Hydro Tech Environmental, Corp.

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September 6, 2011

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

Re: 11CBCP014K
12EH-A071K
24 Hillel Place
Remedial Action Work Plan (RAWP) Stipulation List

Dear Mr. Chawla:

Hydro Tech Environmental Corp hereby submits a Remedial Action Work Plan (RAWP) Stipulation List for the subject site to the New York City Office of Environmental Remediation (NYCOER) on behalf H & H Builders. This letter serves as an addendum to the RAWP to stipulate additional content, requirements and procedures that will be followed during the site remediation. The contents of this list are added to the RAWP and will supersede the content in the RAWP where there is a conflict in purpose or intent. The additional requirements/procedures include the following:

Stipulation List

Remedial Investigation

1. The criterion attached in **Addendum 1** will be utilized if petroleum containing tank or vessel is identified during the remedial action or subsequent redevelopment excavation activities. All petroleum spills will be reported to the NYSDEC hotline as required by applicable laws and regulations. This contingency plan is designed for heating oil tanks and other small or moderately sized storage vessels. If larger tanks, such as gasoline storage tanks are identified, OER will be notified before this criterion is utilized.

2. The remedial action will apply Track 1 SCOs. Site Management Plan is not required for Track 1 clean-up. If Track 1 cleanup is not achieved, a

Site Management Plan (SMP) will be required for long-term management of residual contamination.

3. The quality assurance/quality control program (QA/QC) for collection of end point samples for this remedial action will include the following provisions:
   - New York State ELAP certified labs will be utilized for chemical analysis
   - Data summary tables will be prepared that include all data entries (including non-detect results) and will be presented in the Remedial Action Report (RAR)
   - Full chain of custody for analytical samples will be maintained and forms will be reported in the RAR
   - Collection of QA/QC samples including blanks and duplicates will be incorporated. The following QA/QC samples will be collected [list plan here]

4. Extensive sampling was conducted during Remedial Investigation phase. Collection and analysis of endpoint samples will be conducted to evaluate the performance of the remedy with respect to attainment of Track 1 SCOs. A map indicating post-remedial End Point Sampling Locations will be prepared and attached as **Addendum 2**.

5. Final cover slab design is included in **Addendum 3**.

6. Signage for the project will include a sturdy placard mounted in a publically accessible right of way to building and other permits signage will consist of the NYC BCP Information Sheet (attached **Addendum 4**) announcing the remedial action. The Information sheet will be laminated and permanently affixed to the placard.

7. The Truck route is**:** Head South on Nostrand Avenue toward Avenue H; Take the 3rd right onto Avenue J; Turn left onto Dahill Road; Turn right onto 21st Avenue; Turn right on 86th Street; Turn left onto Gatling Place; Take the ramp to I-278 W; Keep left at the fork and merge onto I-278; take the exit toward I-278 W/New Jersey;

8. Addendum 5 provides design specifications on the type, thickness and installation process for the vapor barriers. The vapor barriers planned for this project include a 30 mil GSE liner HD to be installed beneath the building slab and a Preprufe® 160R liner will be installed along the below grade foundation sidewalls. Both liners will be attached using Bithutene Liquid Membrane manufactured by Grace. The installation of vapor barrier will be certified by a professional engineer. These barriers are impermeable membranes that are capable of preventing the migration of soil vapor into the new building. Design and Technical Specification for the Vapor Barriers are attached in **Addendum 5**. Passive Sub-Slab

Depressurization System (SSDS) plans are also attached in **Addendum 5**.

9. Construction Health and Safety Plan (CHASP) for 2166 Nostrand Avenue and 24 Hillel place (combined CHASP for both sites) is attached in **Addendum 6**.

10. E-Designation Project Submittal Cover Sheet stamped and certified with NYC Buildings Department Job Numbers attached in **Addendum 7**.

11. Certified stamped architect and engineering plans attached in **Addendum 8**.

12. E-Designation Air Quality Remedial action Plan (RAP) for 24 Hillel place is attached in **Addendum 9**.

13. Descriptions of the Development Plans/ Foundation Plans is attached in **Addendum 10**.

14. A CD containing the final RAWP including this approved Stipulation List will be placed in the library that constitutes the primary public repository for project documents.

15. This NYC BCP project is not eligible for an exemption from New York State hazardous waste disposal fees.

16. Qualitative Human Health Exposure Assessment (QHHEA) is attached in **Addendum 11**.

Very Truly Yours,

Rachel Ataman
Vice President of Technical Services
Hydro Tech Environmental, Corp.

cc:
D. Pisani
W. Wong

Addendum 1

Generic Procedures for Management of Underground Storage Tanks identified under the NYC BCP

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

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

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

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

<u>Impacted Soil Excavation Methods</u>

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

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

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

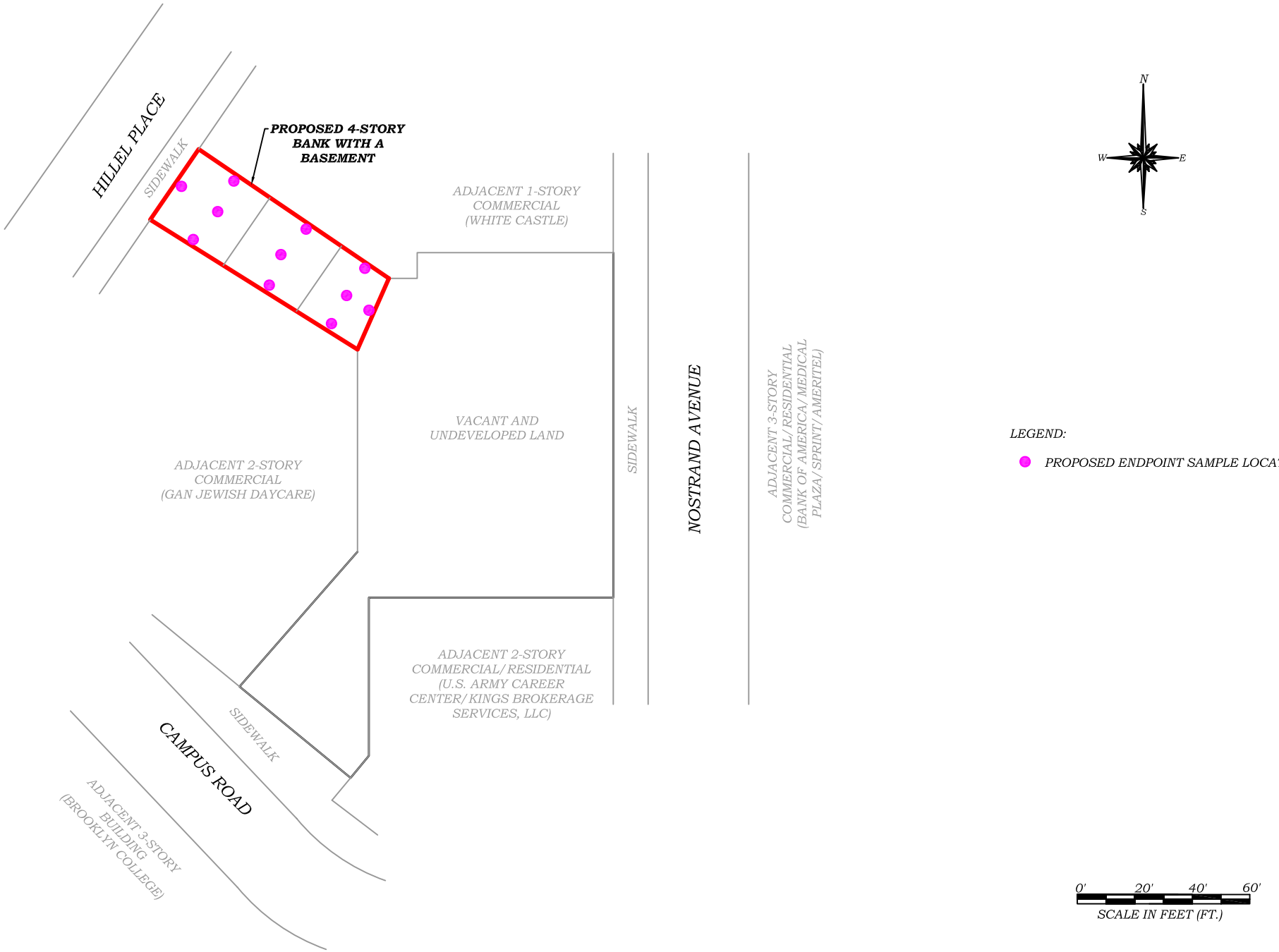
The following procedure will be used for the excavation of impacted soil (as necessary and appropriate):

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

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

Addendum 2

End Point Sampling Plan



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Reviewed By:	M.R
Approved By:	M.S
Date:	08/09/11
Scale:	AS NOTED

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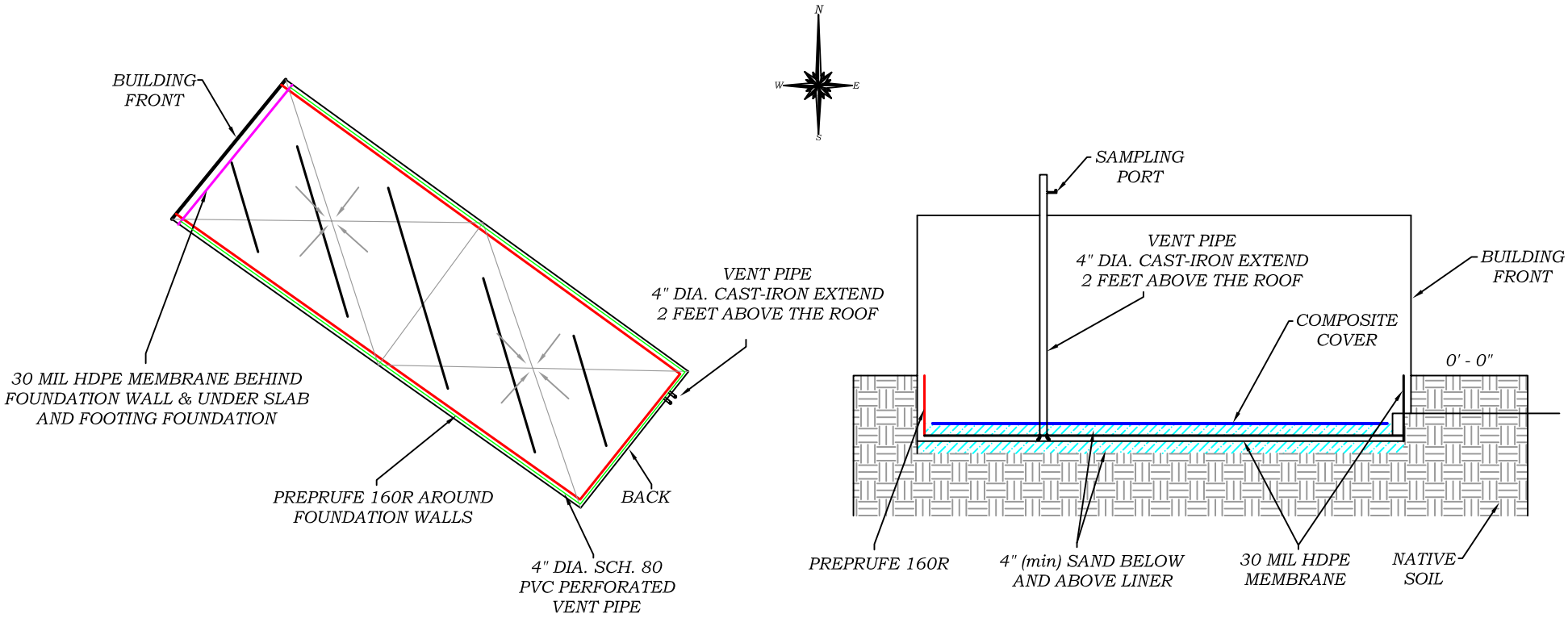
PROPOSED END POINT SAMPLING LOCATIONS

Addendum 3

Final Cover Slab Design



Plan View

Elevation View

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COMPOSITE COVER

Addendum 4
Signage

NYC Brownfield Cleanup Program

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

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

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

Shaminder Chawla at (212) 788-8841
or email us at brownfields@cityhall.nyc.gov

24 Hillel Place Site
Site #: 11CBCP014K

Addendum 5

Design Plans and Technical Specification for Vapor Barriers and Passive Sub-Slab Depressurization System (SSDS) Plans

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VAPOR BARRIER AND SUB-SLAB DEPRESSURIZATION SYSTEM DESIGN SPECIFICATIONS

PROJECT SITE:

24 Hillel Place
Brooklyn, New York
Block 7557; Lot 120 (p/o Lot 124)
Brooklyn, New York

BCP Project #: 11CBCP014K
E Designation Project # 12EH-A071K

CEQR #09DCP058K / ULURP #090336ZMK

VAPOR BARRIER AND SUB-SLAB DEPRESSURIZATION SYSTEM DESIGN SPECIFICATIONS

24 Hillel Place
Brooklyn, New York
Block 7557; Lot 120 (p/o Lot 124)
Brooklyn, New York

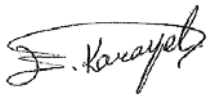
BCP Project #: 11CBCP014K
E Designation Project # 12EH-A071K

CEQR #09DCP058K / ULURP #090336ZMK

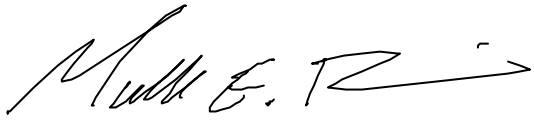
Hydro Tech Environmental, Corp. appreciates the opportunity to work for H&H Builders for the property located at 24 Hillel Place, (Block 7557, New Lot 120), Brooklyn, New York.

Should you require any additional information or have any comments regarding the contents of this report, please feel free to contact our office at your convenience.

Very Truly Yours,
Hydro Tech Environmental, Corp.



X_____
Ezgi Karayel
Project Engineer



X_____
Mark E. Robbins, C.P.G., C.E.I.
Senior Vice President

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1. Site Excavation Plan
2. Plan & Elevation – Building Footings

Attachments
1. Specifications

1.0 EXECUTIVE SUMMARY

The Vapor Barrier and Passive (SSDS) Depressurization System Design Specifications have been prepared on behalf of H&H Builders. ("the Client") to document the details and protocols for the vapor mitigation of the proposed building at 24 Hillel Place, (Block 7557; New Lot 120 (formerly p/o 124)), Brooklyn, New York. This property is associated with a Little "E" Restriction for "Hazmat/Air", E-233, CEQR #09DCP058K, E Designation Project # 12EH-A071K and BCP Project #11CBCP014K.

The property is approximately 3,016 square foot parcel that is currently vacant and undeveloped. H&H Builders is developing a 4-story bank with a full cellar. The basement will be excavated to a total depth of 12 feet below grade and the elevator pit will be excavated to 16 feet below grade. There will not be any open spaces

These systems will be installed under the direct oversight of a Hydro Tech Environmental, Corp. (Hydro Tech) Engineer. Following the completion of all site construction, Hydro Tech will prepare a Remedial Closure Report for submittal to the New York Office Mayor Office of Environmental Remediation (OER) under separate cover. This Closure Report will provide documentation of all aspects of the project above and will be signed/stamped by a NYS-licensed Professional Engineer.

2.0 INTRODUCTION

The Vapor Barrier System (VBS) and Sub-Slab Depressurization System (SSDS) will be installed in accordance with the manufacturer's specifications in order to ensure a vaporproof barrier between the exterior and interior of the building located at 24 Hillel Place, (Block 7557, New Lot 120 (formerly p/o 124)), Brooklyn, New York.

These written specifications and accompanying engineering plans for the proposed VBS and SSDS complement and supplement each other. The Contractor shall review both of them for sizing and installing the proposed VBS.

These specifications consist of the following Sections:

1. Important Note for Site Work – discusses safety issues that are specific to this Site
2. Standards – lists applicable standards for vapor barrier system construction
3. System Description – provides a brief overview of the vapor barrier system

2.1 Important Notes for Site Work

Open flames and smoking are prohibited in the work area.

During construction of the proposed VBS, the Contractor shall take all protective measures to ensure the health and safety of all site personnel from potential exposure to volatile organic materials and vapors. Care should be taken to eliminate exposure to metal and semi-volatile compounds detected in the soil beneath the site.

2.2 Standards

The American Society for Testing and Materials (ASTM) Standard D2321-89 (re-approved 1995), "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications," is included here by reference. Unless otherwise stated below, the Contractor shall follow ASTM Standard D2321 during trenching, backfilling and piping construction. This specification is only needed in areas requiring trenching work.

In addition to the above standards, the Contractor shall follow all applicable Federal, State and Local codes, regulations and ordinances pertaining to construction and safety.

The Contractor shall consult with and follow the Engineer's instructions in case any conflicts between these plans and specifications and any of the above standards may arise.

3.0 VAPOR MITIGATION EFFORTS

1) Based on the information provided by the Client, the proposed development plan includes the construction of one 4-story bank with a basement. The basement of the bank building will be excavated to a total depth of 12 feet below grade and the elevator pit will be excavated t0 16 feet below grade. The depth of the groundwater on Site ranges between 24.12 ft and 25.8 ft. ***Figure 1*** provides an excavation Plan.

2) An SSDS prevents elevated soil gas levels inside buildings by creating a negative pressure zone beneath the slab. If the negative pressure zone is extended throughout the entire sub-slab area, air will flow from the building into the soil, effectively sealing slab and foundation cracks and holes, and thus preventing the entry of VOC containing soil gas. To create this negative pressure zone, a sub-slab perforated pipe is installed in the aggregate under the slab. This sub-slab pipe is then connected to a vent pipe that runs from the pit to 2 feet above the roof. In a passive SSDS, the vent pipe is then connected to two passive stack vents.

3) The essential guidelines for designing and installing the Preprufe® 160R liner along the walls and the 30-mil low permeability geomembrane liner beneath the foundations are listed below. The design and construction procedures are discussed in detail in the sections that follow:

4.1 Installation of the 30-mil Low Permeability Geomembrane Liner and Passive Depressurization System

- The 30-mil low permeability geomembrane liner underneath the slab of the building and the liner is to be extended up linearly 4' and attached to the foundation as per the manufacturer's specifications. The liner will be protected by a geo-textile non-woven fabric (8 oz./sq. yd.) on both sides to prevent tears (manufacturer's spec sheets for geotextile are attached) and the entire assembly is additionally protected by minimum 4"-thick layers of fine mason sand on both sides.

- The liner is pitched upward from the center of separate sections of the building footprints towards its perimeter at a rate of approximately 1/2" per foot in length direction and 1/4" per foot in width direction to ensure that the liner will not be inadvertently pitched downward during construction, thus ensuring that there will be no pockets of trapped gases under the liner, and also to provide an additional buoyant pathway for the gases to travel away from the center towards the building perimeter.

- In order to create a negative pressure zone beneath the slab, a 4"-dia., Sch. 80 Polyvinyl Chloride (PVC) perforated pipe will be installed in the trench throughout the perimeter of the building and laterally beneath the entire cellar/slab, as shown in the plans. The perforated piping will collect vapors deflected by the liner traveling from the center to the perimeter and collect vapors traveling towards the building from the periphery.

    - Rectangular slots will be located throughout the pipe to serve as perforations.
    - Slots shall be in four (4) rows, oriented along the pipe circumference, with a 0.125" slot width, a 0.25" on center separation between adjacent slots, a 90-degree separation to centers of the two rows, and shall have 48 sq. in. of open area per foot of pipe. The angle of separation between the two rows may vary from the above specifications, provided all other specifications are met.
    - Appropriately sized fittings (tees, elbows, etc.) will be used as required for installing the pipe. Follow ASTM D2321 and manufacturers' instructions for pipe installation, joint sealing and other installation tasks.
    - The perforated vent pipe will be protected by a geotextile non-woven liner (8 oz./sq. yd) to prevent it from becoming clogged by migrating fine sand particles.

- The underground perforated piping under the slab is then connected to a non-perforated, 4"-dia., cast-iron vent pipe. There shall be two (2) passive stack vents for collecting gases in the perforated (slotted) gas collection pipe. These vents shall be 4' dia., cast-iron construction,

with a gooseneck configuration for preventing precipitation from entering the vent pipes. Starting at the floor slab, any openings between the vent pipe and the floor slab should be sealed with a high adhesive sealant like polyurethane. All piping joints shall be sealed. The vent pipe shall be labeled as "soil gas vent" and the label made visible for occupants. Vent pipe will terminate at 2 feet above the roof and it is extended above the building with a vent riser. The vent riser is equipped with a sampling port.

- As a final measure, the underground perforated pipe is embedded in high permeability gravel.

Manufacturer's product sheets are attached at the end of these specifications for the GSE HD Liner.

Figure 2 provides Plan & Elevation for the cellar.

Figure 3 provides Plan & Elevation for the cellar section the proposed vapor barrier and SSDS beneath the building footings.

4.2 Installation of Preprufe® 160R Liner

- The Preprufe shall completely cover and enclose the sub-grade walls. The Preprufe shall extend up to the street level by vertically attaching it to the concrete frame for the foundation walls in accordance with the manufacturer's specifications.

- Extreme care shall be taken to ensure that lap joints are double seamed and that tears and punctures are sealed utilizing Preprufe tape or high-density polyethylene (HDPE) bituthene membrane.

- Once in place, concrete shall be poured in contact with the Preprufe membrane in accordance with the manufacturer's specifications.

Manufacturer's product sheets are attached at the end of these specifications for Preprufe Waterproofing Liner – Preprufe® 160R manufactured by Grace Construction Products.

4.3 Interaction with Underground Conduits

Examples of utility penetrations through the building slab include water and sewer lines, utility lines to unit ventilators and radiators, electrical service entries, sub-slab conduits, air conditioner condensate drains and roof drains. The openings around these slab penetrations shall be sealed with polyurethane caulk. All unpressurized water and wastewater lines connected to the buildings shall be equipped with house traps (P-traps) to prevent the migration of gases through them into the building. These lines shall be equipped with vents on the outside of the building, such that the P-traps are located between these vents and the building to which they are connected. These measures are not needed for city water supply lines.

4.4 Other Considerations

1. If any trench construction or excavation is involved in the construction of the VBS, follow trench excavation instructions in ASTM D2321 and other applicable codes, regulations, and standards, including instructions for trench support and sloping as needed. Trench locations shall be clearly separated from the rest of the property with temporary fences, and access to the trench(s) shall be limited to only the workers and related equipment and shall be denied to all others. Construction shall be scheduled such that at the end of each day of work, all trench excavations during that day are backfilled and consolidated, such that the possibility of any human, animal, or equipment falling into the trench(s) or sinking into a loosely backfilled trench is eliminated. The safety practices of the Contractor shall not be limited to those described or specified above; the Contractor shall also take all safety measures and precautions that are necessary for this project depending on project specific conditions. The Contractor is responsible for ensuring the safety of

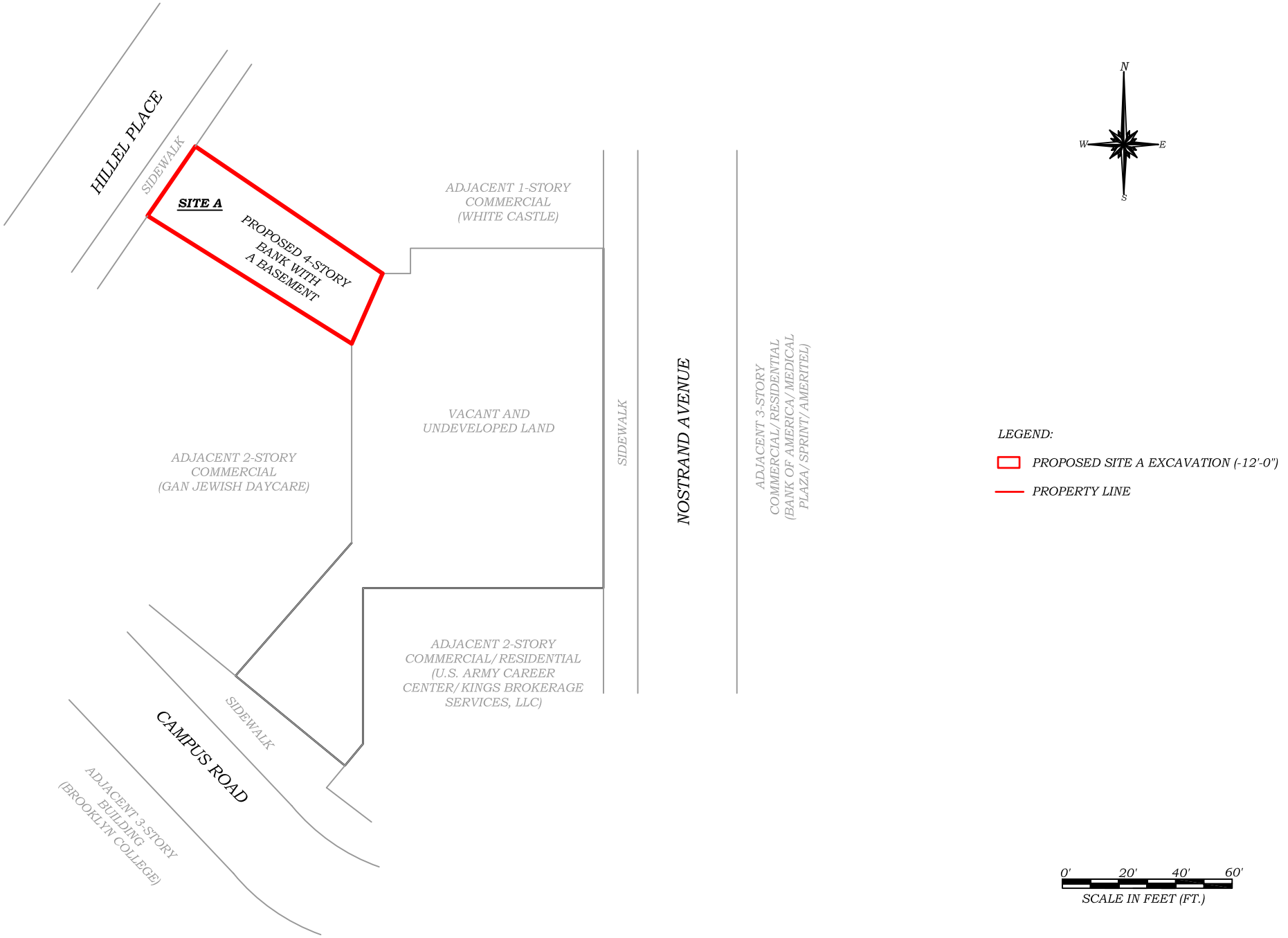
workers, as well as all other people, animals or equipment on Site during all construction activities related to this project, including trench construction.

2. All soil material used as backfill ("fill") shall be completely free of organic material and free of all extraneous materials such as roots, tree stumps, construction spoils or any other material that would eventually degrade and cause a change in soil volume. Backfill shall also be free of rocks, bricks, nails or any other hard, sharp material that could damage the Preprufe membrane, geomembrane liner and gas collection piping in the trench.

3. Backfill shall not contain any frozen material and shall not be placed on frozen ground because of significant damage that can occur when the material thaws. Backfill shall be mixed and deposited in a manner as to produce reasonable uniformity throughout the mass.

4. Backfill shall be carefully deposited into the excavation and compacted to form a uniformly, dense and stable mass. Before a new layer of backfill is deposited on a freshly compacted layer, the surface of the compacted layer shall be scarified to enhance mechanical bonding between the surfaces of the two layers.

5. Field inspections must be conducted while construction is in progress.



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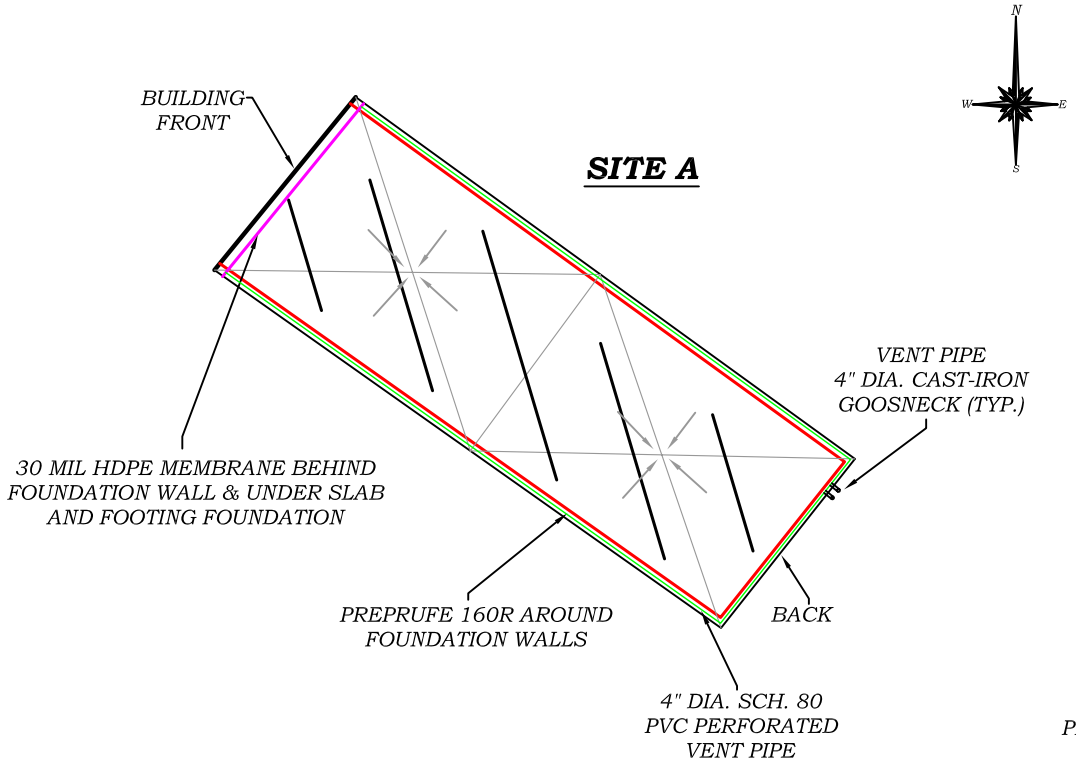
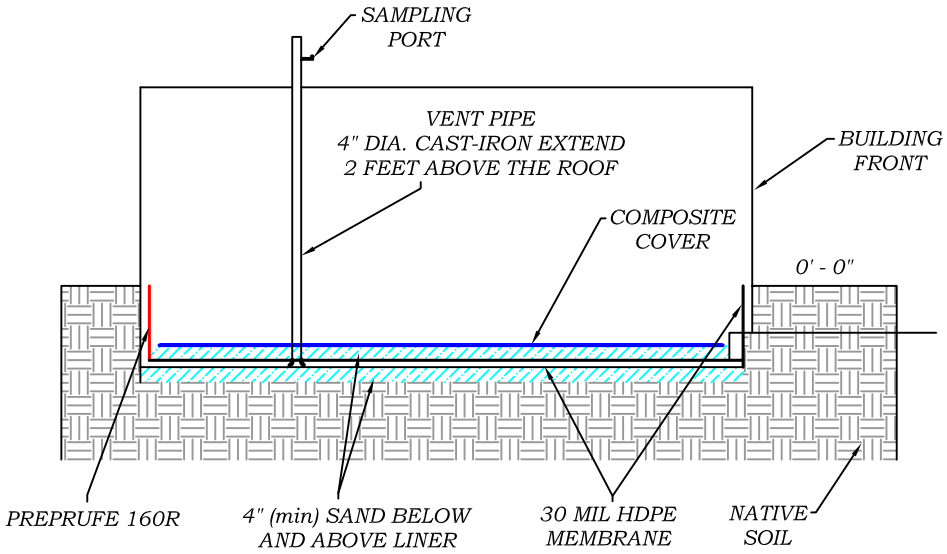
Drawn By:	C.Q
Reviewed By:	M.R
Approved By:	M.S
Date:	08/09/11
Scale:	AS NOTED

TITLE:

FIGURE 1: SITE EXCAVATION PLAN



Plan View



Elevation View

NOTES:

1. ALL ELEVATIONS ARE RELATIVE TO EXISTING GRADE, WHICH IS ARBITRARILY ASSUMED TO BE AT 0'-0" EL.
2. THE VAPOR BARRIER DESIGN IS INDEPENDENT OF THE ACTUAL TYPE OF FOUNDATION CONSTRUCTED AT THE SITE. ANY OBJECTS THAT BISECT THE LINER SUCH AS PIERS OF PILES MUST BE CUT THROUGH THE LINER AND CONTACT BETWEEN THE BARRIER AND OBJECT MUST BE SEALED AS PER THE MANUFACTURER'S RECOMMENDATION.
3. BUILDING HEIGHT AND THE SHAPE OF THE ROOF ARE APPROXIMATE.
4. THE PERFORATED VENT PIPES SHALL BE CAREFULLY INSTALLED MANUALLY IN A SECURE COMPACTED BED OF ROUND GRAVEL TO PROVIDE GOOD SUPPORT WITHOUT DAMAGE TO PIPING.
5. THE LOCATION OF THE PERFORATED PIPES CAN BE FIELD ADJUSTED TO AVOID POSSIBLE DAMAGE TO THE PIPES DUE TO ANY UP-COMING LOADS.
6. INSTALL 4" DIA. CAST-IRON VERTICAL RAISER VENT PIPE THROUGH THE LINER USING PIPE BOOT PER MANUFACTURER'S INSTRUCTION, ENSURING NO LEAKAGE.

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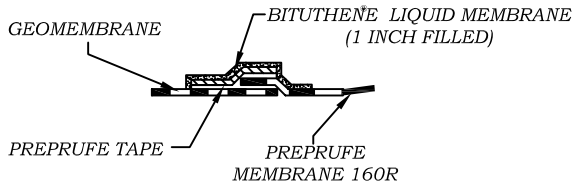
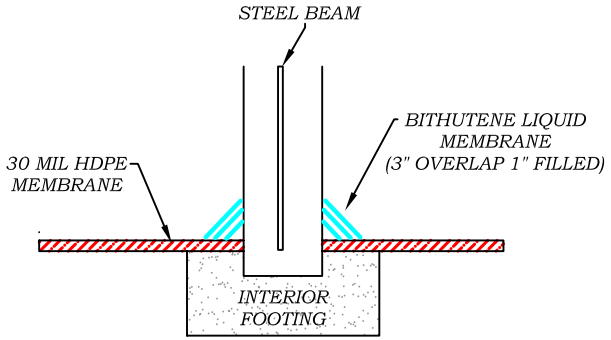
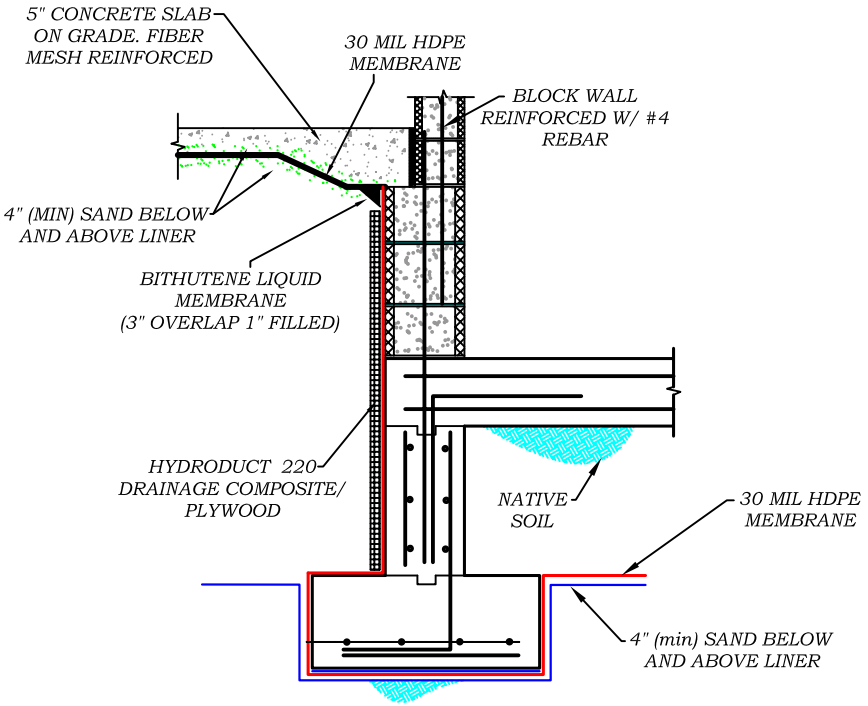
FIGURE 2: PLAN & ELEVATION FOR THE CELLAR



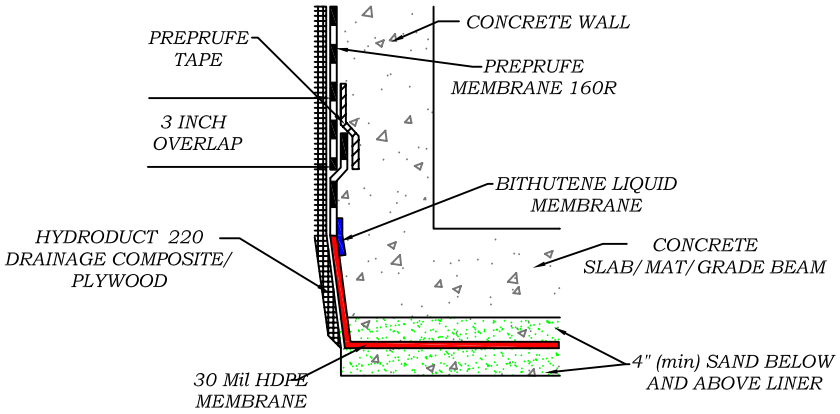
MEMBRANE TO PREPRUFE DETAILS



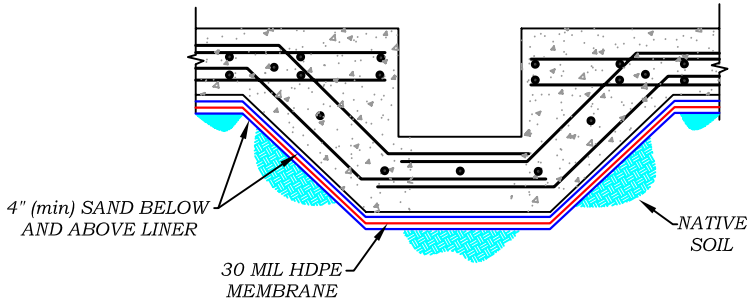
FOOTING TO COLUMN DETAILS



SECTION ELEVATOR PIT DETAILS



SLAB DETAIL



TYPICAL ELEVATOR SUMP PUMP PIT SECTION

HYDRO TECH ENVIRONMENTAL CORP.

MAIN OFFICE:
77 ARKAY DRIVE, SUITE G
HAUPPAUGE, NEW YORK 11788
T (631)462-5866 F (631)462-5877

NYC OFFICE:
15 OCEAN AVENUE, 2nd Floor
BROOKLYN, NEW YORK 11225
T (718)636-0800 F (718)636-0900

www.hydrotechenvironmental.com

24 Hillel Place
Brooklyn, NY.

Drawn By:	C.Q
Reviewed By:	M.R
Approved By:	M.S
Date:	07/27/11
Scale:	AS NOTED

TITLE:

REVISED FIGURE 3: SCHEMATIC SECTION DETAILS

Attachment # 1
Material Spec Sheets

GSE®

GSE STANDARD PRODUCTS

Product Data Sheet

GSE HD

GSE HD is a smooth, high quality, high density polyethylene (HDPE) geomembrane produced from specially formulated, virgin polyethylene resin. This polyethylene resin is designed specifically for flexible geomembrane applications. It contains approximately 97.5% polyethylene, 2.5% carbon black and trace amounts of antioxidants and heat stabilizers; no other additives, fillers or extenders are used. GSE HD has outstanding chemical resistance, mechanical properties, environmental stress crack resistance, dimensional stability and thermal aging characteristics. GSE HD has excellent resistance to UV radiation and is suitable for exposed conditions. *These product specifications meet or exceed GRI GM13.*

Product Specifications

TESTED PROPERTY	TEST METHOD	FREQUENCY	MINIMUM VALUE				
Product Code			HDE 030A000	HDE 040A000	HDE 060A000	HDE 080A000	HDE 100A000
Thickness, (minimum average) mil (mm)	ASTM D 5199	every roll	30 (0.75)	40 (1.00)	60 (1.50)	80 (2.00)	100 (2.50)
Lowest individual reading (-10%)			27 (0.69)	36 (0.91)	54 (1.40)	72 (1.80)	90 (2.30)
Density, g/cm^3	ASTM D 1505	200,000 lb	0.94	0.94	0.94	0.94	0.94
Tensile Properties (each direction)	ASTM D 6693, Type IV	20,000 lb					
Strength at Break, lb/in-width (N/mm)	Dumbell, 2 ipm		114 (20)	152 (27)	228 (40)	304 (53)	380 (67)
Strength at Yield, lb/in-width (N/mm)			63 (11)	84 (15)	126 (22)	168 (29)	210 (37)
Elongation at Break, %	G.L. 2.0 in (51 mm)		700	700	700	700	700
Elongation at Yield, %	G.L. 1.3 in (33 mm)		12	12	12	12	12
Tear Resistance, lb (N)	ASTM D 1004	45,000 lb	21 (93)	28 (125)	42 (187)	56 (249)	70 (311)
Puncture Resistance, lb (N)	ASTM D 4833	45,000 lb	54 (240)	72 (320)	108 (480)	144 (640)	180 (800)
Carbon Black Content, %	ASTM D 1603	20,000 lb	2.0	2.0	2.0	2.0	2.0
Carbon Black Dispersion	ASTM D 5596	45,000 lb	+Note 1	+Note 1	+Note 1	+Note 1	+Note 1
Notched Constant Tensile Load, hr	ASTM D 5397, Appendix	200,000 lb	300	300	300	300	300
REFERENCE PROPERTY	**TEST METHOD**	**FREQUENCY**	**NOMINAL VALUE**				
Oxidative Induction Time, min	ASTM D 3895, 200° C; O_2, 1 atm	200,000 lb	>100	>100	>100	>100	>100
Roll Length[(1)] (approximate), ft (m)			1,120 (341)	870 (265)	560 (171)	430 (131)	340 (104)
Roll Width[(1)], ft (m)			22.5 (6.9)	22.5 (6.9)	22.5 (6.9)	22.5 (6.9)	22.5 (6.9)
Roll Area, ft^2 (m^2)			25,200 (2,341)	19,575 (1,819)	12,600 (1,171)	9,675 (899)	7,650 (711)

NOTES:

- +Note 1: Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
- GSE HD is available in rolls weighing about 3,900 lb (1,769 kg)
- All GSE geomembranes have dimensional stability of ±2% when tested with ASTM D 1204 and LTB of <-77° C when tested with ASTM D 746.
- [(1)]Roll lengths and widths have a tolerance of ± 1%.

DS005 HD R03/09/06

North America	GSE Lining Technology, Inc.	Houston, Texas	800 435 2008	281 443 8564	Fax: 281 230 8650
South America	GSE Lining Technology Chile S.A.	Santiago, Chile		56 2 595 4200	Fax: 56 2 595 4290
Asia Pacific	GSE Lining Technology Company Limited	Bangkok, Thailand		66 2 937 0091	Fax: 66 2 937 0097
Europe & Africa	GSE Lining Technology GmbH	Hamburg, Germany		49 40 767420	Fax: 49 40 7674234
Middle East	GSE Lining Technology-Egypt	The 6th of October City, Egypt		202 2 828 8888	Fax: 202 2 828 8889

www.gseworld.com

PRODUCT INFORMATION

Preprufe® 300R & 160R

Pre-applied waterproofing membranes that bond integrally to poured concrete for use below slabs or behind basement walls on confined sites.

Advantages

- **Forms a unique continuous adhesive bond to concrete poured against it –** prevents water migration and makes it unaffected by ground settlement beneath slabs
- **Fully-adhered watertight laps** and detailing
- **Provides a barrier to water, moisture and gas –** physically isolates the structure from the surrounding ground
- **BBA Certified** for basement Grades 2, 3, & 4 to BS 8102:1990
- **Zero permeance** to moisture
- **Solar reflective –** reduced temperature gain
- **Simple and quick to install –** requiring no priming or fillets
- **Can be applied to permanent formwork –** allows maximum use of confined sites
- **Self protecting –** can be trafficked immediately after application and ready for immediate placing of reinforcement
- **Unaffected by wet conditions –** cannot activate prematurely
- **Inherently waterproof, non-reactive system:**
  - not reliant on confining pressures or hydration
  - unaffected by freeze/thaw, wet/dry cycling
- **Chemical resistant –** effective in most types of soils and waters, protects structure from salt or sulphate attack

Description

Preprufe® 300R & 160R membranes are unique composite sheets comprising a thick HDPE film, an aggressive pressure sensitive adhesive and a weather resistant protective coating.

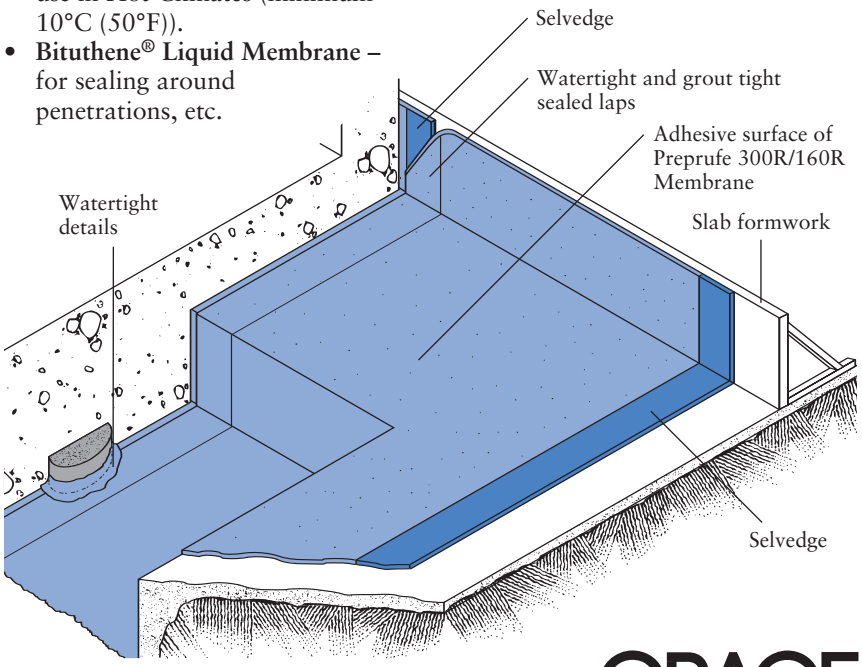
Unlike conventional non-adhering membranes, which are vulnerable to water ingress tracking between the unbonded membrane and structure, the unique Preprufe bond to concrete prevents ingress or migration of water around the structure.

The Preprufe R System includes:

- **Preprufe 300R –** heavy-duty grade for use below slabs and on rafts (i.e. mud slabs). Designed to accept the placing of heavy reinforcement using conventional concrete spacers.
- **Preprufe 160R –** thinner grade for blindside, zero property line applications against soil retention systems.
- **Preprufe Tape LT –** for covering cut edges, roll ends, penetrations and detailing (temperatures between -4°C (25°F) and +30°C (86°F)).
- **Preprufe Tape HC –** as above for use in Hot Climates (minimum 10°C (50°F)).
- **Bituthene® Liquid Membrane –** for sealing around penetrations, etc.

Preprufe 300R & 160R membranes are applied either horizontally to smooth prepared concrete, carton forms or well rolled and compacted sand or crushed stone substrate; or vertically to permanent formwork or adjoining structures. Concrete is then cast directly against the adhesive side of the membranes. The specially developed Preprufe adhesive layers work together to form a continuous and integral seal to the structure.

Preprufe can be returned up the inside face of slab formwork but is not recommended for conventional twin-sided formwork on walls, etc. Use Bituthene self-adhesive membrane or Procor® fluid applied membrane to walls after removal of formwork for a fully bonded system to all structural surfaces.



BBA BRITISH BOARD OF AGREMENT CERTIFICATE No. 97/3325

GRACE Construction Products

Installation

The most current application instructions, detail drawings and technical letters can be viewed at www.graceconstruction.com. Technical letters are provided for the following subjects to assist in the installation of Preprufe:

- Chemical Resistance
- Minimizing Concrete Shrinkage and Curling
- Rebar Chairs on Preprufe 300R Membrane
- Removal of Formwork Placed Against Preprufe Membranes
- Winter Lap Sealing and the use of Preprufe Tape LT

For other technical information contact your local Grace representative.

Preprufe 300R & 160R membranes are supplied in rolls 1.2 m (4 ft) wide, with a selvedge on one side to provide self-adhered laps for continuity between rolls. The rolls of Preprufe Membrane and Preprufe Tape are interwound with a disposable plastic release liner which must be removed before placing reinforcement and concrete.

Substrate Preparation

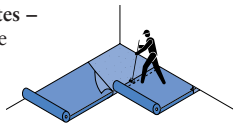
All surfaces – It is essential to create a sound and solid substrate to eliminate movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 12 mm (0.5 in.). Grout around all penetrations such as utility conduits, etc. for stability.

Horizontal – The substrate must be free of loose aggregate and sharp protrusions. Avoid curved or rounded substrates. The surface does not need to be dry, but standing water must be removed.

Vertical – Use concrete, plywood, insulation or other approved facing to sheet piling to provide support to the membrane. Board systems such as timber lagging must be close butted to provide support and not more than 12 mm (0.5 in.) out of alignment.

Membrane Installation

Preprufe can be applied at temperatures of -4°C (25°F) or above. When installing Preprufe in cold or marginal weather conditions <13°C (55°F) the use of Preprufe Tape LT is recommended at all laps and detailing. Preprufe Tape LT should be applied to clean, dry surfaces and the release liner must be removed immediately after application.

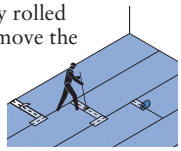


Horizontal substrates – Place the membrane HDPE film side to the substrate with the clear plastic release liner facing towards the concrete pour. End laps should be staggered to avoid a build up of layers. Leave plastic release liner in position until overlap procedure is completed.

Accurately position succeeding sheets to overlap the previous sheet 75 mm (3 in.) along the marked selvedge. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back the plastic release liner from between the overlaps as the two layers are bonded together. Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller. Completely remove the plastic liner to expose the protective coating. Any initial tack will quickly disappear.

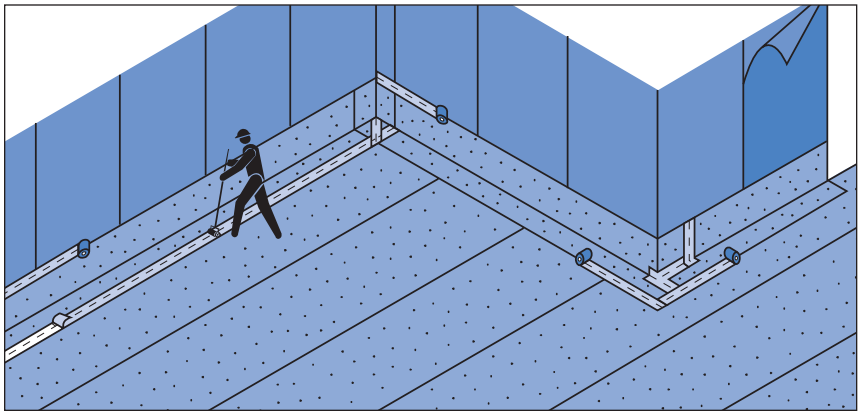
Refer to Grace Tech Letters for information on suitable rebar chairs for Preprufe.

Vertical substrates – Mechanically fasten the membrane vertically using fasteners appropriate to the substrate with the the clear plastic release liner facing towards the concrete pour. The membrane may be installed in any convenient length. Secure the top of the membrane using a batten such as a termination bar or similar 50 mm (2 in.) below the top edge. Fastening can be made through the selvedge so that the membrane lays flat and allows firmly rolled overlaps. Immediately remove the plastic release liner. Any additional fasteners must be covered with a patch of Preprufe Tape.



Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Roll firmly to ensure a watertight seal.

Roll ends and cut edges – Overlap all roll ends and cut edges by a minimum 75 mm (3 in.) and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary. Allow to dry and apply Preprufe Tape LT (or HC in hot climates) centered over the lap and roll firmly. Immediately remove printed plastic release liner from the tape.



Details

Refer to Preprufe Field Application Manual, Section V Application Instructions or visit www.graceconstruction.com. This Manual gives comprehensive guidance and standard details for:

- internal and external corners
- penetrations
- tiebacks
- columns
- grade beam pilecaps
- tie-ins
- terminations

Membrane Repair

Inspect the membrane before installation of reinforcement steel, formwork and final placement of concrete. The membrane can be easily cleaned by jet washing if required. Repair damage by wiping the area with a damp cloth to ensure the area is clean and free from dust, and allow to dry. Repair small punctures (12 mm (0.5 in.) or less) and slices by applying Preprufe Tape centered over the damaged area and roll firmly. Remove the release liner from the tape. Repair holes and large punctures by applying a patch of Preprufe membrane, which extends 150 mm (6 in.) beyond the damaged area. Seal all edges of the patch with Preprufe Tape, remove the release liner from the tape and roll firmly. Any areas of damaged adhesive should be covered with Preprufe Tape. Remove printed plastic release liner from tape. Where exposed selvedge has lost adhesion or laps have not been sealed, ensure the area is clean and dry and cover with fresh Preprufe Tape, rolling firmly. Alternatively, use a hot air gun or similar to activate adhesive and firmly roll lap to achieve continuity.

Pouring of Concrete

Ensure the plastic release liner is removed from all areas of Preprufe R Membrane and Tape.

It is recommended that concrete be poured within 56 days (42 days in hot climates) of application of the membrane. Concrete must be placed and compacted carefully to avoid damage to the membrane. Never use a sharp object to consolidate the concrete.

Removal of Formwork

Preprufe membranes can be applied to removable formwork, such as slab perimeters, elevator and lift pits, etc. Once the concrete is poured the formwork must remain in place until the concrete has gained sufficient compressive strength to develop the surface bond. Preprufe membranes are not recommended for conventional twin-sided wall forming systems.

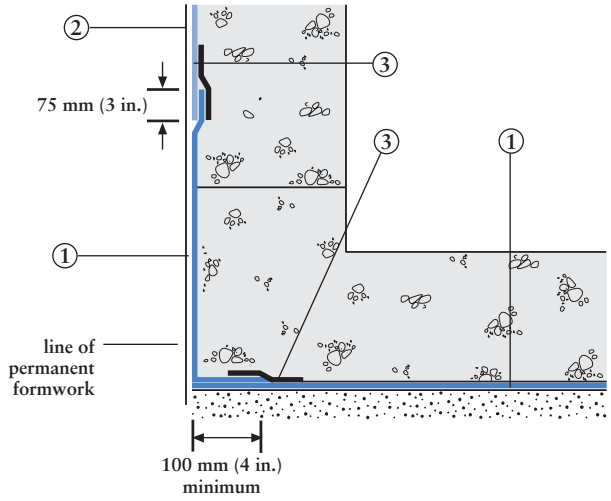
A minimum concrete compressive strength of 10 N/mm^2 (1500 psi) is recommended prior to stripping formwork supporting Preprufe membranes. Premature stripping may result in displacement of the membrane and/or spalling of the concrete.

As a guide, to reach the minimum compressive strength stated above, a structural concrete mix with an ultimate strength of 40 N/mm^2 (6000 psi) will typically require a cure time of approximately 6 days at an average ambient temperature of -4°C (25°F), or 2 days at 21°C (70°F).

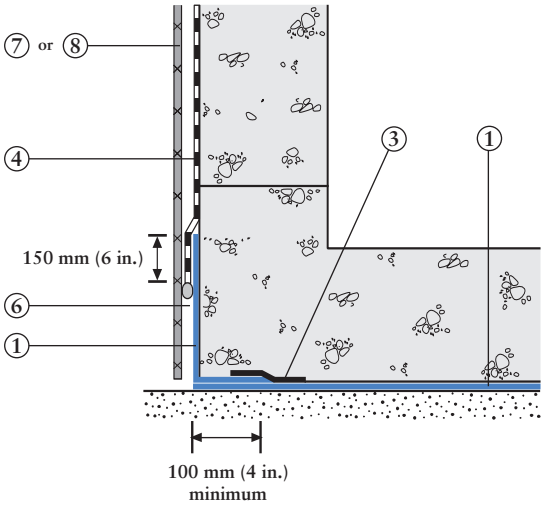
Detail Drawings

Details shown are typical illustrations and not working details. For a list of the most current details, visit us at www.graceconstruction.com. For technical assistance with detailing and problem solving please call toll free at 866-333-3SBM (3726).

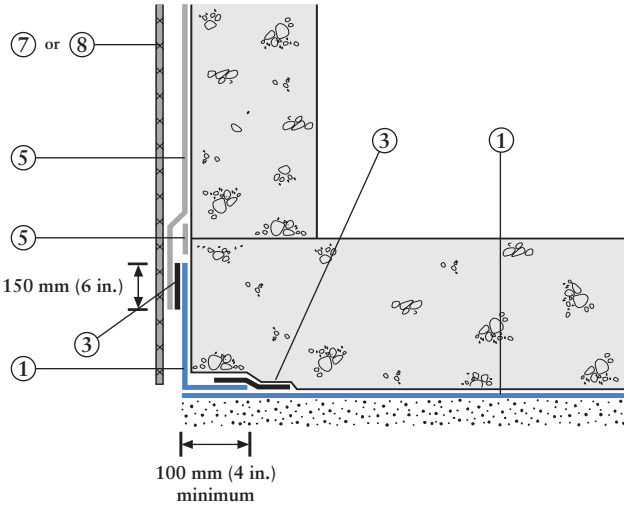
Wall base detail against permanent shutter



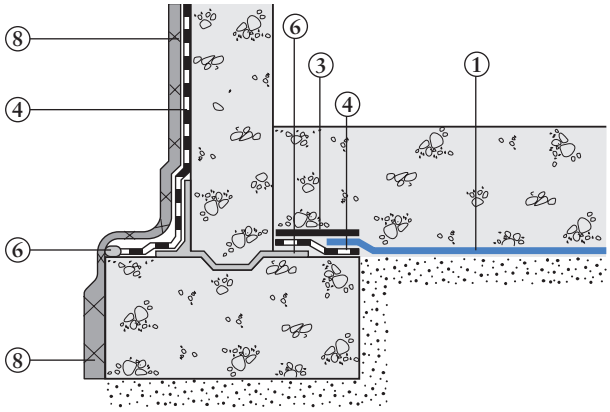
Bituthene wall base detail (Option 1)



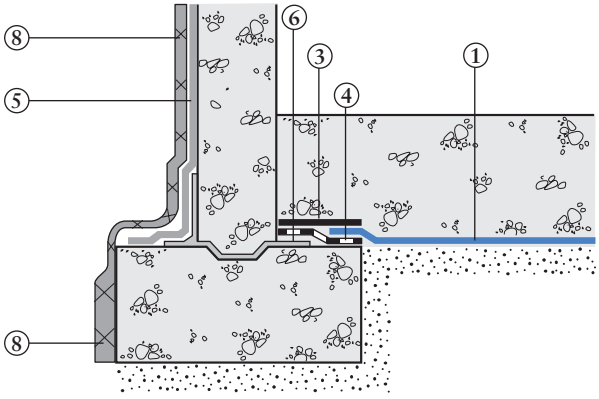
Procor wall base detail (Option 1)



Bituthene wall base detail (Option 2)



Procor wall base detail (Option 2)



1 Preprufe 300R
2 Preprufe 160R
3 Preprufe Tape
4 Bituthene
5 Procor
6 Bituthene Liquid Membrane
7 Protection
8 Hydroduct®

Supply

Dimensions (Nominal)	Preprufe 300R Membrane	Preprufe 160R Membrane	Preprufe Tape (LT or HC*)
Thickness	1.2 mm (0.046 in.)	0.8 mm (0.032 in.)	
Roll size	1.2 m x 30 m (4 ft x 98 ft)	1.2 m x 35 m (4 ft x 115 ft)	100 mm x 15 m (4 in. x 49 ft)
Roll area	36 m^2 (392 ft^2)	42 m^2 (460 ft^2)	
Roll weight	50 kg (108 lbs)	42 kg (92 lbs)	2 kg (4.3 lbs)
Minimum side/end laps	75 mm (3 in.)	75 mm (3 in.)	75 mm (3 in.)

*LT denotes Low Temperature (between -4°C (25°F) and +30°C (86°F))
HC denotes Hot Climate (>+10°C (50°F))

Ancillary Products

Bituthene Liquid Membrane – 5.7 liter (1.5 US gal) or 15.1 liter (4 US gal)

Physical Properties

Property	Typical Value 300R	Typical Value 160R	Test Method
Color	white	white	
Thickness	1.2 mm (0.046 in.) nominal	0.8 mm (0.032 in.) nominal	ASTM D3767
Low temperature flexibility	Unaffected at -23°C (-10°F)	Unaffected at -23°C (-10°F)	ASTM D1970
Resistance to hydrostatic head, minimum	70 m (231 ft)	70 m (231 ft)	ASTM D5385, modified[1]
Elongation, minimum	300%	300%	ASTM D412, modified[2]
Tensile strength, film, minimum	27.6 MPa (4000 psi)	27.6 MPa (4000 psi)	ASTM D412
Crack cycling at -23°C (-10°F), 100 cycles	Unaffected	Unaffected	ASTM C836
Puncture resistance, minimum	990 N (221 lbs)	445 N (100 lbs)	ASTM E154
Peel adhesion to concrete, minimum	880 N/m (5.0 lbs/in.) width	880 N/m (5.0 lbs/in.) width	ASTM D903, modified[3]
Lap peel adhesion	440 N/m (2.5 lbs/in.) width	440 N/m (2.5 lbs/in.) width	ASTM D1876, modified[4]
Permeance to water vapor Transmission, maximum	0.01 perms (0.6 ng/(Pa × s × m^2))	0.01 perms (0.6 ng/(Pa × s × m^2))	ASTM E96, method B
Water absorption, maximum	0.5%	0.5%	ASTM D570
Methane permeability	9.1 mls/m^2/day	N/A	University of London, QMW College[3]
Permeability[5] (hydraulic conductivity)	K=<1.4 x 10^{-11}cm.s^{-1}	K=<1.4 x 10^{-11}cm.s^{-1}	ASTM D5084-90

Footnotes:
1. Hydrostatic head tests of Preprufe Membranes are performed by casting concrete against the membrane with a lap. Before the concrete cures, a 3 mm (0.125 in.) spacer is inserted perpendicular to the membrane to create a gap. The cured block is placed in a chamber where water is introduced to the membrane surface up to the head indicated.
2. Elongation of membrane is run at a rate of 50 mm (2 in.) per minute.
3. Concrete is cast against the protective coating surface of the membrane and allowed to properly dry (7 days minimum). Peel adhesion of membrane to concrete is measured at a rate of 50 mm (2 in.) per minute at room temperature.
4. The test is conducted 15 minutes after the lap is formed (per Grace published recommendations) and run at a rate of 50 mm (2 in.) per minute at -4°C (25°F).
5. Result is lower limit of apparatus. Membrane therefore considered impermeable.

Specification Clauses

Preprufe 300R or 160R shall be applied with its adhesive face presented to receive fresh concrete to which it will integrally bond. Only Grace Construction Products approved membranes shall be bonded to Preprufe 300R/160R. All Preprufe 300R/160R system materials shall be supplied by Grace Construction Products, and applied strictly in accordance with their instructions. Specimen performance and formatted clauses are also available.

NOTE: Use Preprufe Tape to tie-in Procor with Preprufe.

Health and Safety

Refer to relevant Material Safety data sheet. Complete rolls should be handled by a minimum of two persons.

For Technical Assistance call toll free at 866-333-3SBM (3726).

Visit our web site at www.graceconstruction.com

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W. R. Grace & Co.-Conn. 62 Whittemore Avenue Cambridge, MA 02140

PF-111C Printed in USA 11/05 FA/LI/1M

GRACE
Construction Products

Addendum 6
Construction Health and Safety Plan (CHASP)

CHASP is a separate document

Addendum 7

E-Designation Project Submittal Cover Sheet

Reset Form | Print Form

NYC Office of Environmental Remediation

PROJECT SUBMITTAL COVER SHEET

E-DESIGNATION AND *RESTRICTIVE DECLARATION PROGRAM

*for recorded Restrictive Declarations only – post CEQR

PROJECT TRACKING NUMBERS

1a. 12EH-A071K — OER PROJECT NUMBER (10 CHARACTER TRACKING NUMBER)

1b. _____ — DEP NUMBER (FOR PROJECTS PREVIOUSLY REVIEWED BY NYCDEP)

1c. 320243544 — DEPARTMENT OF BUILDINGS JOB NUMBER(S)

1d. _____ — OTHER REFERENCE NUMBER(S) IF APPLICABLE (I.E. NYSDEC SPILL, BCP, ETC.)

PROJECT LOCATION

INDICATE LOCATION OF SITE. PROVIDE ALL ASSOCIATED TAX BLOCK AND LOT NUMBERS

2a. _____ — PROJECT NAME (IF APPLICABLE)

2b. 2166 Nostrand Avenue — STREET ADDRESS(S)

BROOKLYN — CITY | NY — STATE | 11210 — ZIP

2c. Block: 7557 and Lot:120 — TAX BLOCK AND LOT NUMBER(S) | Brooklyn — BOROUGH | 14 — COMMUNITY DISTRICT

REVIEW TYPE

INDICATE THE REVIEW REQUIRED FOR THE SUBMITTED DOCUMENTS

3. TYPE OF ENVIRONMENTAL REVIEW (CHECK ALL THAT APPLY)

- ☑ E-DESIGNATION
  - ☑ HAZARDOUS MATERIALS
  - ☑ AIR QUALITY
  - ☐ WINDOW/WALL NOISE ATTENUATION

E-DESIGNATION NUMBER (EX: E-175): E-233

- ☐ RESTRICTIVE DECLARTION

CITY REGISTER FILE NUMBER (CRFN): _____

RECORDING DATE: _____

DOCUMENTS SUBMITTED

4.

- ☐ CERTIFIED ARCHITECTURAL/ENGINEER PLANS
- ☐ CERTIFIED PROJECT DESCRIPTION
- ☐ PHASE I ENVIRONMENTAL SITE ASSESSMENT (PHI)
- ☐ PHASE II SUBSURFACE INVESTIGATION WORK PLAN (PHII)
- ☐ PHASE II HEALTH AND SAFETY PLAN (HASP)
- ☐ PHASE II SUBSURFACE INVESTIGATION REPORT (PH II REPORT)
- ☐ REMEDIAL ACTION PLAN (RAP)
- ☐ CONSTRUCTION HEALTH AND SAFETY PLAN (CHASP)
- ☐ CERTIFIED REMEDIAL CLOSURE REPORT
- ☐ CERTIFIED AIR QUALITY SPECIFICATIONS
- ☐ CERTIFIED WINDOW SPECIFICATIONS/ALTERNATE VENTILATION MEANS
- ☐ CERTIFIED INSTALLATION REPORT
- ☐ OTHER _____

PROJECT DESCRIPTION

AS PER ARCHITECT / ENGINEER OF RECORD

5. PROVIDE A BRIEF DESCRIPTION OF THE PROPOSED PROJECT AS PER THE ARCHITECT / ENGINEER OF RECORD. THE DESCRIPTION SHOULD INCLUDE, AT A MINIMUM, THE TYPE OF ALTERNATION OR NEW DEVELOPMENT/EXPANSION BEING PERFORMED, EXTENT OF GROUND/SOIL DISTURBANCE, PROPOSED GRADE-LEVEL OPEN SPACE AREAS NOT CAPPED WITH CONCRETE OR ASPHALT, ETC.

The address of the project is 2166 Nostrand Avenue, Brooklyn, NY. The Site is currently undeveloped, vacant lot.The Site will be divided into two separate building lots. Site A will consist of the northeast piece of the land that extends from the central portion of the property to Hillel Place. Site is approximately 3,016 sq. ft. in area. H&H Builders is developing a 4-story bank with a full cellar on Site A. The basement will be excavated to a total depth of 12 feet below grade. There will not be any open spaces at Site A. Site B will consist of the remaining portion of the Site and is approximately 12,234 square feet in area. Site B will consist of 3-story commercial building without a basement. The building will cover 10,066 sq. ft.The northwest portion of Site B will be open to the sky and will be used as a parking lot.

CONTACT INFORMATION

PROVIDE ALL APPLICABLE CONTACT INFORMATION

6a. PRIMARY APPLICANT INFORMATION

Consultant
COMPANY TYPE (CONSULTANT, ARCHITECT, ENGINEER, ETC.)

Hydro Tech Environmental, Corp.
COMPANY NAME

Rachel Ataman
CONTACT PERSON

15 Ocean Avenue, 2nd Floor
ADDRESS

Brooklyn NY 11225
CITY STATE ZIP

(718) 636-0800 (718) 636-0900
TELEPHONE FAX

rataman@hydrotechenvironmental.com
EMAIL ADDRESS

6b. OTHER CONTACT INFORMATION

Construction
COMPANY TYPE (CONSULTANT, ARCHITECT, ENGINEER, ETC.)

H&H Builders
COMPANY NAME

Ken Hart
CONTACT PERSON

34 Renwick Street, 3rd Floor
ADDRESS

New York NY 10013
CITY STATE ZIP

(212) 924-3100 (212) 924-0300
TELEPHONE FAX

info@hhbuilders.net
EMAIL ADDRESS

PROFESSIONAL CERTIFICATION

FOR PROJECT ELEMENTS REQUIRING CERTIFICATION BY A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER (PE) OR REGISTERED ARCHITECT (RA)

7a. I HEREBY CERTIFY THAT THE FOLLOWING STAMP AND SIGNATURE REPRESENT THE ORIGINAL STAMP AND SIGNATURE IMAGES INCLUDED IN THE DIGITAL MATERIALS SUBMITTED FOR THE AFOREMENTIONED PROJECT SITE.

SHAIK A SAAD
PREPARER NAME

PREPARER TITLE

PREPARER SIGNATURE

DATE

STAMP HERE:

7a. I HEREBY CERTIFY THAT THE FOLLOWING STAMP AND SIGNATURE REPRESENT THE ORIGINAL STAMP AND SIGNATURE IMAGES INCLUDED IN THE DIGITAL MATERIALS SUBMITTED FOR THE AFOREMENTIONED PROJECT SITE.

PREPARER NAME

PREPARER TITLE

PREPARER SIGNATURE

DATE

STAMP HERE:

SUBMISSIONS

WHERE TO SEND

SEND DIGITAL PROJECT SUBMITTALS ALONG WITH COVER SHEET TO:

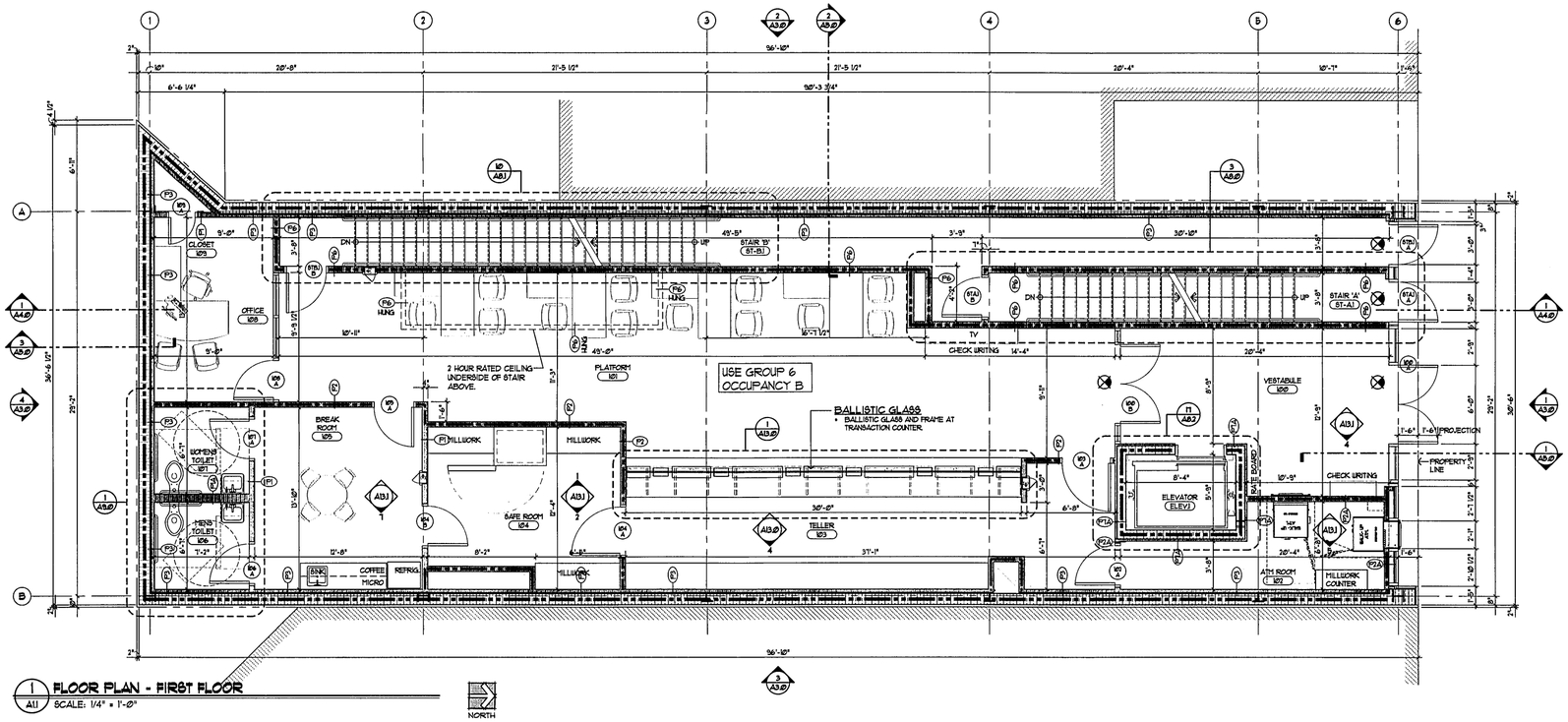
Mayor's Office of Environmental Remediation
E-Designation Program
c/o Dan Cole, Bureau Chief
100 Gold Street, 2nd Floor
New York, NY 10038

THIS COMPLETED COVER SHEET SHOULD BE SUBMITTED VIA HARD COPY AS WELL AS DIGITALLY. OER RESERVES 30 DAYS FOR REVIEW OF ALL SUBMISSIONS.

FOR QUESTIONS REGARDING THE E-DESIGNATION PROGRAM OR A PROJECT SUBMISSION, EMAIL US AT EDESIGNATION@DEP.NYC.GOV OR CALL US AT 212-788-8841.

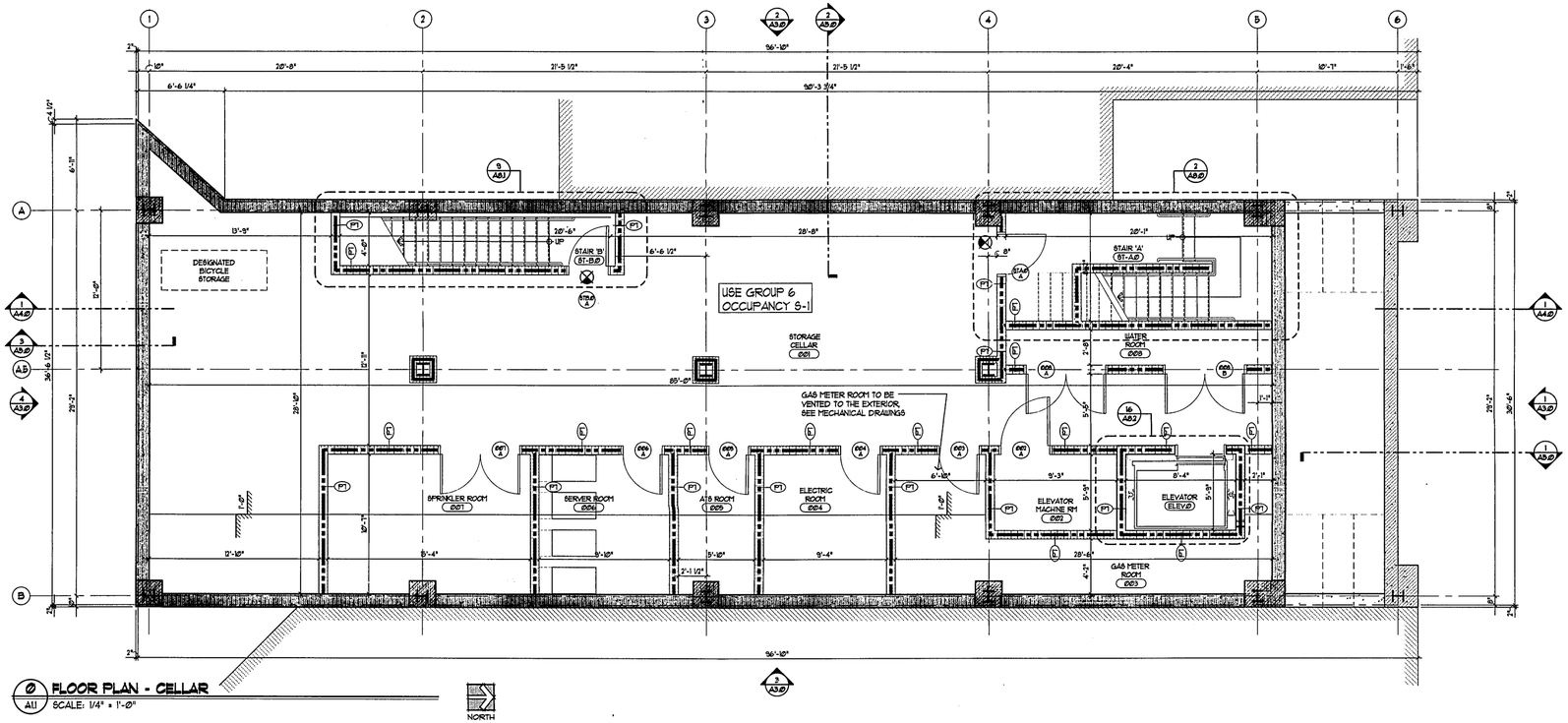
Addendum 8

Certified/Stamped Architect and Engineering Plans



1 / A1.1 FLOOR PLAN - FIRST FLOOR

SCALE: 1/4" = 1'-0"



Ø / A1.1 FLOOR PLAN - CELLAR

SCALE: 1/4" = 1'-0"

Flatbush Federal Building

Hillel Place
Brooklyn, NY

Baldassano
ARCHITECTURE, LLP

631 580 2100 phone
631 580 9760 fax

31 West Main Street
Patchogue, NY 11772

www.baldassano.com

Structural Engineer:

WAYMAN C. WING
CONSULTING ENGINEERS
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NEW YORK, NY 10001
TEL: (212) 564 4370
FAX: (212 564 4374
CONTACT@WAYMANCWING.COM
WWW.WAYMANCWING.COM

Lilker Associates
Mechanical and Electrical Engineers
1001 Avenue of the Americas
New York, NY 10018
tel 212.695.1000
fax 212.695.1299
www.lilker.com
Lilker

REGISTERED ARCHITECT
ALEXANDER BADALAMENTI
020193
STATE OF NEW YORK

FINISH COORDINATION	2011-06-20
INTERIORS PACKAGE	2011-05-31
ISSUED TO D.O.B.	2011-03-15
ISSUED TO MTA	2011-03-03
DESIGN DEVELOPMENT	2011-02-14
REVISION:	DATE:

DRAWING TITLE:

FLOOR PLAN
CELLAR & FIRST FLOOR

SCALE: 1/4" = 1'-0"

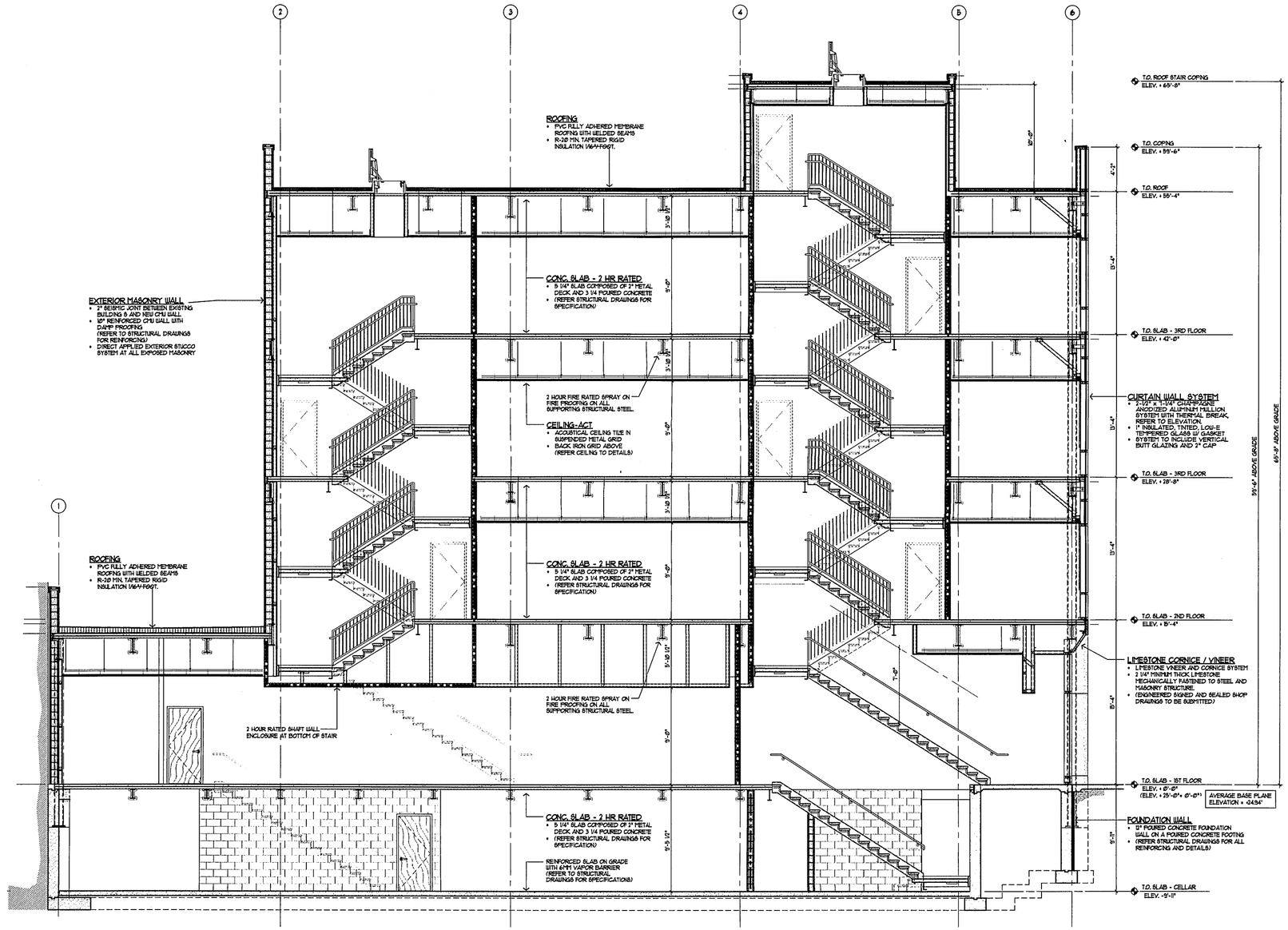
DRAWN BY: BMF

DWG. NO.

A1.1

A-011.00

10-1031
Flatbush Federal
Hillel Place Brooklyn, NY
PAGE: 5 of 22



1 A4.0 BUILDING SECTION - LOOKING WEST
SCALE: 1/4" = 1'-0"

Flatbush Federal Building
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Brooklyn, NY

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Lilker

REGISTERED ARCHITECT ★ ALEXANDER BADALAMENTI ★ 020193 ★ STATE OF NEW YORK

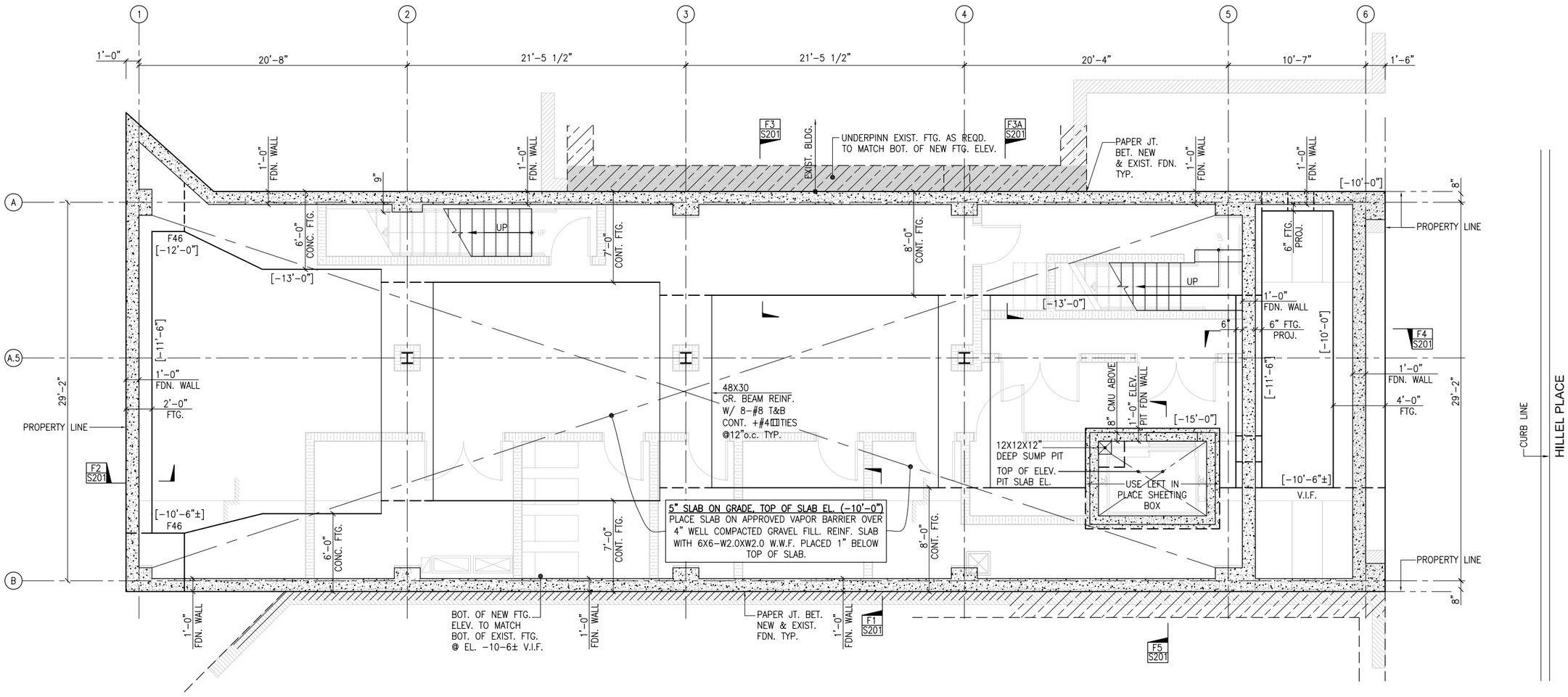
INTERIORS PACKAGE	2011-05-31
ISSUED TO D.O.B.	2011-03-15
ISSUED TO MTA	2011-03-03
DESIGN DEVELOPMENT	2011-02-14
REVISION:	DATE:

DRAWING TITLE:
BUILDING SECTIONS

SCALE: 1/4" = 1'-0"
DRAWN BY: BMF

DWG. NO.
A4.0
A-040.00

10-1031
Flatbush Federal
Hillel Place Brooklyn, NY



0 S–100 BASEMENT & FOUNDATION PLAN

SCALE: 1/4" = 1'–0"

NOTES:
1. TOP OF SLAB EL. –10'–0".
2. ▭ ON PLAN DENOTES EXIST. FTG. TO BE UNDERPINNED.
3. FTG's TO BEAR ON NATURAL UNDISTURBED SOIL WITH A MINIMUM ALLOWABLE SOIL BEARING CAPACITY OF 1.5 T.S.F.
4. FOR TYPICAL FOUNDATION DETAILS SEE DWG. S–200.
5. FOR TYPICAL DETAILS SEE DWG. S–300.
6. FOR GENERAL NOTES SEE DWG. S–400.

FOOTING SCHEDULE (1.5 TSF SOIL)

MARK	SIZE	DEPTH	REINF. BOT. EA. WAY
F46	4–6"X4'–6"	18"	5–#5

Flatbush Federal New Building

Hillel Place
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INTERIOR PACKAGE	2011-05-31
ISSUED TO DOB	2011-03-15
DESIGN DEVELOPMENT	2011-02-10

REVISION: DATE:

DRAWING TITLE:
BASEMENT & FOUNDATION PLAN

SCALE: AS NOTED

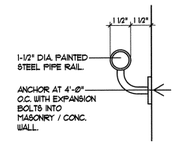
DRAWN BY: AY

DWG. NO.

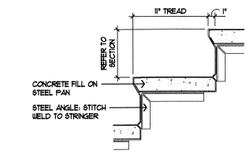
F0.100

F0–100.00

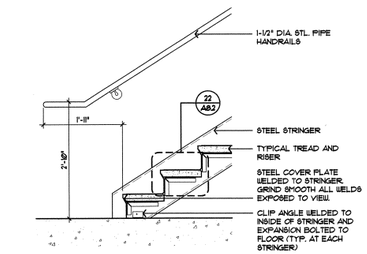
09-1039
Flatbush Federal
Hillel Place Brooklyn, NY
PAGE: OF



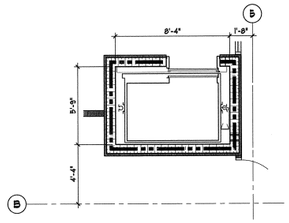
23 A8.2 **HANDRAIL DETAIL**
SCALE: 3"=1'-0"



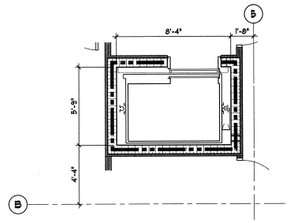
22 A8.2 **SECTIONAL DETAIL TYPICAL METAL STAIR TREAD**
SCALE: 1-1/2"=1'-0"



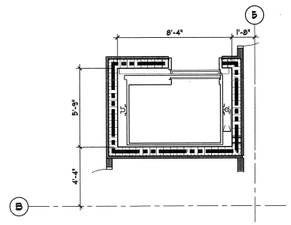
21 A8.2 **FLOOR LANDING @ STAIR**
SCALE: 3/4" = 1'-0"



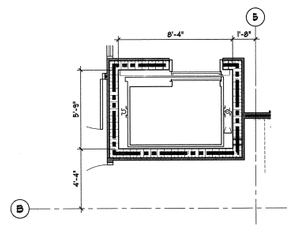
20 A8.2 **ELEVATOR - FOURTH FLOOR**
SCALE: 1/4" = 1'-0"



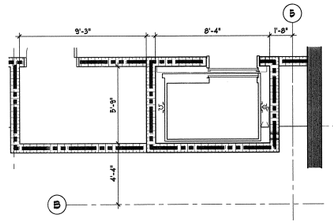
19 A8.2 **ELEVATOR - THIRD FLOOR**
SCALE: 1/4" = 1'-0"



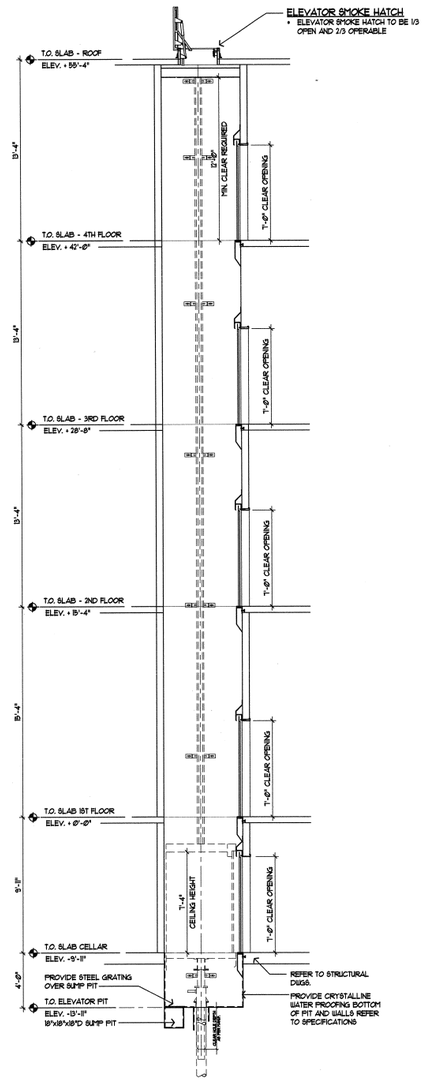
18 A8.2 **ELEVATOR - SECOND FLOOR**
SCALE: 1/4" = 1'-0"



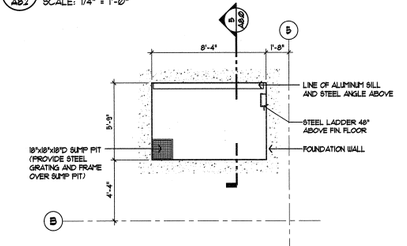
17 A8.2 **ELEVATOR - FIRST FLOOR**
SCALE: 1/4" = 1'-0"



16 A8.2 **ELEVATOR & MACHINE ROOM - CELLAR**
SCALE: 1/4" = 1'-0"



14 A8.2 **ELEVATOR - SECTION DETAIL**
SCALE: 1/4" = 1'-0"



15 A8.2 **ELEVATOR PIT**
SCALE: 1/4" = 1'-0"

LEARNED FOR ZONING, EGRESS AND PREVENTION ONLY, AS PER BNL 2/15

AUG 8 2011

CHARLES COUTAIN

Flatbush Federal Building
Hillel Place
Brooklyn, NY

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DEPT BLDGS 320247416 Job Number
SC342162164 Scan Code

INTERIORS PACKAGE	2011-05-31
ISSUED TO D.O.B.	2011-03-15
DESIGN DEVELOPMENT	2011-02-14
REVISION:	DATE:

DRAWING TITLE:

ELEVATOR ENLARGED PLANS & SECTIONS

SCALE:	1/4" = 1'-0"
DRAWN BY:	AS NOTED

REGISTERED ARCHITECT
ALEXANDER BALDASSANO
020020
STATE OF NEW YORK

DWG. NO.

A8.2

A-082.00

10-1031
Flatbush Federal
Hillel Place Brooklyn, NY
PAGE: 13 of 22

Addendum 9

E-Designation Air Quality Remedial action Plan (RAP)

Air RAP is a separate document

Addendum 10

Descriptions of the Development Plans/ Foundation Plans

Baldassano ARCHITECTURE

July 5, 2011

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

Re: 24 Hillel Place
BCP # 11BCP014K

Project Description,

The building is a four story commercial building with a full cellar located at 24 Hillel Place in Brooklyn. The project has a total of 10,085 square feet of commercial floor area. The building is set back 20' from the rear property line on the second through fourth floors.

The site is 3,016 square feet of which the building covers 3,016 square feet.

The building cellar and footing will require excavation to a depth of 12'. The elevator will require excavation to a depth of 16'.

Sincerely,

Alex Badalamenti, AIA
Principal
Baldassano ARCHITECTURE, LLP

31 West Main Street Suite 205 Patchogue NY 11772 Phone 631 580 2100 Fax 631 580 9760 contact@baldassano.com www.baldassano.com

Addendum 11

Qualitative Human Health Exposure Assessment

QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

Investigations reported in the Remedial Investigation Report (RIR) are sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA). As part of the BCP process, a QHHEA was performed to determine whether the Site poses an existing or future health hazard to the Site's exposed or potentially exposed population. The sampling data from the RI were evaluated to determine whether there is any health risk by characterizing the exposure setting, identifying exposure pathways, and evaluating contaminant fate and transport. This EA was prepared in accordance with Appendix 3B and Section 3.3 (b) 8 of the NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation.

Potential Exposure Pathways

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

Nature, Extent, Fate and Transport of Contaminants

Based on the results of the RIR the contaminants of concern are as followed:

Soil:

- Soil concentrations of volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs) or pesticides did not exceed Track 1 Unrestricted SCOs for any of sixteen (16) soil samples collected. No SVOCs exceeded Track 1 SCOs in any deep (16 –18') soil samples. A variety of poly-aromatic hydrocarbons (PAHs) compounds were identified in shallow soils above Track 1 SCOs. However, only four (4) of these PAHs also exceeded Track 2 Restricted Commercial SCOs. Several metals exceeded Track 1 Unrestricted SCOs. However, no metals exceeded Track 2 Restricted Commercial SCOs in any of the soil samples collected. Overall, with the exception of PAHs, Track 2 Restricted Commercial SCOs are achieved for this Site without any

major remedial removal action. The GPR survey, field inspections and the site sampling survey showed no evidence of USTs.

Groundwater:

- No VOCs, SVOCs, PCBs or pesticides were detected in any groundwater samples at concentrations exceeding TOGS standards. Only iron and manganese were detected in dissolved metals groundwater samples above TOGS.

Soil Vapor:

- A wide variety of VOCs were identified in soil vapor samples throughout the property. These VOCs are characterized by petroleum and chlorinated compounds. For instance, PCE and TCE were reported in 3 of 7 samples and 2 of 7 samples respectively, at concentrations less than 48 and 8, respectively. BTEX and associated derivatives are common and generally occur at individual concentrations less than 50ug/m3. Acetone was identified in all samples ranging up to 3500 ug/m3. However, no petroleum or acetone compounds were identified in soil or groundwater samples on the property and only very low soil concentrations of PCE (less than 7 ug/kg) were identified in 3 of 16 samples and chloroform (less than 2 ug/l) was identified in one groundwater sample. Other chlorinated hydrocarbons detected in soil vapor were not identified in either soil or groundwater. For all petroleum and chlorinated compounds detected in the soil vapor onsite, the minimal occurrence in onsite soil and groundwater and the absence of past uses that would be likely to render onsite spills or significant waste disposal suggest that these contaminants have an offsite origin.

Potential Routes of Exposure

An exposure route is the mechanism by which a receptor comes into contact with a chemical. Three potential primary routes exist by which chemicals can enter the body:

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

Receptor Populations

<u>Land Use of the Site and Neighboring Properties - Current and Future</u>

Currently, the Site is an irregularly shaped lot, approximately 15,400 square feet in size, vacant and undeveloped, and was formerly utilized as a parking lot. A former ticket

booth, approximately 104 square feet in area, is located in the eastern portion of the Site.. The immediate area surrounding the Site is mixed commercial/residential, and is anticipated to remain as such. The proposed future use of the Site is a four (4) story bank with a basement and a three (3) story commercial building. During property development, it will be divided into two separate building lots. Hillel Place Bank (Site A) will consist of the northeast piece of land that extends from the central portion of the property to Hillel Place. Site A is approximately 3,016 square feet in area. Site B consists of the remaining portion of the site and is bounded by Nostrand Avenue and Campus Road. Nostrand Avenue Site (Site B) is approximately 12,234 square feet in area.

On-Site Receptors - The on-site potential sensitive receptors include adult and child visitors, commercial workers, pedestrians, and trespassers. The proposed redevelopment of the Site includes the construction of four (4) story bank with a basement and a three (3) story commercial building. During redevelopment of the Site, the on-site potential sensitive receptors will include construction workers. Once the Site is redeveloped, the on-site potential sensitive receptors will include: adult and child residents, maintenance staff, building residents, and commercial workers.

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

1. Commercial Businesses (up to 0.25 mile) – existing and future
2. Residential Buildings (up to 0.25 mile) – existing and future
3. Building Construction/Renovation (up to 0.25 mile) – existing and future
4. Pedestrians, Trespassers, Cyclists (up to .25 mile) – existing and future
5. Schools (up to .25 mile) – existing and future

Existence of Human Health Exposure

Existing

The Site is mostly covered and has small sections of exposed soil. Under current site conditions exposure is unlikely as the site is a vacant and access is limited by a fence. Groundwater is not contaminated and not exposed at the site, and because the site is served by the public water supply, groundwater is not used at the site.

There is an existing potential exposure pathway from soil gas (present offsite) to enter into the adjoining buildings as a result of any sub-basement floor or lower wall openings/cracks. The indoor air quality at the adjoining properties may be susceptible to contamination from subsurface vapor intrusion. The potential receptors from such a migration pathway into the building would be to off-site commercial workers, and adult and child residents. The primary route of exposure would be inhalation.

Future

Once redevelopment activities begin, there will be a potential exposure pathway from contaminated surface and subsurface soil/fill to construction workers as a result of on-site construction/excavation activities. On-site construction workers potentially could ingest, inhale or have dermal contact with any exposed impacted fill or soils. Similarly, off-site receptors could be exposed to dust from onsite activities. During construction, on-site off-site exposures to contaminated dust from on-site will be addressed through dust controls, and through the implementation of the community air monitoring program and a construction health and safety plan.

Once the remedial actions and redevelopment of the Site has been completed, there will be no potential on-site or off-site exposure pathways to adult and child residents, maintenance staff, community residents, and commercial workers. Any on-site exposures to residual vapors and vapors from off-site sources will be eliminated by implementation of the vapor barrier and operation of an passive SSDS. Direct exposure to residual soils and production of dust that might impact on-site or off-site receptors will be prevented by the construction of the composite site cover. Long term assurance of these protections will be achieved by site inspections and periodic certifications under an approved Site Management Plan and Declaration of Covenant and Restrictions.

Overall Human Health Exposure Assessment

Based upon this analysis, currently, there are two potential exposure pathways: 1) from soil gas to enter structures as a result of any foundation slab/wall openings or cracks; and, 2) direct exposure to on-site soils and dust from on-site soils. The on-site potential sensitive receptors include adult and child visitors, commercial workers, pedestrians, trespassers and commercial workers. The potential off-site receptors are construction and commercial workers, and adult and child residents. The primary route of exposure would be inhalation and dermal contact onsite and inhalation off site.

During remedial construction, on-site and off-site exposures to contaminated dust from contaminated soils will be addressed through dust controls, and through the implementation of the community air monitoring program and a construction health and safety plan.

After the remedial action is complete, there will be no remaining exposure pathways. The vapor barrier, SSDS and the composite cover and long-term site management will interrupt any remaining exposure pathways. Continued protection after the remedial

action will be achieved by the implementation of site management including periodic inspection and certification of the performance of remedial controls.

2166 NOSTRAND AVENUE

BROOKLYN, NEW YORK

Remedial Action Work Plan

NYC BCP Number:
Hillel Place Bank: 11CBCP014K (Site A) &
Nostrand Avenue Site: 11CBCP015K (Site B)

E-Designation Site Number:
Hillel Place Bank: 12EH-A071K (Site A) &
Nostrand Avenue Site: 11EH-A291K (Site B)

Prepared for:

H&H Builders
34 Renwick Street, 3rd Floor
New York, NY 10013

Prepared by:

Hydro Tech Environmental, Corp.
15 Ocean Avenue, 2nd Floor
Brooklyn, NY 11225
718-636-0800

AUGUST 2011

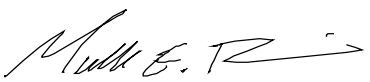
CERTIFICATIONS

I, Shaik A. Saad, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for the 2166 Nostrand Avenue Site A and Site B.

I, Mark E. Robbins, am a Qualified Environmental Professional as defined in §43-140. I have primary direct responsibility for implementation of the remedial action for the 2166 Nostrand Avenue Sites.

I certify that this Remedial Action Work Plan (RAWP or Plan) has a plan for handling, transport and disposal of soil, fill, fluids and other materials removed from the property as a function of this RAWP, and that all handling, transport and disposal of this material will be performed in accordance with all City, State and Federal laws and regulations. This RAWP requires that material exported during the course of the Plan be taken to facilities licensed to accept such material and that are in full compliance with all applicable City, State and Federal laws and regulations. All required permits will be obtained prior to performance of this work. This RAWP provides a process for importation of all soil, fill and other material from off-Site and all activities of this type will be in accordance with all applicable City, State and Federal laws and requirements.

I certify that this RAWP has provisions for nuisance control during the remediation and all invasive development work, including a dust, odor and vector suppression. Thresholds established in this Plan are intended to prevent nuisances from occurring.

Shaik A. Saad - 071078		
NYS PE Name and License Number	Date	Signature
Mark E. Robbins	6/17/2011	
NYS Qualified Env. Professional	Date	Signature

I certify that all engineering plans, specifications and associated designs included in the RAWP have been personally developed by me or under my direct supervision, meet industry standards, and are appropriate for the intended purpose established in this Plan. It is a violation of Article 130 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education Law.

Shaik A. Saad - 071078 _____ _____

NYS PE Name and License Number Date Signature

PE stamp here

REMEDIAL ACTION WORK PLAN
TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AS/SVE	Air Sparging/Soil Vapor Extraction
BOA	Brownfield Opportunity Area
CAMP	Community Air Monitoring Plan
C/D	Construction/Demolition
COC	Certificate of Completion
CQAP	Construction Quality Assurance Plan
CSOP	Contractors Site Operation Plan
DCR	Declaration of Covenants and Restrictions
ECs/ICs	Engineering and Institutional Controls
HASP	Health and Safety Plan
IRM	Interim Remedial Measure
BCA	Brownfield Cleanup Agreement
MNA	Monitored Natural Attenuation
NOC	Notice of Completion
NYC BCP	New York City Brownfield Cleanup Program
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York State Department of Health and Mental Hygiene
NYCRR	New York Codes Rules and Regulations
NYC OER	New York City Office of Environmental Remediation
NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
ORC	Oxygen-Release Compound
OSHA	United States Occupational Health and Safety Administration
PE	Professional Engineer

PID	Photo Ionization Detector
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RAOs	Remedial Action Objectives
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan or Plan
RCA	Recycled Concrete Aggregate
RD	Remedial Design
RI	Remedial Investigation
RMZ	Residual Management Zone
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SVOC	Semi-Volatile Organic Compound
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

Site Description

The Site is identified as 24 Hillel Place (Site A) and 2166 Nostrand Avenue (Site B), Brooklyn, New York and are further described as Block 7557 and Lot 124. H&H Builders is filing an application to enter into the New York City Brownfield Cleanup Program (NYC BCP) under the management of the Mayor's Office of Environmental Remediation (OER) as a Volunteer. The Brownfield Cleanup Program ID numbers are 11CBCP014K (24 Hillel Place) and 11CBCP015K (2166 Nostrand Ave).

The Site is approximately 15,400-square feet and is bounded by Hillel Place, 1-story commercial property to the north, Campus Road, 2-story commercial property to the south, Nostrand Avenue, 3-story commercial property to the east, and intersection between Campus Road and Hillel Place, 2-story institution property to the west.

Currently, the Site is an irregularly shaped lot, approximately 15,400 square feet in size, vacant and undeveloped, and was formerly utilized as a parking lot. A former ticket booth, approximately 104 square feet in area, is located in the eastern portion of the Site.

The topography of the combine Site and its vicinity is generally level. The surrounding property uses are predominantly residential and commercial.

The applicant is proposing to make the Site protective of human health and the environmental consistent with the contemplated end use as a bank and commercial retail office.

Redevelopment Plan

An RI was performed to compile and evaluate data and information necessary to develop this RAWP in a manner that will render the Site protective of public health and the environment consistent with the contemplated end use.

During property development, the Site will be divided into two separate building lots. 24 Hillel Place – Bank (Site A) will consist of the northeast piece of land that extends from the central portion of the property to Hillel Place. Site A is approximately 3,016 square feet in area.

Site B consists of the remaining portion of the site and is bounded by Nostrand Avenue and Campus Road. 2166 Nostrand Avenue – Commercial Retail Office (Site B) is approximately 12,234 square feet in area.

Site A will be developed with a 4-story bank with a basement. The basement will be excavated to a total depth of 12 feet below grade and the elevator pit will be excavated to 16 feet below grade. The bank building will completely cover Site A. There will be no open spaces at Site A.

Site B will be developed with a 3-story commercial building, with no basement. The building will cover approximately 10,066 square feet. The northwest portion of Site B will be open to the sky and will be used as a parking lot. The commercial building will not have a basement. The building footing will require excavating to a depth of 12'0" below grade, stepping up to 8'0" at the rear of the property. The elevator pit low point will be 8'0"-below grade. Additionally, approximately 2 feet of soil will be removed from the parking lot area (2,168 square feet in area).

Summary of Past Uses of Site and Areas of Concern

Based upon the review of the Fire Insurance Maps and Regulatory Agency documents from the Phase I Environmental Site Assessment (ESA) Report prepared by Hydro Tech Environmental, Corp. in May 2010, a Site history was established. The Site was historically developed as 2-story stores and dwellings in the eastern portion from 1906 to 1950. A trucking company occupied the Site in 1934 and other commercial establishments (Student Notes Co., Civil Air Patrol Brooklyn Cadet Training Squadron, Lake & Lake Inc Construction) occupied the Site from 1940 to 1960. From 1968 to 2006, the Site became vacant and undeveloped, and was utilized as a parking lot for approximately thirty-eight (38) years.

A Site inspection and soil investigation was performed on during May to identify features of environmental significance that define Areas of Concern (AOC). AOCs generally include areas where existing or former activities are known or suspected to have resulted in generation, manufacture, refinement, transport, storage, handling, treatment, discharge, release and/or disposal. Sanborn Fire Insurance maps available for this Site were reviewed to identify historical features of environmental significance.

The AOCs identified for this site include:

1. Fuel oil tanks for space heating are suspected based on past usage for residential purposes
2. The presence of historical fill.

Summary of the Work Performed under the Remedial Investigation

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 6 soil borings across the entire project Site, and collected 16 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed 4 groundwater monitoring wells throughout the Site to establish groundwater flow and collected 4 groundwater samples for chemical analysis to evaluate groundwater quality;
4. Installed 7 soil vapor probes around Site perimeter and collected 7 samples for chemical analysis.
5. Performed a Ground Penetrating Radar geophysical survey.

Summary of the Hydrogeological Findings

1. Elevation of the property ranges from 26 to 27 feet.
2. Depth to groundwater ranges from 24.12 to 25.86 feet at the Site.
3. Groundwater flow is generally from west to east beneath the Site.
4. Depth to bedrock is greater than 50 feet at the Site.
5. The stratigraphy of the site, from the surface down, consists of 6 feet of historic fill underlain by 12+ feet of brown, medium-grained sand.

Summary of the Environmental Contamination

1. Soil concentrations of volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs) or pesticides did not exceed Track 1 Unrestricted SCOs for any of sixteen

(16) soil samples collected. No SVOCs exceeded Track 1 SCOs in any deep (16 – 18') soil samples. A variety of poly-aromatic hydrocarbons (PAHs) compounds were identified in shallow soils above Track 1 SCOs. However, only four (4) of these PAHs also exceeded Track 2 Restricted Commercial SCOs. Several metals exceeded Track 1 Unrestricted SCOs. However, no metals exceeded Track 2 Restricted Commercial SCOs in any of the soil samples collected. Overall, with the exception of PAHs, Track 2 Restricted Commercial SCOs are achieved for this Site without any major remedial removal action. The GPR survey, field inspections and the site sampling survey showed no evidence of USTs.

2. No VOCs, SVOCs, PCBs or pesticides were detected in any groundwater samples at concentrations exceeding TOGS standards. Only iron and manganese were detected in dissolved metals groundwater samples above TOGS.

3. A wide variety of VOCs were identified in soil vapor samples throughout the property. These VOCs are characterized by petroleum and chlorinated compounds. For instance, PCE and TCE were reported in 3 of 7 samples and 2 of 7 samples respectively, at concentrations less than 48 and 8, respectively. BTEX and associated derivatives are common and generally occur at individual concentrations less than 50 ug/m3. Acetone was identified in all samples ranging up to 3500 ug/m3. However, no petroleum or acetone compounds were identified in soil or groundwater samples on the property and only very low soil concentrations of PCE (less than 7 ug/kg) were identified in 3 of 16 samples and chloroform (less than 2 ug/l) was identified in one groundwater sample. Other chlorinated hydrocarbons detected in soil vapor were not identified in either soil or groundwater. For all petroleum and chlorinated compounds detected in the soil vapor onsite, the minimal occurrence in onsite soil and groundwater and the absence of past uses that would be likely to render onsite spills or significant waste disposal suggest that these contaminants have an offsite origin.

Based on the results of the RI, we concluded that there is no evidence to suspect disposal of significant quantities of hazardous waste.

Qualitative Human Health Exposure Assessment

An important portion of the cleanup investigation is the performance of a study to identify ways that people might come in contact with contaminants of 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 potential public exposures will be addressed under this cleanup plan.

Summary of the Remedy

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

Remedy for both Hillel Avenue Bank (Site A) and Nostrand Avenue Site (Site B):

1. Preparation of a Community Protection Statement and performance of all required NYC BCP citizen participation activities according to an approved Citizen Participation Plan (CPP).
2. Performance of Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Sampling and analysis of excavated media as required by disposal facilities.
4. Appropriate segregation of excavated media for off-site disposal.
5. Performance of all activities associated with the remedial action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and City laws and regulations.
6. Implementation of storm-water pollution prevention measures.

7. Import of materials to be used for backfill and cover in compliance with OER approved plan and in accordance with all Federal, State and City laws and regulations.
8. Placement of backfill material in excavated areas as needed.
9. Screening for indications of contamination by visual means, odor and monitoring with a Photo Ionization Detecter (PID) of excavated soil/fill during all intrusive work.
10. Transportation and off-site disposal of all soil/fill material at permitted facilities in accordance with all Federal, State and city laws and regulations for handling, transport, and disposal.
11. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.

Remedy for Hillel Avenue Bank (Site A)

1. Establishment of Track 1 Unrestricted Soil Cleanup Objectives (SCOs);
2. Excavation and removal of soil/fill to a depth of approximately 10 to 12 feet below grade for the basement and16 feet for the elevator pit beneath the proposed building where Track 1 SCOs are proposed;
3. Cover of the property with a composite cover consisting of a concrete slab and foundation sidewalls beneath the buildings;
4. Placement of a vapor barrier beneath the proposed building slabs and outside the sub-grade foundation walls to address the potential impact of soil vapors derived from offsite;
5. Installation of a passive sub-slab depressurization system beneath the proposed building slabs to address the potential impact of soil vapors;

6. Collection and analysis of endpoint samples to evaluate the performance of the remedy with respect to attainment of Track 1 SCOs; and

7. Submission of a RAR which describes the remedial activities including any changes from this RAWP, certifies that the remedial requirements have or will be achieved, defines the Site boundaries, and describes any Engineering and Institutional Controls to be implemented at the Site.

Remedy for Nostrand Avenue Site (Site B)

1. Establishment of Track 4 SCOs. The Track 4 SCOs will be Track 2 Restricted Commercial SCOs for all parameters except SVOCs. Site specific SCOs for SVOCs are established. Soil and fill are lightly impacted and achieve the proposed Track 4 SCOs without the need for a removal action.

2. Excavation and removal of soil/fill present to a depth of 8 feet below grade for perimeter footings and elevator pit and 2 feet below grade for the parking lot.

3. Cover of the properties with a composite cover consisting of a concrete slab and foundation sidewalls beneath the buildings and a paved asphalt surface in the parking area to eliminate exposures to any residual material;

4. Placement of a vapor barrier beneath the proposed building slabs and outside the sub-grade foundation walls to address the potential impact of soil vapors derived from offsite;

5. Installation of a passive sub-slab depressurization system beneath the proposed building slabs to address the potential impact of soil vapors;

6. Collection and analysis of endpoint samples to evaluate the performance of the remedy with respect to attainment Track 4 SCOs.

7. Recording of a Declaration of Covenants and Restrictions that includes a listing of Engineering Controls and a requirement that management of these controls must be in

compliance with an approved SMP; and Institutional Controls including prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

8. Submission of a RAR which describes the remedial activities including any changes from this RAWP, certifies that the remedial requirements have or will be achieved, defines the Site boundaries, and describes any Engineering and Institutional Controls to be implemented at the Site.

9. Submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency.

COMMUNITY PROTECTION STATEMENT

The Office of Environmental Remediation created the New York City Brownfield Cleanup Program (NYC BCP) 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 Remedial Action Work Plan for 24 Hillel Place (Site A) and 2166 Nostrand Avenue (Site B) 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 egress 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 BCP, 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. Land uses in the area include a Third Church of Christ located northwest of the Site, and a CUNY Brooklyn College and a Gan Jewish Daycare located west of the Site.

Qualitative Human Health Exposure Assessment. An important part of the cleanup study of the Site is the performance of a study to find all of the ways that people might come in contact with contaminants of 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 and is included in this plan. This assessment has considered all known contamination at the Site and

evaluated the potential for people to come in contact with this contamination. All potential 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 Health and Safety Administration. 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 Timothy Lo and can be reached at 718-636-0800 from 8:30 AM to 5:00 PM.

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

Odor, Dust and Noise Control. This cleanup plan includes actions for odor and dust control. These actions are designed to prevent off-Site odor and dust nuisances and includes steps to be taken if nuisances are detected. Generally, dust is managed by application of physical covers and by water sprays. Odors are controlled by limiting the area of open excavations, physical covers, 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 Project Manager Timothy Lo at 718-636-0800 or OER Project Manager William Wong at 212-341-0659.

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

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

Hours of Operation. The hours for operation of cleanup will comply with the NYC Department of Buildings construction code requirements or according to specific variances issued by that agency. For this cleanup project, the hours of operation are 7:00 AM to 5:00 PM. OER will be notified by the Volunteer of any variances issued by the NYC Department of Buildings.

Signage. While the cleanup is in progress, a sign will be prominently posted at the main entrance of the property noting that the project is participating in the NYC Brownfield Cleanup Program.

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 Timothy Lo at 718-636-0800, the NYC Office of Environmental Remediation Project Manager William Wong at 212-341-0659, or call 311 and mention the Site is in the NYC Brownfield 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 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 securely covered to prevent dust and odor, and properly recorded in logs and records and placarded in compliance with 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 detailed 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 soils will be securely covered with tight fitting covers.

Equipment Decontamination. All equipment used for cleanup work will be washed before it leaves the Site. Trucks will be cleaned at a washing 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. Loaded trucks leaving the Site will not stop or idle in the local neighborhood.

Final Report. The results of all cleanup work will be fully documented in a final report (called a Remedial Action Report) that will be available for you to review in the public document repositories located at a New York Public Library, north of the Site.

Long-Term Site Management. To provide long-term protection after the cleanup is complete, the property owner will be required to comply with an ongoing Site Management Plan that calls for continued inspection of protective controls, such as Site covers. The Site Management Plan is evaluated and approved by the NYC Office of Environmental Remediation. Requirements that the property owner must comply with are defined in the property's deed. A certification of continued protectiveness of the cleanup will be required from time to time to show that the approved cleanup is still effective.

CITIZEN PARTICIPATION PLAN

The NYC Office of Environmental Remediation and Hydro Tech Environmental Corp. have established this Citizen Participation Plan because the opportunity for citizen participation is an important component of the NYC Brownfield Cleanup Program. A NYC BCP brownfield site is any property in the City in which redevelopment or reuse may be complicated by the presence or potential presence of light to moderate levels of contamination. 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 BCP, Hydro Tech Environmental 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, William Wong, 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 project applications, Remedial Investigation plans and reports, draft and final Remedial Action plans and reports, the Site Management Plan, the Notice of Completion and all public notices and fact sheets produced during the lifetime of the remedial project. Hydro Tech Environmental Corp. will regularly inspect the repositories to ensure that they are fully populated with project information. The repository for this project is:

Brooklyn Public Library – Clarendon Branch

2035 Nostrand Avenue

718-421-1159

Sunday and Monday: closed

Tuesday: 1:00 PM to 8:00 PM

Wednesday and Thursday: 1:00 PM to 6:00 PM

Friday: 10:00 AM to 6:00 PM

Saturday: 10:00 AM to 5:00 PM

And at:

NYC Office of Environmental Remediation

www.nyc.gov/oer

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.

Public Notice and Public Comment. Public notice to all members of the Project Contact List is required at three major steps during the performance of the cleanup program (listed below) and at other points that may be required by OER. Notices will include Fact Sheets with descriptive project summaries, updates on recent and upcoming project activities, repository information, and important phone and email contact information. All notices will be prepared by Hydro Tech Environmental Corp., reviewed and approved by OER prior to distribution and mailed by Hydro Tech Environmental Corp., who is obligated to submit a certification of mailing

to OER within five days of the mailing date. Public comment is solicited in public notices for all work plans developed under the NYC Brownfield 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 BCP project. These include:

- **Public Notice of the availability of the NYC BCP Application, 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 Application, 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.

SUSTAINABILITY STATEMENT

The Sustainability Statement is a program employed by OER to encourage the Enrollee to consider the benefits of sustainable remediation and development during the formative project

planning process. The Sustainability Statement provides a summary of sustainability efforts to be employed by the Enrollee or its contracting team. OER strongly recommends, but does not require, that the Enrollee employ sustainable means to implement the selected remedy defined in this RAWP and subsequent redevelopment including those that take into consideration the sustainability goals defined in PlaNYC. Such goals include: maximizing the recycling and reuse of clean, non-virgin materials; reducing the consumption of virgin and non-renewable resources; minimizing energy consumption and greenhouse gas emissions; improving energy efficiency; and enhancing biodiversity during landscaping associated with Site development.

This Sustainability Statement summarizes sustainable and green remediation efforts to be employed under this Remedial Action Work Plan (RAWP). The H&H Builders has evaluated sustainable remediation opportunities and proposes the following means to address these goals in the remediation.

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

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

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

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

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

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

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 mass (tonnage) of virgin and non-renewable resources, the use of which will be avoided under this plan, will be quantified and reported in the RAR in total tonnage.

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 existing contamination from off-Site.

Under future conditions, building recontamination from potential off-site sources will be prevented through the use of a vapor barrier below the buildings slabs and the construction of sub-grade depressurization systems. Current regulations will be met for storage and handling of any materials onsite that may present a potential recontamination threat. If a Track 1 remedy cannot be achieved, long term site management will include periodic site inspection that will identify and correct any new issues of environmental concern.

An estimate of the area of the Site that utilizes recontamination controls under this plan will be reported in the RAR in total acres and percentage of total Site area.

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 brownfield 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. H&H Builders 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. A gross estimate of the number of pounds of paper saved under this plan will be reported in the RAR.

Low-Energy Project Management Program. H&H Builders 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. A gross estimate of the number of miles of personal transportation that is conserved in this process, and the number of commuter trips within NYC that are avoided will be quantified and reported in the RAR.

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, which will be vegetated, including the number of trees planted or preserved, will be reported in square feet in the RAR.

Grey Water Reuse. Reuse of gray water, including harvested rainwater, in place of water from NYC's water distribution system reduces demand on the city's water supply and conserves this valuable resource.

A gross estimate of the grey water reuse capability of the brownfield redevelopment project will be reported (gallons per day).

REMEDIAL ACTION WORK PLAN

1.0 INTRODUCTION

H&H Builders has enrolled as a Volunteer in the New York City Brownfield Cleanup Program (NYC BCP) to investigate and remediate a 0.35-acre site located at 2166 Nostrand Avenue (Site A and Site B) in Brooklyn, New York City. Commercial use is proposed for the property. This Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI), performed between April 28, 2011 and May 3, 2011. It provides remedial alternatives analysis that includes consideration of a Track 1 (permanent) cleanup, and a description of the proposed remedial action. The property is divided into two sites based on end use and the remedial action described in this document provides for the protection of public health and the environment, complies with applicable environmental standards, criteria and guidance and conforms with applicable City, State and Federal laws and regulations. The Brownfield Cleanup Program ID numbers are 11CBCP014K (Site A) and 11CBCP015K (Site B).

1.1 SITE LOCATION AND DESCRIPTION

The Sites are located in Brooklyn, New York City and is identified as Block 7557 and Lot 124 on the New York City Tax Map (Site). **Figure 1** shows the Site A and Site B locations. The Site is 0.35-acres and is bounded by Hillel Place, 1-story commercial property to the north, Campus Road, 2-story commercial property to the south, Nostrand Avenue, 3-story commercial property to the east, and intersection between Campus Road and Hillel Place, 2-story institution property to the west. A map of Site A and Site B boundary is shown in **Figure 2**. Currently, the Site is an irregularly shaped lot, vacant and undeveloped, and was formerly utilized as a parking lot. A former ticket booth, approximately 104 square feet in area, is located in the eastern portion of the Site.

1.2 CONTEMPLATED REDEVELOPMENT PLAN

An RI was performed to compile and evaluate data and information necessary to develop this RAWP in a manner that will render the Site protective of public health and the environment

consistent with the contemplated end use. The proposed redevelopment plan and end use is described below. However, the Remedial Action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

During development, the property will be divided into two separate building lots. Site A will consist of the northeast piece of land that extends from the central portion of the property to Hillel Place. Site A is approximately 3,016 square feet in area. Site B consists of the remaining portion of the site and is bounded by Nostrand Avenue and Campus Road. Site B is approximately 12,234 square feet in area.

Site A will be developed with a 4-story building used as a bank. The building will have a cellar. The cellar and footing will require excavation to a depth of 12 feet below grade and the elevator will require excavation to a depth of 16 feet below grade. There will be no vacant land at Site A and the building will cover Site A completely. Site B will be developed with a 3-story commercial building with no basement. The building will cover approximately 10,066 square feet. The northwest portion of Site B will be open to the sky and will be used as a parking lot. The commercial building will not have a basement. The building footing will require excavating to a depth of 12'0" below grade, stepping up to 8'0" at the rear of the property. The elevator pit low point will be 8'0"-below grade. Additionally, approximately 2 feet of soil will be removed from the parking lot area (2,168 square feet in area).

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The Site is located in a commercial and residential neighborhood. There are no surface water bodies or regulated wetlands on or adjacent to the Site. Nostrand Avenue is located to the east of the Site. A commercial building is located to the north of the Site. Hillel Place and an institution building are located to the west of the Site. Campus Drive and a commercial building are located to the south of the Site.

Within a 400 feet radius of the Site, there are a variety of land uses including: institutions, commercial, residential (one to multi-family residential apartments) and mixed-residential/commercial use. Properties located within ¼ mile radius of the Site are zoned C4-4A, C8-2 (general commercial district), R6 and R5B (general residence district).

Sensitive Receptors

Within 360 feet radius, the sensitive receptor, Third Church of Christ, is located to the northwest of the Site. Within 250 feet radius, the sensitive receptor, CUNY Brooklyn College, is located west of the Site. Within 80 feet radius, the sensitive receptor, Gan Jewish Daycare, is located west of the Site. Figure 2 shows the surrounding land usage, with sensitive environmental receptors indicated.

1.4 PRIOR ACTIVITY

Based on an evaluation of the data and information from the RIR and this RAWP, the presence of inactive hazardous waste as defined in ECL §27-1303 is not suspected.

2.0 DESCRIPTION OF REMEDIAL ACTION OBJECTIVES

2.1 REMEDIAL ACTION OBJECTIVES

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

2.1.1 Groundwater

- Prevent direct exposure to contaminated groundwater.
- Prevent exposure to contaminants volatilizing from contaminated groundwater.

2.1.2 Soil

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

2.1.3 Soil Vapor

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

3.0 DESCRIPTION OF REMEDIAL ACTION PLAN

3.1 REMEDIAL ACTION ALTERNATIVES ANALYSIS

Track 1 and Track 4 remedial action alternatives are considered in this alternatives analysis for Site A and Site B. Alternative 1 is Track 1 alternatives that involves complete removal of all soil and fill material that exceeds the unrestricted Track 1 SCOs on both Site A and Site B.

A second remedial alternative (Alternative 2) evaluated here includes a combination of Track 1 for Site A and Track 4 for all of Site-B. The Track 4 remedial alternative on Site B would include:

- Establishment of approved Track 4 site-specific Soil Cleanup Objectives (SCOs) that include Track 2 Restricted Commercial Soil Cleanup Objectives for all parameters except SVOCs. Site specific SCOs for SVOCs would also be established.
- Placement of a final cover including concrete building slab and an asphalt paved surface over the parking area to eliminate exposure to remaining soil/fill;
- Placement of a vapor barrier and passive venting system within the commercial building.
- Establishment of use restrictions including prohibitions on the use of groundwater from the site and prohibitions on other sensitive site uses, such as farming or vegetable gardening, to eliminate potential future exposure pathways;
- Establish a Site Management Plan to ensure long-term management of these Institutional and Engineering Controls including the performance of periodic inspections and certification that the controls are performing as they were intended; and,
- Placement of a deed restriction to memorialize the remedial action and the Engineering and Institutional Controls to ensure that future owners of the site continue to maintain these controls as required.

3.1.1 Threshold Criteria

3.1.1.1 Protection of public health and the environment

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

The Track 1 alternative would result in removal of all soil/fill with contaminant concentration above Track 1 SCOs. As such, this alternative would be consistent with the RAOs and provide overall protection of public health and the environment in consideration of current and potential future land use by:

- Eliminating the potential for direct contact with contaminated on-site soils and groundwater; and
- Eliminating potential sources for on-site production of soil vapors.

For the Site B, the Track 4 alternative would:

- Establish Track 4 Commercial SCOs;
- Place a concrete slab under the building and final asphalt cover over the entire parking area to eliminate any potential exposures to remaining soils that do not exceed the site specific SCOs; place a vapor barrier and passive venting system to eliminate potential exposures to soil vapor;
- Establish use restrictions to ensure that future ingestion or other exposures to are eliminated, such as prohibition on use of groundwater for potable purposes;
- Establish a Site Management Plan to ensure long term management of Institutional and Engineering Controls to ensure that all Engineering and Institutional controls are inspected periodically and require certification that the remedy continues to perform as it was designed, thus ensuring that the protections achieved for public health and the environment remain in perpetuity;
- Place a deed restriction to memorialize these controls in order to decrease the risk of future exposures with contaminated media consistent with remedial action objectives

to memorialize the remedial action and the existence of Engineering and Institutional Controls and will ensure that these controls will be appropriately managed by future owners of the Site.

3.1.2. Balancing Criteria

3.1.2.1. Compliance with Standards, Criteria and Guidance (SCGs)

The Track 1 alternative would comply with the SCGs, as all soil/fill in excess of Track 1 SCOs would be removed. All soil/fill excavated from the Site would be managed and disposed of in accordance with all applicable regulations.

The Track 4 alternative on Site B would address the chemical-specific SCGs for soil, groundwater and soil vapor by establishment of Track 4 SCOs and attainment of these standards for onsite soil. Similar to the Track 1 alternative, focused attention on means and methods employed during the remedial action would ensure that handling and management of contaminated material would be incompliance with applicable SCGs.

3.1.2.2 Short-term effectiveness and impacts

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

The Track 1 alternative would provide short-term effectiveness with the removal of all soil/fill above Track 1 SCOs. All potential exposure pathways for site-derived contaminants would be incomplete following construction. Implementation of this RAWP would prevent unacceptable exposure during remediation and construction activities.

The Track 4 alternative for Site B would result in fewer short-term impacts associated with excavation, handling, load out of materials, and truck traffic than a Track 1 remediation. However, focused attention to means and methods during the remedial action during a Track 1

removal action, including community air monitoring and appropriate truck routing, would minimize or negate the overall impact of these activities.

3.1.2.3 Long-term effectiveness and permanence

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

As with the short-term effectiveness, the Track 1 alternative would provide long-term effectiveness with the removal of all soil/fill above Track 1 SCOs.

The Track 4 alternative for Site B would also be effective over the long-term by attaining Track 4 SCOs, placement of a concrete slab under the building and final asphalt cover over the entire parking area Site, establishment of use restrictions, establishment of a Site Management Plan to ensure long-term management of Institutional and Engineering Controls, and placement of a deed restriction to memorialize these controls for the long term. Although groundwater impacts have not been observed, meeting Track 4 SCOs would assure the minimization of risk of leaching into groundwater and contact with or exposures to groundwater with contamination derived from on-Site consistent with remedial action objectives. Groundwater use restrictions will eliminate potential exposure to groundwater and establishment of a SMP and a deed restriction will ensure that this protection remains effective for the long-term (in perpetuity). The SMP will ensure long-term effectiveness of all Engineering and Institutional Controls by requiring periodic inspection and certification that these controls and use restrictions continue to be in place and functioning as they were intended assuring that protections designed into the remedy will provide continued high level of protection in perpetuity.

3.1.2.4 Reduction of toxicity, mobility, or volume of contaminated material

This evaluation criterion assesses the remedial alternative's use of treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of contaminants as their

principal element. The following is the hierarchy of source removal and control measures that are to be used to remediate a Site, ranked from most preferable to least preferable: removal and/or treatment, containment, elimination of exposure and treatment of source at the point of exposure. It is preferred to use treatment or removal to eliminate contaminants at a Site, reduce the total mass of toxic contaminants, cause irreversible reduction in contaminants mobility, or reduce of total volume of contaminated media.

The Track 1 alternative would reduce contaminant mobility and volume, as the soil/fill with concentrations exceeding the SCOs would be removed.

The Track 4 alternative for Site B will provide:

- Reduction of toxicity, mobility and volume of contaminated material on-Site by attainment of Track 4 SCOs for onsite soil;
- Placement of a asphalt cover in the parking area and vapor barrier with a passive venting system within the commercial building will lower toxicity by eliminating potential contact with remaining soil below the SCOs;
- Groundwater use restrictions will reduce toxicity by ensuring that there is no direct contact with on-Site groundwater in the future;
- Establishment of a Site Management Plan and placement of a deed restriction to memorialize these controls will ensure long-term management of these Engineering and Institutional Controls and provide assurance that protective levels of toxicity and mobility will continue in perpetuity.

3.1.2.5 Implementability

This evaluation criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation, including technical feasibility of construction and operation, reliability of the selected technology, ease of undertaking remedial action, monitoring considerations,

administrative feasibility (e.g. obtaining permits for remedial activities), and availability of services and materials.

The Track 1 alternative is implementable. The remedial methods used are easily implemented using standard construction technologies.

Similarly, the Track 4 alternative for Site B is also both feasible and implementable. It uses standard materials and services and well established technology. The reliability of the remedy is also high. There are no special difficulties associated with any of the activities proposed, which utilize standard industry methods.

3.1.2.6. Cost effectiveness

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

The capital costs associated with the Track 1 alternative are higher than the combined Track 1/Track 4 alternative in that a higher volume of soil/fill will be excavated for off-site disposal to achieve a Track 1 status over the entire site. In both cases, appropriate public health and environmental protections are achieved.

Both alternatives satisfy the threshold balancing criterion and other criterion listed here, and each is fully protective of public health and the environment, will control migration of contaminants, will comply with SCGs, are effective for the short-term and long-term, are implementable, and reduces both mobility and toxicity.

3.1.2.7 Community Acceptance

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

Based on the overall goals of the remedial program and initial observations by the project team, both of the alternatives for Site A and B are acceptable to the community. This RAWP will be subject to and undergo public review under the NYC BCP and will provide the opportunity

for detailed public input on the remedial alternatives and the selected remedial action. This public comment will be considered by OER prior to approval of this plan.

3.1.2.8 Land use

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

Because of the complete soil removal proposed for the Track 1 alternative, it provides protection of public health and the environment for both the proposed use of the Site and any future use. The Track 1 alternative provides a remedial action that is beneficial to the surrounding community and is consistent with the goals of the City for remediating and redeveloping brownfield sites.

Both alternatives for remedial action at the site are comparable with respect to the proposed use and to land uses in the vicinity of the Site. The proposed use is consistent with the existing zoning designation for the property and is consistent with recent development patterns. The Site is surrounded by commercial property and both alternatives provide comprehensive protection of public health and the environment for these uses. Improvements in the current brownfield condition of the property achieved by both alternatives are also consistent with the City's goals for cleanup of contaminated land and bringing such properties into productive reuse. Both alternatives are equally protective of natural resources and cultural resources. This RAWP will be subject to undergo public review under the NYC BCP and will provide the opportunity for detailed public input on the land use factors described in this section. This public comment will be considered by OER prior to approval of this plan.

3.1.2.9. Sustainability of the remedial action

This criterion evaluates the overall sustainability of the remedial action alternatives and the degree to which sustainable means are employed to implement the remedial action including those that take into consideration NYC's sustainability goals defined in *PlaNYC: A Greener, Greater New York*. Sustainability goals may include: minimizing energy consumption and greenhouse gas emissions; improving energy efficiency; maximizing the recycling and reuse of non-virgin materials; reducing the consumption of virgin and non-renewable resources; and promotion of the use of native vegetation and enhancing biodiversity during landscaping associated with Site development.

Both remedial alternatives are comparable with respect to the opportunity to achieve sustainable remedial action.

4.0 REMEDIAL ACTION

4.1 SUMMARY OF PREFERRED REMEDIAL ACTION

The preferred remedy is alternative 2 which included Track 1 on Site A and a Track 4 remedy on Site B. The remedial action listed below achieves protection of public health and the environment for the intended use of the property. The preferred remedial action alternative will achieve all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action alternative is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants. The preferred remedial action alternative is cost effective and implementable and uses standards methods that are well established in the industry.

Remedy for both Hillel Avenue Bank (Site A) and Nostrand Avenue Site (Site B):

1. Preparation of a Community Protection Statement and performance of all required NYC BCP citizen participation activities according to an approved Citizen Participation Plan (CPP).
2. Performance of Community Air Monitoring Program for particulates and volatile organic carbon compounds.
3. Sampling and analysis of excavated media as required by disposal facilities.
4. Appropriate segregation of excavated media for off-site disposal.
5. Performance of all activities associated with the remedial action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and City laws and regulations.
6. Implementation of storm-water pollution prevention measures.
7. Import of materials to be used for backfill and cover in compliance with OER approved plan and in accordance with all Federal, State and City laws and regulations.
8. Placement of backfill material in excavated areas as needed.

9. Screening for indications of contamination by visual means, odor and monitoring with a Photo Ionization Detecter (PID) of excavated soil/fill during all intrusive work.

10. Transportation and off-site disposal of all soil/fill material at permitted facilities in accordance with all Federal, State and city laws and regulations for handling, transport, and disposal.

11. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.

Remedy for Hillel Avenue Bank (Site A)

1. Establishment of Track 1 Unrestricted Soil Cleanup Objectives (SCOs);

2. Excavation and removal of soil/fill to a depth of approximately 10 feet below grade beneath the proposed building where Track 1 SCOs are proposed;

3. Cover of the property with a composite cover consisting of a concrete slab and foundation sidewalls beneath the buildings;

4. Placement of a vapor barrier beneath the proposed building slabs and outside the sub-grade foundation walls to address the potential impact of soil vapors derived from offsite;

5. Installation of a passive sub-slab depressurization system beneath the proposed building slabs to address the potential impact of soil vapors;

6. Collection and analysis of endpoint samples to evaluate the performance of the remedy with respect to attainment of Track 1 SCOs; and

7. Submission of a RAR which describes the remedial activities including any changes from this RAWP, certifies that the remedial requirements have or will be achieved, defines the Site boundaries, and describes any Engineering and Institutional Controls to be implemented at the Site.

Remedy for Nostrand Avenue Site (Site B)

1. Establishment of Track 4 SCOs. The Track 4 SCOs will be Track 2 Restricted Commercial SCOs for all parameters except SVOCs. Site specific SCOs for SVOCs are established. Soil and fill are lightly impacted and achieve the proposed Track 4 SCOs without the need for a removal action.

2. Excavation and removal of soil/fill present to a depth of 8 feet below grade for perimeter footings and elevator pit and 2 feet below grade for the parking lot.

3. Cover of the properties with a composite cover consisting of a concrete slab and foundation sidewalls beneath the buildings and a paved asphalt surface in the parking area to eliminate exposures to any residual material;

4. Placement of a vapor barrier beneath the proposed building slabs and outside the sub-grade foundation walls to address the potential impact of soil vapors derived from offsite;

5. Installation of a passive sub-slab depressurization system beneath the proposed building slabs to address the potential impact of soil vapors;

6. Collection and analysis of endpoint samples to evaluate the performance of the remedy with respect to attainment Track 4 SCOs.

7. Recording of a Declaration of Covenants and Restrictions that includes a listing of Engineering Controls and a requirement that management of these controls must be in compliance with an approved SMP; and Institutional Controls including prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

8. Submission of a RAR which describes the remedial activities including any changes from this RAWP, certifies that the remedial requirements have or will be achieved, defines the

Site boundaries, and describes any Engineering and Institutional Controls to be implemented at the Site.

9. Submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency.

Remedial activities will be performed at the Site in accordance with this OER-approved RAWP. All deviations from the RAWP will be promptly reported to OER. Changes will be documented in the RAR.

4.2 SOIL CLEANUP OBJECTIVES AND MATERIALS REMOVAL

The remedial action on Site A and Site B include establishment of Track 1 Unrestricted Soil Cleanup Objectives (SCOs) for Site A and establishment of Track 4 SCOs for Site B. The Track 4 SCOs will be Track 2 Restricted Commercial SCOs for all parameters except SVOCs. Site specific SCOs for total SVOCs are 250 mg/kg. Soil and fill are lightly impacted and achieve the proposed Track 4 SCOs without the need for a removal action.

The Soil Cleanup Objectives for the Site are:

Contaminant	**SCO**
Site A:	Track 1 Unrestricted SCOs
Site B:	Total SVOCs 250
	All other parameters Track 2 Restricted Commercial SCOs

Soil and materials management on-site and off-site will be conducted in accordance with the soil management plan as described below. Any residual sources of contaminants (such as hotspots) identified during the remedial action will be identified by GPR or surveyed by a surveyor licensed to practice in the State of New York. This information will be provided on maps in the Remedial Action Report.

4.3 ESTIMATED MATERIAL REMOVAL AND IMPORT QUANTITIES

Approximately 1,350 cubic yards of soil will be removed from Site A. Approximately 200 cubic yards of soil will be removed from Site B. Soil that is removed will be properly transported and disposed of.

The estimated quantity of soil to be imported into the Site for backfill and cover soil is currently unknown. The estimated quantity of onsite soil/fill expected to be reused/relocated on Site is currently unknown. Updates regarding these information will be given to the OER once the known quantity has been determined.

4.4 POST EXCAVATION END-POINT SAMPLING

End point samples will be collected to assess attainment of Track 1 SCOs at Site A and, as necessary, Track 4 SCOs on Site B. Track 1 and Track 4 end point sampling will be performed promptly following materials removal and testing completed prior to Site development activities.

4.4.1 End-Point Sampling Frequency

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:
    - For surface removals, one sample from the top of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.
    - For subsurface removals, one sample from each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.

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.

4.4.2 Analytical Methodology

All end-point samples will be analyzed utilizing the following methodology:

All soil samples (composites or grabs) will be analyzed for:

- volatile organic compounds (VOCs) by EPA Method 8260;
- semi-volatile organic compounds (SVOCs) by EPA Method 8270;
- Target Analyte List (TAL) metals; and
- pesticides/PCBs by EPA Method 8081/8082.

If required, groundwater samples will be analyzed for:

- VOCs by EPA Method 8260;
- SVOCs by EPA Method 8270;
- TAL metals, and
- Pesticides/PCBs by Method 8081/8082.

If required, soil gas samples will be analyzed for VOCs by EPA method TO-15.

If either LNAPL and/or DNAPL are detected a sample will be collected for characterization and “finger print analysis”.

4.4.3 Reporting of End-Point Data in Remedial Action Report

Chemical labs used for all end-point sample analytical results will be reported in the RAR. The RAR will provide a tabular and map summary of all end-point sample results.

4.5 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

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

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

4.5.1 Potential Exposure Pathways

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

4.5.2 Nature, Extent, Fate and Transport of Contaminants

Based on the results of the RIR the contaminants of concern are as followed:

Soil:

- Soil concentrations of volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs) or pesticides did not exceed Track 1 Unrestricted SCOs for any of sixteen (16) soil samples collected. No SVOCs exceeded Track 1 SCOs in any deep (16 –18') soil samples. A variety of poly-aromatic hydrocarbons (PAHs) compounds were identified in shallow soils above Track 1 SCOs. However, only four (4) of these PAHs also exceeded Track 2 Restricted Commercial SCOs. Several metals exceeded Track 1 Unrestricted SCOs. However, no metals exceeded Track 2 Restricted Commercial SCOs in any of the soil samples collected. Overall, with the exception of PAHs, Track 2 Restricted Commercial SCOs are achieved for this Site without any major remedial removal action. The GPR survey, field inspections and the site sampling survey showed no evidence of USTs.

Groundwater:

- No VOCs, SVOCs, PCBs or pesticides were detected in any groundwater samples at concentrations exceeding TOGS standards. Only iron and manganese were detected in dissolved metals groundwater samples above TOGS.

Soil Vapor:

- A wide variety of VOCs were identified in soil vapor samples throughout the property. These VOCs are characterized by petroleum and chlorinated compounds. For instance, PCE and TCE were reported in 3 of 7 samples and 2 of 7 samples respectively, at concentrations less than 48 and 8, respectively. BTEX and associated derivatives are common and generally occur at individual concentrations less than 50ug/m3. Acetone was identified in all samples ranging up to 3500 ug/m3. However, no petroleum or acetone compounds were identified in soil or groundwater samples on the property and only very low soil concentrations of PCE (less than 7 ug/kg) were identified in 3 of 16 samples and chloroform (less than 2 ug/l) was identified in one groundwater sample. Other chlorinated hydrocarbons detected in soil vapor were not identified in either soil or groundwater. For all petroleum and chlorinated compounds detected in the soil vapor onsite, the minimal occurrence in onsite soil and groundwater and the absence of past uses that would be likely to render onsite spills or significant waste disposal suggest that these contaminants have an offsite origin.

4.5.3 Potential Routes of Exposure

An exposure route is the mechanism by which a receptor comes into contact with a chemical. Three potential primary routes exist by which chemicals can enter the body:

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

4.5.4 Receptor Populations

Land Use of the Site and Neighboring Properties - Current and Future - Currently, the Site is an irregularly shaped lot, approximately 15,400 square feet in size, vacant and undeveloped, and was formerly utilized as a parking lot. A former ticket booth, approximately 104 square feet in area, is located in the eastern portion of the Site.. The immediate area surrounding the Site is mixed commercial/residential, and is anticipated to remain as such. The proposed future use of the Site is a four (4) story bank with a basement and a three (3) story commercial building. During property development, it will be divided into two separate building lots. Hillel Place Bank (Site A) will consist of the northeast piece of land that extends from the central portion of the property to Hillel Place. Site A is approximately 3,016 square feet in area. Site B consists of the remaining portion of the site and is bounded by Nostrand Avenue and Campus Road. Nostrand Avenue Site (Site B) is approximately 12,234 square feet in area.

On-Site Receptors - The on-site potential sensitive receptors include adult and child visitors, commercial workers, pedestrians, and trespassers. The proposed redevelopment of the Site includes the construction of four (4) story bank with a basement and a three (3) story commercial building. During redevelopment of the Site, the on-site potential sensitive receptors will include construction workers. Once the Site is redeveloped, the on-site potential sensitive receptors will include: adult and child residents, maintenance staff, building residents, and commercial workers.

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

1. Commercial Businesses (up to 0.25 mile) – existing and future
2. Residential Buildings (up to 0.25 mile) – existing and future
3. Building Construction/Renovation (up to 0.25 mile) – existing and future
4. Pedestrians, Trespassers, Cyclists (up to .25 mile) – existing and future
5. Schools (up to .25 mile) – existing and future

4.5.5 Existence of Human Health Exposure

Existing

The Site is mostly covered and has small sections of exposed soil. Under current site conditions exposure is unlikely as the site is a vacant and access is limited by a fence. Groundwater is not contaminated and not exposed at the site, and because the site is served by the public water supply, groundwater is not used at the site.

There is an existing potential exposure pathway from soil gas (present offsite) to enter into the adjoining buildings as a result of any sub-basement floor or lower wall openings/cracks. The indoor air quality at the adjoining properties may be susceptible to contamination from subsurface vapor intrusion. The potential receptors from such a migration pathway into the building would be to off-site commercial workers, and adult and child residents. The primary route of exposure would be inhalation.

Future

Once redevelopment activities begin, there will be a potential exposure pathway from contaminated surface and subsurface soil/fill to construction workers as a result of on-site construction/excavation activities. On-site construction workers potentially could ingest, inhale or have dermal contact with any exposed impacted fill or soils. Similarly, off-site receptors could be exposed to dust from onsite activities. During construction, on-site off-site exposures to contaminated dust from on-site will be addressed through dust controls, and through the

implementation of the community air monitoring program and a construction health and safety plan.

Once the remedial actions and redevelopment of the Site has been completed, there will be no potential on-site or off-site exposure pathways to adult and child residents, maintenance staff, community residents, and commercial workers. Any on-site exposures to residual vapors and vapors from off-site sources will be eliminated by implementation of the vapor barrier and operation of an passive SSDS. Direct exposure to residual soils and production of dust that might impact on-site or off-site receptors will be prevented by the construction of the composite site cover. Long term assurance of these protections will be achieved by site inspections and periodic certifications under an approved Site Management Plan and Declaration of Covenant and Restrictions.

4.5.6 Overall Human Health Exposure Assessment

Based upon this analysis, currently, there are two potential exposure pathways: 1) from soil gas to enter structures as a result of any foundation slab/wall openings or cracks; and, 2) direct exposure to on-site soils and dust from on-site soils. The on-site potential sensitive receptors include adult and child visitors, commercial workers, pedestrians, trespassers and commercial workers. The potential off-site receptors are construction and commercial workers, and adult and child residents. The primary route of exposure would be inhalation and dermal contact onsite and inhalation off site.

During remedial construction, on-site and off-site exposures to contaminated dust from contaminated soils will be addressed through dust controls, and through the implementation of the community air monitoring program and a construction health and safety plan.

After the remedial action is complete, there will be no remaining exposure pathways. The vapor barrier, SSDS and the composite cover and long-term site management will interrupt any remaining exposure pathways. Continued protection after the remedial action will be achieved by the implementation of site management including periodic inspection and certification of the performance of remedial controls.

5.0 REMEDIAL ACTION MANAGEMENT

5.1 PROJECT ORGANIZATION

Principal personnel who will participate in the remedial action include Timothy Lo, Project Geologist and Rachel Ataman, Vice President.

5.2 PROGRAM OVERSIGHT

The Professional Engineer (PE)/Qualified Environmental Professional (QEP) for this project is Mark E. Robbins.

5.3 SITE SECURITY

Site access will be controlled by the Applicant through gated entrances of the fenced property. Barriers will be installed around work areas as needed to delineate and restrict access to the work area. For work areas of limited size, barrier tape will be sufficient to delineate and restrict access. For larger worker areas, temporary fencing will be provided.

5.4 WORK HOURS

The hours for operation of remedial construction will conform to the New York City Department of Buildings construction code requirements or according to specific variances issued by that agency.

5.5 CONSTRUCTION HEALTH AND SAFETY PLAN (CHASP)

The Construction Health and Safety Plan will be included in the Stipulation List. The Site Safety Coordinator will be Timothy Lo. All remedial work performed under this RAWP will be in full compliance with all applicable laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements. Confined space entry, if any, will comply with all 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 all applicable laws and regulations. The CHASP pertains to all remedial and invasive work performed at the Site until the issuance of the Notice of Completion.

5.6 WORKER TRAINING AND MONITORING

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

All personnel entering the exclusion zone will be trained in the provisions of the CHASP and be required to sign an CHASP acknowledgment. Site-specific training will be provided to all 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.

5.7 EMERGENCY CONTACT INFORMATION

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

5.8 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 demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pit excavation or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be performed during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection, for instance, will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

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

5.8.1 VOC Monitoring, Response Levels, and Actions

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

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

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown.

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

5.8.2 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 mcg/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 mcg/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 mcg/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.

5.9 AGENCY APPROVALS

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

5.10 SITE PREPARATION

5.10.1 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.

5.10.2 Mobilization

The first step in site preparation is mobilization. Mobilization will be conducted as necessary for each phase of work at the Site. Mobilization includes field personnel orientation, equipment mobilization (entail 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.

5.10.3 Stabilized Construction Entrance

Steps will be taken to ensure that trucks departing the site are not tracking soil 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 wash and the property exit. Measures will be taken to ensure that adjacent roadways will be kept clean of project related soils, fill and debris.

5.10.4 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. 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 throughout the anticipated work zones. Electrical hazards associated with drilling in the vicinity of overhead utilities will be minimized by maintaining a safe distance between overhead power lines and drill rig mast

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

5.10.5 Dewatering

Excavations that extend below the water table may require dewatering. Submersible pumps will be used to extract groundwater from gravel lined sumps in the excavations or a system of well points will be used for groundwater extraction. Extracted groundwater will be conveyed to a storage tank or treatment system.

Depending on the selected discharge option, a NYC DEP sewer use permit will be obtained to discharge treated groundwater to the sewer system.

5.10.6 Equipment and Material Staging

Equipment and materials will be stored and staged in a manner that is consistent with City, State, and Federal regulations.

The location(s) of proposed equipment and material staging areas, truck wash, stockpile areas, and other pertinent remedial management features have not yet been determined. Updates regarding this information will be forwarded to the OER.

5.10.7 Decontamination Area and Truck Wash

A decontamination area will be established on the project site.

A truck decontamination pad will be set up close to Site exit. Before exiting the NYC BCP Site, transport vehicles will be required to stop at the decontamination pad and will be inspected

for evidence of contaminated soil on the undercarriage, body, and wheels. Soil will be removed on the decontamination pad. After wetting with potable water, brooms or shovels will be utilized for the bulk removal of soil from vehicles and equipment. The decontamination procedure for the removal of the remaining soil and liquids will consist of washing with potable water. Odor suppressant foam will be applied, if necessary, to control emissions from soil in trucks.

Soil generated by the decontamination process will be stockpiled and tested, and based on the results of the testing will be either reused on-Site or transported off-Site for disposal.

5.11 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 area[s], and access area);
- Removal of sediment and erosion control measures 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 decontaminated on the decontamination pad as necessary. In addition, all investigation and remediation derived waste (IDW) *e.g.*, decontamination fluids, drill cuttings, recirculation water, well development purge water, etc. will be containerized in 55-gallon drums and staged for characterization at a secured location on-Site and will be appropriately disposed.

5.12 TRAFFIC CONTROL

Trucks leaving the NYC BCP Site will proceed without stopping in the neighborhood to prevent neighborhood impacts. The planned route on local roads for waste transport vehicles is presented on Figure 5.

5.13 REPORTING

All required reports will be included as an Appendix in the Remedial Action Report.

5.13.1 Daily Reports

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

- A statement of the activities and an update of progress made;
- 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;
- Photographs of notable Site conditions and activities.
- OER assigned project number.

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

5.14 RECORD KEEPING AND PHOTO-DOCUMENTATION

Job-site record keeping for all remedial work will be performed. These records will be maintained on-Site at all times 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 all major remedial activities to illustrate remedial program elements and all contaminant source areas. Select photographs will be submitted everyday along with the daily reports.

Photographs will be properly tagged and submitted at the completion of the project in the RAR on electronic media (jpeg files).

5.15 COMPLAINT MANAGEMENT

All complaints from citizens will be promptly notified to OER by phone and email. Complaints will be promptly addressed and will also be reported to OER in daily reports. These reports will include the nature of the complaint, the party providing the complaint, and the actions taken to resolve any problems. Complaints from the public will be addressed as appropriate through modifications to the remedial program.

5.16 DEVIATIONS FROM THE REMEDIAL ACTION WORK PLAN

All changes to the RAWP will be reported to the OER Project Manager and will be documented in daily reports and in the Remedial Action Report. The process to be followed if there are any deviations from the RAWP, at a minimum, will include a written submission to the OER with the following information:

- A request for OER approval regarding the deviation.
- Reasons for deviating from the approved RAWP;
- Effect of the deviations on overall remedy; and

6.0 SOILS/MATERIALS MANAGEMENT PLAN

6.1 SOIL SCREENING METHODS

Visual, olfactory and PID soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional and will be reported in the RAR. Soil screening will be performed during all excavation and invasive work performed during the remedy and development phases, including excavations for foundations and utility work, prior to issuance of the Notice of Completion. It will be the responsibility of the PE/QEP certifying the remedy to provide technically competent field staff with proper experience to oversee all excavation activity. A description of experience of field staff will be provided to OER upon request.

6.2 STOCKPILE METHODS

Excavated soil from suspected areas of contamination and contaminated materials from different sources (e.g., hot spots, USTs, drains, etc.) will be stockpiled separately and will be segregated from other soil and construction materials. Soils with stumps, roots, and related matter also will be stockpiled separately from other soil and construction materials at the Site.

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 double layers of minimum of 8-mil sheeting, will be kept covered at all times with appropriately anchored plastic sheeting, and will be routinely inspected. Broken or ripped tarps will be promptly replaced. Stockpiles of excavated soils and other materials shall be located at least of 50 feet from the property boundaries, where possible. Hay bales 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. Soil stockpile areas will be appropriately graded to control run-off in accordance with a Stormwater Pollution Prevention Plan (SWPPP) for the Site.

6.3 CHARACTERIZATION OF EXCAVATED MATERIALS

Sampling of excavated material will be performed as required by permitted disposal facilities.

6.4 MATERIALS EXCAVATION, LOAD-OUT AND DEPARTURE

The PE/QEP will oversee all invasive work and the excavation and load-out of all excavated material and will ensure that there is a party responsible for the safe execution of all invasive and other work performed under this work plan.

The PE/QEP will ensure that Site development activities will not interfere with, or otherwise impair or compromise the remedial activities proposed in this RAWP. Development-related grading cuts will not interfere with, or otherwise impair or compromise, the performance of remediation required by this plan.

The presence of utilities and easements on the Site has been investigated by the PE/QEP who will ensure that any identified risks from work proposed under this plan are properly addressed by appropriate parties.

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate tarping, secure covering, manifests, and placards) in accordance with appropriate Federal, State, and City laws and regulations.

A decontamination pad will be maintained on-Site and the PE/QEP will be responsible for ensuring that all loaded outbound trucks are cleaned before leaving the Site. Locations where vehicles exit the Site shall be inspected daily for evidence of off-Site soil tracking. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials. The PE/QEP will be responsible for ensuring that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation and development.

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

6.5 OFF-SITE MATERIALS TRANSPORT

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate tarping, secure covering, manifests, and placards) in accordance with City, State, and Federal laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. Loose or incomplete truck covers will be prohibited. 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 have not yet been determined. Updates for this information will be forwarded to the OER. This routing will take into account the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of City 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.

6.6 MATERIALS DISPOSAL OFF-SITE

The following documentation will be established and reported by the PE/QEP for each disposal destination used in this project to document that the disposal of regulated material exported from the Site conforms with all applicable laws: (1) a letter from the PE/QEP or Enrollee to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed of is regulated material generated at an environmental remediation Site in Brooklyn, New York City under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or enrollee. The letter will include as an attachment a summary of all chemical data for the material being transported (including site characterization data); and (2) a letter from each disposal facility stating it is in receipt of the correspondence (above) and is approved to accept the material. These documents will be included in the RAR.

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

The proposed disposal locations for Site-derived impacted materials are listed in the Table below. Additional disposal locations established at a later date will be reported promptly to the OER Project Manager.

Disposal Facility	**Waste Type**	**Estimated Quantities**
Soil Safe, Logan, NJ	Contaminated Soil	1,550 tons

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 all City, State and Federal 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).

Unregulated off-Site management of materials from this Site is prohibited.

Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in conformance with applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the RAR. A Bill of Lading system or equivalent to oversee off-Site transportation of exported materials is required. This information will be reported in the RAR. Hazardous wastes derived from on-Site will be stored, transported, and disposed of in full compliance with applicable City, State, and Federal laws and regulations.

6.7 MATERIALS REUSE ON-SITE

Soil and fill that is derived from the property that meets the soil cleanup objectives established for the property may be reused on-Site, subject to approval by OER. The soil cleanup objectives for on-Site reuse are listed above. ‘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 covered by the NYC BCP agreement and subject to Engineering and Institutional Controls. The PE/QEP will ensure that reused materials are segregated from other materials to be exported from the Site and that procedures defined for material reuse in this RAWP are followed.

. Stockpiled backfill material will be maintained on-Site separate from the areas of active remediation work. The stockpile size will be limited to 1,000 cubic yards or less.

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, within landscaping berms, or as backfill for subsurface utility lines.

6.8 FLUIDS MANAGEMENT

All liquids to be removed from the Site, including dewatering fluids, if any, will be handled, transported and disposed in accordance with applicable City, State, and Federal laws and regulations. Discharge to the New York City sewer represents the preferred method for management of dewatering fluid during construction. Liquids discharged into the New York City sewer system will receive prior approval by New York City Department of Environmental Protection (NYC DEP). 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 NYC DEP regulates discharges to the New York City sewers under New York City Department of Environmental Protection's Title 15, Rules of the City of New York (RCNY) Chapter 19. The dewatering fluid will be pretreated as necessary to meet the New York City 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.

6.9 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 orange snow fencing geosynthetic

material or equivalent material to be placed on the surface of residual soil/fill to provide an observable reference layer. A map showing the approximate depth of the demarcation layer throughout the Site will be provided in the SMP; or (2) a land survey will be performed by a surveyor licensed by the State of New York. The survey will define 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. A map showing the method of demarcation for the Site and all associated documentation will be presented in the RAR.

This demarcation will constitute the top of the residuals management horizon. Materials within this horizon require adherence to special conditions during future invasive activities as defined in the Site Management Plan. A map showing the approximate elevation of the demarcation will be included in the Remedial Action Report and the Site Management Plan.

6.10 IMPORT OF BACKFILL SOIL FROM OFF-SITE SOURCES

This Section presents the requirements for imported fill materials to be used below the cover layer. All imported soils, if any, will meet OER-approved backfill and cover soil quality objectives for this Site. The backfill and cover soil quality objectives are listed in Tables 1 and 2.

An investigation will be performed to evaluate sources of potential fill to be imported to the Site, and will include an examination of each source site's location, current and historical use(s), and any applicable documentation. Material from industrial sites, spill sites, other 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;

- Recycled concrete aggregate (RCA) from facilities permitted or registered by, and in full compliance with the regulations of NYS DEC.

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

6.10.1 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 securely covered with tight fitting covers and will enter the Site at designated locations;
- The PE/QEP is responsible to ensure that every truck load of imported material will be inspected for evidence of contamination;
- Fill material will be free of solid waste including pavement materials, and debris, stumps, roots, and other organic matter, as well as ashes, oil and perishables or foreign matter; and
- Fill material will not contain any material greater than 12 inches in its greatest dimension.

Composite samples of imported material will be taken at a frequency of one sample for every 2,000 cubic yards of material. Once it is determined that the fill material is non-hazardous, and lacks petroleum contamination, the fill material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) will be imported from facilities permitted or registered by, and in full compliance with the regulations of NYSDEC. Facilities will be identified in the RAR. The 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.

6.11 STORM-WATER POLLUTION PREVENTION

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

6.12 CONTINGENCY PLAN

A contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown or unexpected contamination source areas during invasive Site work will be promptly communicated to OER’s Project Manager. Petroleum spills will be reported to the NYS DEC Spill Hotline. These findings will be included in the daily report. If previously unidentified contaminant sources are found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to OER. Chemical analytical testing will be performed for TAL metals, TCL volatiles and semi-volatiles, TCL pesticides and PCBs, as appropriate.

6.13 ODOR, DUST AND NUISANCE CONTROL

6.13.1. 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 certifying the Remedial Action Report.

6.13.2 Dust Control

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

- Use of a dedicated on-Site water spray methodology for roads, excavation areas and stockpiles.
- Use of properly anchored tarps to cover stockpiles.
- Use of extra care during dry and high-wind periods.
- Use of gravel or recycled concrete aggregate on egress 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 responsible for certifying the Remedial Action Report.

6.13.3 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.

7.0 ENGINEERING AND INSTITUTIONAL CONTROLS

Engineering Controls (EC) and Institutional Controls (IC) have been incorporated in this remedial action to manage any residual contamination and render the Site protective of public health and the environment. These ECs and ICs are described hereafter. Long-term employment of EC/ICs will be required by a Declaration of Covenant and Restrictions (DCR) assigned to the property by the title holder and will be implemented under a site-specific Site Management Plan (SMP) that will be included in the RAR.

7.1 INSTITUTIONAL CONTROLS

Institutional Controls can generally be subdivided into ICs that support the ECs listed in section 7.2 of this RAWP including those required to implement, maintain, monitor and report on those systems, and ICs that place general restrictions on Site usage. The ICs in this remedial action that support ECs are:

A DCR including a description of all ICs and ECs and noting the requirements of the SMP will be registered with the City Register or county clerk, as appropriate. The DCR will note that the property owner and property owner's successors and assigns will comply with the DCR and all elements of the approved SMP;

- A SMP will be submitted in the RAR for approval by OER that provides procedures for appropriate operation, maintenance, monitoring, inspection, reporting and certification of all ECs.

- Grantor agrees to submit to OER a periodic written statement that certifies that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by OER; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. OER retains the right to enter the Site in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that OER may allow. This certification must comply with RCNY §43-1407(l)(3).

Under this remedial action, the Site will be subject to a series of ICs in the form of site restrictions and requirements. These include:

- Vegetable gardens and farming on the Site are prohibited;
- Use of groundwater underlying the Site is prohibited without treatment rendering it safe for its intended use;
- All future activities on the Site that will disturb residual contaminated material must be conducted pursuant to the soil management provisions in the Site Management Plan;
- The Site will be used for commercial use only and will not be used for a higher level of use without prior notice to OER;

7.1.1 Declaration of Covenants and Restrictions

An OER-approved Declaration of Covenants and Restrictions (DCR) will be registered with the City Register or the country cleark, as appropriate to ensure that the grantor of the DCR and the grantor's successors and assigns implement the ICs and ECs required under this remedy. The registered DCR will be submitted as part of the Remedial Action Report. The DCR must be registered prior to OER issuance of the Notice of Completion.

7.1.2 Site Management Plan

Site Management is the last phase of remediation and begins with the approval of the Remedial Action Report and issuance of the Notice of Completion (NOC) for the Remedial Action. The Site Management Plan (SMP) describes appropriate methods and procedures to ensure implementation of all ECs and ICs that are required by the DCR and this RAWP. The Site Management Plan is submitted as part of the RAR but will be written in a manner that allows its use as an independent document. Site Management continues until terminated in writing by OER. The property owner is responsible to ensure that all Site Management responsibilities defined in the DCR and the Site Management Plan are implemented.

The SMP will provide a detailed description of the procedures required to manage residual contamination left in place following completion of the remedial action in accordance with the BCA with OER. This includes: (1) development, implementation, and management of all ICs

and ECs; (2) development and implementation of monitoring systems; (3) development of a plan to operate and maintain any treatment, collection, containment, or recovery systems; (4) submittal of reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to OER; and (5) defining criteria for termination of treatment system operation.

To address these needs, the SMP will include four sections: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems, and; (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to OER. The SMP will be prepared in accordance with the requirements in NYS DEC DER-10 Technical Guidance for Site Investigation and Remediation and the guidelines provided by OER.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be every 2 years. The Site Management Plan will be based on a calendar year and will be due for submission to OER by March 31 of the year following the reporting period.

7.2 ENGINEERING CONTROL SYSTEMS

7.2.1 Composite Cover System

Exposure to residual contaminated soils will be prevented by an engineered composite cover system that will be placed over the surface of the entire Site. This cover system will be comprised of concrete beneath building slab and concrete cap of open spaces.

The cover system is a permanent engineering control for the Site. The system will be inspected and reported at specified intervals as required by this RAWP and the SMP. The use of this system will not be terminated without written approval by OER. A Soil Management Plan will be included in the Site Management Plan and will outline the procedures to be followed in the event that the composite cover system and underlying residual contamination are disturbed

after the remedial action is complete. Maintenance of this composite cover system will be described in the Site Management Plan in the RAR.

7.2.2 Soil Vapor Barrier & Sub-Slab Depressurization System

In order to prevent subsurface vapors from impacting the interior air of the buildings at the Site a vapor barrier system (VBS) consisting of a geomembrane liner and passive sub-slab depressurization system (SSDS) will be will be installed beneath the cellar foundations of both Site A (24 Hillel Place) and Site B (2166 Nostrand Avenue).

The VBS will be installed under the direct oversight of a Hydro Tech Environmental (Hydro Tech) Engineer. Following completion of all site construction, Hydro Tech will document the installation of the VBS and SSDS in the Closure Report.

The details of the VBS and SSDS will be provided as an attachment.

8.0 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:

- As-built drawings for all constructed remedial elements, required certifications, manifests, bills of lading and other written and photographic documentation of remedial work performed under this remedy;
- Site Management Plan for Site B and, if Track 1 SCO is not achieved, for Site A;
- Description of any changes in the remedial action from the elements provided in the RAWP and associated design documents;
- Tabular summary of all performance evaluation sampling results and all material characterization results 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;
- Tabular summary and map of residual contamination that exceeds Track 1 (Site A) and 4 (Site B);
- Account of the source area locations and characteristics of all contaminated material removed from the Site including excavated contaminated soil, historic fill, solid waste, hazardous waste, non-regulated material, and fluids, including the map(s) showing all source areas;
- Account of the disposal destination of all contaminated material removed from the Site, and documentation associated with disposal of all material will include records and approvals for receipt of the material.
- Account of the origin and any required chemical quality testing for all material imported onto the Site.

- All reports and supporting material will be submitted in digital form (pdf format) and other digital formats as required by OER.

8.1 REMEDIAL ACTION REPORT CERTIFICATION

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

I, Shaik A. Saad, am currently a registered professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the 2166 Nostrand Avenue Site.

I, Mark E. Robbins, am a qualified Environmental Professional. I had primary direct responsibility for implementation of Remedial Action Work Plan.

I certify that the Site description presented in this RAR is identical to the Site descriptions and associated amendments presented in the Declaration of Covenants and Restrictions, the Site Management Plan, and the NYC Brownfield Cleanup Agreement for 2166 Nostrand Avenue.

I certify that the OER-approved Remedial Action Work Plan dated June 2011 and Stipulations were implemented and that all requirements in those documents have been substantively complied with.

I certify that the remedial activities were observed by qualified professionals under my supervision and that the remediation requirements set forth in the Remedial Action Work Plan have been achieved.

I certify that all use restrictions, Institutional Controls and Engineering Controls identified in the RAWP, and all operation and maintenance requirements applicable to the Site are contained in a Declaration of Covenants and Restrictions and that such declaration and covenant has been recorded.

I certify that a Site Management Plan is included in this RAR that provides for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site.

I certify that the export of all contaminated soil, fill, liquids or other material from the property was performed in accordance with the Remedial Action Work Plan, and that the materials were taken to facilities licensed to accept this material in full compliance with Federal, State and City laws and regulations.

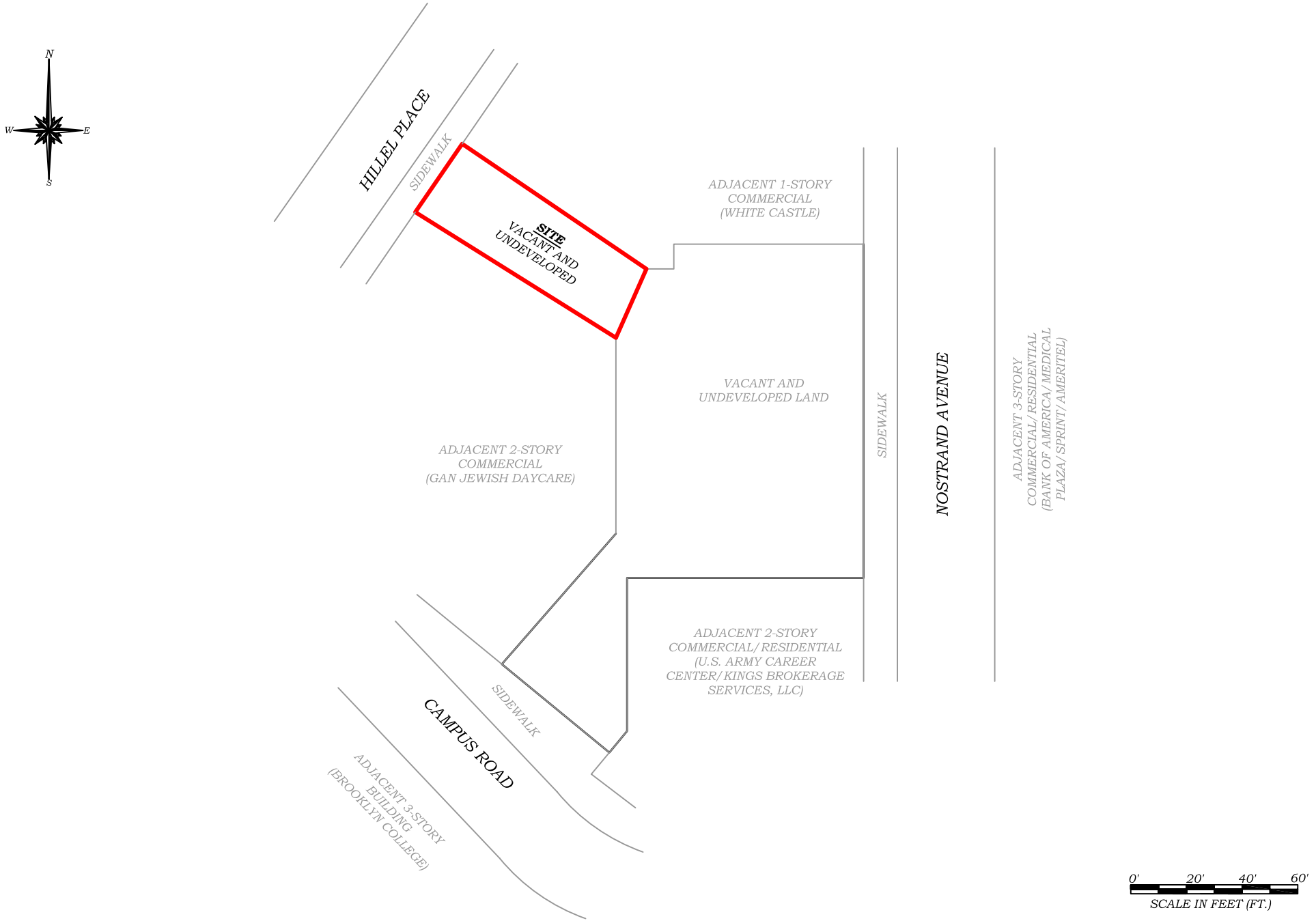
I certify that all import of soils from off-Site has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan.

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

9.0 SCHEDULE

Task	Time Interval
OER Notice to Proceed	Sep-11
Site Excavation/Alteration	October 2011 to December 2011 (Est. 3 months)
Vapor Barrier Installation	January 2012 to February 2012 (Est. 14 days)
Construction Schedule	January 2012 to January 2013 (Est. 12 months)

FIGURES



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www.hydrotechenvironmental.com

24 Hillel Place
Brooklyn, NY.

Drawn By:	C.Q
Reviewed By:	M.R
Approved By:	M.S
Date:	07/27/11
Scale:	AS NOTED

TITLE:

FIGURE 1: SITE LOCATION MAP

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FIGURE 2: SITE BOUNDARY MAP

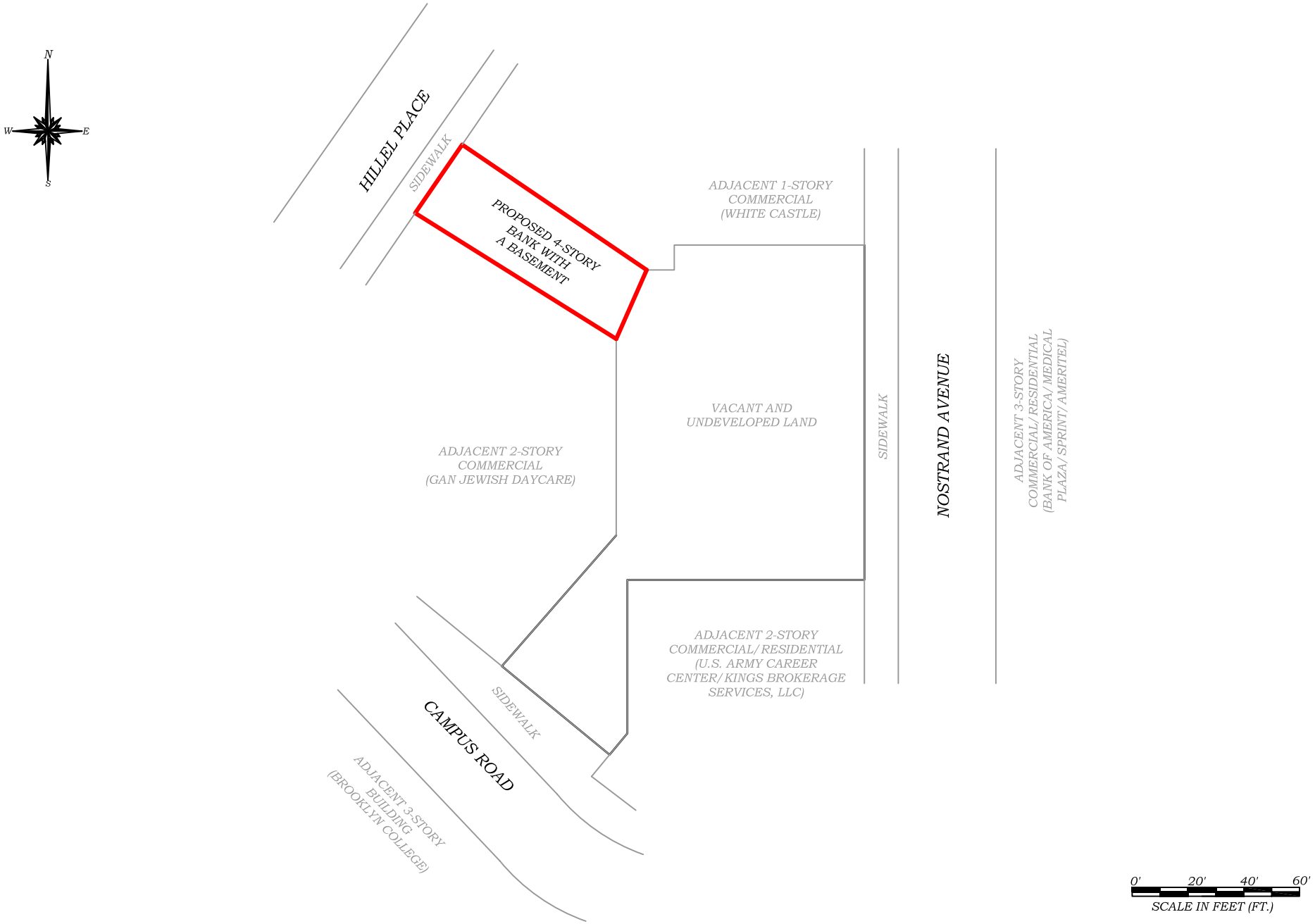

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FIGURE 3: PROPOSED SITE DEVELOPMENT

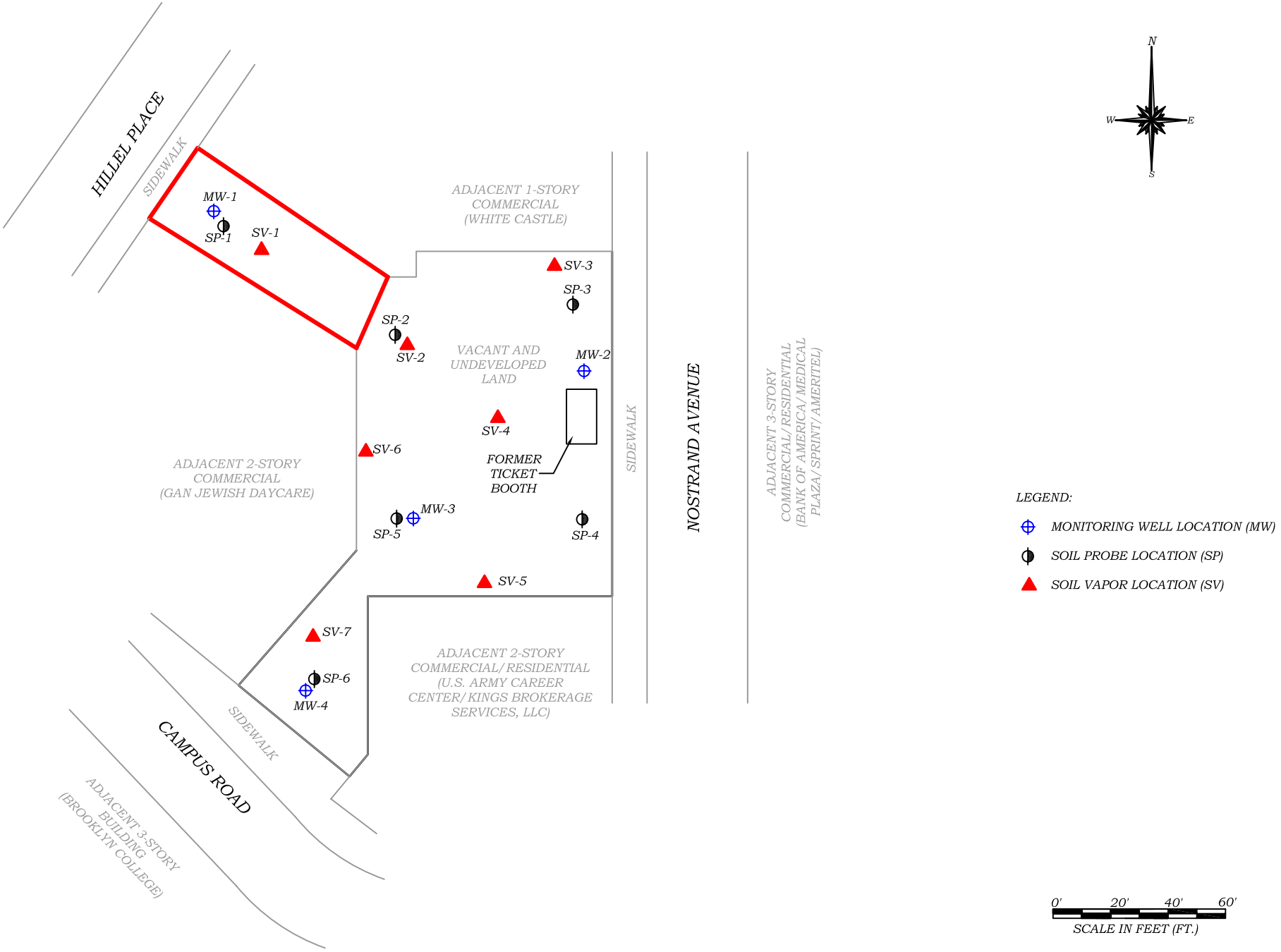

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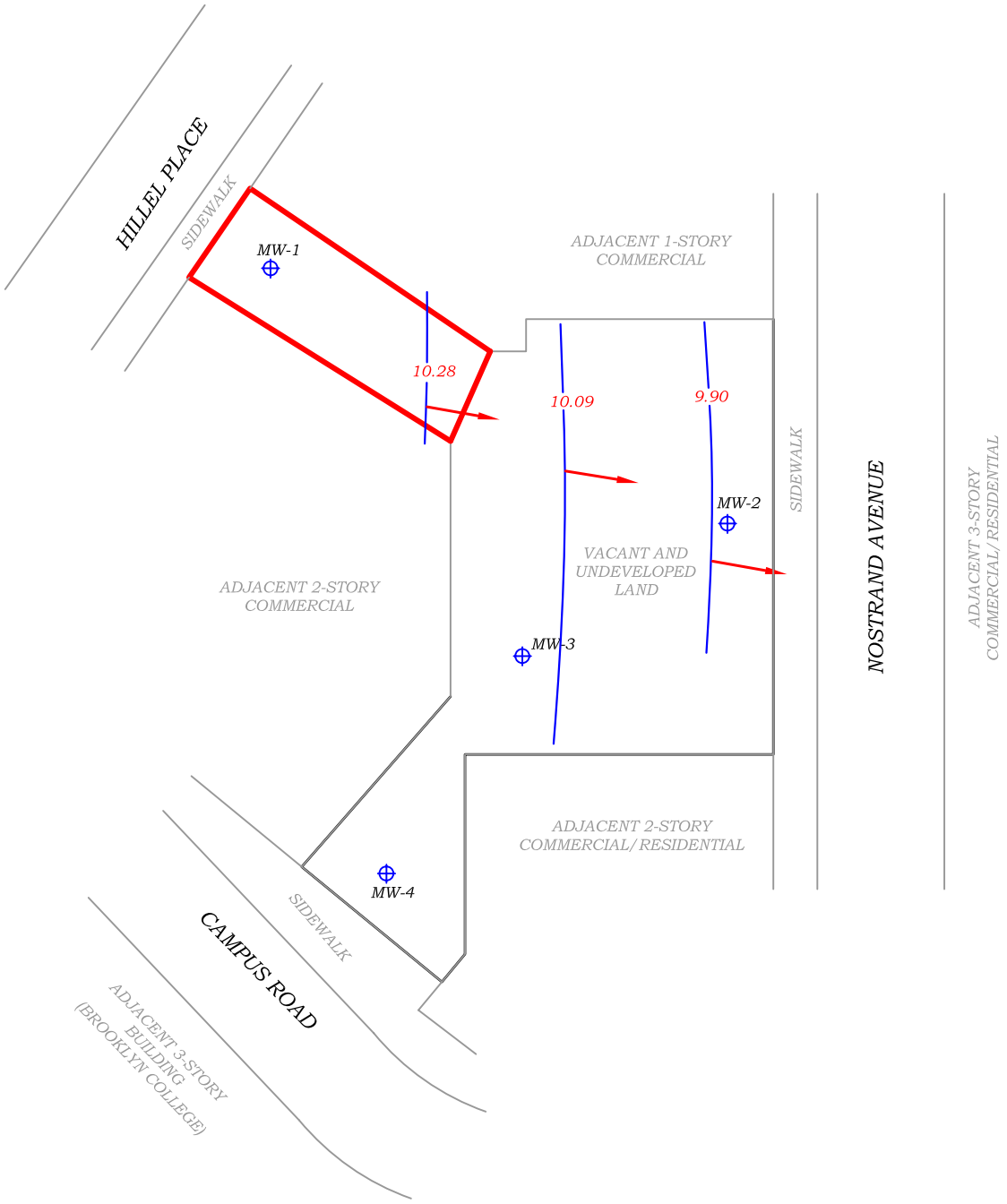
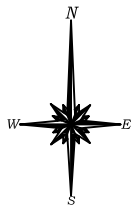
FIGURE 4: SITE & SAMPLING PLAN





LEGEND:

- MONITORING WELL LOCATION (MW)
- C.I. CONTOUR INTERVAL
- CONTOUR LINE

C.I. = 0.19 FEET	
Monitoring Well ID	Groundwater Elevation
MW-1	10.30
MW-2	9.86
MW-3	10.14
MW-4	10.24

0' 20' 40' 60'

SCALE IN FEET (FT.)

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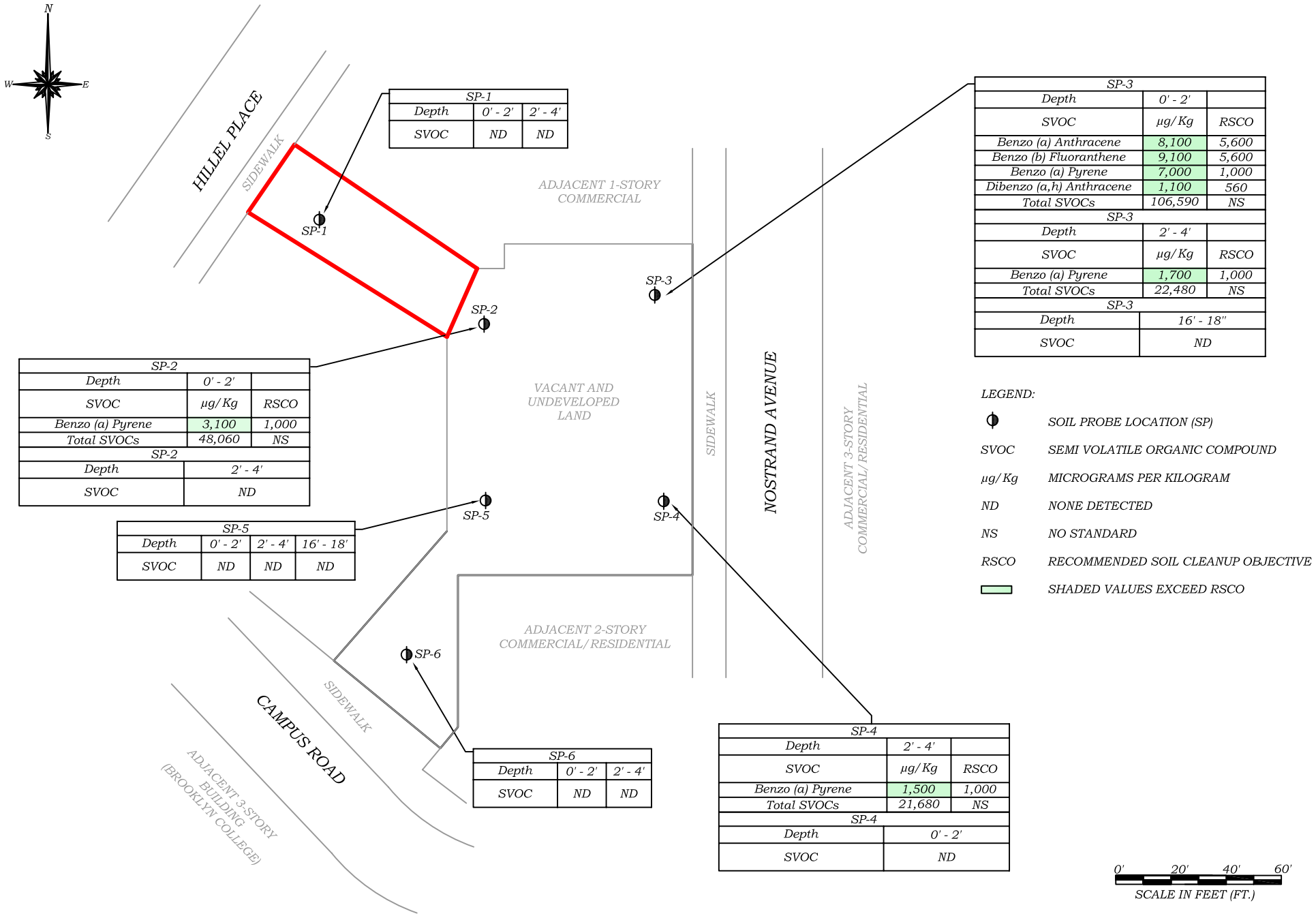
FIGURE 5: GROUNDWATER FLOW CONTOUR DIAGRAM



SP-1		
Depth	0' - 2'	2' - 4'
SVOC	ND	ND

SP-2		
Depth	0' - 2'	
SVOC	µg/Kg	RSCO
Benzo (a) Pyrene	3,100	1,000
Total SVOCs	48,060	NS
SP-2		
Depth	2' - 4'	
SVOC	ND	

SP-3		
Depth	0' - 2'	
SVOC	µg/Kg	RSCO
Benzo (a) Anthracene	8,100	5,600
Benzo (b) Fluoranthene	9,100	5,600
Benzo (a) Pyrene	7,000	1,000
Dibenzo (a,h) Anthracene	1,100	560
Total SVOCs	106,590	NS
SP-3		
Depth	2' - 4'	
SVOC	µg/Kg	RSCO
Benzo (a) Pyrene	1,700	1,000
Total SVOCs	22,480	NS
SP-3		
Depth	16' - 18"	
SVOC	ND	

SP-4		
Depth	2' - 4'	
SVOC	µg/Kg	RSCO
Benzo (a) Pyrene	1,500	1,000
Total SVOCs	21,680	NS
SP-4		
Depth	0' - 2'	
SVOC	ND	

SP-5			
Depth	0' - 2'	2' - 4'	16' - 18'
SVOC	ND	ND	ND

SP-6		
Depth	0' - 2'	2' - 4'
SVOC	ND	ND

LEGEND:

	SOIL PROBE LOCATION (SP)
SVOC	SEMI VOLATILE ORGANIC COMPOUND
µg/Kg	MICROGRAMS PER KILOGRAM
ND	NONE DETECTED
NS	NO STANDARD
RSCO	RECOMMENDED SOIL CLEANUP OBJECTIVE
	SHADED VALUES EXCEED RSCO

0' 20' 40' 60'

SCALE IN FEET (FT.)

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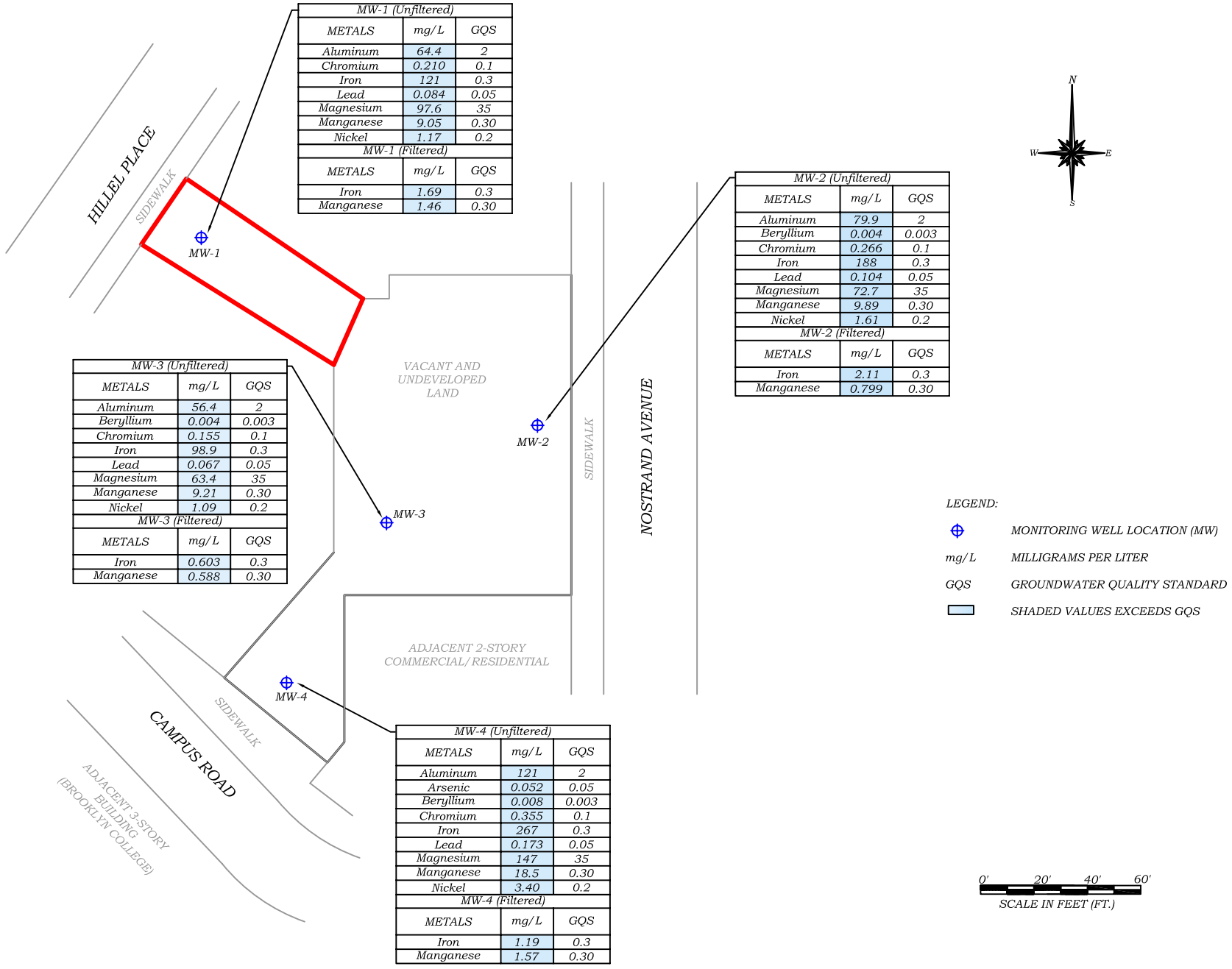
TITLE:

FIGURE 6: SVOC CONCENTRATION IN SOIL ABOVE STANDARD



MW-1 (Unfiltered)		
METALS	mg/L	GQS
Aluminum	64.4	2
Chromium	0.210	0.1
Iron	121	0.3
Lead	0.084	0.05
Magnesium	97.6	35
Manganese	9.05	0.30
Nickel	1.17	0.2
MW-1 (Filtered)		
METALS	mg/L	GQS
Iron	1.69	0.3
Manganese	1.46	0.30

MW-2 (Unfiltered)		
METALS	mg/L	GQS
Aluminum	79.9	2
Beryllium	0.004	0.003
Chromium	0.266	0.1
Iron	188	0.3
Lead	0.104	0.05
Magnesium	72.7	35
Manganese	9.89	0.30
Nickel	1.61	0.2
MW-2 (Filtered)		
METALS	mg/L	GQS
Iron	2.11	0.3
Manganese	0.799	0.30

MW-3 (Unfiltered)		
METALS	mg/L	GQS
Aluminum	56.4	2
Beryllium	0.004	0.003
Chromium	0.155	0.1
Iron	98.9	0.3
Lead	0.067	0.05
Magnesium	63.4	35
Manganese	9.21	0.30
Nickel	1.09	0.2
MW-3 (Filtered)		
METALS	mg/L	GQS
Iron	0.603	0.3
Manganese	0.588	0.30

MW-4 (Unfiltered)		
METALS	mg/L	GQS
Aluminum	121	2
Arsenic	0.052	0.05
Beryllium	0.008	0.003
Chromium	0.355	0.1
Iron	267	0.3
Lead	0.173	0.05
Magnesium	147	35
Manganese	18.5	0.30
Nickel	3.40	0.2
MW-4 (Filtered)		
METALS	mg/L	GQS
Iron	1.19	0.3
Manganese	1.57	0.30

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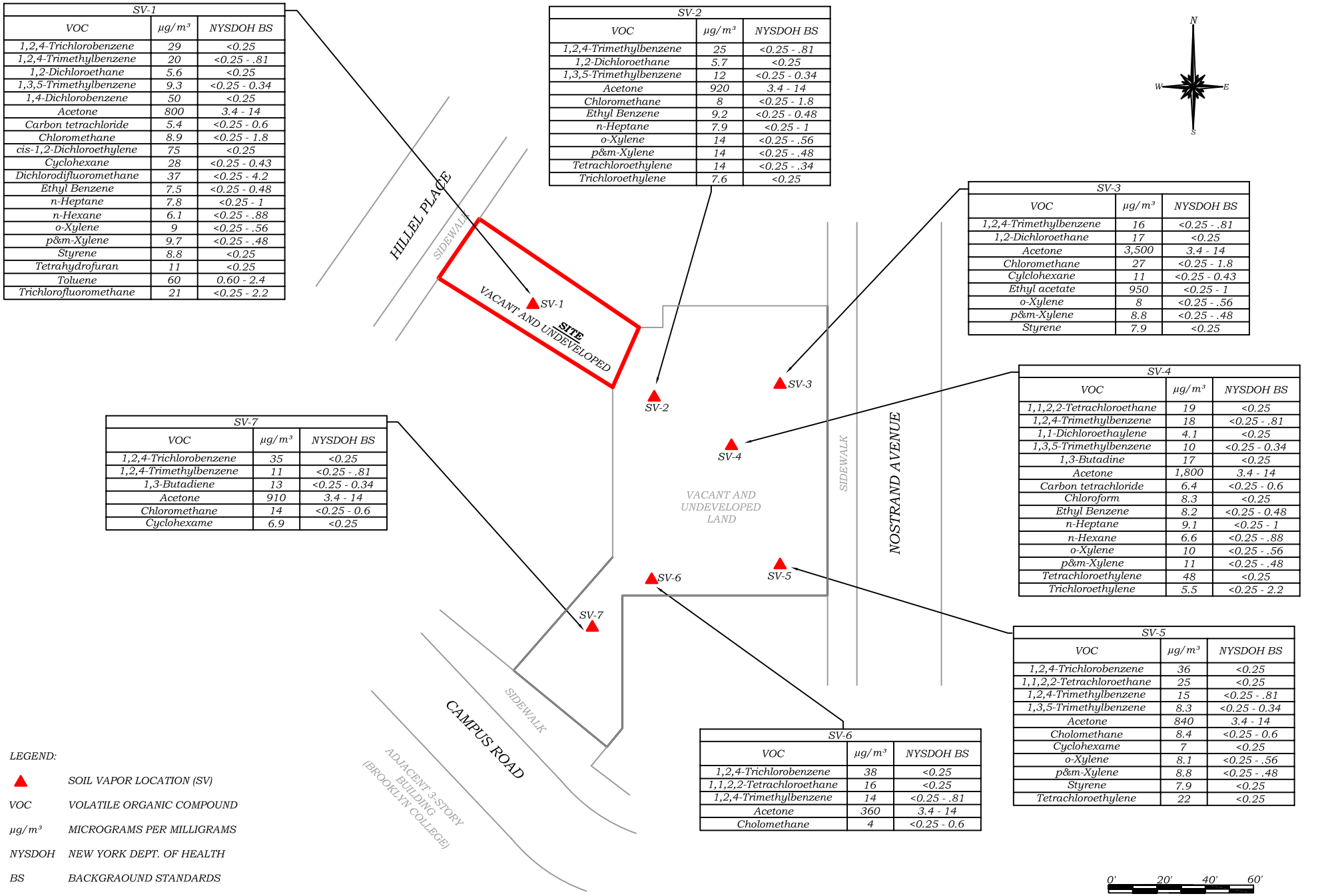
FIGURE 7: METAL CONCENTRATION IN GROUNDWATER ABOVE STANDARD



SV-1		
VOC	µg/m³	NYSDOH BS
1,2,4-Trichlorobenzene	29	<0.25
1,2,4-Trimethylbenzene	20	<0.25 - .81
1,2-Dichloroethane	5.6	<0.25
1,3,5-Trimethylbenzene	9.3	<0.25 - 0.34
1,4-Dichlorobenzene	50	<0.25
Acetone	800	3.4 - 14
Carbon tetrachloride	5.4	<0.25 - 0.6
Chloromethane	8.9	<0.25 - 1.8
cis-1,2-Dichloroethylene	75	<0.25
Cyclohexane	28	<0.25 - 0.43
Dichlorodifluoromethane	37	<0.25 - 4.2
Ethyl Benzene	7.5	<0.25 - 0.48
n-Heptane	7.8	<0.25 - 1
n-Hexane	6.1	<0.25 - .88
o-Xylene	9	<0.25 - .56
p&m-Xylene	9.7	<0.25 - .48
Styrene	8.8	<0.25
Tetrahydrofuran	11	<0.25
Toluene	60	0.60 - 2.4
Trichlorofluoromethane	21	<0.25 - 2.2

SV-2		
VOC	µg/m³	NYSDOH BS
1,2,4-Trimethylbenzene	25	<0.25 - .81
1,2-Dichloroethane	5.7	<0.25
1,3,5-Trimethylbenzene	12	<0.25 - 0.34
Acetone	920	3.4 - 14
Chloromethane	8	<0.25 - 1.8
Ethyl Benzene	9.2	<0.25 - 0.48
n-Heptane	7.9	<0.25 - 1
o-Xylene	14	<0.25 - .56
p&m-Xylene	14	<0.25 - .48
Tetrachloroethylene	14	<0.25 - .34
Trichloroethylene	7.6	<0.25

SV-3		
VOC	µg/m³	NYSDOH BS
1,2,4-Trimethylbenzene	16	<0.25 - .81
1,2-Dichloroethane	17	<0.25
Acetone	3,500	3.4 - 14
Chloromethane	27	<0.25 - 1.8
Cylclohexane	11	<0.25 - 0.43
Ethyl acetate	950	<0.25 - 1
o-Xylene	8	<0.25 - .56
p&m-Xylene	8.8	<0.25 - .48
Styrene	7.9	<0.25

SV-4		
VOC	µg/m³	NYSDOH BS
1,1,2,2-Tetrachloroethane	19	<0.25
1,2,4-Trimethylbenzene	18	<0.25 - .81
1,1-Dichloroethaylene	4.1	<0.25
1,3,5-Trimethylbenzene	10	<0.25 - 0.34
1,3-Butadine	17	<0.25
Acetone	1,800	3.4 - 14
Carbon tetrachloride	6.4	<0.25 - 0.6
Chloroform	8.3	<0.25
Ethyl Benzene	8.2	<0.25 - 0.48
n-Heptane	9.1	<0.25 - 1
n-Hexane	6.6	<0.25 - .88
o-Xylene	10	<0.25 - .56
p&m-Xylene	11	<0.25 - .48
Tetrachloroethylene	48	<0.25
Trichloroethylene	5.5	<0.25 - 2.2

SV-5		
VOC	µg/m³	NYSDOH BS
1,2,4-Trichlorobenzene	36	<0.25
1,1,2,2-Tetrachloroethane	25	<0.25
1,2,4-Trimethylbenzene	15	<0.25 - .81
1,3,5-Trimethylbenzene	8.3	<0.25 - 0.34
Acetone	840	3.4 - 14
Cholomethane	8.4	<0.25 - 0.6
Cyclohexame	7	<0.25
o-Xylene	8.1	<0.25 - .56
p&m-Xylene	8.8	<0.25 - .48
Styrene	7.9	<0.25
Tetrachloroethylene	22	<0.25

SV-6		
VOC	µg/m³	NYSDOH BS
1,2,4-Trichlorobenzene	38	<0.25
1,1,2,2-Tetrachloroethane	16	<0.25
1,2,4-Trimethylbenzene	14	<0.25 - .81
Acetone	360	3.4 - 14
Cholomethane	4	<0.25 - 0.6

SV-7		
VOC	µg/m³	NYSDOH BS
1,2,4-Trichlorobenzene	35	<0.25
1,2,4-Trimethylbenzene	11	<0.25 - .81
1,3-Butadiene	13	<0.25 - 0.34
Acetone	910	3.4 - 14
Chloromethane	14	<0.25 - 0.6
Cyclohexame	6.9	<0.25

LEGEND:

▲	SOIL VAPOR LOCATION (SV)
VOC	VOLATILE ORGANIC COMPOUND
µg/m³	MICROGRAMS PER MILLIGRAMS
NYSDOH	NEW YORK DEPT. OF HEALTH
BS	BACKGRAOUND STANDARDS

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Reviewed By: M.R
Approved By: M.S
Date: 07/27/11
Scale: AS NOTED

TITLE:

FIGURE 8: VOC CONCENTRATION IN SOIL GAS

HYDRO TECH ENVIRONMENTAL CORP.

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TITLE:

FIGURE 9: TRUCK ROUTE

TABLES

Table 1
Soil Samples Organic Analytical Results
2166 Nostrand Ave, Brooklyn, NY

Sample Identification	SP-1	SP-1	SP-1	SP-2	SP-2	SP-3	SP-3	SP-3	SP-4	SP-4	SP-5	SP-5	SP-5	SP-6	SP-6	SP-6	Unrestricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8)	Restricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8b) Commercial
Sample Depth	0'-2'	2'-4'	16'-18'	0'-2'	2'-4'	0'-2'	2'-4'	16'-18'	0'-2'	2'-4'	0'-2'	2'-4'	16'-18'	0'-2'	2'-4'	16'-18'		
Sample Date	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011		
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		
Volatile Organic Compounds (µg/kg)																		
Dichlorodifluoromethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Acrylonitrile	<12	<13	<10	<11	<13	<11	<12	<11	<11	<11	<10	<11	<10	<11	<13	<11	NS	NS
Ethylacetate	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
2-Hexanone	<29	<31	<26	<29	<32	<29	<29	<27	<27	<29	<26	<28	<26	<26	<32	<27	NS	NS
2-Butanone	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	500,000
Chloromethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Vinyl chloride	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	20	13,000
Bromomethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Chloroethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Chloroacetamide	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Tetrahydrofuran	<12	<13	<10	<11	<13	<11	<12	<11	<11	<11	<10	<11	<10	<11	<13	<11	NS	NS
Trichlorofluoromethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
1,1-Dichloroethene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	270	500,000
Methylene chloride	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	50	500,000
trans-1,2-Dichloroethene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	190	500,000
1,1-Dichloroethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	330	240,000
2,2-Dichloropropane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
2,4-Dichloro aniline	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
3,4-Dichloroaniline	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
2,6-Dinitrotoluene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
cis-1,2-Dichloroethene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	250	500,000
Bromochloromethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Chloroform	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	370	350,000
1,1,1-Trichloroethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	680	500,000
1,1,2,2-Tetrachloroethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Carbon Disulfide	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	500,000
Carbon tetrachloride	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	760	22,000
1,1-Dichloropropene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Acetone	<29	<6.3	<26	<29	<32	<29	<29	<27	<27	<29	<26	<28	<26	<26	<32	<27	50	500,000
Benzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	60	44,000
1,2-Dichloroethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	200	30,000
Trichloroethene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	470	200,000
1,2-Dichloropropane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Dibromomethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Bromodichloromethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
cis-1,3-Dichloropropene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Toluene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	700	500,000
trans-1,3-Dichloropropene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
trans-1,4-dichloro-butene	<12	<13	<10	<11	<13	<11	<12	<11	<11	<11	<10	<5.6	<10	<11	<13	<11	NS	NS
1,1,2-Trichloroethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Tetrachloroethene	6.2	<6.3	5.8	<5.7	<6.3	<5.7	<5.8	<5.3	5.9	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	1,300	150,000
1,3-Dichloropropane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Dibromochloromethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
1,2-Dibromoethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Chlorobenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	1.1	500,000
1,1,1,2-Tetrachloroethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Ethylbenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	1.000	390,000
Xylene (Total)	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	260	500,000
o-Xylene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
m + p-Xylene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Styrene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Bromoform	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Isopropylbenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	2,300	500,000
Bromobenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
1,1,2,2-Tetrachloroethane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
1,1,2,2-Tetrachloroethylene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
1,2,3,4-Tetrachlorobenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
1,2,3-Trichloropropane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
n-Propylbenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	3,900	500,000
N-Nitrosodiphenylamine	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
2-Chlorotoluene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
4-Chlorotoluene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
1,3,5-Trimethylbenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	8,400	190,000
tert-Butylbenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	5,900	500,000
1,2,4-Trimethylbenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	3,600	190,000
sec-Butylbenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	11,000	500,000
1,3-Dichlorobenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	2,400	280,000
4-Isopropyltoluene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	10,000	NS
1,4-Dichlorobenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	1,800	130,000
1,4-Dioxane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	100	130,000
1,2-Dichlorobenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	1,100	500,000
n-Butylbenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	12,000	500,000
1,2-Dibromo-3-chloropropane	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
1,2,4-Trichlorobenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Hexachlorocyclopentadiene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Hexachlorobutadiene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Hexachlorobenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	330	6,000
Naphthalene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	410	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
113 Freon	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	500,000
1,2,3-Trichlorobenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
1,2,4 - Trimethylbenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
4-mythyl-2-pentanone	<29	<31	<26	<29	<32	<29	<29	<27	<27	<29	<5.2	<28	<26	<26	<32	<27	NS	NS
Methanol	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Methyl-Tert-Butyl-Ether	<12	<13	<10	<11	<13	<11	<12	<11	<11	<11	<10	<11	<10	<11	<13	<11	930	500,000
Methyl ethyl ketone	<29	<31	<26	<29	<32	<29	<29	<27	<27	<29	<26	<28	<26	<26	<32	<27	120	500,000
Pentachlorobenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Pentachloronitrobenzene	<5.9	<6.3	<5.2	<5.7	<6.3	<5.7	<5.8	<5.3	<5.3	<5.7	<5.2	<5.6	<5.2	<5	<6.4	<5.3	NS	NS
Total VOCs	6.2	ND	5.8	ND	ND	11	ND	ND	5.9	410	ND	ND	ND	ND	ND	ND	NS	NS

Table 1 - cont'd
Soil Samples Organic Analytical Results
2166 Nostrand Ave, Brooklyn, NY

Sample Identification	SP-1	SP-1	SP-1	SP-2	SP-2	SP-3	SP-3	SP-3	SP-4	SP-4	SP-5	SP-5	SP-5	SP-6	SP-6	SP-6	Unrestricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8)	Restricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8b) Commercial
Sample Depth	0'-2'	2'-4'	16'-18'	0'-2'	2'-4'	0'-2'	2'-4'	16'-18'	0'-2'	2'-4'	0'-2'	2'-4'	16'-18'	0'-2'	2'-4'	16'-18'		
Sample Date	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011		
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		
Semi-Volatile Organic Compounds (µg/kg)																		
1,2,3,6,7,8-HCDF	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
2,3,5,6-Tetrachloroaniline	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
2,3,4,5-Tetrachlorophenol	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
2,4,5-Trichloroaniline	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
2,4,5-Trichlorophenol	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	500,000
2,4,6-Trichlorophenol	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
1,3-Dichlorobenzene	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
1,4-Dichlorobenzene	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
1,2-Dichlorobenzene	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
bis (2-Chloroisopropyl) Ether	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
n-Nitrosodi-n-propylamine	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
Hexachloroethane	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
Nitrobenzene	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	69,000
Isophorone	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	500,000
bis (2-Chloroethoxy) Methane	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
1,2,4-Trichlorobenzene	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
Naphthalene	<270	<290	<240	<260	<290	600	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	12,000	500,000
4-Chloroaniline	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	500,000
Hexachlorobudadiene	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
2-Methylnaphthalene	<270	<290	<240	<260	<290	370	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
Hexachlorocyclopentadiene	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
2-Chloronaphthalene	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
2-Nitrophenol	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
Dimethyl Phthalate	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	500,000
Acenaphthylene	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	100,000	500,000
2,6-Dinitrotoluene	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
Acenaphthene	<270	<290	<240	460	<290	1100	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	20,000	500,000
Dibenzofuran	<270	<290	<240	290	<290	920	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
2,4-Dinitrophenol	<610	<660	<560	<600	<660	<600	<610	<560	<560	<600	<560	<600	<560	<560	<660	<560	NS	500,000
2-Nitroaniline	<610	<660	<560	<600	<660	<600	<610	<560	<560	<600	<560	<600	<560	<560	<660	<560	NS	NS
3&4-Methylphenol	<380	<410	<350	<380	<410	<370	<380	<350	<350	<370	<350	<370	<350	<350	<410	<350	NS	NS
3,3'-Dichlorobenzidine	<460	<500	<420	<450	<500	<450	<460	<420	<420	<450	<420	<450	<420	<420	<500	<420	NS	NS
3-Nitroaniline	<610	<660	<560	<600	<660	<600	<610	<560	<560	<600	<560	<600	<560	<560	<660	<560	NS	NS
4,6-Dinitro-2-methylphenol	<1100	<1200	<1000	<1100	<1200	<1100	<1100	<1000	<1000	<1100	<1000	<1100	<1000	<1000	<1200	<1000	NS	NS
4-Bromophenyl Phenyl Ether	<380	<410	<350	<380	<410	<370	<380	<350	<350	<370	<350	<370	<350	<350	<410	<350	NS	NS
4-Nitroaniline	<610	<660	<560	<600	<660	<600	<610	<560	<560	<600	<560	<600	<560	<560	<660	<560	NS	NS
4-Nitrophenol	<1100	<1200	<1000	<1100	<1200	<1100	<1100	<1000	<1000	<1100	<1000	<1100	<1000	<1000	<1200	<1000	NS	NS
Aniline	<1100	<1200	<1000	<1100	<1200	<1100	<1100	<1000	<1000	<1100	<1000	<1100	<1000	<1000	<1200	<1000	NS	500,000
Azobenzene	<380	<410	<350	<380	<410	<370	<380	<350	<350	<370	<350	<370	<350	<350	<410	<350	NS	NS
Benzidine	<460	<500	<420	<450	<500	<450	<460	<420	<420	<450	<420	<450	<420	<420	<500	<420	NS	NS
Benzoic Acid	<1100	<1200	<1000	<1100	<1200	<1100	<1100	<1000	<1000	<1100	<1000	<1100	<1000	<1000	<1200	<1000	NS	500,000
bis (2-Chloroethyl) Ether	<380	<410	<350	<380	<410	<370	<380	<350	<350	<370	<350	<370	<350	<350	<410	<350	NS	NS
Carbazole	<570	<620	<520	1000	<620	3900	<570	<520	<520	<550	<520	<550	<520	<520	<620	<520	NS	NS
N-Nitrosodiphenylamine	<380	<410	<350	<380	<410	<370	<380	<350	<350	<370	<350	<370	<350	<350	<410	<350	NS	NS
Pentachlorophenol	<380	<410	<350	<380	<410	<370	<380	<350	<350	<370	<350	<370	<350	<350	<410	<350	800	6,700
Pyridine	<380	<410	<350	<380	<410	<370	<380	<350	<350	<370	<350	<370	<350	<350	<410	<350	NS	NS
2,4-Dinitrotoluene	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
2,4-Dichlorophenol	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	500,000
3,4-Dichlorophenol	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
Diethyl Phthalate	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	500,000
4-Chlorophenyl Phenyl Ether	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
2-Chlorophenol	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	500,000
3-Chlorophenol	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
Fluorene	<270	<290	<240	390	<290	1000	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	30,000	500,000
4-methyl-2-pentanone	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
Hexachlorobenzene	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
Phenol	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	330	500,000
Phenanthrene	<270	<290	<240	9100	<290	18000	3100	<240	<240	2300	<240	880	<240	<240	<290	<240	100,000	500,000
Anthracene	<270	<290	<240	1200	<290	4800	590	<240	<240	380	<240	<260	<240	<240	<290	<240	100,000	500,000
Di-n-Butyl Phthalate	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	500,000
Fluoranthene	<270	<290	<240	8400	<290	20000	4300	<240	280	5100	240	970	<240	<240	<290	<240	100,000	500,000
Pyrene	<270	<290	<240	7500	<290	14000	4600	<240	<240	4900	<240	1100	<240	<240	<290	<240	100,000	500,000
Benzyl Butyl Phthalate	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	500,000
Benzo (a) Anthracene	<270	<290	<240	3900	<290	**8100**	2100	<240	<240	2000	<240	500	<240	<240	<290	<240	1,000	6,000
Chloroethane	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
Chrysene	<270	<290	<240	4100	<290	7300	1800	<240	<240	1800	<240	420	<240	<240	<290	<240	1,000	56,000
p-Cresol	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	330	500,000
o-Cresol	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	330	500,000
m-Cresol	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	330	500,000
Pentachloroaniline	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
bis (2-Ethyl Hexyl) Phthalate	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
Di-n-hexyl-phthalate	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	NS
D-n-n-octyl Phthalate	<270	<290	<240	<260	<290	<260	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	NS	500,000
Benzo (b) Fluoranthene	<270	<290	<240	4200	<290	**9100**	2200	<240	<240	1800	<240	290	<240	<240	<290	<240	1,000	6,000
Benzo (k) Fluoranthene	<270	<290	<240	1100	<290	2800	650	<240	<240	450	<240	<260	<240	<240	<290	<240	800	56,000
Benzo (a) Pyrene	<270	<290	<240	**3100**	<290	**7000**	**1700**	<240	<240	**1500**	<240	260	<240	<240	<290	<240	1,000	1,000
Indeno (1,2,3-cd) Pyrene	<270	<290	<240	1400	<290	3300	700	<240	<240	680	<240	<260	<240	<240	<290	<240	500	6,000
Dibenzo (a,h) Anthracene	<270	<290	<240	420	<290	**1100**	<270	<240	<240	<260	<240	<260	<240	<240	<290	<240	330	600
Benzo (g,h,I) Perylene	<270	<290	<240	1500	<290	3200	740	<240	<240	770	<240	<260	<240	<240	<290	<240	100,000	500,000
Total SVOCs	ND	ND	ND	48,060	ND	106,590	22,480	ND	280	21,680	ND	4,420	ND	ND	ND	ND	NS	NS

Table 3 - cont'd
Soil Samples Organic Analytical Results
2166 Nostrand Ave, Brooklyn, NY

Sample Identification	SP-1	SP-1	SP-1	SP-2	SP-2	SP-3	SP-3	SP-3	SP-4	SP-4	SP-5	SP-5	SP-5	SP-6	SP-6	SP-6	Unrestricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8)	Restricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8b) Commercial
Sample Depth	0'-2'	2'-4'	16'-18'	0'-2'	2'-4'	0'-2'	2'-4'	16'-18'	0'-2'	2'-4'	0'-2'	2'-4'	16'-18'	0'-2'	2'-4'	16'-18'		
Sample Date	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011		
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		
Pesticides																		
p,p-DDD	<1.9	<2.0	<3.3	<1.9	<2.0	<1.8	<8.0	<3.3	<1.7	<1.8	<3.3	<1.8	<3.2	<1.8	<2.1	<3.3	3.3	92,000
p,p-DDE	<1.9	<2.0	<3.3	<3.3	<2.0	<1.8	<3.3	<3.3	<1.7	24	<3.3	<1.8	<3.2	<1.8	<2.1	<3.3	3.3	62,000
p,p-DDT	<1.9	<2.0	<3.3	<1.9	<2.0	<1.8	<5.7	<3.3	<1.7	44	<3.3	<1.8	<3.2	<1.8	<2.1	<3.3	3.3	47,000
a BHC	<1.8	<1.9	<1.6	<1.8	<2.0	<1.8	<1.8	<1.6	<1.7	<1.8	<1.6	<1.8	<1.6	<1.7	<2.0	<1.6	20	3,400
Alachlor	<1.8	<1.9	<1.6	<1.8	<2.0	<1.8	<1.8	<1.6	<1.7	<1.8	<1.6	<1.8	<1.6	<1.7	<2.0	<1.6	NS	NS
Aldrin	<0.58	<0.61	<0.51	<0.56	<0.61	<0.55	<0.96	<0.51	<0.52	<0.55	<0.51	<0.55	<0.50	<0.52	<0.62	<0.52	5	68
b BHC	<1.8	<1.9	<1.6	<1.8	<2.0	<1.8	<1.8	<1.6	<1.7	<1.8	<1.6	<1.8	<1.6	<1.7	<2.0	<1.6	36	3,000
Chlordane (alpha)	<5.8	<6.1	<5.1	<5.6	<6.1	<5.5	<350	<5.1	<5.2	<5.5	<5.1	13	<5.0	<5.2	<6.2	<5.2	94	24,000
d BHC g	<1.8	<1.9	<1.6	<1.8	<2.0	<1.8	<1.8	<1.6	<1.7	<1.8	<1.6	<1.8	<1.6	<1.7	<2.0	<1.6	40	500,000
Dieldrin	<0.58	<0.61	<0.51	<0.56	<0.61	<0.55	<0.57	<0.51	<0.52	<0.55	<0.51	<0.55	<0.50	<0.52	<0.62	<0.52	5	1,400
Endosulfan I	<1.8	<1.9	<1.6	<1.8	<2.0	<1.8	<1.8	<1.6	<1.7	<1.8	<1.6	<1.8	<1.6	<1.7	<2.0	<1.6	2,400	200,000
Endosulfan II	<3.7	<3.9	<3.3	<3.6	<3.9	<3.5	<3.7	<3.3	<3.4	<3.5	<3.3	<3.5	<3.2	<3.4	<4.0	<3.3	2,400	200,000
Endosulfan Sulfate	<3.7	<3.9	<3.3	<3.6	<3.9	<3.5	<5.4	<3.3	<3.4	<18	<3.3	<3.5	<3.2	<3.4	<4.0	<3.3	2,400	200,000
Endrin	<3.7	<3.9	<3.3	<3.6	<3.9	<3.5	<3.7	<3.3	<3.4	<3.5	<3.3	<3.5	<3.2	<3.4	<4.0	<3.3	14	89,000
Endrin Aldehyde	<3.7	<3.9	<3.3	<3.6	<3.9	<3.5	<3.7	<3.3	<3.4	<3.5	<3.3	<3.5	<3.2	<3.4	<4.0	<3.3	NS	NS
Endrin Ketone	<3.7	<3.9	<3.3	<3.6	<3.9	<3.5	<3.7	<3.3	<3.4	<3.5	<3.3	<3.5	<3.2	<3.4	<4.0	<3.3	NS	NS
g-BHC	<0.58	<0.61	<0.51	<0.56	<0.61	<0.55	<0.57	<0.51	<0.52	<0.55	<0.51	<0.55	<0.50	<0.52	<0.62	<0.52	NS	NS
Heptachlor	<1.2	<1.2	<1.0	<1.1	<1.2	<1.1	<1.1	<1.0	<1.0	<1.1	<1.0	<1.1	<1.0	<1.0	<1.2	<1.0	42	15,000
Heptachlor Epoxide	<1.8	<1.9	<1.6	<1.8	<2.0	<1.8	<1.8	<1.6	<1.7	<1.8	<1.6	<1.8	<1.6	<1.7	<2.0	<1.6	NS	NS
Methoxychlor	<18	<19	<16	<18	<20	<18	<21	<16	<17	<22	<16	<18	<16	<17	<20	<16	NS	500,000
Toxaphene	<18	<19	<16	<18	<20	<18	<18	<16	<17	<18	<16	<18	<16	<17	<20	<16	NS	NS
PCBs																		
Aroclor 1016	<77	<81	<68	<75	<82	<74	<76	<69	<70	<73	<68	<74	<67	<70	<83	<69	NS	NS
Aroclor 1221	<77	<81	<68	<75	<82	<74	<76	<69	<70	<73	<68	<74	<67	<70	<83	<69	NS	NS
Aroclor 1232	<77	<81	<68	<75	<82	<74	<76	<69	<70	<73	<68	<74	<67	<70	<83	<69	NS	NS
Aroclor 1242	<77	<81	<68	<75	<82	<74	<76	<69	<70	<73	<68	<74	<67	<70	<83	<69	NS	NS
Aroclor 1248	<77	<81	<68	<75	<82	<74	<76	<69	<70	<73	<68	<74	<67	<70	<83	<69	NS	NS
Aroclor 1254	<77	<81	<68	<75	<82	<74	<76	<69	<70	<73	<68	<74	<67	<70	<83	<69	NS	NS
Aroclor 1260	<77	<81	<68	<75	<82	<74	<76	<69	<70	<73	<68	<74	<67	<70	<83	<69	NS	NS

NS...No Standard

ND...Not Detected

Shaded values represent concentration exceeding the SCO

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

Table 2
Soil Samples Inorganic Analytical Results
2166 Nostrand Ave, Brooklyn, NY

Sample Identification	SP-1	SP-1	SP-1	SP-2	SP-2	SP-3	SP-3	SP-3	SP-4	SP-4	SP-5	SP-5	SP-5	SP-6	SP-6	SP-6	NYSDEC TAGM #4046 Eastern USA Site Background	Unrestricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8)	Restricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8b) - Commercial
Sample Depth	0'-2'	2'-4'	16'-18'	0'-2'	2'-4'	0'-2'	2'-4'	16'-18'	0'-2'	2'-4'	0'-2'	2'-4'	16'-18'	0'-2'	2'-4'	16'-18'			
Sample Date	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011	4/29/2011			
Sample Matrix	Soil Metals	Soil Metals	Soil Metals	Soil Metals	Soil Metals	Soil Metals	Soil Metals	Soil Metals	Soil Metals	Soil Metals	Soil Metals	Soil Metals	Soil Metals	Soil Metals	Soil Metals	Soil Metals			
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg			
Aluminum	9790	19800	3240	10800	20800	9990	9010	3810	4420	6130	4240	6570	3790	5190	17100	4658	33,000	NS	NS
Antimony	<4.0	<4.2	<3.4	<3.8	<4.3	<3.6	<3.9	<3.5	<3.8	<3.3	<3.5	<3.6	<3.3	<3.5	<4.0	<3.8	NS	NS	NS
Arsenic	2.69	4.51	0.87	10.8	4.26	5.10	3.65	<0.70	1.13	2.74	0.48	1.61	<0.65	<0.69	7.93	<0.76	3 to 12	13	16
Barium	37.2	60.5	18.9	276	40.2	150	238	31.4	44.2	165	35.4	43.6	15.8	18.3	50.2	33.4	15 to 600	350	400
Beryllium	0.47	0.51	<0.27	0.42	0.61	0.52	0.48	0.29	0.42	0.36	0.35	0.39	0.26	0.33	0.41	0.41	0 to 1.75	7.2	590
Calcium	764	1670	662	5080	1190	2720	4610	631	1800	17300	1810	2030	306	653	2600	800	SB	NS	NS
Cadmium	<0.40	<0.42	<0.34	0.44	<0.43	0.58	0.67	<0.35	0.39	0.42	<0.35	<0.36	<0.33	<0.35	<0.40	<0.38	1 or SB	2.5	9.3
Chromium	16.2	19.7	10.2	16.0	19.4	18.1	19.7	8.91	11.6	12.1	10.8	16.2	6.61	12.7	17.4	17.3	NS	NS	NS
Cobalt	6.61	7.08	4.69	5.31	10.1	6.92	6.02	5.02	5.35	5.67	5.07	6.03	3.87	4.71	4.58	7.22	2.5 to 60	NS	NS
Copper	11.1	10.7	7.75	38.5	11.0	40.4	34.2	9.13	14.1	19.6	10.6	16.6	7.08	12.2	18.6	11.8	1 to 50	50	270
Iron	13900	18500	8720	18200	22700	20400	13900	8760	10800	10500	10400	11300	7120	9970	18400	11000	2,000 to 550,000	NS	NS
Lead	8.37	27.1	2.82	469	17.0	246	351	4.22	30.7	148	12.4	37.4	5.38	9.71	61.4	3.62	200 to 500 ppm	63	1,000
Magnesium	2440	2600	1360	4860	2870	2650	1920	1640	2130	2760	2010	2490	1310	2790	2000	2470	100 to 5,000	NS	NS
Manganese	202	99.5	168	249	225	436	317	189	288	230	215	233	204	188	274	286	50 to 50,000	1600	10,000
Mercury	<0.08	<1.08	<0.07	0.11	0.13	0.10	0.14	<0.07	<0.07	<0.08	<0.07	0.37	<0.08	0.14	<0.07	<0.08	0.001 to 0.2	0.18	2.8
Nickel	26.1	15.9	34.5	24.0	15.9	26.0	19.1	26.1	31.6	24.9	30.7	32.6	20.5	24.3	11.9	42.5	0.5 to 25	30	310
Potassium	770	971	455	732	912	789	646	561	879	740	557	746	458	530	752	666	8,500 to 43,000	NS	NS
Selenium	<1.6	<1.7	<1.4	2.2	<1.7	<1.4	<1.6	<1.4	<1.5	<1.3	<1.4	<1.4	<1.3	<1.4	<1.6	<1.5	0.1 to 3.9	3.9	1,500
Silver	<0.40	<0.42	<0.34	<0.38	<0.43	<0.36	<0.39	<0.35	0.38	<0.33	<0.35	<0.36	<0.33	<0.35	<0.40	<0.38	NS	2	1,500
Sodium	94.1	157	69.3	115	300	219	126	70.1	136	208	162	225	52.8	44.5	170	103	6,000 to 8,000	NS	NS
Thallium	<3.6	<3.8	<3.1	<3.4	<3.9	<3.2	<3.5	<3.1	<3.4	<3.0	<3.1	<3.2	<2.9	<3.1	<3.6	<3.4	NS	NS	NS
Chromium Trivalent	16.2	19.7	10.2	16.0	19.4	18.1	18.3	8.91	11.0	12.1	10.8	16.2	6.61	12.7	17.4	17.3	NS	30	1,500
Vanadium	21.7	32.3	9.56	24.1	31.1	28.6	27.5	12.7	20.5	18.6	14.2	18.6	8.38	<14.9	29.8	17.7	1 to 300	NS	500
Zinc	29.3	61.1	15.8	160	182	152	293	18.2	121	190	35.2	62.0	14.5	63.8	52.4	26.1	9 to 50	109	10,000
Chromium Hexavalent	<0.47	<0.52	<0.42	<0.44	<0.49	<0.44	1.42	<0.43	0.640	<0.46	<0.42	<0.43	<0.41	<0.42	<0.51	<0.41	10 or SB	1	400

ND…not detected

mg/kg…milligrams per kilogram

NS…no standard

Shaded values represent concentration exceeding the SCO

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