

THE CROSSINGS AT SOUTHERN

925 HUNTS POINT AVENUE

(BLOCK 2735, LOT 20)

BRONX, NEW YORK

Remedial Action Work Plan

OER Project Name: The Crossings at Southern

OER Project Number: 14EH-N221X

VCP Site Number: 14CVCP189X

NYSDEC Spill Number: 02-30035

Prepared for:

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REMEDIAL ACTION WORK PLAN

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LIST OF ACRONYMS

Acronym	Definition
AST	Aboveground Storage Tank
CAMP	Community Air Monitoring Plan
C&D	Construction & Demolition
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
CO	Certificate of Occupancy
CPC	City Planning Commission
DSNY	Department of Sanitation
“E”	E-Designation
EAS	Environmental Assessment Statement
EIS	Environmental Impact Statement
ESA	Environmental Site Assessment
EC/IC	Engineering Control and Institutional Control
ELAP	Environmental Laboratory Accreditation Program
FDNY	New York City Fire Department
GPR	Ground Penetrating Radar
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations Emergency Response
IDW	Investigation Derived Waste
Notice - NNO	Notice of No Objection
Notice - NTP	Notice To Proceed
Notice - NOS	Notice Of Satisfaction
Notice - FNOS	Final Notice of Satisfaction
NYC BSA	New York City Board of Standards and Appeals
NYC DCP	New York City Department of City Planning
NYC DEP	New York City Department of Environmental Protection
NYC DOB	New York City Department of Buildings
NYC DOF	New York City Department of Finance
NYC HPD	New York City Housing Preservation and Development
NYCRR	New York Codes Rules and Regulations
NYC OER	New York City Office of Environmental Remediation
NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYS DEC PBS	New York State Department of Environmental Conservation Petroleum Bulk Storage
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
OSHA	United States Occupational Health and Safety Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PE	Professional Engineer
PID	Photo Ionization Detector
PM	Particulate Matter
QEP	Qualified Environmental Professional

Acronym	Definition
RA	Register Architect
RAP	Remedial Action Plan
RCA	Recycled Concrete Aggregate
RCR	Remedial Closure Report
RD	Restrictive Declaration
RI	Remedial Investigation
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SSDS	Sub-Slab Depressurization System
SVE	Soil Vapor Extraction
SVOCs	Semi-Volatile Organic Compounds
USCS	Unified Soil Classification System
USGS	United States Geological Survey
UST	Underground Storage Tank
TAL	Target Analyte List
TCL	Target Compound List
TCO	Temporary Certificate of Occupancy
VB	Vapor Barrier
VOCs	Volatile Organic Compounds

CERTIFICATION

I, Malcolm Barkan, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for The Crossings at Southern site.

I, Steven Muller, am a Qualified Environmental Professional as defined in §43-140. I have primary direct responsibility for implementation of the remedial action for The Crossings at Southern site.

I certify that this Remedial Action Plan (RAP) has a plan for handling, transport and disposal of soil, fill, fluids and other materials removed from the property in accordance with applicable City, State and Federal laws and regulations. Importation of all soil, fill and other material from off-Site will be in accordance with all applicable City, State and Federal laws and requirements. This RAP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

MALCOLM I. BARKAN

Name

044277

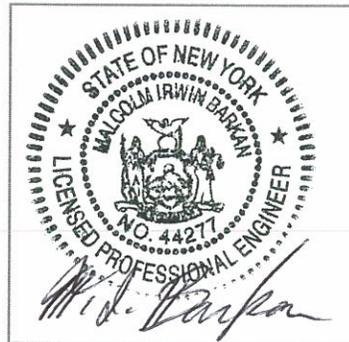
NYS PE License Number

Malcolm I. Barkan

Signature

11-12-13

Date



STEVEN MULLER

QEP Name

Steven Muller

QEP Signature

11/12/13

Date

EXECUTIVE SUMMARY

Napa Realty Corp has enrolled in the New York City Voluntary Brownfield Cleanup Program (NYC VCP) to investigate and remediate a 20,000-square foot site located at 925 Hunts Point Avenue in Bronx, 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 project site (the "Site") is located at 925 Hunts Point Avenue in the Hunts Point section of the Bronx, New York and is identified as Block 2735 and Lot 20 on the New York City Tax Map. The location of the Site is shown on the Site Location Map, Figure - 1. The Site is 18,300-square feet in size and is bounded by Hunts Point Avenue to the northeast, a Rent-A-Center retail store, Conway discount department store, and a 20,000-square feet vacant lot to the southwest, Bruckner Boulevard to the southeast, and Southern Boulevard to the northwest. Current site features are indicated on the Location of Soil Borings, and Soil Vapor Samples Map, Figure - 3. Currently, the Site is an operating BP Products North America, Inc. (BP) gasoline service station with a single story convenience store.

Summary of Proposed Redevelopment Plan

The proposed future use of the Site will consist of two levels of retail space. Layout of the site development is presented on the Proposed Redevelopment Elevation and Proposed Basement and First Floor Redevelopment Plans, Figures 2 & 3 respectively. The current zoning designation is C4-5x. The proposed use is consistent with existing zoning for the property.

The Crossings at Southern will be an approximate 40,000 gross square-feet, two-level retail development built on the existing gas station site. The property will be acquired and developed by Prusik-BDG LLC. Generally, retail spaces will be sized from 1,000 to 10,000 square feet with the larger retailers being located on the second floor. The building will be constructed using a steel frame supported by a pile-supported structural slab.

The proposed development will cover the entire footprint of the site (i.e. achieve a full build-out to the property boundaries). Grade-level open spaces and/or landscaped areas are not anticipated as part of the new development. Excavation will be needed for several elevator pits and the partial basement which will maintain the buildings systems and utilities. The size and depth of the excavation has not been finalized. It is not anticipated that excavation will intersect the groundwater table. The proposed development includes demolition of the existing structures and all site features.

Summary of the Remedy

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

The proposed remedial action will consist of:

1. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
2. Perform a Community Air Monitoring Plan (CAMP) for particulates and volatile organic compounds (VOCs) during ground intrusive construction activities.
3. Establish Soil Cleanup Objectives (SCOs) for contaminants of concern. Excavation and removal of soil/fill exceeding SCOs.
4. Removal of underground storage tanks and closure of petroleum spills in compliance with applicable local, State and Federal laws and regulations.
5. Perform a Geophysical Survey utilizing ground penetrating radar (GPR) and other similar equipment in an attempt to locate underground storage tanks (USTs) within at the Site. The structures located will be marked out with paint in accordance with the American Public Works Association (APWA) Uniform Color Code.
6. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
7. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan.
8. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media onsite.
9. Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of SCOs.
10. Installation and operation of a Soil Vapor Extraction System to remediate residual contamination on the Site.
11. Installation and operation of an active Sub-Slab Depressurization System.
12. Demarcation of residual soil/fill.

13. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
14. Installation of a vapor barrier system beneath the building slab.
15. Construction and maintenance of an engineered cover consisting of a concrete building slab approximately five (5) inches thick to prevent human exposure to residual soil/fill remaining under the Site.
16. As needed, through the use of existing wells located on the sidewalk adjacent to the subject site, provide vapor enhanced fluid recovery (VEFR) to mitigate floating product.
17. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
18. Provide regular monitoring and sampling of the remedial systems with quarterly reporting to the regulatory agencies until site closure is achieved.
19. Submission of a Remedial Closure Report (RCR) that describes the remedial activities certifies that the remedial requirements have been achieved, and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAP.

COMMUNITY PROTECTION STATEMENT

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

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

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

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

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

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

Site Safety Coordinator: This project has a designated Site safety coordinator to implement the Health and Safety Plan. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator is Steven Muller and can be reached at 631-584-5492.

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 (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 include steps to be taken if nuisances are detected. Generally, dust is managed by application of physical covers and by water sprays. Odors are controlled by limiting the area of open excavations, physical covers, spray foams and by a series of other actions (called operational measures). The project is also required to comply with NYC noise control standards. If you observe problems in these areas, please contact the onsite Project Manager Steven Muller 631-584-5492 or NYC Office of Environmental Remediation Project Manager Hannah Moore at 212-442-6372.

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 Closure Report. This report will be submitted to the NYC Office of Environmental Remediation and will be thoroughly reviewed.

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

Hours of Operation: The hours for operation of cleanup will comply with the NYC Department of Buildings construction code requirements or according to specific variances issued by that agency.

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

Complaint Management: The contractor performing this cleanup is required to address all complaints. If you have any complaints, you can call the facility Project Manager Steven Muller at 631-584-5492, the NYC Office of Environmental Remediation Project Manager Hannah Moore at 212-442-6372, or call 311 and mention the Site is in the NYC Voluntary Cleanup Program.

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

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

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

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

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

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

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

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

Truck Routing: Truck routes have been selected to: (a) limit transport through residential areas and past sensitive nearby properties; (b) maximize use of city-mapped truck routes; (c) limit total distance to major highways; (d) promote safety in entry to highways; (e) promote overall safety in trucking; and (f) minimize off-Site line-ups (queuing) of trucks entering the property. Operators of loaded trucks leaving the Site will be instructed not to stop or idle in the local neighborhood.

Final Report: The results of all cleanup work will be fully documented in a final report (called a Remedial Closure Report) that will be available for you to review in the public document repositories located at New York Public Library – Hunt’s Point Branch.

Long-Term Site Management: To provide long-term protection after the cleanup is complete, the property owner may 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 in the property's deed or established through a city environmental designation. A certification of continued protectiveness of the cleanup will be required from time to time to show that the approved cleanup is still effective.

REMEDIAL ACTION WORK PLAN

1.0 SITE BACKGROUND

This Remedial Action Plan (RAP) and site-specific Construction Health and Safety Plan (CHASP) have been developed for The Crossings at Southern located at 925 Hunts Point Avenue in the Hunts Point section of The Bronx, New York (the "Site"). This RAP describes the remediation and/or mitigation activities to be implemented at the Site in coordination with the New York City Office of Environmental Remediation (OER) and the New York State Department of Environmental Conservation (NYSDEC) for the purposes of satisfying the requirements of the Hazardous Materials E-Designation Program and obtaining a Notice To Proceed. An E-Designation for Hazardous Materials (E-258) was placed on the Site by the New York City Department of City Planning (DCP) as part of the 06/04/2010 rezoning action (CEQR number 09DCP070X). The site-specific CHASP (Appendix 4) addresses site-specific hazards, identified contaminants of concern and safety requirements associated with remediation and mitigation activities in accordance with ASTM and OSHA guidelines.

1.1 Site Location and Current Usage

The Site is located at 925 Hunts Point Avenue in the Hunts Point section of the Bronx, New York and is identified as Block 2735 and Lot 20 on the New York City Tax Map. The location of the Site is shown on the Site Location Map, Figure - 1. The Site is 18,300-square feet in size and is bounded by Hunts Point Avenue to the northeast, a Rent-A-Center retail store, Conway discount department store, and a 20,000-square feet vacant lot to the southwest, Bruckner Boulevard to the southeast, and Southern Boulevard to the northwest. Current site features are indicated on the Location of Soil Borings, and Soil Vapor Samples Map, Figure - 4. Currently, the Site is an operating BP Products North America, Inc. (BP) gasoline service station with a single story convenience store.

1.2 Proposed Redevelopment Plan

The proposed future use of the Site will consist of two levels of retail space. Layout of the site development is presented on the Proposed Redevelopment Elevation and Proposed Basement and First Floor Redevelopment Plans, Figures 4 & 5 respectively. The current zoning designation is C4-5x. The proposed use is consistent with existing zoning for the property.

The Crossings at Southern will be an approximate 40,000 gross square-foot, two-level retail development built on the existing gas station site. The property will be acquired and developed by Prusik-BDG LLC. Generally, retail spaces will be sized from 1,000 to 10,000 square feet with the larger retailers being located on the second floor. The building will be constructed using a steel frame supported by a pile-supported structural slab.

The proposed development will cover the entire footprint of the site (i.e. achieve a full build-out to the property boundaries). Grade-level open spaces and/or landscaped areas are not anticipated as part of the new development. Excavation will be needed for several elevator pits and the partial basement which will maintain the buildings systems and utilities. The size and

depth of the excavation has not been finalized. It is not anticipated that excavation will intersect the groundwater table. The proposed development includes demolition of the existing structures and all site features.

1.3 Description of Surrounding Property

Land use in the vicinity of the Site is generally commercial with some up gradient mixed use components. Across Hunts Point Avenue, towards the northeast, are a series of single-story retail stores. Across Southern Boulevard to the northwest is a five-story mixed use building with commercial on the first floor and apartments above which is up gradient of the Site. Adjacent to the Site to the southwest is a Rent-A-Center retail store and a discount Conway department store in addition to an estimated 20,000 square foot vacant lot. Adjacent to the Site to the southeast is Bruckner Boulevard, above which is the elevated section of the Bruckner Expressway, beyond which is a railroad right of way.

A review of OER's *SPEED* application did not identify any sensitive receptors such as schools, hospitals, and day care facilities within a 500-foot radius of the Site.

Figure 2 shows the surrounding land usage.

1.4 Environmental Investigation Reports

The following environmental work plans and reports were developed for the Site:

Investigation Work Plan, November 2011, prepared by J.C. Broderick and Associates;
Remedial Investigation Report, August 2013, prepared by J.C. Broderick and Associates;
Phase II Work Plan, September 2013, prepared by J.C. Broderick and Associates;
Remedial Investigation Report, October 2013, prepared by J.C. Broderick and Associates;

A schedule of additional environmental documents is included in Appendix 6. Documents are available upon request.

The following work has been performed at the site:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed seven (7) soil borings on the project Site, and collected twelve (14) soil samples and one (1) duplicate sample for chemical analysis from the soil borings to evaluate soil quality; In addition, as part of previous investigations including 5 reports, a minimum of 17 soil borings have been installed on the Site, and 25 soil samples (primarily for VOCs and SVOCs) have been collected;
3. Collected three (3) groundwater samples and one (1) duplicate sample from existing groundwater monitoring wells (ASR-1, MW-11 and MW-12); There are a total of 16 groundwater monitoring wells on-Site which were installed during previous investigations. These wells have been sampled monthly since January 2006.

Groundwater sampling in previous investigations has been primarily limited to VOC and SVOC analysis, and;

4. Installed five (5) soil vapor probes and collected five (5) soil vapor and two (2) ambient air samples for chemical analysis.

Digital (PDF) copies of the above referenced environmental work plans and reports are available upon request.

1.5 Summary of Regulatory Correspondence

A schedule of regulatory correspondence documents is included in Appendix 6. Documents are available upon request.

1.6 Findings of Environmental Investigation

1. Elevation of the property is approximately 50 feet above mean sea level.
2. Depth to groundwater ranges from 12 to 25 feet at the Site.
3. Groundwater flow is generally from northwest to southeast beneath the Site.
4. Depth to bedrock ranges from approximately 15 to 22 feet at the Site.
5. The stratigraphy of the site, from the surface down, was gathered during soil boring advancement activities. Based on soil collected during sampling activities, the subject site is underlain by fill material consisting of brown sandy silt to a depth of approximately 12 ft below surface grade (bsg); olive-gray silty sand extending to at least 22 ft bsg; and weathered rock and bedrock extending to at least 35 ft bsg, the depth of deepest boring termination. There are no predominant geological surface features such as rock outcroppings on the subject site.
6. No Pesticides or PCBs were detected exceeding method detection limits. Several petroleum-related VOCs, including ethylbenzene (max 0.030 ppm), MTBE (0.014 ppm), toluene (max 0.056 ppm), and xylenes (0.220 ppm), were detected at trace to low levels, all below Track 1 Unrestricted Use SCOs. Seven (7) SVOCs were detected above Track 1 Unrestricted Use SCOs, and of these SVOCs, benzo(a)pyrene (max 2.44 ppm) and dibeno(a,h)anthracene (max 0.68 ppm) were also detected above their Track 2 Commercial Use SCOs. The metals barium, chromium, copper, lead, mercury, nickel, and zinc were detected above Track 1 Unrestricted Use SCOs, but none of these metals exceeded their Track 2 Commercial Use SCOs. Overall, the SVOC and metals results are indicative of historic fill material.
7. Historically at the site, in October 2002, Delta Environmental Consultants, Inc. performed an investigation at which time volatile organic compounds (VOCs) which were found in the soil above the NYSDEC Technical and Administrative Guidance

Memorandum (TAGM) 4046 dated January 24, 1994 (Total BTEX ranged from Not Detected to 153,960ppb). In addition, VOCs including Methyl tert-Butyl Ether (MtBE), and semi-volatile organic compounds (SVOCs) were detected in the groundwater in excess of the NYSDEC Technical Operational Guidance Series (TOGS) 1.1.1 dated October 22, 1993, reissued June 1998 (Total BTEX ranged from 123ppb to 251,000ppb and MtBE ranged from <10 ppb to 126,000 ppb). Subsequently, in August 2004 all underground storage tanks (USTs) were excavated and replaced with new USTs. The UST removal was documented by Applied GeoSolutions, Inc. in a UST Closure Report dated November 2004. During the Site upgrade, approximately 3,500 tons of petroleum contaminated soil was excavated and disposed of. Additional subsurface investigations to delineate the soil and groundwater contamination were performed by Advanced Site Restoration, LLC (ASR) in 2006 (MW-1 - MW-4) (Soil Results for Total BTEX ranged from Not Detected to 2560ppb and MtBE was Not Detected and Groundwater Results for Total BTEX ranged from Not Detected to 5,100ppb and MtBE ranged from 200ppb to 250,000ppb). In March 2007, ASR installed three (3) additional monitoring wells (MW-5 - MW-8) (Soil Results for Total BTEX and MtBE were Not Detected and Groundwater Results for Total BTEX ranged from Not Detected to 13900ppb and MtBE ranged from 270ppb to 18,000ppb). In December 2008, ASR installed three (3) additional monitoring wells (MW-8 - MW-10) (Soil Results for Total BTEX and MtBE were Not Detected and Groundwater Results for Total BTEX were Not Detected and MtBE ranged from Not Detected to 18,000ppb). In May 2009, ASR installed four (4) additional monitoring wells in the vicinity of MW-4 (ASR-1 - ASR-4) (Soil Results for Total BTEX ranged from Not Detected to 1,570ppb and MtBE ranged from Not Detected to 630ppb and Groundwater Results for Total BTEX ranged from 9,200ppb to 16,800ppb and MtBE ranged from 4,800ppb to 25,000ppb). In October 2010, JCB installed three (3) soil borings and two (2) additional groundwater monitoring wells (MW-11 and MW-12) (Soil Results for Total BTEX and MtBE were Not Detected and Groundwater Results for Total BTEX ranged from 2,606ppb to 9,164ppb and MtBE ranged from Not Detected to 220ppb).

8. No PCBs or pesticides were detected exceeding method detection limits, and no dissolved metals were detected above Groundwater Quality Standards (GQSs). The only SVOC detected in groundwater was naphthalene at 187 to 291 ppb which is above its GQS. Several volatile organic compounds typically associated with gasoline were detected in the groundwater samples collected at the Site at levels exceeding their GQSs. Concentrations of BTEX ranged from 1771 ppb to 3210 ppb in the three (3) wells sampled as part of the remedial investigation.
9. Groundwater monitoring wells MW-2, MW-4, MW-6, ASR-2 and ASR-4 have historically indicated the presence of LNAPL. As of October 2013, due to remediation efforts, only MW-2 and ASR-2 currently contain reportable levels of LNAPL. Vapor Enhanced Fluid Recovery (VEFR) reduced the level of LNAPL in MW-2 from 0.07 feet to 0.02 feet and in ASR-2 from 0.02 feet to 0.01 feet during a three (3) month period. Off-Site groundwater monitoring wells MW-8, MW-9 and MW-10 indicate no significant impacts of total BTEX or MtBE throughout the Site history.

10. Soil vapor samples collected during the RI identified chlorinated VOCs at low-to-moderate concentrations. The chlorinated VOC Tetrachloroethene (PCE) was identified in three (3) of five (5) soil vapor samples at concentrations ranging from $6.1 \mu\text{g}/\text{m}^3$ to $1600 \mu\text{g}/\text{m}^3$ which falls within the mitigate range established by NYSDOH Vapor Intrusion Matrices. The chlorinated VOCs Trichloroethene, carbon tetrachloride, and 1,1,1-trichloroethane were not detected in any soil vapor sample. Petroleum-related VOCs were detected at generally high concentrations and included toluene (max $20,000 \mu\text{g}/\text{m}^3$), xylenes (max $26,500 \mu\text{g}/\text{m}^3$), n-hexane (max $120,000 \mu\text{g}/\text{m}^3$), n-heptane (max $40,000 \mu\text{g}/\text{m}^3$), and cyclohexane (max $39,000 \mu\text{g}/\text{m}^3$). Contaminant concentrations in soil vapor may be attributed to the auto-related uses at the Site and/or to the historic uses of surrounding properties.

For environmental investigation data, consult reports listed in Section 1.4. Based on an evaluation of the environmental data and information, disposal of significant amounts of hazardous waste is not suspected at this site.

2.0 DESCRIPTION OF REMEDIATION

2.1 Objectives

The Site remediation and mitigation objectives are:

Soil

- Prevent direct contact with contaminated soil.
- Prevent exposure to contaminants volatilizing from contaminated soil.
- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Groundwater

- Remove contaminant sources causing impact to groundwater.
- Monitor groundwater improvement in response to contaminant source removal and/or treatment.
- Prevent direct exposure to contaminated groundwater.
- Prevent exposure to contaminants volatilizing from contaminated groundwater.
- Prevent off-Site migration of contaminated groundwater above applicable groundwater standards.

Soil Vapor

- Prevent exposure to contaminants in soil vapor.
- Prevent migration of soil vapor into dwelling and other occupied structures.
- Remedial and mitigation measures described herein will be performed in accordance with applicable laws and regulations and the site-specific CHASP. This remedy is protective of public health and/or the environment for the intended use.

2.2 Summary of Remedial Action

The proposed plan achieves all of the remedial action goals established for the project. The proposed remedial action is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants and uses standard methods that are well established in the industry.

The proposed remedial action will consist of:

1. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
2. Perform a Community Air Monitoring Plan (CAMP) for particulates and volatile organic compounds (VOCs) during ground intrusive construction activities.
3. Establish Soil Cleanup Objectives (SCOs) for contaminants of concern. Excavation and removal of soil/fill exceeding SCOs.
4. Removal of underground storage tanks and closure of petroleum spills in compliance with applicable local, State and Federal laws and regulations.
5. Perform a Geophysical Survey utilizing ground penetrating radar (GPR) and other similar equipment in an attempt to locate underground storage tanks (USTs) within at the Site. The structures located will be marked out with paint in accordance with the American Public Works Association (APWA) Uniform Color Code.
6. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
7. Transportation and off-Site disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan.
8. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media onsite.
9. Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of SCOs.
10. Installation and operation of a Soil Vapor Extraction System to remediate residual contamination on the Site.
11. Installation and operation of an active Sub-Slab Depressurization System.
12. Demarcation of residual soil/fill.
13. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations.
14. Installation of a vapor barrier system beneath the building slab.
15. Construction and maintenance of an engineered cover consisting of a concrete building slab approximately five (5) inches thick to prevent human exposure to residual soil/fill remaining under the Site.

16. As needed, through the use of existing wells located on the sidewalk adjacent to the subject site, provide vapor enhanced fluid recovery (VEFR) to mitigate floating product.
17. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
18. Provide regular monitoring and sampling of the remedial systems with quarterly reporting to the regulatory agencies until site closure is achieved.
19. Submission of a Remedial Closure Report (RCR) that describes the remedial activities certifies that the remedial requirements have been achieved, and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAP.

2.3 Soil Cleanup Objectives and Soil/Fill Management

The Soil Cleanup Objective (SCO) proposed for this project is Track 2 utilizing the generic SCOs as referenced in Table 375-6.8(b) : Restricted Use Soil Cleanup Objectivities, Protection of Public Health-Commercial of 6NYCRR Part 375. Soil and materials management on-Site and off-Site, including excavation, handling and disposal, will be conducted in accordance with the Soil/Materials Management Plan (Appendix 3). The location of planned excavations is shown in Figure 6.

Discrete contaminant sources (such as hotspots) identified during the remedial action will be horizontally and vertically identified by GPS or surveyed. This information will be provided in the RCR.

Estimated Soil/Fill Removal Quantities

The quantity of soil/fill expected to be excavated and disposed off-Site is approximately 2,775 tons, of which approximately 800 tons is expected to be contaminated with petroleum hydrocarbons. Disposal facilities will be identified at a later date and will be reported promptly to the OER Project Manager.

End-Point Sampling

Removal actions under this plan will be performed in conjunction with remedial end-point sampling. End-point sampling frequency will consist of the following:

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:

- a. 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.
 - b. 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 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. The proposed end-point sample locations are indicated in the Site Excavation and End-Point Sample Location Plan, Figure – 6.

New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP) certified labs will be used for all end-point sample analyses. Labs for end-point sample analyses will be reported in the RCR. The RCR will provide a tabular and map summary of all end-point sample results. End-point samples will be analyzed for trigger analytes (those for which SCO exceedance is identified) utilizing the following methodology:

Soil analytical methods for will include:

- Volatile organic compounds by EPA Method 8260;
- Semi-volatile organic compounds by EPA Method 8270; and
- Target Analyte List metals

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 Procedures

QA/QC procedures will be used to provide performance information with regard to accuracy, precision, sensitivity, representation, completeness, and comparability associated with the sampling and analysis for this investigation. Field QA/QC procedures will be used (1) to document that samples are representative of actual conditions at the Site and (2) identify possible cross-contamination from field activities or sample transit. Laboratory QA/QC procedures and

analyses will be used to demonstrate whether analytical results have been biased either by interfering compounds in the sample matrix, or by laboratory techniques that may have introduced systematic or random errors to the analytical process. A summary of the field and laboratory QA/QC procedures is provided below.

Field QA/QC

Field QA/QC will include the following procedures:

- Calibration of field equipment, including PID, on a daily basis;
- Use of dedicated and/or disposable field sampling equipment;
- Proper sample handling and preservation;
- Proper sample chain of custody documentation; and
- Completion of report logs.

The above procedures will be executed as follows:

- Three (3) duplicate soil samples will be collected to evaluate field sampling precision or reproducibility of measurements of the same parameter under the given set of conditions;
- Disposable sampling equipment, including acetate sleeves and latex gloves will be used to minimize cross-contamination between samples;
- For each of the parameters analyzed, a sufficient sample volume will be collected to adhere to the specific analytical protocol, and provide sufficient sample for reanalysis if necessary;
- Because plasticizers and other organic compounds inherent in plastic containers may contaminate samples requiring organic analysis, samples will be collected in glass containers;
- Appropriate sample preservation techniques, including cold temperature storage at 4° C, will be utilized to ensure that the analytical parameters concentrations do not change between the time of sample collection and analysis; and
- Samples will be analyzed prior to the expiration of the respective holding time for each analytical parameter to ensure the integrity of the analytical results.

Sample Custody

Sample handling in the field will conform to appropriate sample custody procedures. Field custody procedures include proper sample identification, chain-of-custody forms, and packaging and shipping procedures. Sample labels will be attached to all sampling bottles before field activities begin to ensure proper sample identification. Each label will identify the site and sample location. Styrofoam or bubble wrap will be used to absorb shock and prevent breakage of sample containers. Ice or ice packs will be placed in between the plastic bags for sample preservation purposes.

After each sample is collected and appropriately identified, the following information will be entered into the chain-of-custody form:

- Site name and address;
- Sampler(s)' name(s) and signature(s);
- Names and signatures of persons involved in the chain of possession of samples;
- Sample number;
- Number of containers;
- Sample location;
- Date and time of collection;
- Type of sample, sample matrix and analyses requested;
- Preservation used (if any); and
- Any pertinent field data collected.

The sampler will sign and date the "Relinquished" blank space prior to removing one copy of the custody form and sealing the remaining copies of the form in a Ziploc plastic bag taped to the underside of the sample cooler lid. The sample cooler will be sealed with tape prior to delivery or shipment to the laboratory.

Report Logs

Field logs and borings logs will be completed during the course of this investigation. A field log will be completed on a daily basis which will describe all field activities including:

- Project number, name, manager, and address;
- The date and time;
- The weather conditions;
- On-site personnel and associated affiliations;
- Description of field activities; and
- Pertinent sample collection information including sample identification numbers, description of samples, location of sampling points, number of samples taken, method of sample collection and any factors that may affect its quality, time of sample collection, name of collector, and field screening results.

Laboratory QA/QC

An ELAP-certified laboratory will be used for all sample analyses. The laboratory will follow the following QA/QC protocols. All samples will be delivered to the laboratory within 24 hours of sample collection. Samples will be received by laboratory personnel, who will inspect the sample cooler(s) to check the integrity of the custody seals. The cooler(s) will then be opened, the samples unpackaged, and the information on the chain-of-custody form examined. If the shipped samples match those described on the chain-of-custody form, the laboratory sample custodian will sign and date the form on the next "Received" blank and assume responsibility for the samples. If problems are noted with the sample shipment, the laboratory custodian will sign the form and record problems in the "Remarks" box. The custodian will then immediately notify the Project Manager so appropriate follow-up steps can be implemented on a timely basis.

A record of the information detailing the handling of a particular sample through each stage of analysis will be maintained by the laboratory. The record will include:

- Job reference, sample matrix, sample number, and date sampled;
- Date and time received by laboratory, holding conditions, and analytical parameters;
- Extraction date, time and extractor's initials (if applicable), analysis date, time, and analyst's initials; and
- QA batch number, date reviewed, and reviewer's initials.

Import and Reuse of Soils

Import of soils onto the property and reuse of soils already onsite will be performed in conformance with the Soil/Materials Management Plan in Appendix 3. The estimated quantity of soil to be imported into the Site for backfill is 675 tons consisting of RCA. The estimated quantity of onsite soil/fill expected to be reused/relocated on Site is 1,400 tons.

2.4 Engineering Controls

Engineering Controls were employed in the remedial action to address residual contamination remaining at the site. The Site has four (4) primary Engineering Control (EC) Systems. These are:

1. Composite cover system consisting of a concrete building slab;
2. Vapor barrier system;
3. Sub-slab depressurization system;
4. Soil Vapor Extraction System; and,

Composite Cover System

Exposure to residual soil/fill will be prevented by an engineered, composite cover system to be constructed of building structure and surrounding pavement. Site cover will be maintained to allow for use of the Site. Any site redevelopment will maintain a site cover, which may consist of structures, pavement, and sidewalks. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

Figure 9 indicates the typical design of the remedial cover type used on this Site. The composite cover system is a permanent engineering control for the Site.

Vapor Barrier

Building protection from soil vapor will be mitigated with a vapor barrier. A vapor barrier resistant to hydrocarbons will be installed under the basement and building slab. The vapor barrier system will meet or exceed ASTM E-1745-11 Class A standards. The vapor barrier specifications are provided in Appendix 8.

Sub-Slab Depressurization

Soil vapor will be mitigated with the construction of an active sub-slab depressurization system (SSDS). An SSDS will be installed beneath the concrete slab of the entire building. The SSDS beneath the combined building slab area (18,300 sf) will consist of six (6) venting zones in accordance with USEPA SSDS design specifications which recommend a separate zone for every 4,000 sf of slab area. A layout of the SSDS system is provided as Figure 8. The horizontal vent lines are constructed of four (4) inch diameter PVC pipe. Backfill material around the horizontal vent piping will consist of RCA base material for the concrete slab. The horizontal piping will extend into an equipment room located within the basement. The individual zone pipes will be manifold to a six (6) inch diameter vent pipe to the roof. Discharge treatment if necessary will be provided by a GAC filter. An in-line vacuum blower will be mounted on the roof. The exhaust stack from the blower will be located a minimum of ten (10) feet from windows and ventilation inlets. The SSDS installation diagram is shown on Figure 8 and specifications are provided in Appendix 8.

Soil Vapor Extraction System

A soil vapor extraction (SVE) system will be implemented to remove volatile organic compounds (VOCs) from the subsurface beneath the structure. SVE systems remove VOCs from soil by introducing a vacuum in the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries with it the VOCs from the soil, and those emanating from groundwater, to the SVE extraction point. The operation of the SVE system will provide soil vapor intrusion mitigation for the personnel working in the structure. The air extracted from the SVE extraction points is then treated, if warranted, prior to atmospheric discharging. The SVE system shall continue to operate until diminishing returns have been observed by laboratory analysis. Based on the radius of influence observed during pilot-scale tests, the final design of the SVE system will be determined. SVE extraction points will be installed in the vadose zone utilizing a five (5) ft section of slotted screen to approximately one (1) foot above the groundwater table. It is anticipated, based on soil borings advanced during the Remedial Investigation, up to eight (8) SVE extraction points will be necessary to remediate the remaining contaminated soil and groundwater subsequent to the exaction. The air containing VOCs extracted from the SVE extraction points will be treated with granular activated carbon (GAC) to attain NYSDEC Division of Air emission contaminant guidelines prior to it being discharged to the atmosphere. The SVE system installation diagram is shown on Figure 7 and specifications are provided in Appendix 8.

3.0 REMEDIAL ACTION MANAGEMENT

3.1 Project Organization and Oversight

Principal personnel who will participate in the remedial action include Malcolm Barkan, PE, Steven Muller, CEC and Jeffrey Nannini. The Professional Engineer (PE) and Qualified Environmental Professionals (QEP) for this project are Malcolm Barkan, PE and Steven Muller, CEC.

3.2 Site Security

Site access will be controlled by a permitted construction fence with a gated entrance located along Bruckner Boulevard. The gate will be locked at all times.

3.3 Work Hours

The hours for operation of remedial construction will conform to the New York City Department of Buildings construction code requirements.

3.4 Construction Health and Safety Plan

The site-specific Construction Health and Safety Plan (CHASP) is included in Appendix B. The Site Safety Coordinator will be Steven Muller. Remedial work performed under this RAP 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 CHASP and applicable laws and regulations. The CHASP pertains to remedial and invasive work performed at the Site until the issuance of the Notice Of Satisfaction.

All field personnel involved in remedial activities will participate in training required under 29 CFR 1910.120, including 40-hour hazardous waste operator training and annual 8-hour refresher training. Site Safety Officer will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the CHASP and be required to sign a CHASP acknowledgment. Site-specific training will be provided to field personnel. Additional safety training may be added depending on the tasks performed. Emergency telephone numbers will be posted at the site location before any remedial work begins. A safety meeting will be conducted before each shift begins. Topics to be discussed include task hazards and protective measures (physical, chemical, environmental); emergency procedures; PPE levels and other relevant safety topics. Meetings will be documented in a log book or specific form. An emergency contact sheet with names and phone numbers is included in the CHASP. That document will define the specific project contacts for use in case of emergency.

3.5 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, monitoring wells or soil vapor extraction wells.

Exceedances 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 five (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 five (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 five (5) ppm over background but less than twenty-five (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 five (5) ppm over background for the 15-minute average.
- If the organic vapor level is above twenty-five (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/m^3) 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 $150 \text{ mcg}/\text{m}^3$ 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 $150 \text{ mcg}/\text{m}^3$ 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 $150 \text{ mcg}/\text{m}^3$ of the upwind level and in preventing visible dust migration.

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

3.6 Agency Approvals

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

3.7 Site Preparation

Pre-Construction Meeting

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

Mobilization

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

Utility Marker Layouts, Easement Layouts

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

Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations will be employed during invasive and other work contemplated under this RAP. 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 RAP.

Geophysical Survey

A Geophysical Survey utilizing ground penetrating radar (GPR) and other similar equipment will be performed during Site demolition activities in an attempt to locate any unknown underground storage tanks (USTs) within at the Site. Any structures located will be marked out with paint in accordance with the American Public Works Association (APWA) Uniform Color Code and removed with the existing USTs.

Equipment and Material Staging

Equipment and materials will be stored and staged in a manner that complies with applicable laws and regulations. The location of proposed equipment and material staging areas, truck inspection station, stockpile areas, and other pertinent remedial management features is shown in Figure 6.

Stabilized Construction Entrance

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

Truck Inspection Station

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

3.8 Traffic Control

Drivers of trucks leaving the Site with soil 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 in Figure 10.

3.9 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.

3.10 Reporting and Record Keeping

Daily Reports

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

- Project number and statement of the activities and an update of progress made and locations of work performed;
- Quantities of material imported and exported from the Site;
- Status of on-Site soil/fill stockpiles;

- A summary of all citizen complaints, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP excursions, if any;
- Photographs 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 RAP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAP will be communicated directly to the OER project manager by personal communication. Daily reports will be included as an Appendix in the RCR.

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 RCR in digital format (i.e. jpeg files).

3.11 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.

3.12 Deviations from the Remedial Action Plan

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

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

3.13 Data Usability Summary Report

The primary objective of a Data Usability Summary Report (DUSR) is to determine whether or not data meets the site specific criteria for data quality and data use. The DUSR provides an evaluation of analytical data without third party data validation. The DUSR for post-remedial samples collected during implementation of this RAWP will be included in the Remedial Action Report (RAR).

4.0 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 RAP;
- As-built drawings for all constructed remedial elements, required certifications, manifests and other written and photographic documentation of remedial work performed under this remedy;
- Site Management Plan;
- Description of any changes in the remedial action from the elements provided in this RAP and associated design documents;
- Tabulated summary of all end point sampling results and all material characterization results, QA/QC results for end-point sampling, and other sampling and chemical analysis performed as part of the remedial action;
- Test results or other evidence demonstrating that remedial systems are functioning properly;
- Account of the source area locations and characteristics of all contaminated material removed from the Site including a map showing source areas;
- Account of the disposal destination of all contaminated material removed from the Site. Documentation associated with disposal of all material will include transportation and disposal records, and letters approving receipt of the material.
- Continue registration of the property with an E-Designation by the NYC Department of Buildings.
- Reports and supporting material will be submitted in digital form.

Remedial Closure Report Certification

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

I, Malcolm Barkan, PE, am currently a professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for The Crossings at Southern site.

I, Steven Muller, am a qualified Environmental Professional. I had primary direct responsibility for implementation remedial program for The Crossings at Southern site.

I certify that the OER-approved Remedial Action Plan dated November, 2013 was implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

5.0 SCHEDULE

The table below presents a schedule for the proposed remedial action and reporting. If the schedule for remediation and development activities changes, it will be updated and submitted to OER. Currently, a 24 month remediation period is anticipated.

Schedule Milestone	Weeks from RAP Approval	Duration (weeks)
OER Approval of RAP	0	-
Mobilization	8	2
Site Demolition	10	6
Remedial Construction *	10	60
General Site Construction	16	60
Demobilization	60	1
Submit Remedial Closure Report	61	4

*- Several remedial components require the completion of various phases of building construction, as a result the remedial construction time coincides with general construction activities.

Tables

Table 1: Summary of Soil Samples Analysis Results

Compound	Track 1 SCOs	Track 2 SCOs	Sample ID#					
			S-9: 0' - 2.5'	S-9: 11' - 13'	S-10: 0'-2'	S-10: 8'-10'	S-11: 0'-2'	S-11: 8'-10'
Date Sampled	----	----	07-15-13	07-15-13	10-02-13	10-02-13	10-03-13	10-03-13
Volatiles - EPA 8260	µg/kg	µg/kg	----	----	----	----	----	----
1,1,1,2-Tetrachloroethane	N/A	N/A	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	680	100,000	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	N/A	35,000	ND	ND	ND	ND	ND	ND
1,1,2-Trichloro-trifluoroethane	N/A	100,000	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	N/A	N/A	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	270	19,000	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	330	100,000	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	N/A	N/A	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	N/A	N/A	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	N/A	80,000	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	N/A	47,000	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	3,600	N/A	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	N/A	N/A	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	N/A	N/A	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1,100	100,000	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	20	2,300	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	N/A	N/A	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	8,400	47,000	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	2,400	17,000	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	N/A	N/A	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	1,800	9,800	ND	ND	ND	ND	ND	ND
1,4-Dioxane	100	9,800	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	N/A	N/A	ND	ND	ND	ND	ND	ND
2-Butanone	N/A	100,000	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	N/A	N/A	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	N/A	N/A	ND	ND	ND	ND	ND	ND
Acetone	50	100,000	23	31	ND	ND	8.8	ND
Benzene	60	2,900	ND	ND	ND	ND	ND	ND
Bromobenzene	N/A	N/A	ND	ND	ND	ND	ND	ND
Bromochloromethane	N/A	N/A	ND	ND	ND	ND	ND	ND
Bromodichloromethane	N/A	N/A	ND	ND	ND	ND	ND	ND
Bromoform	N/A	N/A	ND	ND	ND	ND	ND	ND
Bromomethane	N/A	N/A	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	760	1,400	ND	ND	ND	ND	ND	ND
Chlorobenzene	1,100	100,000	ND	ND	ND	ND	ND	ND
Chloroethane	N/A	N/A	ND	ND	ND	ND	ND	ND
Chloroform	370	10,000	ND	ND	ND	ND	ND	ND
Chloromethane	N/A	N/A	ND	ND	ND	ND	ND	ND
Cis-1,2-Dichloroethene	250	59,000	ND	ND	ND	ND	ND	ND
Cis-1,3-Dichloropropene	N/A	N/A	ND	ND	ND	ND	ND	ND
Dibromochloromethane	N/A	N/A	ND	ND	ND	ND	ND	ND
Dibromomethane	N/A	N/A	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	N/A	N/A	ND	ND	ND	ND	ND	ND
Ethyl benzene	1,000	30,000	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	N/A	N/A	ND	ND	ND	ND	ND	ND
Isopropylbenzene	N/A	100,000	ND	ND	ND	ND	ND	ND
Methyl-tert-Butyl-Ether (MtBE)	930	62,000	ND	ND	ND	ND	ND	ND
Methylene Chloride	50	51,000	7.2	ND	ND	ND	ND	ND

Table 1: Summary of Soil Samples Analysis Results

Compound	Track 1 SCOs	Track 2 SCOs	Sample ID#					
			S-9: 0' - 2.5'	S-9: 11' - 13'	S-10: 0'-2'	S-10: 8'-10'	S-11: 0'-2'	S-11: 8'-10'
Date Sampled	----	----	07-15-13	07-15-13	10-02-13	10-02-13	10-03-13	10-03-13
Naphthalene	12,000	100,000	6.6	ND	ND	ND	ND	ND
n-Butylbenzene	12,000	100,000	ND	ND	ND	ND	ND	ND
n-Propylbenzene	3,900	100,000	ND	ND	ND	ND	ND	ND
o-Xylene	260	N/A	ND	ND	ND	ND	ND	ND
p- & m- Xylenes	260	N/A	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	N/A	N/A	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	11,000	100,000	ND	ND	ND	ND	ND	ND
Styrene	N/A	N/A	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	5,900	100,000	ND	ND	ND	ND	ND	ND
Tetrachloroethene	1,300	5,500	ND	ND	ND	ND	ND	ND
Toluene	700	100,000	ND	ND	ND	ND	ND	ND
Trans-1,2-Dichloroethene	190	100,000	ND	ND	ND	ND	ND	ND
Trans-1,3-Dichloropropene	N/A	N/A	ND	ND	ND	ND	ND	ND
Trichloroethene	470	10,000	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	N/A	N/A	ND	ND	ND	ND	ND	ND
Vinyl Chloride	20	210	ND	ND	ND	ND	ND	ND
Xylenes (Total)	260	100,000	ND	ND	ND	ND	ND	ND
Semi-Volatiles - EPA 8270	µg/kg	µg/kg	----	----	----	----	----	----
1,2,4-Trichlorobenzene	N/A	N/A	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	N/A	N/A	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	N/A	N/A	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	N/A	N/A	ND	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	N/A	100,000	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	N/A	N/A	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	N/A	100,000	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	N/A	N/A	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	N/A	100,000	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	N/A	N/A	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	N/A	1,030	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	N/A	N/A	ND	ND	ND	ND	ND	ND
2-Chlorophenol	N/A	100,000	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	N/A	410	ND	ND	ND	ND	ND	ND
2-Methylphenol	N/A	N/A	ND	ND	ND	ND	ND	ND
2-Nitroaniline	N/A	N/A	ND	ND	ND	ND	ND	ND
2-Nitrophenol	N/A	N/A	ND	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	N/A	N/A	ND	ND	ND	ND	ND	ND
3-Nitroaniline	N/A	N/A	ND	ND	ND	ND	ND	ND
4,6-Dinitro-2-methylphenol	N/A	N/A	ND	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	N/A	N/A	ND	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	N/A	N/A	ND	ND	ND	ND	ND	ND
4-Chloroaniline	N/A	100,000	ND	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	N/A	N/A	ND	ND	ND	ND	ND	ND
4-Methylphenol	N/A	N/A	ND	ND	ND	ND	ND	ND
4-Nitroaniline	N/A	N/A	ND	ND	ND	ND	ND	ND
4-Nitrophenol	N/A	N/A	ND	ND	ND	ND	ND	ND
Acenaphthene	20,000	100,000	ND	ND	ND	ND	ND	ND
Acenaphthylene	100,000	100,000	ND	ND	ND	ND	ND	ND
Aniline	N/A	48,000	ND	ND	ND	ND	ND	ND
Anthracene	100,000	100,000	ND	ND	406	ND	ND	ND

Table 1: Summary of Soil Samples Analysis Results

Compound	Track 1 SCOs	Track 2 SCOs	Sample ID#					
			S-9: 0' - 2.5'	S-9: 11' - 13'	S-10: 0'-2'	S-10: 8'-10'	S-11: 0'-2'	S-11: 8'-10'
Date Sampled	----	----	07-15-13	07-15-13	10-02-13	10-02-13	10-03-13	10-03-13
Benzo [a] Anthracene	1,000	1,000	ND	ND	1,120	886	1,040	ND
Benzo [a] Pyrene	1,000	1,000	ND	ND	ND	820	840	ND
Benzo [b] Fluoranthene	1,000	1,000	ND	ND	679	631	675	ND
Benzo [g,h,i] Perylene	100,000	100,000	ND	ND	ND	ND	ND	ND
Benzo [k] Fluoranthene	800	1,000	ND	ND	781	684	689	ND
Benzyl Alcohol	N/A	N/A	ND	ND	ND	ND	ND	ND
Benzyl butyl phthalate	N/A	N/A	ND	ND	ND	ND	ND	ND
Bis(2-chloroethoxy) methane	N/A	N/A	ND	ND	ND	ND	ND	ND
Bis(2-chloroethyl) ether	N/A	N/A	ND	ND	ND	ND	ND	ND
Bis(2-chloroisopropyl) ether	N/A	N/A	ND	ND	ND	ND	ND	ND
Bis(2-ethylexyl)phthalate	N/A	50,000	ND	ND	403	ND	ND	ND
Carbazole	N/A	N/A	ND	ND	ND	ND	ND	ND
Chrysene	1,000	1,000	ND	ND	971	799	932	ND
Dibenzo [a,h] Anthracene	330	330	ND	ND	ND	ND	ND	ND
Dibenzo furan	N/A	N/A	ND	ND	ND	ND	ND	ND
Diethyl phthalate	N/A	100,000	ND	ND	ND	ND	ND	ND
Dimethyl phthalate	N/A	100,000	ND	ND	ND	ND	ND	ND
Di-n-butyl phthalate	N/A	100,000	ND	ND	ND	ND	ND	ND
Di-n-octyl phthalate	N/A	100,000	ND	ND	ND	ND	ND	ND
Fluoranthene	100,000	100,000	ND	ND	1,910	1,180	1,800	ND
Fluorene	30,000	1,000	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	330	410	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	N/A	N/A	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	N/A	N/A	ND	ND	ND	ND	ND	ND
Hexachloroethane	N/A	N/A	ND	ND	ND	ND	ND	ND
Indeno [1,2,3-cd] Pyrene	500	500	ND	ND	583	ND	ND	ND
Isophorone	N/A	100,000	ND	ND	ND	ND	ND	ND
Naphthalene	12,000	100,000	ND	ND	ND	ND	ND	ND
Nitrobenzene	N/A	3,700	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	N/A	N/A	ND	ND	ND	ND	ND	ND
N-Nitroso-di-n-Propylamine	N/A	N/A	ND	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	N/A	N/A	ND	ND	ND	ND	ND	ND
Pentachlorophenol	800	2,400	ND	ND	ND	ND	ND	ND
Phenanthrene	100,000	100,000	ND	ND	1,050	457	743	ND
Phenol	330	100,000	ND	ND	ND	ND	ND	ND
Pyrene	100,000	100,000	1,210	ND	1,840	1,120	1,700	ND
Pyridine	N/A	N/A	ND	ND	ND	ND	ND	ND
Pesticides/PCBs - EPA 8081/8082	µg/kg	µg/kg	----	----	----	----	----	----
4,4'-DDD	3.3	2,600			ND	ND	ND	ND
4,4'-DDE	3.3	1,800			ND	ND	ND	ND
4,4'-DDT	3.3	1,700			ND	ND	ND	ND
Aldrin	5.0	19.0			ND	ND	ND	ND
alpha-BHC	20	97.0			ND	ND	ND	ND
Aroclor 1016	100	1,000			ND	ND	ND	ND
Aroclor 1221	100	1,000			ND	ND	ND	ND
Aroclor 1232	100	1,000			ND	ND	ND	ND
Aroclor 1242	100	1,000			ND	ND	ND	ND
Aroclor 1248	100	1,000			ND	ND	ND	ND
Aroclor 1254	100	1,000			ND	ND	ND	ND

Table 1: Summary of Soil Samples Analysis Results

Compound	Track 1 SCOs	Track 2 SCOs	Sample ID#					
			S-9: 0' - 2.5'	S-9: 11' - 13'	S-10: 0'-2'	S-10: 8'-10'	S-11: 0'-2'	S-11: 8'-10'
Date Sampled	----	----	07-15-13	07-15-13	10-02-13	10-02-13	10-03-13	10-03-13
Aroclor 1260	100	1,000			ND	ND	ND	ND
beta-BHC	36	72.0			ND	ND	ND	ND
Chlordane, total	94	910			ND	ND	ND	ND
delta-BHC	40	100,000			ND	ND	ND	ND
Dieldrin	5.0	39.0			ND	ND	ND	ND
Endosulfan I	2,400	4,800			ND	ND	ND	ND
Endosulfan II	2,400	4,800			ND	ND	ND	ND
Endosulfan sulfate	2,400	4,800			ND	ND	ND	ND
Endrin	14	2,200			ND	ND	ND	ND
Endrin aldehyde	N/A	N/A			ND	ND	ND	ND
Endrin ketone	N/A	N/A			ND	ND	ND	ND
gamma-BHC (Lindane)	N/A	540			ND	ND	ND	ND
Heptachlor	42	420			ND	ND	ND	ND
Heptachlor epoxide	N/A	77			ND	ND	ND	ND
Methoxychlor	N/A	100,000			ND	ND	ND	ND
Total PCBs	100	1,000			ND	ND	ND	ND
Toxaphene	N/A	N/A			ND	ND	ND	ND
TAL Metals - EPA 6010	mg/kg	mg/kg	----	----	----	----	----	----
Aluminum	N/A	N/A			13,100	14,500	15,600	38,500
Antimony	N/A	N/A			ND	ND	ND	ND
Arsenic	13	16			4.77	4.94	3.42	1.62
Barium	350	350			157	179	140	391
Beryllium	7.2	14			ND	ND	ND	ND
Cadmium	2.5	2.5			0.531	ND	ND	ND
Calcium	N/A	N/A			20,200	13,700	10,700	582
Chromium	1.0	22			28.5	29.0	29.2	84.2
Cobalt	N/A	30.0			12.4	13.1	13.7	29.6
Copper	50	270			42.5	45.7	39.6	60.3
Iron	N/A	2,000			22,400	23,200	23,100	42,400
Lead	63	400			216	233	166	11.1
Magnesium	N/A	N/A			12,400	7,670	6,100	15,400
Manganese	1,600	2,000			350	336	408	785
Nickel	30	140			29.4	20.5	29.8	64.0
Potassium	N/A	N/A			4,140	4,000	4,340	18,000
Selenium	3.9	36			ND	ND	ND	ND
Silver	2.0	36			ND	ND	ND	ND
Sodium	N/A	N/A			626	630	839	1,100
Thallium	N/A	N/A			ND	ND	ND	ND
Vanadium	N/A	100			35.5	38.2	38.4	102
Zinc	109	2,200			165	189	151	113
Mercury	0.18	0.81			0.117	0.00974	0.0845	ND

Notes:
µg/kg = parts per billion
mg/kg = parts per million
TAL = Target Analyte List
ND = Not Detected above the laboratory minimum detection limit N/A = Guidance Value Not Established by NYSDEC at Time of Report
Track 1 SCOs = Unrestricted Use Soil Cleanup Objectives as listed in Table 375-6.8(a) of the NYSDEC's Subpart 375-6: Remedial Program Cleanup Objectives and CP-51 Table 1 – Supplemental Soil Cleanup Objectives
Track 2 SCOs = Restricted Use Soil Cleanup Objectives - Residential as listed in Table 375-6.8(b) of the NYSDEC's Subpart 375-6: Remedial Program Cleanup Objectives and CP-51 Table 1 – Supplemental Soil Cleanup Objectives
BOLD Indicates Result Above Track 2 SCOs

Table 1 (Continued): Summary of Soil Samples Analysis Results

Compound	Track 1 SCOs	Track 2 SCOs	Sample ID#				
			S-12: 0'-2'	S-12: 8'-10'	S-13: 0'-2'	S-13: 8'-10'	S-13: 8'-10' DUP
Date Sampled	----	----	10-03-13	10-03-13	10-03-13	10-03-13	10-03-13
Volatiles - EPA 8260	µg/kg	µg/kg	----	----	----	----	----
1,1,1,2-Tetrachloroethane	N/A	N/A	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	680	100,000	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	N/A	35,000	ND	ND	ND	ND	ND
1,1,2-Trichloro-trifluoroethane	N/A	100,000	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	N/A	N/A	ND	ND	ND	6.9	ND
1,1-Dichloroethane	270	19,000	ND	ND	ND	ND	ND
1,1-Dichloroethene	330	100,000	ND	ND	ND	ND	ND
1,1-Dichloropropene	N/A	N/A	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	N/A	N/A	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	N/A	80,000	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	N/A	47,000	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	3,600	N/A	ND	ND	90	ND	ND
1,2-Dibromo-3-chloropropane	N/A	N/A	ND	ND	ND	ND	ND
1,2-Dibromoethane	N/A	N/A	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	1,100	100,000	ND	ND	ND	ND	ND
1,2-Dichloroethane	20	2,300	ND	ND	ND	ND	ND
1,2-Dichloropropane	N/A	N/A	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	8,400	47,000	ND	ND	34	ND	ND
1,3-Dichlorobenzene	2,400	17,000	ND	ND	ND	ND	ND
1,3-Dichloropropane	N/A	N/A	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	1,800	9,800	ND	ND	ND	ND	ND
1,4-Dioxane	100	9,800	ND	ND	ND	ND	ND
2,2-Dichloropropane	N/A	N/A	ND	ND	ND	ND	ND
2-Butanone	N/A	100,000	10	ND	ND	15	ND
2-Chlorotoluene	N/A	N/A	ND	ND	ND	ND	ND
4-Chlorotoluene	N/A	N/A	ND	ND	ND	ND	ND
Acetone	50	100,000	73	17	21	61	ND
Benzene	60	2,900	ND	ND	ND	ND	ND
Bromobenzene	N/A	N/A	ND	ND	ND	ND	ND
Bromochloromethane	N/A	N/A	ND	ND	ND	ND	ND
Bromodichloromethane	N/A	N/A	ND	ND	ND	ND	ND
Bromoform	N/A	N/A	ND	ND	ND	ND	ND
Bromomethane	N/A	N/A	ND	ND	ND	ND	ND
Carbon Tetrachloride	760	1,400	ND	ND	ND	ND	ND
Chlorobenzene	1,100	100,000	ND	ND	ND	ND	ND
Chloroethane	N/A	N/A	ND	ND	ND	ND	ND
Chloroform	370	10,000	ND	ND	ND	ND	ND
Chloromethane	N/A	N/A	ND	ND	ND	ND	ND
Cis-1,2-Dichloroethene	250	59,000	ND	ND	ND	ND	ND
Cis-1,3-Dichloropropene	N/A	N/A	ND	ND	ND	ND	ND
Dibromochloromethane	N/A	N/A	ND	ND	ND	ND	ND
Dibromomethane	N/A	N/A	ND	ND	ND	ND	ND
Dichlorodifluoromethane	N/A	N/A	ND	ND	ND	ND	ND
Ethyl benzene	1,000	30,000	ND	ND	30	ND	ND
Hexachlorobutadiene	N/A	N/A	ND	ND	ND	ND	ND
Isopropylbenzene	N/A	100,000	ND	ND	ND	ND	ND
Methyl-tert-Butyl-Ether (MtBE)	930	62,000	ND	ND	ND	14	ND
Methylene Chloride	50	51,000	ND	ND	ND	ND	ND

Table 1 (Continued): Summary of Soil Samples Analysis Results

Compound	Track 1 SCOs	Track 2 SCOs	Sample ID#				
			S-12: 0'-2'	S-12: 8'-10'	S-13: 0'-2'	S-13: 8'-10'	S-13: 8'-10' DUP
Date Sampled	----	----	10-03-13	10-03-13	10-03-13	10-03-13	10-03-13
Naphthalene	12,000	100,000	ND	ND	60	16	ND
n-Butylbenzene	12,000	100,000	ND	ND	ND	ND	ND
n-Propylbenzene	3,900	100,000	ND	ND	12	ND	ND
o-Xylene	260	N/A	ND	ND	78	ND	ND
p- & m- Xylenes	260	N/A	ND	ND	140	ND	ND
p-Isopropyltoluene	N/A	N/A	ND	ND	ND	ND	ND
sec-Butylbenzene	11,000	100,000	ND	ND	5.7	ND	ND
Styrene	N/A	N/A	ND	ND	ND	ND	ND
tert-Butylbenzene	5,900	100,000	ND	ND	ND	ND	ND
Tetrachloroethene	1,300	5,500	ND	ND	ND	ND	ND
Toluene	700	100,000	ND	ND	56	ND	ND
Trans-1,2-Dichloroethene	190	100,000	ND	ND	ND	ND	ND
Trans-1,3-Dichloropropene	N/A	N/A	ND	ND	ND	ND	ND
Trichloroethene	470	10,000	ND	ND	ND	ND	ND
Trichlorofluoromethane	N/A	N/A	ND	ND	ND	ND	ND
Vinyl Chloride	20	210	ND	ND	ND	ND	ND
Xylenes (Total)	260	100,000	ND	ND	220	ND	ND
Semi-Volatiles - EPA 8270	µg/kg	µg/kg	----	----	----	----	----
1,2,4-Trichlorobenzene	N/A	N/A	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	N/A	N/A	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	N/A	N/A	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	N/A	N/A	ND	ND	ND	ND	ND
2,4,5-Trichlorophenol	N/A	100,000	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	N/A	N/A	ND	ND	ND	ND	ND
2,4-Dichlorophenol	N/A	100,000	ND	ND	ND	ND	ND
2,4-Dimethylphenol	N/A	N/A	ND	ND	ND	ND	ND
2,4-Dinitrophenol	N/A	100,000	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	N/A	N/A	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	N/A	1,030	ND	ND	ND	ND	ND
2-Chloronaphthalene	N/A	N/A	ND	ND	ND	ND	ND
2-Chlorophenol	N/A	100,000	ND	ND	ND	ND	ND
2-Methylnaphthalene	N/A	410	ND	ND	ND	ND	ND
2-Methylphenol	N/A	N/A	ND	ND	ND	ND	ND
2-Nitroaniline	N/A	N/A	ND	ND	ND	ND	ND
2-Nitrophenol	N/A	N/A	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	N/A	N/A	ND	ND	ND	ND	ND
3-Nitroaniline	N/A	N/A	ND	ND	ND	ND	ND
4,6-Dinitro-2-methylphenol	N/A	N/A	ND	ND	ND	ND	ND
4-Bromophenyl phenyl ether	N/A	N/A	ND	ND	ND	ND	ND
4-Chloro-3-methylphenol	N/A	N/A	ND	ND	ND	ND	ND
4-Chloroaniline	N/A	100,000	ND	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	N/A	N/A	ND	ND	ND	ND	ND
4-Methylphenol	N/A	N/A	ND	ND	ND	ND	ND
4-Nitroaniline	N/A	N/A	ND	ND	ND	ND	ND
4-Nitrophenol	N/A	N/A	ND	ND	ND	ND	ND
Acenaphthene	20,000	100,000	642	ND	ND	ND	ND
Acenaphthylene	100,000	100,000	378	ND	ND	ND	ND
Aniline	N/A	48,000	ND	ND	ND	ND	ND
Anthracene	100,000	100,000	2,240	ND	ND	ND	ND
Benzo [a] Anthracene	1,000	1,000	4,890	ND	791	539	805

Table 1 (Continued): Summary of Soil Samples Analysis Results

Compound	Track 1 SCOs	Track 2 SCOs	Sample ID#				
			S-12: 0'-2'	S-12: 8'-10'	S-13: 0'-2'	S-13: 8'-10'	S-13: 8'-10' DUP
Date Sampled	----	----	10-03-13	10-03-13	10-03-13	10-03-13	10-03-13
Benzo [a] Pyrene	1,000	1,000	2,440	ND	610	428	558
Benzo [b] Fluoranthene	1,000	1,000	2,580	ND	545	382	ND
Benzo [g,h,i] Perylene	100,000	100,000	1,120	ND	ND	ND	ND
Benzo [k] Fluoranthene	800	1,000	2,720	ND	508	ND	424
Benzyl Alcohol	N/A	N/A	ND	ND	ND	ND	ND
Benzyl butyl phthalate	N/A	N/A	ND	ND	ND	ND	ND
Bis(2-chloroethoxy) methane	N/A	N/A	ND	ND	ND	ND	ND
Bis(2-chloroethyl) ether	N/A	N/A	ND	ND	ND	ND	ND
Bis(2-chloroisopropyl) ether	N/A	N/A	ND	ND	ND	ND	ND
Bis(2-ethylexyl)phthalate	N/A	50,000	386	ND	ND	ND	ND
Carbazole	N/A	N/A	ND	ND	ND	ND	ND
Chrysene	1,000	1,000	4,360	ND	805	556	790
Dibenzo [a,h] Anthracene	330	330	683	ND	ND	ND	ND
Dibenzo furan	N/A	N/A	444	ND	ND	ND	ND
Diethyl phthalate	N/A	100,000	ND	ND	ND	ND	ND
Dimethyl phthalate	N/A	100,000	ND	ND	ND	ND	ND
Di-n-butyl phthalate	N/A	100,000	ND	ND	ND	ND	ND
Di-n-octyl phthalate	N/A	100,000	ND	ND	ND	ND	ND
Fluoranthene	100,000	100,000	8,710	ND	1,430	1,010	1,460
Fluorene	30,000	1,000	831	ND	ND	ND	ND
Hexachlorobenzene	330	410	ND	ND	ND	ND	ND
Hexachlorobutadiene	N/A	N/A	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	N/A	N/A	ND	ND	ND	ND	ND
Hexachloroethane	N/A	N/A	ND	ND	ND	ND	ND
Indeno [1,2,3-cd] Pyrene	500	500	1,260	ND	ND	ND	ND
Isophorone	N/A	100,000	ND	ND	ND	ND	ND
Naphthalene	12,000	100,000	450	ND	ND	ND	ND
Nitrobenzene	N/A	3,700	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	N/A	N/A	ND	ND	ND	ND	ND
N-Nitroso-di-n-Propylamine	N/A	N/A	ND	ND	ND	ND	ND
N-Nitrosodiphenylamine	N/A	N/A	ND	ND	ND	ND	ND
Pentachlorophenol	800	2,400	ND	ND	ND	ND	ND
Phenanthrene	100,000	100,000	7,100	ND	1,050	553	1,490
Phenol	330	100,000	ND	ND	ND	ND	ND
Pyrene	100,000	100,000	7,800	ND	1,400	1,000	1,980
Pyridine	N/A	N/A	ND	ND	ND	ND	ND
Pesticides/PCBs - EPA 8081/8082	µg/kg	µg/kg	----	----	----	----	----
4,4'-DDD	3.3	2,600	ND	ND	ND	ND	ND
4,4'-DDE	3.3	1,800	ND	ND	ND	ND	ND
4,4'-DDT	3.3	1,700	ND	ND	ND	ND	ND
Aldrin	5.0	19.0	ND	ND	ND	ND	ND
alpha-BHC	20	97.0	ND	ND	ND	ND	ND
Aroclor 1016	100	1,000	ND	ND	ND	ND	ND
Aroclor 1221	100	1,000	ND	ND	ND	ND	ND
Aroclor 1232	100	1,000	ND	ND	ND	ND	ND
Aroclor 1242	100	1,000	ND	ND	ND	ND	ND
Aroclor 1248	100	1,000	ND	ND	ND	ND	ND
Aroclor 1254	100	1,000	ND	ND	ND	ND	ND
Aroclor 1260	100	1,000	ND	ND	ND	ND	ND
beta-BHC	36	72.0	ND	ND	ND	ND	ND

Table 1 (Continued): Summary of Soil Samples Analysis Results

Compound	Track 1 SCOs	Track 2 SCOs	Sample ID#				
			S-12: 0'-2'	S-12: 8'-10'	S-13: 0'-2'	S-13: 8'-10'	S-13: 8'-10' DUP
Date Sampled	----	----	10-03-13	10-03-13	10-03-13	10-03-13	10-03-13
Chlordane, total	94	910	ND	ND	ND	ND	ND
delta-BHC	40	100,000	ND	ND	ND	ND	ND
Dieldrin	5.0	39.0	ND	ND	ND	ND	ND
Endosulfan I	2,400	4,800	ND	ND	ND	ND	ND
Endosulfan II	2,400	4,800	ND	ND	ND	ND	ND
Endosulfan sulfate	2,400	4,800	ND	ND	ND	ND	ND
Endrin	14	2,200	ND	ND	ND	ND	ND
Endrin aldehyde	N/A	N/A	ND	ND	ND	ND	ND
Endrin ketone	N/A	N/A	ND	ND	ND	ND	ND
gamma-BHC (Lindane)	N/A	540	ND	ND	ND	ND	ND
Heptachlor	42	420	ND	ND	ND	ND	ND
Heptachlor epoxide	N/A	77	ND	ND	ND	ND	ND
Methoxychlor	N/A	100,000	ND	ND	ND	ND	ND
Total PCBs	100	1,000	ND	ND	ND	ND	ND
Toxaphene	N/A	N/A	ND	ND	ND	ND	ND
TAL Metals - EPA 6010	mg/kg	mg/kg	----	----	----	----	----
Aluminum	N/A	N/A	11,900	12,900	12,600	14,300	15,100
Antimony	N/A	N/A	ND	ND	ND	ND	ND
Arsenic	13	16	5.85	2.33	4.04	4.39	2.65
Barium	350	350	214	68.0	149	178	222
Beryllium	7.2	14	ND	ND	ND	ND	ND
Cadmium	2.5	2.5	0.892	ND	ND	0.431	ND
Calcium	N/A	N/A	12,400	3,640	6,620	6,900	3,770
Chromium	1.0	22	26.1	24.2	27.6	33.6	38.4
Cobalt	N/A	30.0	12.5	9.73	13.8	13.6	14.6
Copper	50	270	114	16.4	45.7	50.9	35.0
Iron	N/A	2,000	22,600	18,600	23,600	22,800	24,400
Lead	63	400	357	11.0	137	325	153
Magnesium	N/A	N/A	8,440	3,500	6,110	6,640	5,920
Manganese	1,600	2,000	336	278	379	394	331
Nickel	30	140	33.9	22.5	31.6	32.7	32.9
Potassium	N/A	N/A	2,980	1,620	4,630	4,140	5640
Selenium	3.9	36	ND	ND	ND	ND	ND
Silver	2.0	36	ND	ND	ND	ND	ND
Sodium	N/A	N/A	1,100	800	510	361	348
Thallium	N/A	N/A	ND	ND	ND	ND	ND
Vanadium	N/A	100	35.8	29.8	36.1	37.0	42.9
Zinc	109	2,200	385	40.4	146	194	180
Mercury	0.18	0.81	0.405	0.0371	0.127	0.0941	0.0358

Notes:

µg/kg = parts per billion

mg/kg = parts per million

TAL = Target Analyte List

ND = Not Detected above the laboratory minimum detection limit N/A = Guidance Value Not Established by NYSDEC at Time of Report

Track 1 SCOs = Unrestricted Use Soil Cleanup Objectives as listed in Table 375-6.8(a) of the NYSDEC's Subpart 375-6: Remedial Program Cleanup Objectives and CP-51 Table 1 – Supplemental Soil Cleanup Objectives

Track 2 SCOs = Restricted Use Soil Cleanup Objectives - Residential as listed in Table 375-6.8(b) of the NYSDEC's Subpart 375-6: Remedial Program Cleanup Objectives and CP-51 Table 1 – Supplemental Soil Cleanup Objectives

BOLD Indicates Result Above Track 2 SCO

Table 1 (Continued): Summary of Soil Samples Analysis Results						
Compound	Track 1 SCOs	Track 2 SCOs	Sample ID#			
			S-14: 0'-2'	S-14: 8'-10'	S-15: 0'-2'	S-15: 8'-10'
Date Sampled	----	----	10-03-13	10-03-13	10-03-13	10-03-13
Volatiles - EPA 8260	µg/kg	µg/kg	----	----	----	----
1,1,1,2-Tetrachloroethane	N/A	N/A	ND	ND	ND	ND
1,1,1-Trichloroethane	680	100,000	ND	ND	ND	ND
1,1,2-Tetrachloroethane	N/A	35,000	ND	ND	ND	ND
1,1,2-Trichloro-trifluoroethane	N/A	100,000	ND	ND	ND	ND
1,1,2-Trichloroethane	N/A	N/A	ND	ND	ND	ND
1,1-Dichloroethane	270	19,000	ND	ND	ND	ND
1,1-Dichloroethene	330	100,000	ND	ND	ND	ND
1,1-Dichloropropene	N/A	N/A	ND	ND	ND	ND
1,2,3-Trichlorobenzene	N/A	N/A	ND	ND	ND	ND
1,2,3-Trichloropropane	N/A	80,000	ND	ND	ND	ND
1,2,4-Trichlorobenzene	N/A	47,000	ND	ND	ND	ND
1,2,4-Trimethylbenzene	3,600	N/A	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	N/A	N/A	ND	ND	ND	ND
1,2-Dibromoethane	N/A	N/A	ND	ND	ND	ND
1,2-Dichlorobenzene	1,100	100,000	ND	ND	ND	ND
1,2-Dichloroethane	20	2,300	ND	ND	ND	ND
1,2-Dichloropropane	N/A	N/A	ND	ND	ND	ND
1,3,5-Trimethylbenzene	8,400	47,000	ND	ND	ND	ND
1,3-Dichlorobenzene	2,400	17,000	ND	ND	ND	ND
1,3-Dichloropropane	N/A	N/A	ND	ND	ND	ND
1,4-Dichlorobenzene	1,800	9,800	ND	ND	ND	ND
1,4-Dioxane	100	9,800	ND	ND	ND	ND
2,2-Dichloropropane	N/A	N/A	ND	ND	ND	ND
2-Butanone	N/A	100,000	ND	ND	ND	ND
2-Chlorotoluene	N/A	N/A	ND	ND	ND	ND
4-Chlorotoluene	N/A	N/A	ND	ND	ND	ND
Acetone	50	100,000	7.9	ND	13	11
Benzene	60	2,900	ND	ND	ND	ND
Bromobenzene	N/A	N/A	ND	ND	ND	ND
Bromochloromethane	N/A	N/A	ND	ND	ND	ND
Bromodichloromethane	N/A	N/A	ND	ND	ND	ND
Bromoform	N/A	N/A	ND	ND	ND	ND
Bromomethane	N/A	N/A	ND	ND	ND	ND
Carbon Tetrachloride	760	1,400	ND	ND	ND	ND
Chlorobenzene	1,100	100,000	ND	ND	ND	ND
Chloroethane	N/A	N/A	ND	ND	ND	ND
Chloroform	370	10,000	ND	ND	ND	ND
Chloromethane	N/A	N/A	ND	ND	ND	ND
Cis-1,2-Dichloroethene	250	59,000	ND	ND	ND	ND
Cis-1,3-Dichloropropene	N/A	N/A	ND	ND	ND	ND
Dibromochloromethane	N/A	N/A	ND	ND	ND	ND
Dibromomethane	N/A	N/A	ND	ND	ND	ND
Dichlorodifluoromethane	N/A	N/A	ND	ND	ND	ND
Ethyl benzene	1,000	30,000	ND	ND	ND	ND
Hexachlorobutadiene	N/A	N/A	ND	ND	ND	ND
Isopropylbenzene	N/A	100,000	ND	ND	ND	ND
Methyl-tert-Butyl-Ether (MtBE)	930	62,000	ND	ND	ND	ND
Methylene Chloride	50	51,000	ND	ND	ND	ND
Naphthalene	12,000	100,000	ND	ND	ND	ND

Table 1 (Continued): Summary of Soil Samples Analysis Results						
Compound	Track 1 SCOs	Track 2 SCOs	Sample ID#			
			S-14: 0'-2'	S-14: 8'-10'	S-15: 0'-2'	S-15: 8'-10'
Date Sampled	----	----	10-03-13	10-03-13	10-03-13	10-03-13
n-Butylbenzene	12,000	100,000	ND	ND	ND	ND
n-Propylbenzene	3,900	100,000	ND	ND	ND	ND
o-Xylene	260	N/A	ND	ND	ND	ND
p- & m- Xylenes	260	N/A	ND	ND	ND	ND
p-Isopropyltoluene	N/A	N/A	ND	ND	ND	ND
sec-Butylbenzene	11,000	100,000	ND	ND	ND	ND
Styrene	N/A	N/A	ND	ND	ND	ND
tert-Butylbenzene	5,900	100,000	ND	ND	ND	ND
Tetrachloroethene	1,300	5,500	ND	ND	ND	ND
Toluene	700	100,000	ND	ND	ND	ND
Trans-1,2-Dichloroethene	190	100,000	ND	ND	ND	ND
Trans-1,3-Dichloropropene	N/A	N/A	ND	ND	ND	ND
Trichloroethene	470	10,000	ND	ND	ND	ND
Trichlorofluoromethane	N/A	N/A	ND	ND	ND	ND
Vinyl Chloride	20	210	ND	ND	ND	ND
Xylenes (Total)	260	100,000	ND	ND	ND	ND
Semi-Volatiles - EPA 8270	µg/kg	µg/kg	----	----	----	----
1,2,4-Trichlorobenzene	N/A	N/A	ND	ND	ND	ND
1,2-Dichlorobenzene	N/A	N/A	ND	ND	ND	ND
1,3-Dichlorobenzene	N/A	N/A	ND	ND	ND	ND
1,4-Dichlorobenzene	N/A	N/A	ND	ND	ND	ND
2,4,5-Trichlorophenol	N/A	100,000	ND	ND	ND	ND
2,4,6-Trichlorophenol	N/A	N/A	ND	ND	ND	ND
2,4-Dichlorophenol	N/A	100,000	ND	ND	ND	ND
2,4-Dimethylphenol	N/A	N/A	ND	ND	ND	ND
2,4-Dinitrophenol	N/A	100,000	ND	ND	ND	ND
2,4-Dinitrotoluene	N/A	N/A	ND	ND	ND	ND
2,6-Dinitrotoluene	N/A	1,030	ND	ND	ND	ND
2-Chloronaphthalene	N/A	N/A	ND	ND	ND	ND
2-Chlorophenol	N/A	100,000	ND	ND	ND	ND
2-Methylnaphthalene	N/A	410	ND	ND	ND	ND
2-Methylphenol	N/A	N/A	ND	ND	ND	ND
2-Nitroaniline	N/A	N/A	ND	ND	ND	ND
2-Nitrophenol	N/A	N/A	ND	ND	ND	ND
3,3'-Dichlorobenzidine	N/A	N/A	ND	ND	ND	ND
3-Nitroaniline	N/A	N/A	ND	ND	ND	ND
4,6-Dinitro-2-methylphenol	N/A	N/A	ND	ND	ND	ND
4-Bromophenyl phenyl ether	N/A	N/A	ND	ND	ND	ND
4-Chloro-3-methylphenol	N/A	N/A	ND	ND	ND	ND
4-Chloroaniline	N/A	100,000	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	N/A	N/A	ND	ND	ND	ND
4-Methylphenol	N/A	N/A	ND	ND	ND	ND
4-Nitroaniline	N/A	N/A	ND	ND	ND	ND
4-Nitrophenol	N/A	N/A	ND	ND	ND	ND
Acenaphthene	20,000	100,000	ND	ND	ND	ND
Acenaphthylene	100,000	100,000	ND	ND	ND	ND
Aniline	N/A	48,000	ND	ND	ND	ND
Anthracene	100,000	100,000	ND	ND	ND	ND
Benzo [a] Anthracene	1,000	1,000	ND	ND	771	ND
Benzo [a] Pyrene	1,000	1,000	ND	ND	636	ND

Table 1 (Continued): Summary of Soil Samples Analysis Results						
Compound	Track 1 SCOs	Track 2 SCOs	Sample ID#			
			S-14: 0'-2'	S-14: 8'-10'	S-15: 0'-2'	S-15: 8'-10'
Date Sampled	----	----	10-03-13	10-03-13	10-03-13	10-03-13
Benzo [b] Fluoranthene	1,000	1,000	ND	ND	450	ND
Benzo [g,h,i] Perylene	100,000	100,000	ND	ND	ND	ND
Benzo [k] Fluoranthene	800	1,000	ND	ND	556	ND
Benzyl Alcohol	N/A	N/A	ND	ND	ND	ND
Benzyl butyl phthalate	N/A	N/A	ND	ND	ND	ND
Bis(2-chloroethoxy) methane	N/A	N/A	ND	ND	ND	ND
Bis(2-chloroethyl) ether	N/A	N/A	ND	ND	ND	ND
Bis(2-chloroisopropyl) ether	N/A	N/A	ND	ND	ND	ND
Bis(2-ethylexyl)phthalate	N/A	50,000	ND	ND	ND	ND
Carbazole	N/A	N/A	ND	ND	ND	ND
Chrysene	1,000	1,000	ND	ND	756	ND
Dibenzo [a,h] Anthracene	330	330	ND	ND	ND	ND
Dibenzo furan	N/A	N/A	ND	ND	ND	ND
Diethyl phthalate	N/A	100,000	ND	ND	ND	ND
Dimethyl phthalate	N/A	100,000	ND	ND	ND	ND
Di-n-butyl phthalate	N/A	100,000	ND	ND	ND	ND
Di-n-octyl phthalate	N/A	100,000	ND	ND	ND	ND
Fluoranthene	100,000	100,000	ND	ND	1,370	ND
Fluorene	30,000	1,000	ND	ND	ND	ND
Hexachlorobenzene	330	410	ND	ND	ND	ND
Hexachlorobutadiene	N/A	N/A	ND	ND	ND	ND
Hexachlorocyclopentadiene	N/A	N/A	ND	ND	ND	ND
Hexachloroethane	N/A	N/A	ND	ND	ND	ND
Indeno [1,2,3-cd] Pyrene	500	500	ND	ND	ND	ND
Isophorone	N/A	100,000	ND	ND	ND	ND
Naphthalene	12,000	100,000	ND	ND	ND	ND
Nitrobenzene	N/A	3,700	ND	ND	ND	ND
N-Nitrosodimethylamine	N/A	N/A	ND	ND	ND	ND
N-Nitroso-di-n-Propylamine	N/A	N/A	ND	ND	ND	ND
N-Nitrosodiphenylamine	N/A	N/A	ND	ND	ND	ND
Pentachlorophenol	800	2,400	ND	ND	ND	ND
Phenanthrene	100,000	100,000	ND	ND	897	ND
Phenol	330	100,000	ND	ND	ND	ND
Pyrene	100,000	100,000	ND	ND	1,360	ND
Pyridine	N/A	N/A	ND	ND	ND	ND
Pesticides/PCBs - EPA 8081/8082	µg/kg	µg/kg	----	----	----	----
4,4'-DDD	3.3	2,600	ND	ND	ND	ND
4,4'-DDE	3.3	1,800	ND	ND	ND	ND
4,4'-DDT	3.3	1,700	ND	ND	ND	ND
Aldrin	5.0	19.0	ND	ND	ND	ND
alpha-BHC	20	97.0	ND	ND	ND	ND
Aroclor 1016	100	1,000	ND	ND	ND	ND
Aroclor 1221	100	1,000	ND	ND	ND	ND
Aroclor 1232	100	1,000	ND	ND	ND	ND
Aroclor 1242	100	1,000	ND	ND	ND	ND
Aroclor 1248	100	1,000	ND	ND	ND	ND
Aroclor 1254	100	1,000	ND	ND	ND	ND
Aroclor 1260	100	1,000	ND	ND	ND	ND
beta-BHC	36	72.0	ND	ND	ND	ND
Chlordane, total	94	910	ND	ND	ND	ND

Table 1 (Continued): Summary of Soil Samples Analysis Results						
Compound	Track 1 SCOs	Track 2 SCOs	Sample ID#			
			S-14: 0'-2'	S-14: 8'-10'	S-15: 0'-2'	S-15: 8'-10'
Date Sampled	----	----	10-03-13	10-03-13	10-03-13	10-03-13
delta-BHC	40	100,000	ND	ND	ND	ND
Dieldrin	5.0	39.0	ND	ND	ND	ND
Endosulfan I	2,400	4,800	ND	ND	ND	ND
Endosulfan II	2,400	4,800	ND	ND	ND	ND
Endosulfan sulfate	2,400	4,800	ND	ND	ND	ND
Endrin	14	2,200	ND	ND	ND	ND
Endrin aldehyde	N/A	N/A	ND	ND	ND	ND
Endrin ketone	N/A	N/A	ND	ND	ND	ND
gamma-BHC (Lindane)	N/A	540	ND	ND	ND	ND
Heptachlor	42	420	ND	ND	ND	ND
Heptachlor epoxide	N/A	77	ND	ND	ND	ND
Methoxychlor	N/A	100,000	ND	ND	ND	ND
Total PCBs	100	1,000	ND	ND	ND	ND
Toxaphene	N/A	N/A	ND	ND	ND	ND
TAL Metals - EPA 6010	mg/kg	mg/kg	----	----	----	----
Aluminum	N/A	N/A	16,900	20,100	13,000	19,800
Antimony	N/A	N/A	ND	ND	ND	ND
Arsenic	13	16	2.32	ND	4.19	1.08
Barium	350	350	100	141	131	121
Beryllium	7.2	14	ND	ND	ND	ND
Cadmium	2.5	2.5	ND	ND	ND	ND
Calcium	N/A	N/A	5,100	1,280	16,800	2,420
Chromium	1.0	22	25.5	29.9	28.7	31.9
Cobalt	N/A	30.0	15.2	21.1	10.6	16.8
Copper	50	270	23.5	49.6	32.1	23.0
Iron	N/A	2,000	22,800	34,900	19,200	28,500
Lead	63	400	7.32	7.56	115	8.16
Magnesium	N/A	N/A	4,210	7,010	4,660	7,690
Manganese	1,600	2,000	626	528	261	353
Nickel	30	140	29.6	35.2	31.8	35.9
Potassium	N/A	N/A	3,060	8,900	3,060	8,360
Selenium	3.9	36	ND	ND	ND	ND
Silver	2.0	36	ND	ND	ND	ND
Sodium	N/A	N/A	563	435	488	324
Thallium	N/A	N/A	ND	ND	ND	ND
Vanadium	N/A	100	37.3	37.8	32.6	35.9
Zinc	109	2,200	48.6	75.3	137	76.8
Mercury	0.18	0.81	0.0221	0.00122	0.0885	0.00114
Notes: µg/kg = parts per billion mg/kg = parts per million TAL = Target Analyte List ND = Not Detected above the laboratory minimum detection limit N/A = Guidance Value Not Established by NYSDEC at Time of Report Track 1 SCOs = Unrestricted Use Soil Cleanup Objectives as listed in Table 375-6.8(a) of the NYSDEC's Subpart 375-6: Remedial Program Cleanup Objectives and CP-51 Table 1 – Supplemental Soil Cleanup Objectives Track 2 SCOs = Restricted Use Soil Cleanup Objectives - Residential as listed in Table 375-6.8(b) of the NYSDEC's Subpart 375-6: Remedial Program Cleanup Objectives and CP-51 Table 1 – Supplemental Soil Cleanup Objectives BOLD Indicates Result Above Track 2 SCO						

Table 2: Summary of Groundwater Samples Analysis Results					
Compound	Guidance Values	Sample ID#			
		ASR-1	MW-11	MW-11 DUP	MW-12
Volatiles - EPA 8260 Full List	µg/kg	----	----	----	----
1,1,1,2-Tetrachloroethane	5	ND	ND	ND	ND
1,1,1-Trichloroethane	5	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND	ND
1,1,2-Trichloro-trifluoroethane (Freon 113)	5	ND	ND	ND	ND
1,1,2-Trichloroethane	1	ND	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND	ND
1,1-Dichloroethene	5	ND	ND	ND	ND
1,1-Dichloropropene	5	ND	ND	ND	ND
1,2,3-Trichlorobenzene	N/A	ND	ND	ND	ND
1,2,3-Trichloropropane	0.04	ND	ND	ND	ND
1,2,4-Trichlorobenzene	N/A	ND	ND	ND	ND
1,2,4-Trimethylbenzene	5	450	2,400	2,200	150
1,2-Dibromo-3-chloropropane	0.04	12	ND	ND	ND
1,2-Dibromoethane	N/A	ND	ND	ND	ND
1,2-Dichlorobenzene	3	ND	ND	ND	ND
1,2-Dichloroethane	0.6	ND	ND	ND	ND
1,2-Dichloropropane	1	ND	ND	ND	ND
1,3,5-Trimethylbenzene	5	140	550	570	63
1,3-Dichlorobenzene	3	ND	ND	ND	ND
1,3-Dichloropropane	5	ND	ND	ND	ND
1,4-Dichlorobenzene	3	ND	ND	ND	ND
1,4-Dioxane	N/A	ND	ND	ND	ND
2,2-Dichloropropane	5	ND	ND	ND	ND
2-Butanone	50	ND	ND	ND	ND
2-Chlorotoluene	5	ND	ND	ND	ND
4-Chlorotoluene	5	ND	ND	ND	ND
Acetone	50	ND	ND	ND	ND
Benzene	0.7	1,600	35	28	530
Bromobenzene	5	ND	ND	ND	ND
Bromochloromethane	5	ND	ND	ND	ND
Bromodichloromethane	50	ND	ND	ND	ND
Bromoform	50	ND	ND	ND	ND
Bromomethane	5	ND	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND	ND
Chlorobenzene	5	ND	ND	ND	ND
Chloroethane	5	ND	ND	ND	ND
Chloroform	7	ND	ND	ND	ND
Chloromethane	N/A	ND	ND	ND	ND
Cis-1,2-Dichloroethene	5	ND	ND	ND	ND
Cis-1,3-Dichloropropene	N/A	ND	ND	ND	ND
Dibromochloromethane	50	ND	ND	ND	ND
Dibromomethane	5	ND	ND	ND	ND
Dichlorodifluoromethane	5	ND	ND	ND	ND
Ethyl benzene	5	620	1,300	1,300	800
Hexachlorobutadiene	0.5	ND	ND	ND	ND
Isopropylbenzene	5	71	160	170	140
Methyl-tert-Butyl-Ether (MtBE)	10	110	ND	ND	43
Methylene Chloride	5	ND	ND	ND	ND

Table 2: Summary of Groundwater Samples Analysis Results					
Compound	Guidance Values	Sample ID#			
		ASR-1	MW-11	MW-11 DUP	MW-12
Naphthalene	10	360	690	590	420
n-Butylbenzene	5	20	60	59	ND
n-Propylbenzene	5	170	440	450	220
o-Xylene	5	33	ND	ND	27
p- & m- Xylenes	5	850	1,600	1,600	350
p-Isopropyltoluene	5	6.0	ND	ND	ND
sec-Butylbenzene	5	11	ND	ND	ND
Styrene	5	ND	ND	ND	ND
tert-Butylbenzene	5	ND	ND	ND	ND
Tetrachloroethene	5	ND	ND	ND	ND
Toluene	5	110	ND	ND	71
Trans-1,2-Dichloroethene	5	ND	ND	ND	ND
Trans-1,3-Dichloropropene	N/A	ND	ND	ND	ND
Trichloroethene	5	ND	ND	ND	ND
Trichlorofluoromethane	5	ND	ND	ND	ND
Vinyl Chloride	2	ND	ND	ND	ND
Xylenes (Total)	5	880	1,600	1,600	370
Semi-Volatiles - EPA 8270 Full List	µg/kg	----	----	----	----
1,2,4-Trichlorobenzene	5	ND	ND	ND	ND
1,2-Dichlorobenzene	3	ND	ND	ND	ND
1,3-Dichlorobenzene	3	ND	ND	ND	ND
1,4-Dichlorobenzene	3	ND	ND	ND	ND
2,4,5-Trichlorophenol	N/A	ND	ND	ND	ND
2,4,6-Trichlorophenol	N/A	ND	ND	ND	ND
2,4-Dichlorophenol	5	ND	ND	ND	ND
2,4-Dimethylphenol	50	ND	ND	ND	ND
2,4-Dinitrophenol	10	ND	ND	ND	ND
2,4-Dinitrotoluene	5	ND	ND	ND	ND
2,6-Dinitrotoluene	5	ND	ND	ND	ND
2-Chloronaphthalene	10	ND	ND	ND	ND
2-Chlorophenol	N/A	ND	ND	ND	ND
2-Methylnaphthalene	N/A	97.9	341	250	93.5
2-Methylphenol	N/A	ND	ND	ND	ND
2-Nitroaniline	5	ND	ND	ND	ND
2-Nitrophenol	N/A	ND	ND	ND	ND
3,3'-Dichlorobenzidine	5	ND	ND	ND	ND
3-Nitroaniline	5	ND	ND	ND	ND
4,6-Dinitro-2-methylphenol	N/A	ND	ND	ND	ND
4-Bromophenyl phenyl ether	N/A	ND	ND	ND	ND
4-Chloro-3-methylphenol	N/A	ND	ND	ND	ND
4-Chloroaniline	5	ND	ND	ND	ND
4-Chlorophenyl phenyl ether	N/A	ND	ND	ND	ND
4-Methylphenol	1	ND	ND	ND	ND
4-Nitroaniline	5	ND	ND	ND	ND
4-Nitrophenol	N/A	ND	ND	ND	ND
Acenaphthene	20	ND	ND	ND	ND
Acenaphthylene	N/A	ND	ND	ND	ND
Aniline	5	ND	ND	ND	ND
Anthracene	50	ND	ND	ND	ND

Table 2: Summary of Groundwater Samples Analysis Results					
Compound	Guidance Values	Sample ID#			
		ASR-1	MW-11	MW-11 DUP	MW-12
Benzo [a] Anthracene	0.002	ND	ND	ND	ND
Benzo [a] Pyrene	N/A	ND	ND	ND	ND
Benzo [b] Fluoranthene	0.002	ND	ND	ND	ND
Benzo [g,h,i] Perylene	N/A	ND	ND	ND	ND
Benzo [k] Fluoranthene	0.002	ND	ND	ND	ND
Benzyl Alcohol	N/A	ND	ND	ND	ND
Benzyl butyl phthalate	50	ND	ND	ND	ND
Bis(2-chloroethoxy) methane	5	ND	ND	ND	ND
Bis(2-chloroethyl) ether	1	ND	ND	ND	ND
Bis(2-chloroisopropyl) ether	N/A	ND	ND	ND	ND
Bis(2-ethylexyl)phthalate	5	ND	ND	ND	ND
Carbazole	N/A	ND	ND	ND	ND
Chrysene	0.002	ND	ND	ND	ND
Dibenzo [a,h] Anthracene	N/A	ND	ND	ND	ND
Dibenzo furan	N/A	ND	ND	ND	ND
Diethyl phthalate	50	ND	ND	ND	ND
Dimethyl phthalate	50	ND	ND	ND	ND
Di-n-butyl phthalate	50	ND	ND	ND	ND
Di-n-octyl phthalate	50	ND	ND	ND	ND
Fluoranthene	50	ND	ND	ND	ND
Fluorene	50	ND	ND	ND	ND
Hexachlorobenzene	0.04	ND	ND	ND	ND
Hexachlorobutadiene	0.5	ND	ND	ND	ND
Hexachlorocyclopentadiene	5	ND	ND	ND	ND
Hexachloroethane	5	ND	ND	ND	ND
Indeno [1,2,3-cd] Pyrene	0.002	ND	ND	ND	ND
Isophorone	50	ND	ND	ND	ND
Naphthalene	10	234	291	266	187
Nitrobenzene	0.4	ND	ND	ND	ND
N-Nitrosodimethylamine	50	ND	ND	ND	ND
N-Nitroso-di-n-Propylamine	N/A	ND	ND	ND	ND
N-Nitrosodiphenylamine	50	ND	ND	ND	ND
Pentachlorophenol	1	ND	ND	ND	ND
Phenanthrene	50	ND	ND	ND	ND
Phenol	1	ND	ND	ND	ND
Pyrene	50	ND	ND	ND	ND
Pyridine	50	ND	ND	ND	ND
Pesticides/PCBs - EPA 8081/8082	µg/kg	----	----	----	----
4,4'-DDD	0.3	ND	ND	ND	ND
4,4'-DDE	0.2	ND	ND	ND	ND
4,4'-DDT	0.2	ND	ND	ND	ND
Aldrin	ND	ND	ND	ND	ND
alpha-BHC	0.01	ND	ND	ND	ND
Aroclor 1016	0.09	ND	ND	ND	ND
Aroclor 1221	0.09	ND	ND	ND	ND
Aroclor 1232	0.09	ND	ND	ND	ND
Aroclor 1242	0.09	ND	ND	ND	ND
Aroclor 1248	0.09	ND	ND	ND	ND
Aroclor 1254	0.09	ND	ND	ND	ND

Table 2: Summary of Groundwater Samples Analysis Results					
Compound	Guidance Values	Sample ID#			
		ASR-1	MW-11	MW-11 DUP	MW-12
Aroclor 1260	0.09	ND	ND	ND	ND
beta-BHC	0.04	ND	ND	ND	ND
Chlordane, total	0.05	ND	ND	ND	ND
delta-BHC	0.04	ND	ND	ND	ND
Dieldrin	0.004	ND	ND	ND	ND
Endosulfan I	N/A	ND	ND	ND	ND
Endosulfan II	N/A	ND	ND	ND	ND
Endosulfan sulfate	N/A	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND
Endrin aldehyde	5	ND	ND	ND	ND
Endrin ketone	5	ND	ND	ND	ND
gamma-BHC (Lindane)	0.05	ND	ND	ND	ND
Heptachlor	0.04	ND	ND	ND	ND
Heptachlor epoxide	0.03	ND	ND	ND	ND
Methoxychlor	35	ND	ND	ND	ND
Total PCBs	0.09	ND	ND	ND	ND
Toxaphene	0.06	ND	ND	ND	ND
TAL Metals - EPA 6010 - Lab Filtered	mg/kg	----	----	----	----
Aluminum	2,000	ND	0.146	ND	ND
Antimony	3	ND	ND	ND	ND
Arsenic	25	ND	ND	ND	ND
Barium	1,000	0.330	0.249	0.248	0.296
Beryllium	3	ND	ND	ND	ND
Cadmium	5	ND	ND	ND	ND
Calcium	N/A	91.8	18.0	19.0	34.1
Chromium	50	ND	ND	ND	ND
Cobalt	N/A	ND	ND	ND	ND
Copper	200	ND	ND	ND	ND
Iron	300	6.24	0.662	1.10	ND
Lead	25	ND	ND	ND	ND
Magnesium	35,000	43.9	2.41	2.55	15.4
Manganese	300	1.75	1.18	1.29	1.93
Nickel	100	ND	ND	ND	ND
Potassium	N/A	21.1	4.73	4.99	4.12
Selenium	10	0.012	ND	ND	ND
Silver	50	ND	ND	ND	ND
Sodium	20,000	198	64.1	67.0	153
Thallium	0.5	ND	ND	ND	ND
Vanadium	N/A	ND	ND	ND	ND
Zinc	5,000	ND	ND	ND	ND
Mercury	0.7	ND	ND	ND	ND
TAL Metals - EPA 6010 - Unfiltered	mg/kg	----	----	----	----
Aluminum	2,000	0.227	72.0	89.8	3.01
Antimony	3	ND	ND	ND	ND
Arsenic	25	ND	0.020	0.022	ND
Barium	1,000	0.472	3.80	3.92	0.500
Beryllium	3	ND	ND	ND	ND
Cadmium	5	ND	ND	ND	ND
Calcium	N/A	92.7	45.1	42.0	34.4

Table 2: Summary of Groundwater Samples Analysis Results					
Compound	Guidance Values	Sample ID#			
		ASR-1	MW-11	MW-11 DUP	MW-12
Chromium	50	ND	0.166	0.194	0.008
Cobalt	N/A	ND	0.278	0.304	0.007
Copper	200	ND	0.560	0.671	0.025
Iron	300	35.4	203	207	21.8
Lead	25	0.003	0.140	0.172	0.010
Magnesium	35,000	43.5	25.0	29.2	16.0
Manganese	300	1.97	7.49	6.02	2.28
Nickel	100	ND	0.399	0.455	0.017
Potassium	N/A	22.2	56.6	66.5	5.27
Selenium	10	0.011	0.024	0.023	ND
Silver	50	ND	ND	ND	ND
Sodium	20,000	204	67.1	66.9	149
Thallium	0.5	ND	ND	ND	ND
Vanadium	N/A	ND	0.168	0.221	0.015
Zinc	5,000	0.018	0.503	0.599	0.056
Mercury	0.7	ND	ND	ND	ND

Notes:
 µg/kg = parts per billion
 mg/kg = parts per million
 TAL = Target Analyte List
 ND = Not Detected above the laboratory minimum detection limit
 N/A = Guidance Value Not Established by NYSDEC at Time of Report
 Guidance Values = NYSDEC TOGS 1.1.1 – Table 1
BOLD Indicates Result Above Guidance Value

Table 3: Summary of Soil Vapor Analysis Results							
Client Sample ID	SV-1 ¹	SV-4 ¹	Ambient	SV-5 ¹	SV-6 ¹	SV-7 ¹	Ambient
Date Sampled	07-15-13	07-15-13	07-15-13	10-04-13	10-04-13	10-04-13	10-04-13
TO-15 List	µg/m ³						
1,1,1-Trichloroethane	ND						
1,1,2,2-Tetrachloroethane	ND						
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	ND	ND	ND	ND	ND	1.2
1,1,2-Trichloroethane	ND						
1,1-Dichloroethane	ND						
1,1-Dichloroethene	ND						
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	51	ND
1,2,4-Trimethylbenzene	3,600	2,100	7.2	ND	970	13	6.4
1,2-Dibromoethane	ND						
1,2-Dichlorobenzene	ND						
1,2-Dichloroethane	ND						
1,2-Dichloropropane	ND						
1,2-Dichlorotetrafluoroethane	ND						
1,3,5-Trimethylbenzene	2,000	390	1.6	ND	ND	ND	2.0
1,3-Butadiene	ND	ND	ND	ND	ND	ND	1.8
1,3-Dichlorobenzene	ND						
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	0.79
1,4-Dioxane	ND						
2-Butanone	ND	ND	0.92	160	ND	150	9.9
2-Hexanone	ND						
4-Methyl-2-Pentanone	ND						
Acetone	4,500	4,000	89	680	ND	470	51
Benzene	ND	ND	ND	160	ND	150	8.6
Benzyl Chloride	1,800	1,100	0.52	ND	ND	ND	ND
Bromodichloromethane	ND						
Bromoform	ND						
Bromomethane	ND						
Carbon Disulfide	170	72	0.44	75	ND	12	ND
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	1.1
Chlorobenzene	ND						
Chloroethane	0.75	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	14	0.70
Chloromethane	ND	ND	1.2	ND	ND	ND	2.2
Cis-1,2-Dichloroethene	ND						
Cis-1,3-Dichloropropene	ND						
Cyclohexane	1,400	1,200	0.87	750	39,000	41	6.1
Dibromochloromethane	ND						
Dichlorodifluoromethane (Freon 12)	5.7	5.1	6.3	ND	ND	ND	4.7
Ethyl Acetate	ND						
Ethylbenzene	4,200	4,600	1.2	68	ND	88	4.9
Hexachlorobutadiene	ND						
Isopropanol	ND						
Methyl Methacrylate	ND						
Methyl-tert-Butyl Ether (MtBE)	ND						
Methylene Chloride	4.0	ND	1.2	ND	ND	ND	3.4
n-Heptane	1,900	1,600	0.83	ND	40,000	86	8.4
n-Hexane	4,100	3,200	1.1	1,500	120,000	210	24
o-Xylene	4,200	6,500	1.4	60	ND	75	6.1

**Table 3:
 Summary of Soil Vapor Analysis Results**

Client Sample ID	SV-1 ¹	SV-4 ¹	Ambient	SV-5 ¹	SV-6 ¹	SV-7 ¹	Ambient
Date Sampled	07-15-13	07-15-13	07-15-13	10-04-13	10-04-13	10-04-13	10-04-13
TO-15 List	µg/m ³						
p&m-Xylenes	19,000	20,000	4.5	190	ND	260	16
p-Ethyltoluene	2,600	4,900	1.2	ND	ND	ND	6.0
Propene	ND	ND	ND	ND	ND	93	ND
Styrene	ND						
Tetrachloroethene	6.1	8.9	0.69	ND	1,600	ND	3.2
Tetrahydrofuran	ND	ND	ND	ND	ND	230	ND
Toluene	13,000	20,000	10	1,200	1,900	1,700	33
Trans-1,2-Dichloroethene	ND						
Trans-1,3-Dichloropropene	ND						
Trichloroethene	ND	ND	ND	ND	ND	ND	1.1
Trichlorofluoromethane (Freon 11)	55	55	23	ND	ND	ND	5.5
Vinyl Acetate	ND						
Vinyl Chloride	ND						
Percent Helium (He)	ND	ND	----	ND	ND	ND	----

Notes:

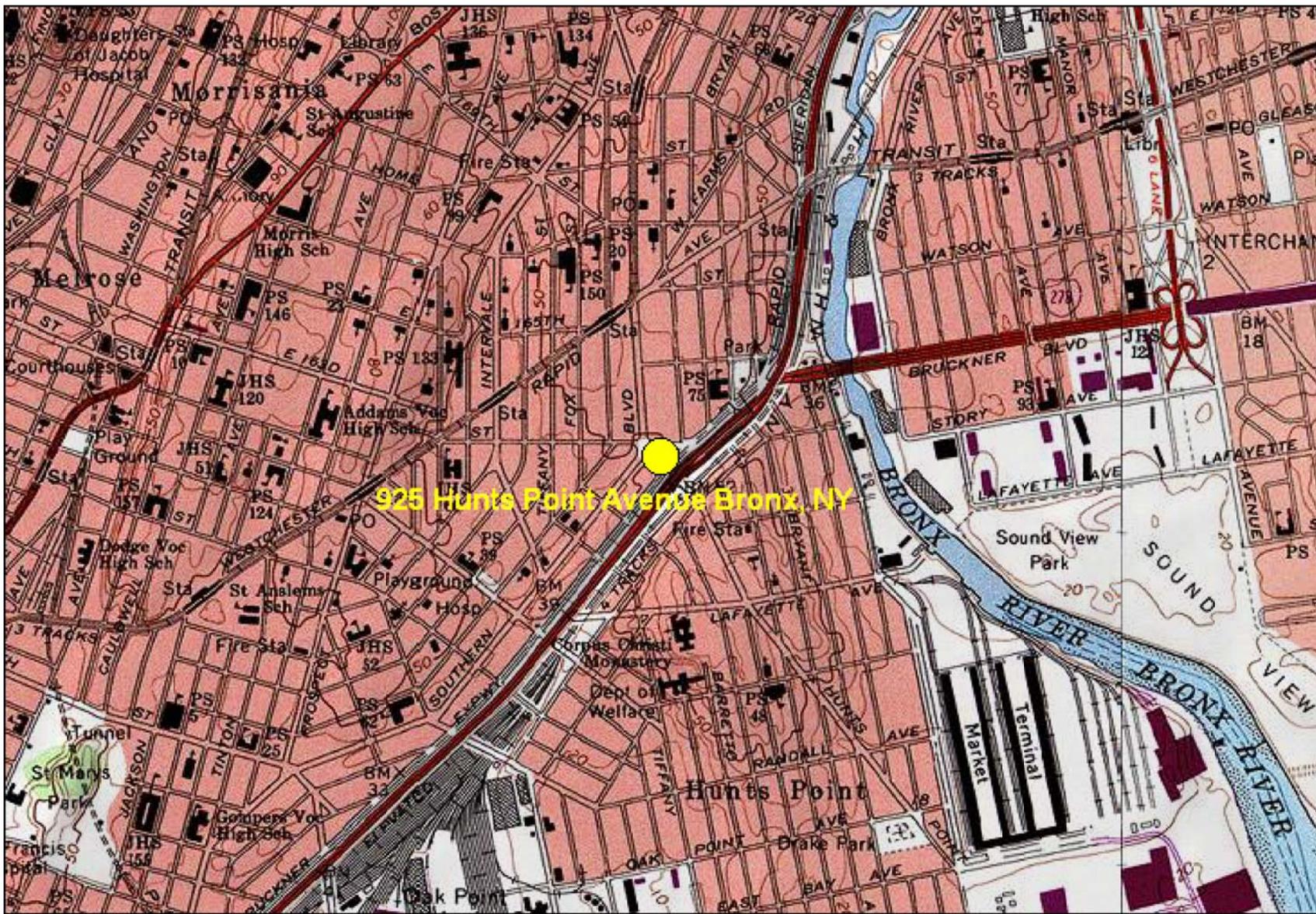
µg/m³ = parts per billion

ND=Not Detected above the laboratory minimum detection limit

¹ = The State of New York does not have any standards, criteria, or guidance values for concentrations of volatile chemicals in subsurface vapors.

BOLD Indicates Result Not Found in Ambient Sample

Figures



925 Hunts Point Avenue Bronx, NY

MN ↖ TN
13 1/2°



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JCB LEGEND
● SUBJECT SITE



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Notes:

The Crossings at Southern
925 Hunts Point Avenue
Bronx, New York 10459

OER Project Number:
14EH-N221X

Drawing Title

Figure No. 1

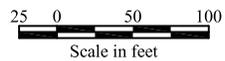
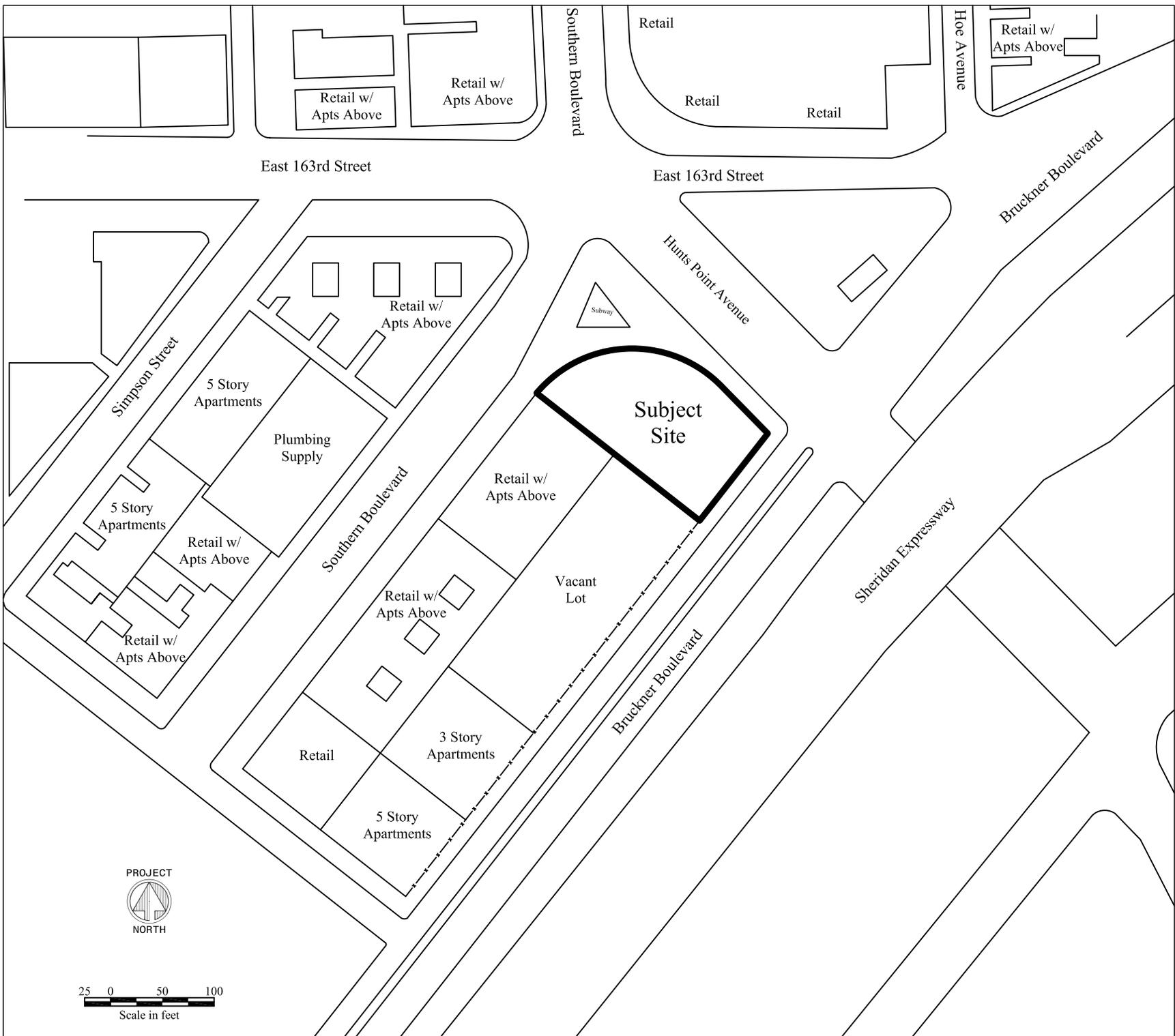
Site Location
Map

Scale As Noted	Project No. 13-26974	Date 11-01-13
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Drawn By J.V.N.	Checked By S.W.M.	Page No. 1 of 10
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Drawing No.

1



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The Crossings at Southern
925 Hunts Point Avenue
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OER Project Number:
14EH-N221X

Drawing Title

Figure No. 2
Surrounding Use
Map

Scale	Project No.	Date
As Noted	13-26974	11-01-13

Drawn By	Checked By	Page No.
J.V.N.	S.W.M.	2 of 10

Drawing No.

2



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Notes:
 The Crossings at Southern
 925 Hunts Point Avenue
 Bronx, New York 10459

OER Project Number:
 14EH-N221X

Drawing Title
 Figure No. 3
 Location of Soil Borings,
 Groundwater Monitoring Well
 Samples and
 Soil Vapor Samples

Scale As Noted	Project No. 13-26974	Date 11-01-13
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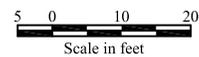
Drawn By J.V.N.	Checked By S.W.M.	Page No. 3 of 10
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Drawing No.
 3



JCB LEGEND

- ⊕ (blue circle) GROUNDWATER MONITORING WELL SAMPLED
- ⊕ (grey circle) GROUNDWATER MONITORING WELL NOT BEING SAMPLED
- ⊕ (circle with cross) SOIL BORING LOCATION
- ▲ (green triangle) SOIL VAPOR SAMPLING LOCATION
- ⊗ (circle with diagonal line) STORM DRAIN





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Drawing Title

Figure No. 4

Proposed
Redevelopment
Elevation

Scale Project No. Date
As Noted 13-26974 11-01-13

Drawn By Checked By Page No.
J.V.N. S.W.M. 4 of 10

Drawing No.

4





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OER Project Number:
14EH-N221X

PRELIMINARY
NOT FOR CONSTRUCTION
07-15-2013

Drawing Title

Figure No. 5

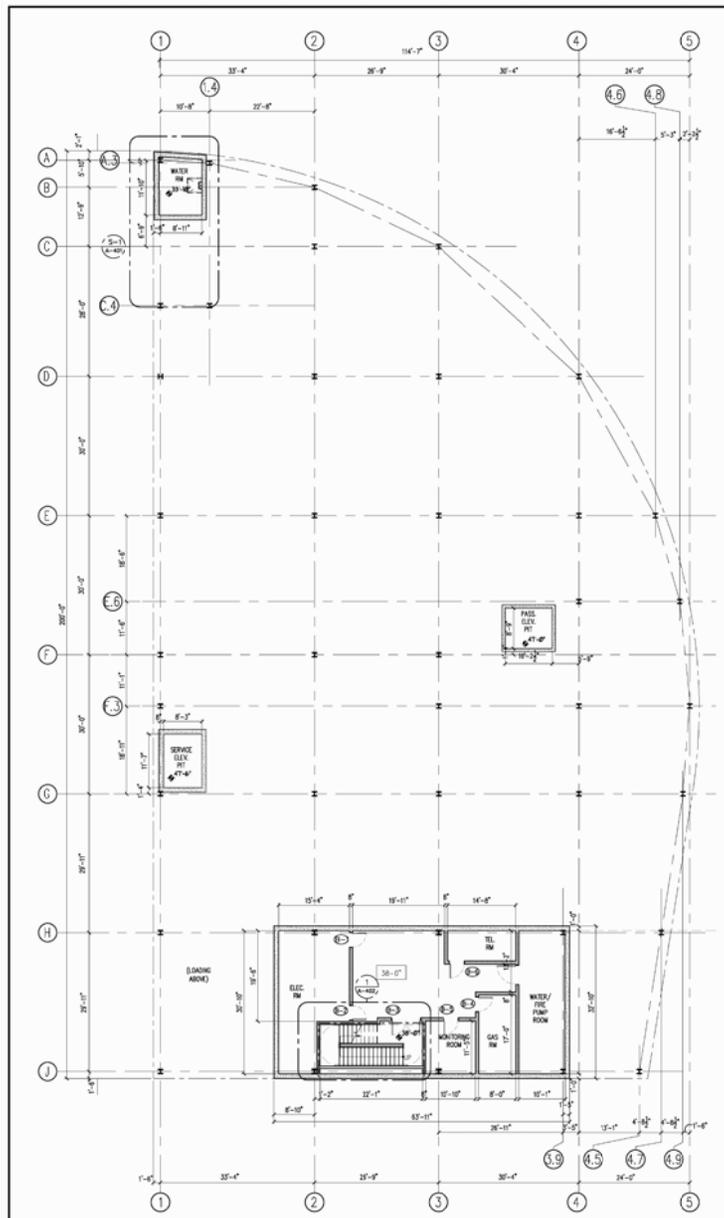
Proposed
Basement and
First Floor
Redevelopment
Plans

Scale As Noted Project No. 13-26974 Date 11-01-13

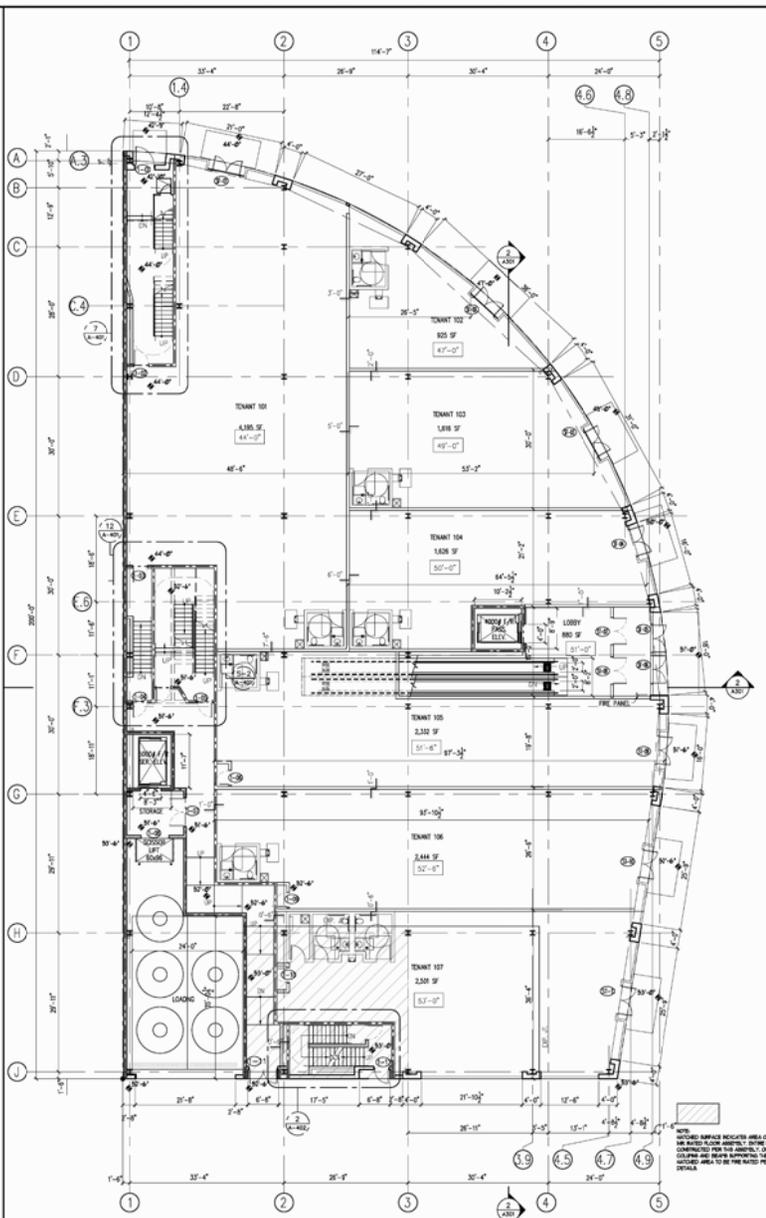
Drawn By J.V.N. Checked By S.W.M. Page No. 5 of 10

Drawing No.

5



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



2 FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

NO. DATE REMARKS BY

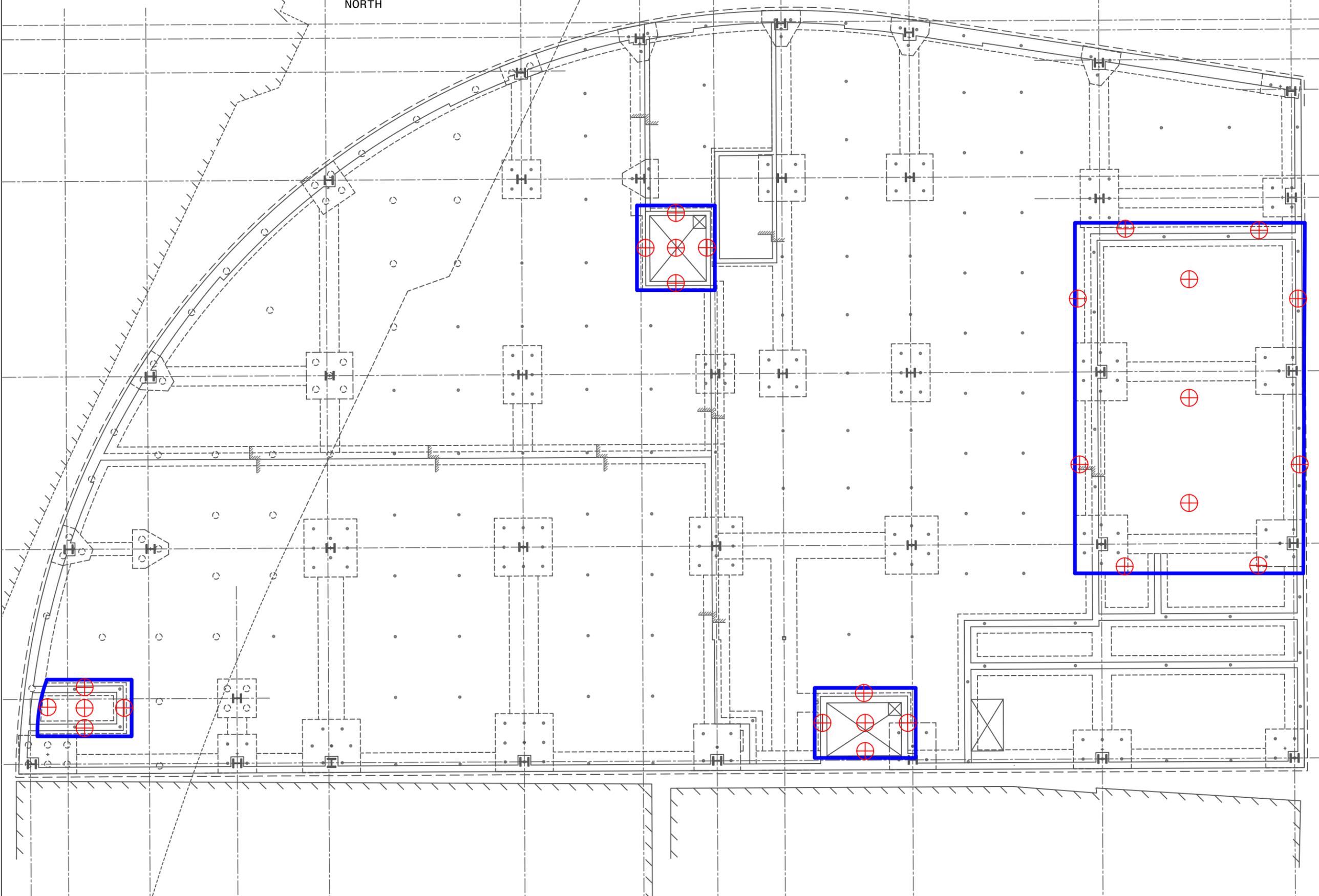
Studio 5 STUDIO 5 PARTNERSHIP ARCHITECTURE CONSULTANTS, LLC
45 HARBORFRONT PLAZA, SUITE 200
BRONX, NY 10459
TEL: (718) 592-8888
WWW.STUDIO5ARCHITECTURE.COM

BASEMENT
FIRST FLOOR
PLANS

DRAWN BY: MGA SCALE: AS NOTED
CHECKED BY: LMK PROJECT: 13-055
DATE: 03/19/2013

A-101.00
X OF

JCB LEGEND
 ⊕ END POINT SAMPLE LOCATION
 — AREA OF SOIL EXCAVATION



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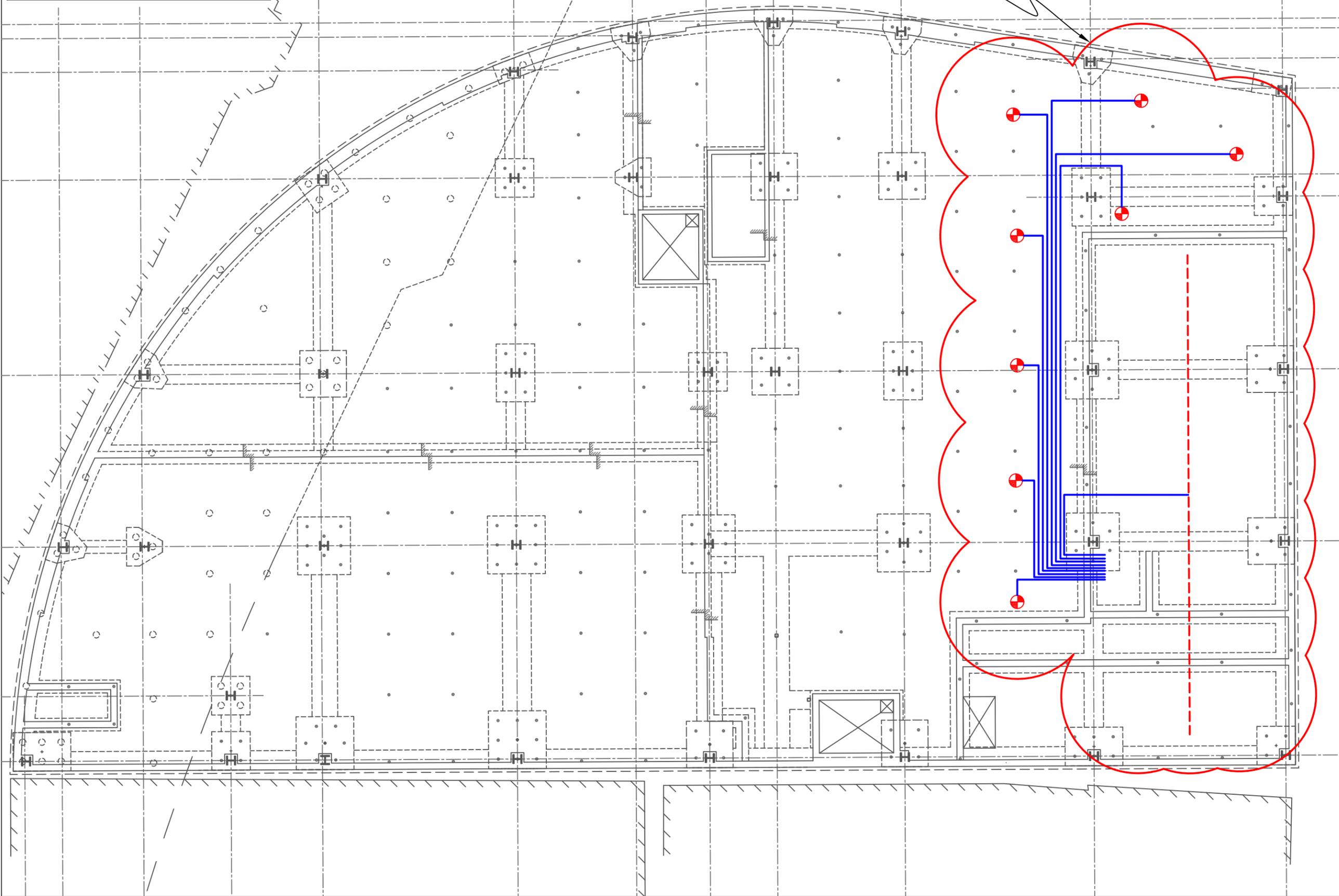
Notes:
 The Crossings at Southern
 925 Hunts Point Avenue
 Bronx, New York 10459
 OER Project Number:
 14EH-N221X

Drawing Title
Figure No. 6
 Excavation
 and
 End Point Sampling
 Locations
 Map

Scale	Project No.	Date
N.T.S.	13-26974	11-01-13
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Drawing No.
 6

JCB LEGEND	
	SVE POINT LOCATION
	SOLID PVC PIPING
	PERFORATED PVC PIPING



Estimated Area of Influence



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 OER Project Number:
 14EH-N221X

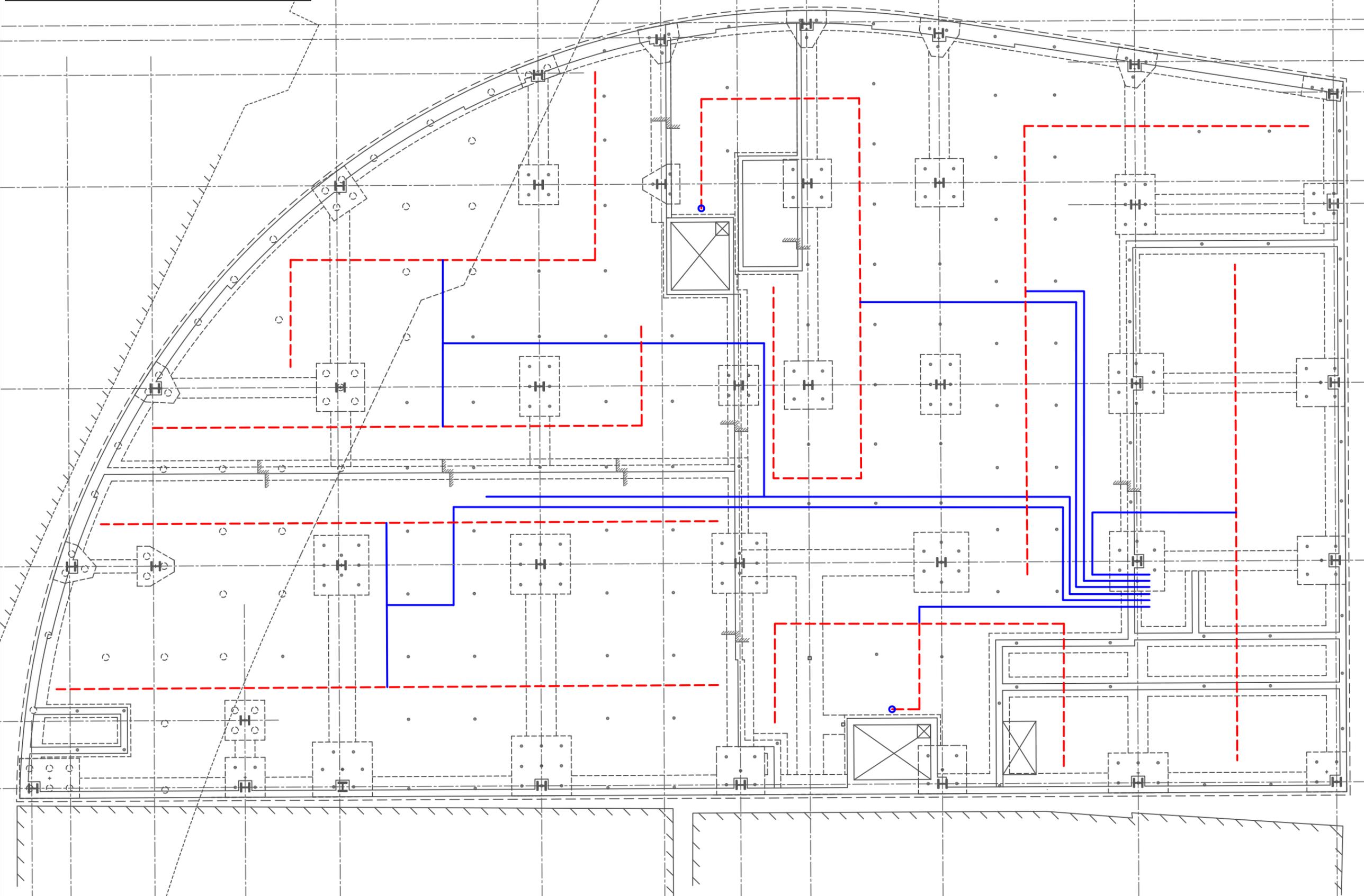
Drawing Title
 Figure No. 7
 Proposed
 Soil Vapor
 Extraction System
 Layout

Scale	Project No.	Date
N.T.S.	13-26974	10-29-13

Drawn By	Checked By	Page No.
D.F.C.	S.W.M.	7 of 10

Drawing No.
 7

JCB LEGEND	
	SOLID PVC PIPING
	PERFORATED PVC PIPING
	VERTICAL SLOTTED PVC PIPING



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 Bronx, New York 10459

 OER Project Number:
 14EH-N221X

Drawing Title

Figure No. 8

**Proposed
 Sub-Slab
 Depressurization
 System
 Layout**

Scale	Project No.	Date
N.T.S.	13-26974	10-28-13

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Drawing No.




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925 Hunts Point Avenue
Bronx, New York 10459

OER Project Number:
14EH-N221X

Drawing Title

Figure No. 9

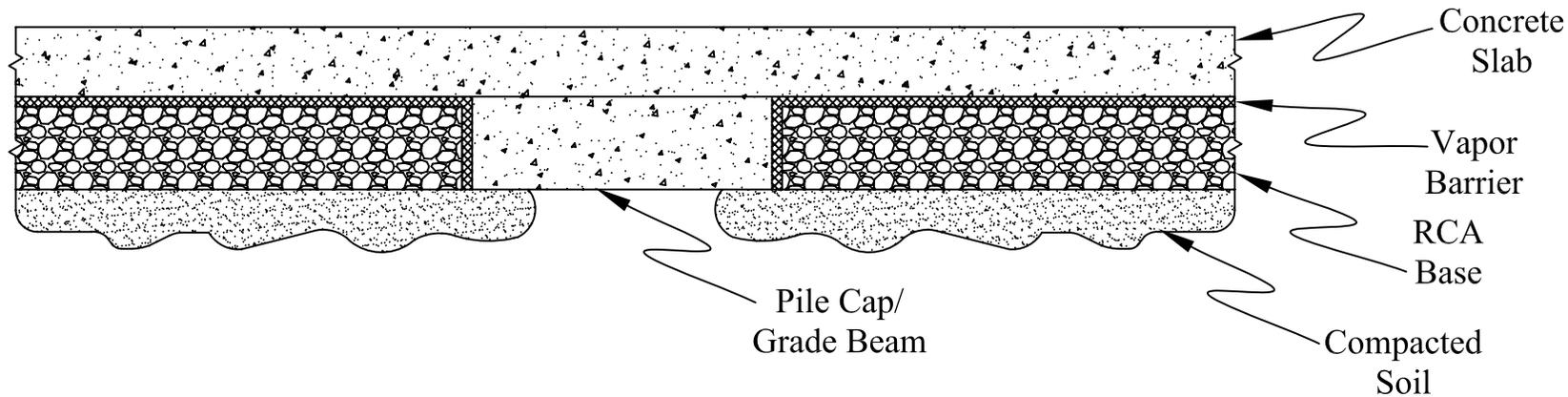
Proposed
Vapor Barrier
Design

Scale	Project No.	Date
As Noted	13-26974	11-04-13

Drawn By	Checked By	Page No.
J.V.N.	S.W.M.	9 of 10

Drawing No.

9





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 Bronx, New York 10459
 OER Project Number:
 14EH-N221X

Drawing Title
Figure No. 10
Traffic
Control
Plan

Scale	Project No.	Date
As Noted	13-26974	11-01-13

Drawn By	Checked By	Page No.
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Drawing No.
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Appendix 1

Citizen Participation Plan

Citizen Participation Plan

The NYC Office of Environmental Remediation and Napa Realty Corp. 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, Napa Realty Corp 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, Hannah Moore, 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 in the nearest public library that maintains evening and weekend hours. This document repository is intended to house, for community review, all principal documents generated during the cleanup program including Remedial Investigation plans and reports, Remedial Action work plans and reports, and all public notices and fact sheets produced during the lifetime of the remedial project. Napa Realty Corp will inspect the repositories to ensure that they are fully populated with project information. The repository for this project is:

New York Public Library – Hunt's Point Branch
877 Southern Boulevard
Bronx, NY 10459
(718) 617-0338
Call for hours of operation

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

Identify Issues of Public Concern: The major issues of concern to the public will be potential impacts of nuisance odors and dust during the soil/fill disturbance on Site. This work will be performed in accordance with the procedures specified in the detailed remedial program which considers and takes preventative measures for exposures to future residents of the property and those on adjacent properties during construction. Detailed plans to monitor the potential for exposure including a Construction Health and Safety Plan and a Community Air Monitoring Plan are required components of the remedial program. Implementation of these plans will be under the oversight of the New York City Office of Environmental Remediation (NYC OER).

These plans will specify the following worker and community health and safety activities during remedial activity at the Site:

- On-Site air monitoring for worker protection,
- Perimeter air monitoring for community protection.

The Health and Safety Plan and the Community Air Monitoring Plan prepared as part of the Remedial Action Work Plan will be available for public review at the document repository.

Public Notice and Public Comment: Public notice to all members of the Project Contact List is required at three (3) major steps during the performance of the cleanup program (listed below) and at other points that may be required by OER. Notices will include Fact Sheets with descriptive project summaries, updates on recent and upcoming project activities, repository information, and important phone and email contact information. All notices will be prepared by Napa Realty Corp, reviewed and approved by OER prior to distribution and mailed by Napa Realty Corp. Public comment is solicited in public notices for all work plans developed under the NYC Voluntary Cleanup Program. Final review of all work plans by OER will consider all public comments. Approval will not be granted until the public comment period has been completed.

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

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

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

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

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

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

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

Appendix 2

Sustainability Statement

Sustainability Statement

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

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

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 Remedial Action Report (RAR).

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

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

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

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

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

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

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

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

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

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

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

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

Paperless Brownfield Cleanup Program: Napa Realty Corp is participating in OER's Paperless Brownfield Cleanup Program. Under this program, submission of electronic documents will replace submission of hard copies for the review of project documents, communications and milestone reports.

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

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

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

Appendix 3
Soil / Materials Management Plan

SOIL / MATERIAL MANAGEMENT PLAN

**925 HUNTS POINT AVENUE
BRONX, NEW YORK 10474**

**PREPARED FOR:
GASETERIA OIL CORP.
364 MASPETH AVENUE
BROOKLYN, NEW YORK 11211**

**JCB PROJECT #: 13-26974
NOVEMBER 2013**

**J.C. BRODERICK & ASSOCIATES, INC.
Environmental Consulting & Testing**

**1775 Expressway Drive North – Suite 1
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631-584-5492 Fax: 631-584-3395**



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SOIL/MATERIALS MANAGEMENT PLAN

1.0 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional and will be reported in the Remedial Closure Report (RCR). Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of the Notice of Satisfaction.

2.0 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.

3.0 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.

4.0 Materials Excavation, Load-Out and Departure

The PE/QEP overseeing the remedial action will:

- oversee remedial work and the excavation and load-out of excavated material;
- ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;
- ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in this RAP;

- ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate parties;
- ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

Open and uncontrolled mechanical processing of historical fill and contaminated soil on-Site will not be performed without prior OER approval.

5.0 Off-Site Materials Transport

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. If loads contain wet material capable of causing leakage from trucks, truck liners will be used. Queuing of trucks will be performed on-Site, when possible in order to minimize off-Site disturbance. Off-Site queuing will be minimized.

Outbound truck transport routes are in Section 3.8 of the RAP. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of mapped truck routes; (c) minimizing off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

6.0 Materials Disposal Off-Site

The following documentation will be established and reported by the PE/QEP for each disposal destination used in this project to document that the disposal of regulated material exported from the Site conforms with applicable laws and regulations: (1) a letter from the PE/QEP or Applicant to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in New York under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Applicant. The letter will include as an attachment a summary of all chemical data for the material being transported; and (2) a letter from each disposal facility

stating it is in receipt of the correspondence (1, above) and is approved to accept the material. These documents will be included in the RCR.

The RCR will include an itemized account of the destination of all material removed from the Site during this remedial action. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the RCR.

All impacted soil/fill or other waste excavated and removed from the Site will be managed as regulated material and will be disposed in accordance with applicable laws and regulations. Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in conformance with its applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the RCR. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the RCR. Hazardous wastes derived from on-Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

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.

7.0 Materials Reuse On-Site

Soil and fill that is derived from the property that meets the soil cleanup objectives established in this plan may be reused on-Site. The soil cleanup objectives for on-Site reuse are listed in the RAP. "Reuse on-Site" means material that is excavated during the remedy or development, does not leave the property, and is relocated within the same property and on comparable soil/fill material, and addressed pursuant to Engineering 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 RAP are followed. The expected location for placement of reused material is shown in the RAP.

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.

8.0 Demarcation

After completion of hotspot removal and any other invasive remedial activities, and prior to backfilling, the top of the residual soil/fill will be defined by one of three methods: (1) placement of a demarcation layer. The demarcation layer will consist of geosynthetic fencing or equivalent material to be placed on the surface of residual soil/fill to provide an observable reference layer. A description or map of the approximate depth of the demarcation layer will be provided in the RCR; or (2) a land survey of the top elevation of residual soil/fill before the placement of cover soils, pavement and associated sub-soils, or other materials or structures or, (3) all materials beneath the approved cover will be considered impacted and subject to site management after the remedy is complete. Demarcation may be established by one or any combination of these three methods. As appropriate, a map showing the method of demarcation for the Site and all associated documentation will be presented in the RCR. This demarcation will constitute the top of the site management horizon.

9.0 Import of Backfill Soil from Off-Site Sources

This Section presents the requirements for imported fill materials to be used below the cover layer and within the clean soil cover layer. All imported soils will meet OER-approved backfill and cover soil quality objectives for this Site. The backfill and cover soil quality objectives are listed in the RAP.

A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any applicable documentation. Material from industrial sites, spill sites, environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

The following potential sources may be used pending attainment of backfill and cover soil quality objectives:

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;
- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYSDEC.

All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in this RAP. The RCR will report the source of the fill, evidence that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed.

9.1 Source Screening and Testing

Inspection of imported fill material will include visual, olfactory and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:

- Trucks with imported fill material will be in compliance with applicable laws and regulations and will enter the Site at designated locations;
- The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and
- Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite samples of imported material will be taken at a minimum frequency of one (1) sample for every 500 cubic yards of material. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements and is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) will be imported from facilities permitted or registered by NYSDEC. Facilities will be identified in the RCR. A PE/QEP is responsible to ensure that the facility is compliant with 6NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA material is not acceptable for, and will not be used as cover material.

10.0 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.

11.0 Storm-water Pollution Prevention

Applicable laws and regulations pertaining to storm-water pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this RAP (silt fences and barriers, and hay bale checks) will be installed around the entire perimeter of the remedial construction area and inspected once a week and after every storm event to ensure that they are operating appropriately. Discharge locations will be inspected to determine whether erosion control measures are effective in preventing significant impacts to receptors. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion of the silt fence anchor will be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

12.0 Contingency Plan

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to OER's Project Manager. Petroleum spills will be reported to the NYSDEC 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 volatiles and semi-volatiles, pesticides/PCBs, and TAL metals, as appropriate.

13.0 Odor, Dust and Nuisance Control

13.1 Odor Control

All necessary means will be employed to prevent on- and off-Site odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) use of foams to cover exposed odorous soils. If odors develop and cannot otherwise be controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; and (e) use of chemical odorants in spray or misting systems.

This odor control plan is capable of controlling emissions of nuisance odors. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. OER will be notified of all odor complaint events. Implementation of all odor controls, including halt of work, will be the responsibility of the PE/QEP's certifying the RCR.

13.2 Dust Control

Dust management during invasive on-Site work will include, at a minimum:

- Use of a dedicated water spray methodology for roads, excavation areas and stockpiles.
- Use of properly anchored tarps to cover stockpiles.
- Exercise extra care during dry and high-wind periods.
- Use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted and the source of dusts will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. OER will be notified of all dust complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the PE/QEP's responsible for certifying the Remedial Closure Report.

13.3 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.

14.0 Import of Clean Cover

Clean Cover is not expected to be utilized as part of this project due to the structure occupying the entire subject property.

Appendix 4

Construction Health and Safety Plan

CONSTRUCTION HEALTH AND SAFETY PLAN

**925 HUNTS POINT AVENUE
BRONX, NEW YORK 10474**

**PREPARED FOR:
GASETERIA OIL CORP.
364 MASPETH AVENUE
BROOKLYN, NEW YORK 11211**

**JCB PROJECT #: 13-26974
NOVEMBER 2013**

**J.C. BRODERICK & ASSOCIATES, INC.
Environmental Consulting & Testing**

**1775 Expressway Drive North – Suite 1
Hauppauge, New York 11788
631-584-5492 Fax: 631-584-3395**



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Attachment 1 - Chemicals of Concern

Attachment 2 - Figures of Subject Property

Attachment 3 - Map and Directions to Medical Facility

PROJECT SUMMARY

Site Name: 925 Hunts Point Avenue

Site Location: 925 Hunts Point Avenue
Bronx, New York 10474
Block: 2735, Lot: 20

Proposed Activities: Remediation of subsurface soils, groundwater and soil vapor at the subject property

Potential Chemical Hazards:

Based upon reported petroleum spills within the subject site, the primary expected potential chemical hazards are Volatile Organic Compounds (VOCs).

EMERGENCY CONTACTS

The following list provides names and telephone numbers for emergency contact personnel. In the event of a medical emergency, personnel will take direction from the Health and Safety Officer (HSO) and notify the appropriate emergency organization. In the event of a fire or spill, the Site Supervisor will notify the appropriate local, state, and Federal agencies.

Organization	Name of Contact	Telephone Number
Ambulance		911
Police Department		911
Fire Department		911
Call Before You Dig		811
Project Manager	Steven Muller	631-584-5492 x 337
Health & Safety Officer	Steven Muller	631-584-5492 x 337
Site Supervisor	Jeffrey Nannini	631-584-5492 x 329
Client Representative	Adam Good	718-782-4200

1.0 INTRODUCTION

This section of the Site Health and Safety Plan (HASP) defines the general applicability and general responsibilities with respect to compliance with Health and Safety programs.

1.1 SCOPE AND APPLICABILITY OF HASP

The purpose of this HASP is to define requirements and designate protocols during the site investigation activities. Applicability extends to all employees, contractors, subcontractors, and visitors. All personnel on-site, contractors and subcontractors included shall be informed of the site emergency response procedures and any potential fire, explosion, health, or safety hazards of the operation. This plan must be reviewed, and an agreement to comply with the requirements must be signed by all personnel prior to entering the exclusion zone or contamination reduction zone.

During development of this plan consideration was given to current safety standards as defined by the USEPA, OSHA, and NIOSH. Listed procedures were designed to account for the potential for exposure to unknown substances. Specifically, the following reference sources have been consulted:

1. OSHA 29 CFR 1910.120 and EPA 40 CFR 311
2. U.S. EPA, OERR ERT Standard Operating Safety Guides
3. NIOSH/OSHA/USCG/EPA Occupational Health and Safety Guidelines
4. ACGIH Threshold Limit Values

1.2 VISITORS

All visitors entering the contamination reduction zone and exclusion zone at the site will be required to read and verify compliance with the provisions of this HASP. In addition, visitors will be expected to comply with relevant OSHA requirements. Visitors will also be expected to provide their own protective equipment.

In the event that a visitor does not adhere to the provisions of the HASP, he/she will be requested to leave the work area. All non-conformance incidents and accidents will be recorded in the site log.

2.0 OPERATIONAL SAFETY AND HEALTH ANALYSIS

This HASP addresses site-specific hazards identified through previous site work or background information provided pertaining to the subject property. For additional historic information concerning the Site, see the following documents:

Baseline Acquisition Report, dated October 2002, prepared by Delta Environmental Consultants, Inc.
Investigation Summary Report, dated February 2006, prepared by Advanced Site Restoration
Remedial Action Plan, dated February 2006, prepared by Advanced Site Restoration
Final Investigation Summary Report, dated September 2007, prepared by Advanced Site Restoration
Remedial Action Plan, dated December 2007, prepared by Advanced Site Restoration
Revised Remedial Action Plan, dated February 2008, prepared by Advanced Site Restoration
Remedial Action Plan, dated March 2009, prepared by Advanced Site Restoration
Revised Remedial Action Plan, dated April 2009, prepared by Advanced Site Restoration
Remedial Investigation Report, dated January 2010, prepared by J.C. Broderick and Associates, Inc.
Remedial Investigation Report, dated February 2011, prepared by J.C. Broderick and Associates, Inc.
Interim Remedial Measure, dated June 2011, prepared by J.C. Broderick and Associates, Inc.

2.1 HISTORICAL OVERVIEW

The subject property “the site” is located on the west corner of the intersection formed by Hunts Point Avenue and Bruckner Boulevard, in the Borough and County of the Bronx, City and State of New York. The subject property is commonly known as, and is located at, 925 Hunts Point Avenue Bronx, New York 10474.

The subject property is irregular in shape and is approximately 20,000 square feet in size. The subject structure is a single story convenience store constructed on a concrete slab and is approximately 2,800 square feet in size. It is expected that the subject property was initially developed prior to 1950 and contained a gasoline filling station and auto repair structure. Reportedly, subject property has been utilized as a filling station throughout history.

It has been reported that the existing subject structure will be demolished. It has also been reported that the subject property will developed as a non-gasoline station use.

2.2 SCOPE OF WORK/ SUBSURFACE INVESTIGATION SCOPE & OBJECTIVES

The primary purpose of the subsurface investigation is to adequately identify/characterize the subsurface soils and soil vapor at the subject property. Based upon the conclusions of this investigation, it is expected that a remedial scope can be developed which would determine the extent and methods of remediation necessary, if any.

The tasks involved with this investigation shall include, in general, the following activities:

1. Excavation of Contaminated Soil
2. Collection of End Point Soil Samples
3. Use of field analytical testing equipment
4. Collection and submission of soil samples to an independent NYSDOH ELAP-Certified laboratory for analysis for Volatile Organic Compounds (VOCs) utilizing Environmental

Protection Agency (EPA) Method 8260, Semi-Volatile Organic Compounds (SVOCs) utilizing EPA Method 8270 and Target Analyte List metals by EPA Method 6010

2.3 TASK-SPECIFIC HEALTH & SAFETY ANALYSIS

The following subsections describe each task in terms of the specific hazards associated with it. In addition, the protective measures to be implemented during completion of each task are identified. In this section, health and safety issues for performing soil borings, field screening of samples and preparation of samples for laboratory submission are all task specific.

2.3.1 TASKS

- On-Site management of remedial activities during excavation of various locations.
- Collection of End Point samples
- On-Site analysis of soils
- Installation of Soil Vapor Extraction System components
- Installation of Sub-Slab Depressurization components

2.3.2 IDENTIFIED HAZARDS

The tasks are intrusive. The primary safety concerns during the remediation activities will be physical hazards (slips, trips, and falls), subsurface utility encounter and exposure (through inhalation or dermal contact) of potentially contaminated soils.

2.3.3 HAZARD PREVENTION

A physical hazards exclusion zone will be established around the areas. Only approved personnel will be allowed to enter the exclusion zone during remediation activities. Site workers will wear appropriate foot wear with steel toes and rubber-grip soles, avoid slippery surfaces, and generally use caution and good judgment. The exclusion area will extend to any area clear of the excavator and its range.

2.3.4 UTILITIES

In accordance with New York State Law 16 NYCRR Part 753, prior to mobilization, a utility mark out will be obtained from the One Call Notification System. In addition, private utility mark-outs will be performed prior to any work on-site.

2.3.5 CHEMICAL HAZARDS

Based on prior site assessments, the primary contaminants anticipated are petroleum range Volatile Organic Compounds (VOCs).

The soil sampling intervals and the surrounding work area will be continuously monitored using a Photo-Ionization Detector (PID) during site activities. The PID is an appropriate direct-reading monitoring instrument for confirming the presence or absence of Volatile Organic Compound (VOC) contamination in the soil sampling intervals.

The suspect contaminant with the lowest Permissible Exposure Level (PEL) is benzene, which has a level of 1 part per million (ppm) PEL. The benzene Threshold Limit Value (TLV) (as listed in 29 CFR 1910.1200, Table Z-2) is 10 ppm (based on mixtures containing benzene). Appropriate levels of protection will be initiated if airborne concentrations of contaminants are identified at 50 ppm above

background levels in the immediate area of work during on-site activities and all other Personal Protective Equipment (PPE) will be upgraded to level C.

If PID readings in the areas above and surrounding the work area exceed 250 ppm above background levels, all on-site activities will be suspended. The equipment selected will depend on the nature and concentrations of the contaminants encountered. First aid equipment will be available during all field activities.

3.0 TRAINING REQUIREMENTS

3.1 ALL PERSONNEL

Consistent with OSHA's 29 CFR 1910.120 regulation covering Hazardous Waste Operations and Emergency Response, all site personnel are required to be trained in accordance with 29 CFR 1910.120. At a minimum, all personnel are required to be trained to recognize on-site hazards, the provisions of this HASP, and the responsible personnel. All training and medical monitoring records for each subcontractor are the responsibility of that subcontractor. In addition, training records for all site personnel will be maintained by the site Health and Safety Officer (HSO).

Prior to on-site arrival, each employer will be responsible for certifying that his/her employees meet the requirements of pre-assignment training, consistent with OSHA 29 CFR 1910.120 paragraph (e)(3). The employer should be able to provide a document certifying that each general site worker has received 40 hours of instruction off the site, and 24 hours of training for any workers who are on-site only occasionally for a specific task. If an individual employee has work experience and/or training that is equivalent to that provided in the initial training, an employer may waive the 40-hour training so long as that equivalent experience is documented or certified. All personnel must also receive 8 hours of refresher training annually.

3.2 SITE SUPERVISOR

The Site Supervisor is responsible for oversight of all on-site activities. Consistent with OSHA 29 CFR 1910.120 paragraph (e)(8), individuals designated as Site Supervisors require an additional 8 hours of training.

The following individual(s) are identified as Site Supervisors:

1. Steven Muller, J.C. Broderick & Associates, Inc.
2. Jeffrey Nannini, J.C. Broderick & Associates, Inc.
3. David Collins, J.C. Broderick & Associates, Inc.

3.3 BRIEFING TOPICS

In order to comply with 29 CFR 1910.1200, Hazard Communication, and a written Hazard Communication Program has been established. The following items will be discussed by a qualified individual during the pre-operational briefing(s) or during periodic site briefings:

<u>Training</u>	<u>Frequency</u>
Air Monitoring, Sec. 7.0; [29 CFR 1910.120(H)]	Daily
Confined space entry procedure, Sec. 11.0	Periodic
Emergency response plan, Sec. 10.0; [29 CFR 1910.120(1)]	Periodic
Personnel Protective Equipment, Sec. 5.0	Daily

3.4 CONFINED SPACE ENTRY

Entry into confined spaces, as defined in OSHA 29 CFR 1910.146 paragraph (b)(1), is not anticipated as an on-site activity. Should entry into a confined space be required, all operational activities will be suspended until entry can be achieved in accordance with 1910.146.

4.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

This section describes the specific levels of protection required for the on-site tasks. The general requirements of the USEPA and OSHA-designated Levels of Protection (A-D) are described below.

Personnel wear PPE when response activities involve known or suspected atmospheric contamination vapors, gases, when particulates may be generated by site activities, or when direct contact with skin-affecting substances may occur. Full face-piece respirators protect the lungs, gastrointestinal tract and eyes against airborne toxicants. Chemical-resistant clothing protects the skin from contact with skin-destructive and absorbable chemicals.

4.1 PPE LEVELS

The specific levels of protection and necessary components for each have been divided into four categories according to the degrees of protection afforded:

- LEVEL A** Should be worn when the highest level of respiratory, skin and eye protection is needed.
- LEVEL B** Should be worn when the highest level of respiratory protection is needed, but a lesser level of skin protection is required. Level B is the primary level of choice when encountering unknown environments.
- LEVEL C** Should be worn when the criteria for using air-purifying respirators are met, and a lesser level of skin protection is required.
- LEVEL D** Should be worn only as a work uniform and not in any area with respiratory or skin hazards. It provides minimal protection against chemical hazards.

Modifications of these levels are permitted and routinely employed during site work activities to maximize efficiency. For example, Level C respiratory protection and Level D skin protection may be required for a given task. Likewise, the type of chemical protective ensemble (i.e. material, format) will depend upon contaminants and degrees of contact. In situations where the type of chemical, concentration, and possibilities of contact are not known, the appropriate Level of Protection must be selected based on professional experience and judgment, until the hazards can be better identified.

The Level of Protection selected is based upon the following:

- Type and measured concentration of the chemical substance and its toxicity.
- Potential for exposure to substances in air, liquids, or other direct contact with material due to work being done.
- Knowledge of chemicals on-site along with properties such as toxicity, route of exposure, and contaminant matrix.

4.2 REASSESSMENT OF PPE PROGRAM

The Level of Protection provided by PPE selection shall be upgraded or downgraded based upon a change in site conditions or findings of investigations. When a significant change occurs, the hazards should be reassessed. Some indicators of the need for reassessment are:

- Commencement of a new work phase, such as the start of drum sampling or work which begins in a different portion of the site.

- If a change in job tasks occurs during a work phase.
- If there is a change of season/weather.
- If temperature extremes or individual medical considerations limit the effectiveness of PPE.
- If contaminants other than those previously identified are encountered.
- If there is a change in ambient levels of contaminants.
- If there is a change in the scope of work which effects the degree of contact with contaminants.

4.3 SELECTED PPE

All on-site activities, with the exception of confined space entry, will be conducted using Level D protective equipment. Personnel will upgrade to Level C if the Ambient Air Contaminant Threshold is exceeded or if other site conditions warrant additional protection.

During confined space entry, if necessary, the personnel entering the confined space shall wear Level B PPE with supplied air. Should site conditions require PPE above Level C, all on-site activities will be suspended until the appropriate level of protection can be arranged.

The following specific clothing materials will be used on-site:

Level D

Inner Gloves:	At least surgical gloves, if sampling
Boots/Boot Covers:	Steel-toed boots, no boot covers
Outer Gloves:	Nitrile if sampling or leather
Outer Garment/Coveralls:	Standard clothes, coveralls or work clothes
Respiratory Protection:	Dust mask if desired
Eye Protection:	Goggles or safety glasses

Level C

Inner Gloves:	Surgical gloves
Boots/Boot Covers:	Steel-toed boots, Nitrile-coated covers
Outer Gloves:	Nitrile
Outer Garment/Coveralls:	Tyvek coveralls or similar
Respiratory Protection:	Half-face respirator with organic vapor/HEPA cartridges or Full-face, negative-pressure air-purifying respirators with organic vapor/HEPA cartridges
Eye Protection:	Goggles

5.0 PERSONNEL MONITORING

5.1 SITE SPECIFIC MONITORING

All employees will be monitored on-site for signs of physical stress such as heat stroke or overexertion. In addition, all employees will be monitored for symptoms of chemical exposure, especially those symptoms commonly associated with contaminants encountered on-site. The pulse, heart rate, and temperature of employees will be monitored if on-site conditions warrant additional on-site monitoring.

5.2 EXPOSURE/INJURY/MEDICAL SUPPORT

As a follow-up to any possible injury or exposure above established limits, all employees are entitled and encouraged to seek medical attention and physical testing. Depending upon the type of exposure, it is critical to perform follow-up testing within 24-48 hours. The type of test required to accurately monitor for exposure effects would depend on the specific conditions of the exposure.

6.0 AIR MONITORING/SAMPLING

This section explains the general concepts of an air-monitoring program and specifies the surveillance activities which will take place on-site.

The purpose of air monitoring is to identify and quantify airborne contaminants in order to determine the level of worker protection needed. Initial screening for identification is often qualitative, i.e., the contaminant, or the class to which it belongs, is demonstrated to be present, but quantification requires subsequent testing.

Two principal approaches are available for identifying and/or quantifying airborne contaminants:

1. The on-site use of direct-reading instruments.
2. Laboratory analysis of air samples obtained by gas sampling-bag collection media (i.e., filter, sorbent), and/or wet-Contaminant collection methods.

6.1 DIRECT-READING MONITORING INSTRUMENTS

Unlike air sampling devices, which are used to collect samples for subsequent analysis in a laboratory, direct-reading instruments provide information at the time of sampling, allowing rapid decision-making to occur. Data obtained from the real-time monitors are used to assure proper selection of PPE, engineering controls, and work practices. Overall, the instruments give the user the capability to determine if site personnel are being exposed to concentrations, which exceed exposure limits or action levels for specific hazardous materials.

Of significant importance, especially during initial entries, is the potential for IDLH conditions or oxygen-deficient atmospheres. Real-time monitors can be useful in identifying any IDLH conditions, toxic levels of airborne contaminants, flammable atmospheres, or radioactive hazards. Periodic monitoring of conditions is critical; especially if exposures may have increased since initial monitoring or if new activities are conducted on-site.

6.2 SITE-SPECIFIC MONITORING

Air monitoring will be conducted on a continual basis in the drilling area using a Photo-Ionization Detector (PID). Action levels for each contaminant will be set at the TLV for benzene (10ppm). PID readings will be recorded in a field notebook at least every 10 minutes. Any variation from background levels which is experienced during continuous monitoring will also be recorded. Some of the limitations of the PID should be noted:

- Detects total concentration of volatile organic gases, detectable aromatic compounds and a few inorganic gases.
- Moist atmospheric conditions (e.g. rain) and high relative humidity (>90%) "quenches" signal, resulting in low readings.
- Does not detect methane.
- For concentrations >150 ppm, the PID may provide non-linear or erratic responses.
- Lead acid battery in PID loses power quickly in cold weather (may require periodic recharging).
- Readings may be affected by power lines, transformers, or radio wave transmitters.
- Accuracy $\pm 15\%$
- Detection range 0.5-2,000 ppm.

7.0 SITE CONTROL MEASURES

The following section defines measures and procedures for maintaining site control. Site control is an essential component in the implementation of the site health and safety program.

7.1 BUDDY SYSTEM

During all Level B activities or when on-site conditions present a risk to personnel, the implementation of a buddy system is mandatory. A buddy system requires at least two people work as a team, each looking out for one other. Level B operations generally require three people.

7.2 SITE COMMUNICATIONS PLAN

Successful communications between field teams and contact with personnel in the support zone is essential. The following communications systems will be available during activities at the site, if required.

<u>Signal</u>	<u>Definition</u>
Hands clutching throat	Out of air/cannot breathe
Hands on top of head	Need assistance
Thumbs up	OK/I'm all right/I understand
Thumbs down	No/Negative
Arms waving upright	Send backup support
Grip partner's wrist	Exit area immediately

7.3 WORK ZONE DEFINITION

The three (3) work zones generally established on-site are the Exclusion Zone, Contamination Reduction Zone, and Support Zone. Given the limited amount of space in each work area and the nature of the subsurface work to be performed on-site, an Exclusion Zone only will be established around each work area. If site conditions warrant, Contamination Reduction and Support Zones will be established.

The Exclusion Zone is defined as the area where contamination is either known or likely to be present, or where on-site activities will provide a potential to cause harm to personnel. Entry into the Exclusion Zone may require the use of PPE.

The Contamination Reduction Zone is the area where personnel conduct body and equipment decontamination. It is essentially a buffer zone between contaminated areas and clean areas. Activities to be conducted in this zone may require PPE as defined in the Decontamination Zone.

The Support Zone is situated in clean areas where the chance to encounter hazardous conditions is minimal.

7.4 SAFE WORK PRACTICES

Below is a list of standing orders for the Exclusion and Contamination Reduction Zones.

Exclusion Zone

- No smoking, eating, or drinking.
- No horse play.
- No matches or lighters.
- Check-in upon entering.
- Check-out upon exiting.
- Implement the communications system if conditions warrant it.
- Line of sight must be in position.
- Wear the appropriate level of protection as defined in the HASP.

Contamination Reduction Zone

- No smoking, eating, or drinking.
- No horse play.
- No matches or lighters.
- Wear the appropriate level of protection.

REMEMBER TO ALWAYS WASH HANDS BEFORE EATING AFTER ANY WORK.

DIRECTIONS TO NEAREST MEDICAL FACILITY ARE DETAILED IN ATTACHMENT 3.

8.0 DECONTAMINATION PLAN

Decontamination involves the orderly, controlled removal of contaminants. All site personnel should minimize contact with contaminants in order to minimize the need for extensive decontamination.

8.1 EQUIPMENT DECONTAMINATION

Sampling equipment will be decontaminated in accordance with industry protocols.

8.2 DISPOSAL OF DECONTAMINATION WASTES

All equipment and solvents used for decontamination shall be decontaminated or disposed of properly. If commercial laundries or cleaning establishments are used to decontaminate protective clothing or equipment, they shall be informed of the chemicals of concern and their potential harmful effects of exposure associated with the project.

9.0 EMERGENCY RESPONSE/CONTINGENCY PLAN

This section describes the contingency and emergency planning procedures to be implemented on-site. This plan is compatible with local, state, and federal disaster and emergency management plans as appropriate.

9.1 PRE-EMERGENCY PLANNING

During regular briefings, all employees will be trained in, and reminded of, provisions of the emergency response plan, communication systems, and evacuation routes. The plan will be reviewed and revised, if necessary, on a regular basis by the HSO. This will ensure that the plan is adequate and consistent with prevailing site conditions.

A charged cell phone will be made available at all times to all personnel on-site.

9.2 PERSONNEL ROLES AND LINES OF AUTHORITY

The Site Supervisor has primary responsibility for responding to and correcting emergency situations. This includes taking appropriate measures to ensure the safety of site personnel and the public. Possible actions may involve evacuation of personnel from the site area and evacuation of adjacent residents. He/she is also responsible for ensuring that corrective measures have been implemented, appropriate authorities notified and follow-up reports completed. An HSO may be called upon to act on behalf of the Site Supervisor, and will direct responses to any medical emergency. The individual contractor organizations are responsible for assisting the project manager in his/her mission within the parameters of their scope of work.

9.3 EMERGENCY RECOGNITION/PREVENTION

Site personnel will be familiar with the techniques of hazard recognition from pre-assignment training and site-specific briefings.

9.4 EMERGENCY CONTACT/NOTIFICATION SYSTEM

The list at the beginning of this HASP provides names and telephone numbers for emergency contact personnel. In the event of a medical emergency, personnel will take direction from the Site Supervisor who will notify the appropriate local, state, and federal agencies.

9.5 EMERGENCY MEDICAL TREATMENT PROCEDURES

Any person who becomes ill or injured in the Exclusion Zone must be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination should be completed and first aid administered prior to transport. If the patient's condition is serious, at least partial decontamination should be completed (i.e., complete disrobing of the victim and redressing in clean coveralls or wrapping in a blanket). First aid should be administered while awaiting an ambulance or paramedics. All injuries and illnesses must be reported to the project manager immediately.

Any person being transported to a clinic or hospital for treatment should take with them information on the chemical(s) they have been exposed to, if applicable. This information is included in Table #1. Any vehicle used to transport contaminated personnel will be treated and cleaned as necessary.

9.6 FIRE OR EXPLOSION PROCEDURES

In the event of a fire or explosion, the local fire department should be summoned immediately. Upon their arrival, the project manager or designated alternate will advise the fire commander of the location, nature, and identification of the hazardous materials on-site, if applicable.

If it is safe to do so, site personnel may:

- Use firefighting equipment available on-site to control or extinguish the fire.
- Remove or isolate flammable or other hazardous materials, if present, which may contribute to the fire.

9.7 SPILL AND LEAK PROCEDURES

In the event of a spill or a leak of a hazardous material, site personnel will:

- Inform their supervisor immediately
- Locate the spill source and stop the flow, if it can be done safely
- Begin containment and recovery of the spilled materials

10.0 RECORD KEEPING

The Site Supervisor will maintain a complete chronologic job log, which includes the following:

- Date, times, and weather conditions
- Names of all site workers
- Air monitoring activities and note that levels detected on all monitoring devices are to be recorded every 10 minutes
- Work activities and progress
- Sampling conducted
- Work practices
- Any violation of established safety procedures
- Emergency response
- Worker injuries

I have read this Health and Safety Plan and agree to comply with its requirements.

Name: _____

Signature: _____

Date: _____

Attachment 1

Chemical Hazards of Concern

Petroleum Hydrocarbons

Chemical Formula:	Varies
Normal Physical State:	Liquid, at times near solid
Color/Appearance:	Black/Brown
Solubility:	~ 5 mg/L
Specific Gravity:	Less than 1.0
Vapor Pressure:	Varies
Classification:	May be flammable; explosive in enclosed spaces. Non-reactive, non-corrosive
Explosive Limits:	0.7%-5% (#2 fuel oil)
Incompatibilities:	Chlorinated solvents, strong acids
Exposure Limits:	
Petroleum distillates:	400 ppm (OSHA TWA) 85 ppm (NIOSH TWA) 10,000 ppm (NIOSH IDLH)
Route of Entry:	BTEX compounds and naphthalene are all proven or experimental poisons through inhalation and ingestion and are mildly to strongly toxic through dermal absorption. The most common route of exposure for these compounds is inhalation. Soil-born naphthalene and BTEX are more likely to be ingested.
Symptoms:	BTEX compounds and naphthalene all induce nausea, vomiting, and an initial sense of euphoria upon exposure. A feeling of depression followed by loss of consciousness and eventually respiratory failure occur upon prolonged exposure.

Benzene

Chemical Formula:	C ₆ H ₆
Normal Physical State:	Liquid
Color/Appearance:	Colorless to light-yellow
Solubility:	~ 0.07% mg/L
Specific Gravity:	0.88
Vapor Pressure:	75 mm
Classification:	Flammable liquid
Explosive Limits:	1.2% (LEL) & 7.8% (UEL)
Incompatibilities:	strong oxidizers, many fluorides & perchlorate, nitric acid
Exposure Limits:	10 ppm (based on presence in mixtures) TWA

SOURCES OF INFORMATION:

USDHHS, NIOSH Pocket Guide to Chemical Hazards. June 1997. (NIOSH Internet site - [Ahttp.www.cdc.gov/niosh/](http://www.cdc.gov/niosh/)).

Riser-Roberts, Eve. Bioremediation of Petroleum Contaminated Sites. 1992.

Merck & Co. The Merck Index. 1996.

OSHA Internet site.

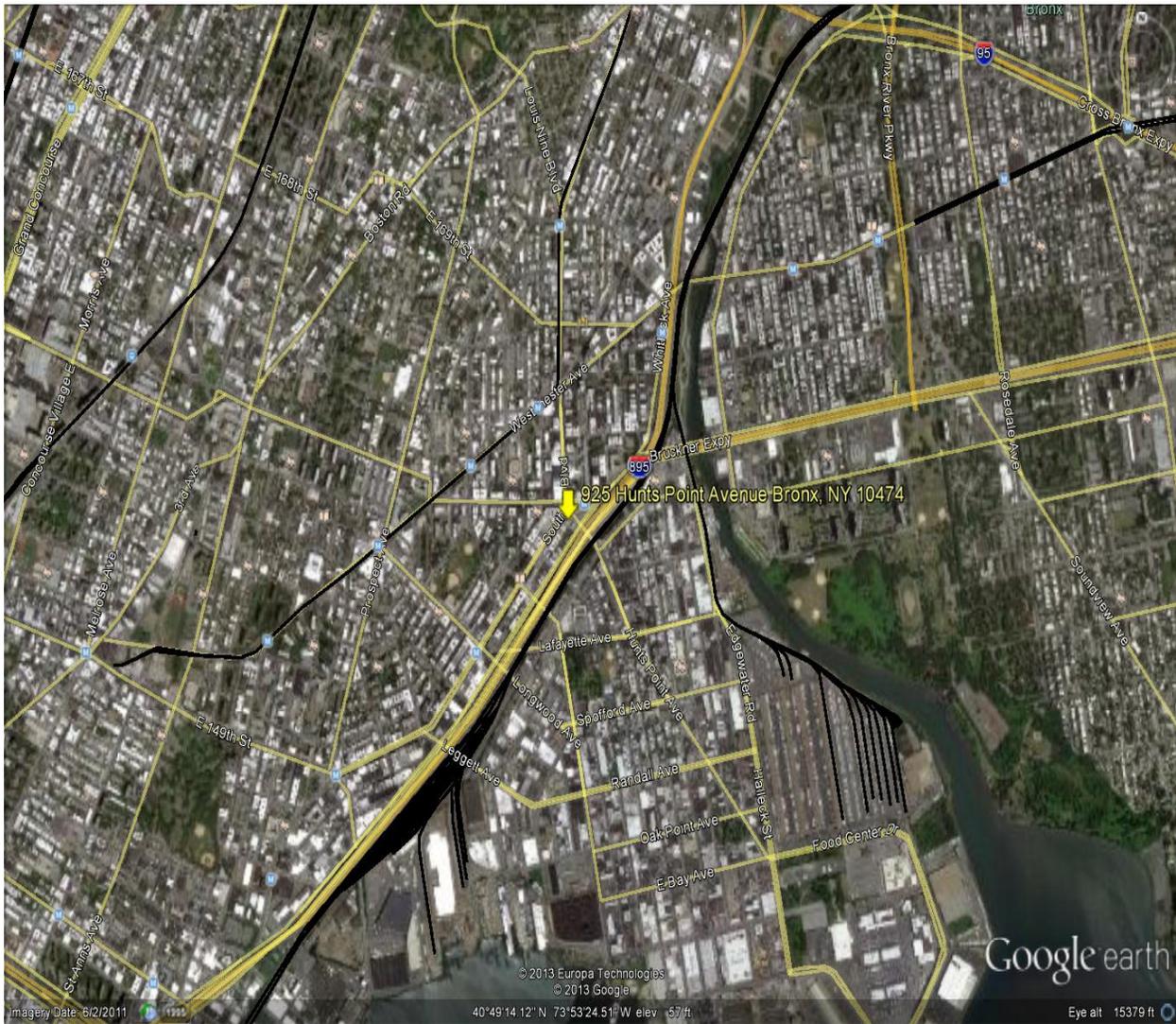
Peakall, David and Lincer, Jeffrey. Polychlorinated Biphenyls: Another Long-Life Widespread Chemical in the Environment. BioScience Vol 20, No. 17, September 1, 1970.

FIRST AID

If contaminants come in contact with the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working. If contaminants come in contact with the skin, promptly wash the contaminated skin with soap and water. If contaminants penetrate through the clothing, promptly remove the clothing and wash the skin with soap and water. If a person breathes in large amounts of these contaminants, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. If these contaminants are swallowed, get medical attention immediately.

Attachment 2
Figures of Subject Property

Overview of Subject Property
925 Hunts Point Avenue Bronx, New York 10474



Site Investigation
Health And Safety Plan

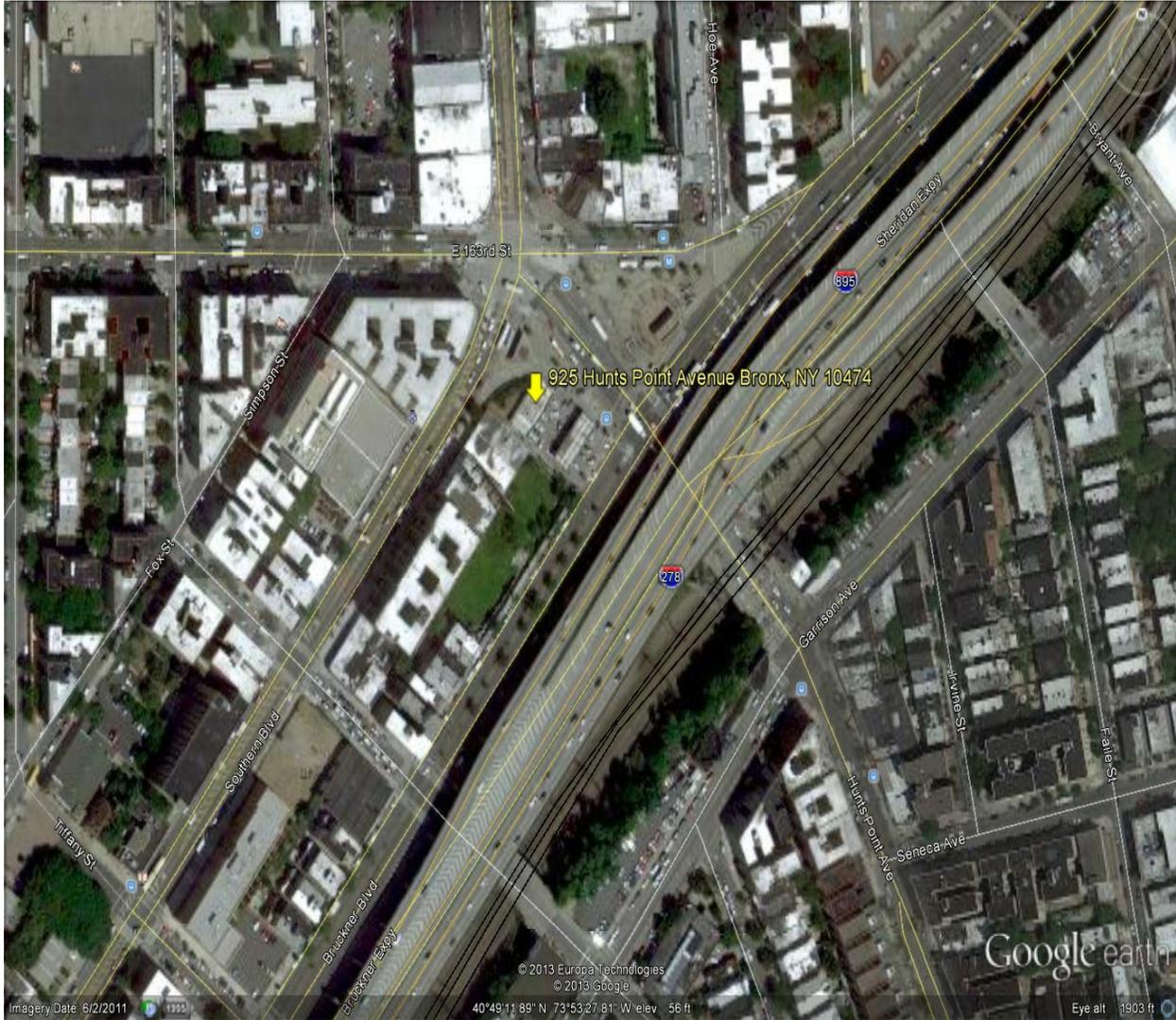
925 Hunts Point Avenue
Bronx, New York 10474

Block: 2735, Lot: 20

Figure No. 01

JCB# 13-26219

Detail of Subject Property
925 Hunts Point Avenue Bronx, New York 10474



Site Investigation
Health And Safety Plan

925 Hunts Point Avenue
Bronx, New York 10474

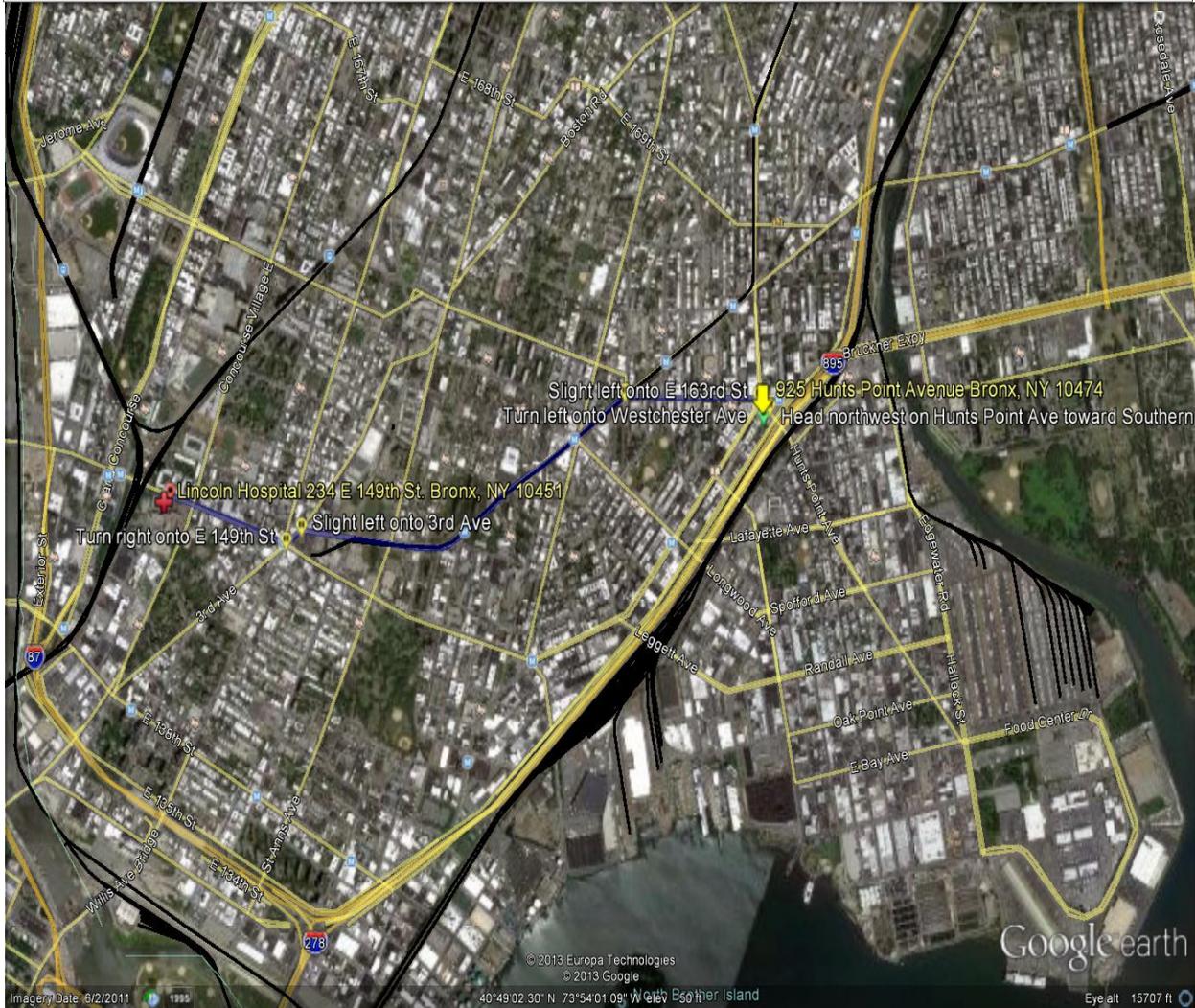
Block: 2735, Lot: 20

Figure No. 02

JCB# 13-26219

Attachment 3
Map and Directions to Medical Facility

Highlighted Directions To Lincoln Hospital
234 E 149th Street, Bronx, NY 10451
Phone: 718-579-5000



Driving Directions

Starting From:
925 Hunts Point Avenue
Bronx, New York 11474

Ending At:
Lincoln Hospital
234 East 149th Street
Bronx, New York 10451

Map No. 01

JCB# 13-26219



Trip to:

Lincoln Hospital
234 E 149th St

Bronx, NY 10451

(718) 993-9599

1.90 miles / 6 minutes

Notes



925 Hunts Point Ave, Bronx, NY 10459-5186



1. Start out going **northwest** on **Hunts Point Ave** toward **E 163rd St**. [Map](#)

0.04 Mi

0.04 Mi Total



2. Turn **left** onto **E 163rd St**. [Map](#)

0.4 Mi

0.4 Mi Total



3. Turn **right** onto **Rev James A Polite Ave**. [Map](#)

0.01 Mi

0.4 Mi Total



4. Turn **left** onto **Westchester Ave**. [Map](#)

1.0 Mi

1.5 Mi Total



5. **Westchester Ave** becomes **E 150th St**. [Map](#)

0.04 Mi

1.5 Mi Total



6. Turn **left** onto **Melrose Ave**. [Map](#)

0.05 Mi

1.6 Mi Total



7. Turn **right** onto **E 149th St / Eugenio Maria de Hostos Blvd**. [Map](#)

0.3 Mi

1.9 Mi Total



8. **234 E 149TH ST** is on the **left**. [Map](#)



Lincoln Hospital
234 E 149th St, Bronx, NY 10451
(718) 993-9599

Total Travel Estimate: **1.90 miles - about 6 minutes**

BOOK TRAVEL with **mapquest** (877) 577-5766

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Appendix 5
Proposed Development Plan



J.C. BRODERICK

& Associates

Environmental Consulting and Testing

1775 Express Drive North Hauppauge, New York 11788

Phone: (631).584.5492

Fax: (631).584.3395

Notes:

925 Hunts Point Avenue
Bronx, New York 10459

Drawing Title

Figure No. 2

Proposed
Redevelopment
Elevation

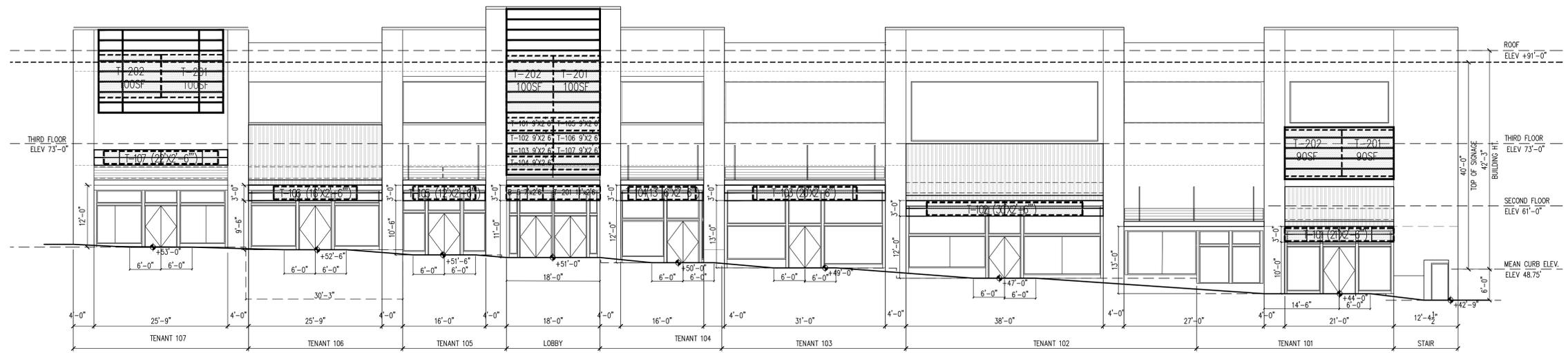
Scale	Project No.	Date
As Noted	13-26483	08-23-15

Drawn By	Checked By	Page No.
J.V.N.	S.W.M.	2 of 6

Drawing No.

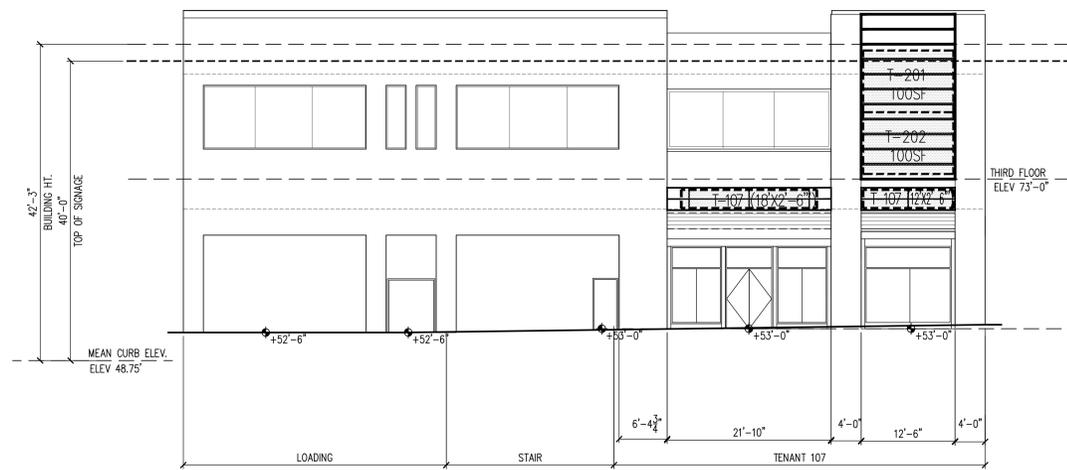
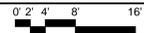
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1 HUNT'S POINT AVE./ SOUTHERN BLVD. ELEVATION

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



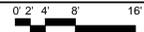
2 BRUCKNER BOULEVARD ELEVATION

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



3 WEST ELEVATION

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



PRELIMINARY
(NOT FOR CONSTRUCTION)
07-15-2013

NO.	DATE	REMARKS	BY

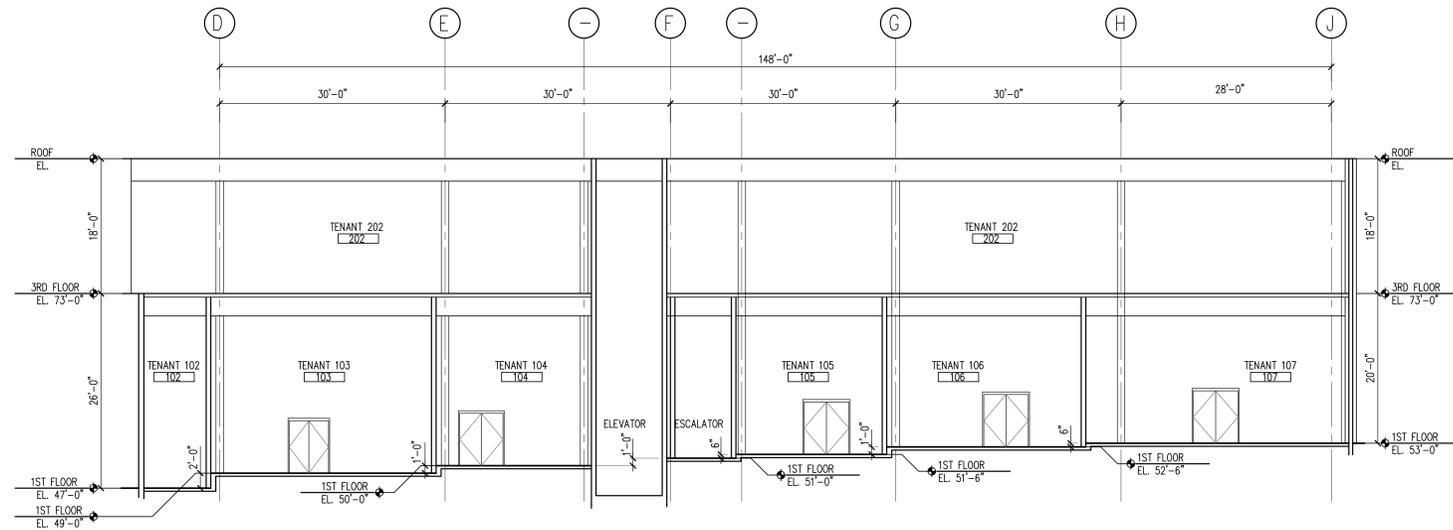
Studio 5 STUDIO 5 PARTNERSHIP ARCHITECTS/PLANNERS, LLC
 65 HARRISTOWN ROAD, SUITE 201
 GLEN ROCK, NEW JERSEY 07432
 (201) 652-0555/FAX (201) 652-0602
 WWW.STUDIO5P.ARCHITECTS.COM
 NJ Certificate of Architecture: 71420006020
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ELEVATIONS

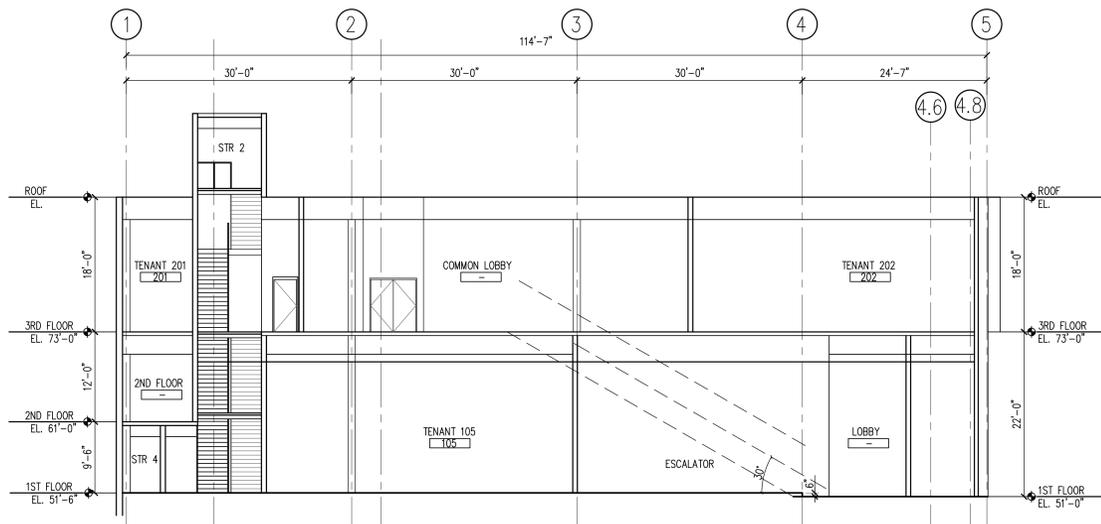
DWN BY MDA SCALE AS NOTED
 CHKD BY LMK PROJECT 12-055
 DATE 03/19/2013

A-201.00

X OF



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



2 TRANSVERSE SECTION
SCALE: 1/8" = 1'-0"



PRELIMINARY
(NOT FOR CONSTRUCTION)
07-15-2013

NO.	DATE	REMARKS	BY

Studio 5 STUDIO 5 PARTNERSHIP ARCHITECTS-PLANNERS, LLC
65 HARRISTOWN ROAD, SUITE 201
GLEN ROCK, NEW JERSEY 07452
(201) 652-0555/FAX (201) 652-0602
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NJ Certificate of Architecture: 714020006020
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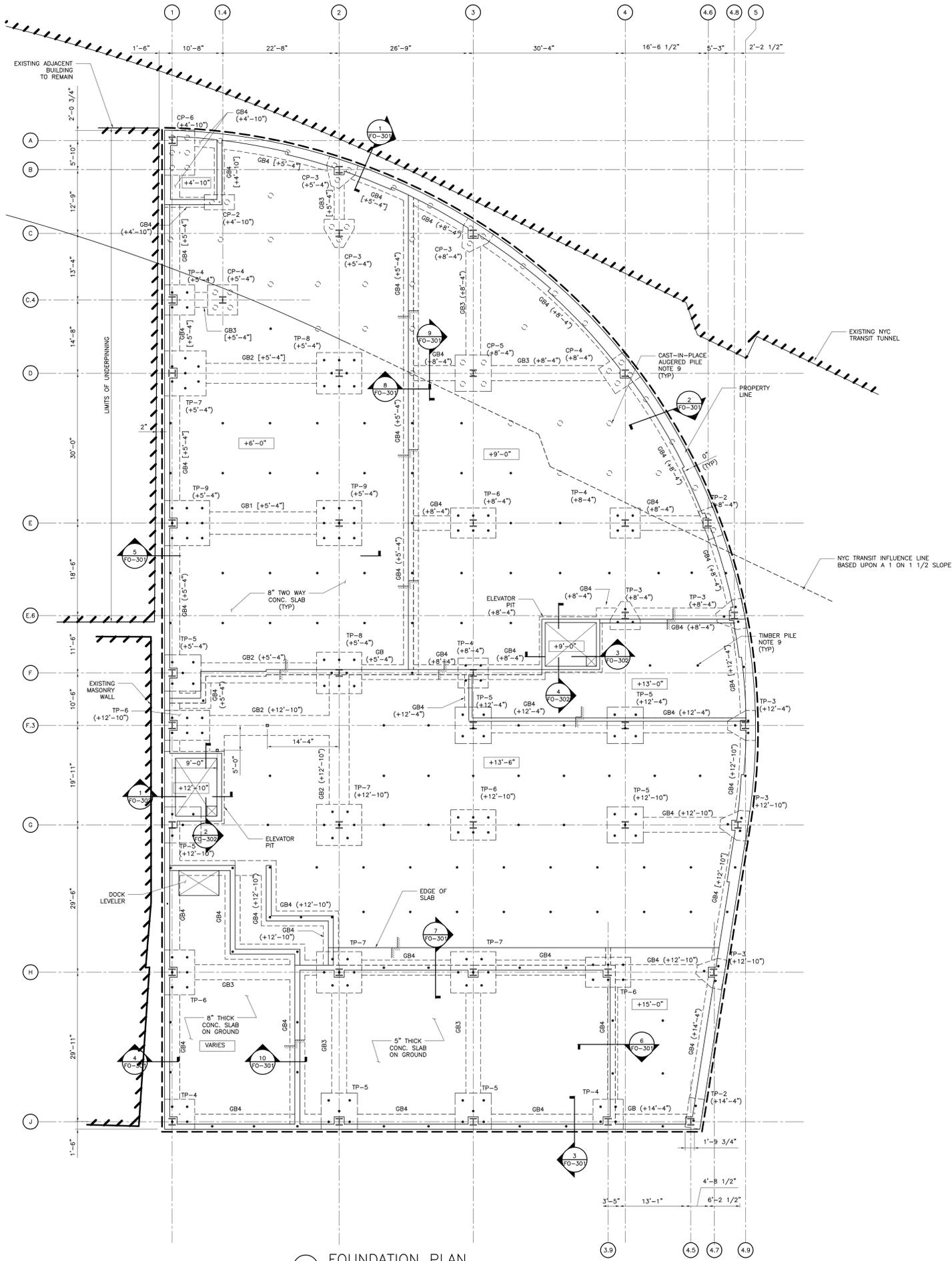
SECTIONS

DWN BY MDA SCALE AS NOTED
CHKD BY LMK PROJECT 12-055
DATE 03/19/2013

A-301.00

X OF

PILE CONTRACTOR SHALL SUBMIT DRIVING EQUIPMENT TO THE OWNER'S GEOTECHNICAL ENGINEER PRIOR TO MOBILIZING TO THE SITE



- LEGEND:**
- CAST-IN-PLACE AUGERED PILE
 - TIMBER PILE
- NOTES:**
1. SEE DWG. S-001 FOR GENERAL NOTES.
 2. SEE DWGS. FO-201 AND FO-202 FOR TYPICAL DETAILS.
 3. REFERENCE ELEVATION FOR FOUNDATION SHALL BE EL. +38'-0".
 4. TOP OF CONCRETE SLAB SHALL BE AT REFERENCE ELEVATION UNLESS OTHERWISE NOTED THUS: [±X'-X"]
 5. TOP OF CP AND TP PILE CAPS SHALL BE 8" BELOW REFERENCE EL. U.O.N. THUS: (±X'-X")
 6. TOP OF GRADE BEAM SHALL BE 8" BELOW REFERENCE ELEVATION U.O.N. THUS: (±X'-X")
 7. TOP OF WALL SHALL BE AT REFERENCE EL. UNLESS OTHERWISE NOTED THUS: [±X'-X"]
 8. SLAB REINFORCEMENT SHALL BE #8@12" TOP AND BOTTOM, EACH WAY. FOR TWO-WAY SLABS REINFORCING BARS SHALL BE PLACED IN ASCENDING ORDER AS FOLLOWS:
 - A. NORTH-SOUTH (PROJECT N) SLAB BOTTOM BARS.
 - B. EAST-WEST SLAB BOTTOM BARS.
 - C. EAST-WEST SLAB TOP BARS.
 - D. NORTH-SOUTH SLAB TOP BARS.
 9. TEST PILE SHALL BE MONITORED WITH A PDA AND SHALL BE TESTED FOR UPLIFT RESISTANCE IN ACCORDANCE WITH ASTM 03689 "STANDARD TEST METHOD FOR INDIVIDUAL PILES UNDER STATIC AXIAL TENSILE LOAD."

PRELIMINARY
(NOT FOR CONSTRUCTION)
08-19-2013

NO. DATE REMARKS BY

RETAIL BUILDING FOR PRUSIK GROUP
PRUSIK CROSSINGS AT SOUTHERN
SOUTHERN BOULEVARD
BRONX, NY

Studio 5 ARCHITECTS/PLANNERS, LLC
65 HARRISTOWN ROAD, SUITE 201
GLEN ROCK, NEW JERSEY 07452
(201) 652-0555 FAX (201) 652-0002
WWW.STUDIO5-ARCHITECTS.COM
All Certificates of Authorization: 21400005000
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Dewberry
Dewberry Engineers Inc.
15 EAST 26TH STREET
NEW YORK, NY 10010
PHONE: 212.685.0800
FAX: 212.685.2900

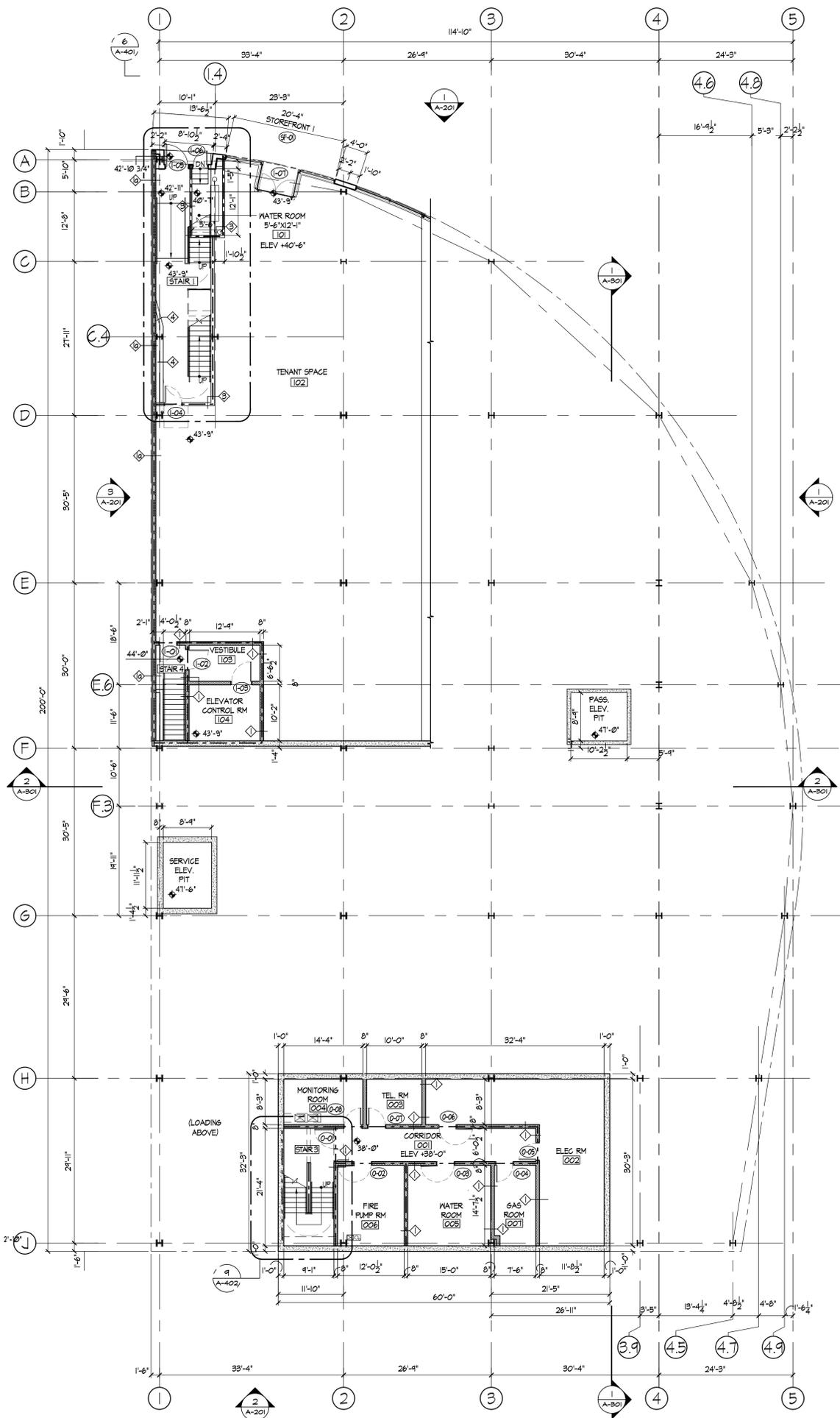
FOUNDATION PLAN

DWN BY RM SCALE AS NOTED
CHKD BY TMP PROJECT 12-055
DATE 08/02/2013

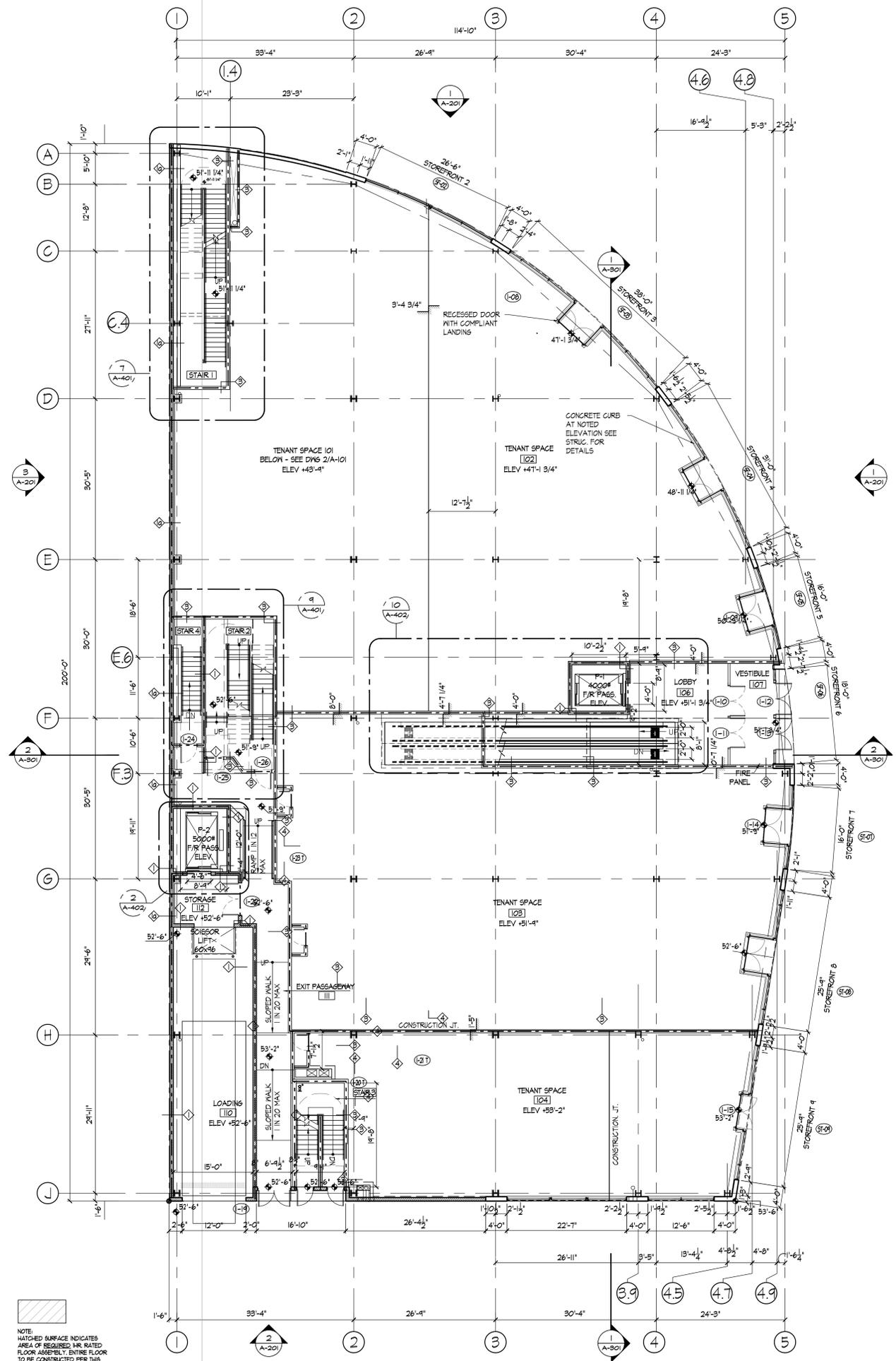
FO-101.00



1 FOUNDATION PLAN
1/8" = 1'-0"



1 CELLAR PLAN (AREA 2,529 SF) & LOWER FIRST
SCALE: 1/8" = 1'-0"



2 UPPER FIRST FLOOR PLAN (AREA 20,068 SF)
SCALE: 1/8" = 1'-0"

PRELIMINARY
(NOT FOR CONSTRUCTION)
10-08-2013

NO. DATE REMARKS BY

RETAIL BUILDING
FOR PRUSIK GROUP
**THE CROSSINGS
AT SOUTHERN**
925, HUNTS POINT AVENUE,
BRONX, NY

Studio 5 STUDIO 5 PARTNERSHIP
ARCHITECTS-PLANNERS, LLC
65 HARBESTOWN ROAD, SUITE 301
GLEN ROCK, NEW JERSEY 07432
(201) 652-0555 FAX (201) 652-0602
WWW.STUDIO5-ARCHITECTS.COM
All Contents of Authorization: 21AC000600
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**BASEMENT
FIRST FLOOR
PLANS**

DWN BY: MDA SCALE: AS NOTED
CHKD BY: LMK PROJECT: 12-055
DATE: 03/19/2013

A-101.00

X OF

Appendix 6
Previous Environmental Investigations
and Reports / Previous Regulatory
Correspondence

Schedule of File Documents

Site: The Crossing at Southern
925 Hunts Point Avenue
Bronx, New York 10459

Date: November 2013

Document No.	Date	Document Type	Document Name	Format
1	10/2002	Report	Delta Baseline Acquisition Report	pdf
2	01/2006	Analytical	MW-1, 2, 3, 4 - GW	pdf
3	02/2006	Report	Investigation Summary Report	pdf
4	02/2006	Report	Remedial Action Plan	pdf
5	02/2006	Report	Supplemental Work Plan	pdf
6	03/2006	Report	Monthly Monitoring Report	pdf
7	04/2006	Analytical	MW-1, 3 - GW	pdf
8	04/2006	Letter	DEC requesting additional wells	pdf
9	05/2006	Report	Monthly Monitoring Report	pdf
10	06/2006	Report	Monthly Monitoring Report	pdf
11	07/2006	Analytical	MW-1, 3 - GW	pdf
12	07/2006	Report	Monthly Monitoring Report	pdf
13	08/2006	Report	Monthly Monitoring Report	pdf
14	09/2006	Report	Monthly Monitoring Report	pdf
15	10/2006	Analytical	MW-1, 2, 3 - GW	pdf
Not Incl.	11/2006	Report	Monthly Monitoring Report	pdf
16	12/2006	Map	DEC location of additional wells	pdf
17	01/2007	Analytical	MW-1, 2, 3 - GW	pdf
18	02/2007	Report	Monthly Monitoring Report	Excel
19	03/2007	Report	Monthly Monitoring Report	Excel
20	03/2007	Analytical	MW-5, 6, 7 - Soil	pdf
21	04/2007	Report	Monthly Monitoring Report	Excel
22	04/2007	Analytical	MW-5, 6, 7 - GW	pdf
23	04/2007	Analytical	MW-1, 2, 3 - GW	pdf
24	05/2007	Report	Monthly Monitoring Report	Excel
25	06/2007	Report	Monthly Monitoring Report	Excel
26	06/2007	Report	Supplemental Work Plan	pdf
27	07/2007	Report	Monthly Monitoring Report	Excel
28	07/2007	Analytical	MW-1, 3, 5, 6, 7 - GW	pdf
29	08/2007	Report	Monthly Monitoring Report	Excel
30	09/2007	Report	Monthly Monitoring Report	Excel
31	09/2007	Report	Final Investigation Summary Report	pdf
32	10/2007	Report	Monthly Monitoring Report	Excel
33	11/2007	Analytical	MW-1, 2, 3, 4, 5, 6,7 - GW	pdf
34	11/2007	Report	Monthly Monitoring Report	Excel
35	12/2007	Report	Monthly Monitoring Report	Excel
36	12/2007	Report	Quarterly Status Report	pdf
37	12/2007	Report	Remedial Action Plan	pdf

Schedule of File Documents
The Crossing at Southern
Bronx, New York 10459
September, 2013

Document No.	Date	Document Type	Document Name	Format
38	01/2008	Report	Monthly Monitoring Report	Excel
39	01/2008	Analytical	MW-1, 2, 3, 5, 6, 7 - GW	pdf
40	02/2008	Report	Monthly Monitoring Report	Excel
41	02/2008	Report	Quarterly Status Report	pdf
42	02/2008	Report	Revised Remedial Action Plan	Pdf
43	03/2008	Report	Monthly Monitoring Report	Excel
44	04/2008	Letter	DEC disapproval of Revised RAP	pdf
45	04/2008	Report	Monthly Monitoring Report	Excel
46	04/2008	Analytical	MW-1, 2, 3, 5, 6, 7 - GW	pdf
47	05/2008	Report	Monthly Monitoring Report	Excel
48	05/2008	Report	Quarterly Status Report	pdf
49	05/2008	Letter	To DEC requesting change to RAP	pdf
50	07/2008	Report	Monthly Monitoring Report	Excel
51	07/2008	Report	Quarterly Status Report	pdf
52	09/2008	Report	Monthly Monitoring Report	Excel
53	10/2008	Report	Monthly Monitoring Report	Excel
54	10/2008	Analytical	MW-1, 2, 3, 4, 5, 6, 7 - GW	pdf
55	10/2008	Report	Quarterly Status Report	pdf
56	10/2008	Letter	Supplemental Work Plan	pdf
57	10/2008	Letter	Investigation Work Plan Approval	pdf
58	11/2008	Report	Monthly Monitoring Report	Excel
59	12/2008	Report	Monthly Monitoring Report	Excel
60	12/2008	Analytical	MW-8, 9, 10 - GW	pdf
61	12/2008	Analytical	MW-8, 9, 10 - Soil	pdf
62	01/2009	Report	Monthly Monitoring Report	Excel
63	02/2009	Report	Monthly Monitoring Report	Excel
64	03/2009	Report	Monthly Monitoring Report	Excel
65	03/2009	Report	Remedial Action Plan	pdf
66	03/2009	Letter	DEC Disapproval of 3/09 RAP	pdf
67	03/2009	Analytical	MW-1, 3, 5, 6, 7, 8, 9, 10	pdf
68	04/2009	Report	Revised Remedial Action Plan	pdf
69	04/2009	Report	Quarterly Status Report	pdf
70	05/2009	Analytical	ASR-1,2,3,4 - Soils	pdf
71	06/2009	Analytical	MW-1, 2, 3, 5, 6, 7, 8, 9, 10	pdf
72	06/2009	Analytical	ASR-1,3 - GW	pdf
73	07/2009	Report	Quarterly Status Report	pdf
74	09/2009	Report	Monthly Monitoring Report	Excel
Not Incl.	11/2009	Report	Quarterly Status Report	pdf
75	12/2009	Analytical	MW-1, 2, 3, 5, 6, 7, 8, 9, 10, A, D	pdf
76	01/2010	Report	Quarterly Status Report	pdf
77	01/2010	Report	Remedial Investigation Report	pdf
78	03/2010	Letter	NYSDEC Approval of RIR	pdf

Schedule of File Documents
The Crossing at Southern
Bronx, New York 10459
September, 2013

Document No.	Date	Document Type	Document Name	Format
79	03/2010	Analytical	MW-1,2,3,4,5,6,7,8,9,10, ASR-1,3	pdf
80	03/2010	Report	Quarterly Status Report	pdf
81	06/2010	Analytical	MW-1,2,3,4,5,6,7,8,9,10, ASR-1,3	pdf
82	07/2010	Report	Quarterly Status Report	pdf
83	07/2010	Report	Investigation Work Plan	pdf
84	09/2010	Analytical	MW-1,2,3,4,5,6,7,8,9,10,ASR-1,3	pdf
85	10/2010	Report	Quarterly Status Report	pdf
86	12/2010	Analytical	MW-1,3,4,5,6,7,8,9,10, 11, 12, ASR-1,3	pdf
87	01/2011	Letter	Forensic evaluation of various product samples	pdf
88	01/2011	Report	Quarterly Status Report	pdf
89	02/2011	Report	Remedial Investigation Report	pdf
90	03/2011	Analytical	MW-1,3,5,6,7,8,9,10, 11,12, ASR-1,3	pdf
91	04/2011	Report	Quarterly Status Report	pdf
92	05/2011	Report	Sanborn Maps / City Directory	pdf
93	06/2011	Report	Interim Remedial Measure	pdf
94	06/2011	Analytical	MW-1,3,5,6,7,8,9,10, 11,12, ASR-1,3	pdf
95	07/2011	Email	IRM disapproval	pdf
96	08/2011	Report	Quarterly Status Report	pdf
97	09/2011	Analytical	MW-1,3,4,5,6,7,8,9,10, 11,12, ASR-1,3,4	pdf
98	10/2011	Report	Quarterly Status Report	pdf
99	10/2011	Report	Interim Remedial Measure	pdf
A100	10/2011	Map	JCB Phase II Sampling Location Map	pdf
A101	11/2011	Email	OER approval of Sampling Plan	pdf
A102	12/2011	Analytical	MW-1,3,4,5,6,7,8,9,10, 11,12, ASR-1,3,4	pdf
A103	02/12	Report	Quarterly Status Report	pdf
A104	03/12	Analytical	MW-1,3,4,5,6,7,8,9,10, 11,12, ASR-1,3,4	pdf
A105	04/12	Report	Quarterly Status Report	pdf
A106	06/12	Analytical	MW-1,3,4,5,6,7,8,9,10, 11,12, ASR-1,3,4	pdf
A107	09/12	Analytical	MW-1,3,4,5,6,7,8,9,10, 11,12, ASR-1,3,4	pdf
A108	09/12	Report	Quarterly Status Report	pdf
A109	12/12	Analytical	MW-1,3,4,5,6,7,8,9,10, 11,12, ASR-1,3,4	pdf
A110	01/13	Report	Quarterly Status Report	pdf
A111	03/13	Analytical	MW-1,3,4,5,6,7,8,9,10, 11,12, ASR-1,3,4	pdf
A112	03/13	Report	Quarterly Status Report	pdf
A113	06/13	Report	Health and Safety Plan	pdf
A114	07/13	Report	Quarterly Status Report	pdf
A115	08/13	Report	Phase II RIR	pdf

Reports available upon request.

Appendix 7
Sample of Non-Hazardous Soil Disposal
Manifest

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.
.....

Manifest Doc. No.
.....

2. Page 1
of

3. Generator's Name and Mailing Address

4. Generator's Phone ()

5. Transporter 1 Company Name

6. US EPA ID Number
.....

A. Transporter's Phone

7. Transporter 2 Company Name

8. US EPA ID Number
.....

B. Transporter's Phone

9. Designated Facility Name and Site Address

10. US EPA ID Number
.....

C. Facility's Phone

11. Waste Shipping Name and Description

12. Containers
No. Type

13. Total
Quantity

14. Unit
Wt/Vol

a.

b.

c.

d.

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name

Signature

Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

Signature

Month Day Year

GENERATOR

TRANSPORTER

FACILITY

Appendix 8
Design Diagrams and Specifications for:

- **Soil Vapor Extraction System**
- **Sub-Slab Depressurization System**
- **Vapor Barrier**



J.C. BRODERICK

& Associates

Environmental Consulting and Testing

1775 Expressway Drive North
Hauppauge, NY 11788

Phone: (631).584.5492

Fax: (631).584.3395

Notes:

The Crossings at Southern
925 Hunts Point Avenue
Bronx, New York 10459

OER Project Number:
14EH-N221X

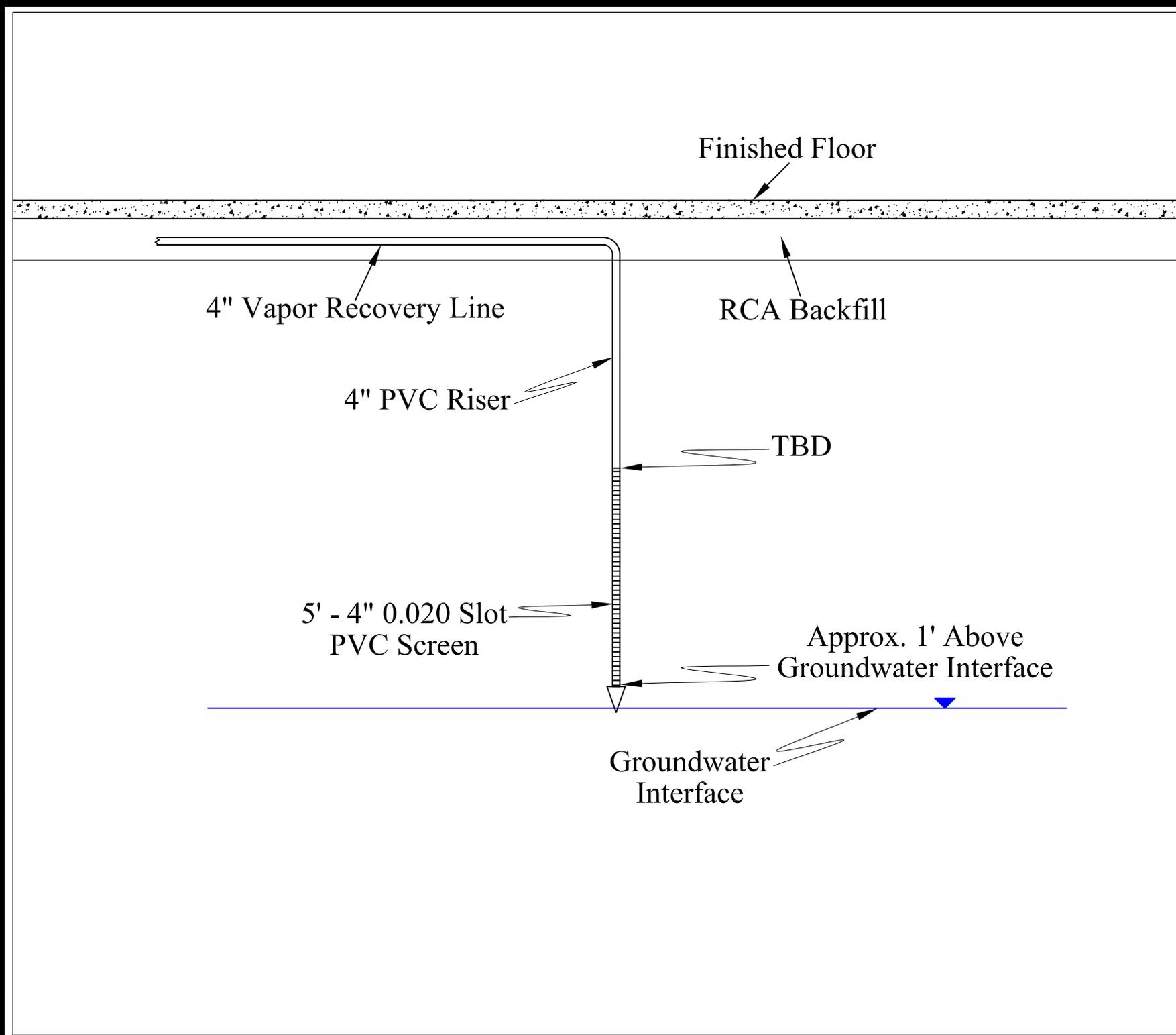
Drawing Title

SVES Well
Detail
Drawing

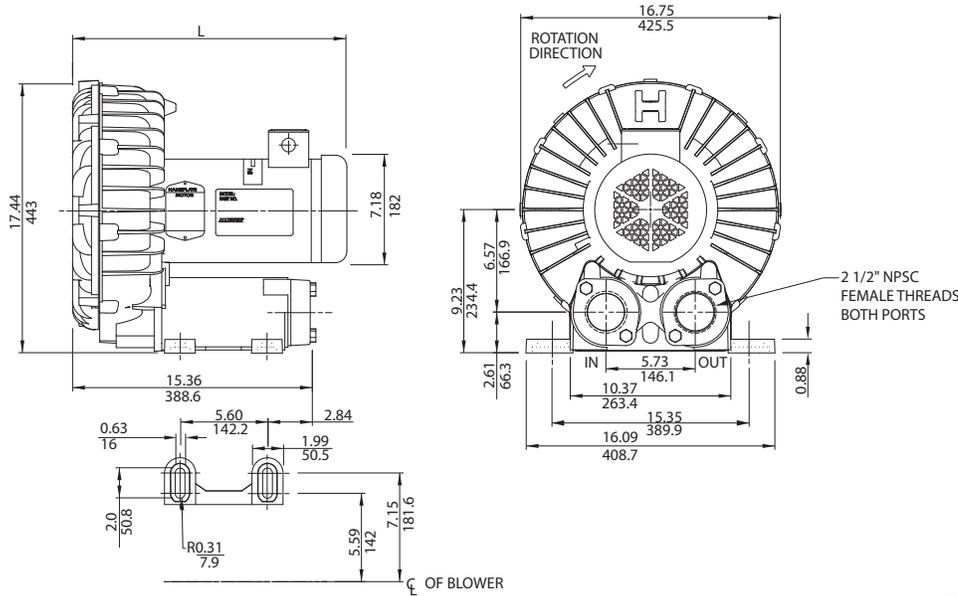
Scale	Project No.	Date
N.T.S.	13-26974	11-13-13

Drawn By	Checked By	Page No.
J.V.N.	S.W.M.	

Drawing No.



3.0 / 5.0 HP Sealed Regenerative w/Explosion-Proof Motor



IN
MM

NOTES

- 1) TERMINAL BOX CONNECTOR HOLE .75 NPT.
- 2) DRAWING NOT TO SCALE, CONTACT FACTORY FOR SCALE CAD DRAWING.
- 3) CONTACT FACTORY FOR BLOWER MODEL LENGTHS NOT SHOWN.

MODEL	L (IN/MM)
EN757M72XL	19.72/500.9
EN757F72XL	21.00/533.4

Specification	Units	Part/ Model Number				
		EN757M72XL 081176	EN757M86XL 081177	EN757F72XL 081174	CP757FW72XLR 081180	CP757FU72XLR 081181
Motor Enclosure - Shaft Mtl.	-	XP-CS	XP-CS	XP-CS	Chem XP-SS	Chem XP-SS
Horsepower	-	3.0	3.0	5.0	XP-CS	3
Voltage	AC	208-230/460	575	208-230/460	208-230/460	208-230/460
Phase - Frequency	-	Three-60 Hz	Three-60 Hz	Three - 60 Hz	Three-60 Hz	Three - 60 Hz
Insulation Class	-	B	B	B	B	B
NEMA Rated Motor Amps	Amps (A)	7.2/3.6	3.0	14/7	14/7	7.2/3.6
Service Factor	-	1.0	1.0	1.0	1.0	1.0
Maximum Blower Amps	Amps (A)	10/5	4.0	15/7.5	15/7.5	10/5
Locked Rotor Amps	Amps (A)	54/47	22	152/76	152/76	54/27
NEMA Starter Size	-	0/0	0	1/1	1/1	0/0
Shipping Weight	Lbs	158	158	158	158	158
	Kg	71.7	71.7	71.7	71.7	71.7

Voltage - ROTRON motors are designed to handle a broad range of world voltages and power supply variations. Our dual voltage 3 phase motors are factory tested and certified to operate on both: **208-230/415-460 VAC-3 ph-60 Hz** and **190-208/380-415 VAC-3 ph-50 Hz**. Our dual voltage 1 phase motors are factory tested and certified to operate on both: **104-115/208-230 VAC-1 ph-60 Hz** and **100-110/200-220 VAC-1 ph-50 Hz**. All voltages above can handle a ±10% voltage fluctuation. Special wound motors can be ordered for voltages outside our certified range.

Operating Temperatures - Maximum operating temperature: Motor winding temperature (winding rise plus ambient) should not exceed 140°C for Class F rated motors or 120°C for Class B rated motors. Blower outlet air temperature should not exceed 140°C (air temperature rise plus inlet temperature). Performance curve maximum pressure and suction points are based on a 40°C inlet and ambient temperature. Consult factory for inlet or ambient temperatures above 40°C.

Maximum Blower Amps - Corresponds to the performance point at which the motor or blower temperature rise with a 40°C inlet and/or ambient temperature reaches the maximum operating temperature.

XP Motor Class - Group - See Explosive Atmosphere Classification Chart in Section I

This document is for informational purposes only and should not be considered as a binding description of the products or their performance in all applications. The performance data on this page depicts typical performance under controlled laboratory conditions. AMETEK is not responsible for blowers driven beyond factory specified speed, temperature, pressure, flow or without proper alignment. Actual performance will vary depending on the operating environment and application. AMETEK products are not designed for and should not be used in medical life support applications. AMETEK reserves the right to revise its products without notification. The above characteristics represent standard products. For product designed to meet specific applications, contact AMETEK Technical & Industrial Products Sales department.

3.0 / 5.0 HP Sealed Regenerative w/Explosion-Proof Motor

FEATURES

- Manufactured in the USA - ISO 9001 and NAFTA compliant
- Maximum flow: 310 SCFM
- Maximum pressure: 80 IWG
- Maximum vacuum: 75 IWG
- Standard motor: 5.0 HP, explosion-proof
- Cast aluminum blower housing, impeller, cover & manifold; cast iron flanges (threaded); teflon® lip seal
- UL & CSA approved motor with permanently sealed ball bearings for explosive gas atmospheres Class I Group D minimum
- Sealed blower assembly
- Quiet operation within OSHA standards

MOTOR OPTIONS

- International voltage & frequency (Hz)
- Chemical duty, high efficiency, inverter duty or industry-specific designs
- Various horsepower for application-specific needs

BLOWER OPTIONS

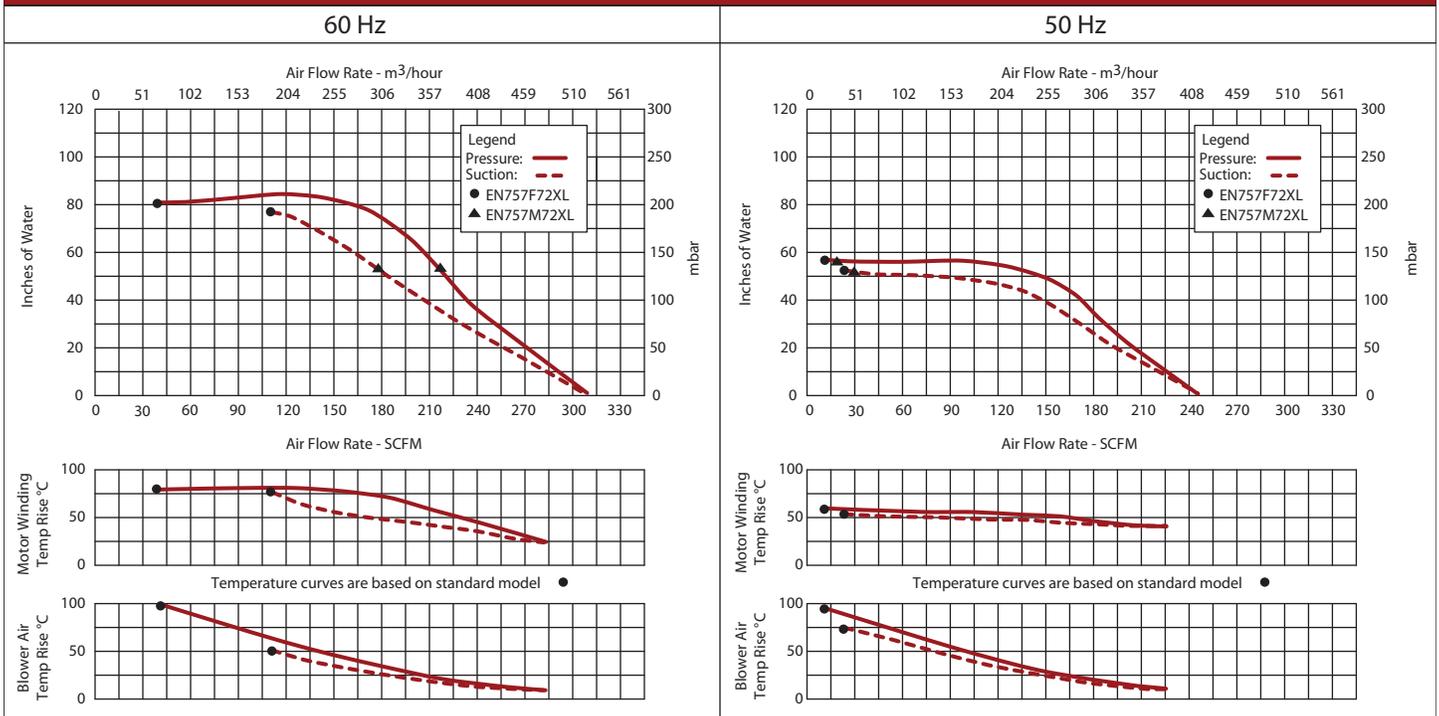
- Corrosion resistant surface treatments & sealing options
- Remote drive (motorless) models
- Slip-on or face flanges for application-specific needs

ACCESSORIES

- Flowmeters reading in SCFM
- Filters & moisture separators
- Pressure gauges, vacuum gauges, & relief valves
- Switches - air flow, pressure, vacuum, or temperature
- External mufflers for additional silencing
- Air knives (used on blow-off applications)
- Variable frequency drive package



Blower Performance at Standard Conditions



This document is for informational purposes only and should not be considered as a binding description of the products or their performance in all applications. The performance data on this page depicts typical performance under controlled laboratory conditions. AMETEK is not responsible for blowers driven beyond factory specified speed, temperature, pressure, flow or without proper alignment. Actual performance will vary depending on the operating environment and application. AMETEK products are not designed for and should not be used in medical life support applications. AMETEK reserves the right to revise its products without notification. The above characteristics represent standard products. For product designed to meet specific applications, contact AMETEK Technical & Industrial Products Sales department.

Product Specification

System: PVC D 2729 Sewer and Drain Pipe

Scope: This specification covers PVC D 2729 Sewer Pipe for drainage applications. This pipe is intended for drainage applications where the operating temperature will not exceed 140°F.

Specification: Pipe shall be manufactured from virgin rigid PVC (polyvinyl chloride) vinyl compounds with a Cell Class of 12454 as identified in ASTM D 1784.

PVC D 2729 Sewer Pipe dimensions and physical properties shall conform to ASTM D 2729. All pipe shall be manufactured in the United States.

Installation shall comply with the latest installation instructions published by Charlotte Pipe and Foundry and shall conform to all applicable plumbing, building, and fire code requirements. Buried pipe shall be installed in accordance with ASTM D 2321 and ASTM F 1668. Solvent cement joints shall be made in a two step process with primer conforming to ASTM F 656 and solvent cement conforming to ASTM D 2564. The system shall be protected from chemical agents, fire stopping materials, thread sealant, plasticized vinyl products, or other aggressive chemical agents not compatible with PVC compounds. Systems shall be hydrostatically tested after installation. **WARNING!** Never test with or transport/store compressed air or gas in PVC pipe or fittings.

Referenced Standards*:

ASTM D 1784	Rigid Vinyl Compounds
ASTM D 2729	PVC Sewer Pipe
ASTM D 2564	Solvent Cements for PVC Pipe and Fittings
ASTM F 656	Primer for PVC Pipe and Fittings
ASTM D 2321	Underground Installation of Thermoplastic Pipe (non-pressure applications)
ASTM F 656	Primers for PVC Pipe and Fittings
ASTM F 1668	Procedures for Buried Plastic Pipe

*Note: Latest revision of each standard applies.

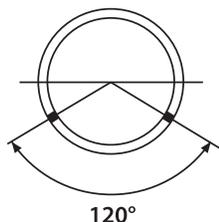
Short Specification:

Pipe shall be manufactured from PVC compound with a cell class of 12454 per ASTM D 1784. Pipe dimensions and physical properties shall conform to ASTM D 2729.

All pipe to be produced by a single manufacturer and to be installed in accordance with manufacturer's recommendations and all applicable code requirements. Solvent cements shall conform to ASTM D 2564, primer shall conform to ASTM F 656. The pipe is to be manufactured by Charlotte Pipe and Foundry Company and is intended for drainage applications where the temperature will not exceed 140°F.

PVC Sewer and Drain ASTM D 2729							
Nominal Size	Part No.	UPC 611942-	Type	O.D. (In.)	Min. Wall (In.)	Ft/Skid	Wt/100' (Lbs.)
3"	PVC 30030	10903	Solid	3.250	0.070	810	52.8
3"	PVC 30030P	11814	Perforated	3.250	0.070	810	52.8
4"	PVC 30040	10905	Solid	4.215	0.075	500	70.4
4"	PVC 30040P	11815	Perforated	4.215	0.075	500	70.4

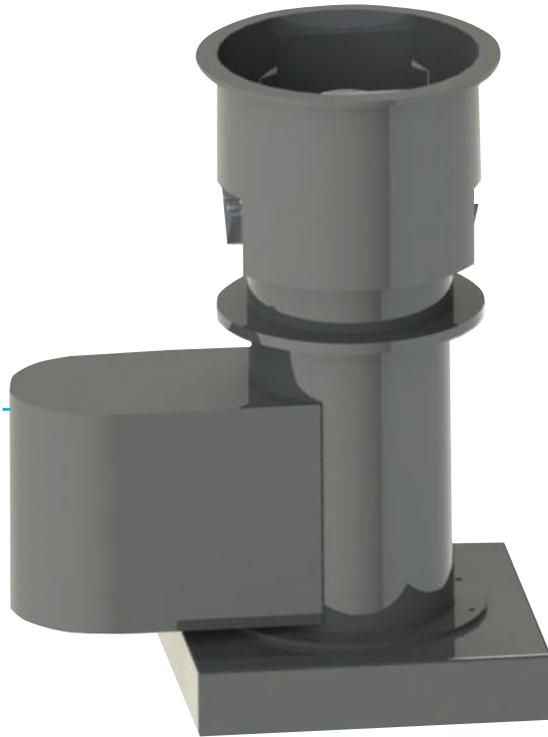
**Perforation Detail
2-Hole 120 Degree**





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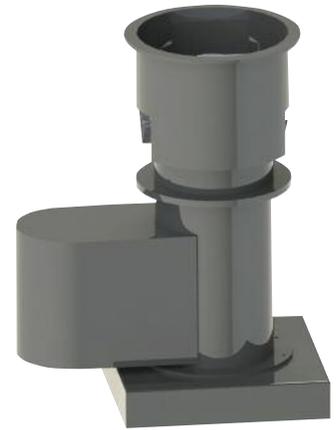
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- FRP airfoil impeller
- Aerodynamically efficient performance
- FRP damper section
- 316 stainless steel shaft and hardware
- FRP motor cover
- TEFC industrial duty motors
- Capacities to 50,000 cfm
- Sizes range from 12" to 60"

FUBV UPBLAST ROOF VENTILATORS

FEATURES & BENEFITS

- FRP airfoil impeller
- Aerodynamically efficient performance
- Statically and dynamically balanced
- 316 stainless steel shaft and hardware
- FRP motor cover
- FRP stack cap easily removed for maintenance
- Extended lube lines
- EPDM double lip shaft seal
- 100C / 212 F max. operating temperature
- TEFC industrial duty motors
- FRP automatic butterfly dampers
- Damper rods turn in polypropylene bearings
- Capacities to 50,000 cfm

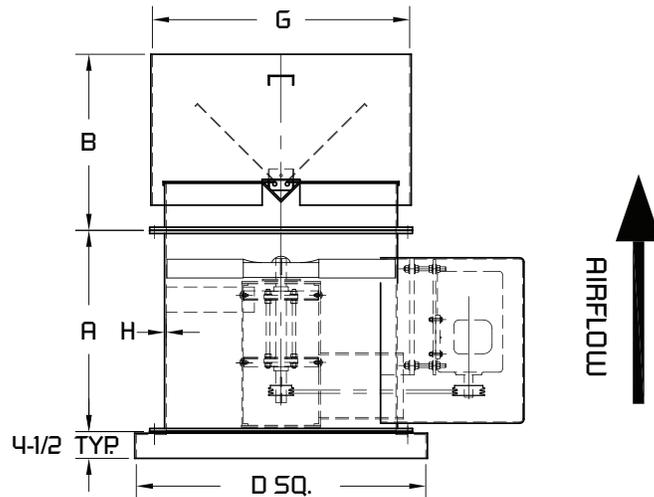


APPLICATIONS

- Corrosive environments
- Moisture laden air
- Contaminated air streams
- Exhaust fumes

ACCESSORIES / OPTIONS

- FRP roof curb
- Disconnect switch
- Polyethylene mesh birdscreen
- Special resins
- Graphite impregnation w/static grounding
- Explosion proof & special duty motors



Direct drive available upon request.

MODEL	DIMENSIONS IN INCHES*						MAX MTR FRAME
	A	B	D	G	H		
FUBV-12	20.0	12.5	22.0	16.5	0.19	145T	
FUBV-16	20.0	16.5	26.0	20.5	0.19	184T	
FUBV-18	24.0	18.5	28.0	22.5	0.19	213T	
FUBV-20	24.0	20.5	30.0	24.5	0.19	254T	
FUBV-24	24.0	24.5	34.0	28.5	0.19	254T	
FUBV-28	28.0	28.5	38.0	32.5	0.25	256T	
FUBV-32	30.0	32.5	42.0	36.5	0.25	284T	
FUBV-36	32.0	36.5	46.0	40.9	0.25	286T	
FUBV-40	36.0	40.5	50.0	44.9	0.38	324T	
FUBV-44	40.0	44.5	54.0	48.9	0.38	324T	
FUBV-48	40.0	48.5	58.0	56.3	0.38	324T	
FUBV-54	40.0	54.5	66.0	62.3	0.38	364T	
FUBV-60	40.0	60.5	72.0	68.3	0.38	365T	

*DO NOT USE FOR CONSTRUCTION

CONSULT FACTORY FOR CERTIFIED PRINTS

FUBV UPBLAST ROOF VENTILATORS

PRODUCT SPECIFICATION GUIDE

1.0 GENERAL

- A. Fans shall be model FUBV Belt Drive Upblast Axial Fans, as manufactured by Continental Fan Manufacturing Inc., of Buffalo, NY, and of the size and capacity as indicated on the drawings and fan schedule.
- B. Fans shall be rated and tested in accordance with ANSI/AMCA Standard 210.
- C. All motors and electrical components shall conform to NEMA standards.

2.0 FAN HOUSING

- A. Fan shall be axial flow impeller, roof mount, and belt drive configuration consisting of a wind band damper assembly for vertical discharge, a tubular fan section and a curb cap section.
- B. Fan housing interior surface shall be protected with a layer of synthetic surfacing veil.
- C. Fan housing, wind band assembly and curb cap shall be constructed of UV inhibited Hetron 99 P polyester resin with Class I flame spread of 25 or less.
- D. Fan belt tube shall be completely sealed, and shall isolate the bearings from ambient and/or contaminated airstreams.
- E. Fan housing and motor base shall be protected by a fiberglass motor cover.
- F. Curb cap section shall be integrally molded to fan housing and fiberglass constructed.

3.0 FAN IMPELLER

- A. Axial impeller shall be constructed of fiberglass and have airfoil, helical design shaped blades secured to a fiberglass hub assembly.
- B. Blade pitch angles shall be factory set.
- C. Axial impeller hub shall be designed to incorporate a split taper bushing, and be keyed directly to motor shaft. Bushing shall be protected by a removable fiberglass cap.

4.0 FAN MOTOR AND DRIVE

- A. Motor shall be TEFC industrial duty and conform to NEMA standards.
- B. Motor shall be of voltage, horsepower, RPM and enclosure as indicated on the fan schedule.
- C. Fan sheaves shall be cast iron and appropriately sized and aligned.
- D. Fan belts shall be static conducting, plus oil and heat resistant.
- E. Fan shaft shall be 316 stainless steel with polypropylene shaft seal.
- F. Fan shaft bearings shall be lubricated, self-aligning ball or roller type with external grease fittings. Bearings shall have a minimum L10 life of 50,000 hours.

5.0 OPTIONAL FAN ACCESSORIES

- A. Where indicated, fan shall be provided with the following optional accessories:
 - FRP roof curb
 - Disconnect switch – mounted, or mounted and wired
 - NEMA 3R non-fused safety disconnect switch
 - NEMA 4X non-fused safety disconnect switch
 - Polyethylene mesh birdscreen
 - Special resins
 - Graphite impregnation with static grounding
 - Explosion proof & special duty motors

6.0 FAN TESTING

- A. Axial impeller shall be balanced and mounted in fan assembly.
- B. Fan assembly shall be run and tested prior to shipment.
- C. A test report shall be maintained on file for each individual fan.



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Motorized Axials | Motorized Centrifugals
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FUBV UPBLAST ROOF VENTILATORS 

FUBV-1210

VAPORBLOCK® PLUS™ VBP20

Under-Slab Vapor / Gas Barrier



Product Description

VaporBlock® Plus™ 20 is a seven-layer co-extruded barrier made from state-of-the-art polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission. VaporBlock® Plus™ 20 is a highly resilient underslab / vertical wall barrier designed to restrict naturally occurring gases such as radon and/or methane from migrating through the ground and concrete slab. VaporBlock® Plus™ 20 is more than 100 times less permeable than typical high-performance polyethylene vapor retarders against Methane, Radon and other harmful VOCs.

VaporBlock® Plus™ 20 is one of the most effective underslab gas barriers in the building industry today far exceeding ASTM E-1745 (Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs) Class A, B and C requirements. Available in a 20 (Class A) mil thicknesses designed to meet the most stringent requirements. VaporBlock® Plus™ 20 is produced within the strict guidelines of our ISO 9001:2008 Certified Management System.

Product Use

VaporBlock® Plus™ 20 resists gas and moisture migration into the building envelop when properly installed to provide protection from toxic/harmful chemicals. It can be installed as part of a passive or active control system extending across the entire building including floors, walls and crawl spaces. When installed as a passive system it is recommended to also include a ventilated system with sump(s) that could be converted to an active control system with properly designed ventilation fans.

VaporBlock® Plus™ 20 works to protect your flooring and other moisture-sensitive furnishings in the building's interior from moisture and water vapor migration, greatly reducing condensation, mold and degradation.

Size & Packaging

VaporBlock® Plus™ 20 is available in 10' x 150' rolls to maximize coverage. All rolls are folded on heavy-duty cores for ease in handling and installation. Other custom sizes with factory welded seams are available based on minimum volume requirements. Installation instructions and ASTM E-1745 classifications accompany each roll.



Under-Slab Vapor/Gas Retarder

Product

Part

VaporBlock Plus 20 VBP 20

APPLICATIONS

- Radon Barrier Under-Slab Vapor Retarder
- Methane Barrier Foundation Wall Vapor Retarder
- VOC Barrier



		VAPORBLOCK PLUS 20	
PROPERTIES	TEST METHOD	IMPERIAL	METRIC
APPEARANCE		White/Gold	
THICKNESS, NOMINAL		20 mil	0.51 mm
WEIGHT		102 lbs/MSF	498 g/m ²
CLASSIFICATION	ASTM E 1745	CLASS A, B & C	
TENSILE STRENGTH LBF/IN (N/CM) AVERAGE MD & TD (NEW MATERIAL)	ASTM E 154 Section 9 (D-882)	58 lbf	102 N
IMPACT RESISTANCE	ASTM D 1709	2600 g	
MAXIMUM USE TEMPERATURE		180° F	82° C
MINIMUM USE TEMPERATURE		-70° F	-57° C
PERMEANCE (NEW MATERIAL)	ASTM E 154 Section 7 ASTM E 96 Procedure B	0.0051 Perms grains/(ft ² ·hr·in·Hg)	0.0034 Perms g/(24hr·m ² ·mm Hg)
RADON DIFFUSION COEFFICIENT	K124/02/95	< 1.1 x 10 ⁻¹³ m ² /s	
METHANE PERMEANCE	ASTM D 1434	< 1.7 x 10 ⁻¹⁰ m ² /d·atm 0.32 GTR (Gas Transmission Rate) ml/m ² ·D·ATM	

VaporBlock® Plus™ Placement

All instructions on architectural or structural drawings should be reviewed and followed.
Detailed installation instructions accompany each roll of VaporBlock® Plus™ and can also be located on our website.
ASTM E-1643 also provides general installation information for vapor retarders.



VaporBlock® Plus™ is a seven-layer co-extruded barrier made using high quality virgin-grade polyethylene and EVOH resins to provide unmatched impact strength as well as superior resistance to gas and moisture transmission.

Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. Chemical resistance as well as other performance criteria is not implied or given and actual testing must be performed for applicability in specific applications and/or conditions. RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage.



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VaporBlock® Plus™

UNDERSLAB VAPOR RETARDER / GAS BARRIER

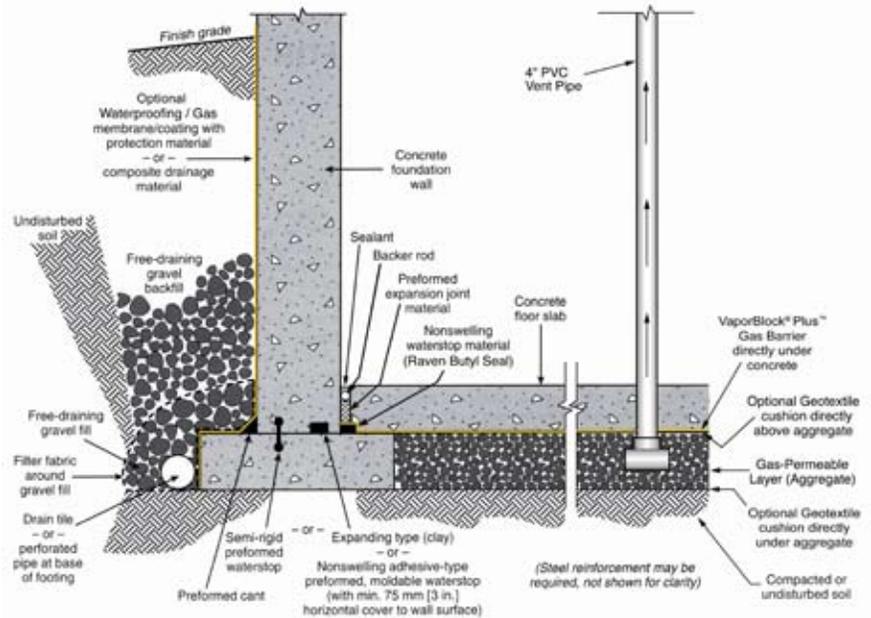
INSTALLATION GUIDELINES

Please Note: Read these instructions thoroughly before installation to ensure proper use of VaporBlock® Plus™. ASTM E 1465, ASTM E 2121 and, ASTM E 1643 also provide valuable information regarding the installation of vapor / gas barriers. When installing this product, contractors shall conform to all applicable local, state and federal regulations and laws pertaining to residential and commercial building construction.

- When VaporBlock Plus gas barrier is used as part of an active control system for radon or other gas, a ventilation system will be required.
- If designed as a passive system, it is recommended to install a ventilation system that could be converted to an active system if needed.

Materials List:

- VaporBlock® Plus™ Vapor / Gas Barrier
- VaporBond Plus 4" Foil Seaming Tape
- Butyl Seal 2-Sided Tape
- VaporBoot Plus Pipe Boots 12/Box (recommended)
- VaporBoot Tape (optional)



Elements of a moisture/gas-resistant floor system. General illustration only.
 (Note: This example shows multiple options for waterstop placement.)

VAPORBLOCK® PLUS™ PLACEMENT

- 1.1. Level and tamp or roll granular base as specified. A base for a gas-reduction system may require a 4" to 6" gas permeable layer of clean coarse aggregate as specified by your architectural or structural drawings after installation of the recommended gas collection system. In this situation, a cushion layer consisting of a non-woven geotextile fabric placed directly under VaporBlock® Plus™ will help protect the barrier from damage due to possible sharp coarse aggregate.
- 1.2. Unroll VaporBlock Plus running the longest dimension parallel with the direction of the pour and pull open all folds to full width. (Fig. 1)
- 1.3. Lap VaporBlock Plus over the footings and seal with Raven Butyl Seal tape at the footing-wall connection. Prime concrete surfaces and assure they are dry and clean prior to applying Raven Butyl Seal Tape. Apply even and firm pressure with a rubber roller. Overlap joints a minimum of 6" and seal overlap with Raven VaporBond Tape. When used as a gas

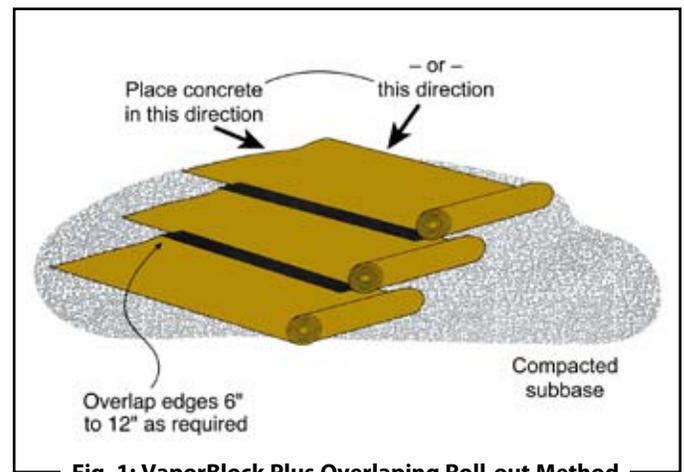


Fig. 1: VaporBlock Plus Overlapping Roll-out Method

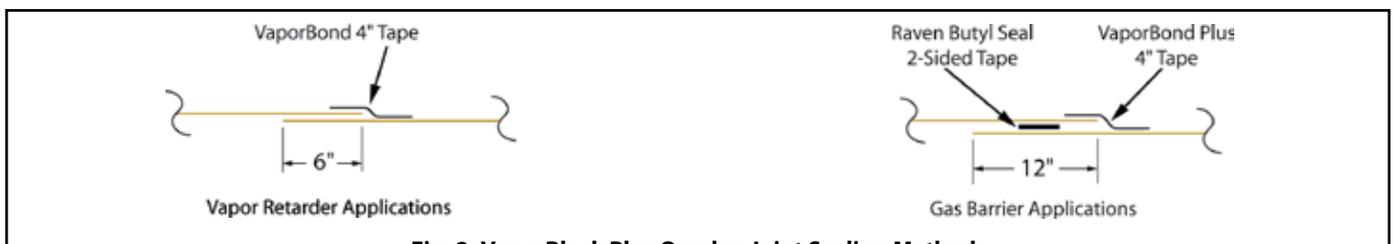


Fig. 2: VaporBlock Plus Overlap Joint Sealing Methods

SINGLE PENETRATION PIPE BOOT INSTALLATION

barrier, overlap joints a minimum of 12" and seal in-between overlap with 2-sided Raven Butyl Seal Tape. Then seal with VaporBond Plus Tape centered on the overlap seam. (Fig. 2)

- 1.4. Seal around all plumbing, conduit, support columns or other penetrations that come through the **VaporBlock Plus** membrane. Pipes four inches or smaller can be sealed with Raven VaporBoot Plus preformed pipe boots. VaporBoot Plus preformed pipe boots are formed in steps for 1", 2", 3" and 4" PVC pipe or IPS size and are sold in units of 12 per box (Fig. 3 & 5).

Pipe boots may also be fabricated from excess **VaporBlock Plus** membrane (Fig. 4 & 6) and sealed with VaporBoot Tape or VaporBond Plus Tape (sold separately).

Reminder Note: All holes or penetrations through the membrane will need a patch cut to a minimum of 12" from the opening in all directions.

To fabricate pipe boots from **VaporBlock Plus** excess material (see Fig. 4 & 6 for A-F):

- A) Cut a square large enough to overlap 12" in all directions.
- B) Mark where to cut opening on the center of the square and cut four to eight slices about 3/8" less than the diameter of the pipe.
- C) Force the square over the pipe leaving the tightly stretched cut area around the bottom of the pipe with approximately a 1/2" of the boot material running vertically up the pipe. *(no more than a 1/2" of stretched boot material is recommended)*
- D) Once boot is positioned, seal the perimeter to the membrane by applying 2-sided Raven Butyl Seal Tape in between the two layers. Secure boot down firmly over the membrane taking care not to have any large folds or creases.
- E) Use VaporBoot Tape or VaporBond Plus Tape to secure the boot to the pipe.

VaporBoot Tape (option) – fold tape in half lengthwise, remove half of the release liner and wrap around the pipe allowing 1" extra for overlap sealing. Peel off the second half of the release liner and work the tape outward gradually forming a complete seal.

VaporBond Plus Tape (option) - Tape completely around pipe overlapping the to get a tight seal against the pipe.
- F) Complete the process by taping over the boot perimeter edge with VaporBond Plus Tape to create a monolithic membrane between the surface of the slab and gas/moisture sources below and at the slab perimeter. (Fig. 4 & 6)

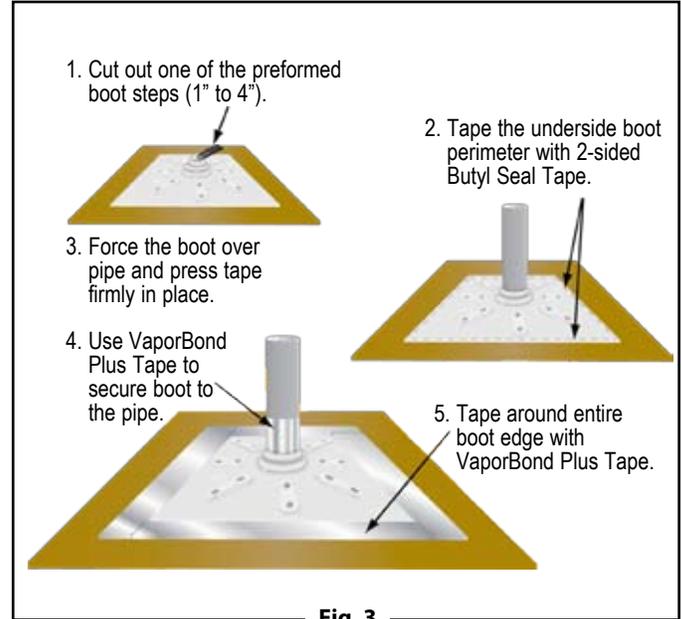


Fig. 3

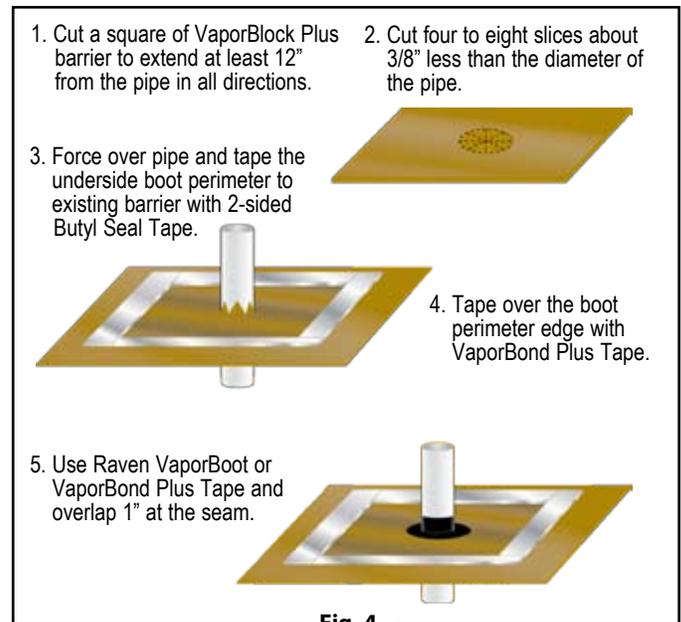


Fig. 4

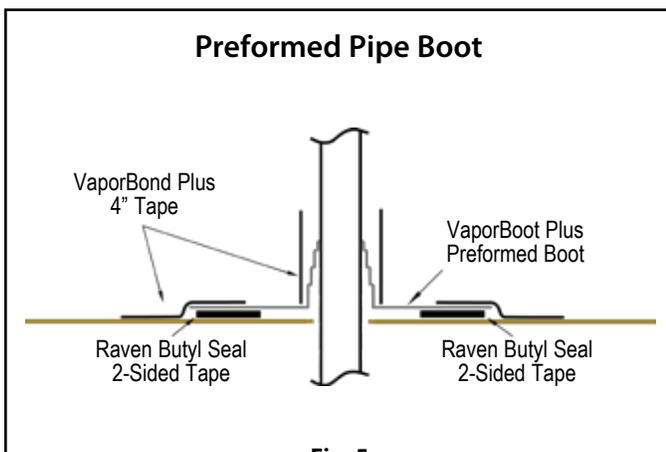


Fig. 5

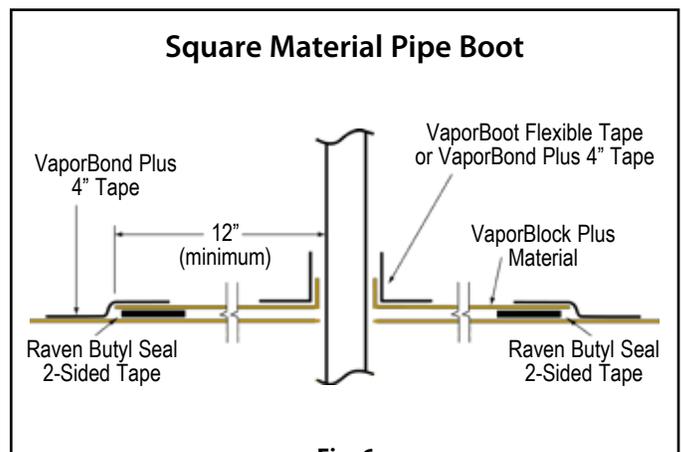


Fig. 6

MULTIPLE PENETRATION PIPE BOOT INSTALLATION

1.5. For side-by-side multiple penetrations;

- A) Cut a patch large enough to overlap 12" in all directions (Fig. 7) of penetrations.
- B) Mark where to cut openings and cut four to eight slices about 3/8" less than the diameter of the penetration for each.
- C) Slide patch material over penetration to achieve a tight fit.
- D) Once patch is positioned, seal the perimeter to the membrane by applying 2-sided Raven Butyl Seal Tape in-between the two layers. (Fig. 8)
- E) After applying Raven Butyl Seal Tape between the patch and membrane, tape around each of the penetrations and the patch with VaporBond Plus 4" foil tape. (Fig. 9) For additional protection apply an acceptable polyurethane elastomeric sealant around the penetrations. (Fig. 10)

1.6. Holes or openings through **VaporBlock Plus** are to be repaired by cutting a piece of **VaporBlock Plus** 12" larger in all directions from the opening. Seal the patch to the barrier with 2-sided Raven Butyl Seal Tape and seal the edges of the patch with VaporBond Plus Tape.

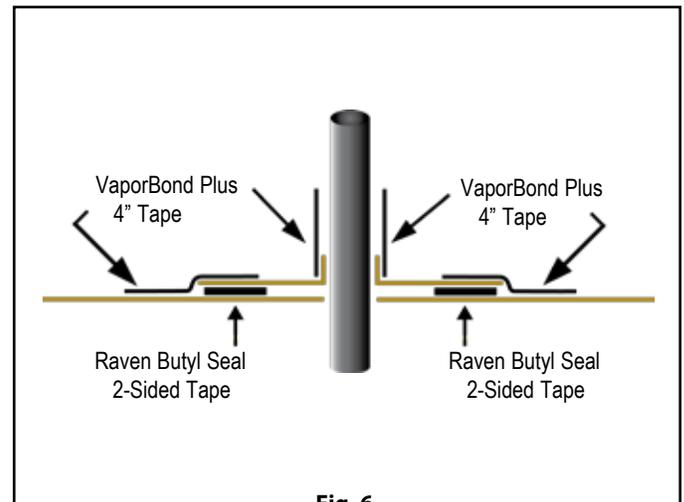


Fig. 6

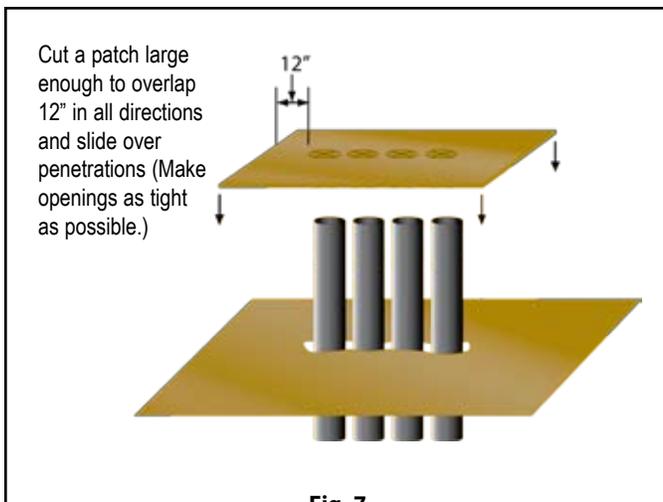


Fig. 7

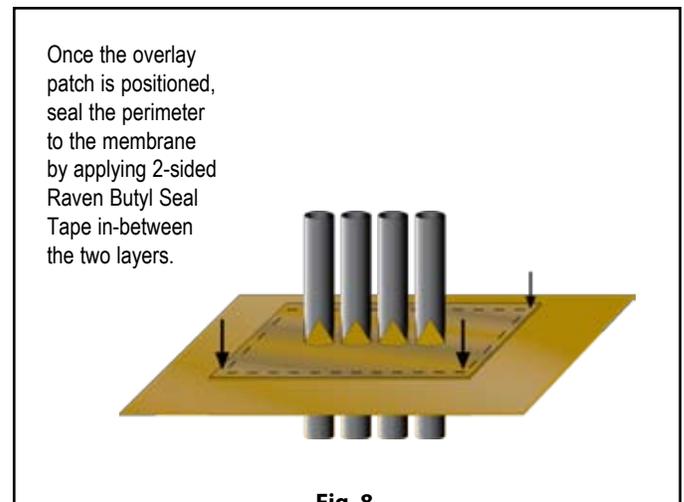


Fig. 8

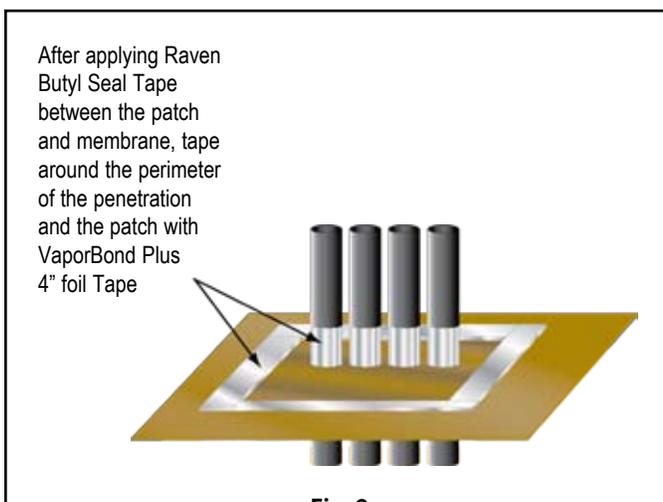


Fig. 9

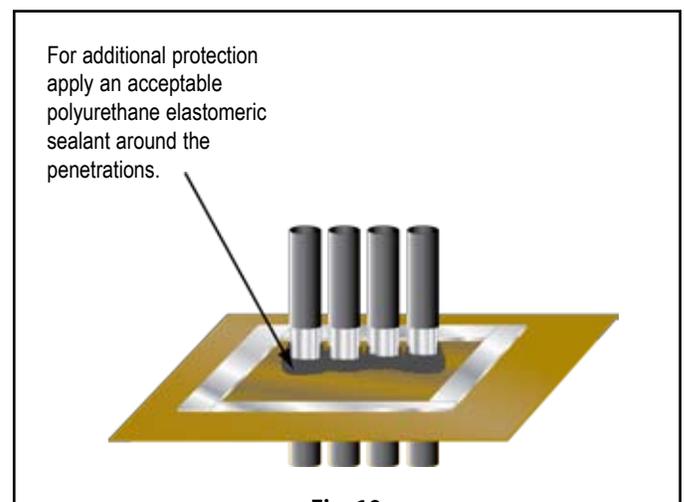


Fig. 10

VAPORBLOCK® PLUS™ PROTECTION

- 2.1. When installing reinforcing steel and utilities, in addition to the placement of concrete, take precaution to protect **VaporBlock Plus**. Carelessness during installation can damage the most puncture-resistant membrane. Sheets of plywood cushioned with geotextile fabric temporarily placed on **VaporBlock Plus** provide for additional protection in high traffic areas including concrete buggies.
- 2.2. Use only brick-type or chair-type reinforcing bar supports to protect **VaporBlock Plus** from puncture.
- 2.3. Avoid driving stakes through **VaporBlock Plus**. If this cannot be avoided, each individual hole must be repaired per section 1.6.
- 2.4. If a cushion or blotter layer is required in the design between **VaporBlock Plus** and the slab, additional care should be given if sharp crushed rock is used. Washed rock will provide less chance of damage during placement. Care must be taken to protect blotter layer from precipitation before concrete is placed.



Note: To the best of our knowledge, these are typical installation procedures and are intended as guidelines only. Architectural or structural drawings must be reviewed and followed as well on a project basis. NO WARRANTIES ARE MADE AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS OR GUIDELINES REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and we disclaim all liability for resulting loss or damage.



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ISO 9001:2000
CERTIFIED MANAGEMENT SYSTEM

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Appendix 9

Example RCR Deliverable Requirements

- **Soil Vapor Extraction**
- **Sub-Slab Depressurization System**
- **Vapor Barrier**

RCR Deliverable Requirements

Sub-Slab Depressurization System

The active sub-slab depressurization system is designed to maintain negative pressure beneath the entire area of the building slab addressed by this RAP. A PE certified drawing of the sub-slab depressurization system is provided as Figure 8. The Remedial Closure Report will include photographs of the installation of SSDS laterals as well as if any deviations have occurred due to construction scope changes. The Remedial Closure Report will include PE/RA certified as-built plans depicting SSDS lateral, blower and riser pipe configuration and locations, as well as documentation proving that the active SSDS was appropriately designed to maintain negative pressure beneath the entire area of the building slab.

Vapor Barrier Membrane

Detailed certified drawings prepared by a PE or RA of Record depicting the extent of the proposed vapor barrier membrane and the installation details (penetrations, joints, etc.) with respect to the proposed building foundation, footings, slab, and sidewalls, and product specification sheets are provided as Figure 8 and Appendix F. The Remedial Closure Report will include photographs (maximum of two photos per page) of the installation process, PE/RA certified letter (on company letterhead) from primary contractor responsible for installation oversight and field inspections, and a copy of the manufacturers certificate of warranty.

Soil Vapor Extraction System

The soil vapor extraction system is designed to remove soil vapor from beneath the area of the structure addressed in this RAP. A PE certified drawing of the soil vapor system layout is provided as Figure 7. The Remedial Closure Report will include photographs of the installation of SVE points as well as if any deviations have occurred due to construction scope changes. The Remedial Closure Report will include PE/RA certified as-built plans depicting SVE piping, blower and riser pipe configuration and locations, as well as documentation proving that the SVE was appropriately designed to remove soil vapor beneath the intended area of the structure.