09-2015
PROJECT NO:	4437
DRAWING BY:	MN/BJ
CHK BY:	CC/MN

TITLE

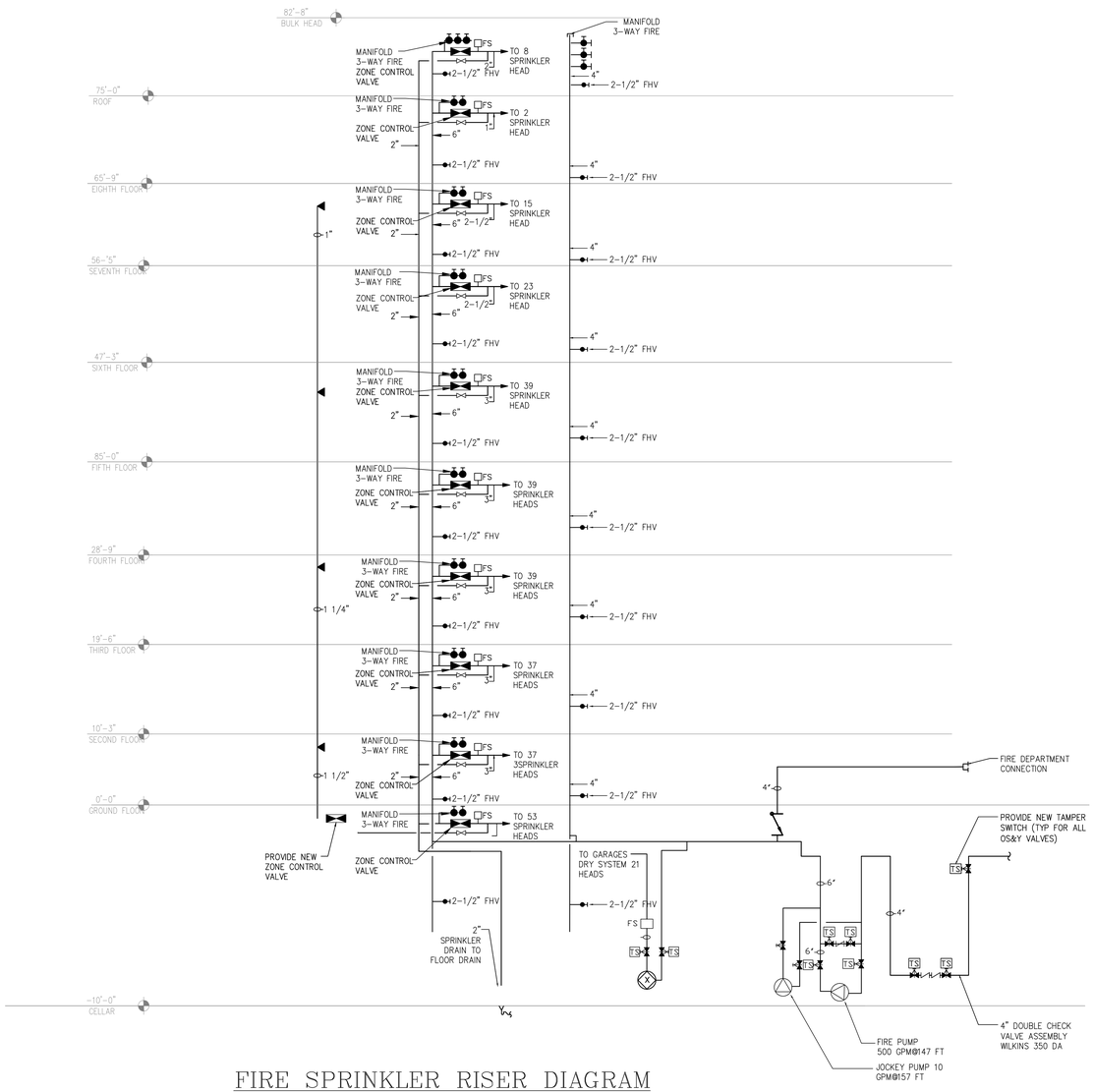
SPRINKLER DETAILS

DWG NO:

SP-300.00

10 of 12

DOB JOB NUMBER

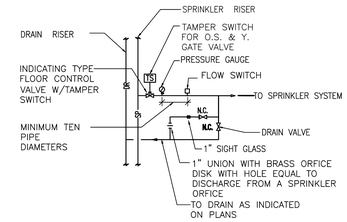


FIRE SPRINKLER RISER DIAGRAM

N.T.S.

SPRINKLER SYMBOLS	
SYMBOL	TYPE
	CONCEALED SPRINKLER HEAD
⟨1⟩	CALCULATION REFERENCE NUMBER
◀	SIDE WALL SPRINKLER HEAD
⊠	PENDANT DRY SPRINKLER HEAD
	PENDANT WET SPRINKLER HEAD

HYDRAULIC DATA & DESIGN CRITERIA NFPA 13
AREA OF APPLICATION –RESIDENTIAL, WET SYSTEM
1. DESIGN DENSITY = 0.1 G. P. M./ SQ.FT.
2. AREA OF APPLICATION: = 211 SQ.FT.
3. COVERAGE PER SPRINKLER = 62 SQ.FT.
4. No. SPKR CALCULATED = 4 HEADS
5. "K" FACTOR = 5.60
6. OCCUPANCY CLASSIFICATION= LIGHT HAZARD
7. TOTAL SYSTEM DEMAND 64.35 GPM
8. MINIMUM REQUIRED RESIDUAL PRESSURE AT SYSTEM INFLOW 49.90 PSI



SPRINKLER ZONE CONTROL

N.T.S.

FIRE PUMP SCHEDULE									
ITEM NO.	SERVICE	LOCATION	GPM	TDH/PSIG	HP	RPM	VOLTS	MODEL	MANUFACTURER	REMARKS
FP-1	SPRINKLER	FIRE PUMP ROOM	750	100/90	60	3500	208	4-383-10B	AURORA 911 SERIES SIZE 4X6X10	CONTROLER: "TORNA TECH" M# GPA

JOCKEY PUMP SCHEDULE									
ITEM NO.	SERVICE	LOCATION	GPM	TDH/PSI	HP	RPM	VOLTS	MODEL	MANUFACTURER	REMARKS
JP-3	SPRINKLER	FIRE PUMP ROOM	7.5	110/254	1-1/2	3450	3/60/208	934	AURORA	

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR PROGRESS	4/27/2015
3	FOR PROGRESS	5/09/2015
4	COMMISSIONER REVIEW	5/19/2015

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TITLE

SPRINKLER RISER DIAGRAM
AND SCHEDULES

DWG NO:

SP-400.00
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DOB JOB NUMBER

FIRE PROTECTION SPECIFICATIONS

15C.01 GENERAL

1. ALL WORK UNDER THIS SECTION IS SUBJECT TO THE CONTRACT DOCUMENTS, CONTRACT DRAWINGS AND THE "GENERAL CONDITIONS GOVERNING ALL CONTRACTS," ALL OF WHICH FORM A PART OF THIS SECTION AS IF WRITTEN OUT IN FULL HEREIN.

2. THE CONTRACTOR FOR WORK UNDER THIS SPECIFICATION IS REFERRED TO THE GENERAL CONDITIONS, SPECIAL CONDITIONS AND ALL CONTRACT DOCUMENTS, ALL OF WHICH ARE HEREBY MADE PART OF THIS SPECIFICATION.

3. THE CONTRACTOR SHALL PERFORM ALL NECESSARY REMOVAL, CUTTING, REPAIR, REPLACEMENT, ETC. FOR THE COMPLETION OF THIS WORK, AND PROVIDE ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT REQUIRED TO PERFORM THE WORK AS SPECIFIED HEREIN AND TO COMPLY WITH THE NEW YORK CITY PLUMBING CODE, NYC LOCAL LAW # 10/1999 AND N.F.P.A. # 13 OF 1999. RUBBISH AND DEBRIS SHALL BE EXPEDITIOUSLY REMOVED FROM THE PREMISES.

4. CONTRACTOR MUST CAREFULLY EXAMINE THE SITE OF THE PROPOSED WORK, AS WELL AS ITS ADJACENT AREA, AND SEEK OTHER USUAL SOURCES OF INFORMATION FOR THEY WILL BE CONCLUSIVELY PRESUMED TO HAVE FULL KNOWLEDGE OF ANY AND ALL CONDITIONS ON, ABOUT, OR ABOVE THE SITE RELATING TO, OR EFFECTING IN ANYWAY, THE PERFORMANCE OF THE WORK TO BE DONE UNDER THIS CONTRACT WHICH WERE OR SHOULD HAVE BEEN INDICATED TO A REASONABLY PRUDENT BIDDER.

5. THE ENTIRE SPRINKLER WORK SHALL BE PERFORMED BY A LICENSED CONTRACTOR FOR MASTER FIRE SUPPRESSION OR A LICENSED MASTER PLUMBER, AS SPECIFIED BY THE NY CITY DEPARTMENT OF BUILDINGS IN A NEAT MANNER AND IN ACCORDANCE WITH THE BEST PRACTICES. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPLICATIONS, APPROVALS, PERMITS AND SIGN OFF FROM NY CITY DEPARTMENT OF BUILDINGS' PLUMBING DIVISION, AND SHALL COMPLY WITH ALL LOCAL, STATE AND FEDERAL RULES, REGULATIONS AND LAWS APPLICABLE TO THIS CONTRACT AND TO THE WORK TO BE DONE. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING ALL FORMS AND DRAWINGS NECESSARY TO SECURE NY CITY DEPARTMENT OF BUILDINGS APPROVAL PRIOR TO OBTAINING ALL NECESSARY PERMITS AND PAY ALL FEES.

6. THE CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM ARCHITECT FOR CHANGES, ADDITIONS OR MODIFICATIONS TO THE "SCOPE OF WORK", SPECIFICATIONS, AND DRAWINGS.

7. PRIOR TO COMPLETION OF CONTRACT, ARCHITECT SHALL COORDINATE WITH THE MANAGEMENT GROUP A SINGLE AUTHORIZED PUNCH-LIST FOR ISSUANCE TO THE CONTRACTOR.

8. THE CONTRACTOR SHALL FULLY FAMILIARIZE HIMSELF WITH THE JOB AND FIELD CONDITIONS BEFORE SUBMITTING HIS BID.

9. SUBSTITUTIONS:

A. REFERENCE IN THE CONTRACT DOCUMENT TO MATERIALS, FORM OF CONSTRUCTION, PRODUCTS, AND EQUIPMENT BY PROPRIETARY NAME, MAKE AND CATALOGUE NUMBER SHALL BE INTERPRETED AS ESTABLISHING A STANDARD OF QUALITY OF MANUFACTURE, PERFORMANCE, OR APPEARANCE, AND SHALL NOT BE CONSTRUED AS LIMITED COMPETITION.

B. SHOULD THE CONTRACTOR DESIRE TO SUBSTITUTE ANY ITEM OF BRAND OR MANUFACTURE OTHER THAN THAT SPECIFIED, HE SHOULD SUBMIT TO THE ARCHITECT A WRITTEN REQUEST FOR APPROVAL OF THE SUBSTITUTIONS HE PROPOSES AND WISHES TO MAKE. SUCH REQUESTS SHALL BE ACCOMPANIED BY DESCRIPTIVE LITERATURE, DRAWINGS, SAMPLES OR SUCH INFORMATION AS THE ARCHITECT WILL INVESTIGATE ALL SUCH REQUESTS AND RENDER DECISIONS THEREON AS PROMPTLY AS IS REASONABLY POSSIBLE, AND SUCH DECISIONS SHALL BE FINAL.

C. ANY SUBSTITUTION OF MATERIAL SPECIFIED SHALL BE EQUAL IN QUALITY AND VALUE, OR CREDIT IS DUE TO THE OWNER.

10. IMMEDIATELY UPON AWARD OF THIS CONTRACT, CONTRACTOR SHALL PREPARE A WORK PROGRAM SCHEDULE. THIS SCHEDULE SHALL ESTABLISH THE ORDER IN WHICH THE WORK SHALL PROCEED, AND THE DATES WHEN THE VARIOUS PARTS SHALL BE INSTALLED OR COMPLETED.

11. PROVIDE FOR ALL WORK FOR A COMPLETE AND WORKING SPRINKLER SYSTEM. ANY ITEMS OR SERVICES NOT INDICATED IN THE CONTRACT DOCUMENTS AND NECESSARY FOR COMPLETION OF THE SYSTEM, OR REQUIRED BY ALL CODES, MUST BE BROUGHT TO ARCHITECT'S ATTENTION PRIOR TO BIDDING. THIS CONTRACTOR IS RESPONSIBLE FOR ALL ITEMS OR SERVICES NECESSARY FOR A COMPLETE INSTALLATION OF AN APPROVED SPRINKLER SYSTEM.

15C.02 WORK INCLUDED

12. PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY OR INCIDENTAL TO PERFORM THE WORK OF THIS SECTION AND RELATED WORK AS INDICATED IN THE CONTRACT DOCUMENTS. REFER TO "DIVISION SCOPE OF WORK" SECTION FOR COMPLETE SCOPE OF WORK FOR THIS SECTION THAT FORM A PART OF THE CONTRACT SPECIFICATIONS. A COMPLETE OPERATIONAL SPRINKLER SYSTEM IN CONFORMANCE WITH NEW YORK CITY BUILDING CODE IS REQUIRED BY THIS CONTRACT.

15C.03 WORK EXCLUDED

13. PAINTING, EXCEPT AS NOTED HEREIN.

15C.04 SUBMISSION REQUIREMENTS

15. BEFORE WORK COMMENCES, ARCHITECT APPROVAL REQUIRED

A. SUBMIT SIX (6) CATALOG CUTS FOR SPRINKLERS, PUMPS, VALVES, PIPES, TRIMS, ETC., AND ALL ALARM/CONTROL DEVICES.

15C.05 CODES, RULES AND CERTIFICATES

16. PAY ALL FEES, GIVE ALL NOTICES, FILE ALL NECESSARY DRAWINGS (IF REQUIRED) AND OBTAIN ALL PERMITS AND CERTIFICATES OF APPROVAL REQUIRED IN CONNECTION WITH ALL WORK UNDER THIS CONTRACT. COMPLY WITH ALL LAWS, ORDINANCES, RULES AND JURISDICTION OVER THIS WORK AND THE STANDARDS OF THE FIRE UNDERWRITER'S ASSOCIATION. IF ANY DISCREPANCIES EXIST BETWEEN THE CONTRACT DOCUMENTS AND PREVAILING CODE REQUIREMENTS THE CONTRACTOR SHALL COMPLY WITH CODE CRITERIA AT NO ADDITIONAL COST TO THE OWNER.

15C.06 COOPERATION

17. COOPERATE WITH ALL CONTRACTORS EMPLOYED ON THIS SITE IN SUCH MANNER AS TO FACILITATE THE COMPLETION OF THE WORK AS A WHOLE, SUBJECT TO THE GENERAL CONTRACTOR'S COORDINATION. IF CONFLICTS EXIST, THESE MATTERS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF ARCHITECT FOR RESOLUTION.

15C.07 REMOVAL OF RUBBISH

18. REMOVE DAILY OR MORE OFTEN IF REQUIRED FROM THE JOB SITE, ALL DEBRIS, CLEAN ALL PARTS OF THE BUILDING EXTERIOR INCLUDING ADJACENT ROADS, SIDEWALKS AND PAVEMENT, RESULTING FROM THE EXECUTION OF HIS WORK.

15C.08 ACCESSIBILITY

19. ASCERTAIN THAT ALL EQUIPMENT, SUCH AS VALVES, AND SUCH OTHER APPARATUS AS MAY BE NECESSARY TO BE REACHED FROM TIME TO TIME FOR OPERATION AND MAINTENANCE, IS MADE EASILY ACCESSIBLE.

20. THE LOCATION OF EQUIPMENT MAY CONFLICT WITH THE BUILDING CONSTRUCTION AND MAY DISCLOSE THE FACT THAT THE LOCATION FOR THIS WORK DOES NOT MAKE ITS POSITION EASILY AND QUICKLY ACCESSIBLE. IN SUCH CASES, CALL ARCHITECT'S ATTENTION TO THIS FACT BEFORE INSTALLING THIS WORK AND CONTRACTOR SHALL BE GUIDED BY ARCHITECT'S INSTRUCTIONS.

15C.09 CUTTING AND PATCHING

21. WHEN ACCESS TO THE SPRINKLER SYSTEM IS REQUIRED, THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING OF CEILINGS, WALLS AND FLOORS IN APARTMENTS AND BASEMENT/CELLAR AREAS. THIS CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT TO PERFORM ALL PATCHING AS FOLLOWS:

A. PLASTER WALLS AND CEILINGS:

1.) ALL PLASTER TO BE CUT BACK TO A PLUMB LINE AND NEW WORK ERECTED FLUSH WITH SAME.

2.) ALL NEW WORK TO BE INSTALLED OVER METAL LATH AND TO BE THREE COAT OPERATION CONSISTING OF SCRATCH, BROWN AND HARD WHITE FINISH.

3.) NEW PLASTER WORK OVER MASONRY WORK TO BE TWO COAT, CONSISTING OF BROWN AND HARD WHITE FINISH NOT LESS THAN ½" THICK.

B. DRYWALL CONSTRUCTION:

1.) ALL GYPSUM BOARD TO BE CUT BACK TO A PLUMB LINE AND NEW WORK ERECTED FLUSH WITH SAME.

2.) ALL NEW GYPSUM BOARD SHALL BE SCREW FASTENED WITH 1 1/4" SELF-TAPPING DRYWALL SCREWS.

3.) JOINTS SHALL RECEIVE A SCRATCH COAT WITH TAPE REINFORCEMENT, FOLLOWED BY TWO FINISH COATS OF JOINT COMPOUND. COMPOUND TO BE MANUFACTURED U.S. GYPSUM CO. OR EQUAL.

4.) MOISTURE RESISTANT GYPSUM WALLBOARD TO BE USED AT BATHROOMS, KITCHENS AND ALL LOCATIONS IN CONSIDERED "WET AREAS".

22. ALL FINISHED AREAS SHALL BE SANDED FLUSH WITH EXISTING SURFACES AS TO WHERE NO JOINTS CAN BE DETECTED. ENTIRE AREA SHALL BE PRIMED AND CONSIDERED PAINT READY.

15C.10 EXCAVATION AND BACKFILL

23. PERFORM ALL EXCAVATION, BACKFILLING, PUMPING AND SHEATHING REQUIRED FOR INSTALLATION OF ALL WORK DESCRIBED HEREIN. BACKFILLING SHALL BE CAREFULLY DONE AND THOROUGHLY COMPACTED. FOR EXCAVATION BELOW 8'-0", FILL SHALL BE MADE IN LAYERS NOT MORE THAN ONE FOOT DEEP AND EACH LAYER TAMPED. FILL AROUND PIPING SHALL BE FLUSHED IN WITH WATER. NO LARGE STONE OR BOULDERS SHALL BE USED. ALL BACKFILL SHALL BE INSTALLED AS PER REQUIREMENTS OF BUREAU HIGHWAYS OPERATIONS AND NEW YORK PAVING.

24. CONTRACTOR IS REQUIRED TO OBTAIN A PERMIT FROM THE DEPARTMENT OF HIGHWAYS PRIOR TO PROCEEDING WITH ANY PAVEMENT EXCAVATION.

25. ALL BACKFILL FOR PAVEMENT SHALL BE TESTED AND INSPECTED BY AN APPROVED TESTING LABORATORY AND PROFESSIONAL ENGINEER PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH BUREAU OF HIGHWAYS OPERATIONS AND NEW YORK PAVING REQUIREMENTS.

15C.11 MATERIALS AND WORKMANSHIP

26. AUTOMATIC FIRE SUPPRESSION SYSTEM: – PROVIDE A COMPLETE WET SPRINKLER SYSTEM IN CONFORMANCE WITH THE REQUIREMENTS OF THE N.Y.C. BUILDING CODE, N.Y.C. LOCAL LAW #10/1999 AND N.F.P.A. PAMPHLET #13 OF 1999. THE PROVISIONS OF THE PAMPHLET (UNLESS OTHERWISE SPECIFIED) SHALL BE FOLLOWED IN TOTAL WHETHER THE STIPULATIONS LISTED THEREIN ARE DIRECTED OR RECOMMENDED. THE ENTIRE SYSTEM SHALL BE INSTALLED ACCORDING TO THE PLANS BY A LICENSED N.Y.C. PLUMBING CONTRACTOR OR MASTER FIRE SUPPRESSION CONTRACTOR, AS SPECIFIED BY NYC BUILDING DEPARTMENT WITH A LETTER OF FITNESS FROM N.Y.C. FIRE DEPARTMENT.

A. FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, ETC., NECESSARY OR REQUIRED TO PERFORM THE WORK OF THIS SECTION AS INDICATED ON THE DRAWINGS AND/OR SPECIFIED HEREIN. THE WORK SHALL INCLUDE BUT NOT NECESSARILY BE LIMITED TO THE FOLLOWING:

1.) INSTALL SPRINKLER PIPING COMPLETE WITH SPRINKLERS IN SPACES FROM CELLAR TO BULKHEAD AS INDICATED ON THE DRAWINGS. SPRINKLERS SHALL BE CONCEALED TYPE IN ALL HUNG CEILING AREAS (APARTMENTS, PUBLIC HALLS, COMMERCIAL SPACES) AND UPRIGHT OR PENDENT IN UNFINISHED OR FINISHED AREAS WITHOUT HUNG CEILINGS (CELLAR ONLY).

2.) INSTALL CONTROL, CHECK AND O.S & Y. VALVES. PROVIDE STEEL CHAIN, STEEL PADLOCK AND TWO KEYS IN ORDER TO SECURE O.S & Y. VALVES IN OPEN POSITION.

3.) INSTALL SPRINKLER BOOSTER PUMP AND JOCKEY PUMP AT CELLAR FLOOR TO SUPPLY SPRINKLER SYSTEM.

4.) FURNISH SPRINKLER ALARM CONTROL PANEL, SPRINKLER ALARM BELLS FOR MOUNTING AND WIRING BY ELECTRICAL CONTRACTOR. SPRINKLER BELLS SHALL BE INSTALLED IN A CAGE (WIRE GUARD) AND RECESSED IN THE WALL.

5.) INSTALL APPROVED FIRE DEPARTMENT SIAMESE CONNECTION. ALL SIAMESE SHALL BE FLUSH MOUNTED

6.) FURNISH ACCESS DOORS.

7.) FURNISH AND INSTALL WATERFLOW DETECTORS.

8.) TESTING, CLEANING AND ADJUSTING OF SPRINKLER SYSTEMS.

9.) THE CONTRACTOR SHALL GIVE NECESSARY NOTICES, HYDRAULIC CALCULATION TO DEPARTMENTS HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE.

10.) SHOP DRAWINGS, SAMPLES AND INSTRUCTIONAL MANUALS, TESTS AND ADJUSTMENTS.

11.) SUPPORTS, HANGERS, INSERTS, ANCHORS, GUIDES, SLEEVE, FLASHING AND SIMILAR RELATED ITEMS.

12.) TAGS, CHARTS, SIGNS, DRIP PANS.

13.) PROVIDE FOR ALL ELECTRICAL WIRING OF ALL SPRINKLER EQUIPMENT FOR COMPLETE OPERATION OF SYSTEM. ALL WORK TO BE PERFORMED BY LICENSED ELECTRICAL CONTRACTOR.

14.) GUARANTEES.

B. AUTOMATIC FIRE PUMP AND JOCKEY PUMP.

1.) PROVIDE AN AUTOMATIC ELECTRIC FIRE PUMP RATED AS INDICATED ON THE DRAWINGS. THE PUMP SHALL DELIVER 150% OF RATED CAPACITY AT NOT LESS THAN 65% OF RATED HEAD. SHUT-OFF HEAD SHALL NOT EXCEED 140% OF THE RATED HEAD. THE PUMP SHALL BE IN-LINE CONSTRUCTION WITH CAST IRON CASTING, BRONZE ENCLOSED IMPELLER, BRONZE CASING WEAR RING, STEEL SHAFT, BRONZE SHAFT SLEEVE, STUFFING BOX WITH ADJUSTABLE BRONZE PACKING GLAND AND BRAIDED PACKING. PUMP MANUFACTURER PEERLESS PUMP CO., HORIZONTAL SPLIT CASE FIRE PUMP MODEL MODEL NO. 4AEF10G OR APPROVED EQUAL.

2.) ALL COMPONENTS ON DISCHARGE SIDE OF THE PUMP SHALL HAVE A RATED WORKING PRESSURE GREATER THAN PUMP SHUT-OFF HEAD PLUS MAXIMUM SUCTION PRESSURE. THE FOLLOWING ACCESSORIES AND FITTINGS SHALL BE PROVIDED: ECCENTRIC SUCTION REDUCER-IF REQUIRED, CONCENTRIC DISCHARGE INCREASER (IF REQUIRED), AUTOMATIC AIR RELEASE VALVE, CASING RELIEF VALVE, ETC.

3.) THE PUMP SHALL BE CLOSE-COUPLED TO A HI/NEMA FRAME, VERTICAL, ELECTRICAL MOTOR RATED AS INDICATED ON THE DRAWINGS WITH 1.15 SERVICE FACTOR. LOCKED ROTOR CURRENT SHALL NOT EXCEED THEN VALUES SPECIFIED IN THE NFPA PAMPHLET #20. THE PUMP AND MOTOR SHALL BE MOUNTED ON CAST IRON PEDESTAL.

4.) THE FIRE PUMP CONTROLLER SHALL BE PEERLESS/FIRETROL MODEL AS INDICATED ON THE DRAWINGS, OR APPROVED EQUAL, LISTED AND FM APPROVED SPECIFICALLY FOR FIRE PUMP SERVICE. THE ENCLOSURE SHALL BE A NEMA TYPE 2. THE CONTROLLER SHALL BE COMBINED MANUAL AND AUTOMATIC LIMITED SERVICE ACROSS-THE-LINE TYPE FOR HP SPECIFIED AND INCLUDING VOLTAGE SURGE ARRESTERS. THE CONTROLLER SHALL BE CAPABLE OF INTERRUPTING A SHORT CIRCUIT CURRENT AT LEAST EQUAL TO THE AVAILABLE SHORT CURRENT IN THE CONTROLLER SUPPLY CIRCUIT. PROVIDE DISCONNECT SWITCH IN CONTROLLER WITH AN INTERRUPTING CAPACITY AS INDICATE ON THE DRAWINGS.

5.) THE CONTROLLER SHALL INCLUDE "POWER FAILURE" AND "PUMP RUNNING" DRY CONTACTS FOR REMOTE ALARM WIRING TO ALARM CONTROL PANEL AND INDICATOR LIGHTS FOR THESE CONDITIONS.

6.) THE CONTROLLER MUST BE CAPABLE OF PERFORMING OR CONTAIN THE FOLLOWING FEATURES: PRESSURE SWITCH, AUTOMATIC START ON LOW PRESSURE, AND TIMING RELAY FOR AUTOMATIC STOP, TO FIELD CHANGEABLE OR MANUAL STOP.

7.) THE JOCKEY PUMP SHALL BE MULTI-STAGE CENTRIFUGAL PUMP AS MANUFACTURED BY PEERLESS PUMP COMPANY "GRUNDFOS" SERIES C WITH A RATED CAPACITY AS INDICATED ON THE DRAWINGS, OR APPROVED EQUAL. THE PUMP SHALL BE CLOSE COUPLED TO AN ODP MOTOR WITH 1.15-SERVICE FACTOR.

8.) THE JOCKEY PUMP CONTROLLER SHALL BE PEERLESS/FIRETROL MODEL INDICATED ON OR APPROVED EQUAL, IN A NEMA 2 ENCLOSURE WITH ACROSS-THE-LINE MAGNETIC STARTER, FUSIBLE DISCONNECT SWITCH, HOA SWITCH, PRESSURE SWITCH, CONTROL TRANSFORMER WITH FUSED SECONDARY AND RUNNING PERIOD TIMER.

9.) THE FIRE PUMP SHALL BE HYDROSTATICALLY TESTED AND RUN TESTED PRIOR TO SHIPMENT, BY THE PUMP MANUFACTURER. THE PUMP SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF NOT LESS THAN ONE AND ONE HALF TIMES NO FLOW (SHUTOFF) HEAD OF THE PUMP'S MAXIMUM DIAMETER IMPELLER PLUS THE MAXIMUM ALLOWABLE SUCTION HEAD, BUT IN NO CASE LESS THAN 250 PSIG. A CHARACTERISTIC CURVE OF PUMP PERFORMANCE, EFFICIENCY AND BRAKE HORSEPOWER SHALL BE DRAWN FROM THE TEST RESULTS AND FURNISHED TO THE ENGINEER FOR APPROVAL.

10.) THE PUMP MANUFACTURER SHALL PROVIDE THE SERVICE OF MANUFACTURER'S REPRESENTATIVE FOR THE FIRE PUMP INSTALLATION START-UP AND TEST RUN SUPERVISION.

11.) PUMPS SHALL BE GUARANTEED FOR FIVE (5) YEARS.

C. FIRE SERVICE BACKFLOW PREVENTION DEVICES.

1.) DOUBLE CHECK DETECTOR ASSEMBLY WITH BYPASS METER (DCDA): EPOXY COATED CAST IRON CHECK VALVE BODY, BRONZE SEAT AND DISK HOLDER; STAINLESS STEEL TRIM AND DURABLE, TIGHT-SEATING RUBBER CHECK VALVE DISCS, UL/FM LISTED OS&Y GATE VALVES, CFM METER AND BALL TYPE TEST COCKS. MODEL 709 DOUBLE CHECK DETECTOR ASSEMBLY WITH BYPASS METER AS MANUFACTURED BY WATTS INDUSTRIES INC., OR APPROVED EQUAL.

D. PIPE, FITTINGS AND VALVES

1.) ALL PIPING, FITTINGS, VALVES, ETC. SHALL BE OF MATERIALS AND WEIGHTS REQUIRED BY THE NEW YORK CITY BUILDING CODE AND THE N.F.P.A. STANDARDS AND FM APPROVED.

2.) SPRINKLER PIPING INSIDE OF THE BUILDING SHALL BE OF STANDARD WEIGHT SCHEDULE 40 BLACK STEEL PIPE SUITABLE FOR 175-PSIG MINIMUM WORKING PRESSURE. ALL PIPE OPENING SHALL BE CAPPED PLUGGED DURING CONSTRUCTION. WHEN SYSTEM PIPING PIERCES A FOUNDATION WALL CLEARANCES AND A PIPE SLEEVE SHALL BE PROVIDED TO PREVENT BREAKAGE OF PIPE. IN NO CASE SHALL THE CONTRACTOR SUBSTITUTE PIPE SIZES WITHOUT NOTIFYING THE ARCHITECT AND ENGINEER.

3.) PIPING SHALL BE INSTALLED TO BE CLEAR OF ANY AND ALL CONDUITS, LIGHTING FIXTURES, PLUMBING AND HEATING PIPING. THIS CONTRACTOR SHALL CONSULT WITH CONTRACTORS OF THE OTHER TRADES TO FACILITATE THE ERECTION OF THE SYSTEM.

4.) SPRINKLER PIPING SHALL BE LOCATED TO CLEAR STRUCTURAL MEMBERS PLATFORMS AND EQUIPMENT. (NO CUTTING OF STRUCTURAL MEMBERS SHALL BE PERMITTED UNLESS APPROVAL IN WRITING BY ARCHITECT).

5.) ALL HORIZONTAL PIPING SHALL BE INSTALLED AS HIGH AS POSSIBLE (EXCEPT WHERE CONCEALED IN CONSTRUCTION) TO SLAB, BEAM, ETC., TO MAINTAIN HEADROOM.

6.) HORIZONTAL SPRINKLER MAINS AND BRANCH PIPING TO BE INSTALLED AS FOLLOWS:

a. PIPING ABOVE TOP FLOOR AREAS: PIPING TO BE CONCEALED, INSTALLED WITHIN ATTIC SPACE / COCKLOFT BETWEEN DROP CEILING AND ROOF RAFTERS. PIPING WITH PIPE WRAP INSULATION, TO BE PLACED JUST ABOVE DROP CEILING WITHIN ONE INCH OF DROP CEILING FRAMING SYSTEM. BUILDING ENVELOPE INSULATION (PROVIDED BY OTHERS) SHALL BE DRAPED UP AND OVER PIPING TO PROTECT PIPING FROM FREEZING.

b. PIPING BETWEEN APARTMENT FLOORS: PIPING TO BE CONCEALED, MOUNTED ABOVE DROP CEILING. PIPING PERPENDICULAR TO THE JOISTS MUST BE MOUNTED WITHIN ONE INCH FROM BOTTOM JOISTS. PIPING PARALLEL TO JOISTS SHALL RUN WITHIN JOIST CAVITIES. NOTCHING OR CUTTING OF STRUCTURAL MEMBERS IS NOT PERMITTED.

c. PIPING FOR CELLAR AREAS: PIPING TO BE EXPOSED.

7.) SPRINKLERS, SEE SECTION E, "SPRINKLERS" .

8.) A RISER CHECK VALVE WITH RISER CHECK VALVE TRIM SHALL BE INSTALLED FOR USE IN CONJUNCTION WITH THE VANE-TYPE WATERFLOW ALARM DETECTOR. THE RISER CHECK VALVE TRIM SHALL INCLUDE APPROVED WATER SUPPLY AND SYSTEM PRESSURE GAUGES, AS WELL AS A TEST CONNECTION AND MAIN CONTROL AND DRAIN VALVES APPROPRIATELY SIZED TO MEET THE REQUIREMENTS OF THE N.F.P.A. 13 STANDARDS.

9.) INSTALL A FLOOR CONTROL VALVE ASSEMBLY ON EACH FLOOR INCLUDING CELLAR. THE O.S & Y. VALVE SHALL BE PROVIDED WITH TAMPER SWITCHES.

E. SPRINKLERS

1.) IN AREAS WITH DROP CEILINGS, PUBLIC HALLS, LOBBY/VESTIBULE, OFFICES ETC. PROVIDE CONCEALED PENDENT SPRINKLERS. ALL SPRINKLERS MUST BE BOTH UL, N.Y.C. LISTED AND FM APPROVED. ALL CONCEALING COVER PLATES SHALL BE FLUSH MOUNTED WITH FINISHED CEILING AND WITH MANUFACTURER'S APPLIED WHITE FINISH. FIELD PAINTED COVER PLATES ARE NOT ACCEPTABLE. "RELIABLE AUTOMATIC SPRINKLER" MODEL G4FR, NYC MEA 258-93-E,

2.) FOR APARTMENTS, PROVIDE RESIDENTIAL CONCEALED PENDENT OR SIDEWALL SPRINKLERS SIMILAR TO "RELIABLE AUTOMATIC SPRINKLER" MODEL F1-RES, NYC MEA 258-93-E, WITH WHITE COVER PLATE AS OR APPROVED EQUAL.

4.) IN AREAS WITHOUT HUNG CEILINGS (CELLAR) PROVIDE QUICK RESPONSE STANDARD COVERAGE UPRIGHT OR PENDENT TYPE CHROME PLATED SPRINKLERS. SPRINKLERS SHALL BE MODEL G NYC MEA 258-93-E AS MANUFACTURED BY "RELIABLE AUTOMATIC SPRINKLER CO." OR APPROVED EQUAL. SPRINKLERS SHALL BE INSTALLED UPRIGHT UNLESS CEILING HEIGHTS REQUIRE PENDENT SPRINKLERS. ALL PENDENT SPRINKLERS SHALL BE INSTALLED WITH RETURN BEND ARRANGEMENT. INSTALLATION OF SPRINKLERS IN PIPE BEFORE PIPE IS ERECTED IS STRICTLY FORBIDDEN.

5.) SPRINKLER LOCATIONS SHALL BE COORDINATED WITH CEILING TYPES AND LIGHTING. SPRINKLER SHALL BE MINIMUM 12" FROM LIGHTING FIXTURES.

6.) THE SPRINKLERS SUBJECT TO FREEZING SHALL BE OF THE DRY PIPE TYPE AND PIPING HEAT TRACED AND INSULATED.

7.) ANY AND ALL SPRINKLERS PLACED IN LOCATION WHERE THEY ARE LIABLE TO BE ACCIDENTALLY HIT IN THE NORMAL COURSE OF EVENTS SHALL BE PROVIDED WITH HEAVY WIRE GUARDS.

F. WATER FLOW DETECTORS

1.) DETECTOR SHALL BE UL LISTED FM APPROVED VANE TYPE. THE ACTUATION MECHANISM SHALL INCLUDE A POLYETHYLENE VANE INSERTED THROUGH A HOLE IN THE PIPE AND CONNECTED BY A MECHANICAL LINKAGE TO THE DELAY MECHANISM. THE DELAY MECHANISM SHALL BE A SEALED MECHANICAL PNEUMATIC UNIT WITH VISUAL INDICATION OF ACTUATION. OUTPUTS SHALL CONSIST OF DUAL SWITCHES. TWO CONDUIT ENTRANCES FOR STANDARD FITTINGS OF COMMONLY USED ELECTRICAL CONDUIT SHALL BE PROVIDED ON THE DETECTORS. MODEL WFDE SERIES AS MANUFACTURED BY STAR SPRINKLER CO., OR APPROVED EQUAL.

2.) DETECTORS SHALL BE WEATHERPROOF, DUST PROOF AND FINISHED IN RED BAKED ENAMEL.

3.) THE VANE SHALL BE POLYETHYLENE FLEXIBLE VANE ATTACHED TO AN ALUMINUM PIPE SADDLE AND ATTACHED TO PIPE WITH STEEL "U" BOLT CLAMPS.

4.) THE DETECTOR SHALL RESPOND TO WATERFLOW IN THE SPECIFIED DIRECTION AFTER A PRESET TIME DELAY.

5.) THE DETECTOR SHALL ACTIVATE THE ALARM PANEL AND LOCAL BELLS SIMULTANEOUSLY.

G. FIRE ALARM CONTROL PANEL

1.) FLUSH MOUNTED FIRE ALARM PANEL CONTAINING AUDIBLE AND VISUAL ALARMS FOR SPRINKLER FLOW ALARMS.

2.) PANEL SHALL BE NATIONAL ELECTRIC CODE GAUGE SHEET STEEL WITH OVERLAPPING TRIM AND HINGED DOOR WITH BULLS EYE LAMP INDICATORS AND NAMEPLATES FLUSH MOUNTED ON DOOR. OVERALL DIMENSIONS SHALL BE KEPT TO A MINIMUM.

3.) 10" AUDIBLE BELLS INDICATING ON ALARM CONDITION SHALL BE INCORPORATED AT THE ALARM PANEL, AT EACH FLOOR AND OUTSIDE BUILDING FRONT WALL. A CUT-OFF SWITCH SHALL BE MOUNTED ON THE DOOR TO SILENCE THE BELL EXCEPT THAT THE BULL'S EYE LAMP INITIATING THE ALARM SHALL REMAIN "ON" UNTIL THE ALARM CIRCUIT HAS BEEN CLEARED. PROVIDE BLACK LAMCOID NAMEPLATES UNDER EACH BULL'S EYE AND CUT-OFF SWITCH WITH 1/4" HIGH WHITE LETTERS IDENTIFYING THE PARTICULAR ALARM. NAMEPLATES SHALL BE PERMANENTLY FASTENED WITH MACHINE SCREWS; ADHESIVES ARE NOT ACCEPTABLE. BELLS SHALL BE RECESSED IN WALL AND PROTECTED BY WIRE CAGE.

4.) PANEL SHALL BE LOCATED WHERE DIRECTED IN CELLAR AND SHALL BE SUITABLE FOR OPERATION FROM 120-VOLT SINGLE-PHASE SOURCE VOLTAGE PROVIDED BY ANOTHER TRADE. THIS CONTRACTOR SHALL PROVIDE ALL NECESSARY CONTROL WIRING FROM THE ALARM PANEL TO THE SPRINKLER FLOW ALARM AND SWITCH. ALL NECESSARY RELAYS, TERMINAL STRIPS WIRING, ETC., REQUIRED FOR A COMPLETE AND FUNCTIONING ALARM SYSTEM SHALL BE INCLUDED.

5.) AS MANUFACTURED BY ADT SECURITY SYSTEM OR APPROVED EQUAL.

H. THE CONTRACTOR SHALL REFER TO ACCOMPANYING DRAWINGS FOR LOCATION OF SPRINKLER HEADS. INSTALLATION IS SUBJECT TO FIELD CONDITIONS AND CONTRACTOR SHALL VISIT SITE TO DETERMINE DIMENSIONAL DATA. NO COMPENSATION WILL BE GIVEN FOR MINOR ROUTING CHANGES.

I. THE ENTIRE SYSTEM SHALL BE INSTALLED SO THAT THE SYSTEM MAY BE DRAINED. DRIPS AND DRAINS SHALL BE INSTALLED AT LOW PRESSURE POINTS AT THE BASE OF EACH RISER AND AT LOW POINT OF EACH HORIZONTAL MAIN.

J. A TEST CONNECTION NOT LESS THAN 1" IN DIAMETER PROVIDING A FLOW EQUIVALENT TO ONE SPRINKLER HEAD SHALL BE PROVIDED TO TEST EACH RISER AND WATER FLOW ALARM. THE TEST CONNECTION SHALL BE READILY ACCESSIBLE AND IN A LOCATION WHERE IT IS NOT PRACTICAL TO TERMINATE THE TEST CONNECTION, A SIGHT GLASS MAY BE USED. THE DISCHARGE SHALL BE TO A DRAIN CONNECTION CAPABLE OF ACCEPTING FULL FLOW UNDER SYSTEM PRESSURE. THE TEST CONNECTION SHALL BE LOCATED AT THE HIGHEST MOST REMOTE POINT.

K. PROVIDE FERROUS HANGERS IN ACCORDANCE WITH NFPA 13/6-1.1.2. SPRINKLER HANGERS SHALL NOT BE USED TO SUPPORT NON-SYSTEM COMPONENTS. THE BASE OF THE VERTICAL PIPE SHALL BE RIGIDLY ANCHORED AND SUPPORTED TO RELIEVE ANY UNDO STRESS ON THE HORIZONTAL SECTIONS.

L. PROVIDE IDENTIFICATION SIGN OF STANDARD DESIGN FASTENED SECURELY AT DESIGNATED LOCATIONS.

M. THE SYSTEM SHALL BE ARRANGED AND EQUIPPED SO THAT ACCIDENTAL FLOW ALARMS DUE TO SURGES OR RELATED CONDITIONS WILL BE PREVENTED.

N. UPON COMPLETION OF THE WORK SPRINKLER HEADS AND TRIMMINGS SHALL BE CLEANED AND POLISHED FREE FROM ANY MARKS AND LEFT IN FIRST CLASS CONDITION. DAMAGED HEADS WILL BE REPLACED AT NO ADDITIONAL COST.

O. SIAMESE CONNECTION

1.) THE FIRE DEPARTMENT SIAMESE CONNECTION SHALL BE OF AN APPROVED TYPE AND HALL BE EQUIPPED WITH LISTED PLUGS OR CAPS, PROPERLY SECURED AND ARRANGED FOR EASY REMOVAL BY FIRE DEPARTMENTS.

2.) SIAMESE CONNECTIONS SHALL BE OF THE FLUSH TYPE ONLY, AND WITH THE EXCEPTION OF THE SWIVEL CAPS, SHALL NOT PROJECT BEYOND THE STREET PROPERTY LINE. THE RISER PIPE TO A FREESTANDING SIAMESE CONNECTION SHALL BE RED BRASS. WHEN SIAMESE CONNECTIONS ARE INSTALLED IN WALL RECESSES, THE RECESSES SHALL BE OF AMPLE SIZE TO PERMIT THE CONVENIENT HOSE ATTACHMENT.

3.) SIAMESE CONNECTOR SHALL BE BRASS.

4.) SIAMESE CONNECTION SHALL BE INSTALLED AS REQUIRED UNDER BUILDING CODE SECTIONS 27-940, 27-941, 27-959 AND 27-960

P. PROVIDE LOCKING ENAMELED STEEL SPRINKLER CABINET WITH APPROVED NUMBER OF HEADS (MINIMUM 6 HEADS) OF ALL TYPES AND RATING, AND TWO (2) SPRINKLER WRENCHES. CABINET SHALL BE SECURELY FASTENED TO WALL IN WATER METER ROOM.

Q. THE ENTIRE SYSTEM SHALL BE FLUSHED AND TESTED BY THE CONTRACTOR IN THE PRESENCE OF AND TO THE SATISFACTION OF THE INSPECTORS OF ALL AGENCIES HAVING JURISDICTION.

R. UPON COMPLETION OF THE PIPING SYSTEM THE CONTRACTOR SHALL SUBMIT THE ENTIRE SYSTEM TO A 2-HOUR HYDROSTATIC TEST DURING WHICH A SYSTEM PRESSURE OF 175 PSI SHALL BE MAINTAINED.

S. PIPE INSULATION

1.) INSULATE ALL PIPES, FITTINGS AND VALVES ABOVE TOP FLOOR AREAS OR AREAS SUBJECT TO FREEZING WITH HEAVY DENSITY FIBERGLASS INSULATION WITH VAPOR RETARDER JACKET.

2.) MATERIAL TO MEET ASTM C547 CLASS 1 & 2, AND FIRE SAFETY REQUIREMENTS ASTM E84, UL 723

3.) ALL PIPE INSULATION SHALL BE 2" THICK.

4.) PIPE INSULATION SHALL BE OWENS COMING FIBERGLASS ASJ/SSL H – II, CERTAINTEED 500 SNAP-ON OR APPROVED EQUAL.

15C.12 MAINTENANCE AND OPERATING INSTRUCTIONS

27. SUBMIT THREE SETS OF TYPEWRITTEN MAINTENANCE AND OPERATING INSTRUCTIONS FOR ALL EQUIPMENT FURNISHED IN BUILDING.

28. GIVE FULL INSTRUCTIONS TO THE ARCHITECT AND MANAGEMENT GROUP AS TO THE LOCATION, OPERATION AND MAINTENANCE OF ALL MACHINERY, APPARATUS AND OTHER WORK INSTALLED BY HIM.

15C.13 REQUIREMENTS AND GUARANTEE

NOTE: ANY CHANGE FROM THE ORIGINAL INTENT (SCOPE OF WORK) MUST BE APPROVED BY ARCHITECT.

29. UPON COMPLETION OF ALL WORK TO BE PERFORMED UNDER THE CONTRACT AND ACCEPTANCE OF SAME BY ARCHITECT, THE CONTRACTOR SHALL EXECUTE AND DELIVER IN A FORM SATISFACTORY TO ARCHITECT, A GUARANTEE THAT ALL WORKMANSHIP AND MATERIALS USED IN THE PERFORMANCE OF THIS CONTACT, SHALL REMAIN FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF EXECUTION OF THE GUARANTEE. THIS CONTRACTOR SHALL GUARANTEE TO REPAIR OR REPLACE, AS DETERMINED BY ARCHITECT, ANY DEFECTIVE PORTIONS OF THE VARIOUS SYSTEMS DESCRIBED HEREIN THE GUARANTEE PERIOD.

30. ALL WORK UNDER THIS SPECIFICATION SHALL MEET THE REQUIREMENTS OF THE NEW YORK CITY BUILDING CODE AND AGENCIES HAVING JURISDICTION.

31. ALL WORKMANSHIP SHALL BE FIRST-CLASS IN EVERY RESPECT AND SHALL BE PERFORMED BY FULLY EXPERIENCED WORKMAN IN ACCORDANCE WITH BEST PRACTICES OF THE TRADE FOLLOWING THE RECOMMENDATIONS OF MANUFACTURERS.

32. ALL MATERIALS, DEBRIS, RUBBISH, ETC., RESULTING FROM THE WORK UNDER THIS SPECIFICATION SHALL BE IMMEDIATELY REMOVED BY THIS CONTRACTOR IN AN ORDERLY WAY AND DISPOSED OF IN A LAWFUL MANNER. CLEAN ALL ADJOINING SURFACES OF SMUDGE, DIRT, GRIME, ETC., RESULTING FROM THIS WORK. BROOM SWEEP SIDEWALK AT END OF EACH WORKDAY.

33. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE STRUCTURE, ADJOINING SURFACES AND PERSONAL PROPERTY.

34. ALL WORK AND MATERIAL REQUIRED BY THIS SPECIFICATION SHALL BE FULLY PROTECTED AGAINST DAMAGE FROM ANY SOURCE. THIS CONTRACTOR SHALL REPLACE OR PAY FOR ANY MATERIAL OR WORK, WITHOUT EXPENSE TO THE CITY RESULTING FROM ANY CAUSE WHATSOEVER OR LOST BY THEFT OR VANDALISM, BEFORE FINAL ACCEPTANCE OF THE WORK.

35. THE CONTRACTOR SHALL PROVIDE ALL SCAFFOLDING NEEDED FOR COMPLETION OF THE WORK AND HE SHALL PROVIDE AND MAINTAIN AT HIS EXPENSE, ALL BARRIERS FOR PROTECTION OF PEDESTRIANS AS REQUIRED BY THE BUILDING AND TRAFFIC DEPARTMENTS. STREET AND PAVEMENTS SHALL NOT BE OBSTRUCTED OR CLOSED UNTIL MUNICIPAL PERMITS ARE OBTAINED.

36. THE CONTRACTOR SHALL PAY ALL FEES, OBTAIN LICENSES, PERMITS AND FILE WITH THE DEPARTMENT OF BUILDINGS OR OTHER AGENCIES FROM WHICH APPROVALS ARE REQUIRED, ADHERE STRICTLY TO ALL STATE AND CITY LAW AND REGULATIONS PERTAINING TO THE WORK AND/OR THE EQUIPMENT REQUIRED TO PERFORM SAME.

37. REPAIR AND/OR REPLACE MATERIALS AND FINISHES DAMAGED AS A RESULT OF THE INSTALLATION OF ALL WORK UNDER THESE SPECIFICATIONS.

38. ALL MATERIALS SHALL BE NEW AND MEET THE LATEST REQUIREMENTS OF GOVERNMENT AND LOCAL AGENCIES.

39. ALL MANUFACTURED ITEMS SHALL BE COVERED BY STANDARD MANUFACTURER'S ONE (1) YEAR GUARANTEE AGAINST DEFECTS IN WORKMANSHIP AND MATERIALS, WHETHER OR NOT SPECIFICALLY SHOWN ON THE PLANS, OR SPECIFIED IN THESE SPECIFICATIONS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AS PROVIDED IN WRITING.

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TITLE

SPRINKLER SPECIFICATIONS

DWG NO:

SP-500.00

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DOB JOB NUMBER

HILLSIDE AVENUE

178 ST

179 ST

47 STORAGE UNITS

STORAGE

LAUNDRY

RESIDENTIAL GYM

COMPACTOR

MECHANICAL

FACP COT FDS

FIRE ALARM CONTROL PANEL

OFFICES
16,998 SF

THIS AREA TO BE DESIGNED UNDER SEPARATE APPLICATION

OFFICES
7,827 SF

HAND DRYER

MEN'S RESTROOM

WOMEN'S RESTROOM

HAND DRYER

USE GROUP 4

RECEIVING
CLG. HT.
OPEN

COMMERCIAL
3,059 SF

C-62

UNEXCAVATED

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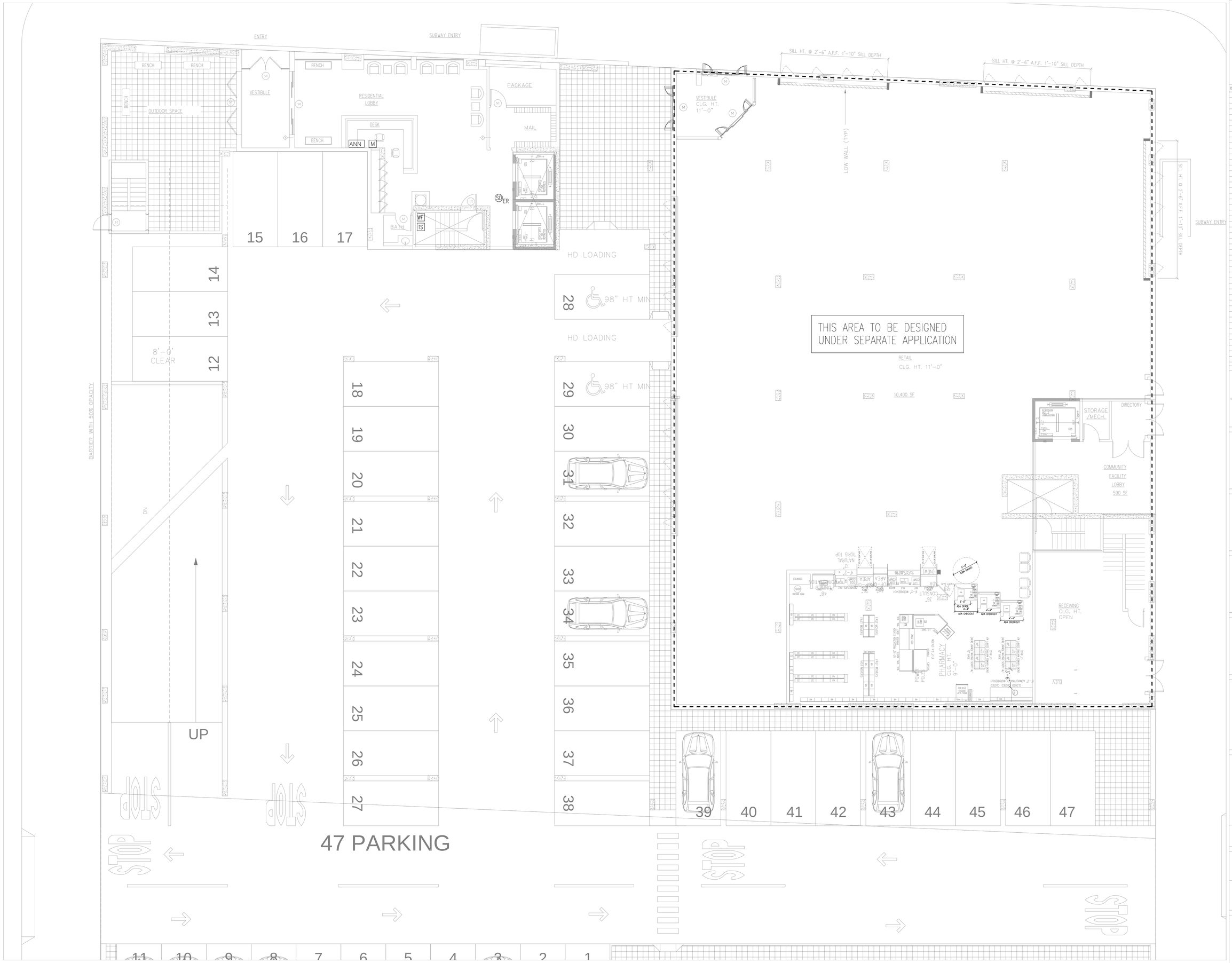
TITLE

CELLAR
FIRE ALARM PLAN

DWG NO:

FA-100.00
1 of 9

DOB JOB NUMBER



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GROUND FLOOR
FIRE ALARM PLAN

DWG NO:

FA-101.00

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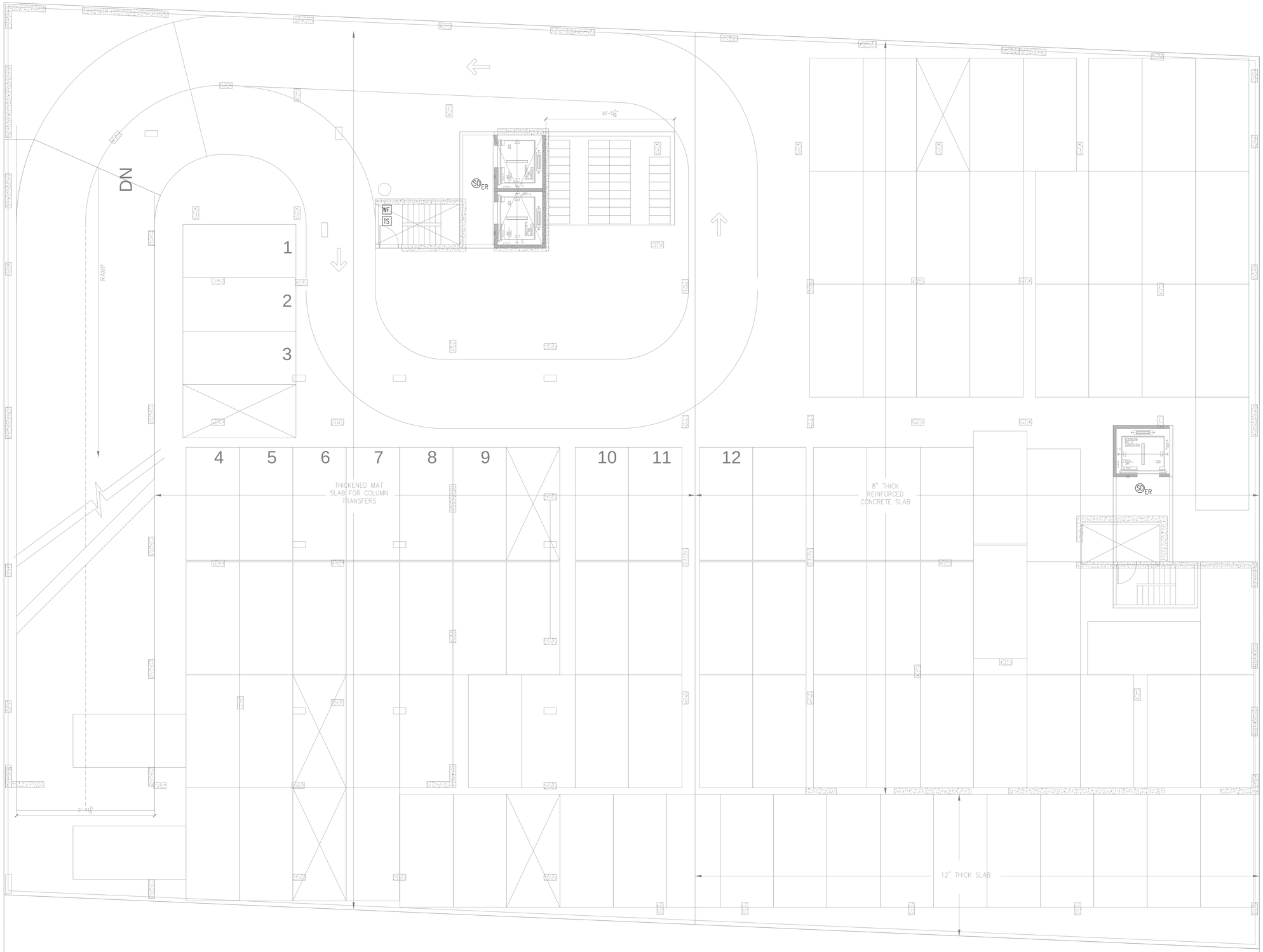
DOB JOB NUMBER

HILLSIDE AVENUE



178 ST

LEGEN

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SECOND FLOOR
FIRE ALARM PLAN

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FA-102.00
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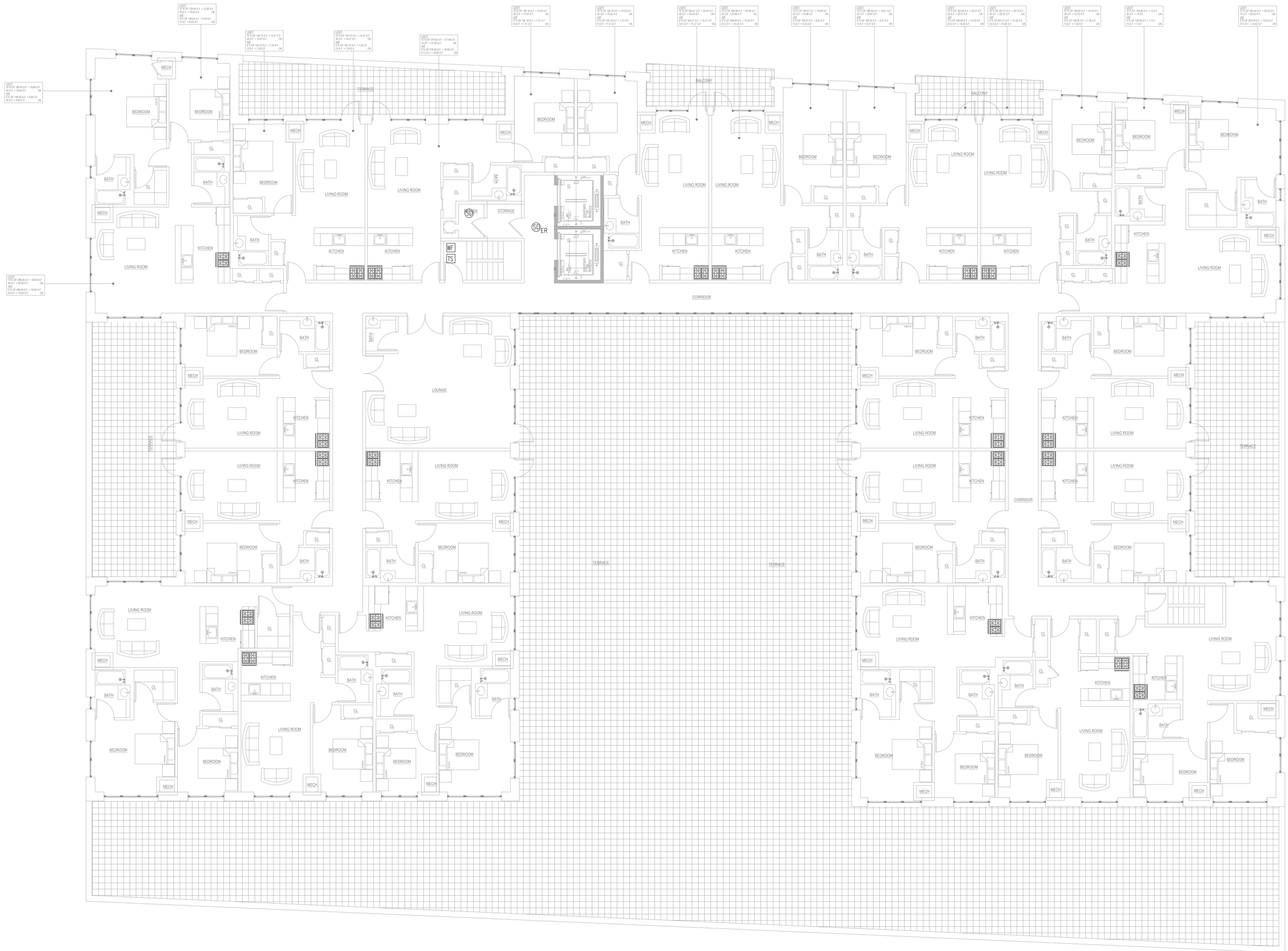

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THIRD FLOOR
FIRE ALARM PLAN

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FA-103.00

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FOURTH THRU SIXTH
FLOOR FIRE ALARM PLAN

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FA-104.00

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SEVENTH FLOOR
FIRE ALARM PLAN

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EIGHTH FLOOR
FIRE ALARM PLAN

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7 of 9

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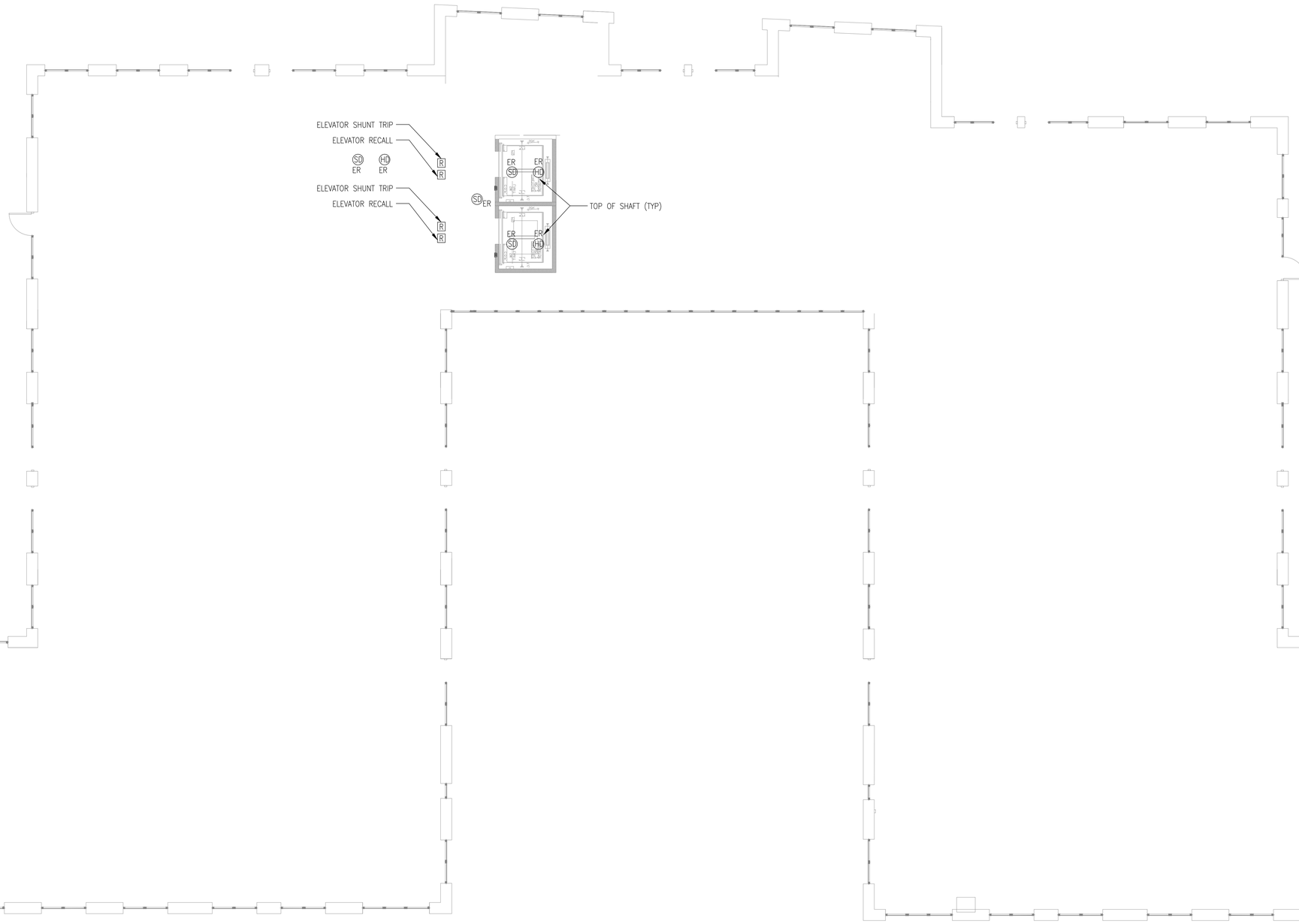

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TITLE

ROOF
FIRE ALARM PLAN

DWG NO:

FA-107.00
8 of 9

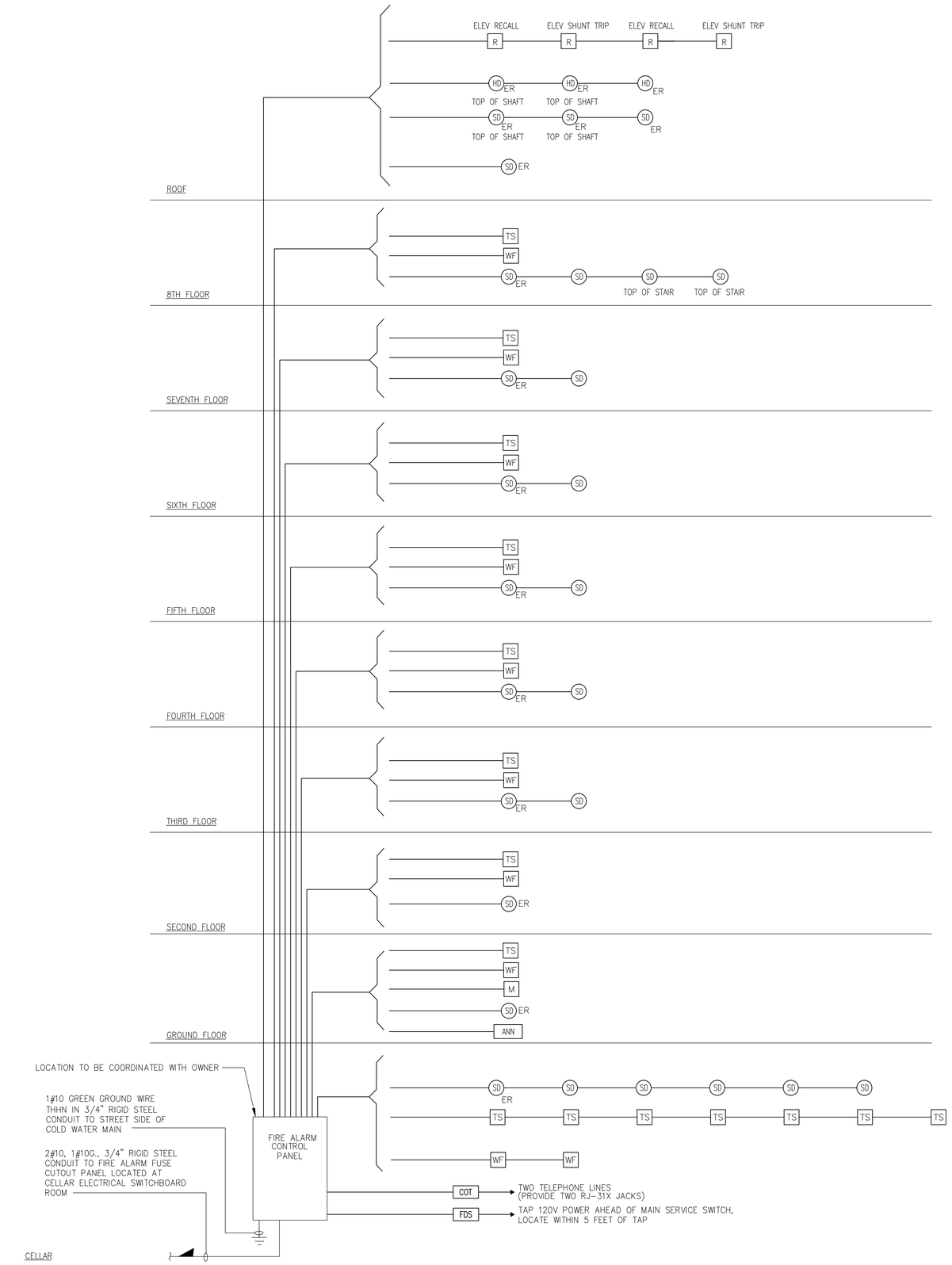
DOB JOB NUMBER

FIRE ALARM NOTES:

1. PROVIDE A COMPLETE INTERIOR FIRE ALARM SYSTEM.
2. PROGRAMMING OF FIRE ALARM CONTROL PANEL AND FINAL CONNECTIONS AT THE FIRE ALARM CONTROL PANEL IS BY FIRE ALARM VENDOR.
3. INSTALL FIRE ALARM EQUIPMENT, FIRE ALARM HORNS AND STROBE LIGHTS (ADA TYPE, 75 CANDELA) UNITS AT LOCATION INDICATED ON THE PLAN. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONAL INFORMATION.
4. ALL FIRE ALARM SYSTEM WIRINGS SHALL BE IN CONDUIT (EMT W/ DUAL SET SCREW TYPE FITTINGS) THROUGOUT. U.O.N.
5. ALL CABLING SHALL BE TEFLON INSULATED AND JACKETED, FIRE PROTECTION SERVICE APPROVED, (1) PAIR #14 AWG FOR STROBES AND "POINTS" WIRING AND #16 AWG FOR HORNS.
6. THE FIRE ALARM RISER DIAGRAM SHOWN IS AN INDICATION OF THE WORK REQUIRED AND SHALL BE USED FOR ESTIMATING PURPOSES ONLY. THE SUCCESSFUL CONTRACTOR SHALL PERFORM ALL WORK AS REQUIRED FOR A COMPLETE OPERATIONAL SYSTEM IN ACCORDANCE WITH APPROVED SHOP DRAWINGS
7. THE OPERATION OF THE FIRE ALARM INSTALLATION DOES NOT CONSTITUTE AN ACCEPTANCE OF THE WORK BY THE OWNER. FINAL ACCEPTANCE IS TO BE MADE AFTER THE CONTRACTOR HAS DEMONSTRATED THAT THE WORK FULFILLS THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS AND HAS FURNISHED ALL REQUIRED CERTIFICATES OF APPROVAL FROM THE STATE AUTHORITIES, MUNICIPAL AUTHORITIES AND UNDERWRITERS.
8. ALL ROUTING OF CABLES TO FIRE ALARM CONTROL PANEL SHALL BE DIRECTED AND APPROVED BY THE ARCHITECT.
9. INCLUDE ALL FEES FOR FILING APPROVALS & SELF CERTIFICATION OF THE ENTIRE INSTALLATION.
10. PROVIDE 2 #10, 1 #10 G. FROM A FUSE CUTOUT TO FIRE ALARM CONTROL PANEL. PROVIDE 3/4" RIGID STEEL CONDUIT RISER FOR FIRE ALARM POWER RISER. TAKE-OFFS TO PANEL MAY UTILIZE 3/4" RIGID STEEL CONDUIT. PROVIDE CABLE SUPPORTS AS REQUIRED BY CODE.
11. RISER DIAGRAM IS DIAGRAMMATIC ONLY. SEE PLANS FOR EXACT QUANTITIES OF DEVICES. PROVIDE WIRING FOR ALL DEVICES SHOWN ON PLANS AND/OR DESCRIBED IN SPECIFICATIONS.
12. COORDINATE EXACT LOCATION OF WATER FLOW AND TAMPER SWITCHES WITH SPRINKLER CONTRACTOR.
13. PROVIDE ADDRESSABLE INTERFACE MODULES AS REQUIRED.
14. PROVIDE END OF LINE DEVICE AS REQUIRED.

FIRE ALARM SEQUENCE OF OPERATION:

1. OPERATION OF MANUAL PULL STATION WILL:
   - A. ACTIVATE THE HORNS AND STROBES THROUGHOUT THE BUILDING. THE HORNS SHALL TRANSMIT ZONE CODED SIGNALS TO IDENTIFY THE ZONE CONTAINING THE ACTIVATED MANUAL STATION.
   - B. ANNUNCIATE AND DISPLAY "MANUAL STATION" AND LOCATION AT "FACP".
   - C. OPERATE RELAY AT "FACP" TO ACCOMMODATE TRANSMISSION OF A "MANUAL" SIGNAL THROUGH TELEPHONE COMPANY WIRES TO CENTRAL STATION.
2. OPERATION OF AN ALARM SMOKE OR HEAT DETECTOR WILL:
   - A. ANNUNCIATE AND DISPLAY "DUCT SMOKE", "AREA SMOKE", "ELEVATOR LOBBY SMOKE" OR "AREA HEAT" DETECTOR ZONE IDENTIFICATION AT "FACP" AND REMOTE ANNUNCIATOR.
   - B. OPERATE RELAY AT "FACP" TO ACCOMMODATE TRANSMISSION OF AN "AUTOMATIC" SIGNAL THROUGH TELEPHONE COMPANY WIRES TO CENTRAL STATION.
   - C. OPERATE ADDRESSABLE MODULES TO ACCOMMODATE TRANSMISSION OF SIGNALS TO ELEVATORS, FANS, DAMPERS AND OTHER EQUIPMENT AS PER SPECIFICATIONS. DISPLAY STATUS OF AFFECTED EQUIPMENT AT "FACP" AND REMOTE ANNUNCIATOR.
   - D. ACTIVATE THE HORNS AND STROBES THROUGHOUT THE BUILDING. THE HORNS SHALL TRANSMIT ZONE CODED SIGNALS TO IDENTIFY THE ZONE CONTAINING THE ACTIVATED DETECTOR.
3. OPERATION OF TAMPER SWITCH WILL:
   - A. ANNUNCIATE AT FIRE ALARM CONTROL PANEL ("FACP").
   - B. OPERATE RELAY AT FIRE ALARM CONTROL PANEL TO ACCOMMODATE TRANSMISSION OF A "SUPERVISORY" SIGNAL THROUGH TELEPHONE COMPANY WIRES TO CENTRAL STATION.
4. TRIGGERING OF WATER FLOW SWITCH WILL:
   - A. ANNUNCIATE AND IDENTIFY ZONE AT "FACP".
   - B. ACTIVATE THE HORNS AND STROBES THROUGHOUT THE BUILDING. THE HORNS SHALL TRANSMIT ZONE CODED SIGNALS TO IDENTIFY THE ZONE CONTAINING THE ACTIVATED ALARM.
   - C. OPERATE RELAY AT "FACP" TO ACCOMMODATE TRANSMISSION OF A "WATERFLOW" SIGNAL THROUGH TELEPHONE COMPANY WIRES TO CENTRAL STATION.
   - D. OPERATE ADDRESSABLE MODULES TO ACCOMMODATE TRANSMISSION OF SIGNALS TO ELEVATORS, FANS, DAMPERS AND OTHER EQUIPMENT AS PER SPECIFICATIONS. DISPLAY STATUS OF AFFECTED EQUIPMENT AT "FACP".
5. TROUBLE SIGNALS FROM ALL DEVICES WILL BE DISPLAYED AT "FACP".



NOTE:
THE EXACT QUANTITY AND LOCATION OF WATER FLOW AND TAMPER SWITCHES SHALL BE COORDINATED WITH SPRINKLER CONTRACTOR

FIRE ALARM RISER DIAGRAM

N.T.S.

FIRE ALARM SYMBOLS:

F	WALL MOUNTED STROBE LIGHT UNIT (AT 80" A.F.F.)
F	WALL MOUNTED COMBINATION FIRE ALARM SPEAKER/STROBE LIGHT UNIT (AT 80" A.F.F.)
F	WALL MOUNTED FIRE ALARM HORN UNIT (AT 80" A.F.F.)
M	WALL MOUNTED MANUAL FIRE ALARM PULL STATION (AT 48" A.F.F.) DOUBLE ACTION TYPE
SD ER	SURFACE MT'D AREA SMOKE DETECTOR (ER=ELEVATOR RECALL)
HD ES	HEAT DETECTOR (ES=ELEVATOR SHUT-DOWN)
DD	DUCT SMOKE DETECTOR
S/C	COMBINATION SMOKE/CARBON MONOXIDE DETECTOR
TS	TAMPER SWITCH
WF	WATER FLOW SWITCH
MT	MULTI-TONE AUDIO FOR TROUBLE, ALARM AND WATER FLOW
R	FIRE ALARM RELAY
FACP	FIRE ALARM CONTROL PANEL
FCO	FUSE CUT OUT
FS	KITCHEN FIRE SUPPRESSION SYSTEM
M FS	KITCHEN FIRE SUPPRESSION SYSTEM MANUAL PULL
I	INTERCOM FOR 2-WAY COMMUNICATION WITH FACP
E	EXISTING TO REMAIN
FSD	FIRE SMOKE DAMPER

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, New York

ISSUE	DESCRIPTION	DATE
1	FOR COORDINATION	3/27/2015
2	FOR PROGRESS	4/27/2015
3	FOR PROGRESS	5/09/2015
4	COMMISSIONER REVIEW	5/19/2015

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CHK BY:	CC/MN

TITLE

FIRE ALARM NOTES AND RISER DIAGRAM

DWG NO:

FA-200.00

DOB JOB NUMBER

GENERAL NOTES

1. THE NYC TRANSIT (NYCT) RESERVES THE RIGHT TO PLACE INSPECTORS, FLAGMEN OR OTHER PERSONNEL IN THE SUBWAY STRUCTURES DURING CONSTRUCTION OF THE PROJECT LINKED BY A TELEPHONE SYSTEM, IF DEEMED NECESSARY, TO OBSERVE THE EFFECTS OF THE CONSTRUCTION ON THE TRANSIT FACILITIES. NYCT FURTHER RESERVES THE RIGHT TO PLACE SUCH PERSONNEL WHENEVER, IN ITS OPINION, THE PROJECT CONDITIONS WARRANT SUCH PLACEMENT, REGARDLESS OF DISTANCE. THE COST OF SUCH PERSONNEL, TELEPHONE INSTALLATION AND ANY RE-ROUTES, DIVERSIONS OF SERVICE, WORK TRAINS, ETC., MADE NECESSARY BY THE PROJECT, MUST BE BORNE BY THE PROJECT OR THE RESPONSIBLE NEW YORK CITY/STATE AGENCY.

2. ALL ROCK EXCAVATION ADJACENT TO THE TRANSIT STRUCTURE IS TO BE CHANNEL DRILLED TWO FEET BELOW SUBGRADE.

3. IF TOP OF ROCK IS FOUND BELOW SUBWAY STRUCTURE, THE SUBWAY STRUCTURE MUST BE UNDERPINNED IN ACCORDANCE WITH DRAWINGS TO BE SUBMITTED TO NYCT FOR APPROVAL.

4. IF ROCK IS SOFT OR SEAMY, LATERAL SUPPORTS MUST BE PROVIDED BELOW THE SUBWAY STRUCTURE IN ACCORDANCE WITH DRAWINGS TO BE SUBMITTED TO NYCT FOR APPROVAL.

5. BLASTING WILL BE PERMITTED ONLY WITH LIGHT CHARGES SUBJECT TO THE APPROVAL OF NYCT'S ENGINEER AND IN ACCORDANCE WITH THE REGULATIONS OF THE FIRE DEPARTMENT. THE CONTRACTOR SHALL PROVIDE A DETAILED MONITORING PLAN, PROVIDING FOR MEASUREMENTS OF BOTH PARTICLE VELOCITY AND DISPLACEMENTS AT CRITICAL LOCATIONS OF THE NYCT STRUCTURE. THE MONITORING PLAN SHALL INCLUDE THRESHOLD AND UPSET LEVELS OF BOTH PARTICLE VELOCITY AND SETTLEMENT TOGETHER WITH AN ACTION PLAN FOR THEIR IMPLEMENTATION. THE CONTRACTOR SHALL SECURE AN APPROVED SEISMOLOGIST TO INSTALL AND OPERATE SUITABLE VELOCITY GAUGES TO CONTINUOUSLY MONITOR PARTICLE VELOCITY AND AN INDEPENDENT LICENSED SURVEYOR TO MONITOR DISPLACEMENTS. THE PRESENCE OF A QUALIFIED TECHNICIAN FROM MONITORING COMPANY IS NECESSARY TO PROVIDE THE VIBRATION READING UPON REQUEST OF NYCT ENGINEER. THE THRESHOLD MAXIMUM PARTICLE VELOCITY ABOVE AMBIENT CAUSED BY THE BLASTING WILL BE 0.5 INCH PER SECOND. VALUES EXCEEDING THIS LEVEL WILL BE REVIEWED AND EVALUATED BY NYCT'S ENGINEER. IN NO CASE WILL PARTICLE VELOCITIES EXCEED THE UPSET LEVEL OF 2.0 INCHES PER SECOND.

6. BEFORE PLACING CONCRETE, THE SUBGRADE OF THE FOUNDATIONS IN THE VICINITY OF THE SUBWAY STRUCTURE IS TO BE INSPECTED AND APPROVED BY NYCT'S ENGINEER.

7. IF ANY PORTION OF THE SUBWAY STRUCTURE OR FINISH IS DAMAGED, IT SHALL BE REPAIRED OR REPLACED WITH THE SAME MATERIALS IN PLACE, SUBJECT TO THE APPROVAL OF NYCT'S ENGINEER AND AT THE EXPENSE OF THE PROJECT.

8. EXCAVATION EMBANKMENTS ARE TO BE SHORED AND BRACED. DRAWINGS INDICATING A SUGGESTED METHOD OF CONSTRUCTION ARE TO BE SUBMITTED TO NYCT FOR APPROVAL IN CONJUNCTION WITH THE PROJECT'S CONTRACT DRAWINGS. IN CASE OF EXCAVATION UNDERMINING THE SUBWAY STRUCTURE, UNDERPINNING MAY BE REQUIRED. DRAWINGS FOR UNDERPINNING ARE TO BE SUBMITTED TO NYCT FOR APPROVAL.

9. TEMPORARY SHORING MAY BE PLACED IN DIRECT CONTACT WITH NYCT STRUCTURES ONLY IF THE NYCT STRUCTURE IS SHOWN TO BE ABLE TO SUPPORT ALL ANTICIPATED LOADS THAT CAN BE TRANSFERRED THROUGH THE TEMPORARY STRUCTURES WITHOUT DAMAGING THE EXISTING STRUCTURE. AT THE COMPLETION OF THE PROJECT, THESE TEMPORARY SHORING AND BRACING SYSTEMS ARE TO BE REMOVED OR CUT-OFF AS APPROVED BY NYCT.

10. WHEN PILES ARE TO BE DRIVEN OR DRILLED ADJACENT TO THE SUBWAY STRUCTURE, BORING DATA, PILE LAYOUTS, SPECIFICATIONS AND INSTALLATION PROCEDURES ARE TO BE SUBMITTED TO NYCT FOR APPROVAL. VELOCITY METERS ARE TO BE INSTALLED IN THE SUBWAY TUNNEL AT CRITICAL LOCATIONS TO MONITOR INDUCED VIBRATIONS. INDUCED DISPLACEMENTS ALONG THE TUNNEL STRUCTURE AND TRACK INVERT ARE TO BE MONITORED DURING DRIVING OR DRILLING. THE THRESHOLD MAXIMUM PARTICLE VELOCITY ABOVE AMBIENT CAUSED BY THE DRIVING OR DRILLING WILL BE 0.5 INCH PER SECOND. VALUES EXCEEDING THIS LEVEL WILL BE REVIEWED AND EVALUATED BY NYCT'S ENGINEER. IN NO CASE WILL PARTICLE VELOCITIES EXCEED THE UPSET LEVEL OF 2.0 INCHES PER SECOND.

11. NO PILES ARE PERMITTED TO BE INSTALLED BY ANY METHOD WITHIN THREE FEET OF SUBWAY STRUCTURE, MEASURED FROM THE EDGE OF THE PILE OR CASING TO THE WALL. CLOSED-END PILES WILL NOT BE PERMITTED TO BE DRIVEN WITHIN TEN FEET OF THE SUBWAY STRUCTURE.

12. ALL PILES ARE TO BE PLACED WITHIN A PREAUGERED CASED HOLE TO THE INFLUENCE LINE. THE CASING SHALL BE CLEANED WITHOUT DISTURBING THE SOIL OUTSIDE THE CASING AND THE PILE TO BE PLACED WITHIN THE CASING FOR INSTALLATION. THE PILES MAY THEN BE DRIVEN BEYOND THE INFLUENCE LINE WITHIN THE CASING.

13. THE INFLUENCE LINE SHALL START AT THE BOTTOM OF THE SUBWAY STRUCTURE AND EXTEND FROM 1H:1V TO 2H:1V SLOPE DEPENDING ON THE SOIL PROPERTIES AND GROUND WATER TABLE. FOR PILES INSTALLED WITHIN TEN FEET OF THE SUBWAY STRUCTURE, THE CASING SHALL BE EXTENDED UP TO THE BOTTOM OF THE SUBWAY STRUCTURE.

14. ALL PILES ARE TO BE DRIVEN OR DRILLED A MINIMUM OF TEN FEET BELOW THE INTERSECTION OF THE PILE CENTERLINE AND THE INFLUENCE LINE OF THE SUBWAY STRUCTURE.

15. THE USE OF "DOWN-THE-HOLE -HAMMERS" FOR INSTALLATION OF PILES THROUGH OVERBURDEN AND FILL WILL BE PERMITTED ONLY TO REMOVE BOULDERS. IT WILL NOT BE PERMITTED AS A MATTER OF COURSE TO ADVANCE THE HOLE. THEIR USE TO CONSTRUCT ROCK SOCKETS WILL NOT BE ALLOWED WITHIN 5 FEET OF THE NYCT STRUCTURE. THE USE OF MACHINE UTILIZING AIR FOR SOIL REMOVAL WILL NOT BE ALLOWED.

16. VIBRATORY HAMMERS WILL NOT BE PERMITTED WITHIN 75 FEET OF SUBWAY STRUCTURES. HOERAMS WILL NOT BE PERMITTED WITHIN 25 FEET OF SUBWAY STRUCTURES.

17. DYNAMIC COMPACTION METHODS USING DROPPED HEAVY WEIGHTS CANNOT BE CONDUCTED WITHIN 1000 FEET OF ANY NYCT STRUCTURE UNLESS IT IS SHOWN THAT INDUCED SETTLEMENTS AND VIBRATIONS WILL NOT DAMAGE THESE STRUCTURES. A SUITABLE MONITORING PLAN INCLUDING SETTLEMENT AND VIBRATION MEASUREMENTS MUST BE APPROVED BY NYCT'S ENGINEER FOR ALL SUCH OPERATIONS WITHIN THESE DISTANCES.

18. THERE SHALL BE NO MACHINE EXCAVATION WITHIN 3 FEET OF NYCT STRUCTURES, POWER DUCT LINES, OR ANY OTHER FACILITIES UNTIL THEY HAVE BEEN CAREFULLY EXPOSED BY HAND EXCAVATION.

19. ALL DEWATERING OPERATIONS CONDUCTED WITHIN 500 FEET OF THE NYCT STRUCTURE MUST BE PERFORMED IN ACCORDANCE WITH DRAWINGS AND PROCEDURES SUBMITTED TO NYCT FOR APPROVAL. THE DISTANCE FROM THE STRUCTURE TO THE DEWATERING OPERATION CAN BE REDUCED PROVIDED THAT SOIL CONDITIONS AT THE SITE INDICATE THAT THE RADIUS OF INFLUENCE OF THE DEWATERING IS LESS THAN 500 FEET. FOR DEWATERING WITHIN THE RADIUS OF INFLUENCE, THE DEWATERING PROGRAM MUST BE SHOWN TO HAVE NEGLIGIBLE INFLUENCE ON SETTLEMENTS OF THE NYCT STRUCTURE.

20. SUBWAY ENTRANCES (VENTILATORS, ETC.) ARE TO BE UNDERPINNED OR SHORED AND BRACED IF DIRECTED BY NYCT'S ENGINEER.

21. NYCT, AT ITS DISCRETION, RESERVES THE RIGHT TO REQUIRE THE PROJECT TO CLOSE OR MAINTAIN AND PROTECT EXISTING SUBWAY ENTRANCES, VENTILATORS, ETC. ADJACENT TO THE PROJECT DURING CONSTRUCTION. SUCH CONSTRUCTION MAY INCLUDE UNDERPINNING, SHORING, BRACING AND ERECTION OF SUITABLE BARRICADES AND/OR CANOPIES AND SHIELDS. SUCH PROTECTION SHALL BE IN ACCORDANCE WITH DRAWINGS SUBMITTED TO NYCT FOR APPROVAL.

22. IF SHIELDS ARE TO BE INSTALLED TO PROTECT NYCT FACILITIES AND/OR THE PUBLIC, PLANS SHOWING THE LOCATION, TYPE AND METHOD OF ATTACHMENT TO THE TRANSIT STRUCTURE MUST BE SUBMITTED TO NYCT FOR APPROVAL.

23. ALL LUMBER AND PLYWOOD USED FOR PROTECTION OF SUBWAY FACILITIES MUST BE FIRE RETARDANT.

24. SUBWAY EMERGENCY EXITS MUST BE KEPT CLEAR AT ALL TIMES.

25. IN EXCAVATING OVER OR NEAR THE SUBWAY ROOF, SPECIAL CARE SHALL BE EXERCISED SO THAT THE THIN CONCRETE PROTECTION OF THE SUBWAY WATERPROOFING IS NOT DAMAGED.

26. BURNING OF, WELDING TO OR DRILLING THROUGH EXISTING STEEL STRUCTURES WILL NOT BE PERMITTED EXCEPT AS SHOWN ON DRAWINGS APPROVED BY NYCT.

27. HORIZONTAL AND VERTICAL CONTROL SURVEY DATA OF THE EXISTING NYCT STRUCTURE IS TO BE TAKEN BY A LICENSED LAND SURVEYOR TO MONITOR ANY MOVEMENTS THAT OCCUR DURING CONSTRUCTION AND TO SHOW THAT THE INDUCED MOVEMENTS ARE WITHIN ALLOWABLES NOTED BELOW. IF ANY MOVEMENTS EXCEED ALLOWABLES, REMEDIATION AS APPROVED BY NYCT SHALL BE PERFORMED.

STRUCTURE	NOTIFY NYCT ENGINEER	STOP WORK
ELEVATED	1/8 INCH	1/4 INCH
SUBWAY	1/4 INCH	1/2 INCH

28. BUS ROUTES AFFECTED BY THE PROJECT WILL OR MAY REQUIRE BUS DIVERSIONS. THESE ARRANGEMENTS SHALL BE MADE THROUGH:

MS. SARAH WYSS
ACTING DIRECTOR, OPERATIONS PLANNING
NEW YORK CITY TRANSIT
2 BROADWAY, ROOM A17.82
NEW YORK, NEW YORK 10004
TELEPHONE NUMBER 646/252-5517

WHEN IMPACTING ANY BUS STOP, SPECIAL OPERATIONS MUST BE NOTIFIED TWO WEEKS IN ADVANCE.

29. DUCT LINES MUST BE MAINTAINED AND PROTECTED DURING CONSTRUCTION. ANY INTERFERENCE WITH DUCT LINES SHOULD BE REPORTED TO NYCT INSPECTOR. WHEN A DUCT LINE CONTAINING CABLES IS TO BE REMOVED, OR WHEN MASONRY ADJACENT THERETO IS TO BE REMOVED, PENETRATED, OR DRILLED, THE WORK SHALL BE DONE WITH HAND LABOR ENTIRELY, USING HAMMER AND CHISEL. JACKHAMMERS, BULL POINTS OR OTHER POWER EQUIPMENT SHALL NOT BE USED.

30. WHERE MANHOLES ARE ENCOUNTERED:

a) THEY SHALL BE PROTECTED AND RAISED OR LOWERED AS REQUIRED, TO MATCH THE NEW STREET GRADE.

b) IF MANHOLE COVERS ARE RAISED OR LOWERED, PROTECT CABLES IN MANHOLE BY WOOD SHEETING OF 2" NOMINAL THICKNESS.

c) PRIOR TO THE START OF CONSTRUCTION OPERATIONS AFFECTING MANHOLES AND DUCT LINES, SEVEN DAYS NOTICE MUST BE GIVEN TO MR. JOHN MALVASIO, P.E., ASSISTANT CHIEF ENGINEERING OFFICER, MAINTENANCE OF WAY, AT 718/694-1358.

31. CONSTRUCTION WORK DONE NEAR VENT GRATINGS AND HATCHES SHALL BE AS FOLLOWS:

a) UNLESS APPROVED BY THE NYCT'S ENGINEER, ALL VENT GRATINGS AND HATCHES SHOULD REMAIN OUTSIDE THE CONSTRUCTION SITE, SEPARATED BY A CONSTRUCTION FENCE. PROTECTIVE SHIELDS MUST BE PROVIDED OVER VENT GRATINGS AS REQUIRED BY NYCT'S ENGINEER.

b) NO BUILDING MATERIAL, VEHICLES OR CONSTRUCTION EQUIPMENT IS TO BE STORED OR RUN OVER VENT, GRATINGS, HATCHES OR EMERGENCY EXITS.

c) DETAILS OF SIDEWALK RECONSTRUCTION AROUND VENT GRATINGS, HATCHES AND EMERGENCY EXITS ARE TO BE SUBMITTED TO NYCT FOR APPROVAL.

32. TRACTORS, CRANES, EXCAVATORS, ETC. USED IN THE VICINITY OF THE ELEVATED STRUCTURES SHALL BE ISOLATED FROM THE GROUND. SINCE THE ELEVATED STRUCTURE IS USED AS A NEGATIVE RETURN PATH, WITH A CONSEQUENT POTENTIAL BETWEEN IT AND THE GROUND, ANY CONTACT BETWEEN THE STRUCTURE AND GROUNDED EQUIPMENT COULD RESULT IN BURNING OF THE STEEL.

33. TEMPORARY CONSTRUCTION SHEDS, BARRICADES OR PLYWOOD PARTITIONS MUST BE A MINIMUM OF 5'-0" FROM EDGE OF FINISHED PLATFORM.

34. STATION AREAS OR STAIRWAY/CLOSINGS: THE GENERAL REQUIREMENTS FOR STATION AREAS OR STAIRWAY/CLOSINGS ARE AS FOLLOWS:

a) ONLY ONE STAIRWAY AT EACH STATION WILL BE PERMITTED TO BE CLOSED AT THE SAME TIME. APPROVALS FOR CLOSING ANY STAIRWAY MUST BE OBTAINED FROM THE DIVISION OF STATION OPERATIONS AT LEAST THREE WEEKS IN ADVANCE.

b) MR. ASHOK PATEL, DIRECTOR, OFFICE OF STATION PROGRAMS; TELEPHONE 718/694-1695 OF THE DIVISION OF STATIONS MUST BE NOTIFIED ONE WEEK PRIOR TO THE ACTUAL CLOSING AND REOPENING OF THE ENTRANCE.

c) SIGNAGE MUST BE SUPPLIED AND POSTED AT LEAST ONE WEEK IN ADVANCE, ADVISING THE PUBLIC OF THE PROPOSED SUBWAY STAIR CLOSING. HOWEVER, IF IT IS AN ENTIRE ENTRANCE CLOSING, SIGNAGE MUST BE POSTED TWO WEEKS IN ADVANCE.

d) THE STREET ENTRANCE STAIRWAY SHOULD NOT BE CLOSED UNLESS MANPOWER AND MATERIALS ARE AVAILABLE TO COMMENCE WORK ON DATES PERMITTED.

e) ONCE THE CLOSING IS EFFECTED, CONSTRUCTION SIGNS MUST BE PLACED AT APPROPRIATE LOCATIONS ON THE BARRICADES AT THE STREET AND MEZZANINE LEVELS, STATING THE CONTRACTOR'S NAME, 24 HOUR EMERGENCY TELEPHONE NUMBER, CONTRACT NUMBER, THE DURATION OF THE CLOSING, DIRECTION TO AN ALTERNATE ENTRANCE/EXIT, AND AN APOLOGY FOR THE INCONVENIENCE TO OUR CUSTOMERS.

f) EXISTING STATION SIGNAGE MUST BE ADJUSTED TO REFLECT ANY CHANGES IN ACCESS/EGRESS.

g) BARRICADES ARE TO BE PAINTED AND KEPT GRAFFITI FREE AT ALL TIMES. THE CONTRACTOR MUST MAINTAIN THE BARRICADED AREA CLEAN OF ALL DEBRIS.

h) ALL MATERIALS ARE TO BE PROPERLY STORED AND SECURED AWAY FROM PASSENGER TRAFFIC.

i) THE CONTRACTOR MUST REMOVE ALL WASTE MATERIAL AND BARRICADES FROM ALL STATION AREAS WHEN CONSTRUCTION IS COMPLETED.

j) INSPECTION OF THE AREA UNDER CONSTRUCTION BY AUTHORIZED STATION DEPARTMENT EMPLOYEES SHALL NOT BE INHIBITED.

k) IF STREETLIGHTS ON THE SIDEWALKS ARE AFFECTED, TEMPORARY LIGHTS SHALL BE PROVIDED.

35. IF NEW CONCRETE CONSTRUCTION IS JOINED TO EXISTING CONCRETE, DOWELS AND KEYWAYS ARE TO BE USED IN ACCORDANCE WITH NYCT STANDARDS.

36. IF THE PROJECT INVOLVES CONSTRUCTION OR ALTERATION OF A SUBWAY FACILITY ON PRIVATE PROPERTY, THE PROPERTY OWNERS WILL BE REQUIRED TO ENTER INTO AN AGREEMENT WITH NYCT PERTAINING TO ALL WORK AFFECTING THE TRANSIT FACILITIES AND CLEARLY DEFINING LIMITS AND RESPONSIBILITY FOR MAINTENANCE AND LIABILITY.

37. WHEREVER A NEW SIDEWALK IS BEING PLACED ADJACENT TO NYCT STRUCTURES THE FOLLOWING WILL BE REQUIRED:

a) THE TOP OF THE NEW SIDEWALK SHALL BE FLUSH WITH THE SUBWAY VENT GRATINGS, HATCHES AND EMERGENCY EXITS.

b) THE SLOPE OF THE NEW SIDEWALK SHALL BE SUCH THAT THE DRAINAGE BE AWAY FROM THESE STRUCTURES.

c) A 1/2" PREMOLDED FILLER SHALL BE INSTALLED BETWEEN THE NEW SIDEWALK AND NYCT STRUCTURE.

d) WHERE SIDEWALK ELEVATIONS ARE BEING CHANGED DETAILS OF PROPOSED WORK AROUND NYCT STRUCTURES ARE TO BE SUBMITTED FOR APPROVAL.

38. BEFORE ENTERING NYCT PROPERTY, CONTRACTOR OR SUBCONTRACTOR'S PERSONNEL SHALL HAVE ATTENDED NYCT TRACK SAFETY TRAINING AND EXPECT TO FOLLOW NYCT RULES AND REGULATIONS AS PER TRAINING AND ENGINEER INSTRUCTIONS

39. BEFORE THE START OF ANY WORK, THE CONTRACTOR SHALL MAKE AN EXAMINATION, IN THE PRESENCE OF NYCT'S ENGINEER, OF THE INTERIOR AND EXTERIOR OF NYCT SUBWAY OR OTHER STRUCTURE ADJACENT TO THE PROPOSED WORK. THE PERSON OR PERSONS AUTHORIZED BY THE CONTRACTOR TO MAKE THESE EXAMINATIONS SHALL BE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL TAKE ALL PHOTOGRAPHS AS MAY BE NECESSARY OR ORDERED TO INDICATE THE EXISTING CONDITION OF NYCT STRUCTURE. ONE COPY OF EACH PHOTOGRAPH, EIGHT INCHES BY TEN INCHES IN SIZE, AND THE NEGATIVE IS TO BE SUBMITTED TO MR. JOHN MALVASIO, P.E., ASSISTANT CHIEF ENGINEERING OFFICER, MAINTENANCE-OF-WAY, 130 LIVINGSTON STREET, ROOM 8044D, BROOKLYN, NEW YORK 11201, TELEPHONE 718/694-1358 BEFORE THE START OF CONSTRUCTION.

40. ALL ARCHITECTURAL DETAILS (TOKEN BOOTHS, RAILINGS, DOORS, ETC.) ARE TO CONFORM TO THE LATEST NYCT STANDARDS. THESE STANDARDS ARE AVAILABLE AT NYCT.

41. STANDARD NYCT INSURANCE CLAUSES ARE TO BE MADE PART OF THE PROJECT'S CONTRACT DRAWINGS. PROOF THAT THE NECESSARY INSURANCE IS IN EFFECT WILL BE REQUIRED BEFORE WORK CAN COMMENCE.

42. AT THE CLOSE OF ANY PROJECT INVOLVING CONSTRUCTION OR ALTERATIONS TO TRANSIT FACILITIES, ONE SET OF VELLUMS OR MYLARS, FIVE SETS OF 35MM MICROFILM, AND ELECTRONIC COPIES COMPLYING TO MICROSTATION.DGN FORMAT OF "APPROVED AS-BUILTS" MUST BE PROVIDED TO NYCT FOR ITS RECORDS. FOR DETAILS OF SPECIFIC REQUIREMENTS CONTACT NYCT OUTSIDE PROJECTS.

43. AT LEAST SEVEN WORKING DAYS PRIOR TO THE START OF CONSTRUCTION OPERATIONS, NOTIFICATION MUST BE GIVEN TO MR. JOHN MALVASIO, P.E., ASSISTANT CHIEF ENGINEERING OFFICER, MAINTENANCE-OF-WAY, AT 718/694-1358. THE CONTRACTOR TO PROVIDE TEMPORARY QUARTERS NEAR THE JOB SITE FOR NYCT INSPECTORS CONTAINING A DESK AND TELEPHONE.

NYCT "OUTSIDE CONTRACT" INSURANCE REQUIREMENTS

SECTION A: INSURANCE REQUIREMENTS

THE PERMITTEE AT ITS SOLE COST AND EXPENSE SHALL CARRY AND MAINTAIN POLICIES OF INSURANCE AT ALL TIMES DURING THE PERIOD OF PERFORMANCE UNDER THIS AGREEMENT AS HEREIN SET FORTH BELOW:

1 WORKERS' COMPENSATION: INCLUDING EMPLOYER'S LIABILITY INSURANCE WITH LIMITS OF LIABILITY NOT LESS THAN $2,000,000 WHICH MAY BE MET BY A COMBINATION OF PRIMARY AND EXCESS INSURANCE MEETING THE STATUTORY LIMITS OF NEW YORK STATE.

2. COMMERCIAL GENERAL LIABILITY: (ISO 2001 FORM OR EQUIVALENT) APPROVED BY PERMITTOR IN THE PERMITTEE'S NAME WITH LIMITS OF LIABILITY IN THE AMOUNT OF NOT LESS THAN $3,000,000 FOR EACH OCCURRENCE ON A COMBINED SINGLE LIMIT BASIS FOR INJURIES TO PERSONS (INCLUDING DEATH) AND DAMAGE TO PROPERTY, $3,000,000 GENERAL AGGREGATE AND $3,000,000 IN THE AGGREGATE WITH RESPECT TO PRODUCTS/COMPLETED OPERATIONS. THE LIMITS MAY BE PROVIDED IN THE FORM OF A PRIMARY POLICY OR COMBINATION OF PRIMARY AND UMBRELLA/EXCESS POLICY. WHEN THE MINIMUM CONTRACT AMOUNTS CAN ONLY BE MET WHEN APPLYING THE UMBRELLA/EXCESS POLICY, THE UMBRELLA/EXCESS POLICY MUST FOLLOW FORM OF THE UNDERLYING POLICY AND BE EXTENDED TO "DROP DOWN" TO BECOME PRIMARY IN THE EVENT PRIMARY LIMITS ARE REDUCED OR AGGREGATE LIMITS ARE EXHAUSTED. SUCH INSURANCE SHALL BE PRIMARY AND NON-CONTRIBUTORY TO ANY OTHER VALID AND COLLECTIBLE INSURANCE AND MUST BE EXHAUSTED BEFORE IMPLICATING ANY PERMITTOR/MTA POLICY AVAILABLE.

SUCH POLICY SHOULD BE WRITTEN ON AN OCCURRENCE FORM, AND SHALL INCLUDE THE FOLLOWING COVERAGES:

- ADDITIONAL INSURED ENDORSEMENT (I.S.O. FORM CG 20 26 07/04) VERSION OR EQUIVALENT APPROVED BY THE PERMITTOR, SHALL NAME THE INDEMNITEES AS REFERENCED UNDER SECTION B OF THIS AGREEMENT AS ADDITIONAL INSUREDS.
- CONTRACTUAL LIABILITY ASSUMED BY THE PERMITTEE UNDER THIS AGREEMENT;
- PERSONAL AND ADVERTISING INJURY;
- PRODUCTS-COMPLETED OPERATIONS;
- INDEPENDENT CONTRACTORS;
- "XCU" (EXPLOSION, COLLAPSE, AND UNDERGROUND HAZARDS) WHERE NECESSARY;
- CONTRACTUAL LIABILITY EXCLUSION, APPLICABLE TO CONSTRUCTION OR DEMOLITION OPERATIONS TO BE PERFORMED WITHIN 50 FEET OF RAILROAD TRACKS, MUST BE REMOVED, WHERE NECESSARY;

3. BUSINESS AUTOMOBILE LIABILITY: (ISO FORM CA 00 01 10 01 OR EQUIVALENT) APPROVED BY THE PERMITTOR IS REQUIRED IF PERMITTEE'S VEHICLE ENTERS PERMITTOR'S PROPERTY. THE INSURANCE MUST BE IN THE NAME OF THE PERMITTEE OR ITS CONTRACTOR ENTERING THE PERMITTOR PROPERTY WITH LIMITS OF LIABILITY IN THE AMOUNT OF NOT LESS THAN $2,000,000 EACH ACCIDENT FOR CLAIMS FOR BODILY INJURIES (INCLUDING DEATH) TO PERSONS AND FOR DAMAGE TO PROPERTY ARISING OUT OF THE OWNERSHIP, MAINTENANCE OR USE OF ANY OWNED, HIRED OR NON-OWNED MOTOR VEHICLE.

4. RAILROAD PROTECTIVE LIABILITY: (ISO-RIMA OR EQUIVALENT FORM) APPROVED BY PERMITTOR COVERING THE WORK TO BE PERFORMED AT THE DESIGNATED JOB SITE AND AFFORDING PROTECTION FOR DAMAGES ARISING OUT OF BODILY INJURY OR DEATH, PHYSICAL DAMAGE TO OR DESTRUCTION OF PROPERTY, INCLUDING DAMAGE TO THE INSURED'S OWN PROPERTY AND CONFORMING TO THE FOLLOWING:

- THE POLICY SHALL BE ISSUED TO THE "NAMED INSUREDS" LISTED UNDER SECTION B.
- THE LIMIT OF LIABILITY SHALL BE NOT LESS THAN $2,000,000 PER OCCURRENCE, SUBJECT TO A $6,000,000 ANNUAL AGGREGATE; \K
- ∴K POLICY MUST BE ENDORSED TO PROVIDE COVERAGE FOR CLAIMS ARISING FROM INJURY TO EMPLOYEES COVERED BY FEDERAL EMPLOYER'S LIABILITY ACT (FELA).
- INDICATE THE NAME AND ADDRESS OF THE DESIGNATED CONTRACTOR, PROJECT LOCATION AND DESCRIPTION OF WORK, AND PERMIT NUMBER IF APPLICABLE.
- EVIDENCE OF RAILROAD PROTECTIVE LIABILITY INSURANCE, MUST BE PROVIDED IN THE FORM OF A POLICY. A DETAILED INSURANCE BINDER (ACORD OR MANUSCRIPT FORM) WILL BE ACCEPTED PENDING ISSUANCE OF THE POLICY, WHICH MUST BE PROVIDED WITHIN 30 DAYS FROM THE EFFECTIVE DATE.

5. ENVIRONMENTAL INSURANCE: IN THE EVENT ENVIRONMENTAL OR POLLUTION EXPOSURES EXIST, THE PERMITTEE SHALL REQUIRE THE ENVIRONMENTAL CONTRACTOR OR SUB-CONTRACTOR TO PROVIDE THE APPLICABLE INSURANCE COVERING SUCH EXPOSURE. THE LIMITS AND TYPES OF INSURANCE PROVIDED MUST BE SATISFACTORY TO THE PERMITTOR AND APPROVED PRIOR TO THE START OF THE WORK.

SECTION B: INDEMNITEES (ADDITIONAL INSUREDS / NAMED INSUREDS)

NEW YORK CITY TRANSIT AUTHORITY ("NYCT"), THE MANHATTAN AND BRONX SURFACE TRANSIT OPERATING AUTHORITY ("MABSTOA"), THE STATEN ISLAND RAPID TRANSIT OPERATING AUTHORITY ("SIRTOA"), THE METROPOLITAN TRANSPORTATION AUTHORITY ("MTA") INCLUDING ITS SUBSIDIARIES AND AFFILIATES, MTA CAPITAL CONSTRUCTION ("MTACC"), MTA BUS COMPANY ("MTA BUS"), AND THE CITY OF NEW YORK ("CITY" AS OWNER) AND THE RESPECTIVE AFFILIATES AND SUBSIDIARIES EXISTING CURRENTLY OR IN THE FUTURE OF AND SUCCESSORS TO EACH INDEMNIFIED PARTIES LISTED HEREIN.

SECTION C: GENERAL INSURANCE REQUIREMENTS

1. INSURANCE COMPANIES: ALL OF THE INSURANCE REQUIRED BY THIS ARTICLE SHALL BE WITH COMPANIES LICENSED OR AUTHORIZED TO DO BUSINESS IN THE STATE OF NEW YORK WITH AN A.M. BEST COMPANY RATING OF NOT LESS THAN A-/VII OR BETTER AND REASONABLY APPROVED BY THE PERMITTOR/MTA.

2. FORMS: ALL FORMS SHALL COMPLY WITH THE INSURANCE SERVICES OFFICE, INC. ("ISO") OR ITS EQUIVALENT APPROVED BY THE INSURANCE DEPARTMENT OF THE STATE OF NEW YORK

3. POLICY DEDUCTIBLE / SELF INSURED RETENTION: INSURANCE MAY CONTAIN A DEDUCTIBLE AND OR SELF-INSURED RETENTION AND SHALL NOT EXCEED $100,000. THE PERMITTEE SHALL BE RESPONSIBLE FOR ALL CLAIM EXPENSES AND LOSS PAYMENTS WITHIN THE DEDUCTIBLE OR SELF-INSURED RETENTION.

4. POLICY TERMS: THESE POLICIES MUST: (I) BE WRITTEN IN ACCORDANCE WITH THE REQUIREMENTS OF THE PARAGRAPHS ABOVE, AS APPLICABLE; (II) BE ENDORSED IN FORM ACCEPTABLE TO INCLUDE A PROVISION THAT SHOULD THE POLICY BE CANCELED, MATERIALLY CHANGED, OR NOT RENEWED, NOTICE SHALL BE DELIVERED IN ACCORDANCE WITH THE INSURANCE POLICY PROVISIONS TO THE PERMITTOR, AND (III) STATE OR BE ENDORSED TO PROVIDE THAT THE COVERAGE AFFORDED UNDER THE PERMITTEE'S POLICIES SHALL APPLY ON A PRIMARY AND NOT ON AN EXCESS OR CONTRIBUTING BASIS WITH ANY POLICIES WHICH MAY BE AVAILABLE TO THE PERMITTOR/MTA, AND ALSO THAT THE PERMITTEE'S POLICIES, PRIMARY AND EXCESS, MUST BE EXHAUSTED BEFORE IMPLICATING ANY PERMITTOR/MTA POLICY AVAILABLE. (IV) IN ADDITION, PERMITTEE'S POLICIES SHALL STATE OR BE ENDORSED TO PROVIDE THAT, IF A SUBCONTRACTOR'S POLICY CONTAINS ANY PROVISION THAT MAY ADVERSELY AFFECT WHETHER PERMITTEE'S POLICIES ARE PRIMARY AND MUST BE EXHAUSTED BEFORE IMPLICATING ANY PERMITTOR/MTA POLICY AVAILABLE, PERMITTEE'S AND SUBCONTRACTOR'S POLICIES SHALL NEVERTHELESS BE PRIMARY AND MUST BE EXHAUSTED BEFORE IMPLICATING ANY PERMITTOR/MTA POLICY AVAILABLE. AT LEAST TWO (2) WEEKS PRIOR TO THE EXPIRATION OF THE POLICIES, THE PERMITTEE SHALL ENDEAVOR TO PROVIDE EVIDENCE OF RENEWAL OR REPLACEMENT POLICIES OF INSURANCE, WITH TERMS AND LIMITS NO LESS FAVORABLE THAN THE EXPIRING POLICIES.

SECTION D: SUBMISSION OF INSURANCE

CERTIFICATES OF INSURANCE MAY BE SUPPLIED AS EVIDENCE OF POLICIES EXCEPT FOR RAILROAD PROTECTIVE LIABILITY. HOWEVER, IF REQUESTED BY THE PERMITTOR, THE PERMITTEE SHALL DELIVER TO THE PERMITTOR WITHIN FORTY-FIVE (45) DAYS A COPY OF SUCH POLICIES, CERTIFIED BY THE INSURANCE CARRIER AS BEING TRUE AND COMPLETE. IF A CERTIFICATE OF INSURANCE IS SUBMITTED, IT MUST: (1) BE PROVIDED ON THE PERMITTOR CERTIFICATE OF INSURANCE; (2) BE SIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE INSURANCE CARRIER OR PRODUCER AND NOTARIZED; (3) DISCLOSE ANY DEDUCTIBLE, SELF-INSURED RETENTION, SUB-LIMIT, AGGREGATE LIMIT OR ANY EXCLUSIONS TO THE POLICY THAT MATERIALLY CHANGE THE COVERAGE; (4) INDICATE THE ADDITIONAL INSUREDS AS REQUIRED HEREIN UNDER SECTION B; THE PERMITTEE MUST PROVIDE A COPY OF THE ADDITIONAL INSURED ENDORSEMENT (ISO) FORM CG 20 26 07/04 OR ITS EQUIVALENT AND MUST REFERENCE THE POLICY INFORMATION; (5) INDICATE PROJECT NAME AND LOCATION ON THE CERTIFICATE; AND (6) EXPRESSLY REFERENCE THE INCLUSION OF ALL REQUIRED ENDORSEMENTS.

THE PERMITTEE OR ITS CONTRACTOR/SUBCONTRACTOR PERFORMING THE WORK SHALL FURNISH EVIDENCE OF ALL POLICIES BEFORE ANY WORK IS STARTED TO THE APPROPRIATE DEPARTMENT:

NEW AGREEMENTS:
MTA/NYCT MOW ENGINEERING
ATTENTION: MR. JOHN MALVASIO
130 LIVINGSTON STREET
BROOKLYN, NY 11201

RENEWAL INSURANCE:
MTA RISK INSURANCE MANAGEMENT
ATTENTION: RUTH APOSTOL
2 BROADWAY - 21ST FLOOR
NEW YORK, NY 10004

SECTION E: NO LIMIT OF LIABILITY

THE MINIMUM AMOUNTS OF INSURANCE REQUIRED IN THE DETAIL DESCRIPTION OF POLICIES ABOVE SHALL NOT BE CONSTRUED TO LIMIT THE EXTENT OF THE PERMITTEE'S LIABILITY UNDER THIS AGREEMENT.

SECTION F: RIGHT TO REQUEST ADDITIONAL INSURANCE

PERMITTEE FURTHER AGREES TO PROVIDE, AT PERMITTEE'S SOLE COST AND EXPENSE, SUCH INCREASED OR EXPANDED INSURANCE COVERAGE AS PERMITTOR MAY FROM TIME TO TIME AS DEEM APPROPRIATE.

SECTION G: EVENT OF DEFAULT

IF, AT ANY TIME DURING THE PERIOD OF THIS AGREEMENT, INSURANCE AS REQUIRED IS NOT IN EFFECT, OR PROOF THEREOF IS NOT PROVIDED TO THE PERMITTOR, THE PERMITTOR SHALL HAVE THE OPTIONS TO: (I) DIRECT THE PERMITTEE TO SUSPEND WORK OR OPERATION WITH NO ADDITIONAL COST OR EXTENSION OF TIME DUE ON ACCOUNT THEREOF; OR (II) TREAT SUCH FAILURE AS AN EVENT OF DEFAULT.

SECTION H: NOTICE OF CLAIM

THE PERMITTEE SHALL IMMEDIATELY FILE WITH NYCT/MTA'S TORT DIVISION (WITH A COPY TO THE PROJECT MANAGER), 130 LIVINGSTON STREET, 11TH FLOOR, BROOKLYN, NEW YORK 11201, A NOTICE OF ANY OCCURRENCE LIKELY TO RESULT IN A CLAIM AGAINST NYCT/MTA AND SHALL ALSO FILE WITH THE TORTS DIVISION DETAILED SWORN PROOF OF INTEREST AND LOSS WITH THE CLAIM. THIS PARAGRAPH SHALL SURVIVE THE EXPIRATION OR EARLIER TERMINATION OF THE CONTRACT.

ROUTE NUMBER: 108
SECTION NUMBER: 12

HILLSIDE AVENUE - QUEENS
178TH ST TO 181ST ST
STA 1796+95 TO STA 1807+40

DRAWINGS REFERENCED:
301, 341, 342, 344, 345, 347, 349, 350, 351, 352, 353, 357, 360, 505,

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, N.Y. 11432

ISSUE	DESCRIPTION	DATE
1	ISSUE TO MTA	09/22/2015
	ISSUE TO OER	10/21/2015

ARCHITECT:

ADG Architecture & Design P.C
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STRUCTURAL ENGINEERS
57 WEST 38TH ST, 10TH FLOOR, NY, NY 10018
TEL: (646) 723-1280 FAX: (212) 401-4722

ENGINEER/ CONSULTANT:

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fax: 201-484-8540
E-mail: gs@schellengineering.com

ENGINEER/ CONSULTANT:

ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	09-23-2015
PROJECT NO:	14168
DRAWING BY:	CH/KF
CHK BY:	KC

TITLE

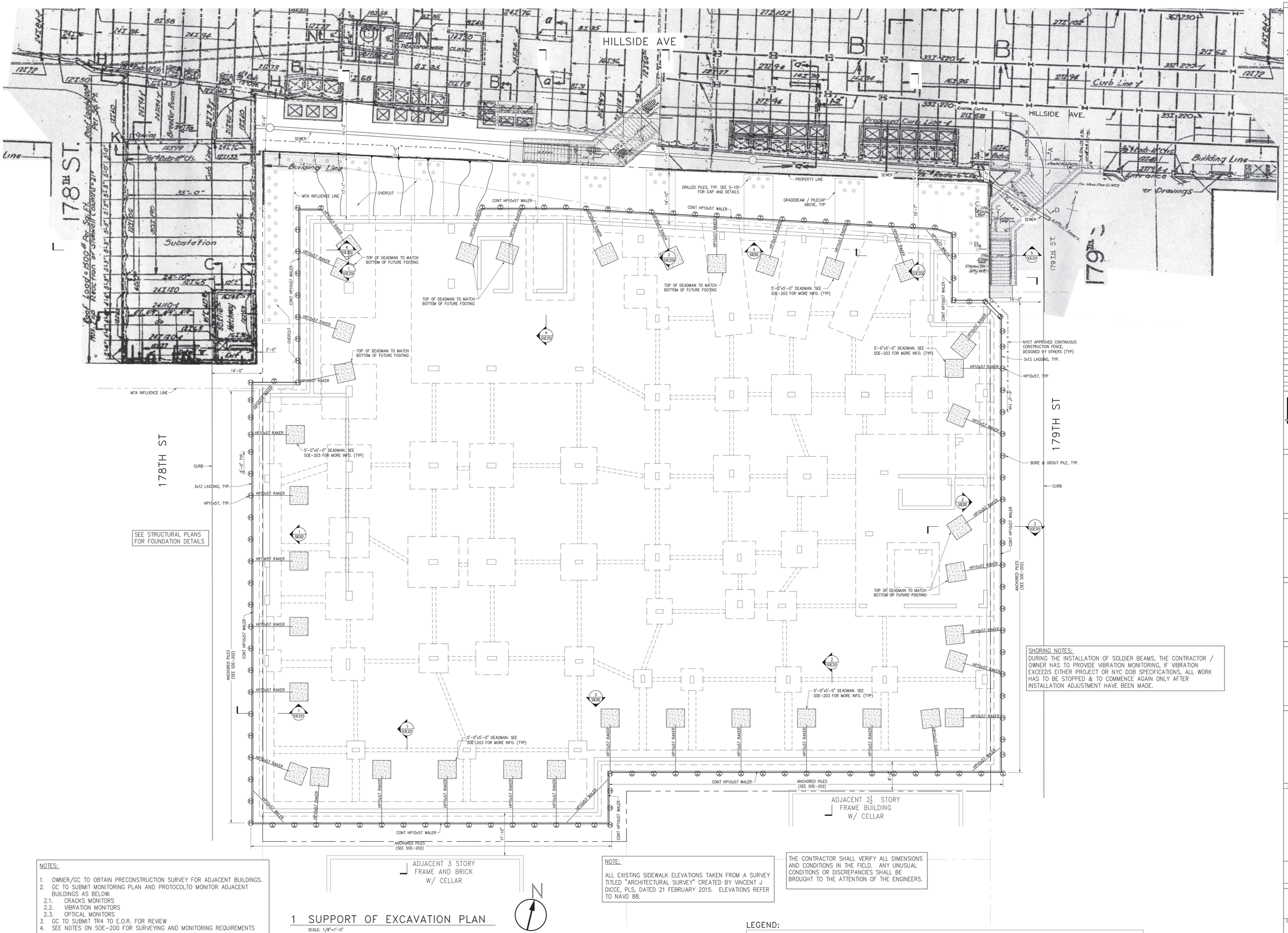
NYCT GENERAL NOTES & INSURANCE CLAUSES

DWG NO:

S-001.00

1 of 23

DOB JOB NUMBER



NOTES:

1. OWNER/GC TO OBTAIN PRECONSTRUCTION SURVEY FOR ADJACENT BUILDINGS.
2. GC TO SUBMIT MONITORING PLAN AND PROTOCOLTO MONITOR ADJACENT BUILDINGS AS BELOW:
   - 2.1. CRACKS MONITORS
   - 2.2. VIBRATION MONITORS
   - 2.3. OPTICAL MONITORS
3. GC TO SUBMIT TR4 TO E.O.R. FOR REVIEW
4. SEE NOTES ON SOE-200 FOR SURVEYING AND MONITORING REQUIREMENTS

1 SUPPORT OF EXCAVATION PLAN

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

NOTE:

ALL EXISTING SIDEWALK ELEVATIONS TAKEN FROM A SURVEY TITLED "ARCHITECTURAL SURVEY" CREATED BY VINCENT J DICCE, PLS, DATED 21 FEBRUARY 2015. ELEVATIONS REFER TO NAVD 88.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD. ANY UNUSUAL CONDITIONS OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEERS.

SHORING NOTES:

DURING THE INSTALLATION OF SOLDIER BEAMS, THE CONTRACTOR / OWNER HAS TO PROVIDE VIBRATION MONITORING, IF VIBRATION EXCEEDS EITHER PROJECT OR NYC DOB SPECIFICATIONS, ALL WORK HAS TO BE STOPPED & TO COMMENCE AGAIN ONLY AFTER INSTALLATION ADJUSTMENT HAVE BEEN MADE.

LEGEND:

- PROPERTY LINE
- NEW DRILLED SOLDIER PILE, SEE SOE-202 FOR INSTALLATION PROCEDURE AND NOTES.
- NEW REINFORCED CONCRETE STRUCTURE, SEE STRUCTURAL DRAWINGS
- NEW REINFORCED CONCRETE FOOTINGS, SEE STRUCTURAL DRAWINGS
- NEW 40T MINI CAISON, SEE STRUCTURAL
- NEW CONCRETE DEADMAN.

PROJECT/ CLIENT:

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ENGINEER/ CONSULTANT:

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PROJECT NO:	14168
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CHK BY:	KC

TITLE

SUPPORT OF EXCAVATION PLAN

DWG NO:

SOE-100.00

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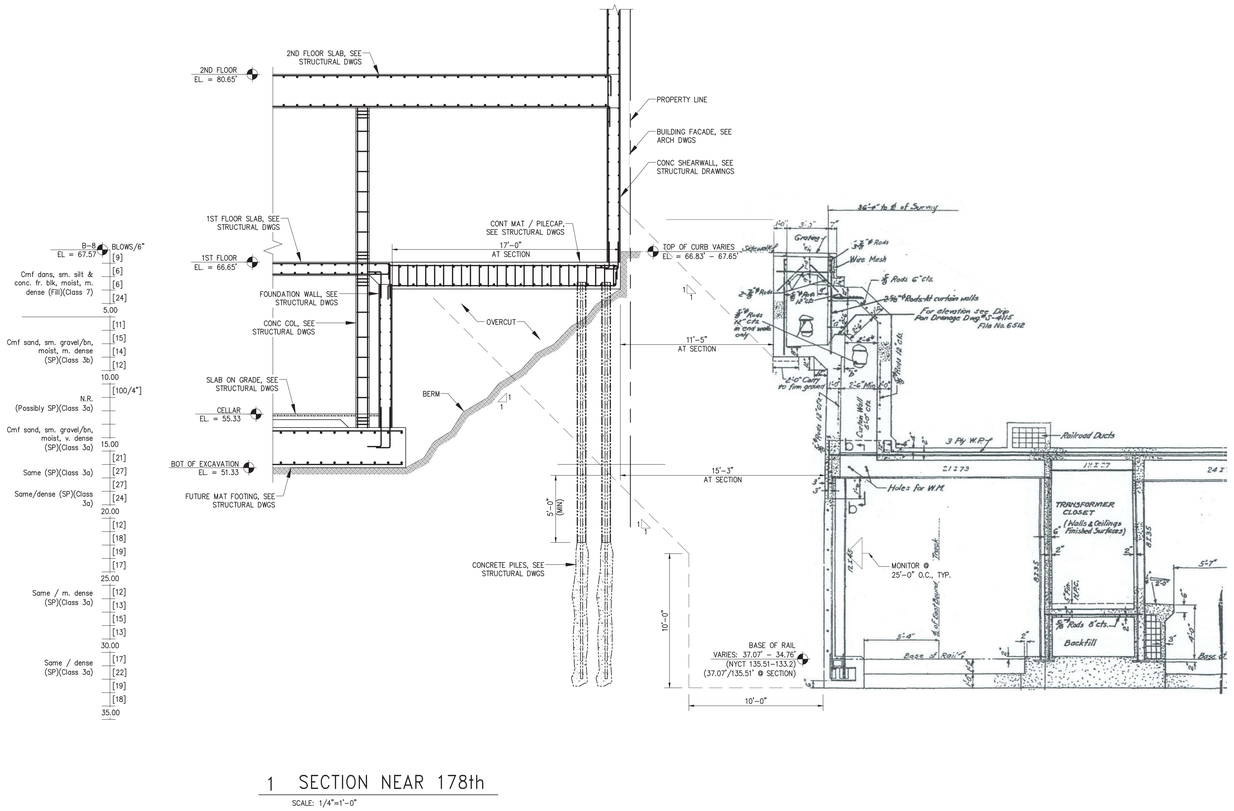
DOB JOB NUMBER



PROJECT/ CLIENT:

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CHK BY:	KC

TITLE

SOE AND EXCAVATION SECTIONS

DWG NO:

SOE-200.00

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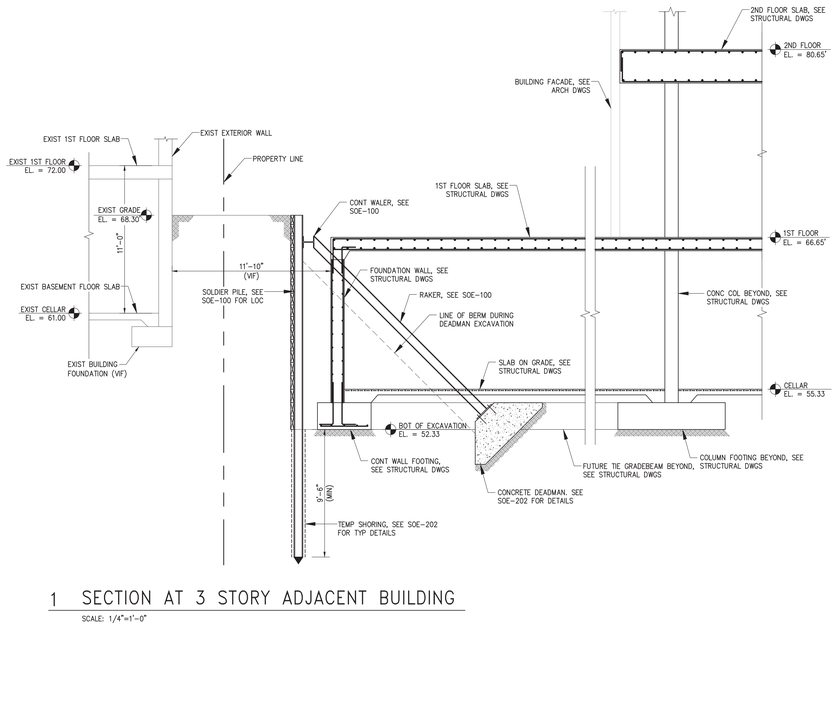
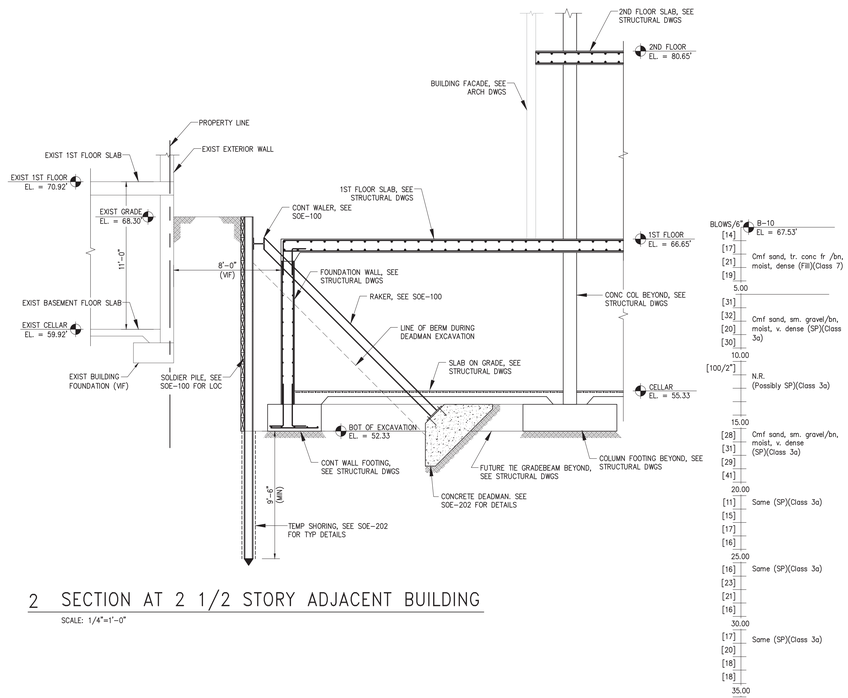
DOB JOB NUMBER



1 SECTION AT 3 STORY ADJACENT BUILDING

SCALE: 1/4"=1'-0"



2 SECTION AT 2 1/2 STORY ADJACENT BUILDING

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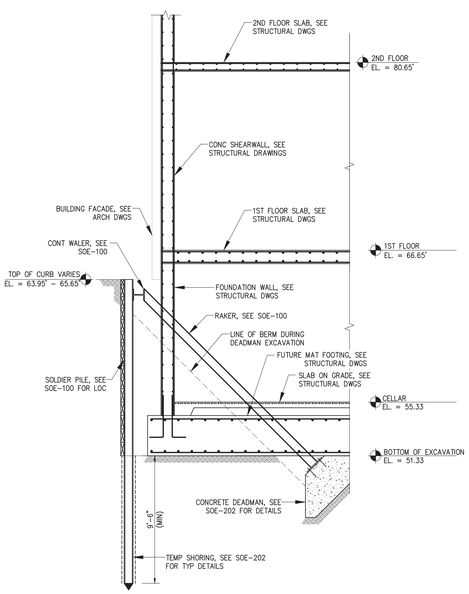

3 SECTION @ EXIST ROADWAY

SCALE: 1/4"=1'-0"

4 SECTION @ NORTH MTA ENTRANCE

SCALE: 1/4"=1'-0"

5 SECTION @ EAST MTA ENTRANCE

SCALE: 1/4"=1'-0"

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STATE OF NEW YORK · KANTANG CHEN · No. 079410 · LICENSED PROFESSIONAL ENGINEER

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PROJECT NO:	14168
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CHK BY:	KC

TITLE

SOE AND EXCAVATION SECTIONS

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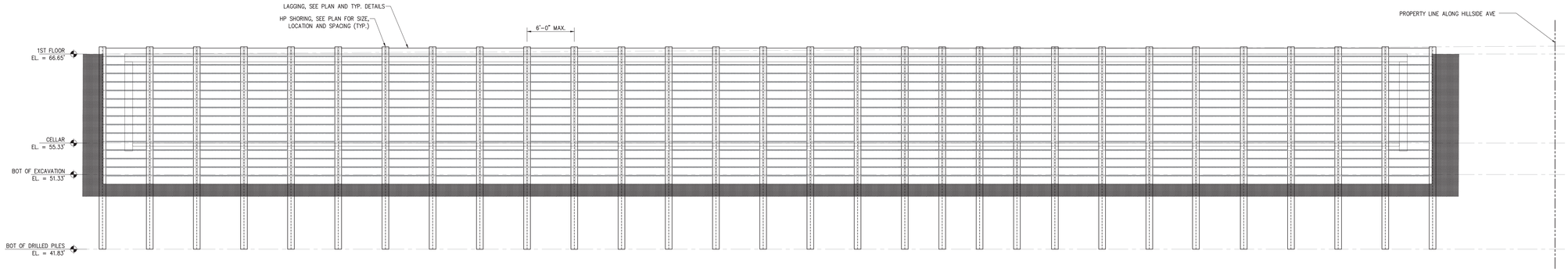
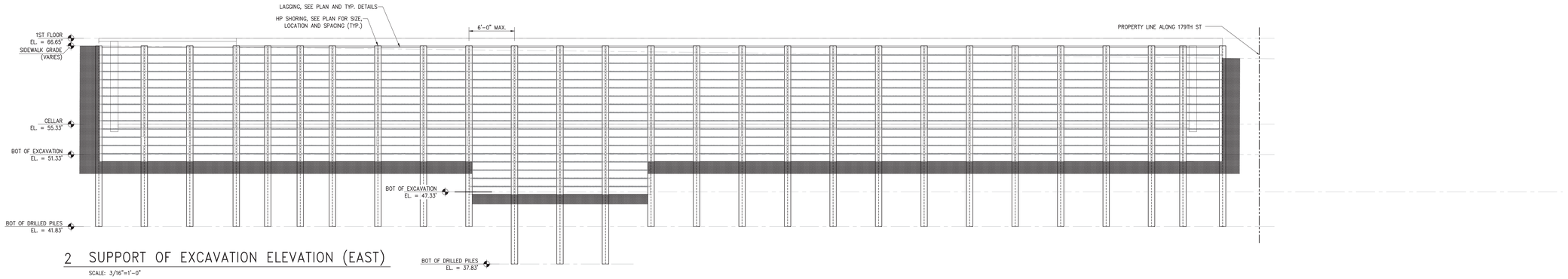
DOB JOB NUMBER



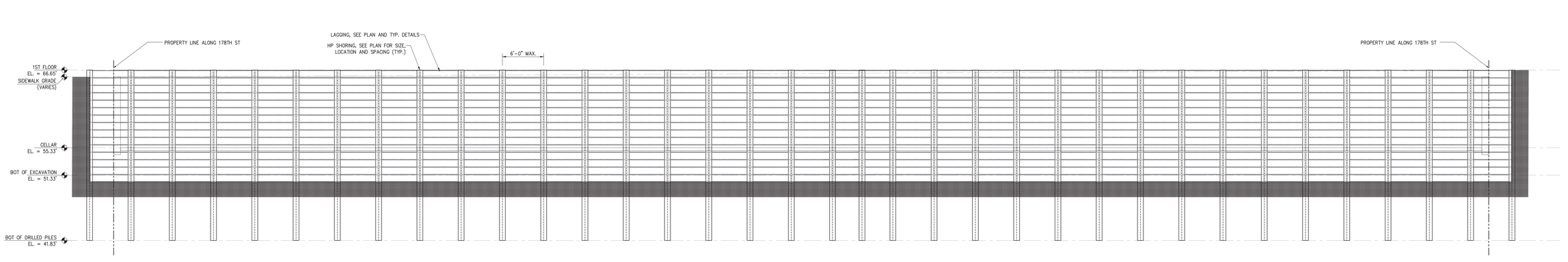
1 SUPPORT OF EXCAVATION ELEVATION (WEST)

SCALE: 3/16"=1'-0"



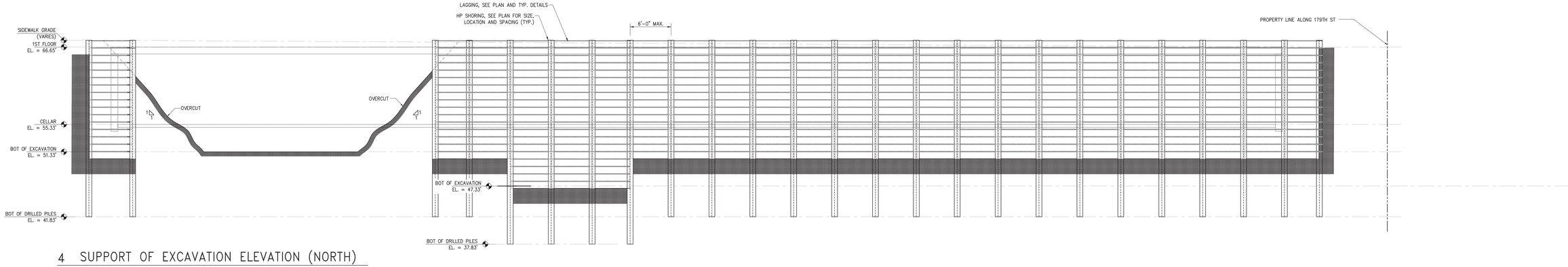
2 SUPPORT OF EXCAVATION ELEVATION (EAST)

SCALE: 3/16"=1'-0"



3 SUPPORT OF EXCAVATION ELEVATION (SOUTH)

SCALE: 3/16"=1'-0"



4 SUPPORT OF EXCAVATION ELEVATION (NORTH)

SCALE: 3/16"=1'-0"

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DRAWING BY:	CH/KF
CHK BY:	KC

TITLE

SOE ELEVATIONS

DWG NO:

SOE-202.00

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DOB JOB NUMBER

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE NEW YORK CITY BUILDING AND FIRE CODES.
2. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE WORK AND COORDINATION OF ALL SUBCONTRACTORS AND TRADES.
3. PRIOR TO SUBMITTING A PROPOSAL, CONTRACTOR SHALL VISIT THE SITE TO SURVEY THE EXISTING CONDITIONS, NATURE AND SCOPE OF WORK INVOLVED AND SHALL IMMEDIATELY ADVISE THE ARCHITECT OF ANY ERRORS, OMISSIONS OR DISCREPANCIES, WHICH WOULD INTERFERE WITH OR PREVENT THE PROPER EXECUTION AND COMPLETION OF THE JOB. THIS ALSO APPLIES THROUGH THE COMPLETION OF CONSTRUCTION.
4. CONTRACTOR SHALL SUBMIT TO THE OWNER OF CERTIFICATES OF WORKMEN'S COMPENSATION AND COPIES OF INSURANCE COVERAGE FOR PROPERTY DAMAGE AND BODILY INJURY, AS REQUIRED BY THE OWNER TO INCLUDE AS ADDITIONALLY INSURED, ARCH CONSTRUCTION AND CONSULTING CO., INC. AND THE OWNER.
5. CONTRACTOR SHALL COMPLY WITH INSTRUCTIONS FROM THE BUILDING MANAGEMENT REGARDING DELIVERIES, REMOVAL OF DEBRIS, ELEVATOR UTILITY AND SANITARY FACILITIES USAGE, ETC.
6. ALL WORK SHALL BE PERFORM DURING REGULAR WORKING HOURS, CONTRACTOR MAY SUBMIT WRITTEN PROPOSALS FOR EXTRA WORK SHALL NOT BE PERMITTED WITHOUT WRITTEN APPROVAL BY THE OWNER.
7. FABRICATION/CONSTRUCTION OF ALL ITEMS REQUIRING SHOP DRAWING, SCHEDULES AND/OR SAMPLES SHALL NOT PROCEED UNTIL SUBMISSIONS TO AND APPROVAL HAS BEEN RECEIVED FROM THE ARCHITECT. NO SUBSTITUTIONS SHALL BE ALLOWED WITHOUT PRIOR SUBMISSIONS TO AND APPROVAL OF THE ARCHITECT.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL WORK UNDER CONTRACT FROM DAMAGE BY OTHERS AND LEAVE ALL WORK IN PERFECT CONDITION (FREE OF DIRT, STAINS, PAINT OR DEFACEMENT OF ANY KIND) PRIOR TO FINAL INSPECTION AND ACCEPTANCE OF THE OWNER.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE WORK AREAS FREE FROM EXCESSIVE DEBRIS AND CLEAN UP THE AREA AFTER EACH WORK DAY OR AS OTHERWISE REQUIRED TO PREVENT DAMAGE TO WORK ALREADY FINISHED AND PERSONAL INJURY.
10. DRAWINGS ARE NOT TO BE SCALED. CONTRACTOR SHALL VERIFY ALL DIMENSION IN THE FIELD AND IMMEDIATELY REPORT ANY ERRORS, OMISSIONS OR DISCREPANCIES BETWEEN DRAWINGS AND FIELD CONDITIONS TO THE ARCHITECT.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING PERMITS, MUNICIPAL SIGN OFFS
12. ALL STRUCTURAL STEEL TO BE ASTM A572 GRADE 50 OR BETTER

SPECIAL INSPECTION

1.	EXCAVATIONS – SHEETING, SHORING & BRACING	BC 1704.20.2
2.	CONCRETE – CAST-IN-PLACE	BC 1704.4
3.	STRUCTURAL STEEL – WELDING	BC 1704.3.1
4.	STRUCTURAL STEEL – DETAILS	BC 1704.3.2
5.	STRUCTURAL STEEL – HIGH STRENGTH BOLTING	BC 1704.3.3
6.	CONCRETE SAMPLING AND TESTING (TR2)	BC 1905.3, BC1913.10
7.	CONCRETE DESIGN MIX (TR3)	BC 1905.3, BC1913.5

NOTE: ALL EXCAVATION AND UNDERPINNING INSPECTIONS TO BE PERFORMED BY ENGINEER RESPONSIBLE FOR SUPPORT OF EXCAVATION DESIGN.

ENGINEER OF SOE DESIGN MUST PROVIDE INSPECTIONS FOR SHEETING, SHORING, AND UNDERPINNING.

EXCAVATION PROCEDURE:

1. INSTALL MONITORING SYSTEM ON TA STRUCTURE, PER PLAN.
2. DRILL AND INSTALL ALL SOLDIER PILES PER SOE DRAWINGS.
3. PARTIALLY EXCAVATE AND LEAVE BERM AS INDICATED IN SECTIONS.
4. INSTALL DEADMEN AS SHOWN IN PLANS AND SECTIONS.
5. INSTALL LAGGING DOWN TO ELEVATION WHERE RAKER/WALER TO BE INSTALLED

   -NOTE: INSTALL LAGGING WITH 2" GAP AND BACKPACK TO FILL ANY VOIDS, SEE TYPICAL DETAILS
6. INSTALL WALERS.
7. INSTALL RAKERS.
8. COMPLETE INSTALLATION OF LAGGING DOWN TO FULL EXCAVATION DEPTH.
9. EXCAVATE AS REQUIRED FOR INSTALLATION OF NEW FOOTINGS AND SLABS.

LAGGING SELECTION TABLE

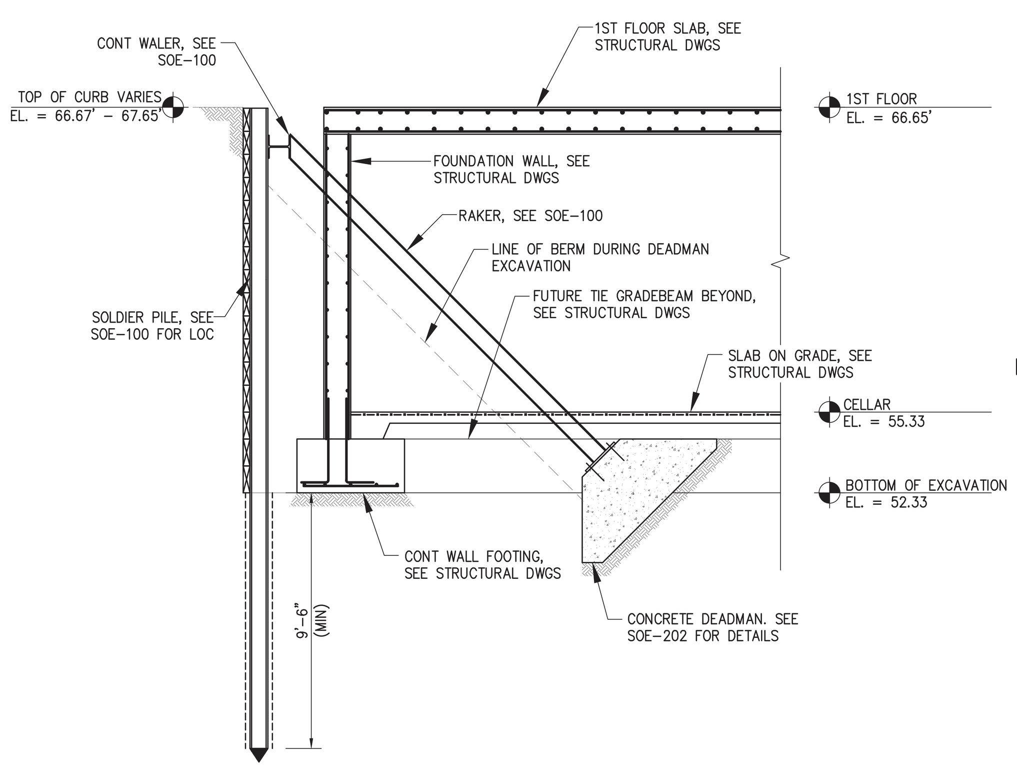
SOIL TYPE	EXPOSED WALL HEIGHT (FT)	MINIMUM THICKNESS OF ROUGH CUT LAGGING FOR CLEAR SPANS OF:					
		5 FT.	6 FT.	7 FT.	8 FT.	9 FT.	10 FT.
A	0 - 25	0-INCHES	3-INCHES	3-INCHES	3-INCHES	4-INCHES	4-INCHES
	> 25 - 60	3-INCHES	3-INCHES	3-INCHES	4-INCHES	4-INCHES	5-INCHES
B	0 - 25	3-INCHES	3-INCHES	3-INCHES	4-INCHES	4-INCHES	5-INCHES
	> 25 - 60	3-INCHES	3-INCHES	4-INCHES	4-INCHES	5-INCHES	5-INCHES
C	0 - 15	3-INCHES	3-INCHES	4-INCHES	5-INCHES		
	> 15 - 25	3-INCHES	4-INCHES	5-INCHES	6-INCHES		
	> 25 - 35	4-INCHES	5-INCHES	6-INCHES			

ADDITIONAL NOTES

1. ALL EXCAVATIONS SHALL BE DRAINED AND THE DRAINAGED MAINTAINED AS LONG AS THE EXCAVATION CONTINUES OR REMAINS. WHERE NECESSARY, PUMPING SHALL BE USED. NO CONDITION SHALL BE CREATED AS A RESULT OF CONSTRUCTION OPERATIONS THAT WILL INTERFERE WITH NATURAL SURFACE DRAINAGE. WATER COURSES, DRAINAGE DITCHES, ETC., SHALL NOT BE OBSTRUCTED BY REFUSE, WASTE BUILDING MATERIALS, EARTH, STONES, TREE STUMPS, BRANCHES, OR OTHER DEBRIS THAT MAY INTERFERE WITH SURFACE DRAINAGE OR CAUSE THE IMPOUNDMENT OF SURFACE WATERS.
2. EVERY EXCAVATION SHALL BE PROVIDED WITH SAFE MEANS OF INGRESS AND EGRESS KEPT AVAILABLE AT ALL TIMES.
3. A STANDARD GUARD RAIL OR A SOLID ENCLOSURE AT LEAST THREE FEET SIX INCHES HIGH SHALL BE PROVIDED ALONG THE OPEN SIDES OF EXCAVATIONS, EXCEPT THAT SUCH GUARD RAIL OR SOLID ENCLOSURE MAY BE OMITTED FROM A SIDE OR SIDES WHEN ACCESS TO THE ADJOINING AREA IS PRECLUDED, OR WHERE SIDE SLOPES ARE ONE VERTICAL TO THREE HORIZONTAL OR FLATTER.
4. IF SHORING DETAILS DO NOT ACCURATELY REFLECT THE WORK THAT NEEDS TO BE PERFORMED BASED ON THE FIELD CONDITIONS OR PLAN CHANGES, THEN THE CONTRACTOR MUST STOP WORK IMMEDIATELY, INFORM THE ENGINEER AND HAVE DRAWINGS REVISED AS PER FIELD CONDITIONS. WORK THAT DOES NOT CONFORM TO APPROVED DRAWING CANNOT BE SIGNED OFF.

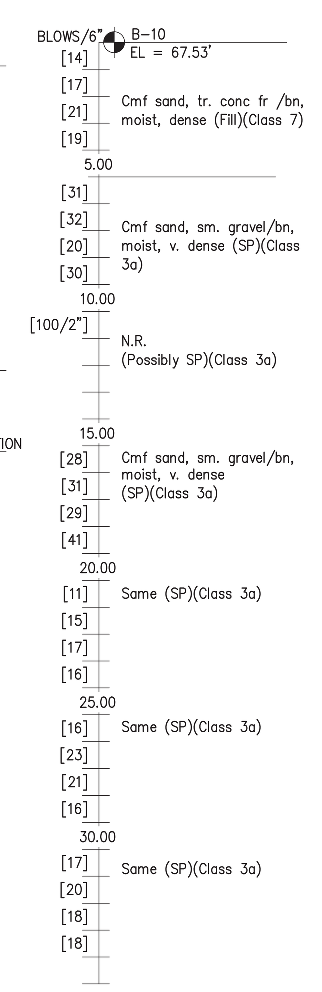
SURVEY AND MONITORING NOTES

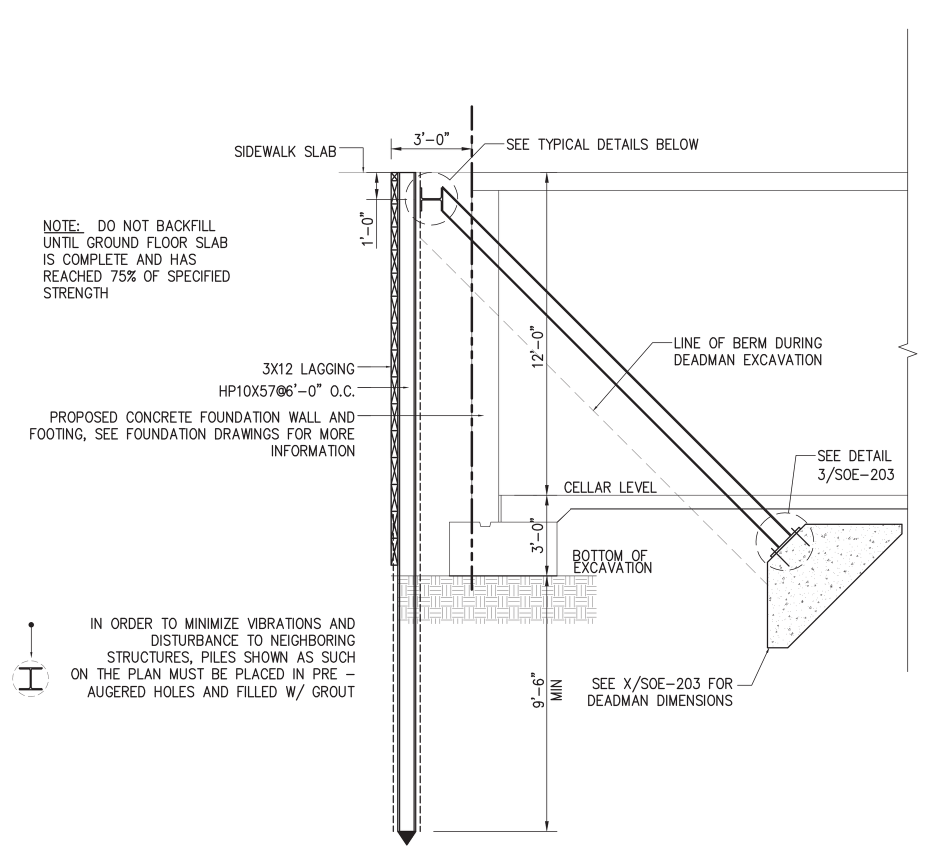
1. A BUILDING PROTECTION PLAN (BPP) IN ACCORDANCE WITH THE REQUIREMENTS OF THE NYCDOB TECHNICAL POLICY AND PROCEDURE NOTICE #10/88 (NYCDOB #10/88) SHOULD BE PREPARED.
2. ALL BUILDINGS DESIGNATED AS "LANDMARKS" LOCATED WITHIN 90 FEET OF THE PROPOSED EXCAVATION AND OVERALL SITE DEVELOPMENT WORK ARE TO BE MONITORED AS PER THE REQUIREMENTS OF TPPN 10/88.
3. A PRE-CONSTRUCTION (PRE-CONDITION) SURVEY OF THE ADJACENT STRUCTURES AND BUILDINGS SHALL BE PERFORMED PRIOR TO CONSTRUCTION IN ACCORDANCE WITH THE BUILDING PROTECTION PLAN. THE CONTRACTOR SHALL REVIEW AND FAMILIARIZE HIMSELF WITH THE RESULTS OF THE SURVEY. THE CONTRACTOR SHALL MAKE A VISUAL INSPECTION OF THE ADJACENT STRUCTURES (INSIDE AND OUT) PRIOR TO STARTING THE WORK.
4. MONITOR THE ABUTTING BUILDINGS AND STRUCTURES BY OPTICAL SURVEY AT ABOUT 25-FT INTERVALS FOR VERTICAL AND LATERAL MOVEMENT. NOTE THAT BUILDING MONITORING LOCATIONS ARE NOT SHOWN ON THE SUPPORT OF EXCAVATION PLAN FOR CLARITY.
5. CRACK GAUGES SHALL BE INSTALLED ON EXISTING NEIGHBORING BUILDING CRACKS AND MONITORED DURING EXCAVATION AND UNDERPINNING OPERATIONS.
6. OBTAIN BASELINE READINGS OF THE MONITORING POINTS PRIOR TO EXCAVATION AND NEW CONSTRUCTION. HORIZONTAL AND VERTICAL SURVEY DATA TO BE OBTAINED BY A NEW YORK STATE LICENSED SURVEYOR.
7. PERFORM OPTICAL SURVEYS AT LEAST TWICE PER WEEK DURING EXCAVATION AND FOUNDATION CONSTRUCTION. IF MOVEMENTS OCCUR, INCREASE THE FREQUENCY OF THE READINGS AS RECOMMENDED BY THE BPP OR ENGINEER.
8. VIBRATION MONITORS (SEISMOGRAPHS) SHALL BE PLACED ADJACENT TO AREAS WHERE WORK IS BEING PERFORMED AS NEGOTIATED WITH THE NEIGHBORING BUILDINGS. NOTE THAT THE SEISMOGRAPH LOCATIONS ARE NOT SHOWN ON THE SUPPORT OF EXCAVATION PLAN FOR CLARITY.
9. BUILDING MOVEMENT AND VIBRATION CRITERIA:
   a. ALL MONITORING FREQUENCIES SHALL COMPLY WITH TPPN 10/88.
   b. IF THE VERTICAL OR LATERAL BUILDING MOVEMENT REACHES 1/8-INCH, IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER, OWNER, AND ENGINEER OF RECORD.
   c. IF THE VERTICAL OR LATERAL BUILDING MOVEMENT REACHED 1/4-INCH, IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER, OWNER, AND ENGINEER OF RECORD AND STOP WORK. THE WORK SHALL RESUME UPON APPROVAL BY THE CONSTRUCTION MANAGER, OWNER, AND ENGINEER OF APPROVED REMEDIAL MEASURES AND/OR MODIFIED CONSTRUCTION PROCEDURES.
   d. IF THE VIBRATIONS EXCEED 0.5-IPS, AND/OR ANY INDIVIDUAL CRACK GAUGE READING EXCEEDS 2mm, IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER, OWNER, AND ENGINEER AND STOP WORK. THE WORK SHALL RESUME UPON APPROVAL BY THE CONSTRUCTION MANAGER, OWNER, AND ENGINEER OF APPROVED REMEDIAL MEASURES AND/OR MODIFIED CONSTRUCTION PROCEDURES. INFORM NYC DOB EXCAVATION UNIT. OBSERVE NEIGHBORING STRUCTURE CONDITIONS AND REVIEW AND MODIFY AS NECESSARY. HIS MEANS AND METHODS FOR EXCAVATION, AND SUPPORT OF EXCAVATION AND UNDERPINNING PER CONSTRUCTION. WORK SHALL NOT COMMENCE UNTIL AGREED UPON CORRECTIVE ACTION IS IMPLEMENTED BY THE CONTRACTOR.
10. VIBRATION MONITORS SHALL TAKE REAL-TIME READINGS.
11. ALL MONITORING DATA SHALL BE PRESENTED TO THE CONSTRUCTION MANAGER, OWNER, AND ENGINEER AT THE END OF EACH DAY, OR AT AGREED-UPON INTERVALS.



1 TYPICAL SECTION @ EXIST ROADWAY

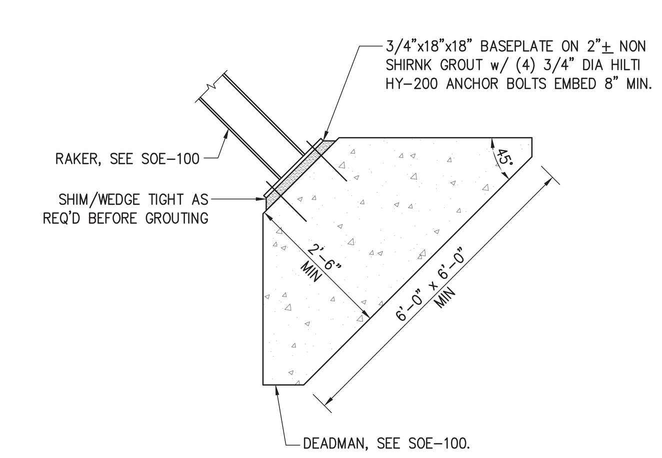
SCALE: 1/4"=1'-0"





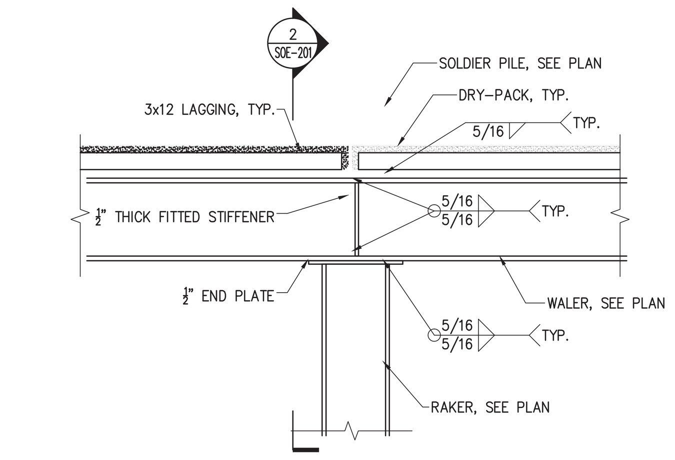
2 TYPICAL SECTION @ TEMPORARY SHORING

SCALE: 1/4"=1'-0"



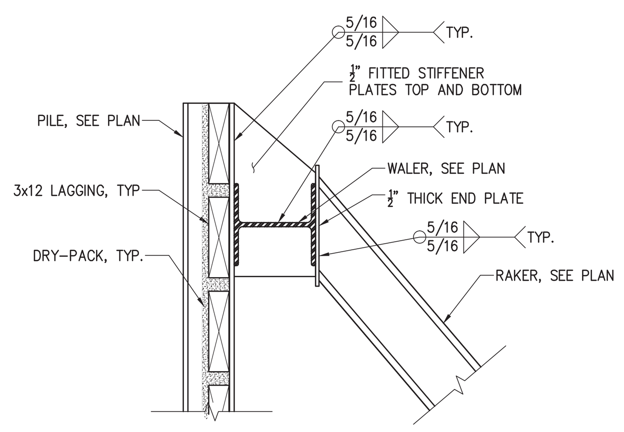
3 TYPICAL DEADMAN SECTION

SCALE: 1/2"=1'-0"



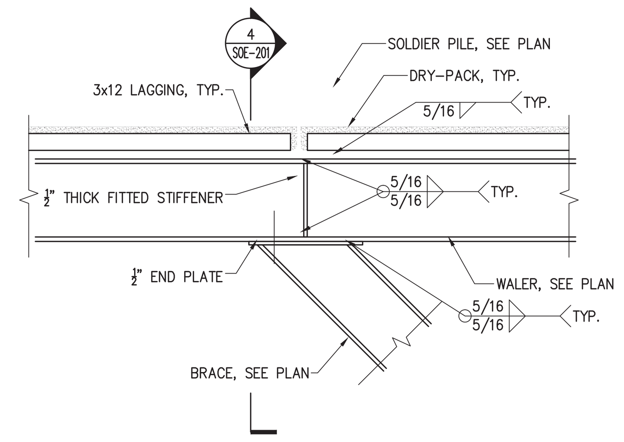
4 WALER-RAKER CONNECTION PLAN DETAIL

SCALE: 3/4"=1'-0"



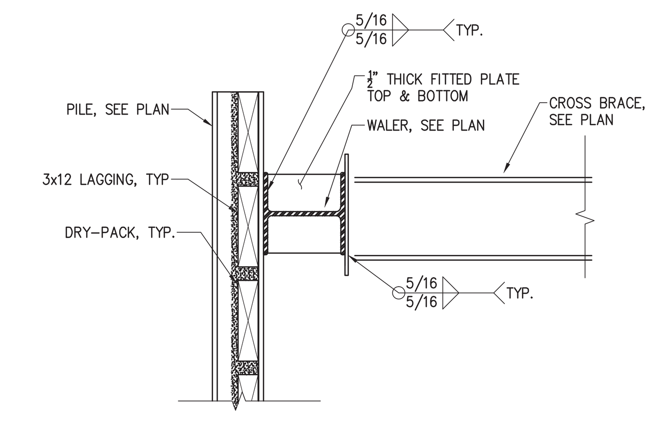
5 WALER-RAKER CONNECTION SECTION DETAIL

SCALE: 3/4"=1'-0"



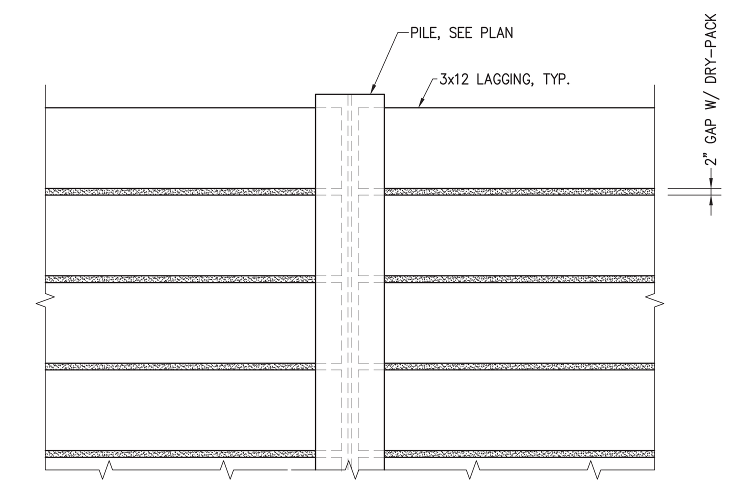
6 WALER-BRACE CONNECTION PLAN DETAIL

SCALE: 3/4"=1'-0"



7 WALER-BRACE CONNECTION SECTION DETAIL

SCALE: 3/4"=1'-0"



8 TYPICAL SHEETING ELEVATION

SCALE: 3/4"=1'-0"

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, N.Y. 11432

ISSUE	DESCRIPTION	DATE
1	ISSUE TO MTA	09/22/2015
	ISSUE TO OER	10/21/2015

ARCHITECT:

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ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	09-23-2015
PROJECT NO:	14168
DRAWING BY:	CH/KF
CHK BY:	KC

TITLE

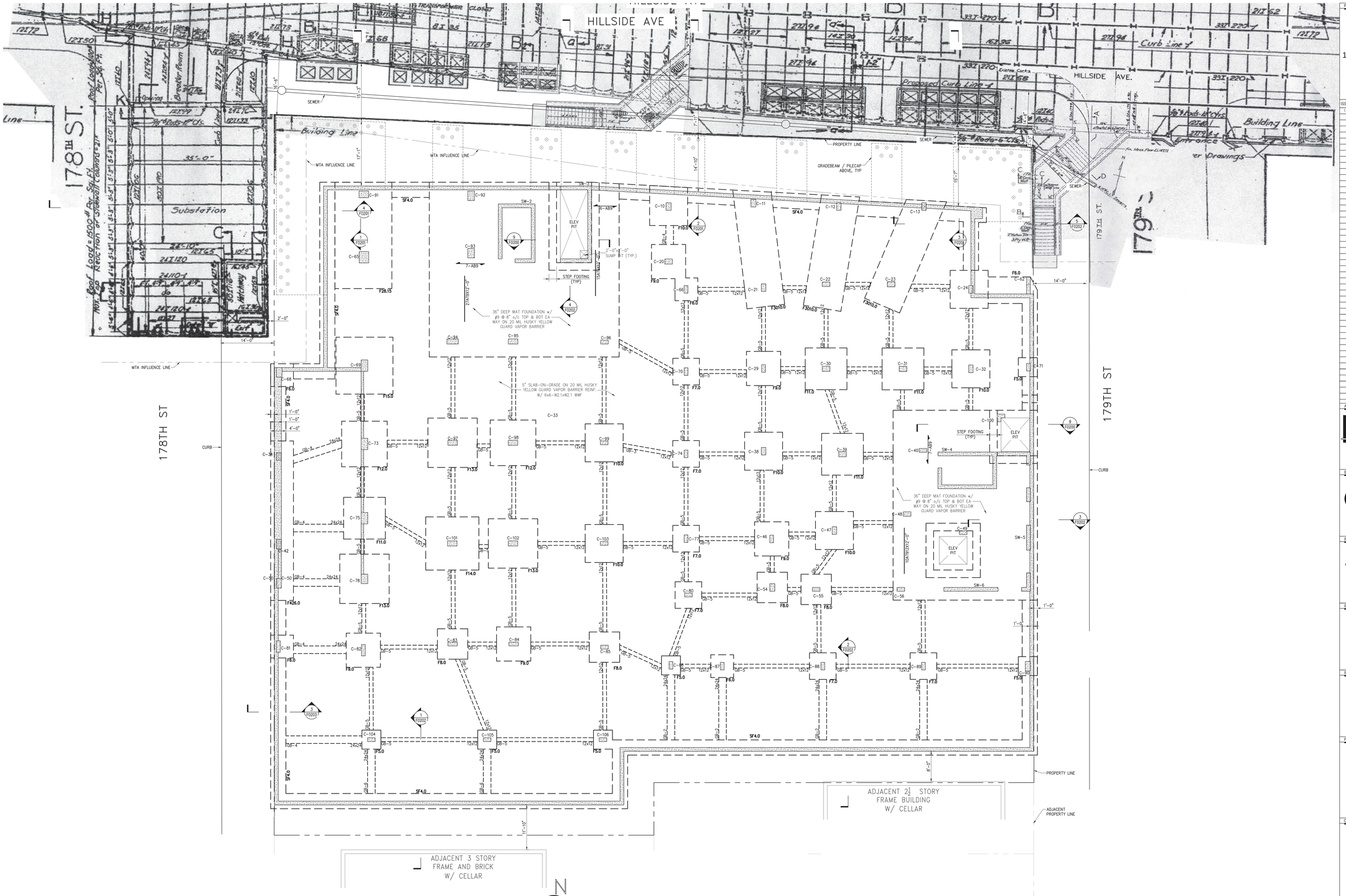
SOE AND EXCAVATION DETAILS AND NOTES

DWG NO:

SOE-203.00

6 of 23

DOB JOB NUMBER



1 CELLAR AND FOUNDATION PLAN

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

NOTES:

1. FLOOR SLAB SHALL BE REINFORCED CONCRETE, REINFORCEMENT SHALL BE AS SHOWN ON PLAN, SEE PLAN.
2. SEE ARCH. DWG'S FOR TOP OF SLAB ELEVATIONS.
3. SEE "STRUCTURAL CONCRETE NOTES" FOR CONCRETE STRENGTH REQUIREMENTS, ETC.
4. 2-#5 INDICATES ADDITIONAL 6BOTT #5 BARS AT COLUMN STRIP, SPACE ADDL BOTT BARS MIDWAY BETWEEN BOTT. GRID SAME SPACING AS BOTT. GRID
5. 4AT512 INDICATES ADDITIONAL 4TOP #5 BARS @12 O.C. ADDITIONAL TOP BARS SHALL BE CENTERED AT SUPPORT AND FALL IN BETWEEN THE CONTINUOUS TOP BARS
6. G.C. TO COORDINATE SLAB PENETRATIONS WITH MECHANICAL DRAWINGS.
7. TOP OF INTERIOR FOOTINGS TO BE 12" BELOW TOP OF SLAB, U.N.O.
8. BOTTOM OF FOOTINGS TO BE 4'-0" BELOW LOWEST ADJ. EXTERIOR GRADE, U.N.O.
9. FOUNDATION WALLS TO BE REINFORCED WITH #5 BARS @ 12" O.C. IN BOTH DIRECTIONS AT EACH FACE, U.N.O.

LEGEND:

	NEW REINFORCED CONCRETE WALL	C-##	NEW REINFORCED CONCRETE COLUMNS	⊙	NEW 40T MINI CAISON, SEE DETAIL SHEET FO-202
	EDGE OF SLAB	SW-#	NEW REINFORCED CONCRETE SHEAR WALLS	GB-#	NEW REINFORCED CONCRETE GRADE BEAM, SEE SCHEDULE SHEET FO-200
	FLOOR OPENING		NEW REINFORCED CONCRETE FOOTINGS, SEE SCHEDULE SHEET FO-200		
			PROPERTY LINE		

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DATE:	09-23-2015
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DRAWING BY:	DH/KF
CHK BY:	KC

TITLE

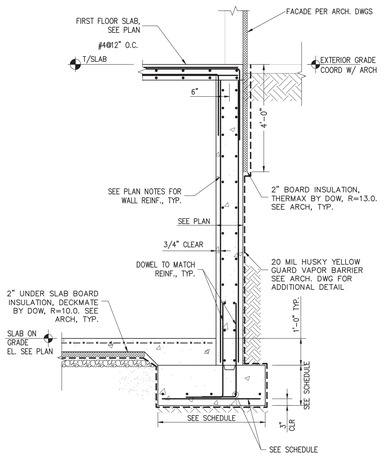
FOUNDATION PLAN

DWG NO:

FO-100.00

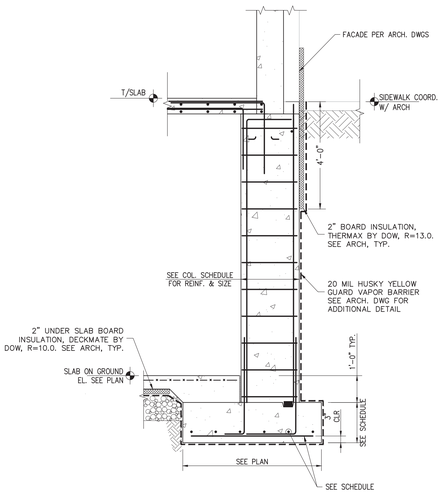
7 of 23

DOB JOB NUMBER



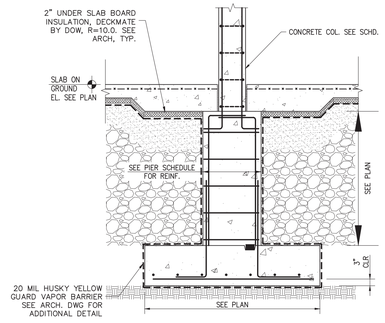
1 TYPICAL FOUNDATION WALL SECTION

SCALE: ½"=1'-0"



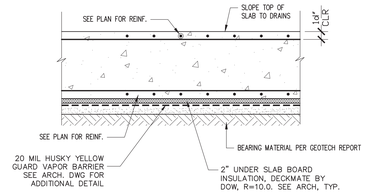
2 SECTION AT COLUMN

SCALE: 1/2"=1'-0"



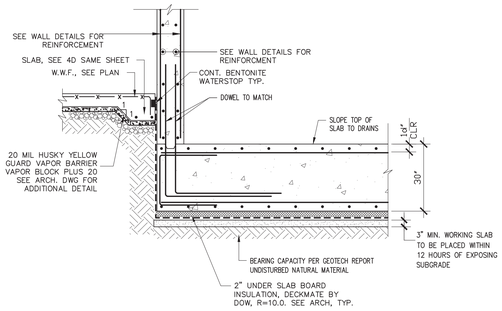
3 SECTION AT PIER

SCALE: 1/2"=1'-0"



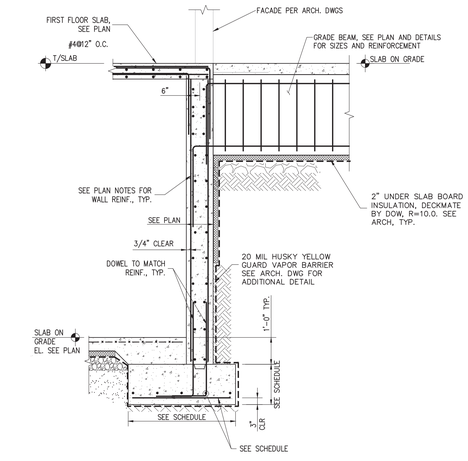
4 TYPICAL "MAT" DETAIL

SCALE: 1/2" = 1'-0"



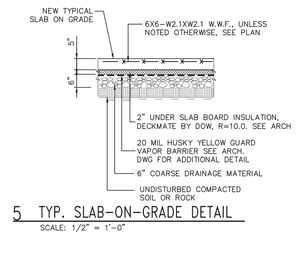
4A TYPICAL "MAT" DETAIL @ INTERIOR WALL

SCALE: 1/2" = 1'-0"



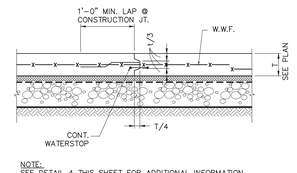
5 FOUNDATION WALL AT GRADE BEAM

SCALE: ½"=1'-0"



5 TYP. SLAB-ON-GRADE DETAIL

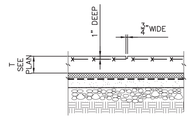
SCALE: 1/2" = 1'-0"



NOTE:
SEE DETAIL 4 THIS SHEET FOR ADDITIONAL INFORMATION.

5A TYP. SLAB ON GRADE CONST. JOINT

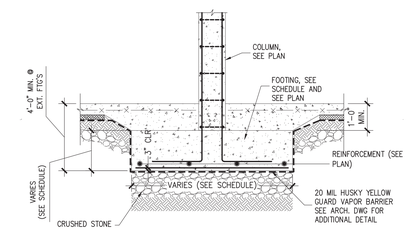
SCALE: 1/2" = 1'-0"



1. SAW-CUTTING SHALL BE CARRIED OUT WITHIN 6 TO 18 HOURS OF PLACING CONCRETE.
2. AFTER THE SLAB IS 30 DAYS OLD, REMOVE ALL DEBRIS FROM THE SAW CUTS AND FILL WITH COMPRESSIBLE MATERIAL OR AS NOTED IN SPECIFICATIONS.
3. JOINTS LOCATED 1000 SQUARE FEET MAXIMUM.

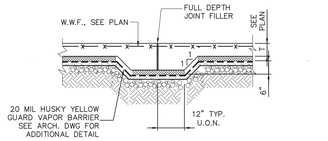
5B TYP. SLAB ON GRADE CONTROL JOINT

SCALE: 1/2" = 1'-0"



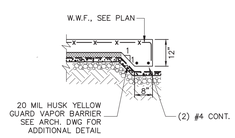
6 TYPICAL INTERIOR FOOTING

SCALE: ½"=1'-0"



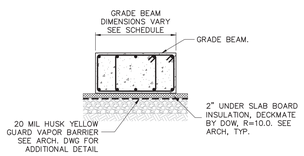
5C TYPICAL MOVEMENT JOINT DETAIL

SCALE: 1/2" = 1'-0"



5D TYPICAL SLAB PERIMETER DETAIL

SCALE: 1/2" = 1'-0"



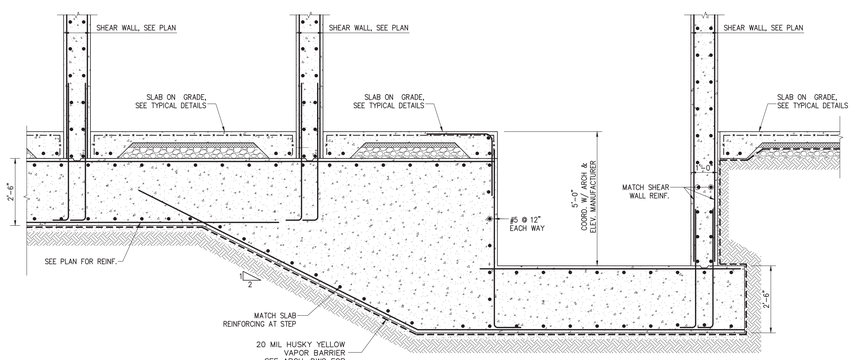
11 GRADE BEAM DETAIL

SCALE: 1/2" = 1'-0"

FOOTING SCHEDULE				
MARK	SIZE	DEPTH	BOTTOM BAR	REMARKS
F5.0	5'-0"x5'-0"	1'-6"	8#5 O.C. E.W	
F6.0	6'-0"x6'-0"	1'-6"	8#5 O.C. E.W	
F7.0	7'-0"x7'-0"	2'-0"	8#7 O.C. E.W	
F8.0	8'-0"x8'-0"	2'-0"	8#7 O.C. E.W	
F9.0	9'-0"x9'-0"	2'-6"	10#7 O.C. E.W	
F10.0	10'-0"x10'-0"	2'-6"	12#7 O.C. E.W	
F11.0	11'-0"x11'-0"	3'-0"	12#8 O.C. E.W	
F12.0	12'-0"x12'-0"	3'-0"	13#8 O.C. E.W	
F13.0	13'-0"x13'-0"	3'-0"	16#8 O.C. E.W	
F14.0	14'-0"x14'-0"	3'-6"	14#9 O.C. E.W	
F15.0	15'-0"x15'-0"	3'-6"	14#9 O.C. E.W	
F2815.0	28'-0"x15'-0"	3'-0"	14#9 O.C. L.W T&B 36#9 O.C. S.W T&B	
F3010.0	30'-0"x10'-0"	3'-0"	20#9 O.C. L.W T&B 25#9 O.C. S.W T&B	
F426.0	42'-0"x6'-0"	3'-0"	12#9 O.C. L.W T&B 33#9 O.C. S.W T&B	

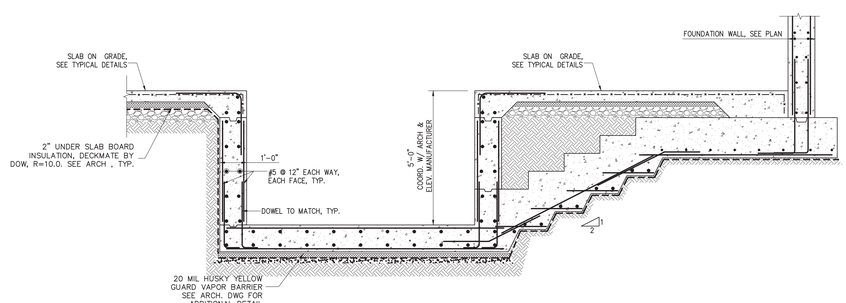
STRIP FOOTING SCHEDULE				
MARK	SIZE	DEPTH	BOTTOM BAR	PILE GROUP
SF4.0	4'-0"	2'-0"	(6) #5 CONT LW BOT #5 @ 6" SW BOT	40 TON

GRADE BEAM SCHEDULE					
BEAM NO.	SIZE (WIDTH x DEPTH)	REINFORCEMENT (- SUPPORTS	STIRRUPS TYPE	STIRRUPS SPACING	REMARKS/ NOTES
GB-1	96"X24"	10-#9 / 10-#9	4 LEGS	(12) #5 @ 6" O.C.	REMAINDER (2) LEG #5 @ 10" o/c
GB-2	96"X24"	10-#9 / 10-#9	6 LEGS	(8) #5 @ 6" O.C.	REMAINDER (2) LEG #5 @ 10" o/c
GB-4	24"X24"	6-#9 / 6-#9	2 LEGS	#4 @ 8" O.C.	
GB-5	12"X12"	3-#7 / 3-#7	2 LEGS	#4 @ 8" O.C.	



9 SECTION AT ELEVATOR PIT AND SHEAR WALLS

SCALE: 1/2" = 1'-0"



9 SECTION AT ELEVATOR PIT

SCALE: 1/2" = 1'-0"

PROJECT/ CLIENT:

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ISSUE	DESCRIPTION	DATE
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ARCHITECT:

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ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

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CHK BY:	KC

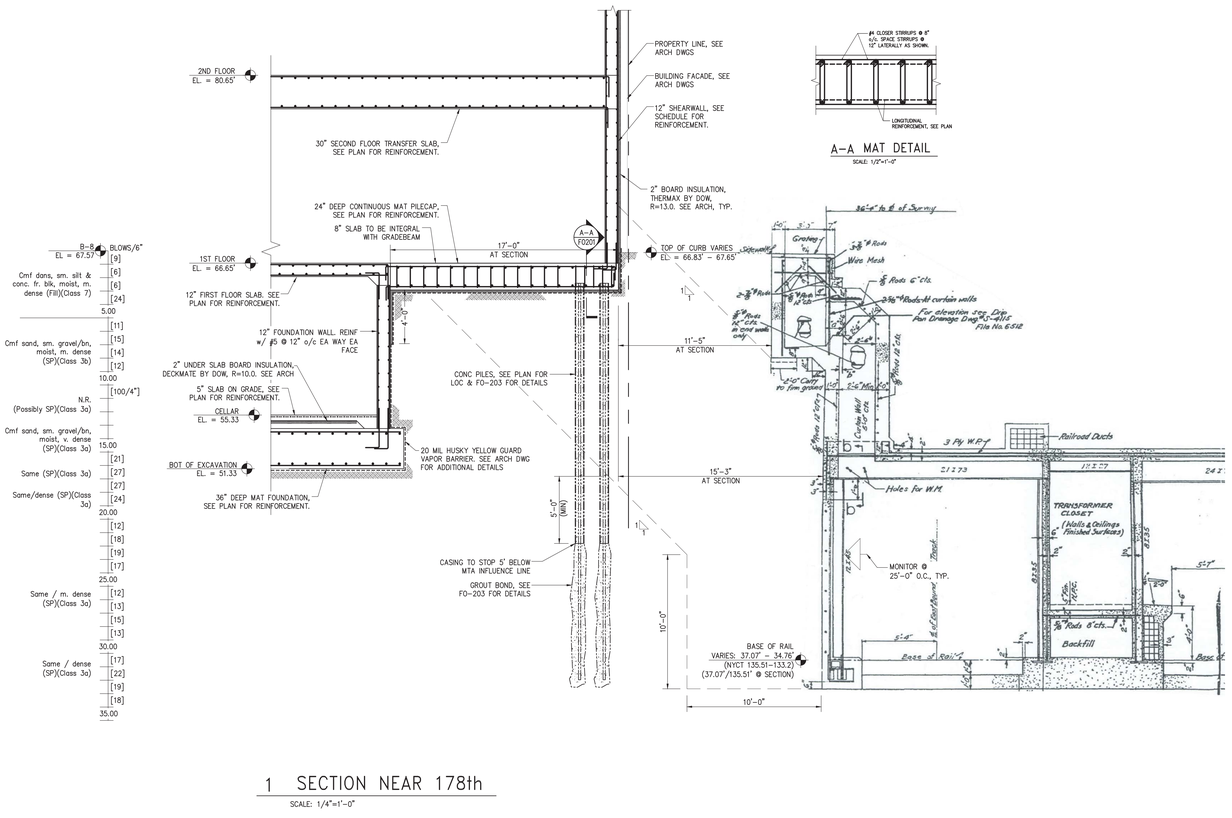
TITLE

FOUNDATION SECTIONS AND DETAILS

DWG NO:

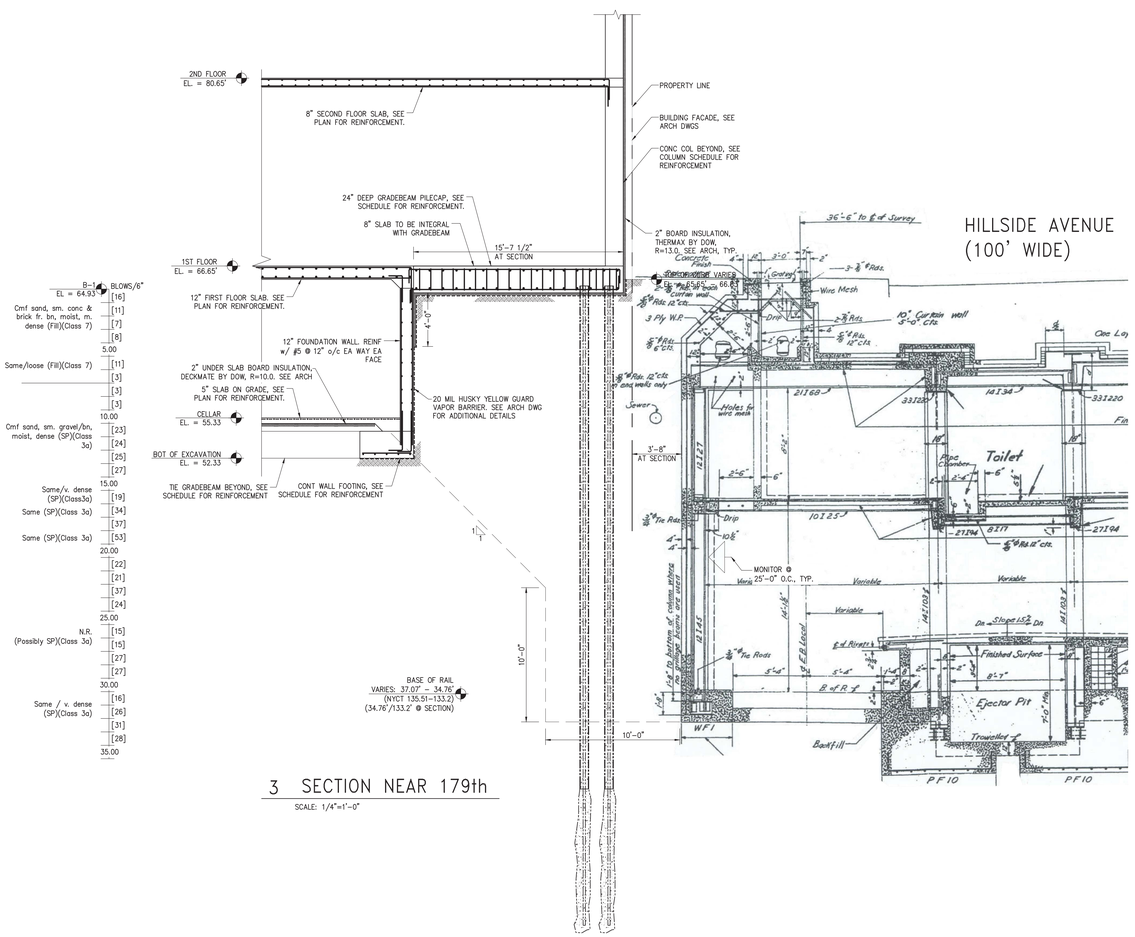
FO-200.00

DOB JOB NUMBER



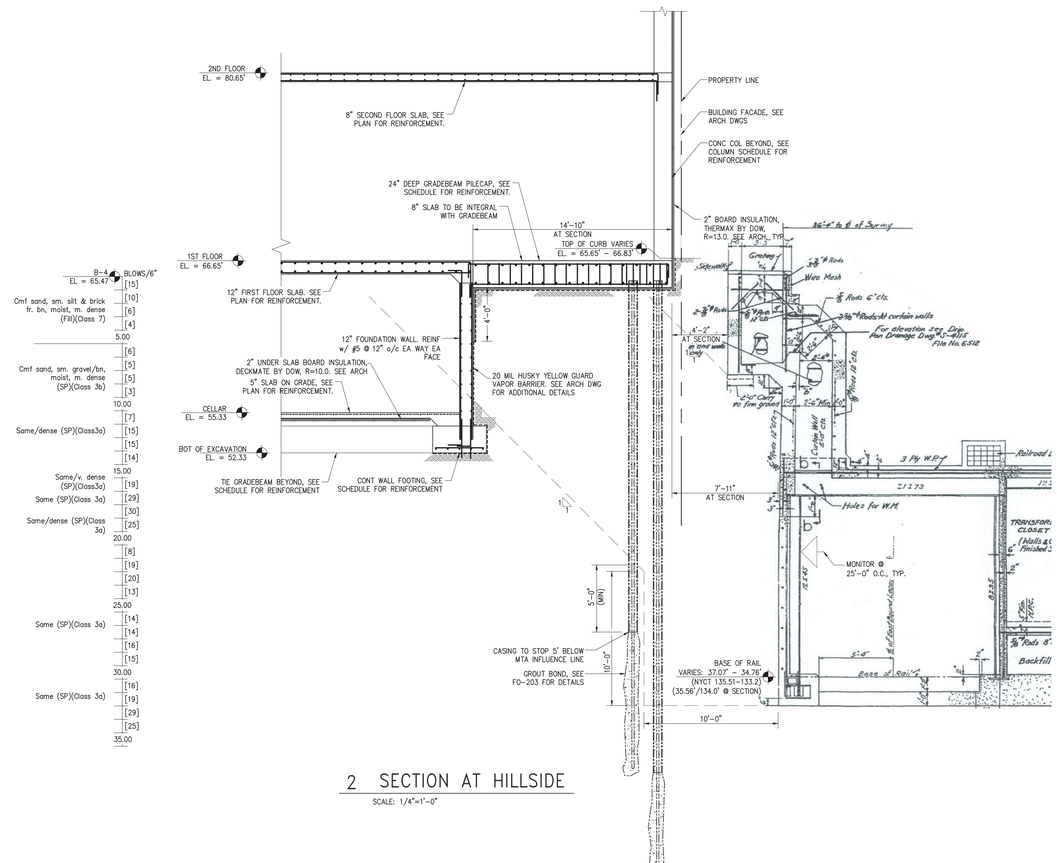
1 SECTION NEAR 178th

SCALE: 1/4"=1'-0"



3 SECTION NEAR 179th

SCALE: 1/4"=1'-0"



2 SECTION AT HILLSIDE

SCALE: 1/4"=1'-0"

4 SECTION AT MTA SUBSTATION

SCALE: 1/4"=1'-0"

PROJECT/ CLIENT:

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DATE:	09-23-2015
PROJECT NO:	14168
DRAWING BY:	CH/KF
CHK BY:	KC

TITLE

FOUNDATION SECTIONS & DETAILS

DWG NO:

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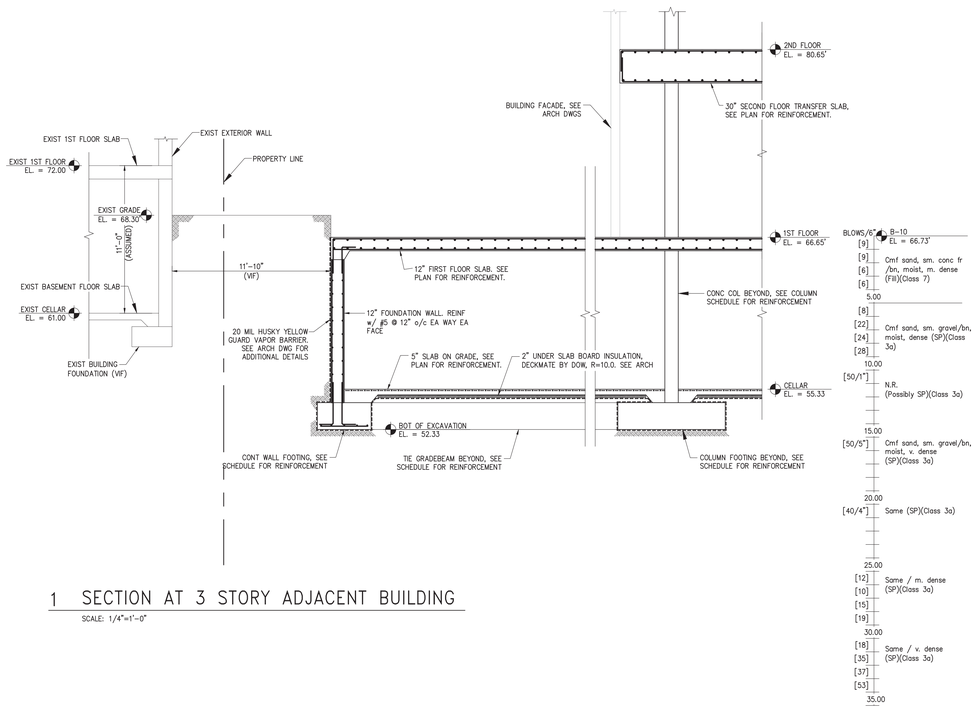
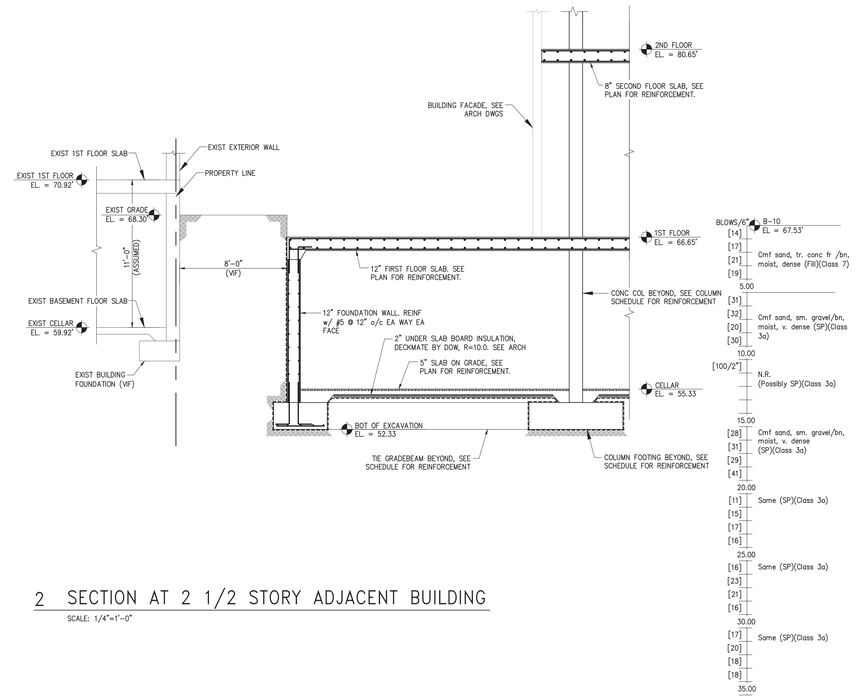
DOB JOB NUMBER



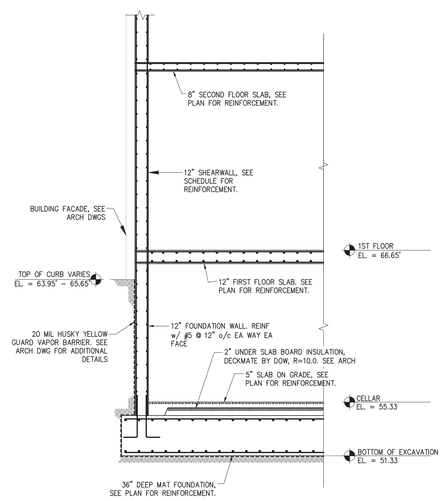
1 SECTION AT 3 STORY ADJACENT BUILDING

SCALE: 1/4"=1'-0"



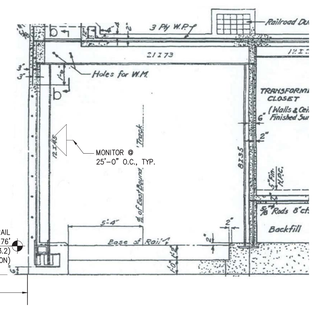
2 SECTION AT 2 1/2 STORY ADJACENT BUILDING

SCALE: 1/4"=1'-0"



3 SECTION @ EXIST ROADWAY

SCALE: 1/4"=1'-0"



4 SECTION @ NORTH MTA ENTRANCE

SCALE: 1/4"=1'-0"

5 SECTION @ EAST MTA ENTRANCE

SCALE: 1/4"=1'-0"

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No. 078176
LICENSED PROFESSIONAL ENGINEER

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	09-23-2015
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CHK BY:	KC

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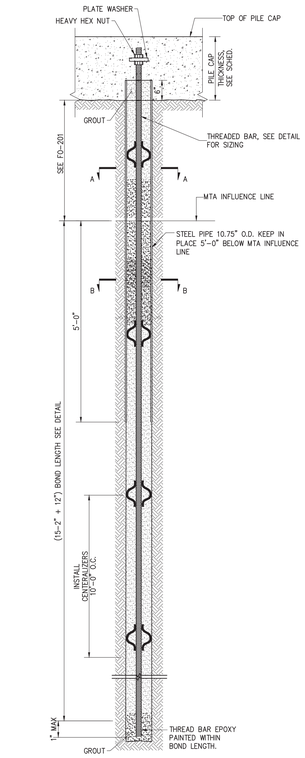
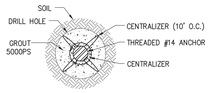


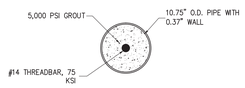
1 TYPICAL DETAIL – MINI CAISSON

NTS



A SECTION

NOT TO SCALE



B SHAFT SECTION

NOT TO SCALE

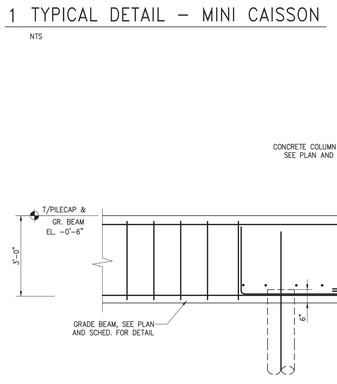
STRENGTH OF MATERIAL
GROUT: 5,000psi x 0.3 (TABLE 1808.8 NYC BUILDING CODE) = 1.5ksi
STEEL CASING: 36ksi (MAXIMUM ALLOWABLE)x0.35 (TABLE 1808.8)= 12.6ksi
SOIL FRICTION = 14 psi (GEOTECHNICAL REPORT BY GEO TECH CONSULTANTS LLC)

CAISSON INFORMATION
CASING 10.75 = PIPE WITH 0.37 INCH WALL
CENTER REINFORCEMENT = #14BAR, 75ksi, AREA=2.4IN^2

CAISSON SHAFT DESIGN
GROUT AREA = π x 5^2–2.4 =76.14IN^2
GROUT CAPACITY=1.5ksi x76.14 IN^2 = 114.21kips
TOTAL CAPACITY OF SHAFT =114.21kips>80kips

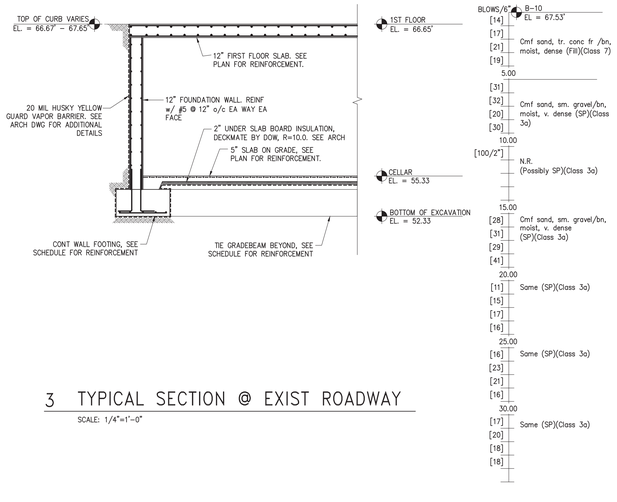
SOIL BONDING FOR 40 TONS
CIRCUMFERENCE OF SOCKET= (10IN)=31.42 INCHES
REQUIRED LENGTH OF SOIL SOCKET=80kips/(31.42 INx0.014ksi) =182 INCHES = 15.16 FEET

SUGGESTED PROCEDURES FOR MINI CAISSON INSTALLATION
1. SET UP THE RIG ON PROPER LOCATION AND PLUMB THE MAST.
2. INSTALL THE FIRST PIECE OF CASING WITH ATTACHED CARBIDE CUTTING TEETH.
3. DRILL CASING DOWN AND MAINTAIN POSITIVE FLUID HEAD AT ALL TIMES. DRILLING TO BE PERFORMED USING INTERNAL FLUSH METHOD. OUTSIDE CASING SHALL REMAIN AHEAD OF THE INTERNAL FLUSHING BY A MINIMUM OF 2 FEET. IF OBSTRUCTIONS ARE ENCOUNTERED OR IF OUTSIDE CASING GETS STUCK, ADVANCE INNER CASING THOUGH OBSTRUCTION OR UNTIL OUTER CASING CAN REVOLVE, AND THE RESUME STANDARD PROCEDURE OF 2 FOOT LEAD OF THE OUTSIDE CASING. IF EXISTING CONCRETE IS DISCOVERED DURING DRILLING PROCESS, FOLLOW TA HENERAL NOTE 15, PERTAINING TO THE USE OF THE DOWN-THE-HOLE-HAMMER.
4. FOLLOW UP WITH ADDITIONAL CASING TO ELEVATION SHOWN ON THESE DRAWINGS.
5. REMOVED INNER CASING.
6. FLUSH INSIDE OF CASING CLEAN OF SPOILS.
7. INSTALL THREADED BAR REINFORCING STEEL.
8. FILL THE VOIDS WITHIN THE CASING USING CEMENT GROUT OR CONCRETE.



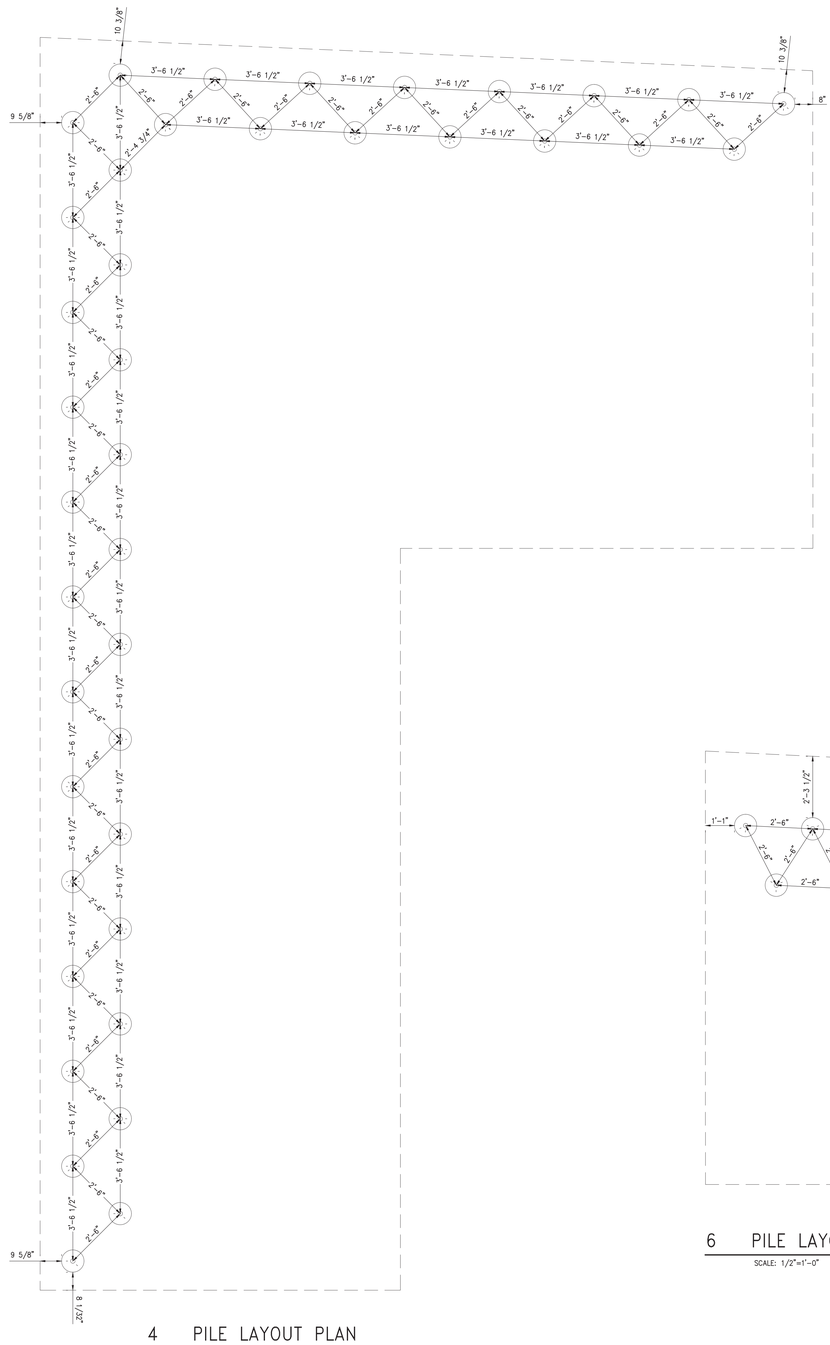
2 TYPICAL PILE CAP DETAIL

SCALE: 1/2" = 1'-0"



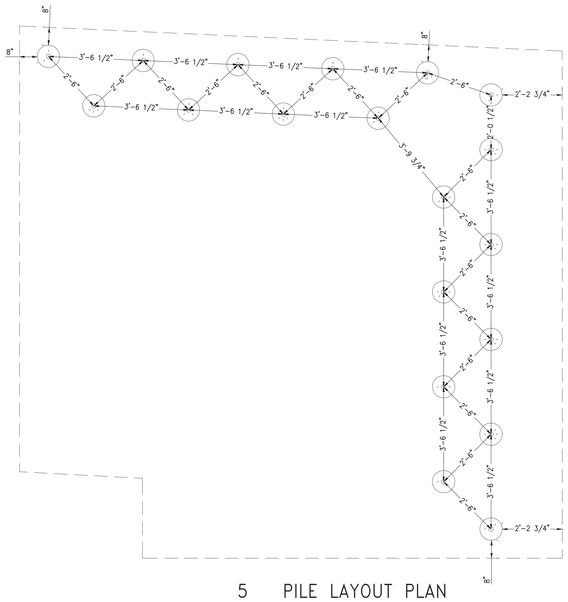
3 TYPICAL SECTION @ EXIST ROADWAY

SCALE: 1/4"=1'-0"



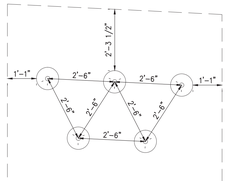
4 PILE LAYOUT PLAN

SCALE: 1/2"=1'-0"



5 PILE LAYOUT PLAN

SCALE: 1/2"=1'-0"



6 PILE LAYOUT PLAN

SCALE: 1/2"=1'-0"

7 PILE LAYOUT PLAN

SCALE: 1/2"=1'-0"

PROJECT/ CLIENT:

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DATE:	09-23-2015
PROJECT NO:	14168
DRAWING BY:	CH/KF
CHK BY:	KC

TITLE

PILE DETAILS

DWG NO:

FO-203.00

DOB JOB NUMBER

1 GROUND FLOOR FRAMING

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

NOTES:

1. FLOOR SLAB SHALL BE 12" THICK CONCRETE, REINFORCED W/ #5@12" O.C. TOP & BOTTOM EACH WAY. ADDITIONAL BARS MAY BE REQUIRED, SEE PLAN.
2. SEE ARCH. DWG'S FOR TOP OF SLAB ELEVATIONS.
3. SEE "STRUCTURAL CONCRETE NOTES" FOR CONCRETE STRENGTH REQUIREMENTS, ETC.
4. ⊥⊥ INDICATES ADDITIONAL 6BOTT #5 BARS AT COLUMN STRIP, SPACE ADDL BOTT BARS MIDWAY BETWEEN BOTT. GRID SAME SPACING AS BOTT. GRID
5. 4AT512 INDICATES ADDITIONAL 4TOP #5 BARS @12" O.C. ADDITIONAL TOP BARS SHALL BE CENTERED AT SUPPORT AND FALL IN BETWEEN THE CONTINUOUS TOP BARS
6. O.C. TO COORDINATE SLAB PENETRATIONS WITH MECHANICAL DRAWINGS.

LEGEND:

	NEW REINFORCED CONCRETE WALL	C-##	NEW REINFORCED CONCRETE COLUMNS	⊙	NEW 40T MINI CAISON, SEE DETAIL SHEET FO-202
	EDGE OF SLAB	SW-#	NEW REINFORCED CONCRETE SHEAR WALLS		
	FLOOR OPENING		PROPERTY LINE		
		GR-# #x#	NEW REINFORCED CONCRETE GRADE BEAM, SEE SCHEDULE SHEET FO-200		

PROJECT/ CLIENT:

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DATE:	09-23-2015
PROJECT NO:	14168
DRAWING BY:	CH/KF
CHK BY:	KC

TITLE

GROUND FLOOR FRAMING PLAN

DWG NO:

S-101.00

12 of 23

DOB JOB NUMBER

1 SECOND FLOOR FRAMING

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

NOTES:

1. FLOOR SLAB SHALL BE REINFORCED CONCRETE, REINFORCEMENT SHALL BE AS SHOWN ON PLAN, SEE PLAN.
2. SEE ARCH. DWG'S FOR TOP OF SLAB ELEVATIONS.
3. SEE "STRUCTURAL CONCRETE NOTES" FOR CONCRETE STRENGTH REQUIREMENTS, ETC.
4. 6-AB5 INDICATES ADDITIONAL 6BOTT #5 BARS AT COLUMN STRIP, SPACE ADDL BOTT BARS MIDWAY BETWEEN BOTT. GRID SAME SPACING AS BOTT. GRID
5. 4AT512 INDICATES ADDITIONAL 4TOP #5 BARS @12 O.C. ADDITIONAL TOP BARS SHALL BE CENTERED AT SUPPORT AND FALL IN BETWEEN THE CONTINUOUS TOP BARS
6. G.C. TO COORDINATE SLAB PENETRATIONS WITH MECHANICAL DRAWINGS.

LEGEND:

- NEW REINFORCED CONCRETE WALL
- NEW REINFORCED CMU WALL
- EDGE OF SLAB
- FLOOR OPENING
- NEW REINFORCED CONCRETE COLUMNS
- NEW REINFORCED CONCRETE COLUMNS OR WALLS BELOW
- 2BX NEW REINFORCED CONCRETE BEAM. SEE SCHEDULE ON S-203

PROJECT/ CLIENT:

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Queens, N.Y. 11432

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PROJECT NO:	14168
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CHK BY:	KC

TITLE

SECOND FLOOR FRAMING PLAN

DWG NO:

S-102.00

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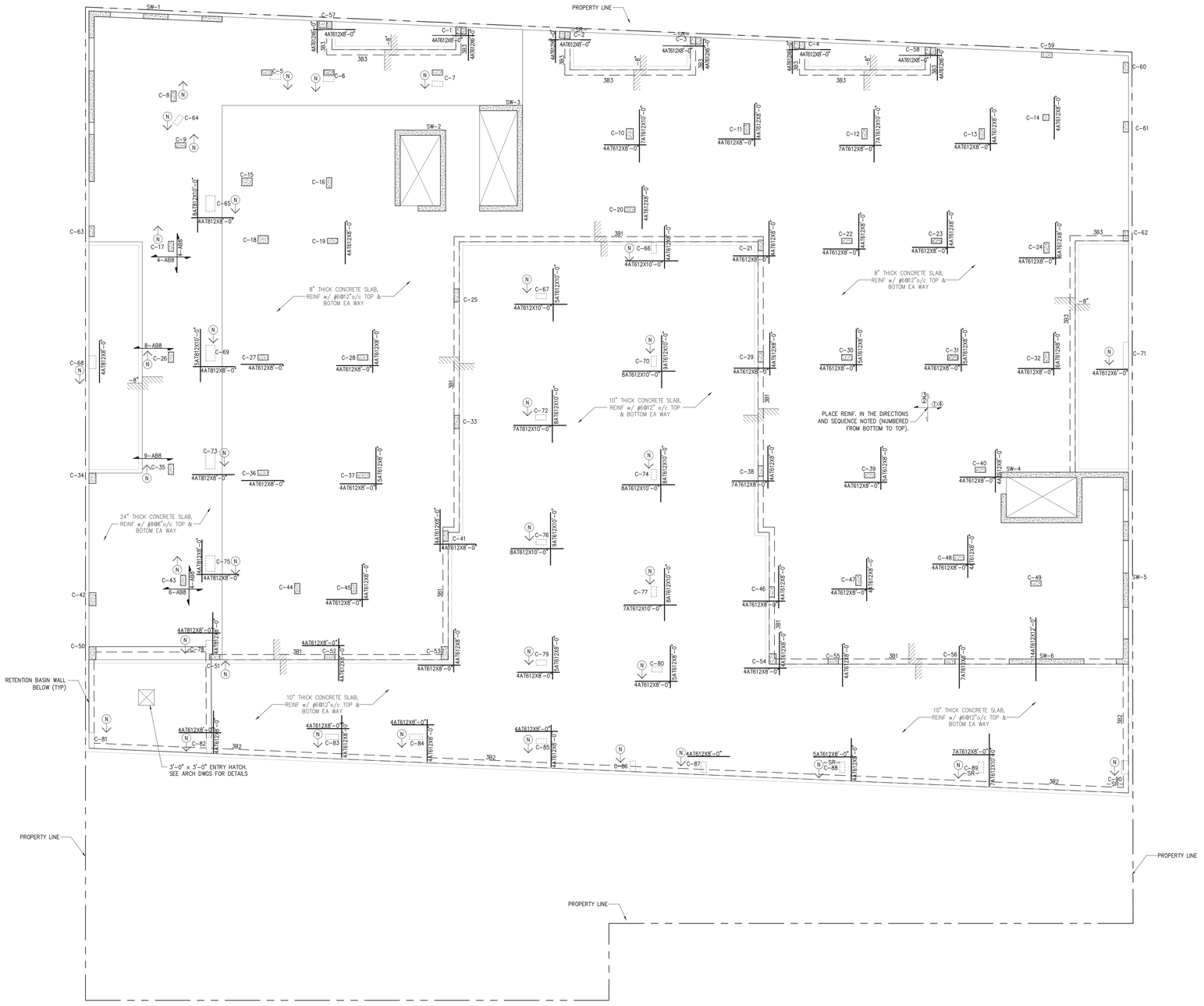
DOB JOB NUMBER



1 THIRD FLOOR FRAMING

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

NOTES:

1. FLOOR SLAB SHALL BE REINFORCED CONCRETE, REINFORCEMENT SHALL BE AS SHOWN ON PLAN, SEE PLAN.
2. SEE ARCH. DWG'S FOR TOP OF SLAB ELEVATIONS.
3. SEE "STRUCTURAL CONCRETE NOTES" FOR CONCRETE STRENGTH REQUIREMENTS, ETC.
4. 4-AB8 INDICATES ADDITIONAL 6BOTT #5 BARS AT COLUMN STRIP, SPACE ADDL BOTT BARS MIDWAY BETWEEN BOTT. GRID SAME SPACING AS BOTT. GRID
5. 4AT512 INDICATES ADDITIONAL 4TOP #5 BARS @12 O.C. ADDITIONAL TOP BARS SHALL BE CENTERED AT SUPPORT AND FALL IN BETWEEN THE CONTINUOUS TOP BARS
6. G.C. TO COORDINATE SLAB PENETRATIONS WITH MECHANICAL DRAWINGS.

LEGEND:

	NEW REINFORCED CONCRETE WALL		NEW REINFORCED CONCRETE COLUMNS
	NEW REINFORCED CMU WALL		NEW REINFORCED CONCRETE COLUMNS OR WALLS BELOW
	EDGE OF SLAB	-SR-	STUD RAILS, SEE SCHEDULE ON S203
	FLOOR OPENING	3BX	NEW REINFORCED CONCRETE BEAM. SEE SCHEDULE ON S-203

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DATE:	09-23-2015
PROJECT NO:	14168
DRAWING BY:	DH/KF
CHK BY:	KC

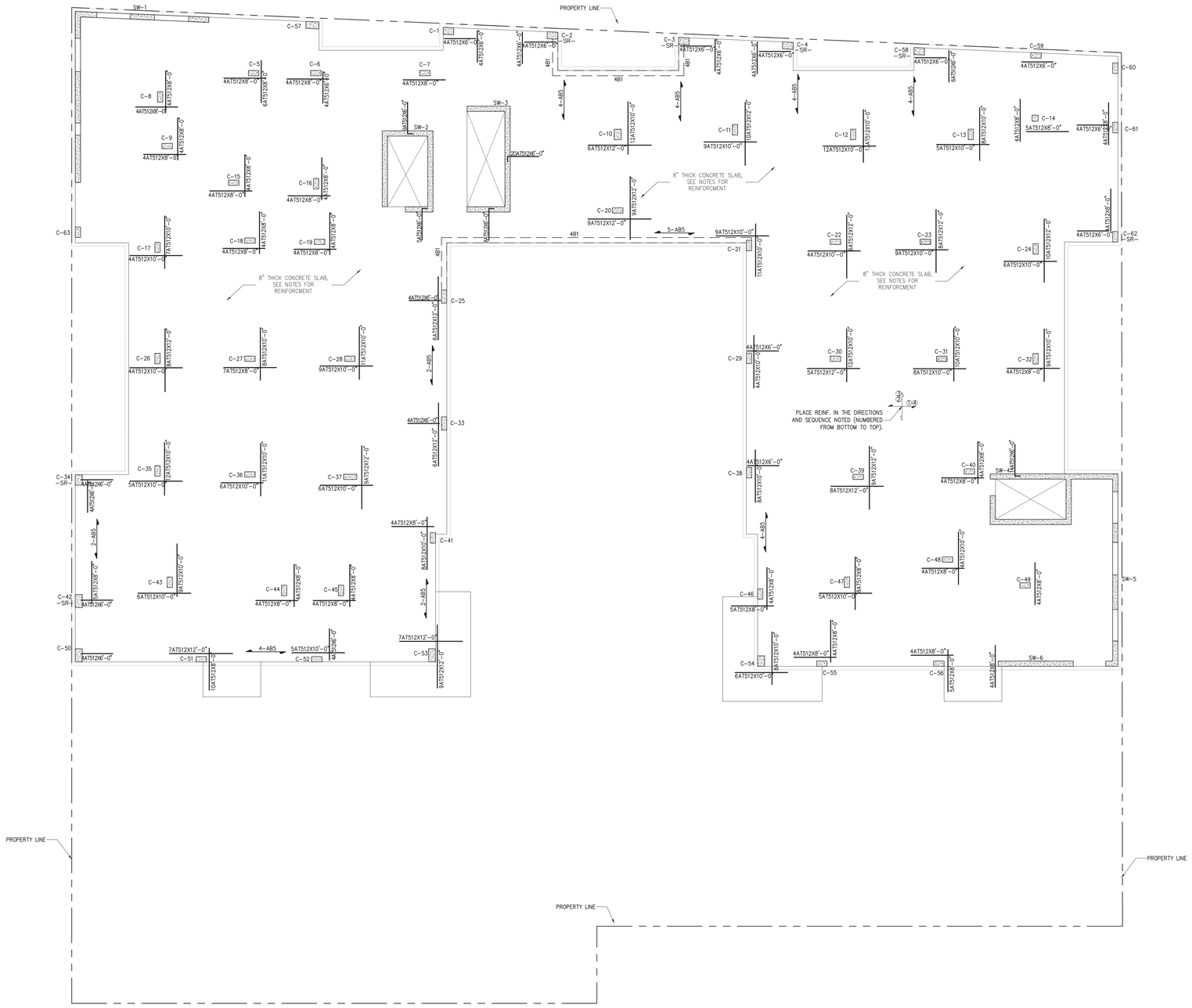
TITLE

THIRD FLOOR FRAMING PLAN

DWG NO:

S-103.00

DOB JOB NUMBER



1 FOURTH–SIXTH FLOOR FRAMING

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

NOTES:

1. FLOOR SLAB SHALL BE 8" THICK CONCRETE, REINFORCED W/ #5@12" O.C. TOP & BOTTOM EACH WAY. ADDITIONAL BARS MAY BE REQUIRED, SEE PLAN.
2. SEE ARCH. DWG'S FOR TOP OF SLAB ELEVATIONS.
3. SEE "STRUCTURAL CONCRETE NOTES" FOR CONCRETE STRENGTH REQUIREMENTS, ETC.
4. ∠-2#5 INDICATES ADDITIONAL 6BOTT #5 BARS AT COLUMN STRIP, SPACE ADDL BOTT BARS MIDWAY BETWEEN BOTT. GRID SAME SPACING AS BOTT. GRID
5. 4AT512 INDICATES ADDITIONAL 4TOP #5 BARS @12 O.C. ADDITIONAL TOP BARS SHALL BE CENTERED AT SUPPORT AND FALL IN BETWEEN THE CONTINUOUS TOP BARS
6. C.C. TO COORDINATE SLAB PENETRATIONS WITH MECHANICAL DRAWINGS.

LEGEND:

- NEW REINFORCED CONCRETE WALL
- EDGE OF SLAB
- FLOOR OPENING
- C–XX — NEW REINFORCED CONCRETE COLUMNS
- SW–X — NEW REINFORCED CONCRETE SHEAR WALLS
- PROPERTY LINE
- –SR– — STUD RAILS, SEE SCHEDULE ON S–203

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, N.Y. 11432

ISSUE	DESCRIPTION	DATE
1	ISSUE TO MTA	09/22/2015
	ISSUE TO DER	10/21/2015

ARCHITECT:

adg
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ENGINEER/ CONSULTANT:

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DATE:	09-23-2015
PROJECT NO:	14168
DRAWING BY:	CH/KF
CHK BY:	KC

TITLE

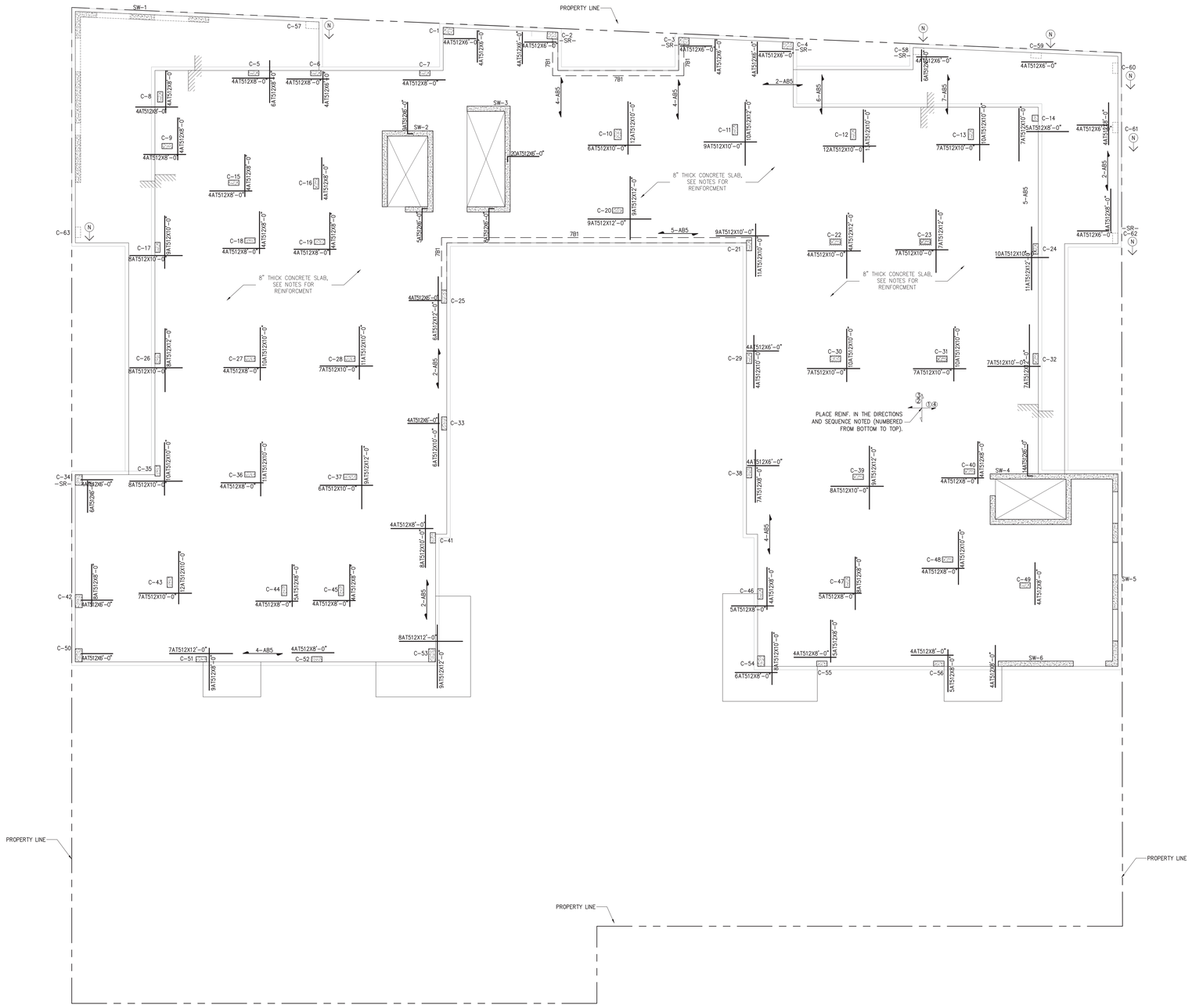
4TH–6TH FLOOR
FRAMING PLAN

DWG NO:

S–104.00

15 of 23

DOB JOB NUMBER



1 SEVENTH FLOOR FRAMING

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

NOTES:

1. FLOOR SLAB SHALL BE 8" THICK CONCRETE, REINFORCED W/ #5@12" O.C. TOP & BOTTOM EACH WAY. ADDITIONAL BARS MAY BE REQUIRED, SEE PLAN.
2. SEE ARCH. DWG'S FOR TOP OF SLAB ELEVATIONS.
3. SEE "STRUCTURAL CONCRETE NOTES" FOR CONCRETE STRENGTH REQUIREMENTS, ETC.
4. 6-#5 INDICATES ADDITIONAL 6BOTT #5 BARS AT COLUMN STRIP, SPACE ADDL BOTT BARS MIDWAY BETWEEN BOTT. GRID SAME SPACING AS BOTT. GRID
5. 4AT512 INDICATES ADDITIONAL 4TOP #5 BARS @12 O.C. ADDITIONAL TOP BARS SHALL BE CENTERED AT SUPPORT AND FALL IN BETWEEN THE CONTINUOUS TOP BARS
6. G.C. TO COORDINATE SLAB PENETRATIONS WITH MECHANICAL DRAWINGS.

LEGEND:

	NEW REINFORCED CONCRETE WALL	C-XX	NEW REINFORCED CONCRETE COLUMNS
	EDGE OF SLAB	SW-X	NEW REINFORCED CONCRETE SHEAR WALLS
	FLOOR OPENING		PROPERTY LINE
		-SR-	STUD RAILS, SEE SCHEDULE ON S-203

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, N.Y. 11432

ISSUE	DESCRIPTION	DATE
1	ISSUE TO MTA	09/22/2015
	ISSUE TO OER	10/21/2015

ARCHITECT:

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ENGINEER/ CONSULTANT:

ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

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DATE:	09-23-2015
PROJECT NO:	14168
DRAWING BY:	CH/KF
CHK BY:	KC

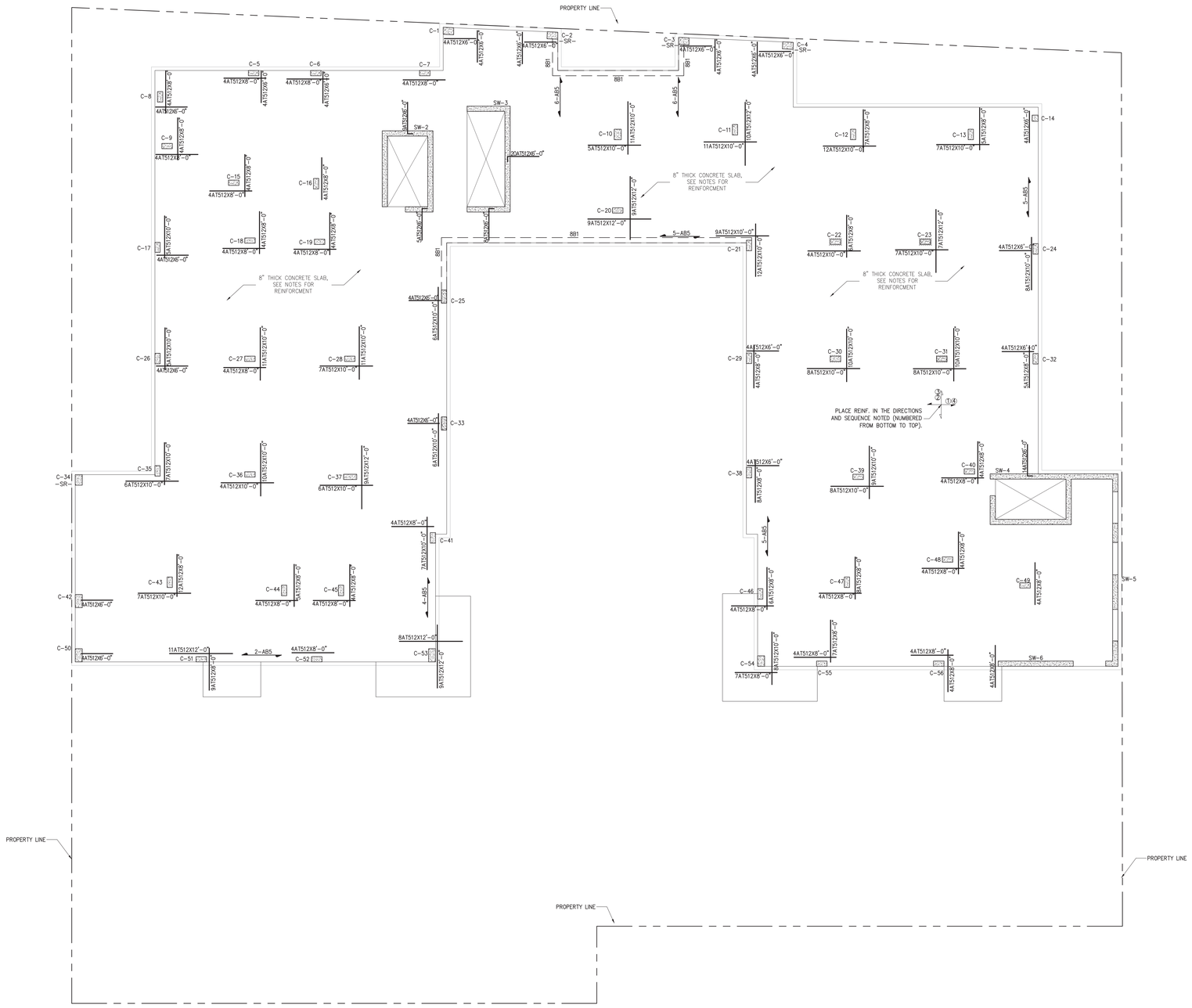
TITLE

7TH FLOOR
FRAMING PLAN

DWG NO:

S-105.00

DOB JOB NUMBER



1 EIGHTH FLOOR FRAMING

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

NOTES:

1. FLOOR SLAB SHALL BE 8" THICK CONCRETE, REINFORCED W/ #5@12" O.C. TOP & BOTTOM EACH WAY. ADDITIONAL BARS MAY BE REQUIRED, SEE PLAN.
2. SEE ARCH. DWG'S FOR TOP OF SLAB ELEVATIONS.
3. SEE "STRUCTURAL CONCRETE NOTES" FOR CONCRETE STRENGTH REQUIREMENTS, ETC.
4. #-#S INDICATES ADDITIONAL 6BOTT #5 BARS AT COLUMN STRIP, SPACE ADDL BOTT BARS MIDWAY BETWEEN BOTT. GRID SAME SPACING AS BOTT. GRID
5. 4AT512 INDICATES ADDITIONAL 4TOP #5 BARS @12 O.C. ADDITIONAL TOP BARS SHALL BE CENTERED AT SUPPORT AND FALL IN BETWEEN THE CONTINUOUS TOP BARS
6. G.C. TO COORDINATE SLAB PENETRATIONS WITH MECHANICAL DRAWINGS.

LEGEND:

- NEW REINFORCED CONCRETE WALL
- EDGE OF SLAB
- FLOOR OPENING
- C-XX — NEW REINFORCED CONCRETE COLUMNS
- SW-X — NEW REINFORCED CONCRETE SHEAR WALLS
- PROPERTY LINE
- -SR- — STUD RAILS, SEE SCHEDULE ON S-203

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, N.Y. 11432

ISSUE	DESCRIPTION	DATE
1	ISSUE TO MTA	09/22/2015
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ARCHITECT:

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DATE:	09-23-2015
PROJECT NO:	14168
DRAWING BY:	CH/KF
CHK BY:	KC

TITLE

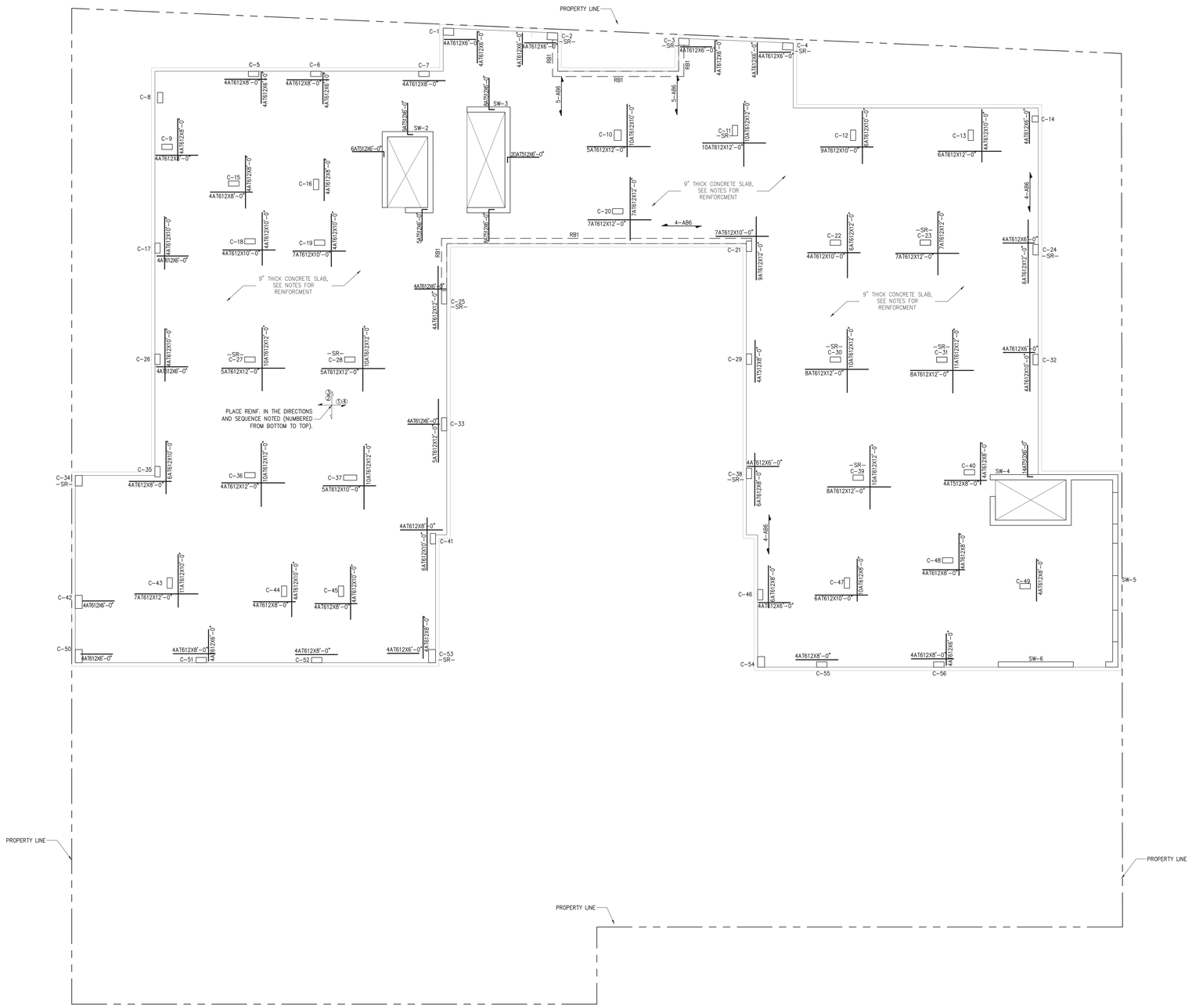
8TH FLOOR
FRAMING PLAN

DWG NO:

S-106.00

17 of 23

DOB JOB NUMBER



1 ROOF FRAMING

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

NOTES:

1. FLOOR SLAB SHALL BE 9" THICK CONCRETE, REINFORCED W/ #6@12" O.C. TOP & BOTTOM EACH WAY. ADDITIONAL BARS MAY BE REQUIRED, SEE PLAN.
2. SEE ARCH. DWG'S FOR TOP OF SLAB ELEVATIONS.
3. SEE "STRUCTURAL CONCRETE NOTES" FOR CONCRETE STRENGTH REQUIREMENTS, ETC.
4. ~~4-AB6~~ INDICATES ADDITIONAL 6BOTT #5 BARS AT COLUMN STRIP, SPACE ADDL BOTT BARS MIDWAY BETWEEN BOTT. GRID SAME SPACING AS BOTT. GRID
5. 4AT512 INDICATES ADDITIONAL 4TOP #5 BARS @12 O.C. ADDITIONAL TOP BARS SHALL BE CENTERED AT SUPPORT AND FALL IN BETWEEN THE CONTINUOUS TOP BARS
6. G.C. TO COORDINATE SLAB PENETRATIONS WITH MECHANICAL DRAWINGS.

LEGEND:

	NEW REINFORCED CONCRETE WALL	C-XX	NEW REINFORCED CONCRETE COLUMNS
	EDGE OF SLAB	SW-X	NEW REINFORCED CONCRETE SHEAR WALLS
	FLOOR OPENING		PROPERTY LINE
		-SR-	STUD RAILS, SEE SCHEDULE ON S-203

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, N.Y. 11432

ISSUE	DESCRIPTION	DATE
1	ISSUE TO MTA	09/22/2015
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DATE:	09-23-2015
PROJECT NO:	14168
DRAWING BY:	CH/KF
CHK BY:	KC

TITLE

ROOF
FRAMING PLAN

DWG NO:

S-107.00

DOB JOB NUMBER

TABLE 1–MINIMUM COMPRESSION LAP SPLICE LENGTHS FOR GRADE 60 BARS

BAR SIZE	MINIMUM LAP LENGTH (IN)
#3	12
#4	15
#5	19
#6	23
#7	26
#8	30
#9	34
#10	38
#11	42

"fc" > 3000 PSI

NOTES:

MINIMUM LENGTHS FOR COMPRESSION LAP SPLICES (ACI 12.16.1) FOR GRADE 60 BARS IN NORMAL WEIGHT CONCRETE ARE GIVEN IN TABLE 1. THE VALUE APPLY FOR ALL CONCRETE STRENGTHS GREATER THAN OR EQUAL TO 3000 PSI. FOR GRADE 60 BARS, THE MINIMUM LAP LENGHT IS $30d_b$ BUT NOT LESS THAN 12 IN. WHEN BARS OF DIFFERENT SIZES ARE LAP SPLICED, THE SPLICE LENGHT SHALL BE THE LARGER OF:

1. DEVELOPMENT LENGTH OF LARGER BAR
2. SPLICE LENGTH OF SMALLER BAR (ACI 12.16.2).
3. FOR COLUMNS, THE LAP SPLICE LENGTHS MAY BE REDUCED BY A FACTOR OF 0.83 WHEN THE SPLICE IS ENCLOSED THROUGHOUT ITS LENGTH BY TIES SPECIFIED IN 12.17.2.4. THE 12IN. MINIMUM LAP LENGTH ALSO APPLIES.

TABLE 2.1–TENSION DEVELOPMENT LENGTHS L_d FOR GRADE 60 BARS IN BEAMS OR COLUMS, AND INNER LAYER OF SLAB OR WALL REINFORCEMENT (IN)***

	CONCRETE COVER, C					
	$C \leq d_b$		$C > d_b$			
	CLEAR SPACING, S		CLEAR SPACING, S			
BAR SIZE	$S < 5d_b$	$S \geq 5d_b$***	$S \leq 2d_b$	$2d_b < S < 3d_b$	$3d_b < S < 5d_b$	$S \geq 5d_b$***
#3	12	12	12	12	12	12
#4	16	15	16	15	15	15
#5	24	19	24	18	18	18
#6	34	27	34	24	22	22
#7	46	37	46	32	25	25
#8	60	48	60	42	30	29
#9	76	61	76	54	38	33
#10	97	78	97	68	49	39
#11	119	95	119	83	60	48

NOTES:

* VALUES BASED ON BARS WHICH ARE NOT EPOXY-COATED AND ON NORMAL WEIGHT CONCRETE WITH F'C=4000PSI. FOR TOP BARS, MULTIPLY TABULATED VALUES BY 1.3.

** VALUES FOR BARS IN BEAMS OR COLUMNS ARE BASED ON :
1. MINIMUM COVER REQUIREMENTS SPECIFIED IN ACI 7.7.1
2. MINIMUM TRANSVERSE REINFORCEMENT SPECIFIED IN ACI 12.2.3.1 (A)

*** SIDE COVER > 2.5

TABLE 2.2–TENSION DEVELOPMENT LENGTHS L_d FOR ALL OTHER GRADE 60 BARS (IN)*

	CONCRETE COVER, C								
	$C < d_b$		$d_b < C < 2d_b$			$C \geq 2d_b$			
	CLEAR SPACING, S		CLEAR SPACING, S						
BAR SIZE	$S < 5d_b$	$S \geq 5d_b$**	$S \leq 2d_b$	$2d_b < S < 5d_b$	$S \leq 5d_b$	$S \geq 2d_b$	$2d_b < S < 3d_b$	$3d_b < S < 5d_b$	$S \leq 5d_b$
#3	12	12	12	12	12	12	12	12	12
#4	16	15	16	15	15	16	15	15	15
#5	24	19	24	18	18	24	18	18	18
#6	34	27	34	24	22	34	24	22	22
#7	46	37	46	32	26	46	32	25	25
#8	60	48	60	42	34	60	42	30	29
#9	76	61	76	54	43	76	54	38	33
#10	97	78	97	68	54	97	68	49	39
#11	119	95	119	83	67	119	83	60	48

NOTES:

* VALUES BASED ON BARS WHICH ARE NOT EPOXY-COATED AND ON NORMAL WEIGHT CONCRETE WITH F'C=4000PSI. FOR TOP BARS, MULTIPLY TABULATED VALUES BY 1.3.

** SIDE COVER > 2.5

TABLE 3–BASIC TENSION DEVELOPMENT LENGTHS L_{db} FOR GRADE 60 BARS (IN)

	"fc", PSI	
BAR SIZE	3000	4000
#3	4.8	4.2
#4	8.8	7.6
#5	13.6	11.8
#6	19.3	16.7
#7	26.3	22.8
#8	34.6	30.0
#9	43.8	38.0
#10	55.7	48.2
#11	68.4	59.2

NOTES:

THE TENSION DEVELOPMENT LENGTH L_d IS OBTAINED BY MULTIPLYING L_{db} BY THE APPLICABLE MODIFICATION FACTORS RELATING TO:

1. BAR SPACING, AMOUNT OF COVER AND ENCLOSING TRANSVERSE REINFORCEMENT (ACI 12.2.3)
2. TOP REINFORCEMENT (ACI 12.2.4.1)
3. LIGHT WEIGHT AGGREGATE CONCRETE (ACI 12.2.4.2.)
4. EPOXY-COATED REINFORCEMENT (ACI 12.2.4.3.)
   A) BARS WITH COVER < $3d_b$, OR CLEAR BAR SPACING < $6d_b$ MULTIPLY x 1.5
   B) OTHER CONDITIONS MULTIPLY x 1.2
   C) EPOXY COATED TOP BARS NOT MORE THAN MULTIPLY x 1.7 REQUIRED
5. ADJUST FOR HIGHER CONCRETE STRENGTH OF 5000 PSI VALUES MULTIPLY x 0.91.
   NOTE THAT THE DEVELOPMENT LENGTH MAY BE REDUCED WHEN THE PROVISIONS FOR EXCESS REINFORCEMENT GIVEN IN ACI 12.2.5 ARE SATISFIED. ALSO, L_d MUST NEVER BE TAKEN LESS THAN 12 IN. (ACI 12.2.1).

TABLE 9–MINIMUM CONCRETE COVER ACI 318/318R–08

MINIMUM CONCRETE COVER TO REINFORCEMENT IN NON-CORROSIVE ENVIRONMENT IN INCHES U.O.N.

A) ALL CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH OR ROCK: 3 INCHES.

B) ALL CONCRETE CAST IN FORMS:

CONCRETE EXPOSED TO EARTH OR WEATHER:

NO. 6 THROUGH NO. 18 BARS ---------- 2
NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER -------- 1½"

CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
SLABS, WALLS, JOISTS:

NO. 14 AND NO. 18 BARS ---------- 1½"
NO. 11 AND SMALLER ---------- ¾"

BEAMS, COLUMNS:
PRIMARY REINFORCEMENT, TIES,

STIRRUPS, SPIRALS ---------- 1½"

SHELLS, FOLDED PLATE MEMBERS:

NO. 6 BAR AND LARGER ---------- ¾"
NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER -------- ½"

C) MINIMUM CONCRETE COVER TO REINFORCEMENT FOR ALL CONCRETE EXPOSED TO DEICING CHEMICALS IN INCHES:

PARKING SLABS, RAMPS, TRUCK DOCKS INCLUDING WEARING SLABS,

TOP REINFORCEMENT 1½ INCHES
BOTTOM REINFORCEMENT 1½ INCHES

TABLE 5–MINIMUM COMPRESSION DEVELOPMENT LENGTHS L_d FOR GRADE 60 BARS (IN)

	"fc", PSI	
BAR SIZE	3000	4000
#3	9	8
#4	11	10
#5	14	12
#6	17	15
#7	20	17
#8	22	19
#9	25	22
#10	28	25
#11	31	27

NOTES:

COMPRESSION DEVELOPMENT LENGTHS (ACI 12.3) FOR GRADE 60 BARS ARE GIVEN IN TABLE 5. THE VALUES MAY BE REDUCED BY THE APPLICABLE FACTORS IN ACI 12.3.3. NOTE THAT THE MINIMUM DEVELOPMENT LENGTH IS 8 IN.

TABLE 4–MINIMUM DEVELOPMENT LENGTHS L_{dh} FOR GRADE 60 BARS IN BEAMS WITH STANDARD END HOOKS (IN)

	GENERAL USUE: • SIDE COVER > 2½" IN. • END COVER (90 HOOKS) > 2 IN.		SPECIAL CONFINEMENT: • SIDE COVER > 2½" IN. • END COVER (90 HOOKS) > 2 IN. • TIES OR STIRRUPS SPACED < $3d_b$	
BAR SIZE	"fc"= 3000 PSI	"fc"= 4000 PSI	"fc"= 3000 PSI	"fc"= 4000 PSI
#3	6	6	6	6
#4	7	7	7	6
#5	10	9	8	7
#6	12	10	10	8
#7	14	12	11	10
#8	16	14	13	11
#9	18	15	14	12
#10	20	17	16	14
#11	22	19	18	15

* VALUES BASED ON NORMAL WEIGHT CONCRETE

STANDARD 90° HOOK

STANDARD 180° HOOK

TABLE 7–TENSION SPLICE LENGTHS L_d FOR GRADE 60 BARS IN BEAMS OR COLUMS, AND INNER LAYER OF SLAB OR WALL REINFORCEMENT (IN)***

	CONCRETE COVER, C					
	$C \leq d_b$		$C > d_b$			
	CLEAR SPACING, S		CLEAR SPACING, S			
BAR SIZE	$S < 5d_b$	$S \geq 5d_b$***	$S \leq 2d_b$	$2d_b < S < 3d_b$	$3d_b < S < 5d_b$	$S \geq 5d_b$***
#3	16	16	16	16	16	16
#4	21	20	21	20	20	20
#5	32	25	32	24	24	24
#6	45	35	45	32	29	29
#7	60	48	60	42	33	33
#8	78	63	78	55	39	38
#9	99	80	99	71	50	43
#10	126	102	126	89	64	51
#11	155	124	155	108	78	63

NOTES:

* VALUES BASED ON BARS WHICH ARE NOT EPOXY-COATED AND ON NORMAL WEIGHT CONCRETE WITH F'C=4000PSI. FOR TOP BARS, MULTIPLY TABULATED VALUES BY 1.3.

** VALUES FOR BARS IN BEAMS OR COLUMNS ARE BASED ON :
1. MINIMUM COVER REQUIREMENTS SPECIFIED IN ACI 7.7.1
2. MINIMUM TRANSVERSE REINFORCEMENT SPECIFIED IN ACI 12.2.3.1 (A)

*** SIDE COVER > 2.5

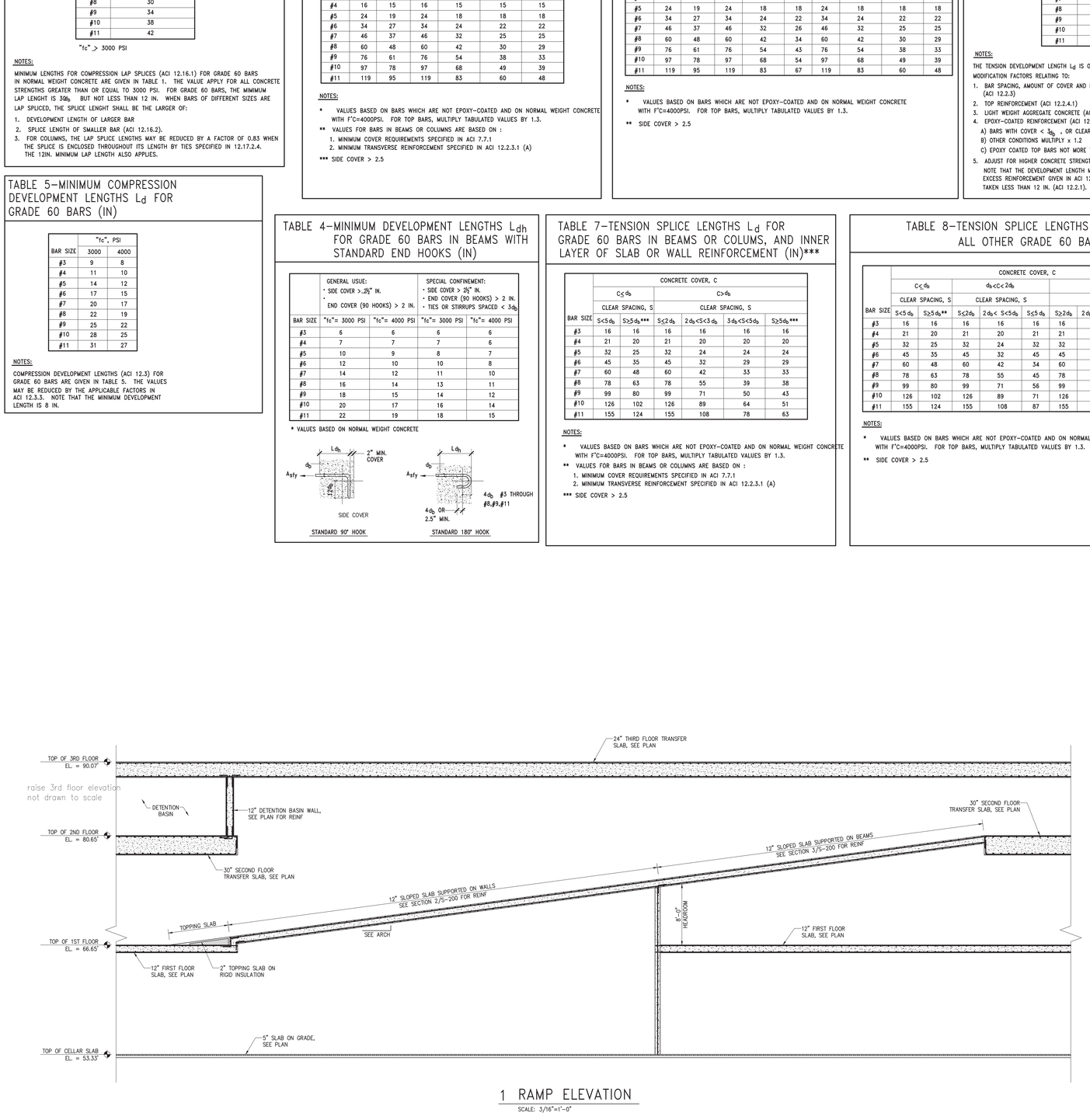
TABLE 8–TENSION SPLICE LENGTHS L_d FOR ALL OTHER GRADE 60 BARS (IN)*

	CONCRETE COVER, C								
	$C \leq d_b$		$d_b < C < 2d_b$			$C \geq 2d_b$			
	CLEAR SPACING, S		CLEAR SPACING, S						
BAR SIZE	$S < 5d_b$	$S \geq 5d_b$**	$S \leq 2d_b$	$2d_b < S < 5d_b$	$S \leq 5d_b$	$S \geq 2d_b$	$2d_b < S < 3d_b$	$3d_b < S < 5d_b$	$S \leq 5d_b$
#3	16	16	16	16	16	16	16	16	16
#4	21	20	21	20	21	21	20	20	20
#5	32	25	32	24	32	32	24	24	24
#6	45	35	45	32	45	45	32	29	29
#7	60	48	60	42	34	60	42	33	33
#8	78	63	78	55	45	78	55	39	38
#9	99	80	99	71	56	99	71	50	43
#10	126	102	126	89	71	126	89	64	51
#11	155	124	155	108	87	155	108	78	63

NOTES:

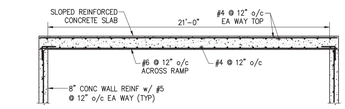
* VALUES BASED ON BARS WHICH ARE NOT EPOXY-COATED AND ON NORMAL WEIGHT CONCRETE WITH F'C=4000PSI. FOR TOP BARS, MULTIPLY TABULATED VALUES BY 1.3.

** SIDE COVER > 2.5



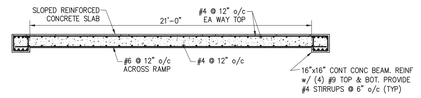
1 RAMP ELEVATION

SCALE: 3/16"=1'-0"



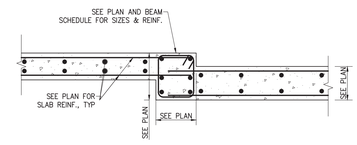
2 RAMP SECTION

SCALE: 1/4"=1'-0"



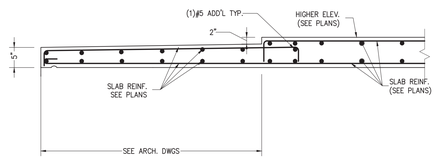
3 RAMP SECTION

SCALE: 1/4"=1'-0"



4 STEP AT TERRACES

SCALE: 3/4"=1'-0"



5 TYPICAL BALCONY

SCALE: 3/4"=1'-0"

new section ok?

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TYPICAL DETAILS

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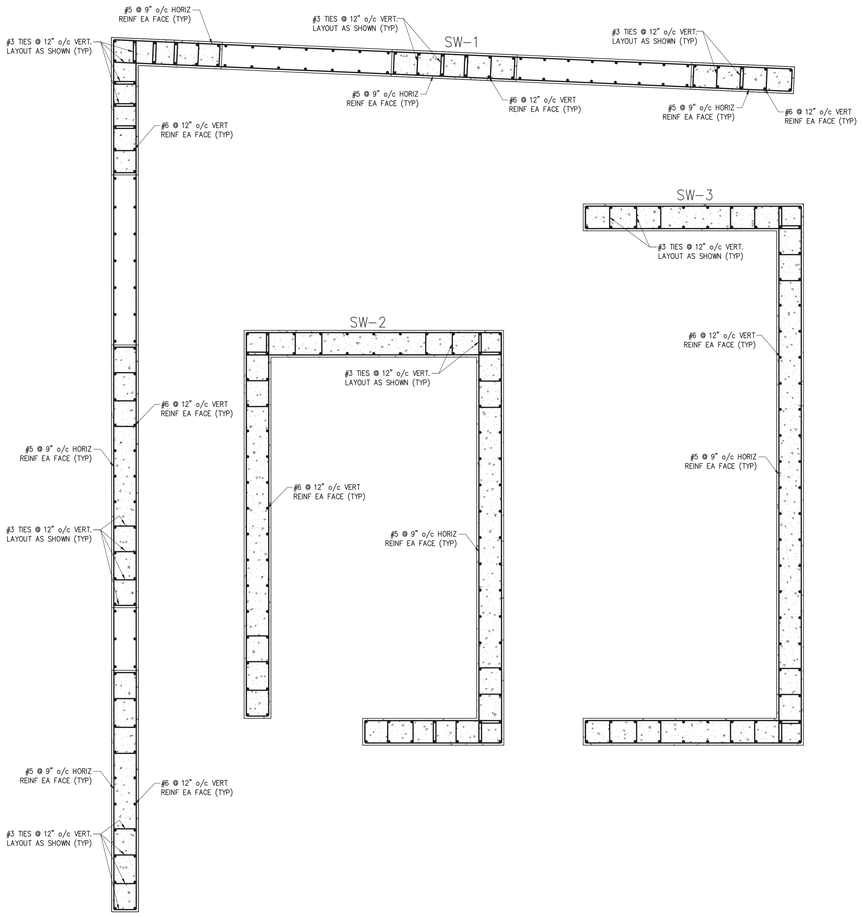

NOTE: SEE PLAN FOR SHEAR WALL LOCATIONS

1 SHEAR WALL REINFORCING DETAILS

SCALE: 1/2"=1'-0"

SHEAR WALL SCHEDULE

SHEAR WALL / FLOOR	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6
ROOF						
EIGHTH FLOOR						
SEVENTH FLOOR						
SIXTH - FOURTH FLOOR						
THIRD FLOOR						
SECOND FLOOR						
FIRST FLOOR						
CELLAR	#6 @ 12" E.F. VERT #5 @ 9" E.F. HORIZ.	#6 @ 12" E.F. VERT #5 @ 9" E.F. HORIZ.	#6 @ 12" E.F. VERT #5 @ 9" E.F. HORIZ.	#6 @ 12" E.F. VERT #5 @ 9" E.F. HORIZ.	#6 @ 12" E.F. VERT #5 @ 9" E.F. HORIZ.	#6 @ 12" E.F. VERT #5 @ 9" E.F. HORIZ.
FLOOR / SHEAR WALL	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6

NOTES:

1. ALL CONCRETE SHEAR WALLS TO BE 12" THICK UNLESS NOTED OTHERWISE
2. VERTICAL REINFORCEMENT TO BE TIED AS SHOWN IN LAYOUTS. TIES TO BE #3 BARS UNLESS NOTED OTHERWISE
3. THE GREATER AMOUNT OF ADDITIONAL VERTICAL REINFORCING AT SHEAR WALL INTERSECTIONS WILL GOVERN
4. ADDITIONAL HORIZONTAL AND VERTICAL REINFORCING TO BE PLACED AT SHEAR WALL OPENINGS

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SHEAR WALL SCHEDULE & DETAILS

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NOTES:
1. LC1, LC2 = LENGTH OF CLEAR SPANS 1, 2 (FACE OF SUPPORT TO FACE OF SUPPORT).
2. L = THE GREATER LENGTH OF CLEAR SPAN LC1 OR LC2.
3. L1, L2 = LENGTH OF SPANS 1, 2 FROM CENTERLINE OF SUPPORT TO CENTERLINE OF SU.
4. L* = LEAST DIMENSION OF L1 AND LENGTH OF SPAN TRANSVERSE TO L1 (CENTER TO CENTER OF SUPPORT) OR LEAST DIMENSION OF L2 AND LENGTH OF A TRANSVERSE TO L2 (CENTER TO CENTER OF SUPPORT).

1 TYPICAL MIDDLE STRIP – FLAT PLATE

NTS

NOTES:
1. LC1, LC2 = LENGTH OF CLEAR SPANS 1, 2 (FACE OF SUPPORT TO FACE OF SUPPORT).
2. L = THE GREATER LENGTH OF CLEAR SPAN LC1 OR LC2.
3. L1, L2 = LENGTH OF SPANS 1, 2 FROM CENTERLINE OF SUPPORT TO CENTERLINE OF SU.
4. L* = LEAST DIMENSION OF L1 AND LENGTH OF SPAN TRANSVERSE TO L1 (CENTER TO CENTER OF SUPPORT) OR LEAST DIMENSION OF L2 AND LENGTH OF A TRANSVERSE TO L2 (CENTER TO CENTER OF SUPPORT).

2 TYPICAL COLUMN STRIP – FLAT PLATE

NTS

NOTES:
1. LC1, LC2 = LENGTH OF CLEAR SPANS 1, 2 (FACE OF SUPPORT TO FACE OF SUPPORT).
2. L = THE GREATER LENGTH OF CLEAR SPAN LC1 OR LC2.
3. L1, L2 = LENGTH OF SPANS 1, 2 FROM CENTERLINE OF SUPPORT TO CENTERLINE OF SU.

3 TYPICAL BEAM REINFORCEMENT PLACING DETAIL

NTS

4 TYPICAL CONC. WALL REINFORCEMENT DETAIL

NTS

5 TYPICAL WALL TO ROOF–SLAB CONNECTION

NTS

6 TYPICAL BEAM PROFILE

NTS

7 TYPICAL BEAM PENETRATION DETAILS

NTS

8 d<2" SLAB DEPRESSION DETAILS

NTS

KEY WIDTH NOT TO EXCEED b THICKNESS OF WALL OR BEAM. VERTICAL CONSTRUCTION JOINT PERMITTED IN WALL OR GRADE BEAM AT ANY POINT 4'–0" MIN. AWAY FROM FACE OF SUPPORTIVE PIER, BUTTRESS ADD/OR WALL OPENING. PROVIDE ONE VERTICAL CONSTRUCTION JOINT FROM EVERY 40'–0" MAX. OF STRAIGHT RUN OF WALL.

9 TYPICAL VERTICAL CONSTRUCTION JOINT IN WALL

NTS

10 TYPICAL STUDRAIL DETAIL (D–STUD)

1. SEE SCHEDULE ON S–203 FOR NUMBER OF RAILS, STUDS, AND SPACING FOR EA COLUMN.
2. EACH STUDRAIL SHALL BE 6 ½" FOR 8" SLAB, 7 X" FOR 9" SLAB, AND 8 X" FOR 10" SLAB. EVENLY DISTRIBUTE STUDRAILS IN EA DIRECTION.

11 CONSTRUCTION JOINT AT FRAMED SLAB

(CONSTRUCTION JOINTS SHALL BE PLACED @ POINTS OF MINIMUM SHEAR)
SCALE NTS

12 CONSTRUCTION JOINT AT CONCRETE BEAM

(CONSTRUCTION JOINTS SHALL BE PLACED @ POINTS OF MINIMUM SHEAR)
SCALE: NTS

TENSION LAP SPLICES– TABLE----- (CLASS 'A')
TABLE----- (CLASS 'B')

1. TENSION LAP SPLICES ARE CLASSIFIED AS CLASS A OR CLASS B (ACI 12.15.1).
THE MINIMUM LAP LENGTH FOR:
A) CLASS 'A' SPLICE IS 1.0
B) CLASS 'B' SPLICE IT IS 1.3 , WHERE L IS THE TENSION DEVELOPMENT LENGTH OF THE BARS
2. THE MINIMUM LAP LENGTHS FOR CLASS A SPLICES CAN BE OBTAINED FROM TABLE 2.1 & 2.2.
FOR CLASS B SPLICES, THE MINIMUM LAP LENGTHS ARE DETERMINED BY MULTIPLYING THE VALUES FROM TABLE 2.1 & 2.2 BY 1.3. THE EFFECTIVE CLEAR SPACING BETWEEN SPLICED BARS IS ILLUSTRATED IN SECTION 5. FOR STAGGERED SPLICES IN SLABS OR WALLS.
SECTION 5(A) THE CLEAR SPACING TO BE USED FOR SPLICES IN COLUMNS WITH OFFSET BARS AND FOR BEAM BAR SPLICES ARE SHOWN IN SECTION 5(B) & 5(C).
3. TENSION LAP SPLICES MUST BE CLASS B EXCEPT THAT CLASS A SPLICES ARE ALLOWED WHEN THE FOLLOWING CONDITIONS ARE MET:
ONE–HALF OR LESS OF THE TOTAL REINFORCEMENT IS SPLICED WITHIN THE REQUIRED LAP LENGTH (ACI 12.15.2).

13 EFFECTIVE CLEAR SPACING OF SPLICED BARS

NTS

14 TYPICAL SLAB OPENING DETAIL

NTS

NOTE: WHERE DIMENSION "B" IS 1'– 6" OR LESS FROM TOP OF OPENING TO TOP OF WALL OR FROM BOTTOM OF OPENING TO BOTTOM OF WALL, ADD # 3 ☐ @ 12" O/C TIES.

15 TYPICAL CONC. WALL OPENING REINF. DETAIL

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16 DISTRIBUTION OF SLAB REINFORCING COLUMN STRIP

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TYPICAL DETAILS

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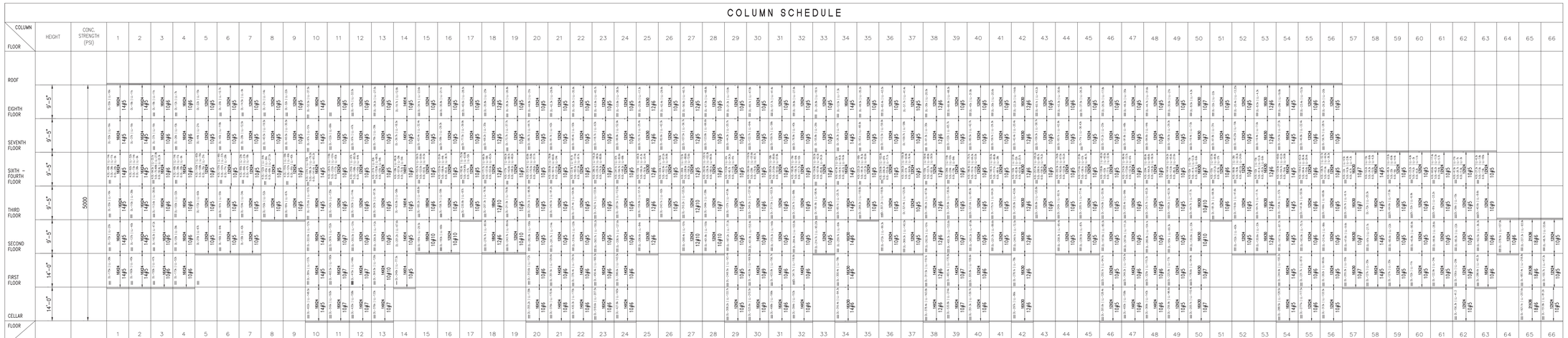
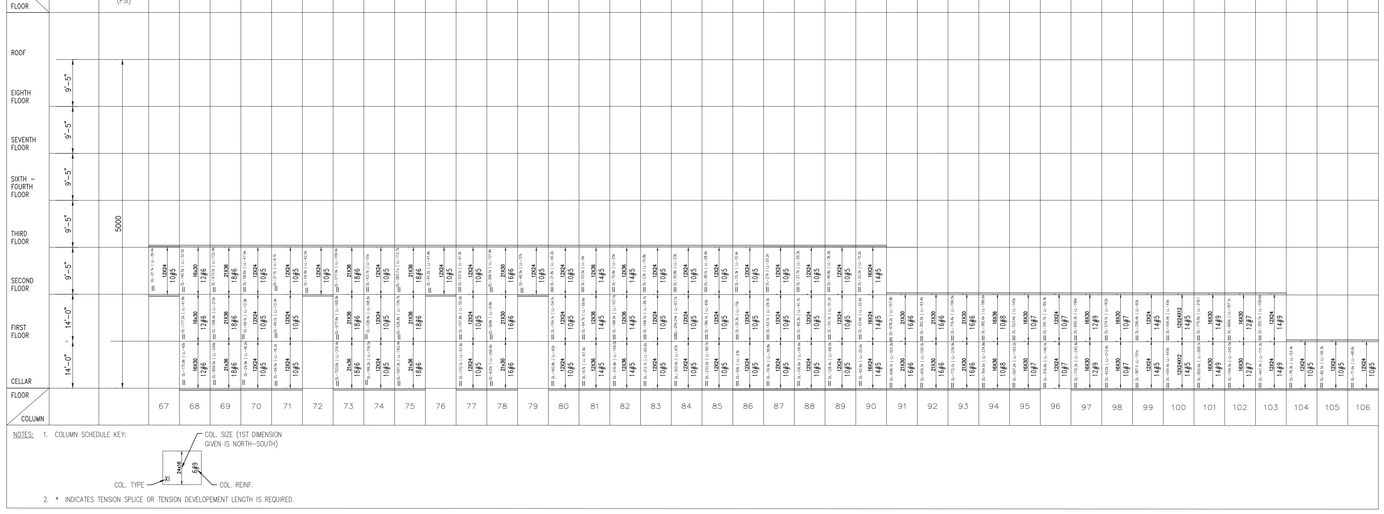
COLUMN SCHEDULE



COLUMN SCHEDULE CONT.



NOTES: 1. COLUMN SCHEDULE KEY:

2. * INDICATES TENSION SPLICE OR TENSION DEVELOPEMENT LENGTH IS REQUIRED.

COLUMN SCHEDULE NOTES

1) SEE PLAN FOR ORIENTATION OF COLUMNS.
2) HEAVY LINE ON TOP INDICATES TOP OF COLUMN.
3) HEAVY LINES AT BOTTOM INDICATES BOTTOM OF COLUMN.

VERTICAL TIES SPACING (IN) = S							
LEAST COLUMN DIMENSION (IN)	LONGITUDINAL BAR SIZE						
	# 5	# 6	# 7	# 8	# 9	# 10	# 11
8"	8	8	8	8	8	8	8
10"	10	10	10	10	10	10	10
12"	10	12	12	12	12	12	12
14"	10	12	14	14	14	14	14
16"	10	12	14	16	16	16	16
18"	10	12	14	16	18	18	18

NOTE:

COLUMN TIES SHALL BE # 3 IN SIZE FOR LONGITUDINAL BARS # 10 OR SMALLER & SHALL BE # 4 IN SIZE FOR # 11 OR LARGER

STUDRAIL SCHEDULE

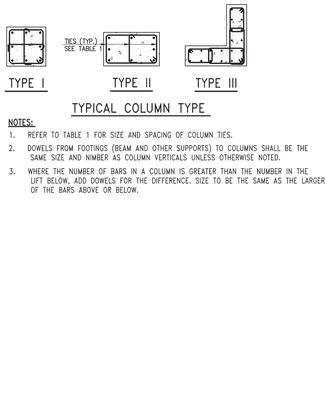
FLOORS	COLUMN #(s)	NUMBER RAILS N–S	NUMBER STUDS N–S	NUMBER RAILS E–W	NUMBER STUDS E–W	STUD ø	So (in)	S (in)	REMARKS
4TH – ROOF	C–2, C–3, C–4	3	11	2	11	0.500	3.375	3.375	S & So=3.875 @ ROOF
3RD	C–2 & C–3	3	11	4	11	0.500	3.375	3.375	———
ROOF	C–11	4	6	6	6	0.500	3.875	3.875	———
ROOF	C–23, C–27, C–28, C–30, C–31	6	5	4	5	0.500	3.875	3.875	———
ROOF	C–24 & C–25	4	12	3	12	0.500	3.375	3.375	S & So=3.875 @ ROOF
4TH – ROOF	C–34	2	10	3	10	0.500	3.375	3.375	S & So=3.875 @ ROOF
ROOF	C–38	4	12	3	12	0.500	3.75	3.75	———
ROOF	C–39	6	6	4	6	0.500	3.375	3.375	———
4th – 6TH	C–42	4	7	4	7	0.500	3.375	3.375	———
ROOF	C–53	2	11	3	11	0.500	3.875	3.875	———
4TH – 7TH	C–58	3	11	2	11	0.500	3.375	3.375	———
4TH – 7TH	C–62	2	11	3	11	0.500	3.375	3.375	———
3RD	C–88 & C–89	2	11	6	11	0.500	3.625	3.625	———
3RD	C–90	4	9	3	9	0.500	3.75	3.75	———

NOTE:

1. "So" INDICATES DISTANCE MEASURED FORM FACE OF COLUMN TO THE FIRST STUD.
2. "S" INDICATES THE TYPICAL DISTANCE BETWEEN STUDS.

CONCRETE BEAM SCHEDULE

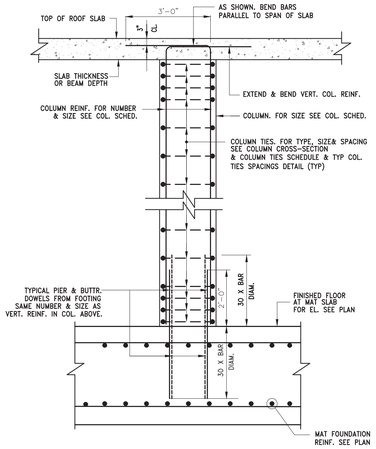
MARK	SIZE WxD (W = WIDTH) (D = DEPTH)	REINFORCEMENT	STIRRUPS	REMARKS
2B1	12x38	(3) #9 TOP (3) #9 BOT	#4 @ 10" o/c	PROVIDE (2) #4 CONT SKIN REINF EA SIDE OF BEAM
2B2	12x38	(3) #9 TOP (3) #9 BOT	#4 @ 10" o/c	PROVIDE (2) #4 CONT SKIN REINF EA SIDE OF BEAM
2B3	12x24	(3) #9 TOP (3) #9 BOT	#4 @ 10" o/c	SEE DETAIL X/S–XXX FOR REBAR @ STEPPED BEAM
2B4	24x24	(4) #9 TOP (4) #9 BOT	#4 @ 10" o/c	———
2B5	12x24	(3) #9 TOP (3) #9 BOT	#4 @ 10" o/c	LEFT END CANTILEVERED. REBAR TO BE CONT OVER COL.
2B6	24x36	(6) #9 TOP (6) #9 BOT	#5 @ 12" o/c	———
2B7	21x30	(3) #8 TOP (3) #8 BOT	#4 @ 16" o/c	———
3B1	12x18	(3) #8 TOP (3) #8 BOT	#3 @ 8" o/c	———
3B2	12x18	(2) #8 TOP (2) #8 BOT	#3 @ 8" o/c	———
3B3	12x16	(2) #6 TOP (2) #6 BOT	———	NO STIRRUPS REQ'D
4B1	12x8	(2) #7 TOP (2) #7 BOT	#3 @ 4" o/c	———
7B1	12x8	(2) #7 TOP (2) #7 BOT	#3 @ 4" o/c	———
8B1	12x8	(2) #7 TOP (2) #7 BOT	#3 @ 4" o/c	———
RB1	12x9	(2) #7 TOP (2) #7 BOT	#3 @ 4" o/c	———



TYPICAL COLUMN TYPE

NOTES:

1. REFER TO TABLE 1 FOR SIZE AND SPACING OF COLUMN TIES.
2. DOWELS FROM FOOTINGS (BEAM AND OTHER SUPPORTS) TO COLUMNS SHALL BE THE SAME SIZE AND NUMBER AS COLUMN VERTICALS UNLESS OTHERWISE NOTED.
3. WHERE THE NUMBER OF BARS IN A COLUMN IS GREATER THAN THE NUMBER IN THE LIFT BELOW, ADD DOWELS FOR THE DIFFERENCE. SIZE TO BE THE SAME AS THE LARGER OF THE BARS ABOVE OR BELOW.



1 TYPICAL COLUMN DETAIL AT MAT FOUNDATION

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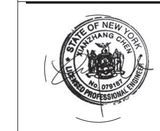

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COLUMN SCHEDULE AND DETAILS

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GENERAL NOTES

1. COMPLY WITH THE NYC BUILDING CODE LATEST AMENDED EDITION, INCLUDING ALL ITS SEISMIC PROVISIONS AND AMENDMENTS, AND ALL OTHER GOVERNING CODES.

2. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AND SUBMIT TO THE ENGINEER FOR REVIEW A WRITTEN REPORT INDICATING ACTUAL FIELD CONDITIONS WHICH MAY VARY FROM INFORMATION INDICATED ON DRAWINGS.

3. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS IN THE FIELD AND BE RESPONSIBLE FOR ACCURATE COORDINATION OF THE ARCHITECTURAL, STRUCTURAL, HVAC, ELECTRICAL, PLUMBING, AND FIRE PROTECTION DRAWINGS. ALL DIMENSIONS AND LOCATIONS OF EXISTING STRUCTURAL AND ARCHITECTURAL ELEMENTS SHALL BE VERIFIED BY THE CONTRACTOR AND COORDINATED WITH THE NEW STRUCTURAL ELEMENTS PRIOR TO DEMOLITION, FABRICATION OR CONSTRUCTION. EXISTING CONSTRUCTION AND DIMENSIONS SHOWN ARE PER INFORMATION PROVIDED BY THE ORIGINAL STRUCTURAL DRAWINGS OR ARE ASSUMED. THE OWNER, THE ARCHITECT AND THE STRUCTURAL ENGINEER ARE NOT RESPONSIBLE FOR ACCURACY OF THE INFORMATION. EXISTING CONSTRUCTION AT AREAS WHERE NEW WORK IS NOT CONTEMPLATED MAY NOT BE COMPLETELY SHOWN.

4. ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER OF RECORD BEFORE PROCEEDING.

5. PATCH AND REPAIR EXISTING CONDITIONS DAMAGED DURING THE COURSE OF NEW CONSTRUCTION.

6. ALL CONSTRUCTION METHODS SHALL COMPLY WITH THE REQUIREMENTS THE NEW YORK CITY BUILDING CODE FOR THE "SAFETY OF PUBLIC AND PROPERTY DURING CONSTRUCTION OPERATIONS".

7. SUBMIT TO ENGINEER TWO COPIES EACH OF MATERIAL SPECIFICATION, ERECTION AND DETAIL DRAWINGS, ETC. OF ALL STRUCTURAL MATERIALS AND CONNECTIONS SUFFICIENTLY IN ADVANCE OF CONSTRUCTION TO PERMIT ADEQUATE TIME FOR REVIEW (15 WORKING DAYS MIN.). ENGINEER TO MARK UP ONE COPY AND FORWARD TO ARCHITECT.

8. ALL NEW BEAMS INSTALLED ADJACENT TO PROPOSED FLOOR OPENINGS THROUGH THE EXISTING FLOOR CONSTRUCTION SHALL BE ERECTED, SHIMMED AND DRY PACKED WHERE REQUIRED, PRIOR TO THE CUTTING OF EXISTING FLOOR CONSTRUCTION.

9. THE FOLLOWING MATERIALS AND METHODS OF CONSTRUCTION SHALL BE SUBJECT TO "SPECIAL INSPECTION" IN ACCORDANCE WITH THE NEW YORK CITY BUILDING CODE:

1. STRUCTURAL STEEL – WELDING	BC 1704.3.1
2. STRUCTURAL STEEL – HIGH STRENGTH BOLTING	BC 1704.3.3
3. CONCRETE – CAST–IN–PLACE	BC 1704.4
4. CONCRETE SAMPLING AND TESTING (TR2)	BC 1905.3, BC1913.10
5. CONCRETE DESIGN MIX (TR3)	BC 1905.3, BC1913.5
6. SUBGRADE INSPECTION	BC 1704.7.1

A LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT SHALL SUPERVISE THE TESTING AND INSPECTION OF THE ABOVE ITEMS. THE CONTRACTOR SHALL PROVIDE REASONABLE NOTICE TO THE INSPECTOR FOR ALL ITEMS REQUIRING INSPECTION.

10. ALL STEEL MEMBERS SHALL BE FIREPROOFED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEW YORK CITY BUILDING CODE. SEE ARCH. DWGS FOR ALL FIREPROOFING REQUIREMENT AND DETAILS.

7. THE CONTRACTOR SHALL HIRE A LICENSED ENGINEER TO DESIGN ALL TEMP. SHEETING/SHORING AS NEEDED DURING CONSTRUCTION AND SUBMIT SIGNED AND SEALED DRAWINGS TO THE ARCHITECT PRIOR TO CONSTRUCTION.

8. CONTRACTOR SHALL HIRE A LICENSED STRUCTURAL ENGINEER TO DESIGN ALL STAIRS AND THEIR HAND RAILS. SUBMIT SIGNED AND SEALED SHOP DRAWINGS PER ARCHITECTURAL DESIGN AND SITE CONDITIONS WITH APPLICABLE CALCULATIONS FOR ARCHITECT REVIEW AND APPROVAL. ALL STAIRS AND THEIR LANDINGS SHALL HAVE AT LEAST 100 PSF, AND STRINGER DEFLECTION TO BE LESS THAN L/600 UNDER ITS LOADINGS.

SAFETY DURING EXECUTION OF WORK

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONDITIONS OF PUBLIC AND WORKER SAFETY DURING EXECUTION OF THE WORK.

2. THE CONTRACTOR SHALL PROVIDE SIDEWALK PROTECTION AND PROTECTION OF ADJOINING PROPERTIES.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING AND FILING A SITE SAFETY PLAN AND/OR PROVIDING OTHER WRITTEN ASSURANCES OF SAFE OPERATIONS AS MAY BE REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A SAFE WORKING ENVIRONMENT FOR ALL WORKERS. THIS SHALL INCLUDE COMPLIANCE WITH ALL OSHA, STATE AND LOCAL LABOR LAWS WHICH MAY GOVERN THIS TYPE OF WORK.

5. THE CONTRACTOR SHALL PROVIDE REGULAR PERIODIC INSPECTION OF CONSTRUCTION OPERATIONS AS REQUIRED TO ENSURE ONGOING MAINTENANCE OF ALL SAFETY OPERATIONS AND EQUIPMENT. SUCH INSPECTIONS SHALL BE UNDERTAKEN BY AN AGENT OF THE CONSTRUCTION WHO IS QUALIFIED TO EVALUATE SUCH OPERATIONS AND EQUIPMENT. THIS INSPECTOR SHALL PREPARE WRITTEN SAFETY REPORTS WHICH SHALL BE MAINTAINED AT THE JOB SITE FOR REVIEW BY THE AUTHORITIES HAVING JURISDICTION.

GENERAL FOUNDATION NOTES

1. NEW FOOTINGS SHALL BE PLACED ON 3.5 TSF COMPACTED OR UNDISTURBED SUB–GRADE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED BY GEOTECH CONSULTANTS, LLC DATED MAY 22, 2015.

2. THE SUBGRADE FOR ALL FOOTINGS, WALLS AND PILE CAPS AND SLABS SHALL BE INSPECTED AND ACCEPTED BY THE OWNER'S TESTING AGENCY IMMEDIATELY PRIOR TO PLACING FOUNDATION CONCRETE.

3. ALL UNSUITABLE MATERIALS SHALL BE REMOVED FROM SUBGRADE AND BACKFILL AREAS AND BACKFILLED WITH ACCEPTABLE FILL ACCORDING TO THE SPECIFICATIONS.

4. BACKFILL AGAINST WALLS EVENLY. ALL SUPPORTING SLABS SHOULD BE IN PLACE AND THE CONCRETE SHOULD HAVE THE 28 DAY DESIGN STRENGTH.

5. NO PILE CAPS, FOOTINGS, SLABS, OR MUD SLABS SHALL BE PLACED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST OR ICE. SHOULD WATER OR FROST ENTER A FOOTING EXCAVATION AFTER SUBGRADE APPROVAL, THE SUBGRADE SHALL BE RE–INSPECTED BY THE OWNER'S TESTING AGENCY AFTER REMOVAL OF WATER OR FROST.

6. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOOTING, PILE CAP OR SLAB SUBGRADE BEFORE AND AFTER PLACING CONCRETE AND UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT BUILDING ENCLOSURE.

7. THE SLABS SHALL BE PLACED OVER SPECIFIED WATERPROOFING, LAPPED 12 INCHES AT SEAMS, OVER 6 INCHES MINIMUM OF COMPACTED COARSE DRAINAGE MATERIAL. STONE SHALL COMPLY WITH ASTM C33 SIZE 67.

8. ALL EXCAVATION SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF ALL LAWS AND AUTHORITIES HAVING JURISDICTION AND IN ACCORDANCE WITH GENERALLY ACCEPTED STANDARDS BUT IN NO CASE SHALL THE PARTICLE VELOCITY IN ADJACENT STRUCTURES EXCEED 0.5 INCHES PER SECOND SQUARE.

9. ALL FOOTING SUBGRADES SHALL BE UNDISTURBED SOIL (NOT FROZEN), SUBJECT TO APPROVAL BY A QUALIFIED GEOTECHNICAL ENGINEER DESIGNATED BY THE OWNER TO PERFORM THE REQUIRED SPECIAL INSPECTION.

10. WHERE DISTURBANCE TO THE FOOTING BOTTOM MAY OCCUR, OR THE FOOTING SUBGRADE WILL BE SUBJECTED TO PRECIPITATION, SUBGRADES SHOULD BE COVERED WITH A THREE INCH THICK CONCRETE MUDMAT. THE SUBGRADE SHALL BE EXCAVATED SUFFICIENTLY DEEP TO ALLOW FOR THE MUDMAT. THE PROVISIONS OF CONTROLLED INSPECTION APPLY BEFORE COVERING THE SUBGRADE WITH A MUDMAT.

STRUCTURAL CONCRETE NOTES

1. PROVIDE CAST–IN–PLACE CONCRETE OF THE TYPES AND MINIMUM 28–DAY COMPRESSIVE STRENGTHS AS SHOWN ON THE CONCRETE MATERIALS SCHEDULE, THIS SHEET.

2. STRUCTURAL CONCRETE SHALL CONTAIN A WATER REDUCING, PLASTICIZING ADMIXTURE. APPROVED, HIGH–RANGE WATER REDUCING ADMIXTURES MAYBE UTILIZED. ALL CONCRETE PERMANENTLY EXPOSED TO THE WEATHER (AND WITHIN 4 FEET OF FINISHED GRADE) SHALL CONTAIN AND AIR–ENTRAINING ADMIXTURE. THE MAXIMUM WATER CEMENT RATIO OF ALL CONCRETE SHALL BE 0.5, U.N.O.

3. ALL REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO THE STANDARDS OF ASTM A615, GRADE 60.

4. ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED AND SPACED IN FORMS AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN THE LATEST EDITION OF THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318 AND THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315.

5. CHECKED SHOP DRAWINGS SHOWING REINFORCING DETAILS, INCLUDING STEEL SIZES, AND PLACEMENT, SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.

6. THE CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS SHOWING THE LOCATIONS OF ALL CONSTRUCTION JOINTS, CONTROL JOINTS, CURBS, SLAB DEPRESSIONS, SLEEVES, OPENINGS, ETC.

7. REINFORCING SPLICES AND DEVELOPMENT LENGTHS SHALL CORRESPOND TO ACI 318, AS NOTED IN THE DRAWINGS.

8. WHERE REQUIRED, DOWELS SHALL MATCH SIZE AND NUMBER OF MAIN REINFORCING.

9. PROVIDE ADDITIONAL BARS AROUND ALL FLOOR AND WALL OPENINGS.

10. ALL BAR SUPPORTS SHALL BE GALVANIZED. BAR SUPPORTS IN CONTACT WITH EXPOSED SURFACES SHALL BE PLASTIC TIPPED.

11. BEAM AND SLABS SHALL NOT BE BOXED OUT OR SLEEVED OR HAVE THE REINFORCING INTERRUPTED EXCEPT AS SHOWN ON THE STRUCTURAL DRAWINGS.

12. ALL WELDED WIRE FABRIC SHALL CONFORM TO THE STANDARDS OF ASTM A185.

13. ALL WELDED WIRE FABRIC SHALL BE LAPPED TWO (2) FULL MESH PANELS AND TIED SECURELY.

14. PROVIDE ONE (1) LAYER OF 6X6–W1.4 X W1.4 W.W.F. CONTINUOUS IN ALL CONCRETE FILLS ABOVE THE STRUCTURAL SLAB AND IN ALL COMPOSITE METAL DECK SLABS. ALL MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT PADS SHALL BE REINFORCED WITH AT LEAST ONE (1) LAYER OF 6X6–W4 X W4 W.W.F. (SEE HVAC, PLUMBING AND ELECTRICAL DRAWINGS FOR PADS WHERE REQUIRED.

15. ALL CONSTRUCTION JOINTS SHALL BE CLEANED AND MOISTENED IMMEDIATELY PRIOR TO PLACING NEW CONCRETE. REFER TO DRAWINGS AND ARCHITECTURAL DRAWINGS FOR WATER STOP AND WATERPROOFING DETAILS.

16. SEE ARCHITECTURAL DRAWINGS FOR TYPE AND LOCATION OF ALL FLOOR FILL, FINISHES, FLOOR DEPRESSIONS AND CURBS.

17. PLACE SLABS–ON–GRADE IN ACCORDANCE WITH ACI 302 "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION.

18. SEE ARCHITECTURAL, HVAC, ELECTRICAL AND PLUMBING DRAWINGS FOR SLAB OPENINGS.

19. SEE ARCHITECTURAL DRAWINGS FOR ALL WATERPROOFING/DAMPROOFING DETAILS.

20. THE CONTRACTOR SHALL INSTRUMENT CHECK ALL FORMWORK FOR COMPLIANCE WITH ACI SPECIFIED TOLERANCES PRIOR TO PLACEMENT OF THE CONCRETE THEREON.

21. GROUT SHALL BE NON–SHRINK, NON–METALLIC, "FIVE STAR GROUT" BY U.S. GROUT, OR EQUAL.

22. "CAST–IN–PLACE CONCRETE" TO BE:

FOOTINGS/SLAB–ON–GRADE *	6000 PSI	145 PCF
FOUNDATION WALLS	6000 PSI	145 PCF
FORMED SLAB AND COLUMNS *	6000 PSI	145 PCF
CONCRETE WALLS	6000 PSI	145 PCF

23. MECHANICAL BAR SPLICERS, COUPLINGS AND HALF COUPLINGS SHALL DEVELOP 125% Fy TIMES THE CAPACITY OF THE ATTACHED BARS. ALL SPLICES REQUIRED FOR #14 BARS TO BE MADE WITH MECHANICAL BAR SPLICERS. STAGGER SPLICES 8'–0" MINIMUM.

24. BEAMS ARE EQUALLY SPACED BETWEEN COLUMN LINES, UNLESS OTHERWISE NOTED.

25. NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.

26. THE CONTRACTOR SHALL ALLOW FOR ½ INCH OF ADDITIONAL CONCRETE FOR LEVELING OF SLABS SUPPORTED BY METAL DECK/COMPOSITE STEEL BEAM SYSTEMS. THE CONTRACTOR SHALL PLACE CONCRETE ON METAL DECK TO THE SPECIFIED THICKNESS OVER AND ALONG ALL STEEL FRAMING, AND SHALL PROVIDE ADDITIONAL CONCRETE AS NECESSARY TO "FILL" METAL DECK DEFLECTIONS FLAT BETWEEN STEEL FRAMING.

27. TOLERANCES REQUIRED FOR THE CONCRETE SLABS. PROVIDE SLAB OF UNIFORM THICKNESS AS SHOWN. SURFACES SHALL BE FINISHED SUCH THAT THE DISTANCE BETWEEN THE SURFACE OF THE CONCRETE AND A TEN FOOT STRAIGHT EDGE PLACED ANYWHERE ON THE SLAB SHALL NOT EXCEED ¼ INCH. SLABS SHALL BE FILLED AND/OR GROUND DOWN AS NECESSARY (AFTER LAYOUT OF ARCHITECTURAL FEATURES) SUCH THAT THE FINISHED ARCHITECTURE OF CONTIGUOUS SPACES IS NOT IMPAIRED BY FLATNESS OR LEVELNESS OF THE FLOOR SLAB FILLING, WHERE REQUIRED, SHALL BE WITH A SELF LEVELING, CEMENTITIOUS PRODUCT CAPABLE OF BEING TAPERED TO A FEATHERED EDGE

28. FOR CONCRETE WALLS REINFORCED WITH ONE LAYER OF BARS, BARS SHALL BE CENTERED ABOUT THE WALL.

STRUCTURAL DESIGN CRITERIA NOTES

1. CODES AND STANDARDS:

A. THE BUILDING CODE OF THE CITY OF NEW YORK
B. SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS, AMERICAN INSTITUTE OF STEEL CONSTRUCTION.
C. BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, ACI 318-05, AMERICAN CONCRETE INSTITUTE
D. BUILDING CODE REQUIREMENTS FOR REINFORCED MASONRY, ANSI A41.2, AMERICAN NATIONAL STANDARDS INSTITUTE
E. ASCE 7-05

2. LOAD SCHEDULE

CELLAR -	ON GRADE, 100 PSF
1ST -	LOBBY, 100 PSF
2ND-7TH FLOOR -	RESIDENTIAL - 40 PSF + 12 PSF PARTITIONS
	STAIR & CORRIDORS - 100 PSF
	TERRACE - 100 PSF
ROOF -	TERRACE - 100 PSF
	MECHANICAL - 30 PSF + UNIT WEIGHTS
	OTHER - 30 PSF

SNOW LOAD:
- FLAT ROOF SNOW LOAD(pf) = 30PSF
- CONSIDER ACCUM. SNOW AT LOWER ROOF AS REQ'D

WIND LOAD:
- WIND SPEED, V = 98MPH

EARTHQUAKE LOAD:
- OCCUPANCY CATEGORY 2
- SITE CLASS C
- Ss = 0..344
- S1 = 0.067
- IMPORTANCE FACTOR = 1.0;
- BASIC SEISMIC FORCE-RESISTING SYSTEM: ORDINARY REINFORCED CONCRETE SHEAR WALLS
- ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE

DEFLECTION CRITERIA:

WIND	H/500
SEISMIC LOAD	H/400
LIVE LOAD	L/360 (FLOOR)

NOTES
-CONCENTRATED LOADS AS PER NYCBC
-DRIFTING LOADS AS PER NYCBC
-LIVE LOAD REDUCTION AS PER NYCBC

PROJECT/ CLIENT:

178-02 Hillside Avenue
Queens, N.Y. 11432

ISSUE	DESCRIPTION	DATE
1	ISSUE TO MTA	09/22/2015
	ISSUE TO OER	10/21/2015

ARCHITECT:

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ENGINEER/ CONSULTANT:

PROFESSIONAL STAMP/ SIGNATURE

OFFICIAL DOB APPROVAL STAMP/ SIGNATURE

DATE:	09-23-2015
PROJECT NO:	14168
DRAWING BY:	CH/KF
CHK BY:	KC

TITLE

GENERAL NOTES

DWG NO:

S–300.00

23 of 23

DOB JOB NUMBER

APPENDIX 2

CITIZEN PARTICIPATION PLAN

The NYC Office of Environmental Remediation and Piermont Properties 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, Piermont Properties 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, Ms. Shana Holberton, who can be contacted about these issues or any others questions, comments or concerns that arise during the remedial process at (212) 788-8841.

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 online. Internet access to view OER's document repositories is available at public libraries. 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. The library nearest the Site is:

Queens Library

89-11 Merrick Boulevard

Jamaica, NY 11432

(718) 990-0700

Monday, Wednesday, and Thursday 9:00am-9:00pm

Tuesday 1pm-9pm

Friday and Saturday 9am-7pm

Sunday 12pm-5pm

Digital Documentation: NYC OER requires the use of digital documents in our repository as a means of minimizing paper use while also increasing convenience in access and ease of use.

Issues of Public Concern: The major issues of concern to the public include potential impacts of nuisance odors and dust during disturbance soils impacted with historic fill at the site. These activities 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 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 reviewed and approved by OER prior to distribution and mailed by the Enrollee. 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. 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 3

SUSTAINABILITY STATEMENT

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

Reuse of Clean, Recyclable Materials and Reduced Consumption of Non-Renewable Resources: 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.

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.

Stormwater Retention: Stormwater retention improves water quality by lowering the rate of combined stormwater 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 stormwater 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 Voluntary Cleanup Program: Piermont Properties is participating in OER's Paperless Voluntary 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: Piermont Properties 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 4

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 final remedial report. Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of final signoff by OER.

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 described in the remedial report. 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 New York City 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 final remedial report.

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 final remedial report.

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 final remedial report. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the final remedial report. 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 (SCOs) established in this plan may be reused on-Site. The SCOs for on-Site reuse are listed in Section 4.2 of this cleanup plan. '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 land with comparable levels of contaminants in soil/fill material, compliant with applicable laws and regulations, 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 remedial plan are followed. The expected location for placement of reused material is shown in Section 4.2.

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 Section 4.2. Imported soils will not exceed groundwater protection standards established in Part 375. Imported soils for Track 1 remedial action projects will not exceed Track 1 SCO's. 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 remedial plan. The final remedial report 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.
- All material will be subject to source screening and chemical 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 final remedial report. 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 stormwater pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this remedial plan (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 for Unknown Contamination Sources

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 this remedial plan.

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 this remedial plan.

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 5

CONSTRUCTION HEALTH AND SAFETY PLAN

Construction Health and Safety Plan

178-02 Hillside Avenue
Queens, New York

Prepared For:
Piermont Properties
865 Merrick Ave., Suite 50N
Westbury, NY 11590
(516) 222-2233

Prepared By:
Liberty Environmental, Inc.
131 Varick Street, Suite 1022
New York, NY 10013
(800) 305-6019

May 20, 2015

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ATTACHMENT 1 CONTAMINANTS OF CONCERN NIOSH PRINTOUTS

1. INTRODUCTION

This Health & Safety Plan (HASP) has been developed for the cleanup and redevelopment activities planned at the properties located at 178-02 Hillside Avenue, 178-20 Hillside Avenue, and 88-16 179th Street in Queens, New York. This HASP is intended to provide recommended health and safety procedures for personnel participating in on-site activities during cleanup and redevelopment of the site.

Procedures and protocols set forth in this plan are designed to reduce the risks of exposure to chemical substances and materials that may be present in the soils, water, and air at the site. The procedures contained herein were developed in accordance with the provisions set forth by 29 CFR 1910.120 (Hazardous Waste Operations and Emergency Response).

All personnel performing work activities on the site will read the HASP prior to performing any work activities. After reading the HASP, all personnel will sign the log sheet acknowledging they have read the HASP. This allows all personnel to have an opportunity to ask questions and discuss concerns with the Site Health & Safety Officer (SSO), and agree to perform all work activities in compliance with the HASP from the first day on-site. During this initial meeting the Health & Safety Officer will request a copy of the worker's OSHA 40-hour certification for OSHA 29 CFR 1910.120(e) Hazardous Waste Operations: Safety & Health 40-Hour Training Program for Site Personnel, and the most recent 8-hour refresher training certification. Copies of the certifications will be maintained in the site files.

The Remedial Action Contractor (RAC) shall be responsible for ensuring that the approved HASP is properly implemented, and that all activities conducted during the Remedial Activities (RA) are in compliance with the provisions indicated in the project Scope of Work. The recommended procedures and protocols outlined in the approved HASP may be modified during the course of the activities, as additional information becomes available during on-site characterization or through laboratory chemical analyses. These modifications shall be issued in the form of revisions to specific pages or sections of the HASP. A revised table of contents will also be issued for verification of updated pages, along with a document listing all revisions.

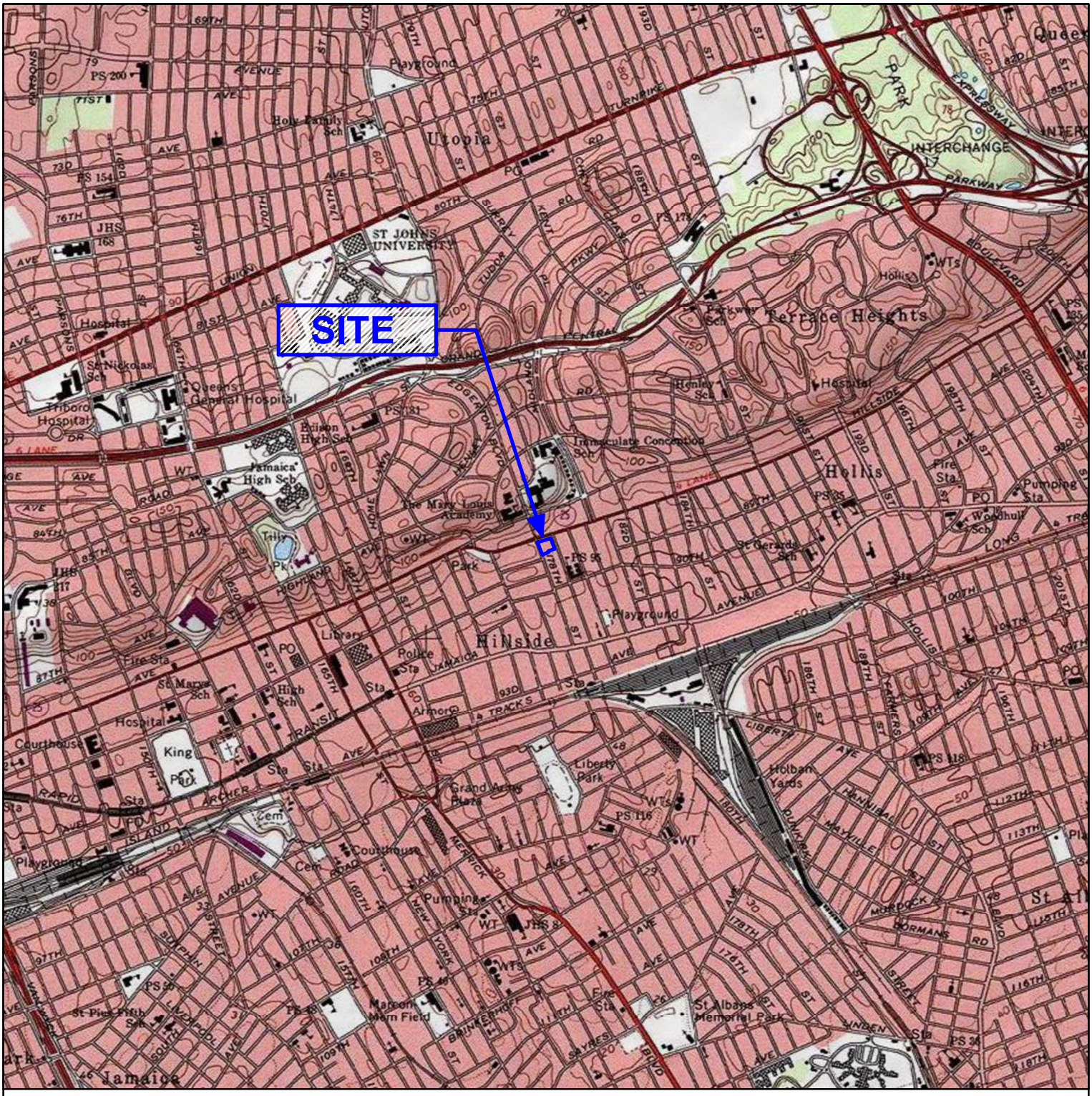
This plan has been developed as guidance to ensure that all field activities and site operations associated with the Site are in accordance with Federal regulations including the following key regulations and others which may apply:

Regulations	**Title**
29 CFR 1910.120	Hazardous Waste Site Operations and Emergency Response
29 CFR 1910.20	Access to Employee Exposure and Medical Records
29 CFR 1904	Recording and Reporting Occupational Injuries and Illnesses
29 CFR 1910.1000	Air Contaminants
29 CFR 1926	Construction Activities
29 CFR 1910.134	Respiratory Protection
29 CFR 1910.1200	Toxic & Hazardous Substances: Hazard Communication

2. SITE DESCRIPTION

The site is located at 178-02 Hillside Avenue, 178-20 Hillside Avenue, and 88-16 179th Street in the Jamaica section in Queens, New York and is identified as Block 9913 and Lots 25 (178-20 Hillside Avenue), 35 (178-20 Hillside Avenue) and 41 (88-16 179th) on the New York City Tax Map. The Site is 35,000-square feet and is bounded by Hillside Avenue to the north, residential properties to the south, 179th Street to the east, and 178th Street to the west. Currently, the site is used for parking and contains one small kiosk for the lot attendant.

Under the oversight of the New York City Office of Environmental Remediation (NYC OER), a remedial investigation (RI) has been performed to identify past property usage, to sample and test soils, groundwater and soil vapor, and to identify contaminant sources present on the property. The results of this investigation indicated that concentrations of PAHs and metals exceeding Track 1 Unrestricted Use SCOs are present in shallow (0-2) soils at the site. To achieve Track 1 Unrestricted Use SCOs, it is anticipated that shallow soils encompassing the majority of Lots 25 and 41 will be removed from the site and will be performed in conjunction with redevelopment activities. During construction activities, soil beneath most of the site will be removed to a depth of approximately 12.5 feet bgs (building footprint), 19 feet bgs (elevator wells), and 11 feet bgs (stormwater retention system). Additionally, two hot spot locations, SB-3 and SB-4, located along the northwestern portion of the property, will be excavated to remove impacted soils from the 0-2 foot bgs interval. Approximately 104,688 tons of soil/fill will be removed from the Site and properly disposed at an appropriately licensed or permitted facility. The facility location is depicted in Figure 1. Areas of the site to be excavated are depicted in Figure 2.



SOURCE: USA TOPO MAPS - COPYRIGHT © 2013 NATIONAL GEOGRAPHIC SOCIETY, i-cubed.
JAMAICA, NEW YORK 7.5-MINUTE QUADRANGLE.

SCALE: 1 " = 2,000 '

0 1,000 2,000 4,000'

N

Liberty Environmental, Inc.
131 Varick St. Suite 1022
New York, NY 10013
Phone: 212-255-0374
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Figure 1 - Site Location Map

178-02 Hillside Avenue
Borough of Queens, City of New York, New York

PROJECT NO.: 140219	REV: 0	PREPARED BY: EMC
DATE: JULY 30, 2014	SCALE: 1" = 2,000'	APPROVED BY: JPC

3. SUMMARY OF PROPOSED FIELD TASKS

The following work is to be performed:

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. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency dictated by disposal facility(s).

4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.

5. Excavation and removal of soil/fill exceeding Unrestricted Use (Track 1) SCOs. The entire footprint of the building area (about 80% of the property) will be excavated to a depth of approximately 12.5 and 19 feet bgs, for development purposes. In addition, a stormwater retention system will be excavated to approximately 11 feet bgs. It is estimated that approximately 104,688 tons of soil (including hotspots) will be excavated from the site and will be properly disposed at an appropriately licensed or permitted facility.

6. 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.

7. Transportation and off-site disposal of all soil/fill material at licensed or 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.

8. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.

9. As part of development, construction of an engineered composite cover consisting of a concrete building slab in the cellar underlain by clean granular sub-base beneath all building areas, poured concrete on sub-base in sidewalk areas, and asphalt in the ground-level parking area to prevent human exposure to residual soil/fill remaining under the Site to prevent human exposure to residual soil/fill remaining under the Site. Exact depths of these construction elements are to be determined.

10. As part of development, installation of a vapor barrier system consisting of vapor barrier beneath the building slab and outside of sub-grade foundation sidewalls to mitigate soil vapor migration into the building. The vapor barrier system will consist of a 20-mil vapor barrier below the slab throughout the full building area and a 20-mil vapor barrier outside all sub-grade foundation sidewalls. All welds, seams and penetrations will be properly sealed to prevent preferential pathways for vapor migration.

4. KEY PERSONNEL & RESPONSIBILITIES

The following personnel from Liberty Environmental, Inc., who will be acting as the owner's representative throughout the project, will be available for consultation.

Personnel	Title	Office Phone Number	Mobile Phone
James P. Cinelli, PE	Professional Engineer	(610) 375-9301	(610) 633-9780
Andrew R. Fetterman, P.G.	Site Project Manager Site Safety Officer	(610) 375-9301	(610) 310-5305
Elizabeth A. Roberts	Project Scientist	(717) 517-5000	(484) 345-0241

5. SITE HEALTH & SAFETY RISK ANALYSIS

The known contaminants at the site include SVOCs and metals in shallow soils.

5.1 KNOWN AND EXPECTED CONTAMINANTS OF CONCERN

Based on the results of the RI, the contaminants of concern in soil are:

- SVOCs including benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene exceeded Restricted Residential Use SCOs.
- Metals including lead and zinc were detected above Unrestricted Use SCOs but were all below Restricted Residential Use SCOs.

Table 1 presents a listing of chemical compounds and potential physical hazards that are potentially present in the work area. Threshold Limit Values (TLVs) and Permissible Exposure Limits (PELs) are referenced in this table. When the TLV and PEL values differ, the more stringent values will be used. The substances listed have been selected for informational purposes, and are intended to provide a framework for the development of relevant exposure information that is easily recognizable by field personnel. This list is not all-encompassing, but is meant to serve as a guide for assessing exposure potential, possible routes of exposure, symptoms of overexposure, and relevant chemical-specific and physiologic information.

Specific action levels have been established for personnel involved in the RA field activities. These action levels apply to all on-site personnel. The action levels presented in Tables 2 and 3 below shall apply to site-related activities, and are to be observed by the RAC when determining the need to upgrade the required level of Personal Protective Equipment (PPE).

Table 1
Chemical Compounds & Potential Physical Hazards

Compounds of Concern	Physical Hazard	ACGIH TLVs	OSHA PELs
Benzo(a)anthracene	Inhalation, Ingestion, Skin/Eye Contact	0.2 mg/ M^3	0.2 mg/ M^3
Benzo(a)pyrene	Inhalation, Ingestion, Skin/Eye Contact	0.2 mg/ M^3	0.2 mg/ M^3
Benzo(b)fluoranthene	Inhalation, Ingestion, Skin/Eye Contact	Not Established	Not Established
Lead	Inhalation, Ingestion, Skin/Eye Contact	0.05 mg/ M^3	0.05 mg/ M^3
Zinc	Inhalation, Ingestion, Skin/Eye Contact	Not Established	Not Established

Table 2
Personal Protection Action Levels for Airborne Particulates

Total Particulates (mg/m^3)*	Required Level of Personnel Protection
0 to 5 mg/m^3	Level D protection, with respiratory protection readily available to all personnel.
5 mg/m^3 to 250 mg/m^3	Level C protection, with goggles and full-face respirator equipped with high-efficiency dust filters.
Greater than 250 mg/m^3	Suspend activities.

*Action levels assume a worst-case condition for airborne particulates. Action levels are based on the protection factors assigned to the specified respirators.

6. PERSONAL PROTECTIVE EQUIPMENT

All personnel must be provided with appropriate personal safety equipment and protective clothing, as described herein. Each individual will be properly trained in the use of this safety equipment before the start of field activities. Safety equipment and protective clothing shall be used as directed by the SSO. All such equipment and clothing will be cleaned and maintained in proper condition by project personnel. The SSO will monitor the maintenance of personnel protective equipment to ensure proper procedures are followed.

Personal protective equipment will be worn at all times, as designated by the HASP. All personnel coming in contact with the waste materials, removal activities, sampling, and other contact shall don Level D personal protective equipment at project start-up. The level of protection to be worn by field personnel will be defined and controlled by the SSO. When more than one hazard area is indicated during site operations, further delineation of the hazards shall be provided by the SSO after a complete review of operational requirements, operational conditions, and/or monitoring at the particular operations being conducted. Protection may be upgraded according to site-specific monitoring and action levels. Personnel may upgrade PPE, if warranted by conditions, without prior approval provided no additional hazards are posed (e.g., heat stress).

The HASP has been designed to allow for upgrading or downgrading the level of PPE to conservatively preclude any potential for human exposure. The SSO is solely responsible for determining the levels of PPE to be used during on-site activities, and has the option to upgrade the level of PPE protection based on air monitoring results or potential contact with contaminated media. Additionally, in some instances it may be appropriate to suspend work operations until particulate concentrations in the work area attenuate. Table 4 provides a summary of the anticipated PPE requirements.

Table 3
Summary of Personal Protective Equipment Requirements

Site Activity	Location	PPE Required
Site Preparation	Sitewide	Level D
Soil and Waste Excavation/Removal/ Handling	Sitewide	Level D
Soil and Waste Staging/Opening/ Sampling	Sitewide	Level D
Drum Sealing/Overpacking/ Storage	Sitewide	Level D
Site Restoration	Sitewide	Level D
Equipment Decontamination	Sitewide	Level D
Post-Excavation Soil Sampling	Sitewide	Level D

Basic emergency equipment (i.e., first-aid kit, fire extinguisher, etc.) as appropriate will also be available in the field vehicle(s) and field office(s), as appropriate, during the performance of waste removal field activities.

The personal protective equipment levels designated below are in conformance with EPA criteria for Level B, C, and D protection. All respiratory protective equipment used will be approved by the National Institute of Safety and Health/Mine Safety and Health Administration (NIOSH/MSHA).

6.1 "MODIFIED LEVEL C" PROTECTION

The SSO may require an upgrade of PPE from Level D to Modified Level C, if site conditions change mandating an upgrade of PPE.

A. Chemical-resistant clothing (Tyvek®, Poly-coated Tyvek® or Saranex®). Suits will be one piece with hoods, booties and elastic wrist bands.

B. Outer nitrile gloves and inner latex surgical gloves.

C. Leather boots with rubber overboots.

D. Options as required:

    1. Coveralls
    2. Disposable outer boots
    3. Face shield
    4. Hearing protection
    5. Safety glasses

6.2 LEVEL" D" PROTECTION

A. Coveralls or long sleeve shirts and long pants.

B. Outer nitrile gloves at a minimum for all material handling activities. Inner latex surgical gloves are recommended where practical.

C. Steel-toed leather boots with rubber overboots.

D. Hard hat.

E. Safety glasses.

F. Level C protection readily available.

G. Options as required:

    1. Disposable outer boots.
    2. Hearing protection.
    3. Chemical-resistant gloves.

This HASP is intended to provide appropriate protection to individuals during planned drum removal activities such as decontamination of personnel and equipment, site layout, general preparatory activities, etc.

7. MEDICAL MONITORING

The Occupational Safety and Health Administration (OSHA) has established requirements for a medical surveillance program designed to monitor and reduce health risks for employees potentially exposed to hazardous materials (29 CFR 1910.120). This program has been designed to provide baseline medical data for each employee involved in hazardous waste operations including field activities, and to determine his/her ability to wear personal protective equipment, such as chemical-resistant clothing and respirators. Employees who wear or may wear respiratory protection must be provided respirators as regulated by 29 CFR 1910.134. This Standard requires that an individual's ability to wear respiratory protection be medically certified before he/she performs designated duties. Where medical requirements of 29 CFR 1910.120 overlap those of 29 CFR 1910.134, the most stringent of the two will be enforced. Site activities are not expected to require the use of respiratory protection, therefore workers will not need to provide documentation of respiratory fitness. If respiratory protection is required, all medical requirements for respiratory protection will be implemented before site activities continue.

The medical examinations must be administered on a pre-employment and annual basis, and as warranted by symptoms of exposure or specialized activities. These examinations shall be provided by employers without cost or loss of pay to the employee. For the purposes of this Health and Safety Plan, all subcontractors shall assume the employer's responsibility in obtaining the necessary medical monitoring and training for their employees pursuant to this section of 29 CFR 1910.120.

The examining physician is required to make a report to the employer of any medical condition which would place such employees at increased risk of wearing a respirator or other personal protective equipment. Each employer engaged in site work shall assume the responsibility of maintaining site personnel medical records as regulated by 29 CFR 1910.120 where applicable. Exemption from the medical surveillance program may be allowed by the Manager of Safety and Health or his designee. These exemptions will be based on his interpretation of the requirements of 1910.120 relative to each individual exemption request.

All employees contracted to work at the site designated by this Plan will be responsible to insure their employees have received the proper medical tests as regulated by 29 CFR 1910.120 and shall provide the contractor with certifications.

Exit physicals will generally be required upon termination of employment for individuals working under the 29 CFR 1910.120 medical surveillance program, unless that individual has received a physical within the previous six months. Exit physicals may also be required at the completion of hazardous waste site work for workers who will no longer be working under the 29 CFR 1910.120 medical surveillance program.

All contractor and subcontractor personnel are required to participate in a medical surveillance program provided by a licensed qualified physician. The qualified physician will determine what tests and procedures are appropriate for the job description. The typical examination consists of the following:

- Medical History and Physical, including:
  - Medical questionnaire
  - Completion of medical history with occupational risk factor analysis
  - Examination by physician
  - Evaluation of test results
  - Brief report sent to employer covering specific requested areas as well as pertinent positive findings; report sent to family physician and employee by request
  - Pulmonary Function Testing (FEV_1, FVC)
  - EKG (12-lead)
- Lab tests, including:
  - Urinalysis
  - Blood "Chemzyme" Analysis (Chem 18)
  - Coronary Risk Screen
  - Complete Blood Count with differential
  - Audiometric testing (full-time field personnel only) - supervised by board-certified staff otolaryngologist

- Visual Acuity and Tonometry (full-time field personnel only) - supervised by board-certified staff ophthalmologist

Contractor and subcontractor personnel must maintain an accurate file of all medical records, and record personnel exposure monitoring data as required by Subpart C of 29 CFR 1910.120 (Occupational Safety and Health Administration regulations). These files should be made available for authorized individuals only to review.

Contractor and subcontractor personnel will be required to document their compliance with the applicable Medical Surveillance program requirements. Proof of medical monitoring will be provided to the SSO and will be required prior to subcontractor personnel going on site.

7.1 REQUIRED HEALTH AND SAFETY TRAINING

At a minimum, all applicable employees must meet the training requirements specified in 29 CFR 1910.120 by having been trained in the areas listed below. Contractors and subcontractors must acknowledge their compliance to the training requirements by providing certifications.

- Site Safety Officer and Site Management Responsibilities - personnel must understand Site Safety Officer and Site Management their role on the site, responsibilities and authority.
- Site-Specific Health and Safety Hazards - personnel must be informed of specific potential hazards related to the site and site operations. Prior to the start of construction activities, Contractor shall submit to Owner's representative a page signed by all on-site personnel indicating that they have read, understand, and shall conform to the requirements of the Health and Safety Plan.
- Personal Protective Equipment - personnel must be trained in proper use of personal protective equipment.
- Safe Work Practices/Engineering Controls - personnel must be informed of appropriate work practices and engineering controls that will reduce the risk of exposure to potential site hazards.

- Safety Equipment Use - personnel must understand the use of monitoring instruments and other safety equipment.
- Medical Surveillance Program - personnel must be informed of requirements for medical surveillance of hazardous waste site employees.
- Site Control Methods - personnel must understand site methods used to reduce exposure to on-site and off-site personnel, and must observe the established safety zones on-site.
- Decontamination Procedures - personnel must be trained in proper decontamination operations and procedures for personnel.
- Emergency Response - personnel must be trained in proper emergency response operations and procedures, and be able to access associated emergency contact numbers.
- Confined Space Entry/Special Hazards - personnel involved in specific hazardous activities, such as confined space entry and drum handling, must receive training in appropriate techniques to employ during such operations.

All on-site personnel will attend a safety and logistics briefing by the SSO before the commencement of field activities. Brief safety and logistics meetings will be held daily prior to the start of work for that day. As necessary, end of day meetings should be held to discuss safety and other issues.

8. HEALTH & SAFETY PROTOCOLS DURING SITE OPERATION

8.1 AIR MONITORING PROGRAM

Field activities associated with redevelopment activities may create potentially hazardous conditions, such as the release of compounds into the breathing space or contact with contaminated media. Airborne contaminant monitoring will be accomplished by several methods. The monitoring shall be conducted in a manner that will assess contaminant concentrations in the worker breathing zone and along the exclusion zone perimeter. These monitoring results will be the basis for PPE selection.

8.1.1 AIR MONITORING

A particulate meter will be used to measure the amount of dust present if visible dust clouds are noticed, or as required by the SSO. A Real-time Airborne Particulate Meter (RAM) may be utilized to monitor the breathing zone for dust in the workspace or surrounding area. Dust is not anticipated to be a problem within the work area

If monitoring is implemented, results may indicate the need for more accurate personal exposure monitoring. The SSO, after consultation with an industrial hygienist, will make the determination of the need for personal exposure monitoring based upon screening results, likely exposure duration, and work operations.

8.2 SITE SAFETY ZONES

Site safety zones will be established for the performance of field activities. These locations may be subject to modification by the SSO dependent upon the type of activity performed, levels of contaminants encountered, air monitoring, etc.

Exclusion Zone - The area immediately surrounding any sampling or construction activity, as designated by the SSO, will be considered the Exclusion Zone (EZ). All entry/egress from this area will be through a single entry/exit point established in an upwind direction from the proposed activity. The EZ will not be accessed from any other direction or location without

explicit approval of the SSO, or unless an emergency situation has developed which necessitates immediate evacuation of the work area (contaminant release, fire, explosion, etc.). The proper levels of PPE will be worn at all times, as specified by the SSO, within the EZ. Only authorized personnel are permitted in the EZ.

Contaminant Reduction Zone - A primary Contaminant Reduction Zone (CRZ), designed to ensure the proper decontamination of all equipment entering and leaving the primary areas of RA activities, will be initially established immediately south of the EZ. An open area will serve as the decontamination pad for heavy equipment (backhoes, etc.) and sampling equipment. Materials storage will not be permitted within the CRZ. Certain equipment decontamination activities (including sampling equipment decontamination) will be performed in a separate portion of the CRZ. Sample containers and sampling equipment will be stored within the CRZ. Additionally, the proper levels of PPE will be worn at all times, as specified by the SSO, within the primary CRZ.

Support Zone - The Support Zone (SZ) will be initially established at the south end of the site, and will be used to stage support vehicles, emergency communication equipment, first-aid supplies, and other equipment needed to monitor or perform site sampling activities. This area will be thoroughly marked, and will remain as the "clean" area through strict enforcement of the decontamination procedures by the SSO. This area will also be used as an assembly point for on-site project personnel in the event of an evacuation from the EZ.

8.3 SITE COMMUNICATIONS

Telephones - A telephone shall be available at the site for communication with emergency support services/facilities.

Hand Signals - To be employed by downrange field teams, along with using the buddy system. These signals are also very important when working with heavy equipment (where audio contact may be difficult or impossible).

- Hand signals shall be known by the entire field team before operations commence and shall be covered during site-specific training and briefings.
  - Hand gripping throat - out of air; cannot breath;

- Grip partner's wrists or place both hands around waist - leave immediately;
- Hands on top of head - need assistance;
- Thumbs up - OK; I am all right; I understand;
- Thumbs down - no; negative.

8.4 SITE ACCESS/SITE CONTROL

Access to the active work areas will be limited to only trained and authorized personnel, including work personnel, RAC personnel, State and Federal regulatory agency personnel, and designated client representatives. All persons who enter the immediate work area(s) will be required to follow sign-in procedures, as needed. Each worker is responsible to sign, indicate the time in and out, and indicate the intended work area on the Authorized Site Personnel List, held by the SSO or his designee. The Site Superintendent will be responsible for ensuring that this sign-in procedure is implemented and documented correctly in the site logbooks.

Access into established zones, including the EZ and CRZ will be limited to only those personnel wearing the appropriate PPE and those adequately trained and medically approved for their assignments.

Site control considerations dictate that specific procedures be followed to ensure adequate site control, so that persons who may be unaware of existing site conditions are informed of the possibility of being exposed to inherent site hazards. All heavy equipment shall be stored in a secured area upon the completion of each day's activities. Any excavations left unfilled and unattended by project personnel will be appropriately barricaded and visibly posted with the appropriate warning signs, temporary fencing, or necessary access restrictions and safety precautions. Additionally, all potentially contaminated materials generated during performance of the RA activities will be handled appropriately and placed in a secure area to prevent unauthorized access or tampering.

8.5 HEALTH AND SAFETY VIOLATION POLICY

Health and safety procedures have been established to protect site personnel and to prevent the spread of substances of concern. Therefore, it is imperative that all personnel adhere to the procedures outlined in this Health and Safety Plan and those issued by the SSO. Because of the potentially grave consequences as a result of personnel not complying with the health and safety procedures, a worker dismissal policy has been established.

Site employees are subject to site dismissal by the SSO or his designated representative based on a maximum of three minor health and safety violations of the same nature. Major violations may be subject to immediate dismissal at the discretion of the SSO. The procedure outlined below is applicable to all site personnel, regardless of position. A more stringent policy may be adopted by the employer or the SSO, although on-site personnel will be informed of any changes to the policy presented below.

- 1st violation: The worker is verbally instructed in the proper procedure and the offense is noted in the health and safety file. The worker's foreman or immediate supervisor is given written notice of these actions within 24 hours.
- 2nd violation: The worker is verbally instructed in the proper procedure and warned that the next offense will constitute grounds for dismissal from the site. The offense and warning are noted in the health and safety file. The worker's foreman or immediate supervisor will be given written notice of these actions within 24 hours.
- 3rd violation: The worker is given verbal and written instruction to depart the site following proper termination procedures (i.e. the turning in of company gear, reporting to foreman, setting up exit physical, etc.). The violation and termination action is noted in the health and safety file. The worker's foreman or immediate supervisor will receive immediate verbal notice and written notice within 24 hours of the dismissal.

If an employee wishes to contest a violation ruling, the employee shall do so through his/her foreman or immediate supervisor. The SSO or designated representative shall consider all points and either keep or rescind the original violation ruling.

8.6 DECONTAMINATION GENERAL CONSIDERATIONS

Personnel involved with hazardous material handling may be exposed to compounds in a number of ways, despite the most stringent protective procedures. Personnel may come in contact with vapors, gases, mists, or particulates in the air, or may come in contact with site media while performing work tasks. Use of monitoring instruments and equipment can also result in exposure to hazardous substances.

In general, personnel decontamination involves scrubbing with a non-phosphate soap/water solution followed by clean water rinses. This rinse water will be drummed and staged on-site pending proper disposed. All disposable PPE items will be placed in a dry container and stored on-site at a secure location pending proper disposal. Certain parts of contaminated respirators, such as harness assemblies and leather or cloth components, are difficult to decontaminate. If grossly contaminated, they may have to be discarded. Rubber components can be soaked in soap and water and scrubbed with a brush. In addition to being decontaminated, all respirators, non-disposable protective clothing, and other personal articles must be sanitized before they can be used again. The manufacturer's instructions should be followed in sanitizing the respirator masks. The SSO will be responsible for supervising the use and decontamination of protective equipment.

Avoidance of exposure to hazardous materials that may be at the site shall be practiced at all times during site activities. Personnel performing investigative tasks should be conscious of their potential for exposure caused by fatigue or unsafe work practices. Great care should be taken when removing potentially contaminated PPE, or when handling potentially contaminated sampling equipment, sample containers, etc.

Smoking, eating, and drinking, or other activities which promote hand to mouth contact will not be permitted in the EZ or the CRZ. Beverages for use in the event of heat stress/fatigue shall be located in the Support Zone. If work sites are far from the SZ, contaminants are minimal, and the SSO authorizes, beverages for heat stress may be located in a designated clean area of the EZ. Proper decontamination procedures for personnel entering the clean area must be followed.

9. EXCAVATION, TRENCHING, AND SHORING

The main concerns of trenching and excavation are ground control and fall prevention. Prior to excavation activities, a thorough effort will be made to determine whether underground obstructions (such as tanks, drums, utilities, water lines) or above ground hazards may be encountered. Utility lines, if encountered, will be properly supported during excavation. The appropriate utility personnel will be contacted to inform them of the proposed site excavation work and to receive any additional advice based on their experience. Natural hazards such as boulders and trees will be removed or controlled before excavation begins if it poses a hazard to workers.

The walls and faces of all excavations to which employees are exposed will be guarded by a shoring system, a sloping of the ground, or another equivalent means. All slopes should be excavated to a degree which accommodates the ground's unique ability to slide. Soil types listed below from most likely to least likely to slide:

- well-rounded loose sand,
- compacted sharp sand,
- average soils,
- compact angular gravel, and solid rock, shale, or
- cemented sand and gravels.

Not all excavations need to be shored or sloped. The purpose of these precautions is to prevent crushing injury or suffocation. Banks more than five feet high will be laid back to a stable slope based on ground type. Preliminary inspections of the site indicate a Type A soil (silty clay loam), for which a sideslope of 1 ½ to 1 is acceptable. A licensed Professional Engineer's approval must be obtained if steeper slopes are to be used. Walkways, sidewalks and runways will be free of excavated materials to prevent falls; planks used for raised walkways will be securely fastened at each end.

Additional precautions will be taken to prevent slides or cave-ins when trenches or excavations are made near backfilled excavations or where excavations are subject to external vibrations such as railway or highway traffic or machinery. Rainstorms may seriously compromise the

stability of excavation surfaces; a competent person will ensure that no weather-related decrease in safety has occurred.

Diversion ditches, dikes, or other suitable means will be used as necessary to prevent surface water from entering an excavation and to provide adequate drainage of the area adjacent to the excavation. Water will not be allowed to accumulate in an excavation. If it is necessary to place or operate power shovels, derricks, trucks, materials, or other heavy objects on a level above and near an excavation, the side of the excavation will be braced as necessary to resist the extra pressure from such loads. When mobile equipment is used next to excavations, substantial stop logs or barricades will be installed. If possible, the grade will be away from the excavation.

9.1 SOIL HAULING AND HANDLING

Soil excavation and placement into trucks or roll-off containers for the purpose of offsite hauling and disposal shall adhere to their respective weight limits for transport on public roadways. Transportation manifests and truck logs shall be updated as trucks leave the site. The RAC shall be responsible for the condition of the trucks and roll-off containers along with the weights and documentation of the materials being hauled.

10. EMERGENCY PROCEDURES CONTINGENCY PLAN

In the event of an emergency during implementation of field activities, the telephone contact numbers, as provided on Table 4, shall be readily available to all field personnel. A copy of these numbers shall be posted conspicuously near the telephones in the field vehicles and/or field offices (as applicable), and shall also be in the possession of the SSO and monitoring personnel.

Table 4
Emergency Contact Telephone Numbers

Emergency Contacts	Person or Agency	Telephone
Police:	Queens Police Department	911 (718) 657-8181
Fire:	NYC Fire Department	911
Ambulance:	--	911
Hospital:	Queens Hospital Center	General: (718) 883-3000 Emergency Care: 911
NYC DEP	General Information	311
Project Manager	Andrew Fetterman – Liberty Environmental, Inc.	(610) 375-9301 (Office)

10.1 INCIDENT REPORTING PROCEDURES

Adherence to this site-specific Health and Safety Plan, and any additional safety rules and regulations, will significantly reduce the likelihood of personnel being exposed to toxic substances above permissible exposure limits. However, in the event an incident does occur, it is imperative that specific reporting procedures be followed so that appropriate corrective action can be taken by the SSO and the Project Manager. Upon notification of an incident, the SSO will contact the appropriate medical personnel (Occupational Health and Safety physicians) for recommended medical diagnosis and, if necessary, treatment. The chemical data provided in the HASP will be given to the physician to help aid in determining the appropriate medical treatment.

If required, the physician may also request a copy of applicable Material Safety Data Sheets (MSDSs) to further aid in the diagnosis.

The Project Manager and the SSO will investigate facility/site conditions to determine: (1) whether and at what levels the incident actually occurred, (2) the cause of the incident, and (3) the means to prevent the incident from recurring.

An Incident Report Form has been developed so that consistent and appropriate information is obtained regarding employee exposures. The form will be completed by the SSO and the exposed individual. The form will be filed with the employee's medical and safety records to serve as documentation of the incident and the actions taken. Also, a copy of this form will be submitted the Project Manager.

A meeting will be conducted prior to the start of field activities to develop an appropriate notification or call down procedure for incident/emergency response. This call down procedure will be posted at the site. The Contractor shall be trained on the specifics of Site emergency procedures at this time; appropriate elements of these procedures shall be incorporated into the Contractor's call down procedure.

10.2 EMERGENCY RESPONSE PROCEDURES

In the event of an emergency, the SSO will assume responsibility for coordinating the response to all emergencies. The SSO responsibilities will also include:

1. Notification of appropriate individuals and/or authorities required for initial assistance or response;
2. Notification of the Project Manager and the Site Representative;
3. Ensuring that the following safety equipment is available at all times at the site: eyewash station, first aid supplies, and fire extinguishers;
4. Having a working knowledge of all safety equipment available at the site;
5. Ensuring that a map which details the most direct route to the nearest hospital is prominently posted on-site, in addition to the emergency telephone numbers; and
6. Conducting a follow-up investigation of the incident as appropriate.

10.3 ACCIDENTS AND INJURIES

In the event of a safety or health emergency at the site, appropriate emergency measures will immediately be taken to assist those who have been injured or exposed and to protect others from hazards. The SSO will be immediately notified, and will respond according to the seriousness of the injury. Personnel trained in first-aid will be present at all times during site activities to provide appropriate treatment of injuries or illness incurred during operations. The Project Manager will be immediately informed of any serious injuries. The project field personnel shall take the injured party and transport (if possible) to the nearest hospital for treatment, after determining whether personnel decontamination can be performed on the injured party. If a particular injury precludes the possibility of personnel decontamination, the SSO shall notify all emergency personnel of the potentially contaminated PPE and provide any assistance necessary in properly decontaminating or removing the PPE. In situations of minor injuries, an injured party may be transported to the nearest hospital.

In the event of an environmental release, the field personnel shall make an initial effort to control or stop the spread of the release, if at all possible, without compromising personnel health and safety. The SSO should immediately contact the Health and Safety Manager or Plant Manager to report the release to prevent health impact to surrounding businesses.

In the event of potential fire, explosion, or other imminent hazard, the SSO shall initiate evacuation procedures using an appropriate warning device readily audible to all field personnel (i.e., walkie-talkie system, car horn, air horn, etc.) and will sound the device for a minimum of ten seconds. Field personnel will be informed of the alarm signal prior to initiation of activities. All personnel on-site will evacuate to the support zone, and will assist the SSO in controlling access to the site once the emergency evacuation has been initiated. The SSO will assist the emergency response personnel, and document all activities occurring during an evacuation or emergency in

the site logbook. Should the incident affect or potentially affect areas/personnel not directly associated with the DRA activities, the SSO shall also call the appropriate emergency phone number and shall contact the contractor's representative.

10.4 DIRECTIONS TO NEAREST HOSPITAL

In the event of a serious injury to Site personnel, an ambulance shall be used for transportation to the nearest hospital if possible. In the event of minor injuries or illness, the Safety Officer/designee may elect to have the injured transported to the nearest hospital by company vehicle. If there is any doubt about the severity of the injury, an ambulance shall be used, if possible.

Directions to Reading Hospital from the site:

Existing the facility, head west on Hillside Avenue toward Edgerton Boulevard

In 0.50 mile turn right onto 168th Street.

Turn left onto Grand Central Parkway.

Turn right onto 164th Street.

The Emergency Room entrance is on the left.

10.5 OVERT PERSONNEL EXPOSURE

Generic first-aid procedures, designed to address initial actions to be taken with the victim in the event of a personnel exposure, are briefly outlined below. Typical responses to overt personnel exposure include:

Skin/Eye Contact: Use copious amounts of soap and water, and flush skin for at least 15 minutes. Wash/rinse affected area thoroughly, then provide appropriate medical attention. Eyewash and drench system (water hoses) will be provided on site at the CRZ and/or SZ as appropriate. Eyes should be rinsed for 15 minutes after contact with any chemical contamination.

Inhalation Exposure: Move to fresh air immediately and/or, if necessary, decontaminated and transport to hospital.

Accidental Ingestion: Contact the Berks County Poison Control Center at (800) 722-7112, and perform PPE decontamination and transport to emergency medical facility.

11. ADDITIONAL HEALTH & SAFETY PRECAUTIONS AND PROCEDURES

11.1 HEAT STRESS OR COLD EXPOSURE

The timing of this project may be such that heat stress or cold exposure may pose a threat to the health and safety of site personnel. Work/rest regimens will be employed as necessary so that personnel do not suffer adverse effects from heat stress or cold exposure. Special clothing and an appropriate diet and fluid intake will be recommended to all site personnel to further reduce these temperature-related hazards. The work/rest regimens will be developed following the guidelines in the ACGIH Threshold Limit Values and Biological Exposure Indices.

11.2 HEAT STRESS

The following should be used as guidelines in controlling heat stress. The SSO has the responsibility to monitor heat stress throughout each day and to make work/rest recommendations as appropriate. All workers are expected to follow the work/rest cycles.

Heat stress decisions will be based mostly on physiological measurements (pulse rate, skin temperature) and environmental measurements by the Wet Bulb Globe Temperature (WBGT) monitors. As noted in the American Conference of Governmental Industrial Hygienists (ACGIH) 1992-1993 "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices", measurement of body temperature is impractical for monitoring a worker's heat load. Therefore, measurement of environmental factors is required. The ACGIH states that the WBGT is the simplest and most suitable technique to measure environmental factors. Additional environmental data will also be recorded daily and considered in heat stress evaluations.

Initially, work/rest cycles will be established using pulse rates and the guidelines on Table 1. The work/rest schedule may be modified at the discretion of the SSO. The work/rest schedule is based upon guidance set by the ACGIH along with the professional judgment of the responsible Industrial Hygienist. The WBGT readings in the table are actual readings, no additional factors should be added:

Table 5
Work/Rest Schedule During the Use of Personal Protective Equipment

Level of Personal Protective Equipment	*WBGT (^{o}F)*	*Work/Rest (Minutes)*
Levels B and C	<72.6	Normal
	72.5-75.92	60/15
	76.1-79.52	45/15
	79.7-84.92	30/30
	85.1-86.72	15/45
	86.9-89.6	15/60
	>89.6	Cease Work
Level C Modified (No Respirator Required)	<75.2	Normal
	75.2-78.62	60/15
	78.8-82.22	45/15
	82.4-87.62	30/30
	87.8-89.42	15/45
	89.6-92.3	15/60
	>92.3	Cease Work
Level D	<78.44	Normal
	78.44-81.5	60/15
	81.68-85.28	45/15
	85.46-90.5	30/30
	90.68-92.30	15/45
	92.48-95.36	15/60
	>95.36	Cease Work

11.3 DAILY PROTOCOL

- WBGT Readings will be taken:
- at the beginning of the workday
- mid-morning
- noon
- mid-afternoon
- at the end of the workday

- WBGT readings will be taken at least at all major work areas and at outside rest stations.

- At the SSO's discretion employee body weights (semi-nude) will be taken immediately before work and at the end of the workday. If the weight loss exceeds 1.5%, the worker should be told to drink more liquids during that evening and the following workdays. The worker will also be monitored during the next few workdays to insure the weight loss does not continue at an unacceptable rate.
- Pulse rates will be monitored routinely throughout the workday, frequency depending upon WBGT readings. At minimum, the most active member of each work crew will be monitored during the first two breaks in the morning and the first break after lunch.
    - Pulse rates will be taken as follows:
    - At the end of a cycle of work, the worker goes to a nearby location and sits on a stool or straight chair. At the moment he is seated the observer starts a stopwatch. At 30 seconds the observer begins a pulse count, having previously palpate the radial pulse. This count is continued until one minute. The 30-second count is multiplied by 2 and recorded as "P_1"
    - if P_1 exceeds 120, an additional pulse will be taken starting at 2 minutes, 30 seconds to 3 minutes; multiplied by 2 and recorded as P_3.
- Pulse rates readings:

  120 and below (P_1) - Worker will be allowed to continue the scheduled work/rest cycle.

  Exceeding 120 (P_1) - Worker will remain in the rest area until pulse rate returns to 90, or below; additional monitoring will depend upon the pulse rate recovery.
- Pulse rate recovery - for individual with P_1 greater than 120.

Patterns	P_3	P_1-P_3
Satisfactory (S)	<90	-
High (H)	≥90	≥10
No recovery (N)	≥90	<10

- Satisfactory patterns need no further comment.
- High recovery patterns indicate work at a high metabolic level with little or no accumulated body heat. Individuals showing this condition should be monitored during the next breaks while work periods are reduced until P1 is 120 or below.
- No recovery patterns indicate too much personal stress. Individuals showing "no recovery" heart rate patterns return to the decon trailers and rest for a period no less than

one hour. The SSO must monitor the workers and determine if additional medical assistance is needed.

- Fluid intake should be encouraged for workers throughout the day. Workers should frequently drink small amounts; the equivalent of one cup every 15-20 minutes. Workers should also be encouraged to salt their food abundantly.
- Acclimatization to heat involves a series of physiological and psychological adjustments that occur in an individual during the first week of exposure to hot environments. For this reason, the following work schedule applies for workers new to the site when conditions are such that controlled work/rest cycles are being used:

	Suggested Maximum Work
Day 1 - -	2 hours
Day 2 - -	3 hours
Day 3 - -	4 hours
Day 4 - -	6 hours
Day 5 - -	8 hours

Deviations from this schedule may be done based on evaluations by the SSO.

Use sterile soft gauze or material to cover the affected area. Keep the victim warm and get medical attention.

11.4 HEAVY MACHINERY/EQUIPMENT

All site employees must remain aware of those site activities that involve the use of heavy equipment and machinery. If respiratory protection and protective eyewear are worn during site activities, it may significantly reduce peripheral vision of the wearer. Therefore, it is essential that all employees at the site exercise extreme caution during operation of equipment and machinery to avoid physical injury to themselves or others.

11.5 CONSTRUCTION MATERIALS AND SITE REFUSE

All construction materials and site refuse should be contained in appropriate areas or facilities. Site personnel should make certain that fencing, cement, etc. are not scattered throughout the area of activity and that all trash and scrap materials are immediately and properly disposed.

11.6 SPILL RESPONSE PROCEDURES

Equipment failures consisting of fuel tank or fuel line breaks, oil pan ruptures, radiators or hydraulic oil line breaks may result in a release of contaminants to the ground surface. Absorbent materials will be readily available and used to soak up the spilled material if the spill occurs on a paved area. The released substance will be immediately contained and reported. Additional cleanup and excavation may be required according to State regulations. Absorbent material and PPE will be placed in a properly labeled 55-gallon drum, which will then be staged for disposal transportation. The SSO shall notify all affected personnel when the emergency spill response is complete and shall ensure that an incident report is completed.

11.7 ADDITIONAL SAFETY PRACTICES

The following important safety precautions will be enforced during this investigation:

1. Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in any area designated as contaminated.
2. Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other activity.
3. Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.
4. No facial hair which interferes with the effectiveness of a respirator will be permitted on personnel required to wear respiratory protection equipment. The respirator must seal against the face so that the wearer receives air only through the air purifying cartridges attached to the respirator. Fit testing shall be performed prior to respirator use to ensure a proper seal is obtained by the wearer.
5. Contact with potentially contaminated surfaces should be avoided whenever possible. One should not walk through puddles, mud, or other discolored surfaces; kneel on ground; or lean, sit or place equipment on drums, containers, vehicles, or the ground.
6. Medicine and alcohol can potentiate the effect of exposure to certain compounds. Prescribed drugs and alcoholic beverages should not be consumed by personnel involved in field activities.
7. Personnel and equipment in the work areas should be minimized, consistent with effective site operations.

8. Work areas for various operational activities should be established.
9. Procedures for leaving the work area must be planned and implemented prior to going to the site. Work areas and decontamination procedures must be established on the basis of prevailing site conditions.
10. Respirators will be issued for the exclusive use of one worker and will be cleaned and disinfected after each use by the worker.
11. Safety gloves and boots shall be taped to the disposable, chemical-protective suits as necessary.
12. All unsafe equipment left unattended will be identified by a "DANGER, DO NOT OPERATE" tag.
13. Noise mufflers on equipment and/or hearing protection for personnel may be required for all work around heavy equipment. This requirement will be made at the discretion of the SSO.
14. Cartridges for air-purifying respirators in use will be changed daily at a minimum.
15. Self-contained breathing apparatus and air-purifying respirators will be inspected daily by the SSO.
16. All activities in the exclusion zone will be conducted using the "Buddy System". The Buddy is another worker fully dressed in the appropriate PPE, who can perform the following activities:
    - Provide his/her partner with assistance;
    - Observe his/her partner for signs of chemical or heat exposure;
    - Periodically check the integrity of his/her partner's PPE; and
    - Notify others if emergency help is needed.

12. DECONTAMINATION PROCEDURES

12.1 PERSONAL DECONTAMINATION

Personnel involved with hazardous material handling may be exposed to compounds in a number of ways, despite the most stringent protective procedures. Personnel may come in contact with vapors, gases, mists, or particulates in the air, or may come in contact with site media while performing work tasks. Use of monitoring instruments and equipment can also result in exposure to hazardous substances. Decontamination procedures are described below.

In general, decontamination involves scrubbing with a non-phosphate soap/water solution (Alconox), followed by clean water rinses. This rinse water will be drummed, labeled and staged on-site pending proper disposal. All other disposable items will be placed in dry containers and also staged on-site pending proper disposal. Certain parts of contaminated respirators, such as harness assemblies and leather or cloth components, are difficult to decontaminate. If grossly contaminated, they may have to be discarded. Rubber components can be soaked in soap and water and scrubbed with a brush. In addition to being decontaminated, all respirators, non-disposable protective clothing, and other personal articles must be sanitized before they can be re-used. The manufacturer's instructions should be followed in sanitizing the respirator masks. The SSO will be responsible for supervising the use and decontamination of proper protective equipment.

12.2 STANDARD PPE DECONTAMINATION

The SSO will monitor decontamination procedures to ensure their effectiveness. Modifications of the decontamination procedure may be necessary as determined by the SSO observations.

12.3 EQUIPMENT DECONTAMINATION

Prior to leaving the EZ, all vehicles will be decontaminated by spraying or dry scrubbing all soil from the wheels and undercarriage. This will be performed in the CRZ, in a decontamination pad. Sediment will be periodically removed from the decontamination pad and incorporated into the waste soil pile for proper disposal.

13. CERTIFICATION SHEET

By my signature, I certify that:

- I have read,
- I understand, and
- I will abide by the Health & Safety Plan

Printed Name	Signature	Date	Affiliation

ATTACHMENT 1
CONTAMINANTS OF CONCERN NIOSH PRINTOUTS

Coal Tar Pitch Volatiles (benzene soluble fraction)

General Description

Synonyms: Coal tar pitch; Oil pitch; Pitch; CTPV; Coal tar distillates
Components (contains detectable quantities of one or more of the following polycyclic aromatic hydrocarbons [PAHs]): Benz[a]anthracene; Benzo[b]fluoranthene; Chrysene; Anthracene; Benzo[a]pyrene; Phenanthrene; Acridine; Pyrene
OSHA IMIS Code Number: 0700
Chemical Abstracts Service (CAS) Registry Number: 65996-93-2
NIOSH Registry of Toxic Effects of Chemical Substances (RTECS) Identification Number: GF8655000
Department of Transportation Regulation Number (49 CFR 172.101) and Emergency Response Guidebook : 1136 128
NIOSH Pocket Guide to Chemical Hazards, Coal Tar Pitch Volatiles: Chemical description, physical properties, potentially hazardous incompatibilities, and more

Exposure Limits and Health Effects

Exposure Limit	Limit Values	HE Codes	Health Factors and Target Organs
OSHA Permissible Exposure Limit (PEL) - General Industry See 29 CFR 1910.1000 Table Z-1	0.2 mg/m^3 TWA (benzene soluble fraction)	HE2	Lung and other tumors
OSHA PEL - Construction Industry See 29 CFR 1926.55 Appendix A	0.2 mg/m^3 TWA (benzene soluble fraction)	HE2	Lung and other tumors
OSHA PEL - Shipyard Employment See 29 CFR 1915.1000 Table Z-Shipyards	0.2 mg/m^3 TWA (benzene soluble fraction)	HE2	Lung and other tumors
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL)	0.1 mg/m^3 TWA (cyclohexane extractable fraction) Ca	HE2	Cancer of the respiratory tract, kidney, bladder, and skin
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) (2001)	0.2 mg/m^3 TWA (benzene soluble fraction)	HE2	Lung and other tumors

	A1; BEI		
CAL/OSHA PEL	0.2 mg/m^3 TWA	HE2	Lung and other tumors

Carcinogenic Classification:
National Toxicology Program (NTP) carcinogenic classification: Known to be human carcinogens (coal tars and coal-tar pitches) (PDF)
International Agency for Research on Cancer (IARC) carcinogenic classification: Group 1 (PDF) (carcinogenic to humans [coal-tar pitch])
U.S. Environmental Protection Agency (EPA) carcinogenic classification: Not listed
EPA Inhalation Reference Concentration (RfC): Not established
Agency for Toxic Substances and Disease Registry (ATSDR) Inhalation Minimal Risk Level (MRL): Not established
NIOSH Immediately Dangerous To Life or Health Concentration (IDLH): 80 mg/m^3 (as the benzene soluble fraction)
Notes:

1. Coal tar pitch is combustible and decomposes when heated above 400°C, producing toxic fumes. It reacts with strong oxidants (NIOSH/IPCS 2002).
2. Researchers found a mathematical relationship between polycyclic aromatic hydrocarbon air concentrations and 1-hydroxypyrene concentration (biological monitoring) in urine. Researchers determined that coke oven workers with a urinary concentration of 1-hydroxypyrene of 2.3 µmol/mol creatinine after three work days were exposed to the coal tar pitch volatile TLV air concentration (Jongeneelen 1992).
3. Deaths have been reported from atherosclerosis among Norwegian aluminum smelter workers due to cumulative exposure to coal tar pitch volatiles (Bingham et al. 2001).

Literature Basis:

- ACGIH: Documentation of the Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) - Coal Tar Pitch Volatiles. 2001.
- Bingham, E., Cohrssen, B., Powell, C.H.: Patty's Toxicology Volumes 1-9 5th ed. John Wiley & Sons. New York, N.Y. p. 1:773, 2001.
- California Occupational Safety & Health Standards Board: Initial (PDF) and Final (PDF) Statement of Reasons August 3, 2010.
- Jongeneelen, F.: Biological exposure limit for occupational exposure to coal tar pitch volatiles at cokeovens. Int Arch Occup Environ Health. 63(8):511-516, 1992.
- NIOSH: Occupational Health Guideline for Coal Tar Pitch Volatiles. 1978
- NIOSH/IPCS: International Chemical Safety Cards - Coal Tar Pitch. March 2002.

Date Last Revised: 09/06/2012

Monitoring Methods used by OSHA

Primary Laboratory Sampling/Analytical Method (SLC1):

Sampling Media

Pre-cleaned Glass Fiber Filter (Gelman Type A/E)
maximum volume: 960 Liters
minimum flow rate: 1.5-2.0 L/min
current analytical method: Extraction-gravimetric
method reference: 2 (OSHA 58)
sampling and analytical error: 0.15
method classification: Fully Validated
note: OSHA personnel can obtain pre-cleaned filters, vials, and Teflon-lined caps from SLTC. After sampling, filter must be transferred to a vial with a Teflon-lined cap. Sample must be protected from direct sunlight. If chemicals are present that may be soluble in Benzene, such as Sulfur, please note them on the 91A form, because additional analyses may be possible to determine the extent of interference.

Bulk Method:

Notes

Limit the amount of bulk submitted to one gram or one mL.

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www.OSHA.gov

Benz(a)Anthracene

General Description

Synonyms: Cobalt metal dust; Cobalt metal fume
OSHA IMIS Code Number: 0350
Chemical Abstracts Service (CAS) Registry Number: 56-55-3
NIOSH Registry of Toxic Effects of Chemical Substances (RTECS) Identification Number: CV9275000

Exposure Limits

OSHA Permissible Exposure Limit (PEL):

- **General Industry:** See Coal Tar Pitch Volatiles (Benzene Soluble Fraction)

American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): Appendix A2 (Suspected Carcinogen)

Health Factors

Carcinogenic Classification:

- **National Toxicology Program:** Suspect Human Carcinogen
- **International Agency for Research on Cancer (IARC):** Group 2A, probably carcinogenic to humans (PDF)

Monitoring Methods used by OSHA

Primary Laboratory Sampling/Analytical Method (SLC1):

Sampling Media

Pre-cleaned Glass Fiber Filter (37 mm)
maximum volume: 960 Liters
maximum flow rate: 2.0 L/min
current analytical method: High Performance Liquid Chromatography; HPLC/UV/FLU
method reference: 2 (OSHA In-House File)
method classification: Partially Validated
note: OSHA personnel can obtain pre-cleaned filters, vials, and Teflon-lined caps from SLTC. Immediately after sampling, transfer filter to glass scintillation vial and seal with

Teflon-lined cap. Protect from light.

Bulk Method:

Notes

Limit the amount of bulk submitted to one gram or one mL

Conditions:

Column: C18 mobile phase: 85:15 Acetonitrile: Water detector wavelength: 254nm flouresence detection limit: excitation: 254nm emissions: 370nm

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Lead, Inorganic (as Pb)

General Description

Synonyms: Synonyms vary depending upon specific compound (e.g., Lead oxide, Lead arsenate, Lead chromate)
OSHA IMIS Code Number: 1591
Chemical Abstracts Service (CAS) Registry Number: 7439-92-1; 1317-36-8 (lead oxide); 7758-97-6 (lead chromate); 7784-40-9 (lead arsenate); 18454-12-1 (lead chromate oxide)
NIOSH Registry of Toxic Effects of Chemical Substances (RTECS) Identification Number: OF7525000
NIOSH Pocket Guide to Chemical Hazards, **Lead:** Chemical description, physical properties, potentially hazardous incompatibilities, and more
U.S. Environmental Protection Agency (EPA) Hazard Summary, **Lead Compounds:** Uses, sources and potential exposure, acute and chronic health hazard information, and more

Exposure Limits and Health Effects

Exposure Limit	Limit Values	HE Codes	Health Factors and Target Organs
OSHA Permissible Exposure Limit (PEL) - General Industry See 29 CFR 1910.1025Note: OSHA considers "lead" to mean elemental lead, all inorganic lead compounds, and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds.Note: Large nonferrous foundries (20+ employees) are required to achieve the PEL of 0.05 mg/m^3 by means of engineering and work practice controls. Small nonferrous foundries (<20 employees) are required to achieve an 8-hour TWA of 0.075 mg/m^3 by such controls.	0.05 mg/m^3 TWA 0.03 mg/m^3 Action Level	HE3	Nephrotoxicity
		HE5	Reproductive hazards
		HE7	Cumulative neurologic effects
		HE12	Cumulative blood effects
OSHA PEL - Construction Industry See 29 CFR 1926.62	0.05 mg/m^3 TWA 0.03 mg/m^3	HE3	Constipation, nausea, pallor
		HE5	Reproductive

	Action Level		risks
		HE7	Nervous irritability, hyperactivity, anxiety, insomnia, headache, weakness, numbness, dizziness
OSHA PEL - Shipyard Employment See 29 CFR 1915.1025	0.05 mg/m^3 TWA 0.03 mg/m^3 Action Level	HE3	Nephropathy, loss of kidney function, increased blood pressure
		HE5	Reduced sperm count and male sterility
		HE7	Subclinical and clinical peripheral neuropathy (muscle weakness, pain, and paralysis of extremities)
		HE12	Disruption of hemesynthesis, anemia
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL) See Appendix C Note: NIOSH considers "lead" to mean metallic lead, lead oxides, and lead salts (including organic salts such as lead soaps but excluding lead arsenate).	0.05 mg/m^3 TWA Air concentrations should be maintained so that worker blood lead remains less than 0.06 mg Pb/100 g of whole blood	HE5	Reproductive toxicity, nephrotoxicity, cardiovascular toxicity, gastrointestinal toxicity
		HE7	Neurotoxicity
		HE12	Hematologic toxicity
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) (2001)	0.05 mg/m^3 TWA A3; BEI	HE3	Cardiovascular toxicity, hypertension, cerebrovascular disease, nephrotoxicity
		HE5	Reproductive toxicity
		HE7	Neurologic and neurobehavioral

			toxicity
		HE12	Blood dyscrasias
CAL/OSHA PELs (See also Section 5198)	0.05 mg/m^3 Lead (metallic and inorganic compounds), dust and fume, (as Pb)	HE3	Cardiovascular toxicity, hypertension, cerebrovascular disease, nephrotoxicity
		HE5	Reproductive toxicity
		HE7	Neurologic and neurobehavioral toxicity

National Toxicology Program (NTP) carcinogenic classification: Reasonably anticipated to be a human carcinogen (PDF)

International Agency for Research on Cancer (IARC) carcinogenic classification: Group 2B (PDF) (possibly carcinogenic to humans)

EPA carcinogenic classification: Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals

EPA Inhalation Reference Concentration (RfC): Not established

Agency for Toxic Substances and Disease Registry (ATSDR) Inhalation Minimal Risk Level (MRL): Not established

NIOSH Immediately Dangerous to Life or Health (IDLH) concentration: 100 mg/m^3 (as Pb)

Notes on Other Potential Health Effects and Hazards

1. Exposure to high levels of lead may cause miscarriage in pregnant women (ATSDR 2007).
2. High Petrol-Lead Emission Areas (PLEA) might result in an increase in the incidence rate of brain cancer resulting from high lead exposures (Wu et al. 2012).
3. Lead exposure below 70 mg/100 ml reduced neurobehavioral abilities, particularly visuospatial abilities and executive functions (Barth et al. 2002).
4. Both NTP and IARC found limited evidence for carcinogenicity of lead smelter and battery industries, concluding that evidence from epidemiological studies is compatible with small increases in the risk of lung or stomach cancer (NTP 2010, IARC 2006).
5. The OSHA lead standard targets a lead in blood level below 40 µg/dL, directing medical removal at a three test moving average of 50 µg/dL.
6. The NTP concludes that there is sufficient evidence for adverse health effects in adults at blood Pb levels <10 µg/dL (increased blood pressure, tremor), and <5 µg/dL (kidney effects, developmental effects) as well, (NTP 2012).

Literature Basis

- ACGIH: Documentation of the Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) - Lead and Inorganic Compounds. 2001.
- ATSDR: Toxicological Profile for Lead (PDF). August 2007.
- Barth, A. et al.: Reduced cognitive abilities in lead-exposed men. Int. Arch. Occup. Environ. Health 75(6): 394-398, 2002.
- IARC Monograph 87 Organic and Inorganic Lead Compounds, 2006 (PDF).
- NIOSH: Adult Blood Lead Epidemiology and Surveillance (ABLES).
- NIOSH: Occupational Safety and Health Guideline for Inorganic Lead. 1988.
- NIOSH/IPCS: International Chemical Safety Cards - Lead. August 10, 2002.
- NTP Monograph on Low Level Effects of Lead, 2012 (PDF)
- NTP Report on Carcinogens Lead and Lead Compounds (PDF)
- OSHA: Abrasive Blasting Hazards in Shipyard Employment. December 2006.
- OSHA: Lead in Construction (PDF*). 2004.
- OSHA: Occupational Safety and Health Standards, Substance Safety Data Sheet for

Occupational Exposure to Lead. 1910.1025 App A. May 31, 1991.
- Wu, W.T., Lin, Y.J., Liou S.H., Yang, C.Y., Cheng, K.F., Tsai, PJ, and Wu T.N.: Brain cancer associated with environmental lead exposure: evidence from implementation of a National Petrol-Lead Phase-Out Program (PLPOP) in Taiwan between 1979 and 2007**.** Environ Int. 40: 97-101, 2012.

Date Last Revised: 12/11/2012

Monitoring Methods used by OSHA

Laboratory Sampling/Analytical Method:

Sampling Media

Mixed Cellulose Ester Filter (MCEF) 0.8 microns
maximum volume: 960 Liters
minimum volume: 480 Liters
maximum flow rate: 2.0 L/min
current analytical method: Atomic Absorption Spectroscopy; AAS
method reference: OSHA Manual of Analytical Methods (OSHA ID-121)
method classification: Fully Validated

alternate analytical method: Inductively Coupled Argon Plasma; ICP-AES/MS, AAS
method reference: OSHA Manual of Analytical Methods (OSHA ID-125G, OSHA ID-206, OSHA ID-105, OSHA 1006)
method classification: Fully Validated
note: If the filter is not overloaded, samples may be collected up to an 8-hour period.

On-Site Sampling Techniques/Methods:

Device

note: On-site surface sampling test kits are commercially available. OSHA neither endorses these kits nor recommends their use. The effectiveness and applicability of these kits are the responsibility of the user.

Wipe Sampling Method:

Sampling Media

Ghostwipe - Whatman Smear Tab filter. Moistened with Distilled Water.

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Benzo(a)pyrene

General Description

Synonyms: BaP; 1,2-Benzpyrene; 3,4-BP; 3,4-Benzo(a)pyrene; 4,5-Benzpyrene; 6,7-Benzopyrene; Benzo(d,e,f)chrysene; B(a)P; BaP
OSHA IMIS Code Number: 0726 [IMIS Name History: Benzo (alpha) Pyrene prior to 3/9/2007]
Chemical Abstracts Service (CAS) Registry Number: 50-32-8
NIOSH Registry of Toxic Effects of Chemical Substances (RTECS) Identification Number: DJ3675000
International Chemical Safety Cards, Benzo(a)pyrene: Acute hazards, symptoms, physical and chemical dangers, physical properties, and more

Exposure Limits and Health Effects

Exposure Limit	Limit Values	HE Codes	Health Factors and Target Organs
OSHA Permissible Exposure Limit (PEL) - General Industry See 29 CFR 1910.1000 Table Z-1	See Coal Tar Pitch Volatiles		
OSHA PEL - Construction Industry See 29 CFR 1926.55 Appendix A	See Coal Tar Pitch Volatiles		
OSHA PEL - Shipyard Employment See 29 CFR 1915.1000 Table Z - Shipyards	See Coal Tar Pitch Volatiles		
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL)	Not established		
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) (2001)	No numerical limit. Exposure by all routes should be controlled to levels as low as possible. A2; BEI	HE2	Cancer
CAL/OSHA PEL	Not established		

National Toxicology Program (NTP) carcinogenic classification: Reasonably anticipated to be human carcinogen (PDF) (polycyclic aromatic hydrocarbons: 15 listings)
International Agency for Research on Cancer (IARC) carcinogenic classification: Group 1 (PDF) (carcinogenic to humans)
U.S. Environmental Protection Agency (EPA) carcinogenic classification: Probable human carcinogen - based on sufficient evidence of carcinogenicity in animals
EPA Inhalation Reference Concentration (RfC): Not established
Agency for Toxic Substances and Disease Registry (ATSDR) Inhalation Minimal Risk Level (MRL): Not established
NIOSH Immediately Dangerous to Life or Health (IDLH) concentration: Not listed

Notes on Other Potential Health Effects and Hazards

1. Occupational exposure to benzo(a)pyrene may increase the risk of pancreatic, stomach, and laryngeal cancer (IARC 2005; Spinelli et al. 2006; Gibbs and Sevigny 2007; Friesen et al. 2007; Li et al. 2007)
2. Occupational exposure to benzo(a)pyrene may increase the risk of ischemic heart disease (Burstyn et al. 2005)
3. Occupational exposure to benzo(a)pyrene may reduce neurobehavioral function (Niu et al. 2010).

Date Last Revised:9/6/2012

Literature Basis

- ACGIH: Documentation of the Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) - Benzo[a]pyrene. 2001.
- Burstyn I, Kromhout H, Partanen T, Svane O, Langård S, Ahrens W, Kauppinen T, Stücker I, Shaham J, Heederik D, Ferro G, Heikkilä P, Hooiveld M, Johansen C, Randem BG, Boffetta P.: Polycyclic aromatic hydrocarbons and fatal ischemic heart disease. Epidemiology 16(6):744-50, November 2005.
- IARC: Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. Some Non-heterocyclic Polycyclic Aromatic Hydrocarbons and Some Related Industrial Exposures (PDF), v 92. 2005.
- Friesen MC, Demers PA, Spinelli JJ, Lorenzi MF, Le ND: Comparison of two indices of exposure to polycyclic aromatic hydrocarbons in a retrospective aluminium smelter cohort. Occup Environ Med. 64(4):273-8, April 2007.
- Gibbs GW and Sevigny M: Mortality and cancer experience of Quebec aluminum reduction plant workers, part 4: cancer incidence. J Occup Environ Med. 49(12):1351-66, December 2007.
- Li D, Day RS, Bondy ML, Sinha R, Nguyen NT, Evans DB, Abbruzzese JL, Hassan MM: Dietary mutagen exposure and risk of pancreatic cancer. Cancer Epidemiol Biomarkers Prev. 16(4):655-61, April 2007.
- NIOSH/IPCS: International Chemical Safety Cards: Benzo(a)pyrene. October 17, 2005.
- Niu Q, Zhang H, Li X, Li M. Benzo[a]pyrene-induced neurobehavioral function and neurotransmitter alterations in coke oven workers. Occup Environ Med. 67(7):444-8, July 2010.
- Spinelli JJ, Demers PA, Le ND, Friesen MD, Lorenzi MF, Fang R, Gallagher RP. Cancer risk in aluminum reduction plant workers (Canada). Cancer Causes Control. 17(7):939-48, September 2006.

Monitoring Methods used by OSHA

Laboratory Sampling/Analytical Method:

Sampling Media

Pre-cleaned Glass Fiber Filter (37 mm)
analytical solvent: Benzene

maximum volume: 960 Liters
maximum flow rate: 2.0 L/min
current analytical method: High Performance Liquid Chromatography; HPLC/UV/FLU
method reference: OSHA Analytical Method (OSHA 58)
method classification: Fully Validated (In conjunction with Coal Tar Pitch Volatiles and Coke Oven Emissions.)
note: OSHA personnel can obtain pre-cleaned filters, vials, and Teflon-lined caps from SLTC. After sampling, filter must be transferred to a vial with a Teflon-lined cap. Sample must be protected from direct sunlight.
note: Benzo[a]pyrene is a polynuclear aromatic hydrocarbon that OSHA has identified as one of a number of typical components of the benzene-soluble fraction of coal tar pitch volatiles. Other components include anthracene, phenanthrene, acridine, and pyrene. There is no specific OSHA PEL for Benzo[a]pyrene. Benzo[a]pyrene is characteristic of cold tar pitch volatiles (PEL is 0.2 mg/m^3) and/or coke oven emissions (PEL is 0.15 mg/m^3).

Bulk Method:

Notes

Limit the amount of bulk submitted to one gram or one mL

Section Last Revised: 03/26/2012

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Benzo(b)fluoranthene

General Description

Synonyms: 3,4-Benzofluoranthene; 2,3-Benzofluoranthene; Benz[e]acephenanthrylene; B(b)F
OSHA IMIS Code Number: B200
Chemical Abstracts Service (CAS) Registry Number: 205-99-2
NIOSH Registry of Toxic Effects of Chemical Substances (RTECS) Identification Number: CU1400000
Chemical Description and Physical Properties:

- **molecular weight:** 252.32
- **melting point:** 168°C
- **molecularformula:** $C_{20}H_{12}$

Monitoring Methods used by OSHA

Primary Laboratory Sampling/Analytical Method (SLC1):

Sampling Media

Filter + Sorbent Tube (37-mm, 2-µm, PTFE + washed XAD-2, 100 mg/50 mg)
maximum volume: 1000 Liters
maximum flow rate: 2 L/min
current analytical method: High Performance Liquid Chromatography; HPLC/UV/FLU
method reference: 1 (NIOSH 5506 (PDF)), 14 (WOHL)
method classification: Not Validated

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<< Back to Chemical Sampling Information

Zinc

General Description

Synonyms: Elemental zinc, Zinc dust, Zinc powder

OSHA IMIS Code Number: Z100

Chemical Abstracts Service (CAS) Registry Number: 7440-66-6

Department of Transportation Regulation Number (49 CFR 172.101) and 2012 Emergency Response Guidebook [4 MB PDF, 392 pages]: 1436 138

NIOSH Pocket Guide to Chemical Hazards - Zinc: Acute hazards, symptoms, physical and chemical dangers, physical properties, and more

Chemical Sampling Information (CSI)

Search (use word(s)/phrase)

Go

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By Name

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By CAS Number

Quick Links

- Field Label Abbreviations & Descriptions
- OSHA Occupational Chemical Database

Exposure Limits and Health Effects

Exposure Limit	Limit Values	HE Codes	Health Factors and Target Organs
OSHA Permissible Exposure Limit (PEL) - General Industry	Not established		
National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL)	Not established		
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV)	Not established		
CAL/OSHA PEL	Not established		

National Toxicology Program (NTP) carcinogenic classification: Not listed

International Agency for Research on Cancer (IARC): Not listed

U.S. Environmental Protection Agency (EPA) carcinogenic classification: Not classifiable as to human carcinogenicity

EPA Inhalation Reference Concentration (RfC): Not established

Agency for Toxic Substances and Disease Registry (ATSDR) Inhalation Minimal Risk Level (MRL): Not established

NIOSH Immediately Dangerous to Life or Health (IDLH) concentration: Not established

Notes on Other Potential Health Effects and Hazards

1. Zinc powder is highly flammable, and many reactions may cause fire or explosion (NIOSH/IPCS 1994).
2. Metal fume fever may be the result of inhalation of zinc dust or zinc fumes (ATSDR 2005). Victims of metal fume fever may present with nausea and vomiting, chills and fever, muscular aches and pains, and weakness (Gossel and Bricker 1994).
3. High levels of zinc in the body may result in a copper deficiency (ATSDR 2005).
4. Zinc may cause dermatitis following prolonged skin exposure (NIOSH/IPCS 1994).

Date last revised: 09/06/2012

Literature Basis

- ATSDR: Toxicological Profile for Zinc [4 MB PDF, 352 pages]. 2005.
- Gossel, T.A. and J.D. Bricker: Principles of Clinical Toxicology. 3rd ed. New York, NY: Raven Press, Ltd., p. 202, 1994.
- NIOSH/IPCS: International Chemical Safety Cards - Zinc. October 1994.

Monitoring Methods used by OSHA

Laboratory Sampling/Analytical Method:

- **sampling media:** Mixed Cellulose Ester Filter (MCEF) 0.8 micron
  maximum volume: 960 Liters
  minimum volume: 480 Liters

maximum flow rate: 2.0 L/min
current analytical method: Atomic Absorption Spectroscopy; AAS
method reference: 2 (OSHA ID-121)
sampling analytical error: 0.14
method classification: Fully Validated
alternate analytical method: Inductively Coupled Argon Plasma; ICP/DCP-AES
method reference: 2 (OSHA ID-125G)
sampling analytical error: 0.12
method classification: Fully Validated

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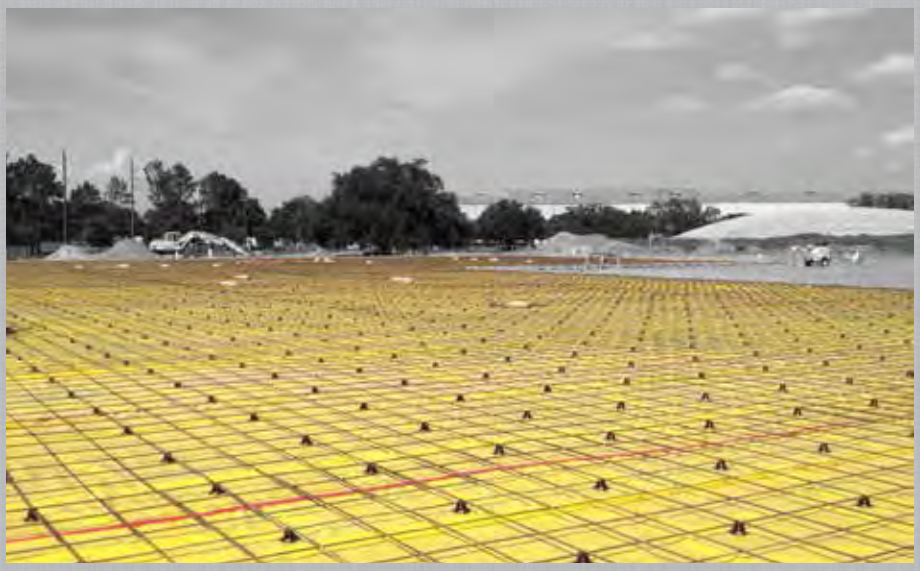
APPENDIX 6:

MANUFACTURER SPECIFICATIONS FOR WATERPROOFING/VAPOR BARRIER

Yellow Guard®

20 MIL VAPOR BARRIER

Husky® Yellow Guard® premium vapor barriers are waterproofing membranes manufactured using top-quality polyethylene (polyolefin) resins. Husky® Yellow Guard® vapor barriers are manufactured to be used in contact with soil and granular fill under concrete slabs, beams, and footings, and provide exceptionally low water vapor permeance. Husky® Yellow Guard® vapor barriers are manufactured by Poly-America, an industry leader in the manufacture of polyethylene films. Poly-America utilizes state-of-the-art processing equipment.



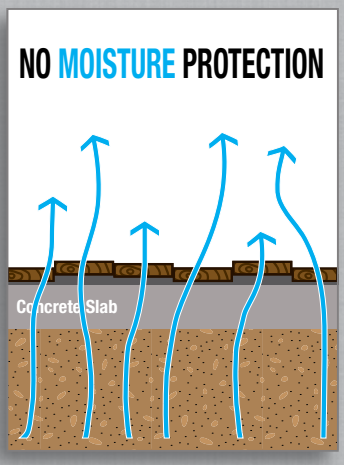
VAPOR BARRIER HIGHLIGHTS

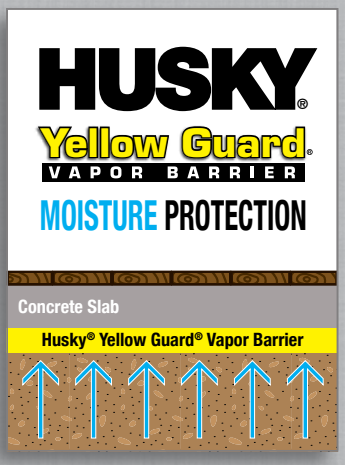
- Developed for use as a durable vapor barrier.
- Multi-layer product formulated from top-quality polyethylene (polyolefin) resins.
- Exceeds industry-standard ASTM E 1745 Class A, Class B, and Class C specifications.
- Restricts migration of soil gases such as radon and methane.
- Exceptionally low water vapor permeance, ten times lower than industry-standard ASTM E 1745 Class A requirement.
- Manufactured by Poly-America on state-of-the-art manufacturing equipment with full-time on-line quality monitoring and routine laboratory testing.
- Maintains low water vapor permeance even after exposure to severe field conditions.
- Outstanding tensile properties and puncture resistance.
- Excellent resistance to low-temperature brittleness.
- Available nationwide.

Manufacturing Quality Control & Quality Assurance

All resins, additives, and concentrates for use in Husky® Yellow Guard® vapor barrier must meet Poly-America's stringent raw material specifications. Husky® Yellow Guard® vapor barrier is manufactured with continuous process-control monitoring and is routinely tested in Poly-America's state-of-the-art laboratory during and after production.

In addition, Husky® Yellow Guard® vapor barrier has been tested by accredited, independent laboratories to ensure that it meets ASTM E 1745 Class A, Class B, and Class C specifications.





PROPERTIES OF 20 MIL HUSKY® YELLOW GUARD® VAPOR BARRIER

Properties	Test Method	ASTM E 1745 Class A Requirements	Yellow Guard® Vapor Barrier Test Result*	Measures
Permeance	ASTM F 1249	0.1 perms	0.0073 perms/**0.0033 WVTR	Resistance to water vapor
Puncture Resistance	ASTM D 1709 Method B	2200 g	3577 g	Impact energy required to cause failure
Tensile Strength	ASTM D 882	45.0 lbf/in	101.5 lbf/in	Force required to break/rupture film
Permeance After Conditioning	ASTM E 154			Resistance to water vapor after:
(ASTM F 1249)	Section 8	0.1 perms	0.0056 perms	-wetting, drying, and soaking
	Section 11	0.1 perms	0.0066 perms	-heat conditioning
	Section 12	0.1 perms	0.0068 perms	-low-temperature conditioning
	Section 13	0.1 perms	0.0073 perms	-soil organism exposure
Thickness			20 mils	
Roll Dimensions			14 ft x 105 ft	
Roll Weight			142.4 lbs	

*All values are typical values and may vary within industry tolerances.
**WVTR (Water Vapor Transmission Rate) in g/(100 in^2 • day)

Perm = grains/(ft^2 • hr • inHg)

Installation

Installation of Husky® Yellow Guard® vapor barrier, including placement, lap joints, pipe penetrations, protection, repair, and suggested field check list, shall be in accordance with ASTM E 1643 standard practice and the project plans and specifications.

Availability

Husky® Yellow Guard® 20 mil vapor barriers are available nationwide. Visit www.yellowguard.com for more information.

Limited Replacement Warranty

Poly-America provides a limited replacement warranty on Husky® Yellow Guard® vapor barrier representing that the vapor barrier is free from material defects for a period of 1 year from the date of sale. The specific details of Poly-America's limited replacement warranty are available at http://www.yellowguard.com/limitedwarranty.pdf.

Poly-America

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